

WORKSHEET D | CALCULATING AVOIDED DISPOSAL COSTS AND NET COSTS OF A RECYCLING PROGRAM

By implementing a waste reduction or recycling program, a company can potentially realize savings and/or revenues due to:

- **reduced trash collection and disposal costs;**
- **reduced purchasing costs for materials that are no longer needed** (e.g., disposable cups, plates, mugs, new toner cartridges); and
- **revenues from the sale of recyclables.**

There can be, at times, a cost for implementing waste reduction and recycling programs. For example, recycling is considered to be a service and collectors are paid to provide this service. Most often, however, it is less costly than garbage collection. In addition, waste reduction measures like switching to reusable cups, mugs and plates cost money in terms of electricity and water (running a dishwasher), as well as the initial cost of the reusable items.

This worksheet helps identify cost savings as well as additional expenditures associated with waste reduction and recycling programs to estimate the net costs or savings that can be expected due to implementing a waste reduction/recycling program.

Much of the information needed to complete this form is derived from Worksheet B "Records Review:

Estimating Current Waste Management Costs," Worksheet C "Conducting a Waste Audit" and Worksheet E "Interviewing Recycling Service Providers," as well as from purchasing records and hauler reports. You may wish to fill out a separate worksheet for each material type or category of materials being targeted for recycling or source reduction if you are trying to compare the cost differences between potential programs. Otherwise, combine material on one worksheet.

Because it is nearly impossible to have 100 percent diversion due to contamination and employee participation, the calculations estimating the amount of waste to be diverted use a conservative assumption that 70 percent of the targeted material will be recycled/source reduced.

The worksheet is arranged as follows:

- **PART 1: Estimating Potential Reduction in Garbage Collection/Disposal Costs;**
- **PART 2: Estimating Reduced Purchasing Costs and Potential Revenues;**
- **PART 3: Estimating Recycling and Waste Reduction Program Costs; and**
- **PART 4: Estimating Net Costs (Savings).**

PART 1: Estimating Potential Reduction in Garbage Collection/Disposal Costs (Refer to Worksheet C, "Conducting a Waste Audit," for this information.)				
A. BY VOLUME: Use this formula if you performed a visual audit of the waste stream or if you calculated volumes during a waste audit.				
$\frac{\text{percent of waste stream comprised of target material}}{\text{CY targeted for diversion}}$	X	$\frac{\text{total cubic yards (CY) disposed of annually}}{.70}$	=	$\frac{\text{CY targeted for diversion}}{\text{CY expected for diversion}}$
$\frac{\text{CY expected for diversion}}{\text{CY total volume of disposed waste}}$	÷	$\frac{\text{CY total volume of disposed waste}}{\text{percent of waste stream expected to be diverted}}$	=	$\frac{\text{percent of waste stream expected to be diverted}}{\text{percent of waste stream expected to be diverted}}$ %
B. BY WEIGHT: Use this formula if you calculated weight in the waste sort and if your hauler will provide disposal weights for your dumpster(s).				
$\frac{\text{pounds of targeted material disposed of per year}}{\text{pounds expected for diversion per year}}$	X	$\frac{\text{pounds expected for diversion per year}}{\text{total weight of waste disposed of (from hauler) per year}}$	=	$\frac{\text{pounds expected for diversion per year}}{\text{total expected annual diversion rate}}$ %
$\frac{\text{pounds expected for diversion per year}}{\text{total expected annual diversion rate}}$	÷	$\frac{\text{total expected annual diversion rate}}{\text{total expected annual diversion rate}}$	=	$\frac{\text{total expected annual diversion rate}}{\text{total expected annual diversion rate}}$ %

C. ESTIMATED TOTAL ANNUAL COSTS SAVED ON WASTE COLLECTION/DISPOSAL: Businesses are often able to save money by reducing the number of times per week the dumpster(s) are emptied, reducing the size or number of dumpsters and/or by reducing disposal fees, if applicable. Ask your waste hauler if disposal costs can be reduced if your business reaches its expected diversion. Identify potential cost savings by category. To develop a rough estimate of potential cost savings, use the following calculation.

$$\frac{\text{annual waste management costs for disposed of waste (see Worksheet B)}}{\text{expected diversion rate}} \times \% = \text{potential annual cost savings}$$

NOTE: Potential annual cost savings estimated using the formula above will likely overstate cost savings somewhat. Speaking with your hauler about your options will provide you with the most accurate estimate. Reducing the number of pulls/times per week the dumpster(s) is/are emptied will yield a more significant cost savings than simply reducing the size of your containers. Be mindful, however, that it is important to ensure: waste is collected as often as necessary to avoid odor and vectors; and that waste collection containers and pull schedule accommodate a businesses' peak times of operation.

PART 2: Estimating Reduced Purchasing Costs and Potential Revenues

As mentioned earlier, waste reduction and recycling programs can result in reduced costs. In addition, you may be able to earn revenue from the sale of recyclables. This part of the worksheet helps to estimate reduced purchasing costs and potential revenue associated with your program.

- **AVOIDED PURCHASING COSTS:** In some cases, purchasing costs can be avoided due to waste minimization efforts being implemented. For example, switching to reusable plates, coffee cups or utensils can mean that less of the disposable items are purchased in the first place, refilling toner cartridges can be less costly than purchasing new ones and implementing a double-sided print policy can reduce the amount of paper purchased.
- **REVENUE SHARES:** Some recyclers will provide businesses with revenue for some of their recovered materials. Ask potential service providers about earning revenue and estimate the revenue earned per material type. Worksheet E provides a form to use for interviewing recyclers and recording such information.
- **SUMMARY OF COST SAVINGS/REVENUES BY TARGETED MATERIAL TYPES:** Fill in the information in the table below for each material type targeted, then add together the estimated annual cost savings and revenue for all material types to find the total estimated cost savings plus revenues.

WASTE REDUCTION OR RECYCLING ACTIVITY	WASTE MATERIAL BEING REDUCED	AMOUNT OF WASTE REDUCED PER YEAR	ANNUAL WASTE REMOVAL COST AVOIDED (i)	ANNUAL REDUCTION IN PURCHASING COSTS (ii)	ESTIMATED ANNUAL REVENUES FROM MATERIAL (iii)	ESTIMATED ANNUAL COST SAVINGS & REVENUE (i+ii+iii)
EXAMPLE: Replace paper plates with dishes in the cafeteria.	Paper plates	5 CY per week; 260 CY per year	Average of \$3 per CY, or \$780 per year	\$75 per week; \$3,900 per year	\$0.00	\$4,680
TOTAL ESTIMATED COST SAVINGS & REVENUES						

Continued on the following page

PART 3: Estimating Recycling and Waste Reduction Program Costs

Many recycling services are provided at a cost to the business. Therefore, these costs also should be estimated to help develop a realistic expectation of net costs of the program.

Below, identify and record estimated annual costs associated with the program. Although there is a line for additional labor, in many cases businesses are able to implement a program with no additional labor costs.

A. Estimated Annual Costs of the Recycling Program

Additional labor	\$
Additional Energy Requirements	\$
Additional Estimated Collection Service	\$
Additional Estimated Container Rental/Maintenance	\$
Additional Space Required	\$
Education/Promotion	\$
Recordkeeping	\$
Equipment Supplies (e.g., baler wire, if required)	\$
Equipment Maintenance (if required)	\$
Other	\$
Other	\$

B. Recycling Start-up Costs (amortized annually)

Containers	\$
Equipment (e.g., balers, compactors, if required)	\$
Signage	\$
Other	\$
Other	\$

C. Estimated Costs of Waste Reduction Activities

Equipment	\$
Required Materials/Goods	\$
Additional Electricity	\$
Additional Water	\$
Additional Labor	\$
Other	\$
Other	\$

D. Sum of All Annual Costs (Part 3 A, B and C):

	\$
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PART 4: Estimating Net Costs (Savings)

Estimate total net program costs (savings) by the following:

$$\begin{array}{rcccl}
 \$ \underline{\hspace{2cm}} & & \$ \underline{\hspace{2cm}} & & \$ \underline{\hspace{2cm}} \\
 \text{total estimated} & - & \text{total program costs} & = & \text{estimated} \\
 \text{cost savings/revenues (Part 2, C)} & & \text{(Part 3, D)} & & \text{net savings}
 \end{array}$$