SHARING THE COSTS OF HUMAN SERVICES TRANSPORTATION

Instructions for the Human Services Transportation Cost Sharing Model

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 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 (Exhibit 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 1:
SECURITY WARNING BOX**
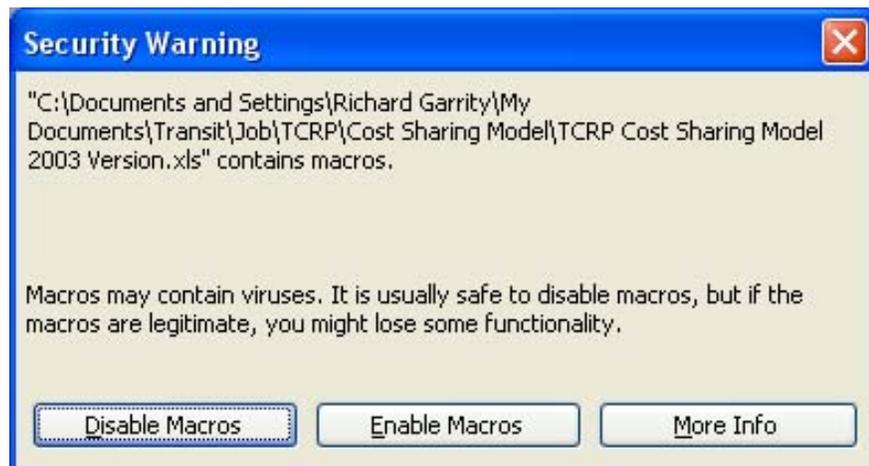
Basic Accounting Structure

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 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.

Exhibit 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*"

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 1.

Table 1:
TYPES OF DATA TO USE FOR VARIOUS PURPOSES

If you want the model to . . .	*For your service data . . .*	*For your budget data . . .*
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

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 3).

Exhibit 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:	-	-	-
Enter the Total Number of Vehicle Miles	-	-	-
Enter the Total Number of Peak Period Vehicles			-

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

- ✦ 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 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 operate 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 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.

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 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 Human Services Transportation 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.

Exhibit 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
501 LABOR		
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	$ -
502 FRINGE BENEFITS		
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	$ -
502.13	Uniform and Work Clothing Allowances	$ -

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

✦ 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.

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 *TCRP Report 144*, "Sharing the Costs of Human Services Transportation."

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 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.

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

Exhibit 6:
COST CALCULATOR

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 *TCRP Report 144*.

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 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 calculated the price per passenger trip, you could also 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.

Exhibit 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 $ -