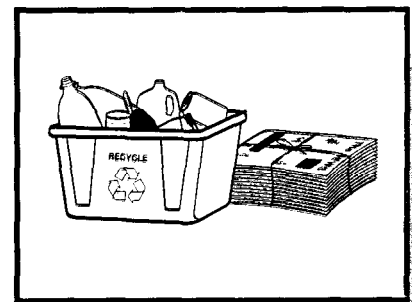




Reducing recycling collection costs through training

by Alexandra Hogan and Bob Flemington

Well-trained managers are critical to making the investment in recycling programs cost effective.



Ontario has long had a high level of success in supporting its recycling objectives by providing training to recycling personnel. When recycling was just beginning to be established in Ontario, it was recognized that the investment of tens of millions of dollars into the municipal recycling infrastructure (for trucks, balers, etc.) would be greatly strengthened by a parallel investment in the people responsible for making the decisions, managing the service contracts and operating the equipment for these recycling programs.

Over the years, a series of recycling training workshops have facilitated the sharing of insights and lessons learned within Ontario and from other jurisdictions, thereby contributing to the design of optimal recycling programs.

Past experience has shown that municipalities see training as a good use of resources and a significant form of support that not only increases understanding and skills, but also renews participant's enthusiasm and motivation towards waste reduction.

Designing the training

OMMRI: Corporations in Support of Recycling and its technical consultant, Resource Integration Systems Ltd. began work in late

1993 to develop an approach for identifying cost reduction opportunities in several municipal recycling programs in Ontario (see "Identifying opportunities to reduce curbside recycling system costs" in the August 1995 issue). Having developed an approach, RIS went on to design and deliver a training program to share the approach with other recycling programs throughout Ontario in 1995.

The most recent Ontario training initiative, entitled "Cost Reduction Opportunities in Recycling," plays a critical role in guaranteeing overall recycling system efficiency and sustainability, by giving recycling personnel the information and confidence they need to make the decisions that will control costs, keep their programs evolving and maximize the recovery of recyclable materials. This goal is no less important simply because system revenues in 1995 reached an all-time high — it behooves us to remember that prices for recovered materials go up and down. Long-term system cost savings should focus on reducing the total system costs and improving total system efficiencies.

The two-day workshop is highly interactive; attendees learn new information through active techniques such as discussing program elements as a group or completing exercises, and then apply the information to their own circumstances. Rather than relying on lectures by "experts," a facilitator asks participants to share their experiences and insights. In this way, some valuable tips are shared. For example, in one case, a participant explained how he had been able to save one hour per truck per day for the recycling collection program, representing a significant savings.

Three cost reduction workshops were held in Ontario in 1995, and in all cases, participants reported that the information and ideas they gathered were immediately useful in improving the efficiency of their own recycling programs.

Assessing programs

An important aspect of the workshop is the key program indicator. Key program indicators are the bases for determining the efficiency of a recycling program. At the begin-

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ning of the workshop, participants complete a program self-assessment or "report card," which enables them to compare their program to other recycling programs in Ontario, using 24 key program indicators such as cost per tonne, cost per household, passbys per hour, kilograms per staff hour, etc. (see sidebar for a list of the indicators). These are used as symptoms of recycling program health, just as temperature, for example, is used as an indicator of human health.

Participants discover what each indicator can tell them about their program. They are also introduced to the range of data from Ontario recycling programs for each indicator (e.g., that the cost per tonne currently ranges from a low of x to a high of y). This is typically the first time that many participants have been able to see how their program compares with others.

They may learn, for instance, that they spend the least amount of any program on communication, or that their collection cost per household is out of line with that of similar programs, or that their rate of sorting (kilograms per staff hour) at the materials recovery facility is very efficient relative to others'. This comparison helps participants discover potential areas of improvement in their own programs.

Collecting data

Workshop participants learn about and share tips on how to collect the data necessary to evaluate the efficiency of their programs. In the written workshop evaluations, participants typically report on the value of receiving standardized definitions for data. For example, it is useful for them to learn that in the study, cost per tonne includes certain items, but ex-

Key indicators of recycling program efficiency

OMMRI's Cost Reduction Opportunity Study has a three-fold objective: to develop a methodology for evaluating efficiency and potential cost reduction opportunities across recycling programs; to provide a report card to the study municipality and its operator regarding performance of its recycling operation; and to share this methodology with other recycling programs throughout Ontario in the form of a training program.

Listed below are the 24 key indicators of recycling program efficiency used in the Cost Reduction Training Program.

✓ Indicators of collection productivity

- Total kilograms per household per year
- Kilograms per household per year by material
- Communication and education cost per unit per year
- Passes per truck per day
- Passes per truck per collection hour
- Stops per truck per collection hour
- Collection cost per household per year

- Collection cost per tonne
- Annual operating cost of truck per hour
- Annual capital cost of truck per hour
- Total truck cost per hour
- Total truck cost per kilometer
- Number of materials
- Number of sorts at the truck
- ✓ **Indicators of processing productivity**
 - Tonnes processed per hour
 - Kilograms processed per staff hour
 - Percent residue
 - Processing operating cost per tonne
 - Annual processing capital cost per tonne
 - Total annual processing cost per tonne
 - Processing labor cost per hour
- ✓ **Indicators of marketing productivity**
 - Overall gross revenue per tonne
 - Gross revenue per material
 - Overall shipping cost per tonne

Note: A tonne is 2,204.6 pounds. A kilogram is 2.2 pounds. A kilometer is 0.6 mile.

cludes others, or that collection equipment is amortized over x number of years.

Participants also appreciate having specific data collection tools (such as forms for waste composition studies, participation rate surveys, etc.) provided to them, as well as the

many ideas for low-cost data collection and field studies.

Evaluating collection, processing and marketing

In the main part of the workshop, participants

The changes they've made

At least in part as a result of the cost reduction workshop, several Ontario communities decided to implement extensive changes in their recycling programs. In some cases, the changes have been in place long enough to measure the resulting impact.

Region of Sudbury

The Region of Sudbury undertook an extensive communication and education campaign that focused on increasing the recovery of old corrugated containers (OCC) and PET containers, both of which were relatively low.

The campaign consisted of eight weeks of print, radio and television ads. Waste composition studies were conducted before, during and after the campaign. Measurement following the campaign indicated that recovery of two-liter soft drink PET bottles in the sample households had increased from 57 percent before the campaign to 83 percent afterwards.

The increase in the recovery of OCC was even more dramatic, from 9 percent before the campaign to 63 percent following the campaign. (This increase in residential OCC recycling cannot be attributed solely to the communication campaign, however, because a ban on OCC generated by the institutional, commercial and industrial sectors was implemented over the same period. Although the ban did not apply to residentially generated OCC, many residents mistakenly assumed so.)

Bluewater Recycling Association

The Bluewater Recycling Association services 57 municipalities in a rural area of southwestern Ontario. Following the workshop, Francis Veilleux, BRA's president, reported that he considers an understanding of the data indicators (see sidebar) to be essential to the survival of any recycling program today. As a result, Veilleux has set up an extensive electronic database to monitor

these aspects of his recycling program.

In addition, Veilleux credits the workshop with confirming for him that it made practical sense to "go beyond the thinking stage" and make the transition from a program in which source-separated recyclables are collected by a dedicated recycling vehicle to a program in which recyclables and garbage are co-collected in the same vehicle. BRA is awaiting the delivery of its first co-collection trucks (38-cubic-yard modified garbage trucks) in January 1996.

Veilleux has conducted extensive time and motion studies on BRA's existing operation and has concluded that it will realize significant overall time and cost savings in the transition to co-collection. Veilleux expects to require a total of 15 co-collection trucks for the entire region, replacing 11 recycling vehicles plus all the garbage trucks used in many of the 57 municipalities.

examine all the variables that affect program costs, and determine how to manipulate those variables to reduce costs. Participants work on group exercises that look at important collection issues such as set-out and stop time, frequency of collection, adding materials and decreasing noncollection time.

The processing section covers decreasing residue, minimizing handling and increasing the efficiencies of both capital and labor.

Materials marketing is also addressed, with participants considering a reported wide variation in revenues and discussing possible factors (such as cooperative marketing and transportation, quality control procedures, sourcing alternative markets, timing of sales, etc.).

Another hot topic of discussion is co-collection of recyclables and garbage. Using an exercise format, groups discuss the theoretical sources of potential cost savings in co-collection systems (such as reduced total stop time, reduced total travel time, etc.). After examining the theory, participants then work on a more practical exercise — designing a co-collection system to suit certain geographic and community scenarios.

Managing contracts

One of the most useful and lively workshop topics is contracting. Because many of Ontario's municipal recycling programs are op-

erated under a contract with a private company, the way in which a contract is written and managed is one of the main ways that cost effectiveness can be assured. Participants learn about the pros and cons of various contracting strategies, such as revenue sharing, payment by cost per tonne or cost per household, incentives to increase recovery, etc. Municipal representatives in particular find this session valuable, reporting that they obtain a better overall understanding of contracting, as well as specific ideas on how to provide incentives for haulers to increase recovery and decrease costs when they retender their contracts.

Finally, a session on implementation gives participants a chance to think more seriously about some of the cost reduction measures they are contemplating in their programs and discuss with their peers what the real barriers might be, and techniques/tips to overcome or mitigate them.

Workshop results

To assess the value of attending the workshops, written evaluations were completed by participants immediately following the workshops. In addition, phone interviews were conducted with participants three months after the workshop to determine what participants had actually initiated or done as a result of the workshop.

Feedback indicated that the workshops have a very positive affect in promoting a better understanding of data collection and analysis, and consequently a better ability to identify and evaluate cost saving opportunities. Several participants were motivated to learn more about their contractor's operations and how they affect overall program effectiveness and cost. Some participants indicated that they have or will change procedures or protocols as a result of what they learned in the workshop. Others identified specific program changes they have made or will make to reduce costs or improve efficiencies. See the sidebar for examples of two such communities.

Over the past 10 years, hundreds of millions of dollars have been spent to buy recycling equipment and provide curbside recycling service in Ontario. It can easily be argued, however, that the single most effective investment in recycling in Ontario has been in the human element, in the relatively few dollars spent on training the people who in the end, make these programs a success. **RR**

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