

Financial Tools Assist in Completing Cost of Service Studies

Conducting the master planning efforts along with a formal rate/cost of service study enables decision-makers to project costs of the various solid waste management options.

■ By Marc J. Rogoff

Solid waste agencies are under more pressure these days to provide high-quality waste collection, facility enhancements and landfill operation services. Coupled with the pressures from ratepayers and local government lean and mean initiatives to keep rates and expenses low, many solid waste agencies are struggling. It is challenging to balance real cost escalation factors such as rising fuel, material and labor costs against the push for keeping static rates. Furthermore, full cost accounting is difficult because agencies oftentimes support activities not directly related to normal operations or provide “free services” such as street sweeping or free collection and disposal for community events (i.e. fairs, farmers markets, runs for charity, art shows). Allocating shared costs across agencies is complicated and many times inaccurate, adding to the agency’s overhead.

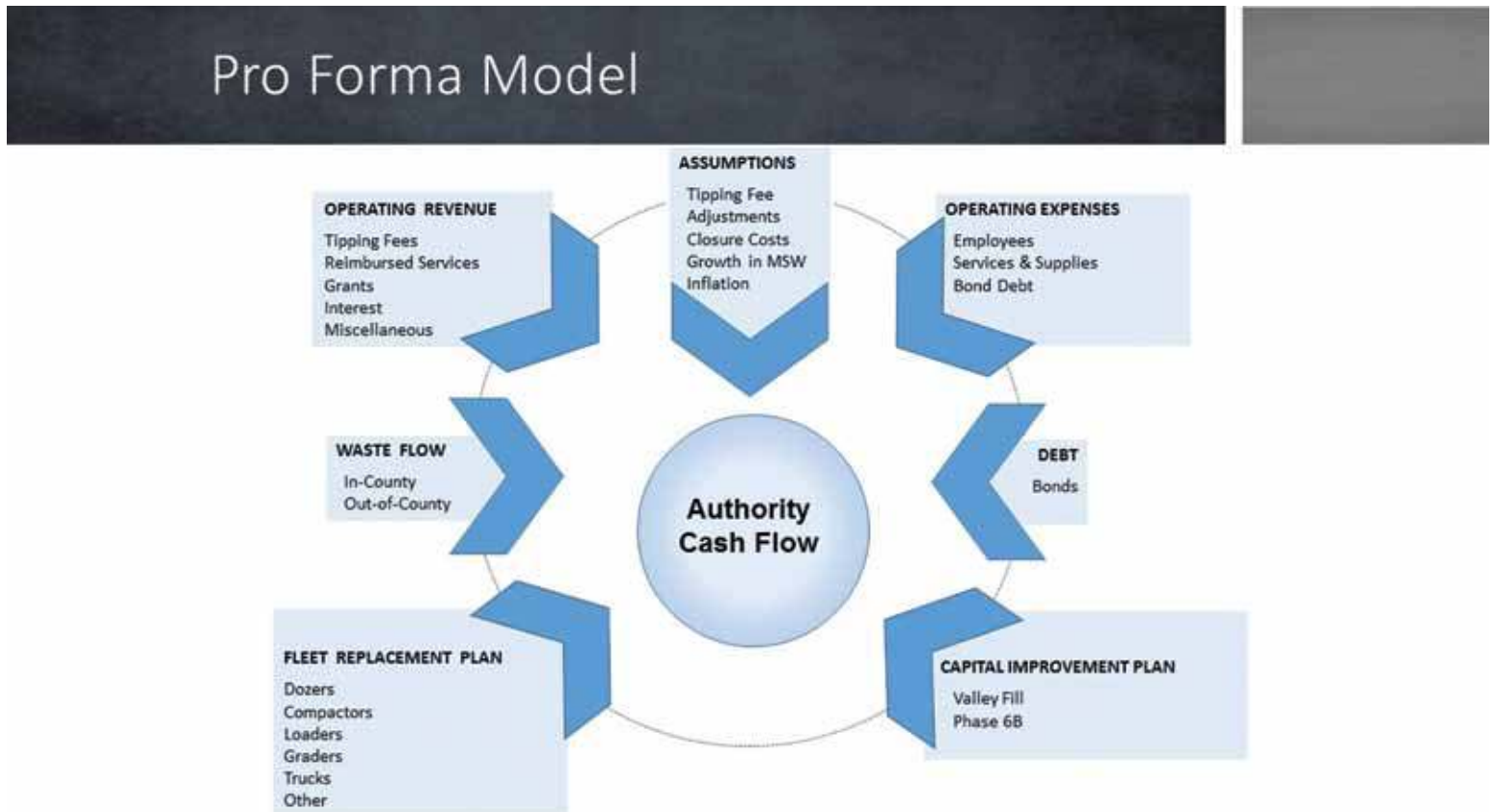
The scarcity of reliable data available to benchmark solid waste management operations handicaps timely comparisons among solid

waste systems. Benchmarking rates or service fees for collection and disposal is challenging, but not impossible using financial tools now considered critical to focus on an agency’s primary policy and management issues. These tools are the basis for budgeting, cost accounting, financial monitoring and evaluation aiming at recovering sufficient money to cover recurrent operational expenditures of the agency’s services as well as to stock up capital for new investments or large maintenance. I will use illustrations from recent case studies to introduce some of these tools.

The Use of Financial Tools

A Pro Forma Model is a financial tool crafted from the market dynamics influencing the lifecycle of a specific project, cost center or program (see Figure 1). In the solid waste business, every project is unique, and the design of the pro forma financial model should

Figure 1: Example of a Pro Forma Model used to project an Authority’s cash flow. Figure courtesy of SCS Engineers.



reflect these differences. To accommodate the various types of business models needed to analyze the feasibility of recycling projects, we have developed different types of pro forma models that allow the client to tailor the financial statements to the particular project. Thus, each agency receives models that have the maximum flexibility to model multiple scenarios of facility size, energy production/co-generation, site locations and changes in operations.

For example, we have had clients desiring to evaluate the feasibility of a single-stream recycling program with multiple cart sizes, evaluate alternative landfill cover systems, and collection equipment and whether or not a change from manual to automated collection made long-term economic sense. Another client, a private waste hauler, wanted to evaluate the business case for implementation of a leachate evaporator. Cost of leachate disposal was increasing and our client needed to make a business case for the project. In each of these cases, a pro forma model was developed to help quantify the capital and operating costs for the proposed facilities or programs and then compare these long-term costs against current programs. The results from these modeling efforts enabled the clients to quantify the payback or return to their agency.

The use of financial tools to evaluate the agency's cost of service is another important area where pro forma modeling is used. Such cost of service studies evaluate the financial aspects of solid waste management programs and remain critical for ensuring the sustainability of the agency. In short, these studies show how an agency determines the means to fill the gap between cost and revenues, alert authorities to options of how financial sustainability can be improved and determine if privatizing some services is a reasonable option.

The lack of specific financial monitoring and analysis of data is one of the major barriers for not being able to sustain any envisioned improvement of an agency system. This concerns budgeting, cost accounting, financial monitoring and evaluation aiming at recovering sufficient money to cover recurrent operational expenditures of the collection service as well as to stock up capital for new investments or large maintenance. Many agencies do not know the actual cost of providing specific services. Before strategic decisions are made, an important step is to establish a full understanding of the historical or current costs for provision of the services and the respective revenues. The studies serve to project financial sustainability in the short-term as well as long-term.

The growing national trend toward privatization of government-provided services demonstrates that the public sector solid waste agencies must operate efficiently and cost-effectively if they wish to continue providing these services to its citizens. Municipal

governmental agencies must optimize the performance of their service utilities to ensure that costs are contained while at the same time, service levels and customer satisfaction remain high. In fact, it is necessary for public agencies to think and act like the private sector service providers and spearhead efficiency gains and identify cost reduction measures to reduce operating costs while improving customer satisfaction.

In conclusion, the use of financial tools to evaluate current and

Advertising Removed

proposed solid waste programs and facilities is an increasing trend across the nation by many solid waste agencies. These tools provide a useful vehicle for finding optimal management solutions, while at the same time, providing quick answers on their projected financial performance for political decision-makers. A couple of case studies are provided below which illustrate the usefulness of financial tools for long-term planning.

Case Study #1: Analyzing An Authority's Cash Flow to Forestall Long-Term Debt

In the six consecutive years prior to 2013/2014 fiscal year, the Merced County Regional Waste Management Authority (RWA) in California operated at a deficit despite several disposal rate increases. This trend was the result of the decline in revenue associated with the Great Recession, in combination with several operational inefficiencies including an inadequate unencumbered cash reserve. In addition, the heavy equipment fleet was leased and aging and capacity expansions at both landfill sites would be needed within five years. Old bond debt was \$30 million and unfunded closure/post-closure liabilities added another \$20 million to the shortfall. In all, the RWA was underwater by \$75 million and it would be losing one of its major municipal solid waste customers in 2015.

With a change in management in 2012 came the decision to assess RWA's operational and administrative functions. Throughout this year-long process, a new Regional Waste Director was selected to implement a progressive strategy that would realize operational efficiencies, cost savings, an expanded customer base and lower long-term debt through bond refinancing. These measures provided considerable benefit, particularly in regards to the long-term financial health of the agency; however, it was uncertain that cash would be generated quickly enough to meet the existing need. As a result, the agency hired a rate consultant in April 2015 to assess the anticipated shortfall and prepare a report to the RWA's governing board.

A Pro Forma Model was developed at the outset to help the RWA prepare a long-term cash flow analysis and assess whether or not funds were available from operations to forestall a bond issue for the capital improvements as well as to fund adequate emergency reserves. At the beginning of SCS Engineers' engagement, RWA staff provided background data and information concerning residential collection revenues and operating expenses. Based on data and information provided by the RWA, individual spreadsheets were linked to develop an overall model to conduct the assessment analysis. The following methodology was used by SCS Engineers to conduct the cost of service analysis:

- *Collect Historical Actual Expenses and Revenues for the System*—The first task was to gather available historical actual revenue and cost data and include these into a financial database.

- *Development of the "Test Year"*—The second task was the development of an annual revenue requirement for a "Test Year". The revenue requirement represents the total revenue for the System to recover during a year to fund all System costs. SCS worked with RWA staff to select a period that reflected a typical year for the System. Actual expenses for FY 14/15 were used as the basis of the Test Year for the Study. SCS then worked with RWA staff to make these costs more representative of anticipated conditions during the upcoming 12-year financial planning

horizon. The resulting Test Year was used as the basis for forecasting expenses for the 12-year forecast (FY 15/16 to FY 26/27.)

- *Development of a Revenue Requirement Projection*—After developing the revenue requirement for the Test Year, SCS worked with RWA staff to project changes in anticipated costs due to inflation, labor increases, facility and vehicle replacement, planning costs, etc. This resulted in a 12-year revenue requirement forecast for the entire system including disposal of solid waste from RWA members and out-of-county waste deliveries.

- *Revenue Offsets*—SCS worked with RWA staff to develop estimates of any revenue offsets (governmental grants, if any, interest and LFG sales).

- *Operational Cost Savings*—SCS worked with RWA staff to develop estimates of any operational savings (pension savings).

- *Determination of Waste Tonnage*—SCS worked with RWA staff to develop reasonable estimates of waste tonnage over the next 12-year period under various assumptions (low, medium and high growth assumptions) into two categories: in-county/long-term contractual tonnage and cash customers/short-term contracts.

- *Calculation of Cash Flow*—SCS then distributed the net revenues and cash needs for fleet and capital expenses, and development of a "rainy day fund" (minimum 25 percent of annual operating expenses) to project annual cash reserves.

The Pro Forma Model suggests the following major findings and recommendations:

- Net revenues during the 12-year planning horizon appear to range between \$2 and \$3 million annually.
- The current debt service is a major drain (\$2 to \$2.2 million a year) on the RWA's cash flow until the bonds are defeased in FY 26/27.
- Allocation of funds for projected capital improvements, fleet replacement and a new "Rainy Day Fund" can all be achieved even if the RWA receives low waste deliveries to the landfill. Projected cash reserves are projected to be as follows:
 - \$12.5 million for Valley Fill option
 - \$5.4 million for Phase 6B option

The RWA should consider funding the LFG-E project out of cash reserves rather than bond proceeds. Projected annual revenues for methane sales are \$320,000.

On October 15, 2015, the RWA adopted the findings of the proposed pro forma model. Conducting the pro forma modeling effort enabled the RWA's decision-makers to project costs of the various capital, fleet, and waste flow options. Key among the lessons learned was the implementation of a "Rainy Day Fund". This fund provides a long-term financial backstop for unforeseen events in landfill operations that cannot be predicted today. Such items could be groundwater and landfill gas remediation, issues with landfill liners and weather events. The fund is capped at 25 percent of the annual operating costs of the RWA, which can also provide three to four months of operating expenses. While typical of many large County or municipal General Funds, it is less typical of individual enterprise funds in the past. Such Rainy Day Funds are becoming more and more prominent across solid waste agencies in the U.S. Lastly, the RWA has a financial tool that can be updated annually and continue to project future revenues and capital expenditures and, ultimately, more accurately forecast rate needs.

Case Study #2: Rate Analysis As Part of a Master Plan Study

Not unlike other solid waste agencies across Texas and the U.S., the City of Killeen, TX has been considering its long-term future and ways to improve both customer service and efficiency. During a March 2013 workshop, City Council established priorities for City initiatives making citywide recycling the second most important item for consideration that year. As a consequence, a Master Plan study (Study) was initiated in 2014 to help develop a 20-year roadmap for solid waste collection, recycling and disposal for the City. As part of the Study, detailed analysis was undertaken on future collection delivery and fleet replacement. The City's current collection and recycling operations were reviewed by SCS Engineers to develop recommendations for enhancement and additional efficiency. Items looked at included transfer station operations, a single-stream recycling partnership with a private recycling company, a regional MRF partnership with Ft. Hood and a fleet replacement program.

Conducting a detailed cost of service/rate study as part of the Study was one of the major differentiators from typical solid waste planning studies. This financial study enabled the planning team to provide detailed "what if" analysis for the political decision-makers in terms of customer rates and fees.

At the beginning of rate analysis, Division staff provided background data and information concerning residential collection revenues and operating expenses. This included the following critical information:

- Staffing and organizational charts
- Wages and benefit rates
- Customer records
- Rate schedules
- Loans
- Fund account summaries (totals and comparisons)
- Past and current operating budgets by cost centers
- Equipment replacement schedules
- Waste deliveries
- Fleet replacement plan
- Division fleet labor, equipment and fuel costs
- Ordinances

Using these data, SCS then developed a Microsoft Excel spreadsheet-based, pro-forma model (Model) to assist in the completion of the rate analysis. This Model includes the following facets:

- An analysis of operational expenditures (personnel, contract and purchased services, materials and supplies, transfers)
- Analysis of capital outlays (equipment replacement and capital projects)
- Revenue sufficiency analysis (annual revenue projections and rate plan to provide sufficient revenues)
- Funds analysis (reserve requirements, transfers to other funds, administrative costs, beginning and ending fund balances)
- Based on data and information provided by the Division, these individual spreadsheets were linked to develop an overall Model to conduct the rate analysis. The following five different rate scenarios were constructed using the Model:

1. *Current Division Program*—This scenario assumes that the Division would continue to provide existing levels of services to its customers.

2. *Fleet Replacement Plan*—This scenario assumes that the Division would provide the same levels of service to its customers, except that its fleet would be replaced early through an expedited lease purchase program in FY 14/15. This would require the Division to have one-time cash infusion replace antiquated vehicles. This scenario also assumes the Division would increase its historic funding by an incremental \$100,000 per year over the rate period, in order to maintain a funding in the range of \$1 million a year.

3. *No Curbside Recycling Service*—This scenario assumes that the Division would discontinue its curbside recycling service and implement a single-stream recycling program.

4. *Single Stream/Private MRF*—This scenario assumes that the Division would implement a Citywide curbside recycling program with recyclables collected by the Division and delivered to a private MRF. This rate scenario assumes that the City would pay the processing fee for all recyclables delivered and receive revenues from the vendor.

5. *Single Stream/Ft. Hood MRF*—This scenario assumes that the Division would implement a Citywide curbside recycling program with recyclables collected and delivered to an MRF developed in partnership with Ft. Hood and other neighboring cities. This rate scenario assumes that the City would pay the debt service and Fort Hood would provide labor for operations. This cost-sharing structure was initially discussed during the Charrette, the parties concerning the Ft. Hood MRF project. It is also assumed that recycling revenues would be shared among the parties based on the quantities of recyclables delivered to the facility.

On February 24, 2015, City Council formally adopted the proposed Solid Waste Master Plan and Rate Study. At the time of this writing, City staff is exploring the possibility of a MRF, in order to provide information for future Council consideration. This option would include Fort Hood and the partners of the Centex Sustainable Communities Partnership that encompasses the cities of Copperas Cove, Harker Heights and Gatesville.

Conducting the master planning efforts along with a formal rate/cost of service study enabled the City's decision-makers to project costs of the various solid waste management options, primarily the implementation of a single-stream recycling program. Capital and manpower investments were evaluated in concert with estimated costs of various recyclables processing alternatives. Further, the City now has a long-term financial roadmap and overall planning tool to help evaluate the customer cost impacts of the fleet replacement plan.

Conclusions

Financial modeling is a useful tool in evaluating actual expenditures and projecting long-term conditions. The two case studies, which were discussed in the article, show different applications of these financial tools. The author has used these tools to help solid waste agencies for evaluation of cash flow, capital improvement plans, budgeting and long-term financing programs. | **WA**

Marc J. Rogoff is a Project Director at SCS Engineers (Long Beach, CA). He is responsible for leading the firm's financial and economic consulting practice. He has conducted cost of service and rate analysis for more than 50 solid waste rate studies across the U.S. Marc can be reached at (813) 804-6729 or via e-mail mrogoff@scsengineers.com.