

Mini Trash Bins Help Office Settings Reduce Waste 50 Percent and More:

A Model for Local Government Recycling and Waste Reduction

Overview

Recycling practices have become commonplace in office settings. Bottles, cans, and certain paper grades are commodities typically targeted. In most programs, employees have their own bin(s) for acceptable grades of recyclable paper but take their beverage containers to centralized collection bins. Traditional trash cans still sit under or beside each employee's desk to be emptied by the nightly custodian. Discarded items—with the exception of bottles, cans, and certain grades of paper—end up in the trash can. Recycling levels are generally below 50 percent.

Recently, a new type of office building recycling and waste handling system has achieved 50 percent and higher waste diversion levels. The heart of the system is making employees responsible for their trash by replacing each employee's desk-side trash can with a small mini trash bin.

The mini trash bin can be a "saddle basket" placed on the side of the paper recycling container or a desktop mini trash bin (about the size of a 48-ounce cup). In this system, employees empty their mini trash bins into centralized trash containers and their recycling bins into centralized recycling containers.

Programs with high recycling levels target all paper grades for recovery. Custodial workers no longer go desk-to-desk emptying trash cans. The system achieves high recycling levels because it fundamentally changes the way employees deal with their office discards.

Most employees are surprised when they first see mini trash bins. Then they laugh. Then they come to realize that most of what they discard is recyclable and the mini bin is sufficient to hold the little remaining material they generate.

The Ontario provincial government in Canada spearheaded this mini trash bin system in the

1990s. The system is part of the government's Maximum Green program (Max Green), which was conceived to further reduce office waste after government workplaces had already met the province's 50 percent recycling goal.

Max Green is in place in 52 Ontario government buildings and involves approximately 24,000 employees. It has achieved phenomenal success in reducing waste by 75 to 95 percent and saving nearly \$1 million on waste disposal costs annually. Potentially, it has saved even more on renegotiated custodial contracts.

The Ontario government program has been replicated in the private sector. The Bank of Nova Scotia, for example, is achieving 80 percent waste diversion in its office buildings using the mini trash bin approach. Public and private sector office settings in the United States have adopted similar programs including the following:

- City buildings (San Jose and Oakland, Calif.; Austin, Tex.; Seattle, Wash.; and Valparaiso, Ind.)
- Infineon Technologies (San Jose, Calif.)
- Del Mar Fairgrounds (Del Mar, Calif.)
- Southern California Edison Company
- California Integrated Waste Management Board (3-month pilot, Sacramento)
- Office building, Northern Illinois University (DeKalb, Ill.)
- Illinois Department of Natural Resources
- County government buildings (Porter and Spencer counties, Ind.; and Kalamazoo County, Mich.)
- Journal Democrat newspaper (Rockport, Ind.)

This model study profiles the experience of the Ontario Max Green mini trash bin program and the City of San Jose's mini trash bin program. It also

shares some stories from other office settings that have adopted the program.

Program Characteristics

Mini trash bin programs are a unique way to reduce waste. Taking away people's trash cans is indeed a novel concept. Those who have implemented such programs are attracted to them because the programs are thought provoking. If throwing away trash is super easy, people will continue to do it. If it is a little inconvenient, people will think more about what they are throwing away and about what could be recycled.

Programs often face skepticism at first, but this dissipates as employees realize the program works. They accept its simplicity and buy into the benefits of reducing waste and costs.

The main elements of a typical mini trash bin program are:

- Support of top management.
- Cooperation and support from custodial workers and management.
- Establishment of a team leader or recycling coordinator at each building who serves as the point person for the program (this is usually a volunteer).
- Replacing previous trash and recycling equipment with new bins.
- Face-to-face outreach training for employees and management.
- Ongoing communications with employees.
- Assessing recycling and trash generation levels before and after program implementation.
- Renegotiating recycling, trash, and custodial contracts if applicable and possible (to facilitate implementation of new system and reduce costs).
- Monitoring and feedback to employees.

The mini trash can acts as a “yield” sign, allowing office workers to pause and think about what they throw away. Because discarding items is no longer easy, employees must pay attention to what they put in their mini trash cans.

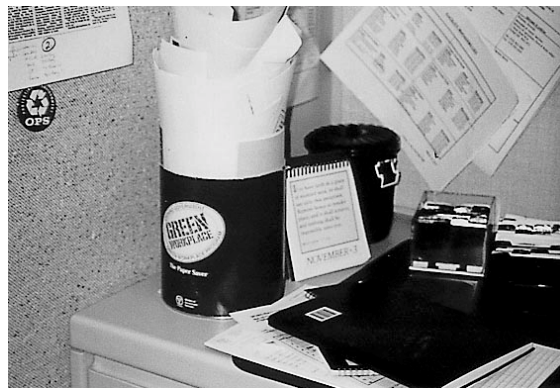
Employees accept greater responsibility for their discards—both discards they produce and those they choose not to produce. For example, instead of letting one soda or one disposable coffee cup consume most of the space in a mini trash can, employees may decide to put the can in a recycling bin or use a reusable coffee mug.

There are three basic variations on the mini trash bin program:

- Custodial staff are responsible for emptying mini trash bins and recycling bins at each employee's work station.
- Employees are responsible for emptying their mini trash bin but not their recyclables, which custodial staff handle.
- Employees are fully responsible for emptying their mini trash bins and taking their recyclables to central collection points.

The latter two scenarios are more common. Making employees responsible for their trash is a key to program success.

Equipment



Employee's desk with circular desktop paper recycling container. Behind it, the mini trash bin. (Ontario's Max Green program)

Different programs use different collection containers. Some invest very little by purchasing mini trash bins for every employee. Employees may use their old trash cans for recyclable paper. People may then bring cans and bottles to central collection containers in kitchen areas or other common locations.

In some programs, individual recycling containers are cardboard containers placed on the desktop or on the floor. Other programs use old trash cans

with new recycling labels. In still other programs, employees use large recycling bins with small saddlebag bins for trash.

Desktop paper recycling containers tend to be big enough to hold a lot of paper but small enough so that they do not get too heavy for employees to easily empty into the central collection bins. By getting paper receptacles off the floor, desktop paper recycling containers help break the tendency many employees have to throw away their paper in trash receptacles.

An advantage to durable containers is that they are not easily damaged and give the impression that they and the recycling program will be around for a long time.

For these reasons, Ontario's Max Green program uses circular desktop containers with the program's name and a clearly visible list of acceptable materials for recycling.

Mini trash bins come in different shapes and sizes as well. For example:

- In San Jose, California, office workers use a 3.5-quart mini can with a pop-off lid and a handle.
- At Max Green buildings, employees use a small desktop container with a pop-off lid that stands about 5½ inches tall and is 5 inches in diameter at the top.
- In Kalamazoo County, Mich., employees at government offices traded their traditional trash cans for a Rubbermaid 28-quart recycling basket and a small attachable "saddle basket" for non-food waste such as plastic windows and other miscellaneous nonrecyclable items.

Some programs make liner bags available for the mini trash bin programs. Some employees will like to use these because they can drop their trash into the central trash container on their way out the door. (Costs of liners are typically more than offset by the avoided cost of conventional trash bags needed under previous systems for each employee's conventional trash bin.)

For central collection containers, the Max Green program uses metal. Metal containers convey to employees that the program is permanent. They are fireproof and almost indestructible. In addition,

they can be painted in designated colors with an organization's logo or other organization-specific design. This gives employees a sense of ownership of the program. It becomes the employees' program, not the recycler's.

When choosing equipment, durability, aesthetics, and ease of use are important considerations. Local governments may have grants available for purchasing recycling-related equipment. State agencies may get help in buying recycling containers from the CIWMB Project Recycle program.

Many recycling coordinators emphasize the importance of equipment uniformity. It gives the program a professional appearance. It also makes the program immediately recognizable to both employees and visitors.

The recycling coordinator at Northern Illinois University emphasizes color-coding containers as a way to simplify the program for users. For example, both desktop mini trash containers and central trash collection bins are black. Deskside paper containers and central paper recycling bins are all blue. She stresses the importance of uniformity of size and shape for central collection bins.

Although having new equipment to go with the new program may be best, existing equipment may be used if costs are prohibitive. In Porter County, Ind., program managers did not want to buy lots of new equipment, so they used what they had. Employees use old trash cans for paper recycling. Making the central paper collection containers the same color as the cans can emphasize that these cans are now for recycling rather than trash.

In the City of Oakland buildings, old garbage bins became the container for collecting mixed paper. City staff members gave out "mixed paper" stickers for the old garbage bins. Employees use a hanging basket for their white paper.

Paper—To Sort or Not

The jury is still out on whether to sort office paper or collect it all together. Allowing employees to mix paper together may increase participation and overall fiber recovery, but high-grading may improve marketability and value.

Most city employees in San Jose, California, sort white paper and then collect all other paper



Employee work station in San Jose showing paper recycling containers (left of chair) and mini trash bin (right of chair) under desk.

together as mixed paper. This gives the city's contractor the best price for the high-grade paper, but it still provides employees with a convenient recycling program. Only two paper sorts are required. In very small facilities, all recyclable paper is combined. In some of the largest buildings, newsprint and computer paper are separated. The City of Oakland also does a two-paper sort (one for white paper and one for mixed paper).

In both San Jose and Oakland, corrugated cardboard is accepted too. It must be broken down and stacked near the central recycling stations for custodians to pick up.

One important aspect of Max Green is recovering all types of paper grades together. This, they believe, maximizes diversion. Max Green representatives recommend that newspaper be collected separately from mixed office paper, because this increases the grade of office paper sent to recycling. This also allows newspaper to be marketed as a separate material.

What Work Settings Can Use the Mini Trash Bin?

Mini trash bin programs are best suited to areas where individuals are able to take responsibility for emptying the contents of their bins into central collection containers. The City of San Jose has found that program success has been limited in settings where desks are shared by various shift workers because no one person has responsibility for emptying the mini can and deskside recycling containers.

The city has successfully used centralized collection containers in place of deskside setups in areas such as some police operations where employees do not have distinct cubicles but share a common desk area.

Introducing the Program

Outreach and education are important for any recycling program. This is especially true for mini trash bin programs.

An example of this is in the City of San Jose, where at the beginning of a program in each building, environmental services staff performed the following tasks:

- Made presentations to upper management to secure their cooperation and support.
- Developed a contact at each site (the contact is the liaison for the program between environmental services staff and building employees).
- Set up and made presentations to all building employees (through the building contacts).
- When the manager of the mini trash can program gives presentations introducing the program, she provides participants with an information packet. The packet contains a memo from top city managers informing people that the program will begin soon and that management supports it. The city phased in the program one building at a time.

In Porter County, Ind., the Board of Commissioners and the Porter County Solid Waste Management District each issued a one-page memo explaining the program to their employees.

The memo in part read:

CONGRATULATIONS!

HERE IS YOUR NEW GARBAGE CAN

NO, THIS IS NOT A JOKE!

Please use it to dispose of used tissues, paper towels, food items, muffin wrappers, wax paper, fruit peelings, etc. Your current waste basket will become the recycling container for office paper.

When your garbage can is full, take it to the nearest central waste area (there will be one large container centrally located in all kitchen areas). Regular

sized waste cans and recycling containers will still be located in the lunchroom.

All other recyclable materials i.e. cans, glass bottles, plastics #1 and #2 must be placed in the appropriate recycling containers in your area.

We know that a lot of people are very emotionally attached to their garbage cans and we hope to make this transition as painless as possible.

In addition to the memo, solid waste management district staff talked directly to employees, going office to office and explaining the program specifics to each office manager.

The City of Oakland began its program in June 1998 in two buildings (one new and one a historic building that underwent earthquake retrofitting) adjacent to city hall and the city center plaza. The two buildings have approximately 1,100 employees. After these buildings were onboard and the city worked out the program bugs, it targeted the six other remaining large city facilities (including the Oakland Museum and municipal services center).

The last building, the city's police administration building, joined the program in February 2000. Approximately 2,700 employees now have mini bins. When beginning the program, city staff gives each office/work station a mini trash bin, a hanging basket for white paper, and a mixed paper sticker (for their old garbage bin). They also receive an explanatory memo from the city manager with illustrated instructions on the reverse side.

Staff members from the Ontario Max Green program recommend forming an implementation team. Dedicating part of staff's time to program implementation will help ensure that all the building's areas are covered. Experts at Max Green recommend taking the following actions:

- Senior management should appoint a greening coordinator to become the program mentor.
- Form an implementation team that consists of the greening coordinator, custodial managers, the building manager, the realty company if the building is leased, and a communications officer.
- Allow the implementation team to assume the role of the green team in smaller buildings.

Wherever possible, a green team—consisting of divisional or floor volunteer representatives—educates colleagues and helps the coordinator to ascertain equipment needs, circulate communications, etc.

All the above positions are temporary. After the program launch date, the green team should continue to monitor the program for about three months and report any problems to the coordinator. The coordinator continues to keep senior management up-to-date on the program.

After the first three months, Max Green experience shows that the program runs itself, with meetings between the coordinator and the implementation team held every six months. Green teams usually come forward with ideas to broaden the scope into reduction and reuse practices.

Involving custodial workers and custodial management from the beginning of the program is essential. Any change in trash and recycling affects custodial work. The custodians need to know what is going on, what needs to be done in order for the program to succeed, and why the program should succeed.

Custodial workers collect recyclables and trash from central containers and bring these to specified areas. If this important job is not done correctly, the entire program won't be successful. Custodial workers need to understand and be on board in order to ensure the program runs smoothly. And support from the person in charge of custodial workers is essential. Custodians should not be the last people to be involved; they should be among the first. They need to know the program will not be extra work for them.

Max Green program managers recommend having a kick-off event at the start of a program. Make it public. Announce it via email. Consider offering a prize to the division or floor that has reduced trash the most after the first month. If you have already measured trash and recycling weights for each floor, documenting changes will be easy.

Costs, Economics, and Benefits

Costs

The major costs for implementing and running a mini trash bin program are program outreach and equipment costs. Outreach largely involves staff

time, but it also includes public relations materials. But most of the program costs will be in procuring equipment—mostly collection containers and the mini trash bins.

Midpoint International Inc., the Canadian company that first marketed mini trash bins, sells its mini bins for \$2.20 to \$2.90 each (depending on quantity ordered and printing requested). Midpoint's bins are made with up to 95 percent postconsumer recycled content.

Kalamazoo County spent \$2.31 for each of its Rubbermaid saddle baskets (used for trash). The 15-quart Rubbermaid recycling baskets (for paper) cost \$2.41 each. Kalamazoo's total costs for equipment were approximately \$2,200.

You Name It Promotions in Oakland provided the mini trash bins for the City of Oakland's program. The 8-inch high pails (6 1/4 inches in diameter) cost \$1.35 to \$1.50 each, depending on quantity ordered. The bins are made from all recycled materials with 25 to 30 percent postconsumer content.

In Ontario, Canada, the payback period on equipment, through savings in trash costs, was less than one year.

In Porter County, Ind., the solid waste management district—which has an education department—bought a large number of mini trash bins. They are given to county, city, and town buildings when they want to start a program. Thus, start-up costs for municipalities in the county are minimal.

In San Jose, the city spent approximately \$45,000 for equipment for 72 buildings (including facilities such as the convention center and international airport). The city budgets \$25,000 a year for advertising, printing, and other promotional activities.

Savings

Because mini trash bin programs reduce materials destined for disposal and increase recycling levels, they tend to reduce overall solid waste management costs.

Many trash haulers charge a fee for each pickup as well as a per-ton tip fee. Even programs that cannot renegotiate for fewer trash pickups have realized savings by having fewer tons landfilled or

incinerated. Program managers can negotiate new trash contracts based on lower trash tonnage.

Examples of cost savings include the following:

- In Porter County, Ind., the administration building's trash costs decreased by approximately one-third after employees instituted a program similar to Max Green.
- The 11-person office of the Journal Democrat newspaper in Rockport, Ind., implemented a Max Green-type recycling program and reduced its trash enough to switch from commercial to city trash service. This resulted in a 40 percent reduction in the newspaper's trash bill.
- In Kalamazoo County, eliminating the use of plastic trash liners at each desk saves the county about \$4,000 per year.

The City of Oakland's program is not realizing cost savings through reduced garbage handling fees. The city does not pay its hauler directly for garbage collection from city facilities.

Labor

Many programs have found that custodial labor either decreased or stayed the same after implementing a mini trash bin program. Custodial workers no longer go from desk to desk emptying trash. Instead they go to central bins to collect it.

In a leased building in Toronto, custodial workers saved one-third of their time on a floor of 100 tenants by not going desk-to-desk. Based on actual figures, Max Green can save up to an estimated \$50 per person per year in custodial costs. Contracts can be renegotiated to reflect this reduction in work time. Even if renegotiating the custodial contract is not immediately possible, this extra time can be used by custodial workers to perform other duties such as dusting and vacuuming.

In the Mowat block, a government office building in Toronto, building management was able to renegotiate its janitorial contract after implementing Max Green. The new contract, which included custodial workers not going desk-to-desk to collect trash, cost them \$48,000 less than it would have without Max Green. This represents a savings of \$64 per employee in this building of 750 employees.

St. Catherine's Courthouse, also in Ontario, was able to renegotiate its contract after implementing Max Green, saving \$12,000 per year, or \$67 for each of its 178 employees. This was based on the fact that custodial workers are no longer going desk-to-desk to collect office trash.

Whether You Rent or Own

Office tenants can save money whether they rent or own the buildings they occupy. For building owners, changes to trash, recycling, and custodial contracts will impact their costs. Lower fees will be evident almost immediately. Trash fees vary throughout the country and will affect how much can be saved through a high diversion recycling program.

For renters, the effect may be less obvious. Renters can negotiate their next lease based on lower trash fees brought about through a concerted recycling effort. Although service contracts usually are negotiated through the landlord or realty company, renters may also renegotiate their current lease for lower rent based on savings, or for more services (such as more extensive cleaning by custodial staff).

The Green Workplace office occupies one floor of a rented building in Toronto. It is the only floor in the building participating in Maximum Green. The landlord could not renegotiate the custodial contract based on reduction of work on one floor.

Instead, Green Workplace staff members and custodial staff members renegotiated custodians' work on that floor based on the time custodians saved by not going desk-to-desk to pick up trash or recycling. Now, custodians spend that time vacuuming more often, dusting high places, cleaning the office kitchen, and performing other tasks that they did not have time to do adequately before.

In San Jose, 7 of the 72 buildings participating in the program are leased facilities. In these seven buildings, the city has made arrangements with the building management to accommodate participation in the program.

In three of the buildings, a program staff member working in the general services department collects the recyclable materials and takes it to the city's central services yard for collection by the program hauler. At two of the buildings, the

recycling hauler collects as part of the regular service provision. In the remaining two buildings, employees recycle as part of a larger commercial recycling effort underway at these locations, which encompasses all tenants of the building.

What Local Government Can Do

State and local recycling requirements have helped lay the groundwork for many of the mini trash bin programs now in place. Ontario's program grew out of the province's 50 percent recycling goal.

In California, the State requires all jurisdictions to recycle 50 percent of their trash according to the California Integrated Waste Management Act (AB 939, Sher, Chapter 1095, Statutes of 1989 as amended [IWMA]). This spurred San Jose's program. In Spencer County, Ind., the program was facilitated by the local county commission passing an ordinance mandating recycling in county buildings.

The City of San Jose's Recycle@Work program, which encompasses the mini trash bin system, is an opportunity for the city to lead by example. The city has found that the program is helping overcome reluctance of some businesses to begin a recycling program by showing how a mini trash bin program can be successful on a large scale.

Local government can take other steps to facilitate program success in public sector programs. In San Jose and Oakland, for instance, a memo from the city manager set the policy for recycling at city facilities. San Jose city staff did additional work with the city's in-house print shop to ensure the stocking of paper that could be recycled and that contains postconsumer content.

Funding Mechanisms

Funding for mini bin trash programs typically comes from the same source of funds that pay for recycling and trash services. In San Jose, for example, funding comes from the Integrated Waste Management Fund. This is an enterprise type of fund that receives money from various sources including IWMA fees levied on commercial generators and city facilities for waste generation.

Challenges and Opportunities in Implementation

The biggest challenge in implementing a mini trash bin program is getting employees to buy into the concept. Some think it is okay to carry recyclables to a central location, but not their trash. Some people think the bin is too small. Program critics tend to be in the minority.

Recycling coordinators in the United States and Canada have all been confronted with surprise, negative reactions, and disbelief when introducing the mini trash bin. Comments such as “you expect me to fit all my trash in THAT?” are common.

However, as soon as people realize they can recycle so many more materials, they realize they do not need a bigger trash can. They settle down when they begin to realize the mini trash bin is sufficient. Employees learn that they need only empty their mini trash bins once a week or once every two weeks (unless they put unwrapped food waste in it.) One office worker generates so little trash that she doesn’t need a mini trash bin on her desk.

Despite smooth implementation, great employee acceptance, and overwhelming success, mini trash bin program coordinators reveal some people still complain about having to empty their own mini trash bins. They are in a distinct minority.

Coordinators try to help “complainers” by pointing out the actions they may already be taking to reduce waste (such as writing notes on the back of once-used paper or sending e-mail instead of writing a note using paper). They point out to these employees that they already pass by the central collection bins a few times a day, so carrying their paper recycling bin or mini trash can with them once a week is not really much extra work. They keep focused on the positive.

If an employee is not participating correctly in the City of Oakland’s program, custodial workers are supposed to leave a note on that person’s chair indicating the noncompliance by checking the appropriate box on the preprinted note. Custodial workers were reluctant to play the “heavy” until a custodian suggested leaving a “love note.” This is basically a thank-you to those who are participating well. From custodians’ perspective,

they get blamed for everything. The “love note” is a way for them to give positive messages too.

At the beginning of San Jose’s program, some people tried to hide and keep their conventional trash cans. However, no major problems have arisen since then. Virtually everyone now participates.

In Kalamazoo County, most of the 800-plus employees quickly supported the idea—not only because it made collection of recyclables and trash more efficient, but also because it promised to reduce vermin problems caused by the availability of food waste at individual desks. Employees’ concern for a clean work site overrode anticipated concerns, such as cutting into custodians’ union-protected tasks, and employees managing their own wastes (“my job is ____, not emptying my recycling and trash”).

One benefit of mini trash bin programs is that they can help employees who previously did not recycle to begin recycling, because no one is supporting their bad habit. In Kalamazoo County, non-recycling employees began to participate to avoid having their trash pile up.

By getting individuals to take responsibility for their trash, mini trash bin programs are opportunities to change behavior.

Tips for Replication

- Seek support of top office management and custodial workers and management.
- Involve custodial workers from the beginning. Meet with custodians frequently to get their feedback. Consider having custodial workers manage the program in order for them to feel some ownership and have some accountability.
- Research the ability of local recyclers to take all the materials targeted for recycling.
- Conduct a basic waste assessment/audit. A basic and simple visual waste assessment/audit will provide information that you can use to set targets for the program and to evaluate the program once it’s in place. Audits also provide information on current waste management practices used in the building. Without information on current weights and

- costs, you will not know how much more can be diverted or how much can be saved per ton.
- Evaluate current contracts (this is especially useful in estimating future savings through the program). How much do you currently pay and how you are billed? Can you reduce costs of trash collection by reducing the frequency and number of pickups? Can custodial contracts be renegotiated? When do current contracts expire? Can they be renegotiated during their term? Is trash removal included in the custodial contract?
 - Designate a team leader or recycling coordinator for each building (especially important for large buildings).
 - Walk through each site with key staff and custodial staff to identify how to set up centralized collection centers.
 - Place central bins in well-traveled areas.
 - Make the program easy and convenient. (Simplifying paper recycling is one way.) Stress the simplicity of the program.
 - Make the program clear. People need to know what is and is not acceptable for recycling. Confusion creates problems. When people feel confused, they are liable to ignore the whole program.
 - Ensure the program won't cost people money. Provide bins and assure people they won't have additional costs associated with the program.
 - Distribute equipment before the program is scheduled to begin. Exchange garbage cans yourself to ensure that every desk gets a mini trash bin and employees do not hide their larger garbage can. Experts from the Max Green Program suggest removing every employee's desktside trash can and replacing it with a mini bin the night before the program is scheduled to start.
 - Give employees a choice of recycling boxes.
 - Clearly designate trash and recycling bins. One successful method is to color-code the bins. For example, if mini trash bins are black, make the centralized trash bins black. If desktop paper bins are blue, make centralized paper containers blue as well.
 - Properly test out all equipment to make sure they are sturdy and efficient prior to implementation.
 - Constantly communicate and provide feedback and follow-up. Plan on having a lot of meetings. Communications to staff, education of senior management, and training for custodial, property management, and green team members are essential to the program's success. The more people know about and understand the new program, the easier it is for them to support it.
 - Keep employees informed. People will be more willing to participate in the program if they know their efforts are making a difference. Involvement leads to ownership. The more ownership employees feel, the more interested they will be in participating.
 - Be available to answer questions. Once employees feel comfortable with how the program works, they will more likely feel good about participating.
 - Provide easy ways for employees to communicate their concerns with you and obtain answers to their questions (such as a dedicated phone number, Web site, and/or e-mail address).
 - Devote time to planning and follow-up (this is essential to see what does and does not work so employees know there is human access to the program).
 - Occasionally, additional training may be needed for new employees.
 - Conduct an annual survey of all key facility staffers to find out how the program contractor and the program in general is working.
 - Identify special circumstances and set guidelines for situations where this program is not applicable, and plan accordingly.
 - Conduct a follow-up audit and publicize your results. Employees will want to know the outcome of their new way of life.
 - In general, continually identify problems and work to remedy them.
 - Be flexible and make the program flexible. For instance, if some employees generate

more white paper than others, offer them new bins.

- Aim high. Some Max Green offices are diverting 95 percent of their discards to recycling.
- Set realistic, clear goals for the office recycling program based on waste audit results (if you have conducted an audit).
- Make sure employees understand and accept the goals.
- Provide feedback.
- Publicize how well the office is performing in relation to its goals.
- Just do it. Start strong. Start with conviction. Changing your trash collection system as well as changing people's patterns are all big changes, but they can come about quite smoothly. After securing senior management approval, you are ready to begin once the implementation teams, custodial workers, and contractors are on board and in place.
- Don't stop at recycling. Consider implementing other waste reduction policies/goals and starting a reuse program. Since throwing large objects such as three-ring binders and report covers into the trash is no longer the easiest option, employees will be looking for other more useful places for these items. A reuse or materials exchange area can reduce the total amount of office discards. It can also save money on office supplies.

Case Study: San Jose's Recycle at Work Program

Program Description

Prior to June 1997, the City of San Jose's general services department provided recycling collection service to approximately 4,000 city employees in more than 50 city facilities. Employees source-separated materials into seven categories. Service frequencies varied by location from once per week to once every three weeks. As of May 1997, the recycling rate was approximately 20 percent.

Staff from the city's general services department and environmental services department decided to improve the recycling system. In 1996 the city released a request for proposals for recycling



Centralized containers for trash and recyclable bottles and cans.

collection service and devised a new indoor trash and recycling collection system. The San Jose Conservation Corps (SJCC) won the bid to provide recycling services.

Under the new program, which began in May 1997, the city provides recycling service to approximately 8,000 city employees in 72 facilities located throughout the city's 173 square miles. These facilities range in size from small community centers to the San Jose International Airport. The following buildings participate in the program: city hall, buildings located in the civic center complex adjacent to city hall, the police administration building, the Martin Luther King Main Library, the San Jose McEnery Convention Center, all community/senior centers, and branch libraries.

Materials collected are newspaper, white and mixed paper, cardboard, computer paper, and mixed bottles and cans. Service frequencies vary by location from once per week to once every three weeks.

The heart of the new program is replacing employees' deskside 5-gallon trash cans with a 3.5-quart mini can (manufactured by Kaeser and Blair Inc.). The mini can is designed to discourage the disposal of paper. All employees are required to empty their own mini cans into centralized 23-

gallon trash cans, just as they empty their own recyclables into centralized recycling containers. There is one centralized 23-gallon trash can for every 10 to 15 employees. The centralized containers are typically located along a central corridor or in a copy room area.

Under the new program, sorting recyclables was simplified to just four categories: white paper, mixed paper (including newspaper and paperboard), mixed containers (bottles, cans, and plastics), and corrugated cardboard. Libraries have so much newspaper that they separate that too.

To encourage recycling, employees have a choice of three sizes of desktop recycling containers for their mixed paper and their white paper. Employees typically bring their discarded glass and plastic bottles and cans to centralized recycling bins, which are Rubbermaid SlimJim plastic containers in either 16- or 23-gallon size.

Custodians pick up from central locations once or twice a day. Custodians use carts with three sections to collect all recyclables. They use a 55-gallon trash can to collect trash. They transfer both trash and recyclables from inside the buildings to outside storage containers, which the trash collection and recycling contractors provide.

The SJCC provides 96-gallon carts for recyclables at all locations. Refuse storage is usually in 1-cubic-yard to 6-cubic-yard front-loader bins with some very small facilities getting residential-style service (garbage carts and stacking bins).

Custodians no longer provide desk-to-desk trash service. This change required working with the custodial staff to provide the additional recycling service. However, providing recycling service does not require additional custodial time due to eliminating the time-consuming task of emptying each employee's trash.

The SJCC collects recyclables with varying frequencies, from once per week to once every three weeks depending on the generation rate of the site. The corps subcontracts with two of the solid waste and recycling companies franchised by San Jose for commercial service.

One subcontractor collects cardboard using a front-loader at locations that generate a significant amount of cardboard. The second hauls cardboard in roll-off compactors from the airport.

GreenTeam of San Jose collects trash under contract with the city. The environmental services department manages these contracts.

The city has been able to reduce trash service by 50 percent at its two largest administrative facilities—city hall and the police department's headquarters. Trash service was reduced by 60 cubic yards per week, saving \$11,000 a year on trash collection at these locations alone. In a 12-month period, 540 tons of materials were recycled, and the average monthly growth rate is 6.3 percent. Since the program began, more than 1,200 tons of materials have been recycled.

To make this program a success, the city developed a comprehensive outreach and education program. Also essential to its success has been support at the highest levels of city government. The program began with support from the city council. The city manager's office conveyed information about the program to all members through a memo distributed with paychecks. Council members were among the first to try out the new program, and recycling



City of San Jose employee emptying paper into centralized recycling containers.

receptacles are now present in all council offices including the council chambers and dais.

The city held more than 100 training sessions to explain the program, answer questions, and recruit department area recycling coordinators.

Coordinators in each building serve as one point of contact and can help decide where to put centralized containers (in conjunction with custodians). At introductory meetings, a city staff person gave employees a choice of recycling boxes. Directly after the presentation, she would go to each desk exchanging the trash can for a mini bin. That's when the program would start.

In addition, articles in the employee newsletter CityLine kept all employees up to date on the new program and its successes. Displays in the city hall lobby showcased old and new containers. A local television station captured the unique program on an evening news segment.

To reinforce the recycling ethic, outreach continues through daily interaction of program staff with employees.

During Earth Week 1998, the city distributed reusable commuter mugs to all city employees and provided free coffee at the cafeteria to those using their new mug. Currently coffee is offered to all employees at 50 percent off the regular price if they use their mug. To date, more than 12,415 cups of coffee have been served.

Recently, a cubicle placard was designed as a quick reference guide explaining what materials should be placed in the deskside containers for mixed and white paper, both to increase diversion and reduce contamination.

To recognize the efforts of the program and raise awareness about materials saved from the landfill, staff members plan to hold a recycling area coordinators' recognition lunch and distribute an imprinted candy with a recycling message. During the 1999 Earth Day event, city employees received a cloth napkin imprinted with the Recycle@Work logo for use in place of disposable napkins.

Costs, Economics, and Benefits

One full-time staff member currently manages the program. This person oversees trash and recycling programs at all 72 city buildings. A staff person from the city's general services department also provides program support by collecting materials

from the few leased buildings, distributing supplies as needed, and maintaining the supplies inventory.

Ongoing non-personnel costs are \$60,899 per year. Most of this money pays for supplies and any hauler costs. Currently the city has a no-cost agreement with the San Jose Conservation Corps (SJCC) to collect recyclable materials from city buildings. In turn, the SJCC retains any sales revenue. The city expects to provide some regular compensation for collection in order to be sure that service quality continues to improve.

Approximately \$25,000 a year is available for advertising and printing brochures and posters and for other promotional campaigns.

Initial start-up costs were approximately \$45,000. These costs covered deskside recycling containers, the mini trash bins, carts for custodians, and promotional materials. Of the \$45,000 initial amount, \$3,660 was spent on special containers for the convention center (see Table 1.)

General service staff reports custodial costs have remained constant after the new program took effect. The time saved in emptying trash containers at each desk is now spent moving recyclable materials from the centralized collection areas to the 96-gallon carts for storing recyclables.

The city has reduced garbage service by 50 percent at its two largest administrative facilities—city hall and the police department's headquarters. Garbage service decreased from 60 cubic yards per week to 30 cubic yards per week, saving \$11,000 a year on garbage collection at these locations alone.

Overall the city's savings are more modest than would otherwise be expected because collection fees are very favorable and the city pays no charge for disposing of city wastes.

Funding for the mini bin program comes from the Integrated Waste Management Fund, an enterprise type fund that receives money from various sources including IWMA fees levied on commercial generators and city facilities for waste generation.

Table 1: City of San Jose Start-Up Costs

Mini trash bins	\$6,984
Liners for mini bins	452
Medium deskside recycling boxes	3,725
Large deskside recycling boxes	3,500
Centralized recycling containers	15,853
Trolley for custodians	4,767
Rollaways for convention center	3,660
Caps for custodial staff	3,959
Keychain knives for promotional giveaway	1,710
Total	\$45,000

Case Study: Ontario Government Max Green Mini Bin Program

Overview

In 1991 the Ontario Government introduced the Green Workplace Program (GWP) to its government offices. This program set waste reduction targets of 35 percent by 1992 and 50 percent by 1995. After reaching these goals well before the target dates, the government established the Maximum Green Program (Max Green) in 1992 to reduce waste further. Max Green introduced some major new elements:

- Accepting all grades of office paper mixed together.
- Replacing individual trash cans with small desktop receptacles and a large centralized trash bin.
- Where possible, establishing food discard collection.

The three Ontario government buildings that piloted the program in 1993 saw total diversion rates of 80 to 88 percent.

By 1998, Max Green was in place in 52 Ontario government buildings involving approximately 24,000 employees. The program has reduced waste in these buildings 75 to 95 percent and saved nearly \$1 million on annual waste disposal costs. Potential savings are even higher on renegotiated custodial contracts.

Program Characteristics

The Max Green program has three main elements:

- All paper types are accepted, including glossy paper and kraft envelopes. This eliminates confusion about what is accepted and encourages employees to recycle all their paper. Directors at GWP have found that in Toronto, revenue from higher paper tonnage and savings in disposal costs more than make up for revenue lost by not supplying only high-quality office paper. (They have found that accepting all types of paper increases participation and fiber recovery as compared to sorting and accepting only certain grades of paper.)
- Tenants receive new tools to deal with their office waste. Deskside trash cans are removed and replaced by desktop mini trash containers. Employees themselves empty these containers into central trash bins. Custodial workers no longer go desk-to-desk emptying trash cans. Employees become responsible for deciding whether to put their trash into the recycling or trash bin.
- Communications, education, and training are extremely important to the success of the program. Well-informed tenants, building management, and service contractors make for a successful Max Green program.

Employees empty their trash cans as needed into larger central containers. Some employees in Ontario empty their mini trash cans less than once a week.



Centralized containers for recyclables and trash in Ontario's Max Green Program.

Although the GWP diverts mostly office paper, employees can also place their discarded glass and plastic bottles, metal food cans, polystyrene, and newspaper in centralized recycling containers. Employees have a desktop paper recycling container, which they empty into a centralized paper recycling bin. Individual paper containers are bigger than the mini trash cans. This encourages paper recycling and allows employees to store paper for a while before bringing it to the central collection bin. Recycling paper is easier than throwing it away.

Custodial workers pick up trash and recyclables from the central containers as opposed to emptying containers at each employee's desk.

Max Green staffers produce posters and pamphlets informing office workers about the program. They make presentations, answer questions, and train a "green team" in each building to answer questions and troubleshoot.

In Canada, Max Green has been adapted successfully by banks, electrical engineering companies, and universities as well as the Canadian Federal Government and other local government bodies.

Costs, Economics, and Benefits

In Ontario, the payback period on equipment through savings in trash costs was less than one year.

Resources

CIWMB Publications

Many CIWMB publications are available on the Board's Web site at: www.ciwmb.ca.gov/Publications/.

To order hard copy publications, call 1-800-CA-Waste (California only) or (916) 341-6306, or write:

California Integrated Waste Management Board
Public Affairs Office,
Publications Clearinghouse (MS-6)
1001 I Street
P.O. Box 4025 (mailing address)
Sacramento, CA 95812-4025

Other Resources

Midpoint International, which manufactures a mini trash bin, has testimonials from more than a dozen clients describing the successes of their programs.

It also makes available an excellent brief step-by-step guide on how to launch a mini bin office recycling program. See contact information under mini trash bin manufacturers below.

On its Web page, Northern Illinois University describes its waste audits and documents changes in waste stream composition since implementing a mini trash can program.

www.niu.edu/recycling/public_html/eng.html

Contacts

Kayleen Warner, Recycle@Work Program
Coordinator
City of San Jose, Environmental Services
Department
777 North First Street, Suite 300
San Jose, CA 95112-6338
(408) 277-5533
Kayleen.Warner@ci.sj.ca.us
www.recycleatwork.org/

David Sparling
The Green Workplace
900 Bay Street, Room M2-59
Toronto, Ontario M7A 1N3
(416) 585-7541
sparlid@mbs.gov.on.ca

Cliff Feldman, Recycling Specialist
City of Oakland
Public Works Agency, Environmental Services
Division
250 Frank H. Ogawa Plaza, Suite 5301
Oakland, CA 94612
(510) 238-6815
cfeldman@oaklandnet.com

Andrew Hurst
Waste Reduction Coordinator
California Integrated Waste Management Board
1001 I Street
P.O. Box 4025 (mailing address)
Sacramento, CA 95812-4025
(916) 341-6118
ahurst@ciwmb.ca.gov
(Implemented a mini bin system at the Joe Serna Jr. Cal/EPA Building, the headquarters facility serving more than 3,000 employees in a 25-story high-rise)

Debbie Steincamp, Director
Solid Waste Management District
Spencer County
918 East County Road, 800 North
Chrisney, IN 47635
(812) 362-7401
recycle@psci.net

Lance Hodge, Executive Director
Porter County Solid Waste Mgt. District
155 Indiana Ave.
Valparaiso, IN 46383
(219) 465-3694
pcswmd@netnitco.net

Steve Leuty
Kalamazoo County Recycling Coordinator
201 W. Kalamazoo Avenue
Kalamazoo, MI 49007
(616) 384-8110
sclcut@kalcouny.com

Mini Trash Bin Manufacturers
Bruce Buchan, President
Midpoint International Inc.
10 Furbacher Lane, Unit 5
Aurora, Ontario
Canada L4G 6W1
(905) 726-9658, Ext. 201
1-888-646-4246; fax (905) 726-9659
bruceb@midpoint-int.com
www.midpoint-int.com/

Gerry Goeres
You Name It Promotions
3515 Grand Avenue, Suite 200
Oakland, CA 94610
(510) 891-9647
gerry@ynip.com
www.ynip.com/

Larry Carr
Rubbermaid Commercial Products
9686 Gardenia Avenue
Fountain Valley, CA 92708
(714) 839-3568; fax (714) 839-7430
lcarr@rubbermaid.com

Kaeser and Blair Inc.
4236 Grissom Drive
Batavia, OH 45103
1-800-607-8824
Distributed in California by:
Roger Wyman
6130 Monterey Road, #124
San Jose, CA 95138

Credits and Disclaimer

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The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, Flex Your Power and visit www.consumerenergycenter.org/flex/index.html.