

## Sharing the Costs of Human Services Transportation

### DETAILS

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**TCRP REPORT 144**

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**Sharing the Costs of  
Human Services Transportation**

*Volume 1:  
The Transportation Services  
Cost Sharing Toolkit*

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WASHINGTON, D.C.

2011

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We would like to thank many people for their substantial contributions to this project. We are grateful for the assistance provided to us by the members of our project panel. We appreciate the time and insights given to us by the many governmental officials and human service and public transportation operators who worked with us in many phases of this project.



# FOREWORD

By Lawrence D. Goldstein

Staff Officer

Transportation Research Board

*TCRP Report 144* provides a comprehensive analysis of issues and effective solutions for identifying and sharing the cost of providing transportation services for access to community-based human services programs. It examines current practices and offers strategies for collecting necessary data, addressing administrative and policy-related issues, and establishing cost allocation procedures. Building on this inclusive process, the report develops a Cost Sharing Model that facilitates local coordination and service delivery.

The report is presented in several documents. First, a detailed description of the components of a comprehensive Cost Sharing Model is contained in Volume 1, *The Transportation Services Cost Sharing Toolkit*. This description leads the user through the process of setting up the necessary cost accounting system, identifying the data requirements and the measurement parameters, and describing procedures for applying the model. This volume concludes with instructions for using the actual Cost Sharing Model. The second product of the study, as reported in Volume 2, is the *Research Report* which summarizes all of the study components that contributed to formation of the Toolkit. It includes an extended evaluation of current experience and describes the regulatory environment that frames transportation service delivery requirements. The third component of the study is contained on the attached CD-ROM and includes the actual Cost Sharing Model along with instructions for setup and application. This is an Excel-based model that is easily usable by all levels of community transportation providers.

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The need for this study grew out of historic recognition of the difficulties associated with accurately measuring costs incurred in providing transportation services to improve mobility, employment opportunities, and access to community services for persons who are transportation-disadvantaged. Recognizing potential benefits of coordinated, cost-effective human service transportation programs is easy. Establishing procedures to accomplish this goal, however, is not. The approach used in this study addresses the specific steps necessary to establish a uniform cost accounting system: defining the required data, identifying sources of that data, and framing cost accounting procedures for meeting necessary accounting principles. The output of this effort is an analytical model that can be applied in numerous situations facilitating establishing cost sharing agreements among multiple service providers in a given community environment.

The primary audience for this study and the Toolkit is community transportation providers—those funded by The U.S. Department of Transportation or through other federal programs. This report provides instructions on how to record and calculate costs and then how to allocate these costs to other participating agencies based on the proportion of costs incurred by each partner. Another target audience is community transportation plan-

ners and administrators, including individuals in human service programs at local, state, and federal levels. These individuals also need to understand how to calculate accurately the true costs of transportation services and how to apply the principles of proportional cost allocation to share costs equitably among all recipients of transportation services.

This report provides a common, unified approach that can be used to calculate the full cost of providing transportation services by all transportation providers: public transit authorities, human service agencies, not-for-profit agencies, or private-for-profit providers. Given the variety of agencies involved in delivering community transportation services, addressing multiple perspectives should add greatly to the validity, applicability, and implementability of the results presented by this study. When a participating agency asks, "How much should I pay?" this report provides the methods necessary to answer that question in a consistent and equitable manner.



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Note: Many of the photographs, figures, and tables in this report have been converted from color to grayscale for printing. The electronic version of the report (posted on the Web at [www.trb.org](http://www.trb.org)) retains the color versions.

# How to Use This Toolkit

Many different federal, state, and local programs fund community transportation services. These programs have specific missions, legislative origins, administrative departments, and target populations. They also tend to have unique regulations and reporting requirements. While these differences are understandable, their sheer number can create significant complexities when communities wish to coordinate the transportation services of the various programs.

*TCRP Report 144*, Volume 1, “The Transportation Services Cost Sharing Toolkit,” provides a methodology for recording, reporting, and sharing transportation costs and services. This methodology is useful in understanding how transportation costs are incurred, and that understanding can lead to better management decisions about the operations of transportation services. A better understanding of transportation costs and services also creates a framework for community-wide discussions of how to achieve the most cost-effective services for the broadest possible range of residents and visitors.

To meet the goal of cost effectiveness, the costs of transportation services need to be equitably allocated—shared—among stakeholders that typically include riders, transportation providers and purchasers, local governments, and programs sponsored by state and federal programs. *TCRP Report 144* is not intended as a replacement for the regulations and requirements of any agency, but rather as a foundation to begin the process of establishing common measures and reports for the purpose of enhancing the benefits of coordinating and sharing the resources of various transportation programs.

There are four components of *TCRP Report 144: Sharing the Costs of Human Services Transportation*:

- Volume 1, “The Transportation Services Cost Sharing Toolkit,” which provides a methodology for recording, reporting, and sharing transportation costs and services.
- Volume 2, “Research Report,” which provides basic information about transportation services and their costs, as well as accounting fundamentals that may be useful for transportation professionals.
- *CRP-CD-86*, “Cost Sharing Model for TCRP Report 144,” which is a series of Excel spreadsheets that can help transportation providers and purchasers record their costs and determine how to share those costs.
- “Instructions for the Human Services Transportation Cost Sharing Model,” also included in *CRP-CD-86*, which provide step-by-step instructions for using the spreadsheets.

Volume 1 of *TCRP Report 144*, the Toolkit, is structured to provide both basic and detailed information on collecting and reporting data on transportation services and their costs, whether such services are provided by transit agencies or human services transportation providers and whether the transportation providers are large or small operations. This report then describes how to allocate and share the costs among the stakeholders.

The Cost Sharing Model described in this Toolkit contains the following sequence of inputs and calculations:

1. The user of the model enters previous data on
  - Total service outputs, miles, hours, and trips (based on actual figures for the previous year or projected figures for the coming year); and
  - Line item expenses (for the previous year or the coming year as projected).
2. The model assigns each expense to variable and fixed cost categories.
3. The user enters the anticipated number of miles, hours, and trips for the service alternative being considered.
4. The model calculates the costs of those services.
5. The user chooses the basis for a cost recovery contract (a price per mile, per hour, or per trip).
6. The model calculates a price per mile, per hour, or per trip, whichever is specified by the user.
7. The user then can repeat these calculations for each agency purchasing transportation services to establish a unit rate for each purchasing agency.

The chapters of this Toolkit provide the basic understanding that might be beneficial to all persons involved in human services transportation. The Glossary contained in Volume 1 of *TCRP Report 144* provides standardized definitions of key transportation and accounting concepts, as well as terminology from federal legislation and programs, while the appendices provide detailed information on specific subjects that may or may not be relevant to all programs in all communities. All readers are encouraged to pay close attention to the materials in the chapters and then select information from the appendices that may be relevant to their specific needs. The Toolkit chapters provide information on the following subjects:

- The four different kinds of human services transportation.
- Basic data needed for managing and assessing coordinated transportation operations.
- Methods for collecting data on transportation services and costs.
- Distinctions between the costs and prices of transportation services.
- The implications of adopting these recommendations.
- Step-by-step instructions for establishing cost-sharing agreements for transportation costs using spreadsheets.

In addition, the appendices provide the following information:

- Regulations affecting federally funded transportation services (Appendix A).
- The vehicle sharing policy statement of the Federal Interagency Coordinating Council on Access and Mobility (Appendix B).
- Examples of localities, states, and federal agencies that have already adopted many of the data recording and reporting recommendations of this report (Appendix C).
- Examples of contracts for transportation services containing data collection and reporting requirements (Appendix D).
- Explanation of depreciation in capital expenses (Appendix E).

Transportation providers—all organizations that provide community transportation services to consumers—should be collecting data on total costs, services delivered, and services consumed, and these data should be reported to funders and administrators of all transportation programs. With these data, it is possible to create performance measures that are most useful to local program managers, including resource efficiency measures, service effectiveness measures, and cost-effectiveness measures. These are the most relevant management measures for assessing current program status and highlighting possible needs for change in community transportation services. With these data, the true costs of transportation services actually received by various stakeholders can be precisely calculated and then shared by all beneficiaries of the transportation services.

# The Benefits of Better Transportation Cost and Service Data

## Program Management Improves

Local program managers need detailed and accurate data to be better managers. High-quality data allows managers to more completely understand their own program's operations and to provide more cost-effective services with limited resources. Detailed cost and service information can do the following:

- Serve as a diagnostic tool that identifies specific areas of problems with performance, thus aiding in day-to-day management decision-making.
- Assist in long-term planning and decision-making, such as requests for future funding from state legislatures or local governments.
- Provide information to document transportation expenditures and meet other regulatory requirements of funding agencies and other supervisory bodies.

In short, detailed information **helps managers do a better job**. There is a strong need to **work smarter** in human service programs, especially in light of current serious financial constraints in many states and communities. Techniques such as Management by Objectives, Continuous Quality Improvement, Total Quality Management, and others are tools that rely on intensive data collection efforts to assess and improve program performance. **Accurate cost reporting leads to better management of scarce resources.**

Thus, fundamental reasons for collecting, analyzing, and reporting program data are to

- Assess your current performance (and to find ways to improve).
- Demonstrate to others that you're doing a good job (e.g., to assure funding sources that their funds have been spent appropriately).

Accountability is a prime function of many data collection systems. However, to be truly useful to staff members collecting the information, data collection for transportation services needs to be focused on measurements of performance that **provide information for operational decisions by program managers**. Performance measures provide a means by which management may periodically assess performance, measure progress toward the achievement of goals and objectives, and consider actions that may change the course of future events. Such actions may result in the modification of policies, procedures, and processes. Other actions might lead to operational changes including service enhancement or service cessation. Performance measures are the key to answering the question, "**What do I do now?**"—particularly when it appears that a problem is at hand. Indicators of performance can suggest corrective actions such as increases or decreases in services, revenues, and staff, or modifications in procedures or other activities (e.g., marketing or public relations).

The uses of performance measures include the following:

- Assess performance.
- Measure progress toward the achievement of goals and objectives.
- Consider actions which may change the course of future events.
- Modify policies, procedures, and processes.
- Make operational changes, including those leading to
  - Service expansion, reduction, or cessation;
  - Increases or decreases in services, revenues, and staff; and
  - Changes or modifications to transportation modes, service delivery procedures, or other activities (such as marketing or public relations).

### **Community-Wide Cost Effectiveness Improves**

We live in a time of increasing service needs and increasingly restricted funding. In many cases, human service programs have been developed individually and have operated separately from each other for many years. Although some communities have highly successful, highly cost-effective coordinated transportation systems, many communities still have instances of duplication and overlapping services, service gaps, and a lack of cost effectiveness in the ways that many of these programs are being delivered. **This is a costly situation at a time when resources are scarce** for individuals and at all levels of government. Coordination among a variety of agencies offers an opportunity to achieve more and better outcomes for the same levels of investment.

A community-wide perspective would address questions such as the following:

- Are all resources being fully employed at all times?
- Is it necessary to have transportation directors for a large number of agencies?
- Do multiple agencies need dispatchers, computers, maintenance facilities, training programs, accounting programs and staff, or even vehicles?
- Is it possible to achieve the same or even greater levels of efficiency and effectiveness if some agencies that have been providing their own transportation services purchase those services from others instead?

Through coordination, it is typically possible to realize cost savings on operating, administrative, and capital costs, particularly when all these costs are analyzed at a community-wide level.

A key challenge for coordination programs is creating explicit agreements that detail tasks and responsibilities, including that of paying for services. **Accurate cost reporting provides the foundation necessary to ensure an equitable and accurate distribution of costs among all participating agencies.** Having and using the right kinds of data can assure all stakeholders that the question “Will everyone be paying their fair share?” is being closely examined.

### **Funding Requests Are Viewed More Favorably**

A key technique for obtaining additional funding is to demonstrate that the funds previously received were well spent. Accurate cost and service reporting is a fundamental component of such demonstrated competence. Good reporting can conclusively show how much service was delivered to whom and at what cost. Data can be analyzed to demonstrate that the services were provided in a cost-effective manner; if real improvements have been made, the figures should indicate that as well. Performance measures also can enable comparisons of safety and quality of service when indicators such as on-time performance, accidents, and incidents are considered. Eligibility for funding often is the main benefit of documenting coordination efforts. For exam-

ple, in Lane County, Oregon, the fact that the program is coordinated and can document what various components of service cost helps them obtain grant funds (see Chapter 6 in Volume 2, “Research Report” for more information).

## Summary

Cost accounting is a powerful tool. One of its key functions is to illuminate possibilities for more cost-effective program operations; this can be achieved by examining the costs of alternative methods of producing services (or the costs of alternative providers of those services, applicable in communities that actually have choices of service providers). Programs that are providing or funding transportation services to clients or customers clearly need to understand service alternatives and their detailed cost implications.

**This Toolkit provides a framework for uniform service and cost reports regarding transportation services.** All human service organizations, but especially those funded by the U.S. Departments of Health and Human Services, Education, and Labor—along with the recipients of U.S. Department of Transportation funding—constitute the primary audiences for this uniform transportation service cost reporting framework.

Why should agencies make changes in the way they approach data collection and reporting? Why go to the cost and expense of doing things differently in the future?

- To improve internal program management.
- To increase the cost effectiveness of services throughout the community.
- To support requests for future funding.



## CHAPTER 3

# Factors That Affect Transportation Cost and Service Reports

### **Many Agencies Need Better Cost and Service Accounting**

In these days of rising fuel prices and limited budgets, transportation providers are being asked more frequently to work cooperatively with other agencies to ensure that services are delivered in the most cost-effective manner. This situation is particularly true in the area of human services transportation, where public transportation providers and human service agencies are being asked to coordinate their efforts to ensure maximum productivity at minimum cost. Although the objectives for coordinated services may differ somewhat from community to community, the fundamental purposes are usually to

- Avoid duplicative and overlapping services.
- Reduce service gaps.
- Increase services.
- Ensure cost effectiveness and cost savings.
- Provide safe and reliable transportation services.

The administrative and financial complexities involved in coordinating transportation are significant. Agencies with specific client populations and funding sources have their own operating procedures, even their own vocabularies. If these agencies are going to work together, how do they know that they are being treated fairly when it comes to paying for the services that they share?

Many transportation providers do have at least a somewhat accurate sense of what it costs them to provide services, but that information is seldom reported in detail. Reports of services provided and their costs are needed in sufficient detail to allow for comparisons, analysis, accountability, and the determination of program effects. Improved cost accounting methods are needed

1. To ensure that all operators are recording all services and costs on an accurate and consistent basis.
2. To ensure that complete information is reported on transportation services and costs and is available to a wide range of decision-makers.
3. To develop a uniform service and cost-reporting methodology that can be used to track and analyze transportation services and costs.
4. To share the costs of transportation services among the users and other beneficiaries of those services, when appropriate.

When these objectives are achieved, transportation providers, administrators, and funders will have the information they need to provide the most transportation services they can in the most cost-effective manner.

## Reporting Problems Affect Transportation Coordination Efforts

Today, there is great variety among client transportation services delivered by human service programs, with significant differences in service delivery methods, reporting, and eligibility requirements. **Human service programs that provide transportation services have uniquely different missions;** one agency may provide employment services while another may have the delivery of health care services as their primary mission, and the transportation services needed for the success of these programs are not the primary concerns of program administrators. These complexities are compounded by the fact that no single law or statute created federal human services transportation programs. Unlike federal transit programs that are all codified under a single piece of authorizing legislation, there is no legislative or statutory uniformity on how human services transportation services are to be reported or delivered. Each program has developed its own idiosyncratic regulations, eligibility requirements, and operating procedures. Because they have developed autonomously, some federal programs also may fund the same types of services as other federal programs.

Coordinating these currently disparate transportation services can be highly beneficial to local communities, but the lack of consistent methods for reporting program outputs and costs stands in the way of achieving this coordination. For coordination efforts to succeed, **potential coordination partners will need to analyze their services and costs using comparable data.** This Toolkit provides the tools needed to generate such data for assistance in implementing coordinated transportation efforts.

Like other projects before it (see *TCRP Report 144*, Volume 2, “Research Report”), this project has come to these conclusions:

- **The major federal programs have very different data collection and reporting requirements for transportation services, and many state administering agencies impose their own accounting and reporting practices on local service providers.**
- **Some local service administrators develop their own unique internal accounting and data collection processes—often more complex than the federal or state requirements.**
- **The lack of any uniform standards in the many different human service and transportation programs means that these individualistic approaches to data collection and reporting often result in incomplete statements of program costs and services.**

Currently, the kinds of problems with human services transportation cost recording and reporting include the following:

- Transportation costs often are combined into generalized accounting categories that do not allow transportation costs to be reported as a separate and distinct cost category.
- Partially as a result of the practice of combining transportation costs into more general accounting categories, overall transportation expenses tend to be significantly underreported.
- Payments for transportation services may or may not have any direct relationship to the costs of providing services.
- The costs of administering transportation services may not be reported accurately: transportation-related expenses such as administrative salaries, office rent, accounting services, and other administrative overhead items have been both understated and overstated in various communities.
- Staff travel for the purpose of transporting clients often is not reported as a transportation expense but is reported as an administrative or case-management cost.
- Identifying the specific federal or state program dollars used for funding transportation services may be difficult because of the blending of state and federal funding sources at the local level.



Clearly, some (perhaps most) agencies will have to make a number of changes in the way they approach data collection and reporting if they are going to work together. But why should these agencies change? Why go to the cost and expense of doing things differently in the future? The answers were discussed in Chapter 2:

1. To improve internal program management.
2. To increase the cost effectiveness of services throughout the community.
3. To support requests for future funding.

## **Requirements for Uniform Service Cost Reporting**

Ideally, the following elements should be incorporated into any framework for a uniform transportation services cost reporting structure:

- The principles of cost allowability articulated in the Office of Management and Budget (OMB) Circulars A-87 and A-122.
- The procedures for the allocation of indirect costs articulated in OMB Circulars A-87 and A-122. (For OMB Circular A-87, see [http://www.whitehouse.gov/omb/circulars\\_a087\\_2004](http://www.whitehouse.gov/omb/circulars_a087_2004). For OMB Circular A-122, see [http://www.whitehouse.gov/omb/circulars\\_a122\\_2004](http://www.whitehouse.gov/omb/circulars_a122_2004).)
- A cost reporting framework that does not prescribe a specific accounting approach. Rather, the framework should emulate the approach used in the public transportation industry for cost reporting (the U.S. Department of Transportation's [DOT's] National Transit Database Uniform System of Accounts). Thus, each agency may maintain its own accounts and records necessary to meet its own internal information requirements and grant reporting standards, as applicable. Some translation of these internal accounts may be necessary to meet the requirements of the framework.
- Cost reporting that is based on the accrual method of accounting.
- Capital costs that are segregated and treated separately from program operating costs.
- Services and costs that are reported separately for each of the different modes of transportation services: community transportation, case management transportation, specific individual transportation, and managed care transportation.
- A functional approach to cost accounting.
- Uniform definitions of common service units, such as those provided in this report's Glossary (see Volume 1 of *TCRP Report 144*).

# Data Needed for Measures of Transportation System Performance

It is critical that data on the transportation services provided and the costs of those services is collected in order to be able to

- Assess performance.
- Measure progress toward the achievement of goals and objectives.
- Consider actions that may change the course of future events.
- Modify policies, procedures, and processes.
- Evaluate program outcomes.
- Make decisions regarding the potential expansion, reduction, or cessation of services.
- Share the costs of services among the beneficiaries of those services.

Data on transportation services often are available in common and somewhat similar (although perhaps not identical) formats; comprehensive cost data are not as readily available and often are not available in consistent formats.

## Performance Assessments Need Specific Data

It is important that data (i.e., statistics) are presented as meaningful performance measures to facilitate key functions like measuring progress toward achieving goals and objectives; modifying policies, procedures, and processes; and making changes to current operations. To construct useful performance measures, the following kinds of program data and statistics should be collected and reported:

- **Resource inputs:** Resources expended in providing service, including labor, capital, materials, services, and other measurable items.
- **Service outputs:** Nonfinancial operating results of resource expenditures. They may be expressed as service quantity outputs such as numbers of trips provided or hours of service provided, or as qualitative service statistics, such as user satisfaction or numbers of complaints.
- **Services consumed:** The actual results of services purchased. Such information can be expressed in either financial or nonfinancial terms. For example, the number of passenger trips consumed is nonfinancial data; passenger revenue (through donations or fares) is financial.

## Basic Measures Can Express What's Needed

With such data in hand, it is possible to express **three basic kinds of performance measures:**

- **Resource efficiency measures**, in which resource inputs are expressed in relation to service outputs (e.g., labor cost per service hour).

- **Service effectiveness measures**, in which public consumption statistics are expressed in relation to service outputs (e.g., trips per hour).
- **Cost-effectiveness measures**, in which resource inputs are expressed in relation to public consumption statistics (e.g., costs per trip taken).

## Detailed Performance Assessments Are Possible

Using these measures, program operators can monitor their performance. They can do this by measuring changes in their own performance over time or by comparing their statistics to those of other operators or to national statistics. Measuring changes in their own performance over time often is preferable because comparisons with other systems may be difficult unless one can be assured that the same kinds of data collection procedures are being used—and this comparability of measurement from community to community is precisely the objective of this project.

By using detailed measures of performance, it is possible to obtain more detailed insights into a program's operations, both its strengths and weaknesses. Program managers who have a detailed understanding of their programs' strengths and weaknesses will be able to recognize significant opportunities for improvements. For a transportation service, some of these more detailed performance assessments would include the following:

- **Changes over time:** Over several years, time, total passengers, hours, costs, and revenues should be measured by specific days, months, and years, and the percent changes from the previous time periods should be highlighted.
- **Performance within components:** For example, if a transportation service has fixed routes, the most and least cost-effective routes should be examined, using the kinds of statistics mentioned previously and comparing changes over time. If there are different categories of fares, each fare category should be tracked (and perhaps broken down by route, time of year, and other factors).
- **Performance within activities or functional cost centers:** For example, maintenance costs per hour and per mile should be examined to determine if there are problems with the level of maintenance being performed (or perhaps there is a problem with the ways in which certain operators are driving).
- **Performance for specific components:** Some operations track certain kinds of information for each particular vehicle in use, including the miles per gallon for each vehicle, total operating costs for each vehicle, repair and maintenance costs, and the current depreciated value of each vehicle.

## Simple Data Provide Rich Measures

Table 4-1 identifies some simple measures for these data. Currently observed issues and problems with the collection and reporting of these simple measures are listed in this table.

If the information shown in Table 4-1 were available, high-quality cost reporting procedures could be used: first to better manage community transportation programs and second to identify the appropriate amounts that all partners in a coordinated community transportation system should pay for their shares of the services. The information needed includes total dollar costs (i.e., all funds expended in all categories of expenses) to provide the services described in the following four variables:

- **Vehicle Miles**—the miles a vehicle is scheduled to or actually travels from its point of departure to go into service to when it pulls in from service.

**Table 4-1. Common human services transportation data issues.**

<i>Types of Data</i>	<i>Common Measures</i>	<i>Data Collection Issues</i>	<i>Reporting Issues</i>
<b>Cost of Services</b>	Total dollar costs	Many transportation providers are not accounting for all costs required to provide transportation.	Reports typically focus on the price of services rather than on their costs.
<b>Service Outputs</b>	Total vehicle miles Total vehicle hours	Total vehicle miles of service are available more often than total vehicle hours of service; other measures of service outputs seldom are recorded or reported.	Vehicle mile and hour data are typically available from transit but not human service agencies.
<b>Services Consumed</b>	Total number of trips Total unduplicated number of persons receiving services	The basic measure of services consumed is one-way trips; this information is not as commonly available as would be expected. Another key measure is the total unduplicated number of persons receiving services, which is more commonly recorded for human service programs than for transportation programs.	Trip data are generally available from transit but not human service agencies; numbers of persons served are generally available from demand-responsive but not fixed-route operations.

- **Vehicle Hours**—the hours a vehicle is scheduled to or actually travels from its point of departure to go into service to when it pulls in from service.
- **Passenger Trips (Unlinked)**—the number of passengers who board a transportation vehicle or other conveyance used to provide client transportation. “Unlinked” means that passengers are counted each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination.
- **Unduplicated Persons Served**—the number of individuals who receive transportation services.

Note that while reasonable cost sharing procedures might be developed without information on hours of service, service hour information is indeed necessary to ensure the most accurate and most equitable distribution of costs.

Standardizing terminology and calculations is critical to providing comparable data for management and accountability. See the Glossary for standardized transportation service and cost terminology.

## More Detailed Data Answer More Questions

The simple list of required data items in Table 4-1 should form the basis for all transportation services recording and reporting. The expanded list of data items in Table 4-2 can be used, particularly at the local level, to develop more powerful performance measures that can directly improve transportation services.

Table 4-2 identifies more detailed data elements that can enhance the understanding of the three key types of data: costs, services provided, and services consumed. These additional data can help address these kinds of questions:

- **Which agency partners could best perform which functions in a coordinated transportation program?** Split costs into operating, administrative, or capital categories and then conduct comparative analyses to determine which agencies offer the most cost-effective functions

**Table 4-2. Additional transportation program data.**

<i>Types of Data</i>	<i>Common Measures</i>	<i>More Detailed Measures</i>	<i>Additional Measures</i>
<b>Cost of Services</b>	Total dollar costs	Operating costs Administrative costs Capital costs	Value of in-kind or donated services or property
<b>Service Outputs</b>	Total vehicle miles Total vehicle hours	Services provided by paid staff versus volunteers, in large versus small vehicles, in group trips versus individual trips	Trip denials Delays or complaints Road calls Accidents
<b>Services Consumed</b>	Total number of trips Total unduplicated number of persons receiving services	Trips by type, such as ambulatory or non-ambulatory Passengers by type, such as seniors or persons with disabilities	Passenger revenues Passenger miles

for these various tasks. Knowing which agencies could offer the greatest values in donated services or materials could help in the selection process.

- **Why do some trips cost more than others?** Some trips require more time or may cover greater distances. Adding information about types of passengers (e.g., for ambulatory or non-ambulatory riders) could help explain differences in actual or anticipated trip costs. Some trips have greater administrative burdens such as special billing requirements, prior authorizations, and client eligibility.
- **Are we providing high-quality services?** Adding service output measures such as trip denials and complaints would provide an assessment of service quality that would ensure that comparisons were being made among like services. Customer satisfaction surveys can illuminate problems such as excessive waiting times to book trips or similar problems.
- **Are services being provided to those persons who need them the most?** Adding information about types of riders (by age, disability status, or other characteristics) helps programs understand if they are targeting their services to their intended target groups, who generally include persons with the greatest travel needs.
- **Are the riders charged appropriate fares for their rides?** Information on revenues from riders is useful for budgeting purposes and for calculating subsidies if subsidies are needed, but many human services transportation programs do not collect fares from their riders. Some transportation systems serving the general public also do not collect fares from the riders; instead, they use other taxes or local fees to support the system to avoid administrative costs of handling cash.

### **Current Efforts Often Are Incomplete**

Table 4-3 shows current data collection procedures for some of the major federal programs serving the general public and persons with special travel needs. Specific data availability, assessed at the state or federal level, is expressed in the following range:

- Highly detailed.
- Available.
- Often available.
- Sometimes available.
- Seldom available.
- Not available.

**Table 4-3. Typical current transportation data availability.**

<i>Data</i>	<i>Agency Type</i>			
	<i>Transportation</i>	<i>Aging</i>	<i>Medicaid</i>	<i>Employment</i>
<b>Costs</b>	Highly detailed	Aggregate totals	Aggregate totals	Aggregate totals
<b>Vehicle Miles</b>	Available	Sometimes available	Seldom available	Seldom available
<b>Vehicle Hours</b>	Often available	Not often available	Not available	Not available
<b>Number of Trips</b>	Available	Available	Seldom available	Sometimes available
<b>Number of Persons Served</b>	Sometimes available	Often available	Often available	Often available
<b>Numbers of Persons by Type</b>	Sometimes available	Often highly detailed	Seldom available	Seldom available

Note that, since many of these programs are state-administered, significant variations may occur in the information generally available from state to state. It also is important to note that, while limitations may exist in the availability of some of the data in Table 4-3 at the state and federal levels, much of this information often is available at the local level.

At the present time, it appears that only members of the aging network regularly collect all of the types of data needed, and even they may need more detailed data collection in some areas. A number of human service agencies collect only a small fraction of the information needed to ensure the cost effectiveness of their own programs and to assure stakeholders in coordinated transportation compacts that costs are being shared equitably.

There is a best practice argument for adopting the best reporting procedures commonly in use. Even if service providers are not currently required to account for costs in a certain way, they would be more consistent with best practices in the field if they did so.

## Summary

As seen previously, some improvements in data recording and reporting could be made by nearly all recipients of federal funds used to provide human services transportation. U.S. Department of Transportation (DOT)-funded agencies could record and report more information on passengers while other agencies could record and report more information on service outputs and services consumed. The good news is that nearly all of the currently available paratransit software programs collect all these data, so community transportation systems that use software for scheduling, dispatching, and billing purposes will have readily available, automated data that could be converted to the more standardized formats recommended by this project. These data then would be ready to generate the information needed for management and reporting purposes. Additional data collection procedures will be required for fixed-route transit systems where few data on the numbers and types of persons traveling are available.

Note that the current paratransit software programs typically contain personal data at a much greater level of detail than is needed for cost accounting purposes. Aggregate summary data are sufficient; detailed personal information is not required. Therefore, concerns about personal privacy could be easily addressed in the proposed reporting procedures.



## CHAPTER 5

# Types of Transportation Services to Recognize

### **Four Categories Describe Transportation Services**

To be able to compare the costs of various transportation services, different kinds of transportation services must be recognized. Human service transportation now is delivered in four distinct ways, which can be called “types” or “modes” of transportation services:

- Community transportation.
- Case management transportation.
- Travel services for individuals.
- Managed care transportation.

Examples of the services that would be included under each type or mode of human services transportation are described in this chapter.

### **Community Transportation**

This category includes the following functions and their related costs:

- Trips provided for members of the general public or clients of human service agencies who could travel on a group basis (even if they are the only traveler on the vehicle at the moment).
- Trips provided by paid staff and volunteers who have been trained to provide transportation services.
- Efforts associated with eligibility determination, scheduling, arranging, or billing for transportation.
- The purchase of specific individual transportation services from existing public or private transportation providers via contract or other arrangements.
- The purchase of bus tokens, passes, or tickets for distribution to riders.
- Personal care by attendants or interpreters who accompany eligible riders while traveling in community transportation mode.
- Payments made to riders to help defray the costs of their travel using community transportation services.
- Other activities and expenses if authorized and applicable. For example, Medicaid sometimes reimburses expenses for long-distance intercity bus and commercial air fares and lodging and subsistence expenses when these expenses are required to obtain out-of-town medical care. Expenses like these are not common for other programs. For the purposes of this project, air fares and overnight lodging and subsistence expenses are not included in the long-distance travel expenses commonly considered as community transportation expenses.

### **Case Management Transportation**

This category includes transportation in which agency staff transport individuals and provide other services during the time at which the individual or group is being transported. Trips are

typically provided in agency-owned vehicles or staff-owned vehicles. This category is distinguished from directly operated community transportation, in which the staff member providing case management transportation may perform specifically planned case management or therapeutic functions while providing the transportation services. Generally the person providing the transportation would be a social worker or case worker whose primary role is not that of providing client transportation but of providing case management or therapeutic functions. This type of transportation includes the following:

- Transportation of clients in staff-owned vehicles.
- Transportation of clients in agency-owned vehicles that are not specifically dedicated to community transportation.
- Lodging, meals, and parking expenses associated with case management transportation, as well as other expenses if authorized and applicable.

Note that if case management services are not being performed during the trip, it may be more cost effective for the human services agency to have the client transported by a community transportation service and to use the case manager's or social worker's time for services that require their professional training.

### **Travel Services for Individuals**

This category includes the following:

- Transportation services designed to be offered to one individual at a time (although careful analysis might show that community transportation could be a more cost-effective option in a number of cases).
- Any direct payment to an individual client to subsidize his or her use of a private automobile to facilitate program-related purposes, including
  - Gasoline subsidies paid directly to the client, family member, friend, or volunteer;
  - Car maintenance or repair expenses;
  - Cost of vehicle modifications to incorporate adaptive technologies;
  - Purchase of vehicle liability insurance on behalf of clients; and
  - Financial stipends to support an individual's ongoing transportation needs (e.g., payments for employment and employment-related transportation for a specific amount of time).
- Mileage reimbursements or other fixed-rate reimbursements paid directly to clients.
- Mileage reimbursements paid to family, friends, or volunteers for providing transportation to eligible clients.
- Car rental expenses.
- Costs associated with personal care attendants or interpreters who accompany the eligible client while traveling in specific individual transportation mode.
- Lodging, meals, and parking expenses associated with specific individual transportation.
- Other expenses if authorized and applicable.

### **Managed Care Transportation**

This category includes transportation provided as part of an overall client health care plan (either a short-term or long-term care plan), under which the provider agency is obligated to provide client transportation. Transportation expenses often are part of a fixed payment or "capitated payment" made to the service provider by the funding source. Examples of this type of transportation include the following:

- Direct operation of provider-owned vehicles to provide transportation services to individual clients.
- Purchase of transportation from public or private transportation service providers.



- Lodging, meals, and parking expenses associated with managed care transportation.
- Other expenses if authorized and applicable.

## The Four Service Types Explain Typical Service Variations

The four-part classification of service types reflects several key considerations:

1. **Community transportation should be segregated from other types of human service agency transportation (i.e., individual, staff, and managed care).** Community transportation services (provided by paid staff or volunteers) focus on groups of persons. They are those services that are most readily coordinated with programs funded by various federal agencies, including the U.S. Departments of Transportation and Health and Human Services. In addition, the identification of expenditures and units of service provided in this type of service can assist communities in preparing the locally developed coordination plans now required by a number of U.S. Department of Transportation's Federal Transit Administration (FTA) programs.
2. **This classification fits existing program formats and protocols used in client transportation and would not require restructuring of state or local reporting procedures to implement it.**
3. **This four-part classification permits required service and cost data to be reported by service type, which is beneficial because one would expect real differences in measures such as cost per trip for each of the four types or modes of transportation services.**

Having made these distinctions regarding types of transportation services, it is important to note that **the community transportation mode typically provides the majority of human service trips.** While the community transportation mode often provides trips at a lower cost per trip than the other types of transportation, the travel services for the individual mode may be more cost effective under certain special circumstances (e.g., in very low density communities, for trips involving multiple destinations, or other instances). In a number of instances, transportation provided by case managers or for specific individuals might be eligible for shifting to another mode unless significant case management activities are occurring during the trip itself or other special considerations are paramount. While managed care providers should be able to purchase transportation for their clients as easily as human service agencies can purchase such services, managed care providers have not embraced coordinated transportation services in some communities. Managed care transportation probably should be considered as one of the later efforts in the coordination process.

### RECOMMENDATIONS

**Focus first on the process of integrating data collection and reporting procedures for the community transportation mode.**

**Next proceed to the case management mode.**

**Include the other transportation modes into integrated data collection and reporting procedures after you succeed at integrating the community transportation and case management transportation services into unified data collection and reporting practice.**

Integrating these procedures is a process that can take a number of years. Once efforts for community transportation operations are well under way, attention then can turn to the other types of transportation services, including specific individual transportation and managed care transportation.

# Transportation Accounting Fundamentals

A comprehensive cost accounting system for community transportation services should do the following:

- Describe in detail **all costs that have been incurred** and **all services rendered**.
- Describe in detail how the funds of all participating agencies have been spent. (This description should be designed to satisfy the audit and regulatory requirements of each participating agency.)
- Provide the opportunity to distribute the costs of transportation services among those customers (agencies or individuals) receiving services based on the actual costs of the services each has received. It is important to recognize that some agencies have arbitrarily limited their reimbursement rates to amounts that are less than their share of the costs of the services that they are receiving. Transportation providers should determine for themselves if working with such agencies constitutes good business practices. Even if rules prevent full cost recovery in some cases, it is still useful to determine the actual cost for each participating agency for purposes of planning and fundraising.

To achieve these objectives, the following steps are necessary:

1. Agree on an overall approach and accounting structure.
2. Create standardized and commonly agreed upon definitions and data collection procedures for costs and services rendered.
3. Apply a standardized chart of accounts to record and analyze financial data.
4. Develop acceptable procedures for recording, reporting, and analyzing non-financial data.

Although the merits of all of these components seem obvious, reviews of actual practices showed little consistency or standardization among different transportation providers. This report describes how to achieve higher levels of consistency and standardization.

## Overall Approach and Accounting Structure

### Full Cost Accounting

The accounting approach recommended and used by successful business operations and transportation systems is called *full cost accounting*. Using full cost accounting means that **all costs of providing transportation services are considered, and that all the different kinds of expenses incurred are recorded**. The total costs include any commitment of or use of time, money, physical resources, and other assets of the system used in the accomplishment of program objectives. In full cost accounting, **a value is given to these commitments whether or not they result in immediate out-of-pocket expenditures**. The value of the time provided by volunteer drivers is

an example of a value that should be recorded even though no immediate out-of-pocket expenditure is incurred. Transportation providers commonly count the value of volunteer labor as “in-kind revenue” as part of their local matching revenues. Of course, these recorded “revenues” need to be offset in the accounting system by equivalent labor costs.

The primary reason for using full cost accounting is that **all costs must be paid sooner or later by someone**. Some transportation providers have experienced difficulty with this principle because they only think about out-of-pocket expenses (e.g., wages, gas, and maintenance) and not other costs (e.g., administration, rent, and depreciation). Some providers may not include infrequent expenses, including purchases of capital equipment, like vehicles. This oversight often results in failing to bill agencies for enough money to cover all costs of the transportation services they are purchasing (including administrative time, facility leasing costs, and vehicle replacement costs); this can cause a severe financial shortfall for the provider. The same kind of situation occurs when an agency wishing to purchase transportation services offers payments that are limited or capped at rates below the fully allocated costs of service.

### Cost Allocation

Cost allocation is a financial planning technique for determining the costs of services provided to those parties receiving or otherwise benefiting from those services. The cost allocation process does not necessarily set the prices for services, but allocating costs is the first step in developing a system of charges (i.e., billing rates and procedures incorporated in fees-for-service contracts) based on the types and amounts of services provided. The cost allocation method recommended in this Toolkit is often termed **proportionate cost allocation**, which means that costs are allocated among parties receiving services in the same proportions as the costs of services each recipient received. (Alternative methods of cost allocation are used in some industries such as electrical utilities, telecommunications, and air traffic control, but these methods are substantially more difficult to apply and understand, so they are not recommended for coordinated community transportation services.)

### Standardized Definitions for Services and Costs

Standardized definitions for services were provided earlier in this chapter. Standardized definitions for costs are discussed in the sections that follow. Detailed definitions for services and costs are among the items included in the Glossary of Technical Terms. Although definitions may vary somewhat from state to state or community to community, using common definitions within individual states and particularly within individual communities is highly recommended.

### A Common Chart of Accounts

A fundamental component of cost analysis for human services transportation providers is the development of a financial **chart of accounts** that can **track all kinds of expenses** related to providing community transportation services. A key element of the chart of accounts is the establishment of **expenditure classes**. There seems to be general agreement in the literature that, for human service community transportation providers, fundamental cost categories are capital, operating, and administrative costs, and that detailed expense classes should include the following:

- Labor.
- Fringe benefits.
- Purchased transportation.
- Contracted services.

- Materials and supplies.
- General administrative expenses (including indirect organizational costs, if applicable).
- Utilities.
- Casualty and liability costs.
- Taxes.
- Miscellaneous expenses.
- Leases and rentals.
- Capital expenses.
- Depreciation and amortization.

**Each expense category should have detailed subcategories.** For example, the category “labor” could have separate entries for drivers, administrators, dispatchers, and mechanics. Some transportation operators have separate expense categories for salaries paying for training or overtime. Other expense categories that may be useful in certain conditions include Indirect Expenses (for multi-service agencies providing transportation and other services), Expense Transfers, and Interest Expense. (The major components for a uniform chart of accounts are identical to those in components listed in FTA’s National Transit Database category titled “Expenditures.”)

Used together, the 13 categories of expenses fully describe all costs of transportation services. It is important to recognize that not all federal funding programs recognize all of these categories as allowable expenses under their specific funding legislation or regulations.

## Different Kinds of Costs

When using a full cost accounting approach, transportation providers should understand that costs may be expressed in a number of different ways. The costs of transportation services may be considered as

- Fixed versus variable costs.
- Capital versus operating costs.
- Direct versus shared costs.

Each of these paired concepts (e.g., fixed versus variable costs) is an expression of 100 percent costs of providing transportation services. Each of these paired concepts has its own value in understanding how costs are incurred and, therefore, how to better manage transportation services. In addition, the distinction between capital and operating costs has a significant effect on funds available and on reporting requirements.

Local transportation providers have some flexibility in assigning expenses. Because there are no hard and steadfast rules for assigning expenses, good judgment and an understanding of how expenses are incurred are needed. A good expenses assignment should be

- Logical and understood by all.
- Defensible and able to pass scrutiny from an outside observer.
- Clearly expressed in writing.
- Consistent so that it is useful for watching cost trends over time.

Various methods for assigning expenses can be used, provided that they meet these objectives.

## Fixed versus Variable Costs

**Variable costs are those that CHANGE with the amount of service provided.** These expenses typically include driver wages, fuel costs, and maintenance costs. The more miles and hours of service provided by the transportation service, the greater the costs of that service.

**Fixed costs are those that DO NOT CHANGE according to the amount of service provided.** In most systems, this means that modest changes in the numbers of hours or miles of service will not result in corresponding changes to the fixed costs. Fixed costs typically include such items as administrative salaries and facility depreciation.

Thus, variable costs are highly dependent on the amount of service provided, while the fixed costs should remain relatively constant from year to year.

The distinction between fixed and variable costs is extremely useful in understanding the costs of transportation services, as well as being highly useful for budgeting, managing, and billing purposes. The primary assumption of our Cost Sharing Model is that **each line item expense is either a variable cost or a fixed cost.** This is sometimes called a two-variable, fully allocated cost model. More information on the Cost Sharing Model is presented in Chapter 8.

**Variable costs can be logically linked to either one of two service variables: hours or miles.** For example, the number of vehicle hours is directly related to most of the operator labor costs because driver expense is a function of the amount of time that vehicles are in operation. The number of miles accounts for most maintenance labor and materials costs as well as the cost of fuel consumed and vehicle depreciation.

**Fixed costs** are the expense items that do not vary with the number of miles or hours of operation but, instead, **reflect the scale or size of the agency.** Examples include administration and building rents.

The total cost of providing transportation service equals the sum of all fixed and variable costs.

## Capital versus Operating Costs

**Capital costs refer to the expenses associated with long-term acquisitions and leases of physical assets,** such as vans, buses, garages, and maintenance facilities. These assets often are quite expensive and have a physical or functional life that extends several years.

Each year, these assets lose value. This loss in value is known as **depreciation**, which sometimes also is called the annual cost of capital.

From a grant program perspective, allowable depreciation costs may include only the cost actually incurred by the transportation operator for the purchase of the asset; federal or state grant funds may not be depreciated. If no grant funds were used, the total cost of the asset is used to calculate the depreciation cost.

It is important for transportation providers to consider depreciation costs when determining the correct price for their services (see Chapter 7 for more information). Including depreciation costs is a consistent and equitable way to recover the costs of replacing capital assets and save toward future replacements. It avoids the common problem of making special requests to funding agencies every time capital purchases are needed.

**Operating costs** refer to those expenses that are consumed in a single calendar or fiscal year to make the transit system operate. These expenses include labor, fringe benefits, materials and supplies (e.g., fuel), maintenance, office space, and equipment—all of which are essential to operating transportation services.

**Administrative costs** are a kind of operating cost. They always must be considered; they may be most difficult to quantify in the case of a multi-purpose human service agency that provides transportation services as one of the agency's many functions.

Administrative expenses are those used to support an agency or program so that it can perform its basic functions (like providing transportation services). Administrative costs cover func-

tions such as planning, preprogram start-up activities, accounting and legal services, fringe benefits, and rent. Typical administrative expenses include the following:

- Salaries for administrative personnel.
- Fringe benefit costs for administrative personnel.
- Rent and utilities for general office and administrative space.
- General office supplies and materials.
- Casualty and liability costs not related to vehicle operations.
- Most miscellaneous expenses.
- Professional fees (e.g., legal and accounting services).
- Property taxes.
- Office insurance.
- Equipment rental.

These expenses are generally **NOT directly related to the level of service provided**; they tend not to change unless the level of service changes significantly.

The total cost of providing transportation service equals the sum of all capital and operating costs.

### Direct versus Shared Costs

**Direct costs** are expenses that can be associated on a one-to-one basis with a given service. Examples of these costs include operator labor, fuel costs, and maintenance costs. Generally, most of the direct costs of transportation service are variable costs and are the types most people think about when they consider costs, such as driver wages and gasoline.

**Shared costs** (sometimes called indirect costs) are those that CANNOT be associated on a one-to-one basis with a given transportation service. These costs are representative of functions that often support more than one service.

The majority of shared costs are administrative and facility costs. These costs also commonly called **overhead costs** or **indirect costs**. These costs cover items such as planning, preprogram start-up activities, client screening and eligibility determinations, accounting, and legal services. These expenses may be overlooked when providers calculate the cost of a specific service.

Shared costs are generally fixed costs. For agencies that operate more than one service (e.g., an Area Agency on Aging that provides home delivered meals, transportation, and other services), **shared costs must be allocated on a reasonable basis to each individual service** so that sufficient revenues can be collected to cover all of the shared costs.

The total cost of providing transportation service equals the sum of all direct and shared costs. (OMB's cost principles state this as total cost equals direct cost plus the allocable portion of indirect costs, minus rebates.)

### Understanding How Costs Are Incurred

The process of determining how much a specific transportation service costs has the following steps:

1. Assembling cost and service data.
2. Assigning the cost figures to categories that explain how these costs vary.
3. Calculating average unit costs.

These unit costs then can be used to determine costs of specific routes or services to particular agencies or to particular funding sources.

There is some flexibility in assigning expenses to specific expense accounts. Because there are no hard and steadfast rules for assigning expenses, good judgment and an understanding of how expenses are incurred are needed. A good expenses assignment should be

- Logical and understood by all.
- Defensible and able to pass scrutiny from an outside observer.
- Clearly expressed in writing.
- Consistent so that it is useful for watching cost trends over time.

Various methods for assigning expenses can be used provided that they meet these objectives. See Chapter 7 for a recommended method.

## Summary

A comprehensive cost accounting system for transportation services should describe in detail **all costs that have been incurred** and **all services rendered**, describe in detail how the funds of all participating agencies have been spent, and equitably distribute the costs of transportation among the participating agencies by allocating the costs according to services received. To do this, a financial **chart of accounts** that can **track all kinds of expenses** related to community transportation services must be developed. A key element of the chart of accounts is the establishment of **expenditure classes**, each of which should have detailed subcategories.

When using a full cost accounting approach, transportation providers should understand that costs may be expressed in a number of different ways. The costs of transportation services may be considered as fixed versus variable costs, capital versus operating costs, or direct versus shared costs. Each paired concept has its own value in understanding how costs are incurred and, therefore, how to better manage transportation services.

# What's the Right Price for That Transportation Service?

It is useful to consider the distinction between the cost of a transportation service and the price transportation providers charge their customers, particularly when those customers are human service agencies. “Cost” means the total cost of producing transportation services (which can be considered as completed one-way trips). These costs include the salaries and benefits of drivers, administrators, and dispatch and maintenance personnel; fuel; vehicles; space; supplies; insurance; taxes; and all other costs attributable to producing the service.

On the other hand, “price” refers to a rate of payment that may be negotiated and specified in a contract between the transportation provider and those persons purchasing the trips. (Those persons purchasing the trips may be the riders themselves or representatives of the riders, such as human service agencies acting on behalf of the riders.) Price can be specified as a cost per trip, per mile, per hour, or some combination of these; additions to the price might be allowed for special or extraordinary services or assistance, such as transporting someone by stretcher.

Costs tend to vary from time to time and may change rapidly; prices tend to be fixed for a specified contractual period of time, such as 6 months or 1 year, although mid-course corrections are sometimes allowed in certain contracts.

## Prices Charged Should Be Equitable and Understandable

A typical question is, “Am I paying my fair share of the costs?” In coordinated transportation systems with different types of passengers, different kinds of trips, and different trip sponsors, this is an excellent but perhaps not easily resolved question. Not all trips are the same length, take the same amount of time, or require the same level of passenger assistance; in short, **different kinds of trips require different amounts of resources to provide**. When different kinds of passengers making different kinds of trips ride on the same vehicle for at least part of a trip, figuring out the “fair share” of everyone’s cost can be a challenge. Because gaining greater efficiencies by coordinating transportation services and spreading costs over a broad base of agencies in a coordinated transportation system remains a very attractive option, the fairness challenge must be addressed explicitly to ensure equity and thus promote coordination. It is a challenge that has been resolved in numerous communities.

## All Stakeholders Should Pay Their Fair Share

### Understanding How Costs Are Incurred

Although prices for services can be based on many factors, a fundamental premise of this cost sharing report is that prices for transportation services should be based, at least to some extent, on



what it actually costs to provide those services. The process of determining how much a specific transportation service costs has the following steps:

1. Assembling data on all services provided and all expenses required to provide those services.
2. Assigning the expenses to cost categories that explain how these costs vary according to the resources required to produce these services.
3. Calculating average unit costs on a per mile, per hour, or per trip basis.
4. Allocating the costs of services among the parties receiving the services in proportion to the services that they have actually received.

### **Assigning Costs to Respective Cost Categories: Variable or Fixed Costs**

The distinction between fixed and variable costs is extremely useful in understanding the costs of transportation services. The assumption that **each line item expense can be expressed as either a variable cost or a fixed cost** is a fundamental underpinning of our Cost Sharing Model.

- **Variable costs** can be logically linked to either one of two service variables: **hours or miles**. For example, the number of vehicle hours is directly related to most of the operator labor costs because driver expense is a function of the amount of time that vehicles are in operation. The number of miles accounts for most maintenance labor and materials costs as well as the cost of fuel consumed and vehicle depreciation.
- **Fixed costs** are the expense items that **do not vary** with the number of miles or hours of operation but, instead, reflect the scale or size of the agency. Examples include administration and building rents.

There are no hard and steadfast rules for classifying expenses as fixed or variable costs, but good judgment and an understanding of how expenses are incurred will suggest appropriate designations. For example, a line item expense entitled “Dispatcher’s Salaries and Wages” arguably could be assigned to the variable cost category of hours of operation because salaries and wages generally are paid on an hourly basis. A line item expense account entitled “Purchased Transportation Services” might be split between the variable costs for hours and miles, because purchased transportation reflects back-up transportation. (This split could be done several ways—one way would be according to the percent of variable costs for hours and the percent of variable costs per mile.)

Hard and steadfast rules for classifying expenses as fixed or variable costs (or splitting them) do not exist. Instead, good common sense is needed. A good expenses assignment should be

- Logical and understood by all.
- Defensible and able to pass scrutiny from an outside observer.
- Clearly expressed in writing.
- Consistent so that it is useful for watching cost trends over time.

Other methods for assigning expenses can be used provided that they meet these four objectives. An example of the assignment of expenses to specific categories is shown in Table 7-1.

### **Calculating Average Unit Costs**

The first step in applying the Cost Sharing Model is to assign individual line item expenses (e.g., wages, fuel, and administrative costs) to hours, miles, or fixed costs, depending on what kinds of actions create each kind of expense. Because different actions create different kinds of expenses, the “shortcut” of dividing total annual expenses by just one figure—like miles, hours, or trips—

**Table 7-1. Transportation chart of accounts for expense assignment.**

<i>USOA Object Codes</i>	<i>Sub Codes</i>	<i>Expense Account</i>	<i>Hours</i>	<i>Miles</i>	<i>Fixed Cost</i>
501.00		<b>LABOR</b>			
501.01		Operators' Salaries and Wages	×		
501.02		Training Salaries and Wages: Operators	×		
501.03		Dispatchers' Salaries and Wages			×
501.04		Administrative Salaries and Wages			×
501.99		Other Salaries and Wages: Mechanics		×	
502.00		<b>FRINGE BENEFITS</b>			
502.01	.01	FICA: Operators	×		
502.01	.02, .03	FICA: Dispatchers and Administrative Staff			×
502.01	.04	FICA or Railroad Retirement: Mechanics		×	
502.02	.01	Hospital, Medical, and Surgical Plans: Operators	×		
502.02	.02, .03	Hospital, Medical, and Surgical Plans: Disp., Admin. Staff			×
502.02	.04	Hospital, Medical, and Surgical Plans: Mechanics		×	
502.07	.01	Unemployment Insurance: Operators	×		
502.07	.02, .03	Unemployment Insurance: Dispatchers and Admin. Staff			×
502.07	.04	Unemployment Insurance: Mechanics		×	
502.08	.01	Worker's Compensation: Operators	×		
502.08	.02, .03	Worker's Compensation: Dispatchers and Admin. Staff			×
502.08	.04	Worker's Compensation: Mechanics		×	
502.09	.01	Sick Leave: Operators	×		
502.09	.02, .03	Sick Leave: Dispatchers and Admin. Staff			×
502.09	.04	Sick Leave: Mechanics		×	
502.10	.01	Holiday: Operators	×		
502.10	.02, .03	Holiday: Dispatchers and Admin. Staff			×
502.10	.04	Holiday: Mechanics		×	
502.11	.01	Vacation: Operators	×		
502.11	.02, .03	Vacation: Dispatchers and Admin. Staff			×
502.11	.04	Vacation: Mechanics		×	
503.00		<b>SERVICES</b>			
503.03		Professional and Technical Services			×
503.05		Contract Maintenance Services		×	
504.00		<b>MATERIALS AND SUPPLIES CONSUMED</b>			
504.01		Fuels and Lubricants		×	
504.02		Tires and Tubes		×	
504.03		Inventory		×	
504.99		Other Materials and Supplies			×
505.00		<b>UTILITIES</b> (e.g., telephone)			×
506.00		<b>CASUALTY AND LIABILITY: Insurance Premiums</b>			×
507.00		<b>TAXES</b> (e.g., Vehicle Licensing and Registration Fees)			×
508.00		<b>PURCHASED TRANSPORTATION SERVICE</b>	×		
509.00		<b>MISCELLANEOUS EXPENSES</b>			
509.00	.01, .02	.01 Dues and Subscriptions; .02 Travel and Meetings			×
512.00		<b>LEASES AND RENTALS</b>			×
513.00		<b>DEPRECIATION:</b> (e.g., Passenger Revenue Vehicles)		×	
514.00		<b>PURCHASE LEASE PAYMENTS</b>			
516.00		<b>OTHER RECONCILING ITEMS</b>			
518.00		<b>INDIRECT EXPENSES</b>			×

creates a substantially less accurate cost figure than the cost figure provided by the Cost Sharing Model. As previously noted,

- The **number of vehicle hours** is directly related to most operator labor costs because driver expense is a function of the amount of time that vehicles are in operation.
- The **number of miles** accounts for most maintenance labor and materials costs as well as fuel expenses and vehicle depreciation.
- Examples of **fixed costs** include administrative costs and building rents.

The second step is to compute average unit costs over a particular time period. The usual time period is 1 year; shorter time periods may be recommended if costs are changing quickly or if there are other unique considerations. Unit costs are expressed as follows:

- The **average hourly cost** is calculated as the total costs associated with hours of operation divided by the number of hours of operation during that time. This number is expressed as dollars per hour.
- The **average mileage cost** is calculated as the total costs associated with miles of operation divided by the number of miles of operation during that time. This number is expressed as dollars per mile.
- The **fixed cost ratio** is found by dividing the total fixed costs by the sum of the total hourly costs plus the mileage costs. This number is expressed as a percentage.

### Deriving Total Overall Costs from Unit Costs

The third step in applying the Cost Sharing Model is that of calculating the total costs of a particular service (e.g., trips provided to a senior center for an area agency on aging) from the average unit costs as determined previously. This step should be replicated for each of the discrete services offered by the transportation provider. To ensure that all costs have been calculated accurately, the costs of all discrete services should be added together as a validity check on the work to date; their sum should equal the total annual expenses of the transportation provider.

The mathematical expression of the Cost Sharing Model is a relatively straightforward equation involving multiplication and addition. This model uses variable and fixed costs to express the total costs of a specific service or program (see Chapter 4).

**TOTAL ANNUAL COST** (for Service A) = The Transportation System's Fixed Cost Factor *times* the sum of Service A's ANNUAL HOURLY COST and ANNUAL MILEAGE COST.

Where

**ANNUAL HOURLY COST** (for Service A) = The Transportation System's Cost per Hour *times* Service A's Annual Hours of Operation.

**ANNUAL MILEAGE COST** (for Service A) = The Transportation System's Cost per Mile *times* Service A's Annual Miles of Operation.

**FIXED COST FACTOR** = 1 + the ratio of all of the transportation system's fixed costs to all of the transportation service's variable costs

= 1 + [Total system fixed expenses *divided by* (Total system hourly costs + total system mileage costs)].

Again, **the outputs of the Cost Sharing Model should be calculated for each specific service** and then their individual costs should be summed to express the total annual costs of all transportation services.

This kind of cost allocation model is popular with transportation providers for the following reasons:

- **The model is relatively simple.** Each line item expense is expressed either as a variable or a fixed cost. **Variable costs** are derived by examining costs associated with two key service factors—vehicle hours and vehicle miles. **Fixed costs** are those cost elements that do not vary according to the level of services provided. Thus, the model is easy to understand, develop, and apply and is compatible with transportation operating environments common throughout the

country. In most cases, model calculations can be generated in only a few hours even by relatively non-technical personnel.

- **The model is all-inclusive.** The model takes into account all of the explicit costs contained in a typical revenue and expense statement. Moreover, the model can easily accommodate implicit costs.
- **The model is extremely flexible** and can be used to analyze various categories of total cost as needs dictate. Budgetary impacts can be readily ascertained by focusing on the variable costs of service. The cost model also is quite adaptable: A model for operating costs alone can be developed by omitting depreciation expenses from the analysis.

### Applying the Model: Allocating the Costs to a Particular Service or Agency

The several ways to share the costs of a service or program among the participating stakeholders include a cost-based approach, a benefits-based approach, or a risk-based approach. The cost-based approach to cost sharing—what can be defined as **proportionate cost allocation**—is simpler and much more widely used than the alternative cost allocation techniques.

The cost-based approach finds one participant's share of the overall cost of a service by calculating the cost of the service they received in proportion to all the costs of producing the service for everyone. Use of the cost-based approach means that, if services to Agency A require 25 percent of the annual costs of a transportation provider's services, then Agency A should pay 25 percent of the transportation provider's annual costs.

These are the steps in allocating the costs of services to the stakeholders who benefit from those services:

1. Determine the number of miles and number of hours delivered to Agency A, Agency B, Agency C, and so on.
2. Enter this information into the Cost Sharing Model.
3. Using the Cost Sharing Model, calculate each agency's respective share of the total costs. (Note that the model apportions fixed costs to each agency based on their proportions of overall variable costs as determined by miles and hours of service.)
4. Bill each agency based on their proportional share of the total costs.

Chapter 8 presents a number of examples of the results of applying the cost allocation model in various situations.

### Another Use: Forecasting the Costs of Service Changes

The previous example should be used to calculate the proportional shares of costs for services being delivered at the present time. Transportation providers also are often interested in **forecasting the cost effects of service changes**. Such changes can include providing services to agencies that previously did not purchase service or the possibility of cutting services. This requires the consideration of variable costs—the costs that will change if the service change (the service increase or decrease) is implemented. The cost sharing equation can be modified to estimate the costs of service changes by omitting the fixed cost factor because the fixed costs will not change. Service changes, increases or decreases, can be estimated by the following cost change equation:

$$\text{COST CHANGE} = \text{CHANGED ANNUAL HOURLY COST} + \text{CHANGED ANNUAL MILEAGE COST}$$

Where

CHANGED ANNUAL HOURLY COST = Cost per hour *times* the changed Annual Hours of Operation

CHANGED ANNUAL MILEAGE COST = Cost per mile *times* the changed Annual Miles of Operation.

## **Summary**

Determining the distinction between the cost of a transportation service and the price that the transportation provider charges its customers is a particularly useful task, especially when those customers are human service agencies. Prices that are determined from a detailed cost analysis benefit the transportation provider by ensuring sufficient income for operations and benefit the purchaser by ensuring an equitable price. A model that clearly specifies fixed costs and operating costs (both those operating costs attributable to hours devoted to service and those costs attributable to miles of service) can be used to create detailed cost information.

# Applying the Cost Model to Various Scenarios

As noted earlier in this report, the Cost Sharing Model can be used to address a wide variety of issues:

- For the purpose of improving internal program management, the model offers more precise measures of what services currently cost to deliver.
- For agencies interested in changing their service delivery methods (e.g., purchasing services instead of providing them) it can demonstrate which method is most attractive on a cost per unit of service.
- For transportation providers who sell their services to other agencies, the model can be used to help decide what prices to charge for the services they provide.

This chapter examines each of these situations.

## What's the Cost of the Current Services?

The Burke Lake Transportation System (BLTS) provides trips for the members of their community. During the last fiscal year

- BLTS provided 405,000 miles of service.
- BLTS had 35,325 operating hours.
- BLTS's expenses were \$612,917.
- The system provided 63,375 trips.

This means that the system-wide averages (total costs divided by each unit of service) were the following:

- \$17.35 total cost per hour (\$612,917 divided by 35,325)
- \$1.51 total cost per mile (\$612,917 divided by 405,000)
- \$9.67 total cost per trip (\$612,917 divided by 63,375)

## Should We Continue to Provide Services?

The Area Agency on Aging (AAA) wants to consider purchasing trips from BLTS instead of providing those trips themselves. The AAA has been providing 25,000 trips per year at an annual cost of \$310,000. Their average cost per trip is \$12.40; it would make sense for them to purchase trips from BLTS at the lower cost of \$9.67 per trip because the AAA could realize a savings of \$2.73 per trip, which would amount to \$68,250 on an annual basis. Those savings could be used to purchase additional trips for existing riders or to add new riders.

## What's the Right Price for Each Purchasing Agency?

### A Simple Situation

For the moment, let's imagine a simple situation. The Burke Lake Transportation System provides trips for the clients of three human service agencies and no other services to any other riders. Each agency gets essentially the same level of services, which means that the trips for each agency require the same numbers of hours and miles to produce. What is the right price for each agency that is purchasing trips?

If the services received (hours and miles) are the same, then the prices charged should be the same. In this case, each agency should pay \$204,306 a year, or one-third of the total annual expenses of \$612,917. (Note that although each agency received the same amount of services, the number of rides received by each agency might not have been the same because different kinds of riders were being served.)

### Agencies Receiving Different Levels of Service

A more common situation is that human service agencies purchase different levels of service for their clients. The right price for each agency then will be dependent on the level of service that they require as indicated by the numbers of hours and the numbers of miles required to produce the trips that they need.

Using the chart of accounts of this report and the Cost Sharing Model, Table 8-1 shows that the total expenses were distributed as \$278,584 allocated to hourly expenses, \$143,226 allocated to mileage expenses, and \$191,107 allocated to fixed expenses. Further use of the model shows the following results:

- The Fixed Cost Factor for BLTS is 1.4531.
- The Annual Hourly Cost of BLTS's services is \$7.886.
- The Annual Mileage Cost of BLTS's services is \$0.3536.

These figures are important for calculating any potential changes or for allocating total system costs among the stakeholders.

Suppose that BLTS is serving the AAA, a sheltered workshop, and the Medicaid program. The services that those organizations are receiving are those shown in Table 8-2. For each agency, their proportion of the total BLTS annual cost of \$612,917 would be **determined by the proportions of BLTS's overall services that they receive**. The formula for calculating each agency's proportionate share is the following:

**TOTAL ANNUAL COST** (for Service A) =

The Transportation System's Fixed Cost Factor *times* the sum of Service A's ANNUAL HOURLY COST and ANNUAL MILEAGE COST.

- For the AAA, their share of the costs is
  - 1.4531 *times* [(16,875 hours *times* \$7.886 per hour) plus (202,500 miles *times* \$0.3536 per hour)], or
  - 1.4531 *times* [\$133,082 plus \$71,613],
  - Both of which equal \$297,434.
- For the sheltered workshop, their share of the costs is
  - 1.4531 *times* [(10,000 hours *times* \$7.886 per hour) plus (135,000 miles *times* \$0.3536 per hour)], or
  - 1.4531 *times* [\$78,863 plus \$47,742],
  - Both of which equal \$183,965.

**Table 8-1. BLTS chart of accounts with expense assignments.**

<i>Object Codes</i>	<i>Expense Account</i>	<i>Hours</i>	<i>Miles</i>	<i>Fixed Cost</i>
501.00	<b>LABOR</b>			
501.01	Operators Salaries and Wages	\$179,760		
501.02	Training Salaries and Wages: Operators	\$1,477		
501.03	Dispatchers Salaries and Wages			\$28,047
501.04	Administrative Salaries and Wages			\$67,986
501.99	Other Salaries and Wages: Mechanics		\$31,344	
502.00	<b>FRINGE BENEFITS</b>			
502.01	FICA			
502.02	Hospital, Medical, and Surgical Plans			
502.07	Unemployment Insurance			
502.08	Worker's Compensation			
502.09	Sick Leave			
502.10	Holiday			
502.11	Vacation			
.01 - .11	<b>Operators</b>	\$29,967		
.01 - .11	<b>Dispatchers and Administrative Staff</b>		\$5,182	
.01 - .11	<b>Mechanics</b>			\$15,879
503.00	<b>SERVICES</b>			
503.03	Professional and Technical Services			\$2,115
503.05	Contract Maintenance Services		\$28,214	
504.00	<b>MATERIALS AND SUPPLIES CONSUMED</b>			
504.01	Fuels and Lubricants		\$43,872	
504.02	Tires and Tubes		\$5,103	
504.03	Inventory		\$10,788	
504.99	Other Materials and Supplies			\$9,825
505.00	<b>UTILITIES</b> (e.g., telephone)			\$3,336
506.00	<b>CASUALTY AND LIABILITY</b> Insurance Premiums			\$44,778
507.00	<b>TAXES</b> (e.g., Vehicle Licensing and Registration Fees)			\$175
508.00	<b>PURCHASED SERVICES</b>			
508.01	Purchased Transportation	\$67,380		
508.09	Volunteer Reimbursements	\$18,723		
509.00	<b>MISCELLANEOUS EXPENSES</b>			
509.01	Dues and Subscriptions			\$50
509.02	Travel and Meetings			\$871
512.00	<b>LEASES AND RENTALS</b>			\$18,045
514.00	<b>PURCHASE LEASE PAYMENTS</b>			
516.00	<b>OTHER RECONCILING ITEMS</b> Volunteer Services		\$18,723	
518.00	<b>INDIRECT EXPENSES</b>			
	<b>TOTAL EXPENSES</b>	\$297,307	\$143,226	\$191,107

**Table 8-2. Services received by stakeholders.**

<i>Agency</i>	<i>Service Hours</i>	<i>Miles</i>	<i>Trips</i>
Area Agency on Aging	16,875	202,500	28,700
Sheltered Workshop	10,000	135,000	22,000
Medicaid Program	8,450	67,500	12,675
<b>Totals</b>	<b>35,325</b>	<b>405,000</b>	<b>63,375</b>



- For the Medicaid program, their share of the costs is
  - 1.4531 *times* [(8,450 hours *times* \$7.886 per hour) plus (67,500 miles *times* \$0.3536 per hour)], or
  - 1.4531 *times* [\$66,639 plus \$23,871],
  - Both of which equal \$131,517.

Note that these and other figures are from the Cost Sharing Model and differ very slightly from the computations shown due to rounding.

As long as the following are the amounts paid by each agency, it really does not matter how the costs are billed:

- \$297,434 for the Area Agency on Aging.
- \$183,965 for the sheltered workshop.
- \$131,517 for the Medicaid program.

For example, each agency could be charged one-twelfth of the total each month. Alternatively, each agency could be charged on a unit price basis, the units being cost per hour, cost per mile, or cost per trip. If the same unit was used for all three agencies, the actual cost per unit would be different for each agency because they have received different services. Different unit costs could be used for each agency as long as each agency eventually paid their share of the total annual expenses.

## Summary

These examples illustrate some of the many applications of the Cost Sharing Model. The Excel spreadsheets that accompany this Toolkit provide a high level of automation to the calculations required to determine unit costs and potential pricing structures.

# Instructions for Using the Cost Sharing Software of the Cost Sharing Toolkit

## Introduction

This Cost Sharing Model is designed for use by transportation agencies that enter into agreements with human service agencies to provide transportation on behalf of agency clients. The model (1) computes a transportation provider's fully allocated costs and (2) translates those costs into three common pricing mechanisms: price per vehicle mile, price per vehicle hour, and price per passenger trip. This spreadsheet model is one component of *TCRP Report 144*, Volume 1, "The Transportation Services Cost Sharing Toolkit," which also includes all of this information in an easily searchable electronic format.

The spreadsheet allows the user to enter budget and service information. The model then automatically calculates the parameters for systems to fully allocate transportation costs.

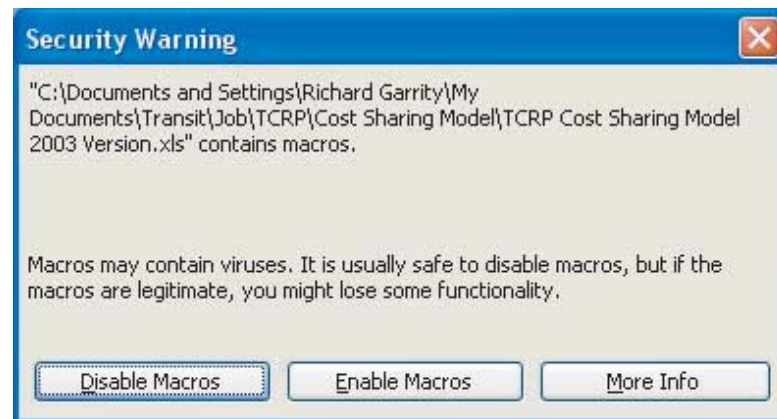
Once budget and service information are entered, the spreadsheet can be used repeatedly to calculate the fully allocated costs of a proposed contract service and the price the agency should charge for the service, using one of three common unit-of-service pricing mechanisms.

## The Cost Sharing Model

### Software Considerations

The Cost Sharing Model is a macro-enabled, Excel 2007 workbook. If you are using Excel 2007 and you wish to save your entries or work done using the model, you will be prompted to save your work using this format. If you attempt to save your work in another format (e.g., Excel workbook [\*.xlsx] or Excel 97-2003 Workbook [\*.xls]), you will receive a warning that you may lose features in the workbook. You must save all work using the macro-enable format.

If you are using earlier versions of Excel (i.e., Excel 97–2003), the program either will not permit you to open the file or will generate a warning when you open the Cost Sharing Model, depending on your macro security settings. In the first instance, from a blank workbook, go to the menu bar, go to "Tools" then "Options," and click on the "Security" tab. Click on the macro security button and select the medium level of macro security. Then open the Cost Sharing Model. In the second instance, Excel may generate the warning pictured in Exhibit 9-1. This standard Excel feature is designed to warn users that macros have the potential to be harmful and that workbooks containing macros should be opened from trusted sources only. Click on the "Enable Macros" button when confronted with this box. **Enabling macros is necessary for the Cost Sharing Model to work properly.**

**Exhibit 9-1. Security Warning box.**

### Basic Accounting Structure

The budget and chart of accounts are based on a standardized chart of accounts—the Uniform System of Accounts (USOA) created by the Federal Transit Administration (FTA) of the U.S. Department of Transportation (DOT). This is the basic reference document for the National Transit Database (NTD). It contains the accounting structure required by federal transit laws (previously Section 15 of the Federal Transit Act). For more information on the USOA, visit FTA’s website at the following link: <http://www.ntdprogram.gov/ntdprogram/pubs/reference/USOA.pdf>.

### How the Cost Sharing Model Works

Using service and cost data supplied by the person applying the Cost Sharing Model, the model performs calculations that generate unit cost figures (cost per mile, cost per hour, and cost per trip). The user provides data on the service alternative being examined, and the model generates the fully allocated cost of that service alternative. The model’s user then can select one of the unit costs as a basis for creating a contract with the organization interested in purchasing the services described in that alternative.

In greater detail, the steps in the model are as follows:

- The model’s user enters previous data on
  - Services for the entire transportation operation;
  - Miles of service, hours of service, and, in some situations, the number of vehicles used; and
  - Line item expense data for the entire transportation operation.
- The model assigns the line item expenses to one of three cost categories: fixed costs, costs that vary by the number of miles, and costs that vary by the number of hours.
- The user enters data for the service alternative being considered: projected vehicle miles, vehicle hours, and passenger trips, as well as whether the service being considered will be provided as fixed route or demand responsive service.
- Using the expense and service data previously entered, the model calculates the fully allocated cost of the service alternative being considered.
- The user specifies how the service is to be priced for the organization interested in this service alternative: price per hour, price per mile, or price per passenger trip.
- The model calculates the price to be charged to recover all of the costs of that transportation service; the price is specified in terms of the unit cost chosen by the model’s user.

This process can be repeated many times for different services and different purchasing agencies.

## Using The Cost Sharing Model

### Sequence of Steps in the Model

When you open the workbook, you will automatically be taken to the model's menu (Exhibit 9-2). The menu presents the four basic steps associated with the model:

1. Enter service data.
2. Enter expense data.
3. Compute fully allocated costs.
4. Compute the price of service.

The model contains various navigation buttons throughout the workbook to take you to the various entry and output sheets in the workbook. Simply click on these buttons to complete the task.

### Before You Start: Organize Your Data

You may use the model for two purposes: (1) computing the fully allocated cost of a contract the agency contemplates entering into with a human service agency or (2) evaluating the profit and loss from an existing or past contract. Depending on your purpose, you should collect either *projected* service and budget data or *actual* service and budget data for the model as shown in Table 9-1.

When using the model for either purpose, both budget and service data should represent the same time period, preferably on a fiscal year, calendar year, or other 12-month basis.

### Step 1: Enter Service Data

Click on the "Go" button to enter service data. You will be taken to a brief data entry screen where you will be asked to enter information about your transit system (Exhibit 9-3).

**Exhibit 9-2. Cost Sharing Model main menu.**

**Sharing the Costs of Transportation Services**

*Background Cost and Service Data Entry*

**Step 1: Enter Service Data for Your Transportation System**

**Step 2: Enter Budget Data for Your Transportation System**

**Step 3: Calculate the Fully Allocated Cost of Any Service Component**

**Step 4: Price a Transit Service Based on Fully Allocated Costs**

This cost sharing model is one component of The Transportation Services Cost Sharing Toolkit, developed under TCRP Project G-09, "Human Services Transportation Cost Reporting to Facilitate Cost Sharing Agreements."

**Table 9-1. Types of data to use for various purposes.**

<i>If you want the model to . . .</i>	<i>For your service data . . .</i>	<i>For your budget data . . .</i>
Price a proposed service	Use projected data	Use projected data
Estimate revenue profit/loss on an existing or past contract	Use current actual data or historical data	Use current actual data or historical data

**First**, indicate which modes of service your system operates by selecting the option from the box. The options are the following:

- Fixed route.
- Demand response.
- Both modes.

**Second**, enter service data, under the appropriate mode, for fixed route and demand response services. These entries are for the entire system. Remember, the time period for these service parameters should follow the guidance provided in Table 9-1. We recommend that you use data for an entire fiscal year in the model. The model requires three inputs:

1. Vehicle hours.
2. Vehicle miles.
3. Number of peak period vehicles (fixed route only).

You may use either total vehicle miles and total vehicle hours or revenue hours and revenue miles. Whatever unit you use in Step 1, be sure to use the same units in Step 3. If you do not oper-

**Exhibit 9-3. Data entry screen.**

### Transportation System Baseline Data

**Enter Baseline Data About Your Transportation System**

What Mode(s) of Services Does Your System Operate?

Fixed Route

Demand Response

We Provide Both Fixed Route and Demand Response Modes

	Fixed Route Modes	Demand Response Modes	Total
Enter the Total Number of Vehicle Hours	<input style="width: 80px;" type="text" value="-"/>	<input style="width: 80px;" type="text" value="-"/>	<input style="width: 80px;" type="text" value="-"/>
Enter the Total Number of Vehicle Miles	<input style="width: 80px;" type="text" value="-"/>	<input style="width: 80px;" type="text" value="-"/>	<input style="width: 80px;" type="text" value="-"/>
Enter the Total Number of Peak Period Vehicles	<input style="width: 80px;" type="text" value="-"/>		<input style="width: 80px;" type="text" value="-"/>

ate fixed route services, simply leave that box blank. The total boxes will automatically add both fixed route and demand response entries; **do not make your own entries in these cells.**

**Note:** When entering service data, enter numbers without commas or separators (e.g., 999999 rather than 999,999). The cell will automatically format your data.

Also, you can click on the “Back to Menu” button to return to the menu and select the next step, or you can click on the workbook tab at the bottom of the page to move to the next sheet when done with service data entry.

**Step 2: Enter Budget or Expense Data**

Budget or expense information for your system should be based on the same time period as the service data entered in the previous step. In other words, if budget data are next year’s projected budget, the hours and miles data also should be next year’s projection. If expense data are based on last year’s numbers, service data similarly should be based on last year’s actual performance.

As noted in the introduction, the budget format employed in the model follows that incorporated into the Uniform System of Accounts used for NTD reporting (Exhibit 9-4). Use of this format has several advantages:

- The objects of expenditure are well known to many transportation agencies.
- This system has been the basis for transportation system reporting for many years.
- The chart of accounts is expressly constructed for transportation services.

**Exhibit 9-4. Chart of accounts.**

Transportation Service Expenses		
<div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">Back to Menu</div> <p style="color: red; font-weight: bold; margin-top: 5px;">In this section, enter the transportation system's annual expenses or budget.</p>		
Object	Title	Annual Expenses
<b>501</b>	<b>LABOR</b>	
501.01	Operator's Salaries & Wages	\$ -
501.02	Other (Operating) Salaries & Wages	\$ -
501.03	Dispatchers Salaries & Wages	\$ -
501.04	Other (Administrative) Salaries & Wages	\$ -
501.99	Other Salaries & Wages	\$ -
<b>502</b>	<b>FRINGE BENEFITS</b>	
502.01	FICA	\$ -
502.02	Pensions & Long Term Disability	\$ -
502.03	Health Insurance	\$ -
502.04	Dental Plans	\$ -
502.05	Life Insurance	\$ -
502.06	Short Term Disability	\$ -
502.07	Unemployment Insurance	\$ -
502.08	Worker's Compensation	\$ -
502.09	Sick Leave	\$ -
502.10	Holiday	\$ -
502.11	Vacation	\$ -
502.12	Other Paid Absences	\$ -

If you are not familiar with the line items in the chart of accounts, additional help is available. For each item, a definition is incorporated into a comment field in each cell. To see the definition for a particular line item, move your cursor over any cell that has a small red triangle in the right side of the cell. The comment window will appear with the definition of the account (Exhibit 9-5).

The total of all of your entries will automatically be calculated for all data entered. **Check this figure to make sure that it equals your total budget or expense figures.** If you do not enter all of your costs, the prices calculated by this model will be less than your total expenses, and you will lose money on your transportation services.

**Note:** When entering budget data, enter numbers without commas, separators, or dollar signs (e.g., 999999 rather than \$999,999). The cell will automatically format your data.

Also, the Cost Sharing Model provides, at the user's discretion, the opportunity to include depreciation in the computation of fully allocated costs. In most cases, however, it is recommended that the user **not** include depreciation in the model's computations. This decision typically will rest on the following factors:

- Agencies may not readily maintain depreciation schedules for capital assets.
- The Office of Management and Budget (OMB) does not allow the depreciation of assets acquired with federal funds to be charged as an allowable expense to another federal grant.
- Local shares of capital costs can vary substantially and may not be known to all agencies.
- Different states have different rules and levels of participation in capital funding.

**Exhibit 9-5. Definition comment field.**

### Transportation Service Expenses

Back to Menu

In this section, enter the transportation system's annual expenses or budget.

Object	Title	Annual Expenses
<b>501 LABOR</b>		
501.01	Operator's Salaries & Wages	\$ -
501.02	Other (Operating) Salaries & Wages	\$ -
501.03	Dispatchers Salaries & Wages	\$ -
501.04	Other (Administrative) Salaries & Wages	\$ -
501.99	Other Salaries & Wages	\$ -
<b>502 FRINGE BENEFITS</b>		
502.01	FICA	\$ -
502.02	Pensions & Long Term Disability	\$ -
502.03	Health Insurance	\$ -
502.04	Dental Plans	\$ -
502.05	Life Insurance	\$ -
502.06	Short Term Disability	\$ -
502.07	Unemployment Insurance	\$ -
502.08	Worker's Compensation	\$ -
502.09	Sick Leave	\$ -
502.10	Holiday	\$ -
502.11	Vacation	\$ -
502.12	Other Paid Absences	\$ -

**Definition:** This line item includes personnel who perform other operating functions, such as vehicle maintenance employees.

The vast majority of the users of the Cost Sharing Model probably will be in the same situation (i.e., using federal funds for capital purposes). As long as all participants follow the same procedures (e.g., everyone excludes capital costs), the Cost Sharing Model still will provide reasonable guidance for allocating costs among stakeholders.

For more information about depreciation, see Appendix E.

### Step 3: Compute Fully Allocated Costs

Once service and budget data are entered, you can now compute the fully allocated costs associated with any service. From the Menu, click Step 3.

First, indicate if the service for which you want to compute the fully allocated cost is a fixed route service or a demand response service. Click on the appropriate button to signify the mode of service (Exhibit 9-6). The model allocates fixed expenses differently depending upon the mode of service. You must choose one of the modal options in this screen.

Next, you will need to enter three measures associated with the service you wish to cost:

- Vehicle hours.
- Vehicle miles.
- Passengers.

Exhibit 9-6. Cost calculator.

**Cost Calculations**

**Compute the Fully Allocated Cost of Any Service**

What Type of Service are You Costing?

Fixed Route

Demand Response

Include Depreciation?

No, Do Not Include Depreciation

Yes, Include Depreciation

*Check the service mode and the model will automatically use the correct approach in allocating fixed expenses. You may also wish to include depreciation in your computations. For more guidance on whether to include depreciation, click here:*

Depreciation Guidance

**Enter the Projected Number of Vehicle Hours in the Proposed Service Alternative:**

**Enter the Projected Number of Vehicle Miles in the Proposed Service Alternative:**

**Enter the Projected Number of Passengers in the Proposed Service Alternative:**

**For FIXED ROUTE Service Only:**

**Enter the Projected Number of Vehicles in the Proposed Service Alternative:**

**The Fully Allocated Cost of this Service Alternative is:**      →

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If you are costing a fixed route service, you also will need to enter the number of vehicles that will be assigned to the service at peak periods.

Once you enter these service parameters, the fully allocated cost of the service will be automatically calculated in the last blue cell on this screen.

The computations for calculating the fully allocated cost of the service are not visible in these spreadsheets. For details on the computation steps being performed, see Chapter 8 of this Toolkit.

#### Step 4: Compute the Price of Service

##### *Pricing the Specified Transportation Service*

Now that you have computed the fully allocated cost of a service, you can express that cost in common pricing terms. The Cost Sharing Model provides three options for pricing transportation services:

1. Price per mile.
2. Price per hour.
3. Price per trip.

Select your pricing choice by clicking on the appropriate button. Based on data you entered in Steps 2 and 3, the price, per unit of service selected, is shown in the blue cell in this window (Exhibit 9-7).

If you wish to see the price generated by another unit of service, simply click another button; the pricing automatically will be updated in the blue output cell. For example, if you have already cal-

**Exhibit 9-7. Pricing options.**

**Pricing Transportation Services**

*Use the Cost Sharing Model to Price a Transportation Service*

**What is the Desired Unit of Service?**

Rate Options

Price Per Mile

Price Per Hour

Price Per Passenger

Select One Method Only!!

**The Fully Allocated Price:**

Select One Choice from the Rate Options Box Above \$ -

[Back to Menu](#)

culated the price per passenger trip, you also could calculate the cost per mile or the cost per hour. Different agencies may require different units of service for billing.

### *Pricing Another Transportation Service*

Once you have entered the budget and service data in Steps 1 and 2, you can use this model repeatedly to price other transportation services as long as the pricing analysis requires the same temporal data as originally entered. First, save your initial calculations. Second, make a copy of these calculations. Then, as long as the information on projected service and budget or expense data that you entered in Steps 1 and 2 remains the same, you merely need to enter new data in Step 3 to obtain valid results (in Step 4) for the fully allocated cost of another transportation service or contract.

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# Glossary

Note: Terms shown in ***boldface and italics*** throughout *TCRP Report 144* are defined in this Glossary.

## Key Transportation Concepts

**Access:** The opportunity to reach a given ***destination*** within a certain timeframe or without significant physical, social, or economic barriers.

**Accessibility:** The extent to which facilities, including transit vehicles, are barrier-free and can be used by all persons, including wheelchair users and those with disabilities.

**ADA:** See Americans with Disabilities Act under Federal Legislation and Programs.

**Advance Reservation Scheduling:** Passengers call in advance and reserve a ride for a particular date and time. This is used in ***demand-responsive*** transportation systems. Transit systems may set limits on the minimum and maximum advance reservation times before the requested trip. Advance trip reservations allow the scheduler/dispatcher to identify ***ridesharing*** opportunities and assign rides to vehicles for the most efficient service delivery. A drawback to allowing requests far in advance of the desired trip is that ***no-shows*** may be more frequent than with ***real-time scheduling***.

**Brokerage:** In general, an organization that functions as an interface between transportation providers and users. The transportation broker may centralize vehicle dispatching, recordkeeping, vehicle maintenance, and other functions under contractual arrangements with agencies, municipalities, and other organizations.

**Carpool:** A ***carpool*** is a type of transportation arrangement (often for commuter trips) in which two or more individuals share a regular trip in an automobile. The driver may be the same for every trip or may rotate among the riders. ***Carpools*** typically provide ***door-to-door service***, change when a rider's travel needs change, and may be arranged on an informal basis or through a ***rideshare program*** or ***brokerage***.

**Casualty and Liability Costs:** The cost elements covering protection of the transportation agency from loss through insurance programs, compensation of others for their losses due to acts for which the transportation agency is liable, and the costs of a miscellaneous category of corporate losses.

**Central Transfer Point:** A central meeting place where routes or zonal ***demand-responsive*** buses intersect so that passengers may transfer. Routes are often timed to facilitate transferring. That is, routes with the same ***headways*** are scheduled to arrive at the ***central transfer point*** at the

same time and depart once passengers have had time to transfer. When all routes arrive and depart at the same time, the system is called a **pulse system**. The **central transfer point** simplifies transfers when there are many routes (particularly **radial routes**), several different modes, and/or paratransit zones. A downtown retail area is often an appropriate site for a **central transfer point**, as it is likely to be a popular **destination**, a place of traffic congestion and limited parking, and a place where riders are likely to feel safe waiting for the next bus. Strategic placement of the transfer point can attract riders to the system and may provide an opportunity for joint marketing promotions with local merchants.

**Charter Service:** Transportation service offered to the public on an exclusive basis (either as individuals or as groups). It is provided with a vehicle that is licensed to render **charter service** and engaged at a specific price for the trip or period of time, usually on a reservation or contractual basis. Typically **charter service** is contracted on a one-time or limited basis and is used to provide transportation on sight-seeing tours and to recreational **destinations**, sometimes on an overnight basis. Over-the-road coaches (intercity buses), typically equipped with baggage compartments, comfortable seats, and restrooms, are typically used in **charter service**. Public transportation operators that receive federal and other public subsidies may only operate **charter services** under limited conditions.

**Checkpoint Service:** This term is used interchangeably with **point deviation service**. Riders are picked up and taken to their own **destinations** or to transfer points.

**Circulator:** A bus that makes frequent trips around a small geographic area with numerous stops around the route. It is typically operated in a downtown area or area attracting tourists, where parking is limited, roads are congested, and **trip generators** are spread around the area. It may be operated all day or only at times of **peak** demand, such as rush hour or lunch time.

**Commercial Drivers License (CDL):** The standardized driver's license required of bus and heavy truck drivers in every state. It covers drivers of any vehicle manufactured to seat 15 or more passengers (plus driver) or more than 13 tons gross vehicle weight. The CDL was mandated by the federal government in the Commercial Motor Vehicle Safety Act of 1986.

**Complementary Paratransit Service: Demand-responsive service** which is operated in addition to **fixed route service** to accommodate persons who cannot ride the fixed route service because their disability prevents it. Under the **Americans with Disabilities Act (ADA)**, public entities which operate **fixed route service** (excluding commuter service) are required to provide complementary paratransit with service characteristics equivalent to the fixed route service. The **ADA** is very specific in what constitutes equivalent service and what kinds of persons must be provided with this service. A plan describing the service which documents the planning process must be submitted to the **Federal Transit Administration** regional office and updated annually.

**Connector Service:** Service in which a transfer to or from another transit system or mode is the focal point. An example of this is service provided under the Greyhound Rural Connector program: local transit providers operate service that brings people to and from the Greyhound station. This type of **connector service** is also known as **feeder service**. **Connector service** also may connect two different transit systems (such as in two adjacent cities). It is often useful in improving service efficiency and effectiveness when important **destinations**, such as medical centers, are located beyond the transit system's service area.

**Consolidation:** Restructuring transportation services in a community to serve current and additional riders with only one transportation service provider (or many fewer transportation providers than in the past).

**Coordination: Coordination** means pooling the transportation resources and activities of several agencies. The owners of transportation assets talk to each other to find ways to mutually

benefit their agencies and their customers. **Coordination** models can range in scope from sharing information, to sharing equipment and facilities, to integrated scheduling and dispatching of services, to the provision of services by only one transportation provider (with other former providers now purchasing services). Coordination may involve human service agencies working with each other or with mass transit operations.

**Curb-to-Curb Service:** A service that picks up and delivers passengers at the curb or roadside, unlike **door-to-door service** that picks up and delivers passengers to their doors. Curb-to-curb services generally do not include any passenger assistance other than for actual boarding and alighting. The passengers are responsible for getting themselves from their homes or other buildings to the curb. **Fixed route** service is always provided **curb-to-curb**, while **demand-responsive service** may be provided **curb-to-curb** or **door-to-door**. **Curb-to-curb** is more efficient for the **transit** system, but **door-to-door** provides a higher level of service.

**Deadhead Hours:** Those hours when vehicles are operated without revenue passengers.

**Deadhead Miles:** Those miles when vehicles are operated without revenue passengers.

**Demand-Responsive Service:** Service to individuals that is activated based on passenger requests. Usually passengers call the scheduler or dispatcher and request rides for particular dates and times. A trip is scheduled for that passenger, which may be canceled by the passenger. Usually involves **curb-to-curb** or **door-to-door service**. Trips may be scheduled on an advanced reservation basis or in “real-time.” Usually smaller vehicles are used to provide demand-responsive service. This type of service usually provides the highest level of service to the passenger but is the most expensive for the transit system to operate in terms of cost per trip. In rural areas with relatively high populations of elderly persons and persons with disabilities, demand-responsive service is sometimes the most appropriate type of service. Sub-options within this service type are discussed in order of least structured to most structured, in terms of routing and scheduling.

**Pure Demand-Responsive Service:** Drivers pick up and drop off passengers at any point in the service area, based on instructions from the dispatcher. In pure demand-responsive systems, the dispatcher combines immediate requests, **advance reservations**, and **subscription service** for the most efficient use of each driver’s time.

**Zonal Demand-Responsive Service:** The service area is divided into zones. Buses pick up and drop off passengers only within the assigned zone. When the drop off is in another zone, the dispatcher chooses a meeting point at the zone boundary for passenger transfer or a **central transfer** is used. This system ensures that a vehicle will always be within each zone when rides are requested.

**Flexibly Routed and Scheduled Services:** Flexibly routed and scheduled services have some characteristics of both **fixed route** and demand-responsive services. In areas where demand for travel follows certain patterns routinely, but the demand for these patterns is not high enough to warrant a **fixed route**, service options such as **checkpoint service**, **point deviation**, **route deviation**, **service routes**, or **subscription service** might be the answer. These are all examples of **flexible routing and schedules**, and each may help the transit system make its demand-responsive services more efficient while still maintaining much of the flexibility of demand responsiveness.

**Destination:** A place at which a passenger ultimately disembarks from a vehicle; the point at which a trip terminates.

**Dial-A-Ride Service:** A name that is commonly used for **demand-responsive service**. It is helpful in marketing the service to the community, as the meaning of “dial-a-ride” may be more self-evident than “**demand-responsive**” to someone unfamiliar with transportation terms.

**Dispatcher:** A person who schedules and dispatches service vehicles to carry passengers. Dispatchers keep records, logs, and schedules of the calls that they receive and of the transportation vehicles that they monitor and control. Many dispatchers employ computer-aided dispatch systems to accomplish these tasks.

**Door-to-Door Service:** A service that picks up passengers at the door of their place of origin and delivers them to the door of their *destination*. The driver pulls the vehicle off the road if possible and may escort or physically assist the passenger if needed. Door-to-door service provides a higher level of assistance than *curb-to-curb* service and is typically used for passengers with severe physical disabilities.

**Duplication of Services:** Duplication or overlapping services happens when different agencies offer basically the same services within the defined areas. Their vehicles may travel the same routes, offer similar level of services, maintain the same operating hours, or serve the same target populations.

**Elderly and Handicapped (E&H):** Anachronistic terminology for special transportation planning and services for persons with special needs; current *Federal Transit Administration (FTA)* terminology is persons with disabilities.

**Express Bus Service:** Express bus service characteristics include direct service from a limited number of origins to a limited number of destinations with no intermediate stops. Typically, express bus service is *fixed route*/fixed schedule and is used for longer distance commuter trips. The term may also refer to a bus which makes a limited number of stops while a **local bus** makes many stops along the same route but as a result takes much longer. Express bus service usually uses **highways** where they are available.

**Feeder Service:** Local transportation service that provides passengers with connections to a longer-distance transportation service. Like *connector service*, feeder service is service in which a transfer to or from another transit system, such as an *intercity bus* route, is the focal point or primary destination. An example of this is service provided under the Greyhound Rural Connector program: local transit providers operate service which brings people to and from the Greyhound station.

**Fixed Route:** Transportation service on a prescribed path or route that does not vary. The schedule may be fixed or flexible (see *jitney or shuttle service*). Passengers may be required to wait at designated stops, or flag stops may be permitted. Usually, larger vehicles are used to provide fixed route service.

**Fixed Schedule:** Predetermined times at which a vehicle is to arrive at a certain location. The actual bus route may be fixed or flexible. A flexible route combines *fixed schedule* stops with *demand-responsive* stops (see *checkpoint, point deviation, and route deviation*).

**Group Service:** Used most often in *charter* or contracted service, a bus trip is provided to a group of passengers who ride between a single origin and *destination*. The riders may have some characteristics in common and travel together in the same vehicle. This type of service is commonly used by senior centers and other human service agencies that take their clients on field trips and shopping trips as a group.

**Guaranteed Ride Home:** Refers to programs that guarantee riders a ride home in case they cannot take the same mode home if they need a ride after the regular service hours of the transportation service (e.g., if they need to work late or if an emergency occurs).

**Headway:** The length of time between vehicles moving in the same direction on a particular route. Headways are called short if the time between vehicles is short and long if the time between them is long. When headways are short, the service is said to be operating at a high frequency; if headways are long, service is operating at a low frequency.

**Home-Based Work Trip:** A trip to or from home for the purpose of the traveler's employment.

**Human Service Agency Transportation:** [A] Transportation for clients of a specific human service agency. Such service may be limited to a specific trip purpose; it is often limited to only the clients of that human service agency. [B] Transportation provided by a human service agency.

**Individuals with Disabilities:** Any person who by reason of illness, injury, age, congenital malfunction, or other permanent or temporary incapacity or disability is unable, without special facilities, to use local transit facilities and services as effectively as persons who are not so affected. This definition is part of the *Americans with Disabilities Act (ADA)*.

**Intercity Bus Service:** Intercity bus service provides long distance trip service between cities, often as part of a large network of intercity bus operators. Both *express* and *local bus service* may be provided. The Greyhound and Trailways systems are national intercity bus networks.

**Jitney Service:** Jitney vehicles travel along a *fixed route* with no time schedule; passengers are picked up anywhere along the route (flag stops). Because there are no schedules, *headways* are usually 5 to 10 minutes so passengers have only brief waiting periods. *Jitney service* is often used in the United States to provide seasonal, tourist, or park and ride service. *Jitney service* is a more common public transportation mode in other countries where private entrepreneurs are often the providers of service.

**Local Bus Service:** Local bus service is a term used to describe a route along which many stops are made, allowing flexibility in where passengers may board and depart. It is typically used in contrast to *express bus*, a bus that makes a limited number of stops and is targeted more at long distance riders. Local bus service is important in rural areas unless *feeder* or *connector service* is available to bring people to the station.

**Mobility:** The ability to move or to be moved from place to place.

**Mode:** The means used to accomplish a *trip*, such as walking, traveling by automobile, traveling by bus, or traveling by train.

**No-Show:** A passenger scheduled for a trip who does not appear at the designated pick-up point and time and does not cancel the trip in advance is considered to be a "no-show." Frequent no-shows can hurt the efficiency and effectiveness of transportation services, particularly in rural areas where passengers live in remote areas that take extensive time to get to and return from the pick-up point.

**One-Way Trip:** A one-way journey or movement of a person or vehicle between a specific *origin* and a specific *destination*.

**Origin:** A place at which a passenger boards a vehicle; the point at which a trip begins. Often this term is used to refer to a passenger's home, even though the home actually becomes the *destination* of a return trip.

**Paratransit Service:** Paratransit is a broad term that may be used to describe any means of shared ride transportation other than *fixed route* mass transit services. The term paratransit usually indicates that smaller vehicles (less than 25 passengers) are being used. These services usually serve the needs of persons that standard mass transit services would serve with difficulty. A paratransit service is typically *advanced reservation*, *demand-responsive service* provided *curb-to-curb* or *door-to-door*. *Route deviation* and *point deviation* are also considered paratransit. Paratransit is often more appropriate than *fixed route* services in rural areas and in areas with large populations of *elderly or persons with disabilities*. Paratransit services that are provided to accommodate passengers with disabilities who are unable to use *fixed route* service and that meet specific service equivalency tests are called *ADA complementary paratransit services*.

**Passenger Trip (Unlinked):** Typically, one passenger trip is recorded any time a passenger boards a transportation vehicle or other conveyance used to provide transportation. “Unlinked” means that one trip is recorded each time a passenger boards a vehicle, no matter how many vehicles that passenger uses to travel from their origin to their destination.

**Peak/Off-Peak Periods:** Peak periods are those time periods during which the maximum amount of travel occurs. These are also the periods during which the demand for transportation is usually highest. They may be specified as the morning (a.m.) or afternoon or evening (p.m.) peak, typically between 6:30 to 9:30 a.m. and 3:30 to 6:30 p.m. on weekdays when commuters are traveling to and from work and school. The actual times vary according to local employer shift times, school hours, and population density. Typically, during the peak period in urban transit systems, the maximum number of vehicles are placed in service, *headways* are shorter, and higher fares are charged than during the *off-peak* period.

**Performance Measurement:** Performance measurement is periodic but regular monitoring and reporting of program accomplishments, particularly progress towards pre-established goals. Typical measures are inputs (resources applied to a problem), outputs (numeric measures of program products), and outcomes (what changed).

**Personal Care Attendant:** A Personal Care Attendant (PCA) is a person who assists an individual with a physical, sensory, or cognitive disability or other health care needs with the activities of daily living. A PCA is usually considered a personal mobility aide and is allowed to ride free. PCAs must have the same beginning and ending destination as the passenger. PCAs shall remain with the passenger during the complete trip and to/from the building.

**Person-Trip:** A trip made by one person from one *origin* to one *destination*.

**Point Deviation Service:** A type of *flexible route* transit service in which *fixed scheduled* stops (points) are established but the vehicle may follow any route needed to pick up individuals along the way if the vehicle can make it to the fixed points on schedule. This type of service usually provides *access* to a broader geographic area than does *fixed route service* but is not as flexible in scheduling options as *demand-responsive service*. It is appropriate when riders change from day to day but the same few *destinations* are consistently in demand. Also sometimes called *check-point service*.

**Provider of Transportation (Transportation Provider):** An agency that operates vehicles in transportation service (as opposed to an agency whose role is limited to funding programs).

**Pulse System:** A type of *fixed route transit* system (usually involving a *radial network*) in which all routes arrive at and depart from the *central transfer point* at the same times. This timing facilitates transferring but necessitates a transfer facility where simultaneously all buses can safely drop off passengers and wait, and passengers can easily and safely get to the bus to which they are transferring.

**Radial Network:** A public transit route service pattern in which most routes converge into and diverge from a *central transfer point* or hub, like the spokes of a wheel. If the routes are timed to arrive and depart at the same time, it is called a *pulse system*.

**Real-Time Scheduling:** Passengers call and request *demand-responsive* trips a short time before the trip is needed, and the dispatcher is responsible for assigning vehicles and drivers to meet passengers’ requests. This type of scheduling is most convenient for passengers but costly for a *transit* system to implement as a large fleet of vehicles and drivers is needed to ensure all trip requests are met. This type of scheduling is most frequently used by *taxi* services.

**Reverse Commute:** Commuting against the main directions of traffic. Often refers to travel from a central city to suburbs during *peak* period commuting times.



**Rideshare/Ridematch Program:** A rideshare/ridematch program facilitates the formation of *carpools* and *vanpools*, usually for work trips. A database is maintained of the ride times, *origins*, *destinations*, and driver/rider preferences of users and potential users. Persons requesting to join an existing pool or looking for riders are matched by program staff with other appropriate persons. In rural areas, a rideshare/ridematch program may be used to coordinate *Medicaid* or volunteer transportation.

**Ridesharing:** Ridesharing is the simultaneous use of a vehicle by two or more persons.

**Road Call:** A mechanical failure of a vehicle in revenue service that causes a delay to service, and which necessitates removing the vehicle from service until repairs are made. Repairs may be made on the road, at the location at which the mechanical failure occurred.

**Round Trip:** A *trip* from an *origin* to a *destination* and then back to the original origin. A trip from a person's home to their place of work and then back to their home is considered one round trip (and also is considered to be two one-way trips).

**Route Deviation Service:** *Transit* buses travel along a prescribed alignment or path with scheduled time points at each terminal point and perhaps also at key intermediate locations. Route deviation service is different than conventional fixed route bus service in that the vehicle may leave the route upon requests of passengers to be picked up or returned to destinations near to the route. Following an off-route deviation, the vehicle typically returns to the point at which it left the route. Passengers may call in advance for *route deviation* or may access the system at pre-determined route stops. The limited geographic area within which the vehicle may travel off the route is known as the route deviation corridor.

**Service Gaps:** Service gaps can occur when certain geographic segments cannot be covered by transportation services. This term can also refer to instances where service delivery is not available to a certain group of riders, or at a specific time.

**Service Hours:** [A] A measure of service that records those hours during the day when passengers can access the travel services of a transportation system. [B] The aggregate number of hours that all vehicles together provide in service to passengers.

**Service Route:** Service routes are *transit* routes that are tailored to meet the needs of a specific market segment (such as the *elderly* or *persons with disabilities*) in a community. Service routes often evolve out of a pattern of *demand-responsive* travel within a community. Characteristics of a service route include stops at high-density residential complexes or group homes, shopping areas, medical facilities, and *destinations* specific to the target population such as senior centers or sheltered work sites. Stops are usually positioned near an accessible entrance of a building instead of on the street, and the ride times are typically longer than on a "conventional" *fixed route* covering the same general area. Service routes may be operated instead of, or in conjunction with, a "conventional" route in the same area. Vehicles tend to be smaller and accessible to persons with disabilities, and drivers usually offer a relatively high level of personal assistance. Service routes are used widely in Europe and are gaining greater popularity in the United States since the passage of the *Americans with Disabilities Act (ADA)*.

**Shared Ride Taxi:** A shared ride taxi service provides taxi transportation in which more than one passenger is in the vehicle at the same time, possibly at a reduced rate for each of the passengers. Shared ride taxi service is a way of using taxicabs for *paratransit service*.

**Shuttle Service:** Shuttle service refers to *fixed route* service that connects only a small number of fixed stops and operates at a high frequency (or short *headways*). The vehicle follows a repetitive back-and-forth route. This type of service is related to *circulator* service but connotes a more linear route structure. A *parking shuttle* is an example of use that could apply to areas that have a seasonal tourist attraction.

**Special Event Service:** Buses are provided for special events in the community. Special bus runs may be arranged for trade shows, sports events, schools, tourist attractions, or shopping promotions. Longer-term service may be provided for seasonal needs at entertainment centers or fairs. Such service may be initiated by the sponsor of the event or the transit system as a marketing tool.

**Subscription Service:** When a passenger or group of passengers requests a repetitive ride (such as on a daily or weekly service on an ongoing basis), trips are often scheduled on a subscription or “standing order” basis. The passenger makes a single initial trip request, and the transit system automatically schedules them for their trip(s) each day or week.

**Taxi: Demand-responsive** transportation vehicle offered to individual members of the public on an exclusive basis, in a vehicle licensed to render that service, usually operated by a private for-profit company. Fares are usually charged on a per-mile or per-minute (or both) basis on top of a base fare charged for all trips. Passengers may call the dispatcher to request a trip (*real-time scheduling*) or hail a passing unoccupied taxi.

**Total Hours:** All hours when a vehicle is available for service, whether passengers are on-board or not. *Service hours* plus *deadhead hours* equals total hours.

**Total Miles:** All miles when a vehicle is available for service, whether passengers are on-board or not. *Service miles* plus *deadhead miles* equals total miles.

**Transit:** Generally refers to passenger service provided to the general public along established routes, with fixed or variable schedules, at published fares. Related terms include public transit, mass transit, public transportation, urban transit, and *paratransit*.

**Transit Dependent:** Persons who must rely on public *transit* or *paratransit* services for most of their transportation. Typically refers to individuals without *access* to personal vehicles.

**Transportation Disadvantaged:** A term used to describe those persons who have little or no *access* to meaningful jobs, services, and recreation because a transportation system does not meet their needs. Often refers to those individuals who cannot drive a private automobile because of age, disability, or lack of resources.

**Travel Time:** Customarily calculated as the time it takes to travel from “*door-to-door*.” Used in transportation planning. In forecasting the demand for *transit* service, measures of travel time include time spent accessing, waiting, and transferring between vehicles, as well as that time spent on board.

**Trip:** A one-way journey or movement of a person or vehicle between a specific *origin* and a specific *destination*. For purposes of recording transportation services, trips are considered to be *one-way trips* unless otherwise specified. Trips may require using one or more travel *modes*, including walking and travel using different kinds of vehicles.

**Trip Denial:** A trip denial occurs when a trip is requested by a passenger but the transportation provider cannot provide the service. Trip denial may happen because capacity is not available at the particular requested time. For *ADA paratransit*, a capacity denial is specifically defined as occurring if a trip cannot be accommodated within the negotiated pick-up window. Even if a trip is provided, if it is scheduled outside the +60/-60 minute window, it is considered a denial. If the passenger refused to accept a trip offered within the +60/-60 minute pick-up window, it is considered a refusal, not a capacity denial.

**Trip Generator:** A place that generates a demand for frequent travel is called a trip generator. Trip generators may be origins or *destinations*. For example, a high-density residential area generates a need for all kinds of trips outside of the residential area into commercial areas, a medical center generates trips for medical purposes, and a downtown area may generate trips for retail, recreational, or personal business purposes.

**Unduplicated Persons Served:** The number of individual persons who receive transportation services. A particular time period will be specified in relation to this number.

**Unlinked Passenger Trip:** An **unlinked passenger trip** is a single boarding of any vehicle. A passenger is counted each time he or she boards a vehicle even if the boarding is part of a journey from origin to destination that includes boardings of other vehicles. The number of unlinked passenger trips for any transportation system is the number of passenger boardings of their vehicles.

**User-Side Subsidy:** A transportation funding structure in which qualified users (often economically disadvantaged persons) are able to purchase vouchers for transportation services at a portion of their worth. The users may then use the vouchers to purchase transportation from any participating provider; the vouchers are redeemed by the provider at full value and the provider is reimbursed by the funding agency for the full value.

**Vanpool:** An organized ridesharing arrangement in which a number of people travel together on a regular basis in a van. The van may be company owned, individually owned, leased, or owned by a third party. Expenses are shared, and there is usually a regular volunteer driver. In terms of service design, a vanpool is basically a *carpool* that uses a vehicle larger than a car. In rural areas, vanpools can be an important form of employment transportation where densities are not high enough to justify commuter service.

**Vehicle Hours:** The hours that a vehicle is operated, measured as when it is scheduled to or actually travels from the time it pulls out from its garage to go into service to the time it pulls in and terminates operations.

**Vehicle Miles:** The miles that a vehicle is scheduled to or actually travels, from the time it pulls out from its garage to go into service to the time it pulls in from service.

**Vehicle Miles Traveled (VMT):** A standard area-wide measure of travel activity. The most conventional VMT calculation is to multiply average trip length by the total number of trips.

**Volunteers:** Volunteers are persons who offer services to others but do not accept monetary or material compensation for the services that they provide. In some volunteer programs, the volunteers are reimbursed for their out-of-pocket expenses; for example, volunteers who drive their own cars may receive reimbursement based on miles driven for the expenses that they are assumed to have incurred, such as gasoline, repair, and insurance expenses.

**Zone:** A defined geographic area. Zones are used in *demand-responsive service* for dispatching purposes and in *fixed route* and *demand-responsive service* for fare determination. In zonal *demand-responsive service*, each vehicle travels only within a particular zone. Trips that originate in one zone and end in another involve a transfer at the zone boundary or a **central transfer point**. In a **zonal fare structure**, the service area is divided into zones and the fare is determined according to the number of zones traveled (the higher the number of zones, the higher the fare). This is a method of charging a distance-based fare. Zones can assume a number of different forms depending on the route design, including concentric circles, key stops along a route, a grid system, or a hybrid of these.

## Accounting Concepts

**Allocation:** An administrative distribution of funds or expenses. Federal programs often allocate funds among the states.

**Capital Costs:** Refers to the costs of long-term assets of a public transit system such as property, buildings, and vehicles.

**Capitated Payment:** A payment arrangement on a per-member basis for a given number of riders under a provider's services; a set amount of money received or paid out, based on a prepaid agreement rather than on actual cost of separate rides or services delivered. Providers are not reimbursed for services that exceed the allotted amount. The rate may be fixed for all members or it can be adjusted based on the riders' characteristics.

**Expenditures (Outlays):** A term signifying disbursement of funds for repayment of *obligations* incurred. For example, an electronic transfer of funds, or a check sent to a state *highway* or transportation agency for voucher payment, is an expenditure or outlay.

**Farebox Revenue:** The money collected as payment for rides, which can be in the form of cash, tickets, tokens, transfers, or passes.

**Fare Structure:** Fare structure is the basis for determining how fares are charged. Common types of structures are distance-based (the longer the trip is, the higher the fare will be), time-based (higher fares for trips made during *peak hour* service than during the *off peak*), quality-based (*demand-responsive* trips are typically charged a higher fare than *fixed route* trips), or flat fares (the same fare is charged for all trips). In addition to these four methods, a fare structure may differentiate among passengers based on age, income, or disability (often lower fares are charged for elderly persons, children, Medicaid recipients, and persons with disabilities).

**Financial Capacity, Capability:** Refers to the *U.S. Department of Transportation (DOT)* requirement that an adequate financial plan for funding and sustaining transportation improvements be in place prior to programming federally funded projects. Generally refers to the stability and reliability of revenue in meeting proposed costs.

**Fiscal Year (FY):** Since FY 1977, the federal yearly accounting period begins October 1 and ends September 30 of the subsequent calendar year. Prior to FY 1977, the federal fiscal year started on July 1 and ended the following June 30. Fiscal years are denoted by the calendar year in which they end (e.g., FY 1991 began October 1, 1990, and ended September 30, 1991). States and localities may have fiscal years that are different from the federal October–September time period.

**Operating Costs:** Costs associated with operating and maintaining a transit system, including labor, fuel, administration, and maintenance.

**Recordkeeping:** Recordkeeping refers to activities of monitoring and maintaining all types of materials related to service and business transactions. Agencies develop their own recordkeeping mechanism or their funders may require specific forms of recordkeeping. Often, computer software is used for recordkeeping and this information can be used for auditing or other quality control measures.

**Uniform System of Accounts (USOA):** A structure of accounting categories and definitions used for reporting to ensure uniform data. USOA transit-related object codes are used in this report. FTA's Uniform System of Accounts and Records consists of various categories of accounts and records for classifying financial and operating data; precise definitions as to what data elements are to be included in these categories; and definitions of practices for systematic collection and recording of such information.

## Federal Legislation and Programs

**Access Board:** Common name for the Architectural and Transportation Barriers Compliance Board, an independent federal agency whose mission is to develop guidelines for accessible facilities and services and to provide technical assistance to help public and private entities understand and comply with the **Americans with Disabilities Act (ADA)**.

**Access to Jobs:** Federal funding for programs to increase work-related transportation available to low-income individuals, authorized in *TEA-21*. Nonprofit organizations and municipalities can apply to *FTA* for funding.

**ADA:** See Americans with Disabilities Act.

**ADA Complementary Paratransit Service:** *Demand-responsive service* that is operated in addition to *fixed route* service to accommodate persons who cannot ride the *fixed route* service because their disability prevents it. Under the *Americans with Disabilities Act (ADA)*, public entities that operate *fixed route service* (excluding *commuter service*) are required to provide complementary paratransit with service characteristics equivalent to the *fixed route* service. The *ADA* is very specific in what constitutes equivalent service and what kinds of persons must be provided this service. A plan describing the service, which documents the planning process, must be submitted to the appropriate *Federal Transit Administration* regional office and updated annually.

**Administration on Aging (AoA):** An agency in the *U.S. Department of Health and Human Services (DHHS)* that is the official federal agency dedicated to policy development, planning, and the delivery of supportive home- and community-based services to older persons and their caregivers. The AoA administers the *Older Americans Act* and works through the National Association of State Units on Aging, *Area Agencies on Aging*, Tribal and Native organizations representing 300 American Indian and Alaska Native Tribal organizations, and two organizations serving Native Hawaiians, plus thousands of service providers, adult care centers, caregivers, and volunteers.

**Aid to Families with Dependent Children (AFDC):** The joint federal-state welfare program until 1996 when welfare reform ended *AFDC* and created *Temporary Assistance for Needy Families (TANF)*.

**Americans with Disabilities Act of 1990 (ADA):** A federal law that requires public facilities, including transportation services, to be fully accessible for persons with disabilities. *ADA* also requires the provision of complementary or supplemental paratransit services in areas where *fixed route* transit service is operated. This Act expands the definition of eligibility for accessible services to persons with mental disabilities, temporary disabilities, and the conditions related to substance abuse. The Act is an augmentation to, but does not supersede, Section 504 of the Rehabilitation Act of 1973, which prohibits discrimination on the basis of disability against otherwise qualified individuals in programs receiving federal assistance.

**Apportionment:** A term that refers to a statutorily prescribed division or assignment of funds. An apportionment is based on prescribed formulas in the law and consists of dividing authorized obligation authority for a specific program among the states.

**Appropriations Act:** Action of a legislative body that makes funds available for expenditure with specific limitations as to amount, purpose, and duration. In most cases, it permits money previously authorized to be obligated and payments to be made.

**Area Agency on Aging (AAA):** The local entity that plans senior services and advocates for the elderly within their communities, administering provisions of the *Older Americans Act (OAA)*.

**Attainment Area:** An area considered to have air quality that meets or exceeds the *U.S. Environmental Protection Agency (EPA)* health standards used in the Clean Air Act. An area may be an *attainment area* for one pollutant and a nonattainment area for others. Nonattainment areas are areas considered not to have met these standards for designated pollutants.

**Authorization Act:** Basic substantive legislation or legislation that empowers an agency to implement a particular program and also establishes an upper limit on the amount of funds that can be appropriated for that program.

**Block Grant:** Categorical funds that are distributed to a recipient without specific spending requirements.

**Budget Authority:** Empowerment by Congress that allows federal agencies to incur obligations to spend or lend money. This empowerment is generally in the form of appropriations. However, for the major *highway* program categories, it is in the form of *contract authority*. Budget authority permits agencies to obligate all or part of the funds that were previously authorized. Without budget authority, federal agencies cannot commit the government to make *expenditures* or loans.

**Circulars from FTA:** The Federal Transit Administration publishes and updates Circulars to communicate funding program requirements.

**Contract Authority:** A form of *budget authority* that permits obligations to be made in advance of appropriations. The Federal-Aid Highway Program operates mostly under contract authority rules.

**Congestion Management and Air Quality Improvement Program (CMAQ):** A categorical funding program created with the *Intermodal Surface Transportation Efficiency Act (ISTEA)*. Directs funding to projects that contribute to meeting national air quality standards. CMAQ funds generally may not be used for projects that result in the construction of new capacity available to *single-occupant vehicles (SOVs)*.

**Empowerment Zones/Enterprise Communities (EZ/EC):** These areas, so designated by the Department of Housing and Urban Development (HUD) and the Department of Agriculture (USDA), are eligible for preferences and flexibility in many federal *grant* programs. EZ/ECs are chosen competitively based on community poverty characteristics and local strategic planning processes.

**Enhancement Activities:** Refers to activities related to a particular transportation project that enhance or contribute to the existing or proposed project. Examples of such activities include provision of facilities for pedestrians or cyclists, landscaping or other scenic beautification projects, historic preservation, control and removal of outdoor advertising, archeological planning and research, and mitigation of water pollution because of *highway* runoff.

**Environmental Impact Statement (EIS):** A report that details any adverse economic, social, and environmental effects of a proposed transportation project for which federal funding is being sought. Adverse effects could include air, water, or noise pollution; destruction or disruption of natural resources; adverse employment effects; injurious displacement of people or businesses; or disruption of desirable community or regional growth.

**Federal Highway Administration (FHWA):** The agency within the *U.S. Department of Transportation* that administers federal-aid highway programs.

**Federal Transit Administration (FTA):** The agency within the *U.S. Department of Transportation (DOT)* that administers federal-aid transit programs.

**Grant:** The award of funds to an entity. Federal funds are typically awarded either as formula (or block) grants, in which a predetermined legislative process establishes the level of funding available to an entity, or discretionary grants, in which the funding agency is free to determine how much (if any) funding an entity will be given based on the relative merits of the proposal. Private foundations also give grants based on similar criteria.

**Head Start:** A program of comprehensive services for economically disadvantaged preschool-age children. Services, including transportation, are provided by local Head Start agencies and are funded by the Administration for Children and Families, part of the *U.S. Department of Health and Human Services (DHHS)*.

**Interagency Agreement:** A legal document that outlines the responsibilities of two or more agencies, such as an interagency coordination agreement.

**Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA):** Legislative initiative by the U.S. Congress that restructured funding for transportation programs. ISTEA authorized increased levels of *highway* and transportation funding and an enlarged role for regional planning commissions/*Metropolitan Planning Organizations (MPOs)* in funding decisions. ISTEA also requires comprehensive regional *long-range* transportation plans extending to the year 2015 and places an increased emphasis on public participation and transportation alternatives.

**Limitation on Obligations:** Any action or inaction by an officer or employee of the United States that limits the amount of federal assistance that may be obligated during a specified time period. A limitation on obligations does not affect the scheduled *apportionment* or *allocation* of funds; it just controls the rate at which these funds may be used.

**Long Range:** In transportation planning, refers to a time span of more than 5 years.

**Management Systems:** Six systems required under *TEA-21* to improve identification of problems and opportunities throughout the entire surface transportation network of the United States and to evaluate and prioritize alternative strategies, actions, and solutions. The six management systems include: Pavement Management System (PMS), Bridge Management System (BMS), Highway Safety Management System (HSMS), Congestion Management System (CMS), Public Transit Facilities and Equipment Management System (PTMS), and Intermodal Management System (IMS).

**Medicaid:** Also known as Medical Assistance, this is a health care program for low-income and other medically needy persons. It is jointly funded by state and federal governments. The Medicaid program is administered by the Centers for Medicare and Medicaid Services, an agency that is part of the *U.S. Department of Health and Human Services*. Medicaid pays for transportation to non-emergency medical appointments only if the recipient has no other means of travel to medical services.

**Metropolitan Planning Organization (MPO):** The organizational entity designated by law with lead responsibility for developing transportation plans and programs for urbanized areas of 50,000 or more in population. MPOs are established by agreement of the governor and units of general-purpose local government that together represent 75 percent of the affected population of an urbanized area.

**National Ambient Air Quality Standards (NAAQS):** Federal standards that set allowable concentrations and exposure limits for various pollutants.

**National Highway Systems (NHS):** A federal transportation program authorized by *ISTEA* that designates nationally significant interstate highways and roads for interstate travel, national defense, intermodal connections, and international commerce. Other eligible activities include bikeways and park-and-ride lots. The NHS is being developed as the first component of a larger, intermodal *National Transportation System (NTS)*.

**National Transit Database Reports:** Formerly known as Section 15 reports, these annual reports are based on financial and operating data and are required of almost all recipients of transportation funds under *FTA's* urban transit program.

**National Transit Resource Center:** A resource center housed at the Community Transportation Association of America (CTAA). It provides technical assistance, information, and support to the community transportation industry. Most services and materials are available at no charge.

**National Transportation System (NTS):** *ISTEA* called for the development of a "National Intermodal Transportation System that is economically efficient and environmentally sound,

provides the foundation for the Nation to compete in the global economy, and will move people and goods in an energy efficient manner.” The NTS is intended to allow for the development of transportation planning, program management, and investment strategies that will bring about a transportation system that will move people and goods more effectively and efficiently and thereby advance our economic, environmental, and social goals.

**Obligations:** Commitments made by federal agencies to pay out money (as distinct from the actual payments, which are “outlays”). Generally, obligations are incurred after the enactment of *budget authority*. However, because *budget authority* in many *highway* programs is in the form of *contract authority*, obligations in these cases are permitted to be incurred immediately after *apportionment* or *allocation*. The obligations are for the federal share of the estimated full cost of each project at the time it is approved, regardless of when the actual payments are made or the expected time of project completion.

**Older Americans Act (OAA):** Federal law first passed in 1965. The act established a network of services and programs for older people. This network provides supportive services, including transportation and nutrition services, and works with public and private agencies that serve the needs of older individuals.

**Persons with Disabilities:** Those persons who have a physical or mental impairment that substantially limits one or more major life activities, a record of such impairment, or are regarded as having such an impairment.

**Public Authority:** A federal, state, county, town, or township, Native American tribe, municipal, or other local government or instrumentality with authority to finance, build, operate, or maintain transportation facilities.

**Public Participation:** The active and meaningful involvement of the public in the development of transportation plans and improvement programs. The *ISTEA* and subsequent regulations require that state departments of transportation and *MPOs* proactively seek the involvement of all interested parties, including those traditionally underserved by the current transportation system.

**Regionally Significant:** A term that has been defined in federal transportation planning regulations (40 FR 93.101) as “a project . . . that is on a facility which serves regional transportation needs . . . and would normally be included in the modeling of a metropolitan area’s transportation network, including, at a minimum, all principal arterial highway and fixed guideway transit facilities that offer a significant alternative to regional highway travel.”

**Rescission:** A legislative action to cancel the obligation of unused *budget authority* previously provided by Congress before the time when the authority would have otherwise lapsed. Rescission may be proposed by the Executive Branch but requires legislative action in order to take effect.

**Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2005: A Legacy for Users (SAFETEA-LU):** Legislation passed by Congress that, building on *ISTEA*, continued the process of restructuring funding for transportation programs. SAFETEA-LU contains provisions intended to improve and maintain the surface transportation infrastructure in the United States, including the interstate highway system, transit systems around the country, bicycling and pedestrian facilities, and freight rail operations. Total funding authorized in this surface transportation bill is \$284.6 billion.

**Section 5307 Program:** A *Federal Transit Administration* program that provides funding for public transportation services in urban areas with populations between 50,000 and 200,000.

**Section 5311 Program:** A *Federal Transit Administration* program that provides funding for rural general public transportation services. Rural areas are defined as those areas with populations of 50,000 or less.



**Section 5316 Program:** A *Federal Transit Administration* program, entitled Job Access and Reverse Commute (JARC), that provides funding for transportation services that provide job access and reverse commute trips. The JARC program was established to address the unique transportation challenges faced by welfare recipients and low-income persons seeking to obtain and maintain employment. Initially implemented as part of the TEA-21 legislation in 1998, important portions of the JARC program were modified by the SAFETEA-LU legislation in 2005.

**Section 5317 Program:** A *Federal Transit Administration* program, known as the New Freedom program, that provides funding for services to *persons with disabilities* that are beyond the scope of services required by *ADA*. This is a relatively new program created by the SAFETEA-LU legislation in 2005.

**Social Equity, Justice:** The provision of affordable, efficient, and accessible transportation services to all people regardless of race, ethnicity, income, gender, or disability. A socially equitable transportation system provides all people with convenient *access* to meaningful jobs, services, and recreational opportunities.

**State Highway Department:** The department, commission, or board of any state responsible for *highway* construction, maintenance, and management.

**State Implementation Plan (SIP):** Required documents prepared by states and submitted to *EPA* for approval. SIPs identify state actions and programs to implement designated responsibilities under the Clean Air Act.

**Surface Transportation Program:** A new categorical funding program created with the *ISTEA*. Funds may be used for a wide variety of purposes, including roadway construction, reconstruction, resurfacing, restoration, and rehabilitation; roadway operational improvements; *capital costs* for transit projects; highway and transit safety improvements; bicycle and pedestrian facilities; scenic and historical transportation facilities; and preservation of abandoned transportation corridors.

**Temporary Aid to Needy Families (TANF):** Created by the 1996 welfare reform law, TANF is a program of block *grants* to states to help them meet the needs of families with no income or resources. It replaces *AFDC*, *JOBS*, Emergency Assistance, and some other preceding federal welfare programs. Because of TANF-imposed time limits, states are trying to place recipients in jobs as quickly as possible, often using program funds to pay for transportation, childcare, and other issues for workforce participation.

**Title III:** An important Title of the *Older Americans Act* that authorizes *expenditures* for nutrition and transportation programs that serve older persons.

**Title IV:** An important Title of the Civil Rights Act of 1964 that ensures that no person in the United States will be discriminated against on the basis of race, color, or national origin. The transportation planning regulations, issued in October 1993, require that metropolitan transportation planning processes be consistent with Title IV.

**Transportation Control Measures (TCMs):** Local actions to adjust traffic patterns or reduce vehicle use to reduce air pollutant emissions. These may include high occupancy vehicle (HOV) lanes, provision of bicycle facilities, and ridesharing and telecommuting.

**Transportation Equity Act for the 21st Century (TEA-21):** The 1998 Congressional legislation that reauthorized DOT's *surface transportation programs* is called the Transportation Equity Act for the 21st Century (TEA-21). This legislation replaces the 1991 authorizations known as *ISTEA* but essentially continues the program changes initiated under *ISTEA* (increased levels of highway and transportation funding, an enlarged role for regional planning commissions/*MPOs* in funding decisions, and requirements for comprehensive regional long-range transportation plans and for public participation and transportation alternatives).

**Transportation Improvement Program (TIP):** This is a document prepared by states and planning commissions citing projects to be funded under federal transportation programs for a full-year period. Without TIP inclusion, a project is ineligible for federal funding. The Transportation Improvement Program (TIP) is typically regarded as a short-range program.

**Transportation Management Area (TMA):** Defined by *TEA-21* as all urbanized areas over 200,000 in population. Within a TMA, all transportation plans and programs must be based on a continuing and comprehensive planning process carried out by the *Metropolitan Planning Organization (MPO)* in cooperation with states and transit operators. The TMA boundary affects the responsibility for the selection of transportation projects that receive federal funds.

**Transportation Management Association (TMA):** A voluntary association of public and private agencies and firms joined to cooperatively develop transportation-enhancing programs in a given area. TMAs are appropriate organizations to better manage transportation demand in congested suburban communities.

**Transportation System Management (TSM):** The element of a *Transportation Improvement Program* that proposes noncapital-intensive steps toward the improvement of a transportation system, such as refinement of system and traffic management, the use of bus priority or reserved lanes, and parking strategies. It includes actions to reduce vehicle use, facilitate traffic flow, and improve internal transit management.

**Trust Funds:** Accounts established by law to hold receipts that are collected by the federal government and earmarked for specific purposes and programs. These receipts are not available for the general purposes of the federal government. The Highway Trust Fund comprises receipts from certain highway user taxes (e.g., excise taxes on motor fuel, rubber, and heavy vehicles) and is reserved for use for highway construction, mass transportation, and related purposes.

**U.S. Department of Agriculture (USDA):** The federal agency charged with oversight of federal agricultural programs. Among its many other functions, USDA is the federal government's primary agency for rural economic and community development.

**U.S. Department of Health and Human Services (DHHS):** The federal department responsible for overseeing a wide variety of human services programs that protect the health of all citizens and providing essential human services. Specific programs include those administered through *AoA*, *Head Start*, *Medicaid*, and other agencies.

**U.S. Department of Labor (DOL):** The federal department responsible for overseeing programs that support and promote the welfare of the job seekers, wage earners, and retirees in the United States. DOL administers a variety of federal labor laws, including those that guarantee workers' rights to safe and healthful working conditions, a minimum hourly wage and overtime pay, unemployment insurance, and other income support.

**U.S. Department of Transportation (DOT):** The federal department responsible for overseeing a wide variety of federal funds and regulations for transportation facilities and programs. U.S. DOT includes *FHWA* and *FTA*.

**U.S. Environmental Protection Agency (EPA):** A federal agency whose responsibilities include development and enforcement of national air quality standards and support of anti-pollution activities by state and local governments.

**Urbanized Area (UZA):** An area that contains a city of 50,000 or more population, plus incorporated surrounding areas, and meets set size or density criteria.

**Workforce Development Boards:** Formerly known as Private Industry Councils (PIC), Workforce Development Boards are concerned with training and developing workers to meet the

needs of local businesses. Workforce Development Boards are responsible for most local job training programs and related welfare-to-work efforts.

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# The Regulatory Environment for Federally Funded Transportation Services

Consumer-oriented transportation services often are operated using multiple funding sources; in many cases, funding comes from programs administered by various federal agencies that may pass through state agencies. Both funding agencies and the eventual recipients of the funding (whether profit, non-profit, or governmental organizations) operate in an environment regulated by specific accounting and auditing standards.

The rules that govern the award and use of funds by state and local governments (and their instrumentalities) are found in guidance from the Office of Management and Budget (OMB). When governments award grants directly to private, for-profit organizations (e.g., brokers, consultants, architects, engineers), Federal Acquisition Regulation (FAR) policies provide governing principles. FAR also provides guidance for cost allowability standards in third-party contracts with private, for-profit organizations. This oversight specifies required procedures and the types of costs eligible for funding. Recipients must be familiar with these rules and procedures to understand which costs are allowable and what types of documentation and reporting are necessary to ensure that funds will be available to provide the service as planned.

All recipients of federal funds need to recognize that certain accounting standards must be maintained. These standards are governed by the Financial Accounting Standards Board (FASB), an independent organization established in 1973. The Securities and Exchange Commission recognizes the standards established by FASB as authoritative. A parallel organization, the Governmental Accounting Standards Board (GASB), is dedicated to governmental accounting and was established in 1984. Both boards are maintained through the oversight of the Financial Accounting Foundation, which selects members and ensures adequate funding.

Administrative requirements for all federal grants have been incorporated into the Code of Federal Regulations (CFR) for each federal department. These requirements affect the funding of any federal program, including all human service and transportation programs. In addition, the OMB has developed guidance regarding the allowable costs for recipients of federal funding. This guidance is set forth in various circulars.

In addition, agencies or organizations providing the services using the federal funding sources identified in *TCRP Report 144: Sharing the Costs of Human Services Transportation* must follow some overall accounting standards and principles. For public entities, accounting standards and principles are promulgated by the GASB. For profit-making and non-profit organizations, the FASB has established standards and principles for financial reporting.

## Policies and Procedures for Management of Federal Grants and Contracts

All circulars relating to financial and audit guidance for any federal grant are in the process of being consolidated into Title 2 of the CFR. OMB circulars relevant to this project are summarized at [http://www.whitehouse.gov/omb/grants\\_circulars/](http://www.whitehouse.gov/omb/grants_circulars/) and are outlined as follows:

- State and local governments and Indian Tribes follow these circulars:
  - A-87 for cost principles (relocated to 2 CFR 225),
  - A-102 for administrative requirements (for the Department of Health and Human Services [DHHS], this is 45 CFR 92), and
  - A-133 for auditing requirements.
- Nonprofit organizations follow these circulars:
  - A-122 for cost principles (relocated to 2 CFR 230),
  - A-110 for administrative requirements (relocated to 2 CFR 215), and
  - A-133 for audit requirements.
- For-profit organizations follow these guidelines:
  - FAR Subchapter E, General Contracting Requirements and
  - OMB Circular A-76, Performance of Commercial Activities.

### Rules for Public Entities

#### *OMB Circular A-87: Cost Principles for State, Local, and Indian Tribal Governments*

This circular applies to costs being charged to each specific source of federal funding rather than to the expenses of the overall agency receiving the funding. It establishes a uniform approach “for determining costs and to promote effective program delivery, efficiency, and better relationships between governmental units and the federal government.” The circular includes five appendices:

- A. General principles for determining the specific costs relating to a federal grant.
- B. A long list of expense and cost categories, each defined as allowable or unallowable.
- C. A means to develop a Central Service Cost Allocation Plan for agency-wide costs to be allocated to a specific grant (as would be required for a transportation program within a local government).
- D. A section addressing cost allocation plans for public welfare agencies in particular.
- E. A more general strategy for determining an indirect cost rate proposal.

The general principles in A-87’s Appendix A address issues of legality and consistency in treatment. For example, costs must be assigned consistently as either a direct or indirect cost. In addition, the general principles require the use of Generally Accepted Accounting Principles (GAAP) (discussed later in the accounting standards section) that apply to all financial entities.

Some of the interesting cost categories found in Circular A-87’s Appendix B include guidance for the recording of fringe benefits such as earned leave, donated services, depreciation and use allowances, capital expenditures, fundraising costs, and interest expenses.

The standards established in this circular address two types of indirect costs: overall agency costs that require developing a cost allocation plan that must be certified to use in charging against a grant, and other cost categories within a department or program that may contribute only indirectly to the purposes of a particular grant. The circular outlines an approach to develop an indirect cost rate proposal for charging the appropriate portion of the indirect costs to a grant, which also must be certified.

**Table A-1. CFR references for government-wide grant requirements by department.**

<i>Department</i>	<i>Applies to:</i>	
	<i>State and Local Governments</i>	<i>Universities and Nonprofit Organizations</i>
	<i>Based on:</i>	
	<i>Grants Management Common Rule</i>	<i>OMB Circular A-110</i>
Agriculture	7 CFR 3016	7 CFR 3019
Commerce	15 CFR 24	15 CFR 14
Defense	32 CFR 33	32 CFR 32
Education	34 CFR 80	34 CFR 74
Energy	10 CFR 600	10 CFR 600
Health and Human Services	45 CFR 92	45 CFR 74
Housing and Urban Development	24 CFR 85	24 CFR 84
Interior	43 CFR 12	43 CFR 12
Justice	28 CFR 66	28 CFR 70
Labor	29 CFR 97	29 CFR 95
State	22 CFR 135	22 CFR 145
Transportation	49 CFR 18	49 CFR 19
Treasury	--	--
Veterans Affairs	38 CFR 43	--

Source: <http://www.whitehouse.gov/omb/grants/chart.html>. Accessed May 10, 2010.

### *OMB Circular A-102 (for DHHS, 45 CFR 92): Uniform Administrative Requirements for Grants and Cooperative Agreements to State, Local, and Tribal Governments*

Federal agencies are required to have consistent and uniform government-wide policies and procedures for the management of federal grants and cooperative agreements to state and local governments. In March 1987, the U.S. President directed all grant-making agencies to follow a “common rule,” which has been codified for each agency at a specific location in the CFR. Table A-1 shows the location of requirements for state and local governments as well as for nonprofit organizations. (Requirements for nonprofit organizations are covered under the discussion of Circular A-110.)

The **grants management common rule**, as specified for each agency providing awards to state and local governments, presents the rules for these public entities to follow when applying for grants and the financial management requirements to follow after receiving them, including rules for sub-grants, reporting, record retention, and closeout procedures. It should be noted that administrative rules for some sub-grantees, if they are agencies other than public entities, would fall under the jurisdiction of Circular A-110.

### *OMB Circular A-133: Audit of States, Local Governments, and Nonprofit Organizations*

This circular applies to both public entities and private, nonprofit organizations who receive federal grant money. “It sets forth standards for obtaining consistency and uniformity among federal agencies” for auditing grant recipients. This guidance refers to both generally accepted government auditing standards (GAGAS) as defined by the Government Accounting Office (GAO) and GAAP as they are defined by the American Institute of Certified Public Accountants (AICPA). Standard requirements for the grantees are to maintain a system of internal controls that provides reasonable assurance that the grantee is managing the grant funds appropriately,

to prepare financial statements that reflect the grantee's financial position and results of operations or changes in net assets, and to ensure that an audit is completed as required, and any recommended corrective action is taken. The GAGAS standards require that the auditors ensure that they maintain competence, integrity, objectivity, and independence in planning, conducting, and reporting their work.

OMB also publishes an annual Circular A-133 Compliance Supplement for *each* federal agency. This supplement provides the most up-to-date record of the many program objectives, procedures, and compliance requirements that have a direct and material effect on each of the programs within the agency. This allows the auditors of the programs to have a complete knowledge of specific requirements. These supplements replace the agency audit guides formerly used by A-133 auditors. The most recent compliance supplement is dated March 2007.

## **Rules for Nonprofit Organizations**

### *OMB Circular A-122, Cost Principles for Nonprofit Organizations*

This circular is parallel to A-87 but is intended for use by nonprofit organizations. However, in addition to establishing principles to help determine what costs are, the focus is to ensure that “the Federal Government bear its fair share of costs except where restricted or prohibited by law,” rather than promoting effectiveness among and between various levels of government.

Three appendices in the circular lay out the general principles, the individual items of cost, and those agencies—primarily very large or unusual nonprofits—for which this guidance is not applicable (e.g., the Urban Institute, SRI International, and Blue Cross and Blue Shield Organizations). Within the general principles, the circular addresses the basic considerations as with Circular A-87, but it also addresses direct and indirect costs and the methods for allocating them. There is no Central Service Cost Allocation Plan, only guidance on developing indirect cost rates.

The “Selected Items of Cost” list is similar to the one in A-87, including the same categories of interest mentioned earlier. Neither list is meant to be exhaustive; if a cost category is not included, this does not imply that the cost is unallowable.

### *OMB Circular A-110 (2 CFR 215): Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Nonprofit Organizations*

This circular presents the administrative requirements for nonprofit organizations (and others as named in the title) to apply to receive and then, after receiving an award, to undertake the financial management of any federal grant. As for the requirements under the common rule for public entities, there are general, pre-award requirements, post-award requirements, and after-the-award requirements (closeout). Table 3-1 in Volume 2 of *TCRP Report 144* shows the locations for each federal agency in the CFR where Circular A-110 has been codified.

## **Rules for Profit-Making Organizations**

Although funding for human services transportation usually originates from public sources, such as federal and state programs, the actual providers of transportation services are more commonly becoming profit-making enterprises. There also is a regulatory environment in which these companies must operate. When the awards originate at the federal level, the applicable regulations have been authorized by the Federal Acquisition Regulations System. The authoritative document that governs the contracts public and nonprofit organizations have with private businesses is the FAR. The regulations contained in the FAR represent the uniform policies and procedures for contracts executed by all executive agencies. The FAR document includes a general description of its purpose; definitions and administrative matters; and sections on competition

and acquisition planning, contract methods and contract types, socioeconomic programs (e.g., those geared to small businesses), general contracting requirements, and contract management.

### ***FAR Subchapter E—General Contracting Requirements***

The section providing policies and procedures relevant to contracting with private transportation services is Part 31.2—Contracts with Commercial Organizations. This section provides guidance for determining allowability of costs based on their reasonableness, allocability, GAAP, and terms or limitations of the contract. It describes direct and indirect costs and provides a list of selected costs as with Circulars A-87 and A-122 described earlier. Section 16—Types of Contracts of the FAR document outlines various situations in which profit can be charged (e.g., in the form of a fixed price plus fee contract).

### ***OMB Circular A-76, Performance of Commercial Activities***

This circular addresses the processes and practices for determining whether a commercial activity will be performed by a public or private source. It clarifies the process for making competitive selections between public and private service providers. It also requires that grantors create “a level playing field” to ensure that commercial activities are performed by the best source at the lowest possible cost. In addition, its goal is to improve program performance by increasing visibility and strengthening accountability.

## **Standards for the Fair Presentation of Financial Statements**

All businesses, governmental entities, and other not-for-profit organizations must report financial information to their respective constituencies. Generally, the objective of external financial statements is to communicate the economic effects of completed transactions and certain other events on the financial position and operations of the entity. Financial statements are the external expression of the results of the system of accounting used by business and non-business enterprises. Standards of accounting begin with GAAP. They include quantitative principles of cost, revenue, and matching and qualitative principles of reporting, reliability, and comparability. Standards for presentation of financial information are established by FASB and GASB.

Accounting standards relevant to the funding scenario for transportation providers are found in GASB statements at <http://www.gasb.org> for governmental entities and in Statements of Financial Accounting Board Standards (SFAS) and Statements of Financial Accounting Concepts (SFAC) at <http://www.fasb.org> for nonprofit organizations and for-profit business enterprises.

State and local governments are regulated by the following:

- *GASB Statement No. 29: The Use of Not-for-Profit Accounting and Financial Reporting Principles by Governmental Entities.*
- *GASB Statement No. 34: Basic Financial Statements—and Management’s Discussion and Analysis—for State and Local Governments.*

Nonprofit organizations are regulated by the following:

- *SFAC No. 4: Objectives of Financial Reporting by Non-business Organizations.*
- *SFAS No. 117: Financial Statements of Not-for-Profit Organizations.*

### **Regulations for State and Local Governments: GASB Statements No. 29 and 34**

The purpose of GASB statements is to develop “standards of state and local accounting and financial reporting that will (a) result in useful information for users of financial reports and (b) guide and educate the public, including issuers, auditors, and users of those financial reports.”



GASB Statement No. 29 established that governmental entities must use accounting and financial reporting principles designed specifically for public organizations. It states that these entities may not use the FASB statements and interpretations that apply to nonprofit organizations (e.g., SFAS No. 117, discussed in the next section). This statement confirms that the common use of **proprietary fund accounting** by governmental entities and the inapplicability of fundraising activities differentiate them significantly from private, nonprofit organizations. It is an initial statement that was later enhanced by GASB No. 34, the current authority for public entities.

GASB Statement No. 34, issued in June 1999, established new financial reporting requirements for state and local governments. It retains the requirement to provide information about funds, which are established by governing bodies “to show restrictions on the planned use of resources or to measure, in the short term, the revenues and expenditures arising from certain activities.” These requirements were issued to help governmental bodies demonstrate their stewardship of public resources in both the long term and the short term.

New requirements include the preparation of government-wide financial statements and fund-specific financial statements. They also require that budgetary comparison schedules be included that allow citizens to compare the final financial picture—as recorded in the financial statements—to the budget, which usually includes significant public input to the budget as it was passed at the beginning of the calendar year or fiscal year. Finally, this statement adds more **required supplementary information (RSI)** in the form of a report called *Management’s Discussion and Analysis (MD&A)*, which must appear before the financial statements. In it, financial managers must make an objective and easily readable analysis of the government’s financial performance for the year.

### **Regulations for Nonprofit Organizations: SFAC No. 4 and SFAS No. 117**

SFAC No. 4 differentiates accounting and external financial reporting objectives for non-business entities from those of business enterprises. Issued in 1980, it temporarily assumes that non-business accounting objectives are similar for governmental entities and other not-for-profit organizations. (This was changed in 1987 with the issuance of the GASB Statement No. 29, discussed previously.) SFAC No. 4 provides a definition of the characteristics of a non-business organization. Among the most important factors are

- Significant receipts of resources from providers who do not expect to be repaid.
- Operating purposes other than a profit motive.
- Absence of ownership interests that can be sold, transferred, or redeemed.
- Transactions involving contributions and grants.
- Lack of performance measures comparable to a business enterprises’ profit motive.

SFAS No. 117 establishes standards for general purpose, external financial statements provided by a not-for-profit organization. It was issued in 1993 and remains the current standard. It was developed as part of a project to standardize requirements across all types of nonprofit entities whose financial information was presented in varying, inconsistent manners. Basically, this statement is the first time that all not-for-profit organizations are required to include all of the same statements as business enterprises to be consistent with GAAP:

- A statement of financial position (balance sheet).
- A statement of activities (income statement).
- A statement of cash flows.
- Accompanying notes to financial statements.

This statement incorporates the principles of FASB No. 93, which requires that nonprofit organizations recognize the cost of using up long-lived tangible assets as depreciation in their external financial statements. It also incorporates FASB No. 95, which adapts statements of cash flow to nonprofits, and coordinates with FASB No. 116, which addresses accounting for contributions.

# The Federal Coordinating Council's Vehicle Sharing Policy Statement

One of the most recent and most powerful statements of transportation cost accounting principles from the federal perspective is the vehicle-sharing policy statement from the Federal Interagency Coordinating Council on Access and Mobility (CCAM) at [http://www.unitedweride.gov/1\\_1165\\_ENG\\_HTML.htm](http://www.unitedweride.gov/1_1165_ENG_HTML.htm). This policy statement says that

. . . Federal cost principles do not restrict grantees to serving their own clients . . . if an allowable use of a program's funds includes the provision of transportation services, then that Federal program may share transportation costs with other Federal programs and/or community organizations that also allow funds to be used for transportation services, as long as **the programs follow appropriate cost allocation principles**. [Emphasis added]

. . . allowability of costs is determined in accordance with applicable Federal program statutory and regulatory provisions and the cost principles in the OMB Circular that apply to the entity incurring the costs. Federal cost principles allow programs to share costs with other programs and organizations. Program costs must be reasonable, necessary, and allocable. Thus, vehicles and transportation resources may be shared among multiple programs, **as long as each program pays its allocated (fair) share of costs in accordance with relative benefits received**. [Emphasis added.]

This policy statement is significant in many ways. First, as a requirement from a federal interagency council, this pronouncement has the effect of offering specific instructions to its 13 member federal departments and agencies. Second, it specifically establishes a broad-ranging policy of resource sharing across a wide spectrum of federally funded programs while reinforcing previous statements from individual agencies. Third, it clearly identifies federal accounting regulations that apply to transportation services. Finally, it establishes cost allocation as a fundamental process for coordinating similar transportation efforts funded by separate federal programs. These accomplishments constitute a framework for the implementation of the detailed procedures developed in *TCRP Report 144: Sharing the Costs of Human Services Transportation*.



## APPENDIX C

# Examples of Fully Allocated Transportation Cost Accounting Programs

### Introduction

Adopting fully allocated cost accounting practices strongly supports federal grants management goals. First, many federal programs contain regulatory or program guidance to indicate that, for funds expended on third party contracts and vendors, due diligence must be exercised to ensure that the lowest cost service that is most appropriate to client needs is obtained. Second, in situations where an organization is purchasing service from a third party, the purchasing organization needs assurance that it is only paying for services rendered to its own clientele.

This second factor is particularly relevant when a human service organization opts to contract with a transportation provider that coordinates services in the local community. Organizations that coordinate transportation programs at the local level often do so for a multitude of programs and funding sources. For example, JAUNT, Inc., in Charlottesville, Virginia, has provided services for more than 40 different programs in any given fiscal year. When such broad coordination occurs, purchasers need to be assured that they pay *only* their fair share of program costs.

The Federal Coordinating Council on Access and Mobility (CCAM) has issued a policy on vehicle and resource sharing among differing federal programs that states:

Thus, vehicles and transportation resources may be shared among multiple programs, as long as each program pays its allocated (fair) share of costs in accordance with relative benefits received.

While the CCAM policy statement (see Chapter 2 in Volume 2 of *TCRP Report 144* for the full text) establishes cost allocation as a fundamental process for coordinating similar transportation efforts funded by separate federal programs, this statement does not provide any specific guidance on how to perform the required cost allocation analysis. Another issue to recognize is that organizations that purchase service from coordinated providers may not have the requisite expertise or staff resources to conduct an evaluation of a transportation provider's cost allocation methodologies.

States in which longstanding efforts have attempted to build coordinated transportation infrastructure at the local level have recognized the need to provide tools for both providers and purchasers to assist in the equitable allocation of program costs to users. Such tools provide assurance to transportation service purchasers that they are being charged only their fair share of the costs of transportation. Two states, Florida and North Carolina (long recognized for their coordination efforts), have developed cost allocation and rate-setting models.

### Development of Rate Models

The advantage of fully identifying transportation costs is that this information provides an organization with the ability to understand on a per trip or per person basis what it costs to

provide that transportation as a direct service. This information also provides a benchmark with which to compare the unit costs of other service delivery alternatives (e.g., different modes, different providers, different models of service delivery) and thus to make informed management decisions concerning the most cost-effective strategies for service delivery.

A number of years ago, Florida and North Carolina developed tools to assist transportation providers in accumulating information on the full cost of transportation services and translating this cost information into rates to charge to third parties who may be interested in purchasing service from the transit provider organization. Despite being developed independently, both cost allocation and rate-setting models have commonalities. In addition to using simple and commonly understood computer spreadsheet software (e.g., Microsoft Excel), both models

- Require the transportation provider to report all costs as part of the model's input, using a standardized and comprehensive chart of accounts.
- Require the transportation provider to specify projected units of services to be consumed (i.e., vehicle miles and vehicle hours).
- Take in account potential subsidies that may be directed toward a specific client population or program from sources other than the federal government.
- Compute unit rates for service.

In addition to the Florida and North Carolina efforts, the Federal Transit Administration's (FTA's) National Transit Database (NTD) contains a high level of detail on transportation services and costs that more sophisticated agencies may want to emulate. For full details on the Florida and North Carolina efforts and FTA's National Transit Database, see *TCRP Report 144*, Volume 2, "Research Report."



## APPENDIX D

# Typical Data Collection and Reporting Requirements in Contracts for Transportation Services

The following (or similar) language is in use at this time in contracts between local transportation systems and the independent organizations (contractors) that provide transportation services. These statements refer to the kinds of data to be collected and reported by the contractor to the transportation system.

### **Example A**

1. Contractor shall prepare and submit a comprehensive Monthly Report for presentation to [the Transportation System]. This Monthly Report will include:
  - A management summary highlighting recent achievements, upcoming efforts, and significant issues affecting the Transportation System.
  - Information regarding accidents, incidents, complaints, and commendations.
  - A statistical summary showing agencies participating, miles driven, trip performance data, system costs, surcharges, average fuel costs, breakout of rates charged per agency, system costs per day and per trip, fleet and maintenance information, and other statistical data as requested.
  - Other information as appropriate for [Transportation System] Board consideration as detailed in the Records and Reports Section of the Request for Proposals.
2. Notwithstanding the above reporting requirements, the Contractor shall give same-day notification to [Transportation System] staff of all major vehicle accidents, driver citations, or passenger incidents/complaints. The Contractor must fully investigate all accidents, passenger injuries, and significant service complaints, and file a written report with the [Transportation System] Board Chairman within 48 hours of occurrence. The Contractor will endeavor to repair all physical damage to the vehicles within 30 days of occurrence.

### **Example B**

1. Contractor shall invoice [the Transportation System] participating agencies for services provided to [the Transportation System] no later than the fifth working day following the end of each month. It is understood that the agencies shall pay Contractor within 15 days of the submission of the invoice. It is also understood that the County and [the Transportation System] will assist with Contractor's efforts to collect invoiced amounts from the member agencies in a timely manner.
2. Contractor shall prepare and submit the following comprehensive monthly and cumulative year-to-date reports to the [Transportation System Advisory Committee].

**A monthly management summary** highlighting system achievements, setting system goals, identifying significant issues that must be addressed, and providing information on any accidents, incidents, complaints, and commendations.

**A monthly year-to-date “system report”** on the following performance measures: operating days, number of accounts, fuel consumed, fuel cost, average wholesale cost per gallon, fuel adjustment in rate/mile, total miles, total trips, total hours, average passenger per mile, average passenger per hour, average miles per day, average miles per trip, average cost per mile, average cost per hour, average cost per day, average cost per trip. All of this is to be presented in a concise **one page** report.

**A list of system agencies with coded billing accounts:** Most agencies have a need to keep separate operating information on several billing accounts. The operating system must be able to track each billing account.

**Monthly statistics per “billing account”** stating the number of operating days, number of trips, total mileage, rate per mile charge, total cost, average cost per trip, average miles per trip and any fares that may have been collected. Grand totals per column must add up to the monthly totals shown on the System Report.

**Year-to-Date Area Report per “billing account”** with the same factors as above but now reflecting the data for a year-to-date report.

**Other report data that is considered essential in the industry:** What are other industry performance factors that are typically being monitored across the state or nation? Data should include ambulatory and non-ambulatory trips, vehicle accidents and breakdowns, training hours provided, non-service miles, non-service hours that are in your reporting tool. These data should also be reported in the Year-to-Date System overview of performance measures.

3. Contractor will implement a Customer Comment Card Program and routinely visit system agencies to assess the level of satisfaction and will report such results to the [Transportation System Advisory Committee] at their monthly meetings.



## APPENDIX E

# Depreciation of Capital Expenses

### Considerations Regarding Depreciation

#### Overview

Depreciation and use allowances typically are the methods used to allocate the cost of fixed assets to activities conducted by the organization during its fiscal year. They usually are computed on the original acquisition cost of the asset and the period of useful service (useful life) established in each case for usable capital assets. Federal Transit Administration (FTA) and state Departments of Transportation typically specify the useful life for all capital assets used in transit service.

*TCRP Report 144: Sharing the Costs of Human Services Transportation* is designed to facilitate cost sharing agreements between public transit and human service agencies. In the majority of cases, transit agencies likely will receive capital assistance through one or more of the many programs administered by the FTA (i.e., Sections 5307, 5309, 5310, 5311, 5316, or 5317). Additionally, it is likely that when human service agencies purchase service from another organization, they may use, in part, revenues derived from federal grants that support client transportation. This scenario is common in coordinated transportation where cost sharing agreements are necessary.

The Office of Management and Budget (OMB) is the agency of the federal government responsible for assisting the President in overseeing the preparation of the federal budget and supervising its administration in Executive Branch agencies. OMB promulgates rules on the allowability of expenditures under various federal grant awards. Both OMB Circulars A-87 and A-122 **specifically exclude the cost of depreciation as an allowable expense under federal awards**. Language in both circulars is identical, reading as follows:

- The computation of depreciation or use allowances **will exclude**:
  - The cost of land;
  - Any portion of the cost of buildings and equipment borne by or donated by the federal government irrespective of where the title was originally vested or where it presently resides; and
  - Any portion of the cost of buildings and equipment contributed by or for the governmental unit, or a related donor organization, in satisfaction of a matching requirement.

#### Implications for this Effort

The Cost Sharing Model provides, at the user's discretion, the opportunity to include depreciation in the computation of fully allocated costs. In most cases, however, it is recommended that the user should not include depreciation in the model's computations for the reasons described in Chapter 11 of this report (see Volume 2, "Research Report"). In communities where the vast majority of the users of the Cost Sharing Model are using federal funds for capital purposes and

everyone excludes capital costs, the Cost Sharing Model still will provide appropriate guidance for allocating costs among stakeholders.

## An Example of Depreciation

A local senior center may require transportation of older adults to participate in the daily activities of the center. The center receives funding from the Area Agency on Aging (AAA) under the Older Americans Act (42 U.S.C. § 3030d [a] [2]). The center then seeks to enter into an agreement with the local community transportation agency to provide this service. The local transportation organization may have acquired its vehicles under one of the previously listed FTA grant programs; typically, the federal government will pay for 80 percent of the cost of the vehicle. In this example, it would not be permissible for the senior center to pay depreciation or use charges to the transportation agency for the part of the cost of equipment paid for by the federal government. This would be an unallowable expense.

This commonly occurring situation is the typical arrangement in coordinated transportation agreements. In this situation, when an organization is attempting to develop a cost sharing agreement with another organization, depreciation should be excluded from the analysis so as to not violate OMB cost allowability standards.

## Alternative Considerations

It is permissible for a transit organization to include that portion of an asset **not paid for by the federal government** in a use or depreciation charge. For example, the North Carolina Department of Transportation (NCDOT), in its cost sharing procedures, permits its grantees to include the non-federal share of capital equipment (as an option component) in cost sharing agreements with human service agencies. However, this introduces a fair amount of complexity into the Cost Sharing Model because each and every asset should be documented in terms of the original acquisition cost, useful life, and cost sharing arrangements at the time of purchase. This level of documentation can create additional accounting burdens for the organization.

**There are situations where inclusion of capital equipment is recommended in the Cost Sharing Model.** These situations typically include scenarios where a transit agency enters into a service agreement with a private sector transportation provider (in which there would be no federal participation in the provider's rolling stock and facilities) and depreciation would be reasonably a component of contract costs. In this circumstance, users of the Cost Sharing Model should include depreciation in the computations.



*Abbreviations and acronyms used without definitions in TRB publications:*

AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI-NA	Airports Council International-North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	Air Transport Association
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HMCRP	Hazardous Materials Cooperative Research Program
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
PHMSA	Pipeline and Hazardous Materials Safety Administration
RITA	Research and Innovative Technology Administration
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation