Recycling at Special Events:

A Model for Local Government Recycling and Waste Reduction

Overview

As communities seek to reduce waste disposal, interest in diverting waste generated at public events has grown.

Special events may be held at venues specifically designed to host such events (stadiums, fairgrounds, convention centers) or at venues designed for other uses (public streets and parks). While not every community has a permanent event venue, most communities host numerous special events over the course of a year. These events pose a challenge to recyclers because the waste stream often contains large amounts of single-use products and food discards. Multiple vendors often serve participants.

If obstacles to recycling can be overcome, benefits can accrue to both communities and event organizers. These include contributing to reaching 50 percent waste diversion as required by the Integrated Waste Management Act (AB 939, Sher, Chapter 1095, Statutes of 1989 as amended [IWMA]). The practice of recycling generates good publicity for event organizers, and it reduces waste disposal costs. It also generates goodwill among attendees—the public likes recycling at events. People often express a desire for recycling opportunities when they are not present at these events.

The amount and type of materials generated varies by event size, venue, and event type. The waste stream from a special event can be substantial. The 30,000 patrons at the 1999 Whole Earth Festival in Davis, Calif. produced more than 15,000 pounds of discards.

Attendees at the 1997 Common Ground Country Fair in Unity, Maine, produced an average of 0.46 pounds of discards per person for a total of nearly 28,000 pounds of trash. In this town of under 2,000 residents, the fair produces nearly 2 percent of the town's total annual municipal solid waste.

The estimated 110,000 ticketholders and tailgaters that converge on Penn State University's Beaver Stadium in State College, Penn., produce approximately 22 tons of recyclables and trash at each football game.

Recycling at special events is growing. Numerous events and venues that have implemented recycling programs have had remarkable success. Examples include:

- The Del Mar Fairgrounds, Del Mar, Calif.: the fairgrounds recycled 90 percent of its discards in 1998.
- The Common Ground Country Fair in Unity, Maine: the fair recovered 86 percent of its discards in 1996.
- Pennsylvania State University football games: recyclers recovered 36 tons of material and achieved a recovery rate of more than 26 percent during the six games held at Beaver Stadium in 1999.
- Bay to Breakers footrace and Footstock, a post-race festival, San Francisco, Calif.: participants and attendees at the 1998 event recovered approximately 8.5 tons of material through recycling.
- St. Paul Classic Bike Tour, St. Paul, Minn.: the 5,000 riders at the 1998 race recovered 95 percent of their discards through recycling and composting.
- Rib Run marathon, Kansas City, Mo.: recyclers recovered so much that disposal averaged less than one ounce of trash per participant from 2,300 runners, 300 junior marathoners, 500 volunteers, and many spectators.

This model study has a twofold purpose. First, it provides information to help event organizers create a waste reduction program. Second, it details programs and policies to help city and county planners encourage recycling at special events in their jurisdictions. This model study presents examples and highlights from efforts all around the world, including Australia, Austria,

Maine, and California. Individual case studies profile the recycling experiences at the Del Mar Fairgrounds and the Bay to Breakers footrace.

Program Characteristics

The task of organizing recycling programs at special events often falls on event organizers. The amount of planning and preparation to pull off a successful event can be daunting, and recycling sometimes falls through the cracks. Yet, the extra effort to provide recycling at special events can reap cost savings and positive publicity for the organizers.

The main elements of a typical effort to recycle at special events are:

- Determining who will coordinate and implement the recycling efforts.
- Evaluating event waste stream composition.
- Assessing local markets for recyclable materials.
- Designing a collection, sorting, and transportation system for trash and recyclables.
- Gathering support of the numerous parties involved, including event organizers and management, venue management, vendors serving the event, and waste haulers (as appropriate).
- Educating and/or training recycling staff, vendors, attendees, and participants.

Who Will Be in Charge?

Special events recycling may be coordinated by any of the following:

- The event organizers.
- The venue managers.
- The waste hauler serving the event.
- A private firm that specializes in special events recycling implementation.
- Volunteers, or a local environmental organization. Each of these approaches has advantages and disadvantages.

Perhaps the easiest way for event organizers to provide recycling opportunities to event attendees is to choose an event venue that already has a recycling program in place. The venue staff will already be trained in proper recycling techniques and the event organizer will not need to purchase recycling equipment.

However, cost savings and revenues from recycling may be retained by the venue. An existing program may not accept materials that event organizers would like to recycle. Even when choosing to use a venue with its own recycling program in place, review the venue's recycling program to ensure that it diverts as much waste as possible from disposal. Venue management committed to recycling may welcome suggestions for improving their programs and may share disposal cost savings in return for a good idea.

Example: the Del Mar Fairgrounds hosts an average of seven or eight events on-site each week. Organizers renting the space and their vendors are required by contract to sort recyclables, which are then collected by venue staff using the venue's equipment.

Other options are hiring a waste hauler that can provide recycling services at the event or hiring a company specifically to implement the recycling effort. The advantages and disadvantages of hiring a contractor to provide recycling services are similar to those of choosing to use a venue with an existing program.

Furthermore, fees paid to contractors may increase event waste management costs. As with choosing a venue with an existing recycling program, event organizers can work with contracted service providers to ensure that their efforts will divert as much material as possible from disposal.

Example: In Australia, Visy Special Events provides full-service recycling services to stadiums, exhibition centers, and cultural events. The company's services include waste characterization; serving as a liaison with vendors; collection, sorting, marketing, and transportation of recyclables; and assistance with education and public relations. As recycling at special events becomes more common in the U.S., specialized companies may offer similar services.

Many special events are organized by volunteer organizations or use volunteer staff during the events. Volunteer organizations hosting events

could designate a committee to organize and implement their recycling program.

If event planners do not have sufficient members or expertise to implement their own program, they can consider partnering with another organization to implement recycling. Local environmental or public service organizations may be able to coordinate the recycling efforts.

Often community solid waste agencies have organized corps of volunteers that may be able to do the job. Enlisting volunteers can provide event organizers with valuable expertise and staff while keeping recycling costs low.

Example: Kansas City Cares, a nonprofit organization, organizes volunteers to implement the recycling program at the annual Kansas City Blues and Jazz Festival.

What Will Be Collected?

The design of a recycling system for a particular event or venue must be based on an understanding of waste stream composition and available markets for materials to be recovered.

Research by the University of Northern Iowa's Center for Energy and Environmental Education found the waste stream from two large 1997 festivals consisted of nearly 70 percent food, paper, and plastics, by weight. The remainder of the waste stream consisted of waxed cups, cardboard, wood, glass, aluminum, and other miscellaneous materials.

More than half of the plastics in this sample consisted of #6 plastic or polystyrene. This waste composition may be typical of events with many food vendors. (Of course, special circumstances and regional variations may result in a different waste composition at a particular event.)

Event organizers can influence waste stream composition by working with vendors and controlling what attendees may bring into the festival.

By requiring vendors to use recyclable products instead of non-recyclable equivalents, event organizers can increase the proportion of the waste stream that can be recycled. Product substitutions to consider include: (1) serving all beverages in cans or bottles, and (2) choosing cups, bowls, and utensils made of recyclable or biodegradable materials.

Biodegradable single-use food service products, such as bowls, cups, and plastic utensils, are becoming increasingly available. Currently these are more expensive than plastic and paper, but the price gap is closing.

Encourage waste reduction by asking event participants to bring their own reusable cups or mugs, asking vendors to hand out eating utensils and straws upon request only, and serving condiments (such as sugar, cream, and ketchup) in bulk rather than individual packages if local health department regulations allow.

Example: Event organizers at both the Whole Earth Festival in Davis, Calif., and the Common Ground Country Fair in Unity, Maine, ask attendees to bring their own reusable items. These include bags, cups, bowls, napkins, and eating utensils.

Example: Penn State University piloted a "Zero Waste Tailgate" program during its 1999 football season. The events catered by Penn State food services featured biodegradable cutlery, plates, cups, and trash bags. The university composted all of the waste generated at its two 1999 zero waste tailgates.

Collecting glass containers for recycling can present challenges. Glass is heavier than other beverage containers, and it can be difficult to transport through large crowds. Broken glass presents hazards to volunteers and attendees. In places where processors require glass to be sorted by color, recycling stations need additional containers. Event coordinators can prohibit attendees from bringing glass containers to the festival site and not allow vendors to sell beverages in glass containers.

Once event organizers have an idea what's in the waste stream of the event, they must decide what portions of the waste stream to collect for recovery. Focus first on the materials most prevalent in the waste stream. All decisions must be made with an eye toward local markets.

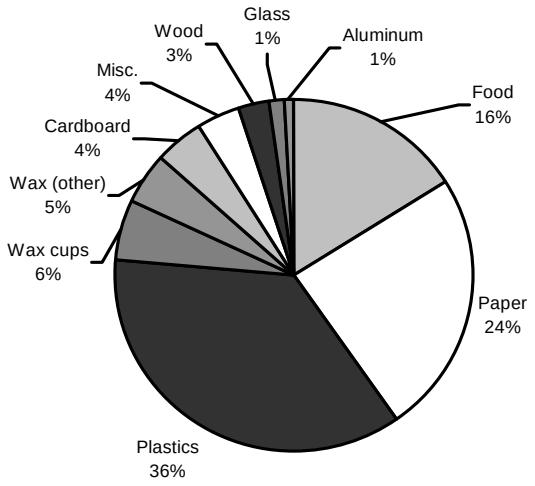
Markets for recyclable materials are often volatile and materials that are technically recyclable in some regions may not be in others. The sale of some commodities may generate income; others may be revenue neutral, and still others may require a tip fee. Tip fees for recyclables are often

wholly offset by resulting reductions in trash disposal costs.

Food service is common at most types of special events; therefore, food recovery is crucial to maximizing recycling at special events. Options for food recovery include donation, use as animal feed, rendering, and composting.

Donation of food is appropriate for non-perishable and unspoiled perishable food. Food preparation scraps and inedible food must be handled in another manner. Donation recipients could include food banks, soup kitchens, and shelters.

Waste Composition by Weight at Two 1997 Iowa Festivals



Farmers have long relied on food discards to feed their livestock, and new companies are introducing technology to convert food discards into dry animal feed. In general, foods high in salt and coffee grounds are not suitable for use as animal feed.

The rendering industry uses liquid fats and solid meat products as raw materials in the production of animal feed, cosmetics, soap, and other products. Many rendering companies provide storage barrels and pickup services.

Composting is the transformation of organic material into a soil-like material. Many composting operations can handle paper plates, cups, and napkins in addition to food discards.

There are four principal composting methods. Unaerated static pile composting is best suited for small operations handling only paper, fruit, and vegetable discards. Aerated windrow composting can accommodate paper and large quantities of food discards, including animal products, if carefully tended.

In-vessel composters can accept paper products, fruits, vegetables, and animal products. Vermicomposting uses worms to break down materials into a nutrient-rich soil amendment. Animal products are not suitable for vermicomposting systems.

Recycling teams will need to identify food recycling options available in their area in order to determine which materials to collect and how to sort them. (Many local governments maintain directories of local food recycling companies and organizations.) Recyclers may be able to increase recovery by using more than one food recovery technique.

Example: Event organizers at the 1999 Rib Run, a marathon held each year in Kansas City, Mo., composted 400 pounds of food scraps and donated all edible leftover foods to local food kitchens.

Example: Del Mar Fairgrounds sends some food discards to an off-site composter, vermicomposts some of it on-site, and works with a rendering company that collects used cooking oil.

Other items typically targeted for recycling at special events include paper, bottles, cans, and cardboard. These items can often be recycled in existing community recycling programs. Check with the local government or recycling contractors to determine whether event recyclables can be recovered with other community recyclables. If so, the existing system will determine collection and sorting requirements.

At some events, such as agricultural fairs and horse shows, a large portion of the waste stream may consist of animal bedding and waste. These materials are generally nutrient-rich and can be composted. Bedding materials from dog and cat shows can generally be composted also, but the animal waste may not.

Designing Collection and Sorting Systems

Design recycling sorting systems with an eye toward convenience. In general, clearly mark

recycling stations and locate them near where materials are generated. Furthermore, keep the recycling areas neat and attractive.

Vendors often generate substantial amounts of preconsumer scraps, unsaleable food, and cooking oils. It may be easiest to ask vendors to set these materials aside and collect them outside event hours.

Alternatively, vendors could bring the materials to one or more centrally located collection points. Locate collection points as close to the vendors as possible yet away from high traffic areas where odors and vectors could be a nuisance. To reduce these problems, collection containers need to be covered and emptied and cleaned regularly. Some food scrap recyclers will deliver clean containers when they collect filled containers.

Vendors also produce most of the cardboard discarded at special events. Generally, cardboard collection points do not need to be located at public recycling stations. Locate them behind the scenes, near dumpsters. If event organizers have sufficient staff, assign people to circulate around vendor areas to collect cardboard as it is generated. The added convenience may encourage vendors who were not otherwise inclined to recycle.

Locate public recycling areas near vendors, bathrooms, and at event entrances and exits. Ideally, trash receptacles should not be placed alone. If space constraints or equipment shortages prohibit locating a recycling station at every existing trash receptacle, consider covering or removing those receptacles.

Possible sorting categories include: deposit containers, other recyclable containers, food and food-contaminated paper, clean recyclable paper, and trash. In general, the less sorting the patrons must do, the better. Event organizers in bottle bill states need to weigh the disadvantage of increased sorting against the potential of increased revenues from container redemption.

Example: The Iowa Festival Recycling Project worked with local Girl Scouts to collect deposit containers separate from other containers. The Girl Scouts provided collection barrels for deposit containers at each recycling station. These barrels were clearly marked and different in color from the other recycling containers.

The festival recycling project staff report that the deposit container barrel had the least contamination of all sorts at the recycling stations. Because the festival recycling project allowed the Scouts to retain the revenues from container redemption, the total amount raised is unknown. However, project staff reported that the barrels filled up multiple times each day and the scouts were very pleased with the amount of money they raised.

Design signs and recycling station configuration to encourage proper sorting of discards. Use signs to clearly indicate which materials belong in which containers. Event attendees will generally not take the time to read fine print, so display recycling instructions in large type accompanied by a graphic if possible. Container design can also encourage proper sorting of materials. For example, different-shaped slots in container lids may discourage individuals from depositing trash in recycling containers.

Staff at recycling stations can help reduce contamination of recyclables and ensure recyclable items are not put in the trash. Materials collected at unstaffed recycling stations often need secondary sorting. While staffing recycling stations during the event may require more labor than sorting material after the event, most recycling crew members vastly prefer the former option.

Gather Support

Recycling at special events has no chance of success if event organizers do not support it. Organizers have many complex tasks to accomplish in order to stage a successful event. If they consider recycling to be an extra headache, the program will not get the necessary attention it needs.

Recycling supporters who receive lukewarm receptions from event planners may want to defer program implementation for a short time while investing in education efforts. Information about the benefits of recycling and offers of resources to aid implementation (brochures, technical assistance, contact lists) may generate commitment among reluctant event organizers.

Gaining vendor cooperation with recycling efforts is almost as important as management support. Vendor operations can be strongly influenced by recycling program requirements. Some sorting and collection systems will require additional labor by vendor staff.

Asking vendors to substitute recyclable goods in place of non-recyclable items may result in additional costs. Event organizers can stress the environmental benefits of recycling and potential cost savings from reduced disposal. Another selling point to gain vendor buy-in is that the public generally supports recycling. Organizers may involve vendors in the recycling program planning to ensure the implemented program is convenient and acceptable.

Organizers can assist vendors by providing staff training, educational brochures, and contacts for sources of recyclable and recycled-content products. Finally, venue managers can require that vendors use their sites to recycle through contracts and rental agreements.

Education and Training

It is impossible to overtrain recycling crews or provide too much education to event participants. Event organizers need to ensure vendors, recycling crews, and event attendees have enough information to properly recycle.

Continuously provide vendors with recycling program information. Start by informing vendors of recycling program details well in advance of events. Use event registration and contracts as opportunities to distribute recycling information to vendors. Remind vendors again about program details shortly before the start of the event.

Organizers may distribute recycling information to vendors as they arrive at the venue or circulate among booths before the event begins. Continue to interact with vendors about recycling throughout the event.

Example: Many beer-vending booths at the Kansas City Blues and Jazz Festival are staffed by volunteer groups who share in the sales revenue. Ongoing education of vendor staff is critical to ensure high participation in recycling efforts. This is accomplished through signs and site visits by recycling program staff during shift changes.

Temporary or volunteer recycling crews also need recycling training well in advance of the event. In addition to information on how to recycle, they need to know why the recycling program is being offered. Recycling staff will have contact with the public and should expect to be asked about the need for and purpose of the program. In a sense, recycling staff will also be event recycling ambassadors.

On-site training immediately prior to the event allows recycling crews to become familiar with the recycling stations and the venue layout. This is also the appropriate time to offer detailed information on sorting materials.

Finally, recycling at special events cannot succeed without the participation of attendees. Use every opportunity to publicize recycling efforts. Display the recycling logo (and more information if space allows) in advertising prior to the event, including newspaper and television ads and outdoor signs.

For events where participants preregister, such as road races and animal shows, include recycling information in registration packets. During the event, make recycling as easy as trash disposal. Recycling stations should be located near to where patrons generate waste. They should be clearly marked and easy to use.

Example: Volunteers at the Rib Run in Kansas City, Mo., distribute recycling program information to runners at the registration tables.

Costs, Economics, and Benefits

Special events always have trash collection and disposal costs. Integrating recycling into waste management systems often does not increase total waste management costs and can sometimes reap savings for event organizers.

Recycling program costs include equipment costs, labor costs, transportation costs, tip fees, advertising costs, and administration costs. Revenues from the sale of recyclables and avoided disposal costs can often offset program costs.

Equipment Costs

Additional equipment such as recycling containers, rolloffs for storage, and signage are usually needed to implement a program for recycling at special events. Venues that own their trash collection equipment may be able to save

money on recycling equipment by converting existing equipment for use in the recycling program. For example, as trash disposal decreases, extra dumpsters could be used for storage of recyclables.

An investment to purchase recycling equipment will often not be cost-effective for organizers of individual events. Consider renting it or hiring a recycling contractor who can provide the necessary equipment.

Labor Costs

Like equipment, labor can often be shifted from trash programs to recycling programs. Even so, total waste management labor needs will likely be higher when handling event discards in multiple streams. Event organizers can keep these costs in check by using volunteers.

Example: Penn State reduced labor needs for post-game stadium and grounds cleanup by 15 percent after it began recycling. Local scouts staff recycling stations before and during the games. Afterward, a corps of recycling volunteers remove discarded recyclables left by game attendees and tailgaters.

Transportation Costs

Implementing a recycling program can cause overall waste management transportation costs to change. The change may be an increase or decrease depending on recycling program characteristics and the existing waste management system.

For example, if markets for recyclables are nearer than the waste disposal site used, total transportation costs may decrease, and vice versa. Some recycling companies may provide pickup services, reducing transportation costs to event organizers. Implementing on-site systems for handling materials can eliminate transportation costs for these materials.

Example: Del Mar Fairgrounds composts preconsumer food discards generated at its satellite wagering facility in worm bins located on the infield of its racetrack. By doing so, the fairgrounds eliminates the need to transport the material to an off-site composter.

Tip Fees

Market conditions influence tip fees that must be paid for recyclables. Market fluctuations mean that recyclers sometimes must pay processors tip fees. Sometimes they earn revenue from the sale of recyclables, and sometimes they can tip them for free.

Advertising Costs

Advertising recycling at special events can increase participation, but it can also increase costs. In general, including advertising about the recycling program in other messages promoting the event can minimize costs. Event organizers may also seek an organization to sponsor their recycling efforts.

The sponsor may help defray total program costs in addition to underwriting advertising costs. Potential sponsors include waste management or recycling companies, environmental organizations or consulting firms, or companies that produce goods from recycled feedstock.

Administration Costs

Because recycling programs are more complex than traditional waste disposal systems, venues and event organizers that implement recycling programs will generally see administration costs increase. The need for recruiting and training staff and volunteers, managing contracts with recycling service providers, and additional program oversight can all increase program costs.

Material Revenues

Many recyclable materials have value and can be sold for revenue. Aluminum, scrap metal, corrugated cardboard, and office paper have generally had a positive value even at times when processors have charged tip fees for other commodities. In California and other bottle bill states, redemption of deposit containers can generate revenue much greater than the scrap value of the containers.

Example: Del Mar Fairgrounds and its tenant, the Del Mar Thoroughbred Club, sold nearly 2,600 tons of recyclables in 1998. This generated more than $23,000 in revenues.

Avoided Costs

Recycling can help event organizers and venues avoid costs of purchasing materials and tipping trash at landfills. Avoided refuse tip fees can often offset all other program costs so that recycling is a net money-saving program.

Example: Del Mar Fairgrounds uses compost produced through its on-site vermicomposting program as fertilizer. In 1998 the compost helped the fairgrounds avoid the purchase of other fertilizers.

Example: Loyola-Marymount University in Los Angeles, Calif., annually saves so much in avoided refuse tip fees through recycling at its sports arena that the savings more than offset all costs of program implementation. The university's recycling coordinator now says, "We can't afford not to recycle."

How Local Governments Can Make a Difference

As California communities strive to meet their 50 percent waste reduction goals as mandated by the IWMA, reducing waste from special events can have a measurable impact. The City of San Francisco is the host to thousands of sporting events, street fairs, festivals, and concerts annually. The millions of event attendees produce millions of pounds of discards. While not all communities host as many events, most communities host at least one or two events a year.

Communities can establish programs and policies to assist event planners and venues recycle and reduce waste. Examples include:

Passing a local ordinance requiring special events recycling. San Francisco and New York City require special events recycling. San Francisco's ordinance requires planners to submit a recycling plan with their permit application. This applies to street fairs, athletic events, or any other event requiring temporary use or occupancy of a public street at which beverages will be dispensed or a large amount of other materials will be generated.

New York City has a mandatory recycling ordinance that requires recycling in the city, including at all special events. The department of sanitation has issued rules setting requirements for different types of events. For example, the department requires the sponsors of the more than 5,000 street fairs held in the city each year to meet with a department staff member prior to the event to review recycling procedures.

The city requires all street fair recycling programs to collect, at a minimum, corrugated cardboard. At events in which vendors sell food and/or beverages, the program must also collect metal cans, glass bottles and jars, plastic bottles, and aluminum foil.

Banning the use of materials at special events for which recycling markets are weak or do not exist. By banning non-recyclable materials, communities can increase the proportion of waste available for recovery at special events. For example, Sonoma County, Calif., bans the use of polystyrene containers at all county-owned facilities. As a result of the ban, vendors and event organizers often choose recyclable paper and #1 and #2 plastic products in lieu of polystyrene products.

Increasing regulation on the use of single-use cups, plates, bowls, and cutlery in Germany has resulted in the creation of a new industry. Numerous German communities ban the use of some single-use products; others tax them heavily.

One company, Cup Concept, developed a returnable system using polycarbonate and polypropylene mugs, cups, champagne glasses, deep and flat plates, dishes, and cutlery suitable for use at outdoor events. Cup Concept supplies the reusable items, delivers them, collects them after the event, and washes them at centralized points. The company plans to extend its service area all over Germany and in neighboring countries.

Instituting incentives for special events that recycle. Even organizations not committed to recycling may decide to do so if they receive incentives. Communities that provide waste services may create an incentive for event organizers to recycle by offering discounted trash collection and disposal fees to events that recycle.

Communities that don't provide waste services may be able to create an incentive through their permit process. For example, a community could require a recycling deposit when event organizers apply for a permit. The deposit could be refunded wholly or in part depending on the level of waste reduction achieved at the event.

Providing recycling services directly or partnering with another organization. Communities that provide residential and/or business recycling services may consider offering

recycling services directly at special events, especially in areas not served by private companies. Communities that do not have the resources to provide services directly may be able to work with another organization that can provide recycling services.

For example, Corporations Support Recycling (CSR), a nonprofit private-sector organization, works in partnership with Canadian municipalities in Ontario to develop sustainable recycling and waste diversion systems. CSR operates the "Can Van" to support special events recycling. The van goes to special events in the metropolitan Toronto area. Students staffing the van set up a recycling display and recycling containers for used beverage containers.

Providing educational materials or hands-on assistance to event organizers or venue managers. New York City developed its "A Guide to Mandatory Recycling at New York City Street Fairs." The booklet provides guidance to event organizers on New York City recycling requirements and a list of resources to help organizers implement programs.

Sonoma County, Calif., maintains a Web site at www.recyclenow.org/ b_specialevents.html with helpful hints for event planners and venue operators interested in organizing recycling at special events. The site also provides a list of service providers for special events recycling.

The City of Kansas City, Mo. co-sponsored a workshop on special events recycling and waste reduction along with the local electric utility company and an environmental organization. Area event organizers attended the workshop, held in October 1999.

Purchasing recycling equipment and making it available for rental or loan to event organizers. Purchasing recycling equipment may be too expensive for organizers of special events. Communities wishing to encourage special events recycling may be able to defray these costs by purchasing recycling equipment—such as containers and signs—and loaning or renting it to event organizers.

For example, the City of Linz, Austria, supports the use of reusables instead of disposables at special events. The city purchased two mobile trailer units equipped with dishwashing facilities. The city rents the trailers to organizers of small events. They are equipped with a supply of washable plates, cups, glasses, and cutlery.

Funding Mechanisms

In general, recycling at special events can be funded from the same source as solid waste collection and disposal.

Event organizers and venue managers may be able to defray program costs by applying for grants from State and local authorities and taking advantage of local programs offering equipment loans, education materials, technical assistance, and/or volunteer staff.

Another strategy event organizers could use is contacting local recycling companies. Haulers sometimes donate services in return for materials revenues and positive publicity.

Event organizers who successfully reduce waste disposal are often able to convert existing trash equipment for use in recycling programs, avoiding the need to invest in new equipment. Those who pay directly for trash services often realize large savings from avoided trash tip fees. The savings can outweigh total recycling program implementation costs.

Challenges and Opportunities in Implementation

Designing and implementing a special events recycling program takes a lot of lead time. Recycling organizers at annual events often start organizing efforts for the next year as soon as the previous year's event has passed. Review previous years' efforts and communicate with vendors, staff, and volunteers to identify potential improvements for the next event.

The need for visible and convenient recycling opportunities cannot be stressed too much. Identify recycling stations with large signs and banners. Use brightly colored bins to attract attention to them. At recycling stations, use eye-level signs, large print, and graphics on instructional signs.

Eliminating contamination in recycling containers is an ongoing challenge at special events. Many programs try to prevent contamination by having

staff at every recycling station during the course of the event. If continuous staffing is not possible, staff must frequently check bins and remove contamination.

Once a bin becomes contaminated, it can quickly end up filled with trash because many people ignore signs and look into bins to see what should go into them.

Vendors may be reluctant to participate if recycling efforts will increase their labor needs or costs. To gain vendor buy-in, provide incentives. Include them in program planning, and share promotional opportunities with them.

Example: Organizers at the Iowa Festival recycling project asked vendors to substitute recyclable cups for non-recyclable #6 plastic cups. The recyclable cups each cost a few cents more but project staff negotiated a discount with recyclable cup manufacturers and shared the savings with vendors.

Recycling markets change from year to year. Event recyclers may discover recovery options for materials that were previously disposed; they may also identify opportunities to make product substitutions by keeping abreast of market developments.

Tips for Replication

- Begin planning recycling programs as early as possible.
- Involve vendors in the recycling program planning process.
- Try to collect materials that make up significant portions of the waste stream or that have high recovery value.
- Constantly look at waste being disposed to identify opportunities to increase recycling.
- Solicit volunteers to help with recycling and education efforts.
- If possible, reward volunteers with free event passes, T-shirts, and/or refreshments. Another option is making donations to volunteer organizations whose members help with recycling.
- Encourage the use of reusable and recyclable products in the place of non-recyclable goods.
- Locate recycling bins close to where waste is generated.
- Include recycling opportunities at every trash disposal location.
- Ensure recycling areas are well-marked and easy to use.
- Educate event staff, recycling program workers, vendors, and patrons about how to recycle and why it is important.

Case Study: Del Mar Fairgrounds, Del Mar, California

Overview

Del Mar Fairgrounds is a 375-acre facility located in Del Mar, California, which is owned and operated by the 22nd District Agricultural Association. The facility hosts the annual Del Mar Fair (a 20-day fair with average annual attendance of more than 1.1 million), the Del Mar Thoroughbred Racing Meet (an annual 43-day racing meet), and a satellite wagering facility (open annually from mid-September to mid-July).

Locating recycling receptacles near high-traffic areas can increase program visibility. These trash and recycling containers at the Del Mar Fairgrounds are near a public phone and an automated teller machine.

In addition, the fairgrounds rents facilities to an average of seven or eight events per week. The facility also rents stable facilities for boarding horses. In total, the fairgrounds hosts more than 3 million in attendance annually.

Del Mar Fairgrounds started its recycling program in 1985 by recycling office paper. Since that time staff has expanded the program to include

recovery of more than 17 different materials including food discards, beverage containers, and cardboard. The fairgrounds achieved a 90 percent diversion rate for its solid waste in 1998 and has set an ultimate goal of "zero waste, or darn close."

Program Description

The number of fairgrounds recycling staff varies according to needs. The fairgrounds employs one year-round recycling worker and additional temporary staff members to implement its recycling program. It also hires additional staff for special events, increasing the recycling crew to eight or more people during the annual fair. Del Mar Thoroughbred Club provides additional recycling staff during the thoroughbred racing meet.

The fairgrounds currently recycles at all on-site facilities. In the fairgrounds administrative offices, workers separate mixed and white paper, cardboard, and beverage containers for recycling. The facility implemented a mini trash bin program in its offices, replacing each employee's deskside trash can with a small mini trash bin.

Staff members collect other paper, including newspapers, betting slips, and brochures and fliers, from the satellite wagering facility and on-site events. Facility janitors and cleaning crews aggregate collected paper, which recycling staff members haul to market.

The facility uses bag-lined recycling containers for bottles and cans placed next to most trash containers on the grounds. These containers are clearly marked and have special lids with 9-inch openings in the top to discourage patrons from putting trash in with recyclables. The fairgrounds staff members collect bags of recyclables from these containers, aggregate them into rolloff containers, and haul full rolloffs to a processing facility.

Vendors and exhibitors produce most of the corrugated cardboard. Their contracts require them to flatten used cardboard and take it to one of several collection points adjacent to buildings. Fairgrounds crews collect the cardboard from beside buildings, store it in rolloff containers, and haul it to a local recycler.

The fairgrounds management also requires food vendors to collect preconsumer food scraps, unsold leftovers, and cooking oil. This is required in the vendors' contracts with the fairgrounds. The fairgrounds staff members provide two-wheeled carts for collection of food scraps, and a local rendering company supplies covered barrels for collection of the oil.

Recycling crews collect the scrap containers every other day and haul them to a private composter. The rendering company collects the oil barrels from the grounds as needed. Failure to comply with the fairgrounds recycling requirements can result in a $100 fine per incident.

Recycling crews collect preconsumer kitchen scraps generated at the satellite wagering facility and from the grandstand kitchen facility. Fairgrounds staff vermicompost fruit and vegetable scraps from these facilities on the racetrack's infield farm.

Vermicomposting is done by eisneola fetida worms in a wood framed box that sits directly on the ground. Once collected, scraps sit for a few days in a container. Staff members then feed this partially decomposed food to the worms. They feed and water the worms once a day. A water dripline for use during the dry periods runs through the box. The box is covered with cardboard and a shade cloth. The finished worm compost, or castings, is used as fertilizer on the fairgrounds.

The two largest components of the Del Mar Fairground's waste stream are green waste and animal bedding and manure. Landscaping crews collect green waste such as grass clippings, leaves, brush, and branches and deliver them to a local composter.

The fairgrounds has three outlets for animal bedding and manure. One of these is a private company that collects and composts shavings from horse shows and the boarding facilities. Fairgrounds crews collect straw and deliver it to a local mushroom grower. Workers deliver the remaining bedding and manure to a private composter.

Del Mar Fairgrounds also recovers construction and demolition (C&D) debris from its facilities. The fairgrounds manager sends asphalt and concrete from parking lots, building foundations,

and restroom facilities projects to a local C&D recycler.

The fairground crews also recycled wood from C&D projects in 1998, reusing as much wood as possible. The facility sent more than three tons of wood from temporary structures, signs, and a barn deconstruction project to a company that chips and composts the wood scraps.

Table 1: 1998 Del Mar Fairgrounds Waste Reduction Results

	Tonnage
Recycling	661
Aluminum	3
Cardboard	67
Office paper	12
Concrete/asphalt	322
Glass	59
Metal	38
Mixed paper	107
Newsprint	28
Plastics	5
Wood	15
Tires	4
Composting	16,466
Food discards	68
Straw/shavings/manure	15,999
Yard debris	399
Total Waste Reduction	**17,127**
Disposal	**1,868**
Total Generation	**18,995**
% Reduced	**90%**

Source: Nancy Strauss, Del Mar Fairgrounds, 2000.

Del Mar Fairgrounds focuses on waste reduction and closing the loop in addition to recycling. In order to increase the recyclable proportion of its waste, Del Mar Fairgrounds prohibits the use of polystyrene containers on its grounds. In order to assist vendors who typically use polystyrene containers, the fairgrounds concessions office maintains a list of companies that offer alternative products. The fairgrounds has also established a program for purchasing products with recycled content.

Costs, Economics, and Benefits

The 22nd District Agricultural Association receives its funding from facility operating revenues. These include parking fees, stable rentals, building and grounds rentals, and fees paid by vendors. The only State funding received by the fairgrounds has been grants to support its recycling efforts.

In 1998 the California Department of Conservation (DOC) awarded a $6,000 grant to the 22nd District Agricultural Association. The association used these funds to purchase 68-gallon beverage bottle recycling containers. The association used a second DOC grant to purchase an electric service cart and additional recycling containers.

Del Mar Fairgrounds' recycling and composting program costs are not separated from trash collection and disposal costs. Numerous staff members, including janitors and cleanup crews, perform both recycling and disposal tasks. Equipment such as trucks and rolloff containers are used for both programs. The fairgrounds does not track staff time and equipment usage by program and therefore cannot report costs separately.

In 1998 the fairgrounds paid less than $15,000 in tip fees for the 7,222 tons of material it recycled and composted. The facility earned more than $9,500 in revenues. The Del Mar Thoroughbred Club earned nearly $13,000 in revenues from its recyclables. Del Mar Fairgrounds and the Del Mar Thoroughbred Club paid $36 and $38 per ton respectively to tip their trash.

The fairgrounds paid much lower tip fees for compostables—$16 per ton for green waste and less than $1 per ton for straw and shavings. (The Del Mar Thoroughbred Club did not report tip fees paid for compostables and recyclables.) In 1998 recycling by the two organizations accounted for more than $600,000 in avoided landfill tip fees.

While the fairgrounds cannot report detailed cost figures for its recycling program, Nancy Strauss,

the facility recycling manager says, "We know the program pays for itself." Because the fairgrounds owned its trash collection equipment, it avoided large capital investments for recycling equipment by converting existing equipment for use in its recycling program.

Challenges and Opportunities in Implementation

Fairgrounds management has found maintaining high waste diversion levels to be a constant challenge. Without continuing educational efforts, attention to the program can wane. For example, from 1996 to 1997 the office workers at the fairgrounds increased the amount of white paper they recycled while decreasing the amount of mixed paper. This change was attributed not to a change in use of paper grades by employees, but to better sorting of the paper grades after employees received a refresher course on the recycling program. The improved sorting highlights the need for continual education efforts.

According to Nancy Strauss, Del Mar Fairgrounds recycling manager, "The last 10 percent is the toughest." In the fairgrounds' efforts to reach its 1998 diversion level of 90 percent, the recycling program recovers all materials that are currently recoverable.

To eliminate or recycle the remaining 10 percent of the waste stream at the fairgrounds, staff members are tracking new developments in biodegradable products. These include disposable cutlery and trash bags. Staff members believe that by switching to biodegradable products that can be composted, they could save $30,000 or more per year on trash tip fees.

Case Study: San Francisco Bay to Breakers Footrace and Footstock Post-Race Festival, San Francisco, Calif.

Overview

The San Francisco Bay to Breakers race is billed as the "world's largest footrace" with 75,000 participants for its 88th running on May 16, 1999. It is also one of the oldest footraces continuously run in the U.S. The race has been held annually since 1911 and has had as many as 100,000 runners in some years. The 12-kilometer race course stretches across the City of San Francisco, starting at the Bay and ending at the Pacific Ocean.

"Footstock," a post-race festival held at the Polo Fields of Golden Gate Park, features food and entertainment for race participants and their friends. The race has become an opportunity for fun in addition to serious athletics. In 1999 approximately 5,000 runners participated in costumes representing everything from a large carrot to Elvis Presley. In addition, more than 100 racers completed the race in the nude.

Table 2: Estimated Annual Waste Reduction Results for the Bay to Breakers Footrace and Footstock

	Tonnage
Recycling	8.5
PET water bottles	3.0
Cardboard	3.5
Glass, plastic, and aluminum containers	2.0
Disposal	**30.4***
Total Generation	**38.9**
% Reduced	**21.9%**

*HANC recycling estimated disposal tonnage based on the known recycling tonnage and the reduction in the number of trash containers used at the event.

Source: Kevin Drew, HANC Recycling, 2000.

The current recycling program started in 1992. The Haight-Ashbury Neighborhood Council Recycling Center (HANC recycling) provides recycling at two water stops along the race route. Additional recycling containers are located at the finish line, along the one-mile path to the post-race party, and in the polo fields during Footstock.

Local independent cardboard vendors assist HANC recycling in return for the revenues from cardboard sales. These recyclers collect stacked cardboard along the race route and at the Footstock festival. Volunteers from the Guardsmen, a local service organization, also assist the recycling effort.

Program Characteristics

Efforts to ensure the success of the recycling program begin before the race day. HANC

recycling works with event staff to ensure the water containers used are recyclable. They also inform vendors and race participants about the recycling program. Race organizers include recycling information in the race registration packets.

Along the race route, at the finish line, and along the route to Footstock, HANC recycling focuses on recovering # 1 plastic water bottles and cardboard.

At Footstock, HANC recycling deploys 12 to 20 individual recycling stations across the field. These recycling stations have 6 to 12 sorting containers for recyclables, are well-marked, and are sometimes staffed by volunteers. HANC recycling reports staffing at the recycling stations significantly reduces contamination, but they may not have enough volunteers to provide continuous coverage at each station.

Materials targeted include glass bottles and aluminum cans sold by vendors, HDPE and tin food service containers used by food vendors, and wine and juice bottles from picnics held by participants. Cardboard is also recovered from food and T-shirt booths. Vendors can either stack the cardboard for collection or take it to a central collection location.

Costs, Economics, and Benefits

Race organizers contract with HANC recycling to provide recycling services during the race and at Footstock for approximately $2,300 each year. HANC recycling uses eight staff members, three 35-yard rolloff containers, and three trucks to implement its program. The sale of #1 plastic and other containers generates approximately $500 per year, which HANC recycling retains. The cardboard vendors retain the revenues generated from the sale of the material they collect and market.

By diverting recyclables, race organizers eliminate the need for six to eight trash rolloff containers each year. At a cost of $300 for each rolloff, savings have averaged $1,800 to $2,400 each year in trash hauling and disposal costs. Furthermore, recycling reduces the labor needed for post-event garbage pickup on the field and along the race course.

Challenges and Opportunities in Implementation

Food is a major component of the remaining trash from the Bay to Breakers race and Footstock. So far, HANC recycling has not had sufficient staff and/or resources to implement a food recovery program. In recent years the City and County of San Francisco's solid waste management, through its recycling program, has focused on food recovery programs.

Initial program focus has been on large commercial food waste generators such as wholesalers, produce markets, food service businesses, and large restaurants. As the city develops these food waste recovery programs, opportunities for recovering food at special event may increase.

Discarded clothing makes up a large portion of material generated along the Bay to Breakers race route. Many of the nude runners get that way by shedding their clothing along the race route. Much of the discarded clothing is still usable (after laundering, of course).

Recognizing the potential for converting this discarded clothing into a useful resource, HANC recycling plans to develop a program to recover it. The organization hopes to partner with a nonprofit organization—such as Goodwill Industries—for collection and ultimate reuse of the discarded clothing.

Staff levels and the short time frame of the event (eight hours) have proven to be barriers to increasing diversion. Recycling staff must focus on getting things done quickly. This runs counter to the relative care necessary for quality source-separated recycling. Further diversion would likely require more staff resources during the event.

Resources

CIWMB Publications

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

"Recycling for Festivals and Special Events," by Rick Stinchfield and Dan McDonald of the Center for Energy and Environmental Education, School of Health, Physical Education and Leisure Services, University of Northern Iowa, Cedar Falls, IA 50614-0293. (319) 273-2573. This booklet covers all aspects of programs for recycling at special events, from planning to implementation to education efforts. Especially useful is an event timeline that identifies major tasks to be completed and an estimate of when to do them.

"Event Recycling Brochure," produced by and available from the Los Angeles Bureau of Sanitation, 508 Jose St., #913, Los Angeles, CA 90013. (213) 473-8228. This brochure offers tips on reducing and recycling waste at marathons, parades, festivals, and sporting and catered events. Buying recycled for special events is also addressed.

"A Guide to Mandatory Recycling at New York City Street Fairs," by the New York City Department of Sanitation, Office of Special Events, 125 Worth Street, Room 807, New York, NY 10013. (212) 788-4067. While much of the information in this guide is specific to New York City, it also includes a list of nationwide companies that sell recycling containers and decals.

"Green Event Planning Guide," produced by Bridging The Gap, Inc., P.O. Box 10220, Kansas City, MO 64171. (816) 561-1087, www.bridgingthegap.org/. This 1999 publication provides guidance on planning green events, including recycling and waste reduction, at four levels: (1) the family, (2) the neighborhood, (3) business events, and (4) large communitywide events.

"It's Easy Being Green! A Guide to Planning and Conducting Environmentally Aware Meetings and Events," produced by the U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA 530-K-96-002. While this publication primarily focuses on indoor events, many of the tips and ideas are applicable to reducing waste at all types of events.

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BRING Recycling organizes recycling efforts at the Oregon Country Fair, Art in the Vineyard, and other Eugene area events.

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This organization organizes recycling for the Bolder Boulder Marathon and 10K run, and for campus events.

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Credits/Disclaimer

Kelly Lease of the Institute for Local Self-Reliance prepared this study pursuant to contract IWM-C8028 ($198,633, included other services) with the University of California at Santa Cruz for a series of 24 studies and summaries.

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.

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