

# **Full Cost Accounting for Municipal Solid Waste Management in Florida**



# Objectives

- ◆ Upon completion of this workshop, participants will be able to:
  - » Define full cost accounting (FCA)
  - » Recognize the potential benefits of using FCA
  - » Know Florida's requirements for public disclosure of FCA data
  - » Understand the fundamental differences between cash flow and accrual accounting

# Objectives

- ◆ Upon completion of this workshop, participants will be able to:
  - » Identify each of the different types of costs associated with municipal solid waste (MSW) management
  - » Depreciate capital outlays and amortize future outlays
  - » Allocate direct and indirect costs to different MSW programs

# Objectives

- ◆ Upon completion of this workshop, participants will be able to:
  - » Use the forms provided in the workbook to:
    - Calculate the full costs of providing MSW services
    - Allocate those costs by customer class
    - Calculate the costs of providing MSW services by unit

# Overview of FCA

- ◆ FCA is a systematic method of identifying, summing, and reporting the costs incurred in providing MSW management services to communities
- ◆ FCA includes “overhead” or “indirect” costs incurred to provide necessary support services and oversight for MSW programs
- ◆ FCA considers the complete life cycle of MSW services -- from planning and administration through proper closure and long-term care of MSW facilities

# Overview of FCA

- ◆ FCA is based on principles of “accrual” accounting
- ◆ FCA annualizes certain costs that:
  - » Were incurred in the past
  - » Will be incurred in the future
- ◆ FCA is consistent with generally accepted accounting principles (GAAP) for governments and private entities but does not require changes in accounting systems or strict conformity to GAAP

# Potential Benefits of Using FCA

- ◆ Local governments can use FCA to:
  - » Identify accurately the costs of different MSW programs
  - » Disclose to the public the costs of MSW management and discuss those costs with their citizens
  - » Identify potential cost savings in existing MSW programs

# Potential Benefits of Using FCA

- ◆ Local governments can use FCA to:
  - » Establish rates and user fees that are sufficient to recover the full costs of the MSW services provided
  - » Clarify the comparative economics of recycling vs. landfilling
  - » Adopt a more business-like approach to MSW management



# **Florida Requirements for Public Disclosure of FCA Data**

- ◆ Rule 62-708, Florida Administrative Code (FAC) requires all local governments in Florida to disclose annually, to the public and to the Florida Department of Environmental Protection (DEP), the full cost of their MSW management services
- ◆ Costs for collection, disposal, and recycling activities, if provided, should be reported separately
- ◆ In addition, costs for each activity should be allocated between residential and nonresidential customers

# **Florida Requirements for Public Disclosure of FCA Data**

- ◆ Each local government must disclose FCA data within six months of the end of its fiscal year
- ◆ DEP administers the law and monitors the compliance of each local government in reporting the requisite information
- ◆ To disclose FCA data to the public, local governments annually must prepare and disseminate a notice of public disclosure

# **Florida Requirements for Public Disclosure of FCA Data**

- ◆ A local government can use one of the three following methods to disseminate the notice of public disclosure:
  - 1) Mail a copy of the notice to each customer in its jurisdiction
  - 2) Enclose a copy of the notice in or with a bill sent to each customer in its jurisdiction
  - 3) Publish a copy of the notice in a newspaper of general circulation

## **Florida Requirements for Public Disclosure of FCA Data**

- ◆ Each local government must submit to DEP a copy of the notice and a certification prepared according to the format specified under FAC 62-708.500(3)
- ◆ Local governments also are requested to submit to DEP copies of all the forms and check lists from the DEP workbook that were used in calculating the full cost of MSW management

# Cash Flow Accounting vs. Accrual Accounting

- ◆ Historically, most local governments have used “cash flow accounting” in reporting the costs of MSW management
- ◆ Under the procedures of cash flow accounting, outlays are recorded when cash is paid out for goods and services
- ◆ However, because not all costs of MSW management are those for current outlays, cash flow accounting may give a distorted picture of the annual costs of MSW programs
- ◆ Because the costs of MSW management resemble those of a private business, such costs may be tracked more appropriately through the use of accrual accounting

# Cash Flow Accounting vs. Accrual Accounting

- ◆ Accrual accounting is a basis of accounting that focuses on the flow of economic resources and recognizes costs as resources are committed or consumed
- ◆ The establishment of MSW facilities and programs may entail significant expenditures, both before and after the operating lives of those facilities or programs
- ◆ FCA uses the technique of depreciation to annualize past costs and the technique of amortization to annualize future costs

# Outlays vs. Costs

- ◆ The difference between “outlays” and “costs” is fundamental to FCA
  - » “Cost” is defined as the dollar value of resources used or obligated for MSW management and operations
  - » “Outlay” is defined as an expenditure of cash made to acquire or use a resource
- ◆ The way outlays are converted to costs depends on whether they are “routine cash outlays,” “capital outlays,” or “future outlays”

# The FCA Workbook

- ◆ DEP seeks to encourage local governments to adopt sound management practices for MSW activities
- ◆ DEP believes that understanding the full costs of solid waste management and communicating that information to the public will lead to sound management decisions
- ◆ Because of the role that FCA can play in improving the efficiency of MSW programs, DEP has prepared a workbook to help local governments in Florida understand and implement FCA



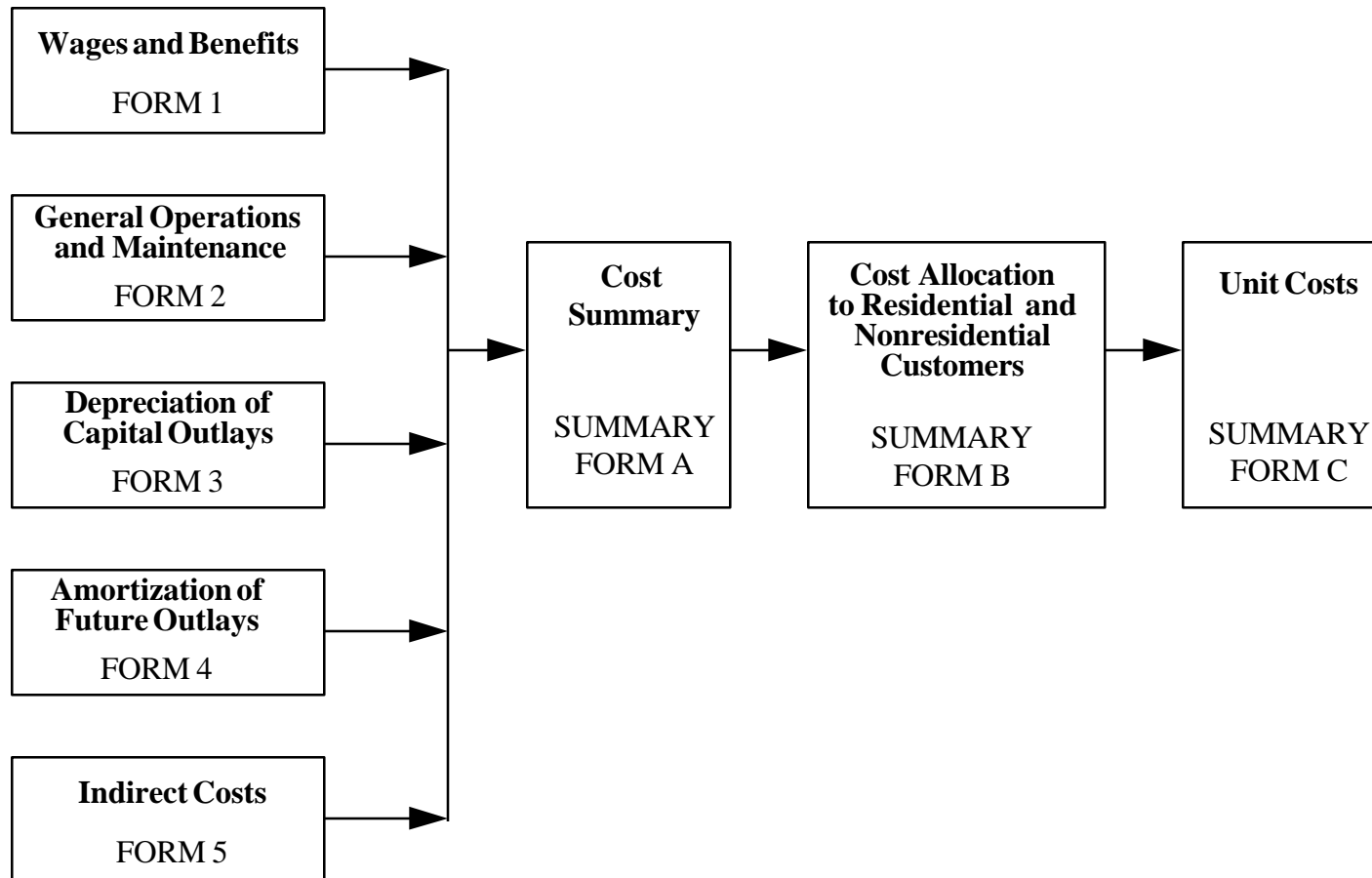
# The FCA Workbook

- ◆ The primary purpose of the workbook is to serve as a tool for local governments to use in identifying, collecting, and analyzing the costs incurred in managing MSW
- ◆ Solid waste professionals can use the workbook to analyze the costs incurred for different MSW programs and devise methods of increasing efficiency
- ◆ The workbook is available at no cost to all local governments in Florida

# The FCA Workbook

- ◆ In the past, local governments in Florida have used a wide variety of methods to calculate the full cost of MSW operations, making it difficult for DEP to process the resulting data
- ◆ The use and submittal of the forms presented in the workbook will help DEP to ensure that a standard methodology is used to calculate the full cost of MSW operations
- ◆ The use and submittal of the check lists presented in the workbook will help DEP identify the types of costs that local governments include in their calculations

# Overview of FCA Forms



# Overview of FCA Forms

- ◆ The forms provided can be used to allocate costs for MSW management to the following program areas:
  - » Collection
  - » Disposal
    - Landfilling
    - Waste-to-energy
  - » Recycling
    - Consumer products (and packaging)
    - Composting

# Overview of FCA Forms

- ◆ Each local government should determine which forms are needed
- ◆ A local government may modify the forms or create custom forms
- ◆ Five check lists are provided to help local governments identify the types of costs that might be included in the calculation of the full cost of MSW operations

## **Form 1: Wages and Benefits**

- ◆ A local government can use Form 1 to account for the annual costs to the MSW program of direct labor and employee benefits
- ◆ Using Form 1, the local government can track the costs of wages and benefits for full-time, part-time, and former MSW employees
- ◆ Check List 1 identifies the types of costs for direct labor and employee benefits that might be associated with MSW programs

## Form 1: Wages and Benefits

- ◆ Form 1 should be used to record the wages and benefits of personnel who work directly for the MSW program
- ◆ Wages and benefits of other personnel are captured as indirect costs and recorded on Form 5

## **Form 1: Wages and Benefits**

- ◆ Data entered on Form 1, Page 1 of 2, for each MSW employee are:
  - » Employee name
  - » Total annual wages (and salaries)
  - » Total benefits (paid by employer)
  - » Total post-employment benefits (for former employees only)
  - » Total wages and benefits



## **Form 1: Wages and Benefits**

- ◆ A local government can use Form 1, Page 2 of 2 to allocate among MSW program areas the total annual costs of wages and benefits for each employee
- ◆ Annual costs for wages and benefits for each program area, and for the MSW program as a whole, are totaled at the bottom of Form 1 , Page 2 of 2
- ◆ Those amounts are entered on the Wages and Benefits line on Summary Form A

## Form 2: General Operations and Maintenance

- ◆ Costs of O&M represent the costs incurred to acquire current assets or resources that are:
  - » Used over a relatively short period of time (generally less than one year)
  - » Required routinely to support ongoing operations

## **Form 2: General Operations and Maintenance**

- ◆ A local government can use Form 2 to compile the costs of general operations and maintenance (O&M) of the MSW program
- ◆ Check List 2 identifies the types of costs of general O&M, other than those for wages and benefits of MSW personnel, that are directly associated with MSW programs

## Form 2: General Operations and Maintenance

- ◆ The following items should not be included on Form 2:
  - » Costs incurred for the purchase of capital goods
  - » Cash outlays made for repayment of principal on debt that was secured for the purchase of capital goods
  - » Payments made for up-front expenses (for example, for the siting and construction of MSW facilities)
  - » Payments made for back-end expenses (for example, for closure or long-term care activities)

## **Form 2: General Operations and Maintenance**

- ◆ Costs for general O&M should be allocated to different program areas according to how those funds were spent
- ◆ Annual costs for general O&M for each program area, and for the MSW program as a whole, are totaled at the bottom of Form 2
- ◆ Those amounts are entered on the General O&M line on Summary Form A

## **Form 3: Depreciation of Capital Outlays**

- ◆ A capital outlay is an outlay of cash made to acquire a resource that will be used in MSW operations for more than one year
- ◆ Examples of capital outlays include the purchase price of collection vehicles and other equipment, as well as cash outlays made for the siting and construction of MSW facilities and the startup of MSW programs
- ◆ Check List 3 identifies the types of capital outlays that might be associated with MSW programs

## **Form 3: Depreciation of Capital Outlays**

- ◆ Cash flow accounting recognizes the cost of capital outlays only in the year in which the resources are acquired, thereby overstating the cost of MSW services for that particular year and understating costs for subsequent years
- ◆ Under accrual accounting, the technique of depreciation is used to allocate the costs of capital goods over the useful life of the resource acquired
- ◆ The useful life of a resource is defined as the period of time during which the resource is expected to provide services

## Form 3: Depreciation of Capital Outlays

- ◆ Using the technique of depreciation, capital outlays are converted into annual costs
- ◆ A simple, “straight-line” method of depreciation calculates depreciation costs by dividing the capital outlay, minus any anticipated salvage value, by the useful life of the resource
- ◆ The straight-line method of depreciation is expressed in the following equation:

$$\frac{\text{Capital Outlay} - \text{Salvage Value}}{\text{Useful Life}}$$



## **Form 3: Depreciation of Capital Outlays**

- ◆ Buildings, vehicles, equipment, and other capital goods that the local government owns should be depreciated over their useful lives
- ◆ If the purchases were financed, interest payments should be recognized as operating costs and included on Form 2
- ◆ Buildings, vehicles, and equipment that are leased, rather than owned, usually are not depreciated

## Form 3: Depreciation of Capital Outlays

- ◆ “Up-front” costs, which include cash outlays made during the planning, permitting, and construction of MSW facilities, should be included with other types of capital outlays and depreciated
- ◆ Costs of startup of new MSW activities, such as outlays for the development of a community education program, also should be “capitalized” and depreciated over the life of the activity
- ◆ The continuing expense of operating and maintaining such MSW facilities and activities are accounted for as operating costs on Form 2

## **Form 3: Depreciation of Capital Outlays**

- ◆ In general, capital outlays for land are not depreciated
- ◆ However, land acquired for use as a landfill has a finite useful life (capacity) and therefore should be depreciated
- ◆ Local governments should recognize annually the cost of depreciation for all capital outlays

## **Form 3: Depreciation of Capital Outlays**

- ◆ A local government may use Form 3 to account for the annual costs of depreciation for all capital outlays made for the MSW program
- ◆ Check List 3 identifies the types of capital outlays that might be associated with MSW programs
- ◆ Data entered on Form 3, Page 1 of 2, are:
  - » Description of capital outlay
  - » Purchase amount (minus any anticipated salvage value)
  - » Anticipated useful life (in years)

## **Form 3: Depreciation of Capital Outlays**

- ◆ The annual depreciation expense for each capital outlay is transferred to Form 3, Page 2 of 2, and allocated to different program areas according to the uses made of the capital asset
- ◆ Annual costs for depreciation for each program area, and for the MSW program as a whole, are totaled at the bottom of Form 3, Page 2 of 2
- ◆ Those amounts are entered on the Depreciation of Capital Outlays line on Summary Form A

## **Form 4: Amortization of Future Outlays**

- ◆ A “future outlay” is an expenditure of cash in the future that is obligated by current or prior activities
- ◆ For example, the obligation to perform closure and long-term care is triggered when landfill operations begin
- ◆ Check List 4 identifies the types of future outlays that might be associated with MSW programs

## Form 4: Amortization of Future Outlays

- ◆ Cash flow accounting recognizes the cost of future outlays only in the years in which the payments are made, thereby overstating the cost of MSW services for that particular year and understating costs for prior years
- ◆ Under accrual accounting, the technique of amortization is used to determine the annual costs associated with obligations for future outlays
- ◆ By amortizing, future outlays are converted into annual costs

## Form 4: Amortization of Future Outlays

- ◆ One method of calculating the annual cost of amortization for a future outlay is expressed in the following equation:

$$\frac{\text{Current Cost of Future Outlay} - \text{Amounts Previously Amortized}}{\text{Number of Years Until Funds Will Be Required}}$$



## Form 4: Amortization of Future Outlays

- ◆ Local governments may use Form 4 to account for the annual costs of amortization for all future outlays for the MSW program
- ◆ Data entered on Form 4, Page 1 of 2, are:
  - » Description of future outlay
  - » Estimated cost of future outlay (in current-year dollars)
  - » Amounts previously amortized
  - » Expected number of years until funds will be required

## **Form 4: Amortization of Future Outlays**

- ◆ The annual cost of amortization for each future outlay is transferred to Form 4, Page 2 of 2, and allocated to different program areas according to which programs are responsible for those future outlays
- ◆ Annual costs for amortization for each program area, and for the MSW program as a whole, are totaled at the bottom of Form 4, Page 2 of 2
- ◆ Those amounts are entered on the Amortization of Future Outlays line on Summary Form A

## Form 5: Indirect Costs

- ◆ Indirect costs are the costs of support services or oversight provided to the MSW program by other departments or agencies of the local government
- ◆ Although the MSW program may not budget for them, indirect costs are nonetheless costs incurred by the local government to provide services to the MSW program
- ◆ Check List 5 identifies the types of indirect costs that may be associated with MSW programs

## Form 5: Indirect Costs

- ◆ Indirect costs must be identified to determine the full cost to the local government of MSW operations
- ◆ One relatively simple method of allocating indirect costs is prescribed in the DEP workbook
- ◆ A local government is free to use any number of alternative methods, provided that those methods identify accurately the indirect costs incurred by its MSW programs

## Form 5: Indirect Costs

- ◆ The method of allocating indirect costs that is prescribed in the DEP workbook requires that the local government first calculate the ratio of its MSW employees to its total employees
- ◆ Second, the local government must list the total budgets for all individuals, groups, and departments that provide support services or oversight to the MSW program
- ◆ The total budget for each individual, group, or department then is multiplied by the ratio of MSW employees to total employees

## **Form 5: Indirect Costs**

- ◆ By following the methodology, the local government can estimate the total amount of indirect costs incurred by each individual, group, or department for providing services to, or oversight of, the MSW program
- ◆ Subsequent allocations of indirect costs can be derived by calculating the percentage of MSW employees who are associated with each MSW program area

## Form 5: Indirect Costs

- ◆ Data entered on Form 5, Page 1 of 3, are:
  - » Total number of MSW employees
  - » Total number of local government employees
  - » Ratio of the number of MSW employees to the total number of local government employees

## Form 5: Indirect Costs

- ◆ Data entered on Form 5, Page 2 of 3, are:
  - » Total budget for each individual, group, or department that provides support services or oversight to the MSW program
  - » Ratio of the number of MSW employees to the total number of local government employees
  - » Total indirect costs to the MSW program



## Form 5: Indirect Costs

- ◆ Data entered on Form 5, Page 3 of 3, are:
  - » Number of MSW employees by program area
  - » Ratio of the number of employees in the program area to the total number of MSW employees
  - » Total indirect costs to the MSW program
  - » Indirect costs by program area

## **Form 5: Indirect Costs**

- ◆ Indirect costs for each program area, and for the MSW program as a whole, are totaled at the bottom of Form 5, Page 3 of 3
- ◆ Those amounts are entered on the Indirect Costs line on Summary Form A

# Summary Form A

- ◆ Total annual costs for MSW management and costs allocated by program area are entered by category on Summary Form A, Lines 1 through 5
- ◆ Any miscellaneous costs that are not accounted for in Forms 1 through 5 may be entered on Line 6
- ◆ On Line 7, costs are totaled to calculate the full cost of each MSW program area and of the MSW program as a whole

## **Non-Fee-Based Revenues**

- ◆ Revenues that a local government's MSW program might realize, other than fee-based revenues, are listed on Summary Form A, Lines 8 through 12
- ◆ Such revenues include:
  - » Interest income
  - » Revenues generated from the sale of recyclable materials and energy
  - » Revenues generated from salvaging of equipment
  - » Other miscellaneous sources of revenues

## **Non-Fee-Based Revenues**

- ◆ Non-fee-based revenues should be identified to calculate the “net” costs incurred by the local government for providing MSW services
- ◆ Once the net costs of the MSW program are known, the local government can determine the levels of fee-based revenues that must be realized to recover the full cost of that program

## **Non-Fee-Based Revenues**

- ◆ When non-fee-based revenues can be assigned directly to a specific MSW program area, they should be recorded to offset costs for that program area only
- ◆ Non-fee-based revenues that are not identified clearly with a particular program area should be allocated equitably among the various MSW program areas

## Summary Form B

- ◆ After a local government identifies the net cost of each MSW program area, it can use Summary Form B to allocate costs by customer class
- ◆ By allocating costs between residential and nonresidential customers, a local government can identify the respective costs of providing MSW services to each class of customer it serves
- ◆ A local government need allocate costs for MSW services by customer class only if it provides services to both residential and nonresidential customers

## Summary Form B

- ◆ Methods of allocating costs by customer class include:
  - » Tons collected annually by program area by customer class as a percentage of total tons collected
  - » Number of employees by program area by customer class as a percentage of the total number of MSW employees



## Summary Form C

- ◆ A local government may use Summary Form C to calculate unit costs for its MSW program
- ◆ Unlike Summary Form B, Summary Form C should be completed even if a local government provides MSW services to only one class of customers

## Summary Form C

- ◆ Calculating costs by unit helps put the overall costs of MSW programs in perspective and may facilitate useful comparisons among the components of integrated MSW systems
- ◆ A local government can use Summary Form C to derive unit costs for providing MSW services to both its residential and its nonresidential customers

## Summary Form C

- ◆ For services provided to residential customers, local governments are asked to report costs for each MSW program area as both:
  - » Cost per ton
  - » Cost per household
- ◆ For services provided to nonresidential customers, local governments are asked to report costs for each MSW program area as both:
- ◆ Cost per ton
  - » Cost per customer

## Summary Form C

- ◆ Under the method applied in DEP's workbook:
  - » Cost per ton is defined as the net cost of MSW management per year, divided by total tons collected or processed
  - » Cost per household is defined as the net cost of MSW management per year, divided by the number of households served
- ◆ To derive unit costs for nonresidential MSW services, the total number of customers served is substituted for the total number of households

# Summary

- ◆ FCA is a systematic method of identifying, summing, and reporting the costs incurred in providing MSW management services to communities
- ◆ FCA is based on principles of “accrual” accounting
- ◆ Through the use of FCA, local governments can determine the true costs of MSW management
- ◆ All local governments in Florida are required to disclose annually, to the public and to DEP, the full cost of their MSW programs

# Summary

- ◆ Because of the role that FCA can play in improving the efficiency of MSW programs, DEP has prepared a workbook to help local governments in Florida understand and implement FCA
- ◆ The forms provided in the workbook may be used to track costs for MSW management in the following categories:
  - » Wages and benefits
  - » General O&M
  - » Depreciation of capital outlays
  - » Amortization of future outlays
  - » Indirect costs

# Summary

- ◆ Costs for MSW management may be allocated to the following program areas:
  - » Collection
  - » Disposal
    - Landfilling
    - Waste-to-energy
  - » Recycling
    - Consumer products
    - Composting

# Summary

- ◆ Forms 1 through 4 are used to calculate the direct costs of MSW programs and to allocate those costs among program areas
- ◆ Form 5 is used to estimate the indirect costs of MSW programs and allocate those costs among program areas
- ◆ Summary Form A is used to total all costs and to calculate the “net” cost of each MSW program area and of the MSW program as a whole
- ◆ Summary Form B is used to allocate costs by customer class
- ◆ Summary Form C is used to derive unit costs for MSW services