



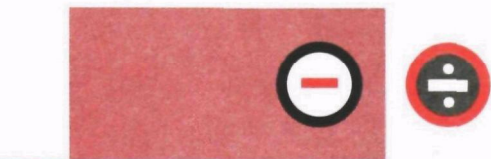
Making Solid (Waste) Decisions With Full Cost Accounting

Amortization

Cost

Depreciation

Overhead





Introduction

The costs of municipal solid waste (MSW) management services have risen steadily over the past decade. In 1992, the price tag for solid waste management in the United States was an estimated \$30 billion, and this cost is still rising. Local governments are trying to control MSW costs through a variety of measures, including restructuring waste services and encouraging waste reduction. However, making solid decisions and developing cost-effective waste management strategies can be difficult without complete cost information.

Full cost accounting (FCA) provides decision-makers with a method of compiling detailed cost information on MSW services in their communities. Knowing what MSW management really costs enables local government officials to make informed decisions about their programs, identify opportunities for streamlining services, facilitate cost-saving efforts, and better plan for the future. This primer briefly explains what **FCA** is and how it works, along with its benefits and potential barriers. It also provides snapshot examples of how communities across the country are using **FCA** to improve their MSW operations.

As of 1995, four states (Florida, Georgia, Indiana, and North Carolina) passed laws that require local governments to use **FCA** in reporting MSW costs to citizens. Other communities implement **FCA** voluntarily and are finding it an important and useful tool to help manage their solid waste programs.



What Is Full Cost Accounting?

FCA is an accounting practice that can help local governments identify and manage the actual costs of MSW services. FCA is different from other common government accounting practices. It helps decision-makers understand the direct and indirect operating costs of MSW services, as well as upfront (past) and backend (future) expenses. Through FCA, decision-makers systematically identify, analyze, and report *all* the monetary costs of resources associated with MSW management activities, including:

- Acquisition of equipment and materials.
- Siting and construction of facilities.
- Collection and disposal of MSW.
- Collection, processing, and marketing of recyclables.
- Transportation.
- Operation and maintenance of facilities (e.g., transfer stations, landfills, and materials recovery facilities).
- Clean up of illegal dumping sites.
- Landfill closure and postclosure.
- Program promotion.
- Administration/overhead.

*FCA helps MSW managers account for **all** monetary costs of resources used or committed, thereby providing the “whole picture” of MSW management costs on an ongoing basis.*

Many local governments use cash flow accounting, which is based on cash outlays (when the cash flows), not on costs (when the resource is used). These costs can be obscured using cash flow accounting because communities can incur significant expenditures before and after the operating life of specific management services. For example, in cash flow accounting systems, capital expenditures for garbage trucks and recycling equipment are recognized entirely in the year of purchase, while FCA spreads the expenditures over the useful life of the item. Also, cash flow accounting does not consider future costs that are directly related to current activities, such as landfill closure and postclosure. For all these reasons, cash flow accounting can give a distorted picture of the actual costs of MSW management.

FCA is a method of accounting for all monetary costs of resources used or committed, thereby providing managers with the "whole picture" of MSW management costs on an ongoing basis. It goes beyond the limits of cash flow accounting, but does not negate cash flow principles.

FCA recognizes upfront, operating, and backend costs. **Upfront costs** include acquisition of buildings, vehicles, equipment, and landfills; **operating costs** include salaries and wages, power and fuel, supplies, tipping fees, and indirect (overhead) costs (including services such as executive oversight, legal services, data processing, billing, and purchasing); **backend costs** include landfill closure and postclosure and retirement benefits.

FCA does not take into account environmental, health, and social costs. These costs cannot be measured easily or valued readily in the marketplace. Consideration of the full spectrum of costs could be called "true cost accounting" or "environmental accounting," which is beyond the scope of FCA.



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What Are the Benefits of FCA?

Implementing FCA can have positive short- and long-term benefits for local governments. Actions taken today can help ensure efficient and sustainable solid waste programs in the future. FCA can help communities:

- **Explain MSW costs to citizens more clearly.** In many communities, the cost of providing solid waste services is obscured in the general fund. Although most people realize that these services cost money, there is confusion about the scope of activities and costs. FCA reveals these costs, enabling solid waste managers and decision-makers to explain solid waste management budgets to the public.
- **Identify the actual costs of MSW management.** FCA enables decision-makers to learn the full costs of MSW services in their communities. Because the costs of these services can get lost among other expenditures, FCA provides a systematic approach to isolating MSW costs. With the knowledge of what drives MSW costs, local officials can make more informed decisions about how to manage their services.
- **See through peaks and valleys in expenditures.** Using accounting techniques such as depreciation and amortization, FCA provides a more accurate picture of total MSW program costs than results from focusing solely on cash flow.

■ **Foster more cost-efficient MSW management.** By assessing the actual cost of services, FCA allows local governments to identify a more businesslike approach to MSW management. It allows decision-makers to consider the balance between the cost of providing a service and its utility. FCA also helps local governments evaluate whether an alternative method could provide a service for less money or greater value. By using FCA, for example, local governments might decide to change from two weekly trash pickups to only one, to initiate a curbside recycling program in addition to a dropoff recycling program, or to establish a pay-as-you-throw program.

■ **Improve negotiating power.** For communities seeking to privatize MSW services, FCA allows them to adopt a stronger negotiating position with vendors—public agencies can be in a much stronger bargaining position if they understand the costs involved in providing the services. FCA also can help communities with publicly run operations determine whether their costs are competitive with the private sector.



Solid waste managers, planners, and financial personnel have identified the following benefits of FCA:

- Set rates/tipping fees.
- Defend budget requests.
- Evaluate options and alternatives.
- Evaluate privatization decisions.
- Communicate cost information.
- Plan new facilities.
- Determine actual program costs.
- Assist in making investment decisions.
- Target cost reduction efforts.

■ **Achieve solid waste management goals.** FCA can help communities achieve important **informational goals** by accurately determining and reporting what it currently costs a community to manage its MSW. It can support **management goals** by enabling the identification of potential cost savings and providing a sound basis for determining whether to provide services in-house or to privatize. FCA also can support a community's **planning goals** by documenting current benchmarks for making or evaluating projections.

FCA in Action



A Successful Pay-As-You-Throw Program

Seekonk, Massachusetts, used FCA to achieve its successful pay-as-you-throw program. (Pay-as-you-throw is a system under which residents are charged for trash services per bag or can they place at the curb. The less they throw away, the less they pay.) Seekonk used FCA to determine a fixed fee for each household to cover the program's fixed costs, and the variable pay-as-you-throw fee as well. While a neighboring town tried pay-as-you-throw without using FCA and wound up \$300,000 in debt, Seekonk was able to generate enough money to cover disposal fees and the cost of the pay-as-you-throw bags. Its two-tiered fee system enabled Seekonk to decrease its trash by an average of 350 tons per year and increase the collection of nonpaper recyclables by approximately 300 tons each year. FCA was instrumental in allowing Seekonk to learn exactly how much its solid waste services cost, thereby providing the town with the information needed to determine the correct rate for its two-tiered pay-as-you-throw fee structure. As a result, Seekonk realized significant waste reduction benefits.

FCA was also beneficial in helping Seekonk achieve credibility with residents. The town was able to explain to people exactly how much the solid waste program cost and how the pay-as-you-throw fees were going to be used. Educating citizens and helping them understand the various changes involved with implementing pay-as-you-throw was vital to the program's success.

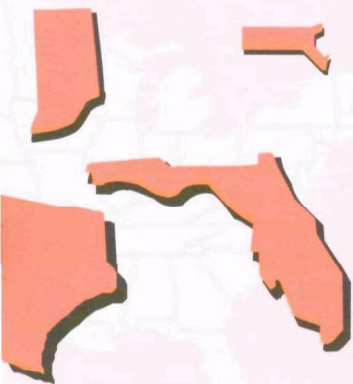
Not Privatizing MSW Services

Palm Beach County, Florida, used FCA data to determine the cost-effectiveness of privatizing an MSW service. A contractor approached the Palm Beach Solid Waste Authority with a proposal to transport and dispose of the county's waste at a different landfill for seemingly less cost. The authority used FCA to isolate the county's current costs for landfill disposal. The county found that it could provide the same services for less money than the contractor. FCA provides an accurate basis for making this kind of decision.

More Services for Less Money

FCA allowed Franklin, Indiana, to reduce costs while providing more services to its citizens. Through FCA, the city discovered that waste disposal accounted for more than half of all program costs for solid waste management. Also, municipal efforts to provide recycling services were not successful: the program wasn't cost-effective and participation was low.

Armed with new information, the city decided to try privatization. The lowest bidder was able to provide trash collection and disposal services, as well as recyclables collection, processing, and marketing, for 36 percent less money than it had cost the city to provide garbage services alone.



In 1992, Franklin reported a cost of \$112 per household for collection and disposal. The private company was able to provide the same services plus recycling for only \$71 per household. This led to a savings of about \$174,000 per year, a substantial amount for a community of 14,000 people.

Best Service for Least Cost

Since 1979, Phoenix, Arizona, has been using a competitive process and FCA for all city services. By doing so, it has created a system that consistently provides the best service for the least cost. Phoenix has been able to accurately compare 13 service areas, including solid waste management, by involving city departments in competition with private contractors in a public-bid situation.

Phoenix was able to identify areas where efficiency could be improved by better equipment and management. By having cost data to back this up, the city has been able to purchase higher-quality equipment, improve the service level, and extend the life of the landfill many years beyond what was expected. Specifically, the city was able to justify the purchase of high-quality collection trucks and was

able to provide monetary incentives to a contractor to compact material in the landfill to extend its useful life. In addition, by using FCA, solid waste services (and all other city services) were able to continue at the same level of service during times of recession because the program was streamlined enough for the city to be able to afford it.

Streamlining and Adding Services

Houston, Texas, has been using FCA for about a decade. Most recently, the city used FCA to identify the activities that drive the costs of its solid waste program. The city found that labor (including benefits and workers' compensation) was the single largest cost. To reduce labor costs, the city bought two new automated trucks that reduced the crew needed for bulky pickups from five people to four. It has purchased automated trucks for regular trash collection for 78,000 households and plans to buy automated trucks to service 256,000 remaining households. These changes will reduce the collection crew from 550 to 436 through attrition, and will save the city between \$6 to 8 million in operating costs alone.

FCA also helped Houston realize that a great deal of money was spent on disposing of yard trimmings. To cost-effectively collect yard trimmings, while maintaining adequate trash collection services, the city reduced regular trash collection from twice weekly to once weekly and added a once-a-week yard trimmings pickup. To help residents manage their garbage in between pickups, the city provided them with larger cans. Now Houston is diverting yard trimmings from the landfill and is providing an additional service at no additional cost.



How Does FCA Work?

To evaluate the full costs of MSW management, local governments must compile information on upfront, operating, and backend costs. Local governments can use FCA for all municipal services, for one department or division, or for individual components of the solid waste program. In other words, if a solid waste program is implemented by several different departments, FCA can be used to assess the total cost of the program or the services provided by one particular department. To acquire and report this information systematically, communities need to:

- **Develop descriptive information** about the solid waste program, including its history, scope, and future plans. Local governments will want to know how much waste is managed, who moves it, how often it is moved and by what means, and where it goes. By determining all the activities that make up the system, and the paths that solid waste takes from generation to disposal or sale, communities can identify most cost items. To assist with this task, local governments may want to draw a flow chart of their current solid waste system to ensure that they account for all activities, develop a history or a chronology of the program from its onset, and review future plans to identify any backend costs that might be incurred such as landfill closure and postclosure.
- **Take an inventory** of publicly owned assets that support the MSW management program, such as vehicles, buildings, equipment, and land. Communities should note whether assets are owned or leased, when they were acquired, at what costs, how

long the useful remaining life is, and what percentage of their use supports MSW activities. The inventory can serve as the basis for developing depreciation schedules and identifying operating costs. Also, communities can include an inventory of municipal employees, identifying those who support the MSW program on a full-time or part-time basis, and a list of their activities. This inventory can be crosschecked with the description of the program, ensuring that all physical costs required for each program activity are found on the inventory list.

- **Review the organizational structure** of the MSW program. This might include executive oversight (e.g., Mayor's Office, publicly supported citizens advisory boards, and planning commissions) and relevant service providers (e.g., legal, payroll, purchasing, and accounting). The goal of this review is to identify those public sector organizations to which the solid waste program reports or is otherwise responsible, as well as those organizations that provide services to the solid waste program. Both types of organizations may incur costs that should be recognized.
- **Review financial records** and reports for the solid waste program. What is being bought? What revenues are being generated? What payments are being made? Do purchases relate to the MSW program? Answers to these questions can help produce a more complete accounting of costs. How are accounts organized? Accounts may or may not be organized to correspond to activities that comprise the solid waste program. Communities should plan to spend time to learn what the accounts contain and mean.

These four sources of information together can provide all the raw material needed by a community to prepare an FCA report. In compiling FCA information, communities should strive to avoid double counting or missing costs.



What Is the Relationship Between FCA, Enterprise Funds, and Pay-As-You-Throw?

FCA is the basis of two other practices that the U.S. Environmental Protection Agency (EPA) supports—enterprise funds and “pay-as-you-throw.” Local governments can use these tools to bring market forces into waste management practices. Because FCA gives communities full information about the costs of their solid waste programs, it can be used as a basis for the development of an enterprise fund and setting rates for unit-based pricing.

Enterprise funds are independent, self-sustaining funds supported primarily by user fees instead of general tax revenues. They are created to finance and operate local government services like a private business. The main purpose of an enterprise fund is to identify and isolate costs and revenues to increase financial accountability. For enterprise funds to be successful, communities must establish detailed revenue and expense budgets and project costs for future years. FCA is useful in defining the scope of enterprise funds and identifying costs for which local governments are responsible.

Unit-based pricing involves charging waste generators fees based on the amount and type of waste, recyclables, and compostable materials collected rather than indirectly through the tax base. FCA can help communities establish an equitable unit pricing rate structure that will generate the revenues needed to cover the costs of providing solid waste services.



What Are the Barriers to FCA?

While FCA has many benefits, it also can present some challenges. Although it might be implemented differently in each community, every community, regardless of size, location, or management structure, can use FCA. Some of the common barriers may include:

■ **Lack of standardized methodology.** There is no standardized methodology for FCA, which can make it difficult to make the transition from cash flow accounting to FCA. For communities that use an accrual system, there might be variations in the application of principles.

■ **Allocation of MSW management costs.** Allocating overhead costs to the MSW program may be difficult in some communities. This is particularly true for costs that are shared by other local government programs in addition

Solid waste managers, planners, and financial personnel have identified the following anticipated obstacles to implementing FCA:

- Incomplete records
- Lack of staff time and resources
- Cost of developing FCA
- Lack of political support
- Disagreement on method



to the MSW program, such as oversight and support costs. Because it might not be obvious that these costs are part of the MSW program, they are easy to overlook.

- **Accounting system changes.** The amount of work required to perform FCA can vary from community to community, depending on how communities keep their financial records (e.g., cash flow/general fund, accrual). In some cases, communities might have to change the way that they keep their records and "dig deep" to account for all of the costs involved with operating a solid waste program to "uncover" previously obscured costs.
- **Lack of time and resources.** Some local governments might feel that they lack the staff time and resources needed to switch to and begin practicing FCA.
- **Financial disclosure/political opposition.** FCA could expose high unit costs and inefficiency or might lead to the elimination of favorite projects if they are not deemed critical or cost-effective.

To help communities understand the uses and benefits of FCA, EPA has developed two additional resource documents. Much of the information contained in these documents was gleaned from communities that are currently implementing FCA.

Full Cost Accounting for Municipal Solid Waste: A Handbook (EPA 530-R-95-041). This document describes the key concepts and benefits of FCA and can help communities learn how other communities have used FCA. It explains many of the financial terms used in FCA and the specific costs that are considered. While the handbook is not a step-by-step "how-to" document, it does describe the steps involved with implementing FCA for solid waste management. It is a comprehensive overview and a valuable resource for local governments.

A Resource Guide for Full Cost Accounting (EPA530-R-95-077). This document presents an annotated bibliography of resources available on FCA. It includes journal articles, federal, state, and local government documents, as well as contact people implementing FCA in different communities.

To order these free materials, contact the RCRA Hotline at 800 424-9346 or TDD 800 553-7672, or (in the Washington, DC, area) 703 412-9810 or TDD 703 412-3323.