Cost Allocation Meets Coordination – Module 1

A Mini-Course for Human Services Transportation Providers
Meet Your Guest Presenter

Carol Wright Kenderdine
Easterseals, Inc.
Co-Director, NADTC
MISSION: To promote the availability of accessible transportation options that serve the needs of Older Adults, People with Disabilities, Caregivers and Communities.

MAJOR OBJECTIVES:
• Person-centered technical assistance and information
• Training
• Communication and Outreach
• Coordination and partnership
• Investment in community solutions

Photo Credit: Metrolina Association for the Blind, Charlotte, NC
Cost Allocation Course

- Session 1 – Basics of cost allocation, demonstrate how to use the model and how to apply it for things like forecasting and setting fares.
- Session 2 – Illustrate reasons to allocate your costs, how your fully allocated cost can be a tool for coordination.
- Session 3 – Determine the difference between pricing, cost, value and how to communicate these to others.
POLL

What is the main reason you signed up for this course?
Self-Assessment
Cost Allocation

- Financial planning technique
- All commitment or use of time, money, resources, administration
- Estimates operating expenses
- Does not necessarily set prices for service
- Does not usually include capital costs
Cost Allocation, continued

- Logical
- Defensible
- Consistent
- In Writing
Fares = Cost of Trip

The cost of your ride is the fare charged as the customer boards the vehicle.

- What do you think?
- Type responses in chat box
Do these trips cost the same?

Stevens Point, WI to Wausau, WI
34.3 miles
34 minutes via I-39

Grafton, WI to Oak Creek, WI
34.5 miles
45 minutes via I-43
* Through downtown Milwaukee
Chart of Accounts

- Complete listing of account titles (revenue and expenses) used by an organization

- Tool that ensures all costs are reflected in cost allocation model
Full Cost Accounting

- Capital vs. Operating Costs
- Fixed vs. Variable Costs
- Direct vs. Indirect Costs
Capital vs. Operating

- **Capital Costs** – expenses associated with long-term acquisitions and leases of physical assets such as vans, buses, garages and facilities

- **Operating Costs** – expenses consumed in a fiscal year to make the transit system operate (i.e., labor, benefits, materials, insurance, supplies, fuel, maintenance)

Capital Costs + Operating Costs = Total Costs
Fixed vs. Variable Costs

- Fixed Costs – those which do not vary with the amount of service provided
  (administrative salaries)

- Variable Costs – those which do change with the amount of service provided
  (driver’s wages, fuel, maintenance costs)

Fixed Costs + Variable Costs = Total Costs
Direct vs. Indirect Costs

- Direct Costs – those which can be associated on a one-to-one basis with a given service (driver labor, fuel, maintenance costs)

- Indirect Costs – those which support common or joint programs or purposes (shared costs such as utilities and administrative costs)

Direct Costs + Indirect Costs = Total Costs
There are no universal rules for classifying a specific cost as direct or indirect.

The “test” is the degree of ease with which a cost can be assigned with a high degree of **accuracy** and **consistency**.
A Note on Depreciation

- In the majority of cases, transit and transportation agencies likely will receive capital assistance through one or more FTA grants (Sections 5307, 5310, 5311). 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.
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.
Listening for Comprehension Slide

- _________ Costs are those costs which can be associated on a one-to-one basis with a given service.

Put your answers in the chat box!
Cost Allocation Model

- Assemble cost and service data
- Assign cost figures to categories that explain how costs vary
- Calculate average unit costs – can be used to determine specific route or services costs, per mile, hour or per trip basis
Data Required

- 12 months actual expense data
- Service Data
  - Vehicle Miles
  - Vehicle Hours
  - One-way Passenger Trips
**What 12-month data do I use?**

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

<table>
<thead>
<tr>
<th>If you want the model to . . .</th>
<th>For your service data . . .</th>
<th>For your budget data . . .</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price a proposed service</td>
<td>Use projected data</td>
<td>Use projected data</td>
</tr>
<tr>
<td>Estimate revenue profit/loss on an existing or past contract</td>
<td>Use current actual data or historical data</td>
<td>Use current actual data or historical data</td>
</tr>
</tbody>
</table>
Applying the Unit Cost Model

1. Decide what factors you will use to allocate costs (miles/hours) and directly charge as many expenses as possible to the specific service.

2. For each expense item, determine which of the allocation variables best explains the variance in the cost item. (i.e., fuel & maintenance are most closely related to distance traveled – miles while wages would be hours)

3. Divide shared expenses based on how resources are used:
   - Vehicle miles / Vehicle hours (transit only)
   - % of time spent by staff (multi-service)
   - % of space used (multi-service)
   - Arbitrary but consistent allocation
Generate Unit Cost Rates

- Calculate the unit cost factors for your miles-related expenses, your hours-related expenses, and your fixed expenses as a percentage of your total vehicle expenses.

- Calculate the total cost of any route or service by determining the # of miles traveled and the # of dedicated vehicle hours.
Cost Allocation Example

Total Transit Expenses for Agency: $423,500
Total Vehicle Miles: 190,000
Total Vehicle Hours of Operation: 12,500
Total Vehicles Operated by Agency: 6
What does it cost to operate the Dial-a-Ride Van?

Total Vehicle Miles 20,000
Total Vehicle Hours 2,000
Cost Allocation – Simple Yet Imprecise Method

**Cost per Mile**

System Cost per Mile $423,500 / 190,000 = $2.23/mile

Dial-a-Ride Cost $2.23 x 20,000 = $44,600

**Cost per Hour**

System Cost per Hour $423,500 / 12,500 = $33.88/hour

Dial-a-Ride Cost $33.88 x 2,000 = $67,760

Why is there a difference?
Unit Cost Model

or

Fully Allocated Cost Model

Two most common variables used are:

- Vehicle miles
- Vehicle hours
Calculate the total cost of any route or service by determining the # of miles traveled and the # of dedicated vehicle hours.

Annual Cost for System or Route =

Unit cost of mileage-related expenses \times \text{miles} 
+ 
Unit cost of hours-related expenses \times \text{hours} 
+ 
Fixed expense % of total vehicle expenses
Applying the Unit Cost Model

1. Decide what factors you will use to allocate costs (miles & hours)

2. For each expense item, determine which of the allocation variables best explains the variance in the cost item. (i.e., fuel & maintenance are most closely related to distance traveled: miles; wages and benefits are most closely related to hours; administrative time and electricity are fixed costs)
# Assigning Costs

For each expense item, determine which of the allocation variables best explains the variance in the cost item. (i.e., fuel & maintenance are most closely related to distance traveled – miles while wages would be hours)

<table>
<thead>
<tr>
<th>Expense Account</th>
<th>Total Cost</th>
<th>Variable Cost</th>
<th>Fixed Cost</th>
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<tr>
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<td>Vehicle Hours</td>
<td>Vehicle Miles</td>
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<td>Transportation</td>
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<td>Driver Wages &amp; Fringe</td>
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<td>Fuel &amp; Oil</td>
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<td>Vehicle Insurance</td>
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<td>Maintenance</td>
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<tr>
<td>Mechanic Wages &amp; Fringe</td>
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<td>Tires, Tubes, &amp; Parts</td>
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<td>Contracted Maintenance</td>
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<td>Labor &amp; Fringe</td>
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<td>Salaries &amp; Fringe</td>
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<td>Utilities</td>
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<td><strong>Total Costs</strong></td>
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<td><strong>Annual Operating Statistics</strong></td>
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<td><strong>Unit Costs</strong></td>
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<tr>
<td><strong>Fixed Cost Factor</strong></td>
<td>(TFC as % of TVC)</td>
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<tr>
<td><strong>Fixed Costs as % of Total Costs</strong></td>
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</tbody>
</table>

| **Transportation** |            |               |             |            |
| **Driver Wages & Fringe** |            |               |             | x          |
| **Fuel & Oil** |            | x             |             |            |
| **Vehicle Insurance** |            |               |             | x          |
Applying the Unit Cost Model

3. Assign expense items to cost factors: **Miles, Hours** or **Fixed**

4. Calculate the unit cost factors for your miles-related expenses and your hours-related expenses.

5. Determine the % of your vehicle expenses that are your fixed or overhead costs.
## Assigning Costs

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<td>Vehicle Hours</td>
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<td>Driver Wages &amp; Fringe</td>
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<td>Tires, Tubes, &amp; Parts</td>
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<td>Contracted Maintenance</td>
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<td>Administrative</td>
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<td>Salaries &amp; Fringe</td>
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<td><strong>$423,500</strong></td>
<td><strong>$240,000</strong></td>
<td><strong>$ 88,000</strong></td>
</tr>
</tbody>
</table>

### Annual Operating Statistics

- 12,500 hrs.
- 190,000 mi.

### Unit Costs

- **Fixed Cost Factor (TFC as % of TVC)**: 29%
- **Fixed Costs as % of Total Costs**: 22.5%
- $19.20/hr.
- .46/mile
Individual Routes or Service Calculations

- Calculate the total cost of any route or service by determining the number of miles traveled and the number of dedicated vehicle hours.

  Unit cost of the mileage-related expenses x miles + Unit cost of hours-related expenses x hours x fixed vehicle cost % = cost for route or service
Example 1  Dial-A-Ride

Total Transit Expenses for Agency: $423,500

Total Vehicle Miles: 190,000

Total Vehicle Hours of Operation: 12,500

Total Vehicles Operated by Agency: 6

Dial-a-Ride Miles 20,000

Dial-a-Ride Hours 2,000
Example 1 Dial-A-Ride

What does it cost to operate the Dial-a-Ride Van?

Total Vehicle Miles  20,000
Total Vehicle Hours  2,000
Applying the Unit Cost Model to Dial-a-Ride Example

Annual Cost for System or Route =
Unit Cost of Mileage Related Expenses x Miles +
Unit Cost of Hours-Related Expenses x Hours
x Fixed Expense %

*Dial-a-Ride*

System cost per mile based on miles-related expenses = $0.46/mile
System cost per hour based on hours-related expenses = $19.20/hr.

$0.46 \times 20,000 \ ($9,200) + $19.20 \times 2,000 \ ($38,400) = $47,600 \times 1.29\ ($13,804) = $61,404
Cost Allocation – Simple Yet Imprecise Method

Cost per Mile

System Cost per Mile $423,500 / 190,000 = $2.23/mile

Dial-a-Ride Cost $2.23 x 20,000 = $44,600

Cost per Hour

System Cost per Hour $423,500 / 12,500 = $33.88/hour

Dial-a-Ride Cost $33.88 x 2,000 = $67,760
Discussion

Why is the cost per hour more accurate than the cost per mile?
Example 2: Volunteer Driver Program
POLL

Will there be vehicle hour and mile expenses with a volunteer driver program?
POLL

Is the cost per mile the reimbursement you give to your volunteer drivers?
Example 2 – Volunteer Driver Program

Total Volunteer Expenses for Agency: $159,750
Total Vehicle Miles: 272,000
Total Vehicle Hours of volunteer time: 3,700
Total Vehicles Operated by Agency: 0
Example 2 – Volunteer Driver Program

What does it cost to operate the Volunteer Driver Program?

Total Vehicle Miles 272,000

Total Vehicle Hours 3,700
## Example 2 – Volunteer Driver Program

<table>
<thead>
<tr>
<th>Expense Account</th>
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<th>Fixed Cost</th>
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<tr>
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<td>Vehicle Hours</td>
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<td>Volunteer Drivers Reimbursement</td>
<td>$125,000</td>
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<td>Volunteer Drivers Recognition</td>
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<td>Volunteer Driver Insurance</td>
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<tr>
<td>Administrative Salaries &amp; Fringe</td>
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<td>$1,200</td>
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<tr>
<td><strong>Total Costs</strong></td>
<td>$159,750</td>
<td>$16,600</td>
<td>$125,000</td>
</tr>
</tbody>
</table>

### Annual Operating Statistics

- **Unit Costs**: $4.49, 0.46
- **Fixed Cost Factor (TFC as % TVC)**: 12.8%
- **Fixed Costs as % of Total Costs**: 11.4%
Applying the Cost Model to Example 2: Volunteer Driver Program

Annual Cost for System or Route =

Unit cost of mileage-related expenses $ \times \text{miles} +

Unit cost of hours-related expenses $ \times \text{hours} \times$

Fixed Cost %

Volunteer Drivers: 272,000 miles & 3,700 hours

System Cost per mile based on miles-related expenses = .46
System Cost per hour based on hours-related expenses = $4.49

Fixed Cost as % of Vehicle Expenses = 12.8%
Applying the Cost Model to Example 2: Volunteer Driver Program

Annual Cost for System or Route =

Unit cost of mileage-related expenses x miles

+ 

Unit cost of hours-related expenses x hours

x

Fixed Cost %

.46 x 272,000 ($125,000) + $4.49 x 3,700 ($16,613) x 12.8% = $159,739
Applying the Model

- Model is relatively simple
- Inclusive of all costs
- Provide the opportunity to distribute costs among customers based on actual costs of services received
  - Agree on approach
  - Create standardized definition and data collections
  - Apply standardized chart of accounts
  - Develop procedure for recording, reporting and analyzing non-financial data
- Model is flexible and can be used to analyze various categories of total costs as needed
Evaluating and Updating the Cost Allocation Model

- Evaluate your costs at least annually
- Update if your agency experiences any of these major changes:
  - Addition/reduction of modes of service
  - Merger with another agency
  - Adoption of a new chart of accounts
  - Restructure of the agency’s organization
  - Change in the nature of the transit agency’s operations
  - Major initiatives that would affect mode or function’s usage of costs
  - Transition from directly operated to purchased transportation or vice versa
Cost Allocation’s Role in Budgeting/Managing Transit

- Forecasting
- Fare Setting
- Contract Rate Changes
- Capitated Rates
Requires consideration of variable costs – the costs that will change if the service change is implemented. (NOTE – Fixed costs will likely not change.)

Cost allocation model is modified to estimate the costs of service changes by omitting the fixed cost factor.

This approach can also be used to estimate the change in costs for service additions. (Again, fixed costs are likely to not change.)
Forecasting Cost Impact of Service Changes

Cost Change = (Hours-related expenses x hours of operation) + (Miles-related expenses x miles of operation)

Example: Find the cost of eliminating one route of a fixed-route service that traveled 33,000 miles in 2,400 hours of operation, based on the earlier example expenses:

\[
\text{Cost Change} = (19.20 \times 2,400) + (0.46 \times 33,000)
\]

\[
= 46,080 + 15,180 = 61,260
\]
Forecasting

- Internally, you should develop a procedure for recording, reporting and analyzing non-financial data in addition to your costs. This could include an overview/review of programs, businesses, and other things that could impact ridership or routes.

- Record your assumptions.
Setting Fares

Need to Know:

- Cost per ride per service
- Federal and state subsidy per ride

Cost per ride minus federal/state subsidy
Setting Fares

Determine a reasonable (or required) fare recovery

Cost of ride/service x fare recovery %
Setting Fares

- County mill available per ride
- Other local match available per ride

Does not have to be the same for each service provided
or
Can be allocated to all rides equally
Fare Recovery Ratio

➢ Fares based on a desired fare recovery ratio

To determine the appropriate fare, multiply the desired ratio (i.e., 15%) by the average cost per trip for the type of service.

Dial-a-Ride cost per year  $61,404
One-way passenger trips per year  6,532
Cost per ride $9.40
Fare recovery ratio of 15% = $1.41
$7.99/ride covered by subsidies: federal/state & local match
Changing Fares

- Process that involves politics as well as economics
- Must be well-thought-out
- Done infrequently
- Be transparent
Results of Fare Increases

- Must factor in the amount by which ridership/demand will drop as the fare increases.
- Different for each transportation system.

Factors that influence reaction include:
- Type and quality of service available from your system.
- Local economic conditions.
- Alternative transportation options (family, friends, self, other public & private transit operators).
Rate-Setting Models

- Requires all costs reported with standard chart of accounts
- Projected miles & hours
- Take into account subsidies or income from other sources than the federal government
- Compute cost per hour and cost per mile for service
- Account for other factors that affect pricing
Alternate Rate Structures/Fares

- Flat Fares – Same rate for all trips regardless of distance traveled, time of day or amount of assistance (in-town transit or anywhere the geographic area of coverage is limited)

- Distance-based Fares – Vary according to distance traveled with charges per mile or per zone. (long distance commuter service; rural area to larger hub city for medical and/or shopping)
Alternate Rate Structures/Fares

- Hourly-rate Fares – Based on cost/hour of service (subscription service)

- Service-based Fares – Door-to-door or curb-to-curb vs. bus stops (demand/response vs. fixed route; paratransit vs. fixed route)
Summary

- Comprehensive cost accounting system includes all costs incurred and all services rendered. Your process should be **reasonable, consistent, and defensible.**
- Understand rides, miles or hours of service in the provision of the contract and get a sense of the actual cost to the organization to deliver those services.
- Determine your reasons for allocating your costs and be ready to use them in partnering with others, applying for funding, and educating decision makers on your services.
Summary, continued

- Use Cost Allocation Model for Forecasting, Setting Fares & Contract Rates, and Working with Capitated Rates
- Understand Factors that go into Setting Fares
Self-Assessment
Session 1 Homework

- Prior to Session 2, enter your budget and service numbers for 2019 into the worksheet.

- Office hours are available to answer questions outside of the course. Email cdiamond@easterseals.com to schedule a block during the times below.
  - Thursday, October 15 – 8:00 -9:00 CT
  - Friday, October 16 – 2:00-3:00 pm CT
  - Tuesday, October 20 – 9:30-10:30 am CT
Questions
Cost Allocation Meets Coordination – Module 2

Reasons to allocate your costs & how your fully allocated cost can be a tool for coordination.

October 21-10:00 CT/11:00 ET
www.nadtc.org
Toll-free # 866.983.3222