Cost Allocation Techniques

presented by
Richard Garrity, Senior Associate
RLS & Associates, Inc.

Presented at:
17th National Rural Public and Intercity Bus Transportation Conference
October 22 - 25, 2006
Stevenson, WA
Session Objectives

1. Identify Range of “Cost Allocation” Issues in Transit
2. Understand Concept of Full Cost Identification
3. Define Methods for Computing Fully Allocated Costs
4. Review Methods to Convert FAC to “Price”
Target Audience

This Workshop is Designed for:

- Transit Organizations that Provide Service Under a Purchase of Service Arrangement to Other Users/Groups
- Multi-Purpose Human Service Agencies Supported by Multiple Federal Grants
What is Cost Allocation?

- In Transit, “Cost Allocation” Can Refer to a Series of Distinct Management/Accounting Practices
- Each Requires a Separate Methodology, Yet all are Technically Cost Allocation
Types of Cost Allocation

- Financial Based Cost Allocation
- Service Based Cost Allocation

Plans
Types of Cost Allocation

- Financial Based Cost Allocation
- Central Service Cost Allocation Plans
- Indirect Cost Allocation Plans
Types of Cost Allocation

- **Central Services Cost Allocation Plan**
  - A Publicly Sponsored Transit Program Benefits from the Services of Other Governmental Units and Desires to Claim Costs Incurred by these Units Under its Various Federal Awards
  - The Public Entity or Governmental Unit Must Prepare a “Central Services Cost Allocation Plan”
Types of Cost Allocation

- **Indirect Cost Allocation Plan**
  - An Entity (Public or Private Nonprofit) Provides Multiple Program Services
  - Certain Overheard and Administrative Costs Incurred by the Entity Benefit All Programs and Services, Including Transit
  - The Agency Seeks to Recoup These Costs in Their Billings to Various Federal Agencies
  - The Entity Requires an Approved “Indirect Cost Allocation Rate” in Order for Such Costs to be Reimbursable by the Federal Government
Types of Cost Allocation

- Service Based Cost Allocation
  - Allocate Costs to Various Types/ Modes/ Services
- Urban/ Rural Cost Allocation
  - Required by FTA
- Charter Cost Allocation
- Local Match Allocation Plan
Types of Cost Allocation

- **Service Based Cost Allocation**
  - A Public Transit Agency Coordinates Service With Various Human Service Agencies In The Area
  - The Transit Provider Has A Policy That Public Transit Funds Cannot Be Used To Subsidize Human Service Agency Client Transportation
  - The Transit Agency Needs A “Fully Allocated Cost Analysis” To Determine How To Price Contract Services
Types of Cost Allocation

- **Service Based Cost Allocation**
  - A Transit Agency Receives Funding Under Both FTA Section 5307 And Section 5111
  - FTA Expects the Grantee to Develop a Reasonable Basis for Allocating Operating Costs Between the Two Funding Sources that is Related to the Service Provided
  - FTA Requires a “Grant Allocation Plan” to Distribute Costs to the Two Different, But Related Programs
Types of Cost Allocation

- Service Based Cost Allocation
  - A Transit Agency Provides Charter Service in Accordance with 49 CFR part 604
  - The Transit Agency Must Demonstrate That it Fully Recovers the Cost of Charter Service
  - The Agency Requires a “Charter Service Allocation Plan”
Types of Cost Allocation

- Service Based Cost Allocation
  - A Regional Transit Authority Provides Service Over a Multi-Jurisdictional Service Area
  - Each Participating Local Entity Must Share Responsibility for Funding a Portion of the Local Share
  - The Authority Must Allocate Local Funding Needs In An Equitable Manner To All Participating Jurisdictions
Multiple Cost Allocation Needs

- Some Public Transportation Projects May Require Multiple Types of Cost Allocation
Example of Public Agency With Need for Multiple Allocation Strategies

Municipal or County Government

Central Service Departments

Operating Departments

Individual Operating Departments

Central Service Cost Allocation Plan

Allocateable Portion of Central Service Costs

Public Works & Transit

Departmental Administration

Allocable Portion of Departmental Indirect Costs

Approved Indirect Cost Rate

Allocateable Portion of Departmental Indirect Costs

Transit

Public Works

Transit Direct Costs: Direct Functions

Operations

Maintenance

Modes

Fixed Route

JARC

Demand Response

Transit Direct Costs: Shared Functions

Management

Dispatch

Allocate on Basis of Service Units

Allocable Portion of Transit Management Costs (Fixed Costs)
Example of Nonprofit Agency With Need for Multiple Allocation Strategies
Identifying Transportation Costs

- Our Goal - To Answer the Questions:
  - How Much Does the Transportation Service Cost?
  - When We Sell Transportation Services, What Should We Charge?
- In Order to Achieve These Goals, Agency and Program Managers Must Use Financial Planning
Financial Planning: Why is This Important?

- Transportation Systems Need Complete and Accurate Financial Data in Order to:
  - Manage the System So That its Goals and Objectives are Met Efficiently
  - To Accurately Evaluate Alternative Service Delivery Proposals
Financial Planning: Why is This Important?

- Know the True Cost of Operating the System so that Costs May be Billed or Allocated Appropriately to the System's Users
- Report to the Funding Sources or Purchasing Agencies How Money was Spent, What Revenues were Realized, and the Financial Status of the Organization
Financial Planning: Why is This Important?

- Planning for Change
  - Changes We Institute
  - Changes Forced Upon Us

Political Climate
Framework for Financial Planning

- Financial Planning Begins by Establishing (or Reaffirming) Overall Strategies and Goals
  - Mission Statement
    - WHAT Will the Transit Service Do?
    - HOW Will the System Operate?
- This Starts the Financial Planning Process
Framework for Financial Planning

- Four (4) Fundamental Financial Management Processes
  - Performance Evaluation Process
  - Budget Process
  - Accounting System
  - Financial Reporting
- All are Inter-Related
Framework for Financial Planning

- Cost Analysis is a Key Element of Financial Planning
- Knowing the Costs of Individual Routes or Services is Useful for Your Management Purposes and for Billing Your Client Agencies
Framework for Financial Planning

- The Basic Approach Recommended and Used by Successful Business Operations and Transportation Systems is Called “Full Cost Accounting”
Framework for Financial Planning

To Use this Approach Requires an Understanding of Basic Cost Concepts and the Use of a Consistent Costing Method (Model)
Full Cost Accounting

- Using “Full Cost Accounting” Means that the Total Costs of Providing Transportation Services are Considered
- Total Costs Include Any Commitment or Use of Time, Money, Physical Resources, and Other Assets of the Agency in the Delivery of Transportation Services
Full Cost Accounting

In Full Cost Accounting, a Value is Given to These Commitments Whether or Not They Result in Immediate Out-of-Pocket Expenditures
Tools to Assist in Full Cost Accounting

- The Agency’s Chart of Accounts is the Basic Tool Used to Ensure that All Transportation Costs are Reflected in the Agency’s Accounting System
Special Issues in Full Cost Accounting

- Operating and Capital Costs
- Fixed and Variable Costs
- Direct and Shared Costs
Special Issues in Full Cost Accounting

- Cost Principles
  - State and Local Governments
    - OMB Circular A-87
    - http://www.whitehouse.gov/OMB/circulars/a087/a087-all.html
  - Nonprofits
    - OMB Circular A-122
    - http://www.whitehouse.gov/OMB/circulars/122/a122.html
Operating and Capital Cost

- Operating Costs are Consumed in Less Than One Year (*e.g.*, Wages, Fuel) and Generally Have a Unit Acquisition Cost of Less Than $300.00

- Capital Costs are Expenses for Long-Term Assets (*e.g.*, Vehicles, Garages)

- Definitions May be Set by the Grantor Agency
Operating and Capital Cost

- Under FTA Programs, Capital Expenses are Defined in FTA Circulars
- These Documents Can Be Obtained at:

Operating and Capital Cost

- Defining Capital Costs is Important, as OMB Circular A-87 States that Depreciation Will Exclude:
  - Any Portion of the Cost of Buildings and Equipment Borne by or Donated by the Federal Government Irrespective of Where Title was Originally Vested or Where it Presently Resides
Operating and Capital Cost

- **What Does this Mean?**
  - If the Cost of the Vehicle (Asset) Was Paid for by a Federal Program, You May NOT Include Depreciation of that Asset in Your Charges to Other Federal Programs in the Cost of Service Provision

*Source: OMB Circular A-87, Attachment B, Paragraph 15c(2); and OMB Circular A-122, Attachment B, Paragraph 11c(2).*
Variable and Fixed Expenses

- **Variable Costs Change Relative to the Amount of Service Provided (e.g., Drivers' Wages)**
- **Fixed Costs Do Not Vary with the Amount of Service Provided (e.g., Administrative Salaries)**
Direct and Indirect Costs

- Direct Costs are Those Expenses Incurred by the Transit System that are Directly Related and Strictly Benefit Only the Transportation Program
Direct and Indirect Costs

- Indirect Costs are Those Costs That Have Been Incurred for Common or Joint Purposes
- These Costs Benefit More than One Cost Objective/Program and Cannot be Readily Identified with a Particular Final Cost Objective Without Effort Disproportionate to the Results Achieved
Direct and Indirect Costs

- The Essential Difference is the Degree of Ease with Which a Cost Can be Readily Assigned to a Particular Cost Objective with a High Degree of Accuracy
Direct and Indirect Costs

- There are No Universal Rules for Classifying Costs as Direct or Indirect Under Every Accounting System
- But You Must be Consistent
Recommendations for Preparing Indirect Cost Plans

A Guide for State, Local and Indian Tribal Governments

Cost Principles and Procedures for Developing Cost Allocation Plans and Indirect Cost Rates for Agreements with the Federal Government

Implementation Guide for Office of Management and Budget Circular A-87
Recommendations for Preparing Indirect Cost Plans

- HHS Guide Can be Downloaded at:

  http://www.hhs.gov/grantsnet/state/
Cost Allocation

- **Fad or Management Necessity?**

- **An Understanding of Fully Allocated Costs Provides Management with:**
  - The Ability to Accurately Price Services Provided Under Contract
  - An Assessment Tool to Evaluate Changes in Service

- **For Example, the Cost of Adding or Losing a Contract Service Could Be Estimated**
Why Cost Allocation?

More Transit Funds From FTA???
Why Cost Allocation?

- To Determine How Much It Costs to Provide A Specific Transit Service

$6.80 Per Trip
The Cost Allocation Process

- Why Do We Need a Model to Determine Cost?
  - Why Can’t We Simply Divide Total System Cost by Total System Miles?
  - Or Total System Cost by Total System Hours?
- Consider the Following:
The Cost Allocation Process

- Do These Trips Cost the Same?

5 Miles

10 Minutes

5 Miles

20 Minutes
The Cost Allocation Process

- Do These Trips Cost the Same?
The Cost Allocation Process

- Transportation Costs are Driven by Two Critical Factors:
  - Time AND Distance
- Our Model Must Take Both Factors Into Account When Costing Transportation Services
Developing a Cost Allocation Model

- How Do We Allocate Costs? Don’t Worry, This Process is Not Complicated! This is Not a Mandate, But a Useful Management Tool
The Cost Allocation Process

Cost Allocation Assumes:

- Total System Costs Can be Allocated to Service Based on the Level of Service Provided

- System Average Unit Costs Can Be Used to Estimate Service Costs
Overview of the Cost Allocation Process

Assemble Data

Assign Expense Line Items

Calculate Unit Costs
Issues in Assembling Data

- Where Do We Get Cost Data?
- What Time Period Should be Used?
- Projected vs. Actual?
Data Required

- Twelve (12) Months Actual or Projected Transit Expense Data
  - Expense Data Will be Classified as Either:
    - Fixed Expense
    - Variable Expense

- Service Data
  - Vehicle-Miles
  - Vehicle-Hours
  - Passenger Trips
Assigning Expenses to Categories

- Cost Allocation Involves Taking Each Expense Line Item and Assigning It to Either the Fixed or Variable Category

- Variable Expenses are Further Broken Down as Varying Either by:
  - Hour
  - Mile
What Are the Rules for Assigning Costs?

- **Fixed Costs** are those costs that will not change as a result of an increase or decrease in service levels.
- **Variable Expenses** are those costs that will change if there is a change in service levels.
Tips for Assigning Costs

- There are No Hard and Fast Rules.....But:
  - Project Administration Costs are Almost Always Fixed
  - Understand the Basis of Each Cost Item and Assign Accordingly
  - Be Logical
  - BE CONSISTENT
Calculate Unit Costs

- We Now Have a Total of Fixed and Variable Costs
- We Need to Calculate Our Unit Costs. There are Three (3) Calculations:
  - Allocated Hours Cost
  - Allocated Miles Cost
  - Allocated Fixed Expense Ratio
Computation - Allocated Hours Cost

- Allocated Hours Cost:

  Total Allocated Hours Cost
  ----------------------------------
  Annual Projected Vehicle Hours
Computation - Allocated Miles Cost

Allocated Miles Cost:

\[
\text{Total Allocated Miles Cost} \quad \frac{\text{Annual Projected Vehicle Miles}}{}
\]
Computations

- What Do We Do With Fixed Expenses?

- There Are Different Approaches - For Most Demand Response Systems in Rural Areas, Fixed Expenses are Expressed as a Percentage or Ratio of Allocated Variable Expenses (Hours Cost + Miles Cost)
Computation of Fixed Expenses

- In Rural Systems, Fixed Expenses are Expressed as a Percent of Variable Expenses:

- Fixed Cost Factor =

\[
\frac{\text{Total Fixed Expenses}}{\text{Total Allocated Hours Expenses} + \text{Total Allocated Miles Expenses}}
\]
Computation of Fixed Expenses

- Fixed Expenses are Expressed as Follows:

\[
\frac{\text{Total Fixed Expenses}}{\text{Total Peak Period Vehicles}}
\]
Completing Our Calculations

The Fully Allocated Cost of Service is Equal to:

\[
\{(\text{Total Annual/Projected Hours} \times \text{Allocated Hours Cost}) + (\text{Total Annual/Projected Miles} \times \text{Allocated Miles Cost})\} + \{\text{Fixed Cost Factor} \times [\{(\text{Total Annual/Projected Hours} \times \text{Total Allocated Hours Cost}) + (\text{Total Annual Projected Miles} \times \text{Allocated Miles Cost})\}]\}
\]
Putting It All Together

- Congratulations ... You Have Just Developed a Cost Allocation Model!
Putting Our Model to Work

- Now that We Have Our Model, We Will Put it to Work

We'll Sort Through The X's and O's By Looking At Allocating the Costs of Various System Users
Developing Unit Rates

- Our Objectives in the Process:
  - Simple
  - Equitable
  - Reflect Actual Cost of Service Provision
  - Appropriate Use of Public Subsidies
Alternative Rate Structures

- Price Per Passenger Trip
- Price Per Mile
- Price Per Hour
- Price Per Zone
Issues with Cost Allocation

- This Procedure Has Not Been Reviewed or Certified by Federal Grantor Agencies
- Complexities Arise When a Transportation Provider Uses Ridesharing (Mixing Clients of Two or More Programs) When Using a Mileage or Time Based Unit Rate of Service
- Treatment of Capital Paid for, in Whole or In Part, By the Federal Government
Automating the Cost Allocation and Rate Setting Process

- The Procedures Employed in Cost Allocation Can be Replicated Each Fiscal Year
- Process Lends Itself to the Development of a Spreadsheet-Based Cost Allocation Model
Automating the Cost Allocation and Rate Setting Process

- Several States Have Developed Such Models for Their Section 5311 Grantees