

**WASTE REDUCTION AND RECYCLING PLAN FOR  
HCS FLOWER SHOW  
SWANZEY, NH**



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**PREPARED BY:**

**THE NORTHEAST RECYCLING COUNCIL**

**[WWW.NERC.ORG](http://WWW.NERC.ORG)**

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# WASTE REDUCTION AND RECYCLING PLAN FOR HCS FLOWER SHOW

## ***Introduction***

The HCS<sup>1</sup> Flower Show Waste Reduction and Recycling Plan (Plan) is one component of the USDA-funded Special Events Recycling Project being conducted by the Northeast Recycling Council, Inc. (NERC), and its subcontractor, DSM Environmental Services, Inc. (DSM).

The purpose of this project is to improve special event waste reduction and recycling (recycling) efforts, particularly in rural areas with populations of less than 10,000. The scope of the project includes developing recycling plans for six events (two each in New Hampshire, Vermont and Maine), conducting waste audits at those events, and developing a manual based on the results of the plans, audits and recycling activities taking place in 2005. The HCS Flower Show is one of the participant events.

The HCS Flower Show has already adopted some recycling measures to reduce the volume of waste requiring disposal from the event. The Plan is intended to provide the organizers of the Flower Show with a strategy for implementing an expanded recycling program specific to the needs of their event. The Plan is based on quantitative and qualitative information gathered from discussions and email correspondence with event organizers, attendance at the event, and a waste characterization analysis of the event. In addition, the Plan is informed by lessons learned from other events and sources of information.

## ***Event Background***



HCS runs the Flower Show at the Cheshire Fairgrounds. The event is held in an indoor skating rink over a three day period.

The rink is transformed into a festive display of garden plants, garden tools and accessories.

There is also a small food court where all food is sold and most of it is consumed. Table 1 provides a summary of other event details.

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<sup>1</sup> Home Healthcare, Hospice and Community Services

**Table 1 : Event Overview**

<i>Event</i>	<i>HCS Breath of Spring Flower Show – Enchanted April</i>
Location	Cheshire Fairgrounds; Swanzey, NH (in ice skating rink)
Organizer	Home Healthcare, Hospice and Community Services
Staff	Cheshire Fairgrounds management and staff (1 to 3 people per day)
Dates	April 1, 2 and 3 in 2005 (Friday through Sunday)
Attendance	6,720 people
Vendors	50 vendors/ garden clubs sell products related to gardening
Food	6-8 vendors sell food products
Web site	<a href="http://www.hcsservices.org/flowershow/">http://www.hcsservices.org/flowershow/</a>

### **Material Generation and Management**

Bags of waste from the public spaces are collected by Fairground staff and deposited outside of the building in one of two 6-cubic yard dumpsters. In 2005, 14.5 cubic yards (estimated 6,525 pounds) of waste were disposed.<sup>2</sup>



In addition, 11.85 yards (estimated 474 pounds) of cardboard were recycled.<sup>3</sup> The cardboard was set aside in a separate room (see photo), and made available for reuse. The remaining boxes were flattened and

brought to the transfer station to be recycled.

Five full bags of bottles and cans (about 100 units) were recycled that weigh an estimated 70 pounds.<sup>4</sup> Half of this material was diverted into the six large grey recycling containers, that look like plastic soft drink bottles (see photo) that were provided by the NH Association of Fairs and Exhibitions. The other half of the containers was removed during the waste sort.



<sup>2</sup> A conversion rate of 450 pounds per cubic yard is used for loose commercial waste, based on EPA weight to volume conversion data. An additional 1.5 cubic yards were disposed, but presumed to be generated by the Fair Grounds by activities not related to the event itself.

<sup>3</sup> A pile of flattened cardboard measuring 4 feet by 4 feet by 5 feet (11.85 cubic yards) was recycled. Loose cardboard conversion of 50 pounds per cubic yard.

<sup>4</sup> Average weight of bottles sorted was 1.4 pounds. Includes some bottles with liquid in them.

Seven cubic yards (estimated 4,500 pounds<sup>5</sup>) of wood from trees used in displays were chipped and stored in piles at the Fairground. In addition, an unknown quantity of vegetative waste was delivered to the manure pile that is passively composted, and mulch for displays was borrowed from a local nursery and returned to the nursery for reuse after the event. Finally, there were about 50 flower pots left over which were returned to a local greenhouse.

## Waste Characterization



A waste audit was conducted on Sunday, April 3 from 11:00 AM to 3:00 PM, close to the end time of the event. Three individuals sorted 21 bags of waste from the dumpster that were transported to a nearby barn, opened, sorted and weighed.

The bags in total weighed 345 pounds, or roughly 5 percent of total waste. Weights for specific categories of waste sorted, as well as total materials generated are depicted in Table 2 and Figure 1 below.

**Table 2. HCS Flower Show Waste Characterization**

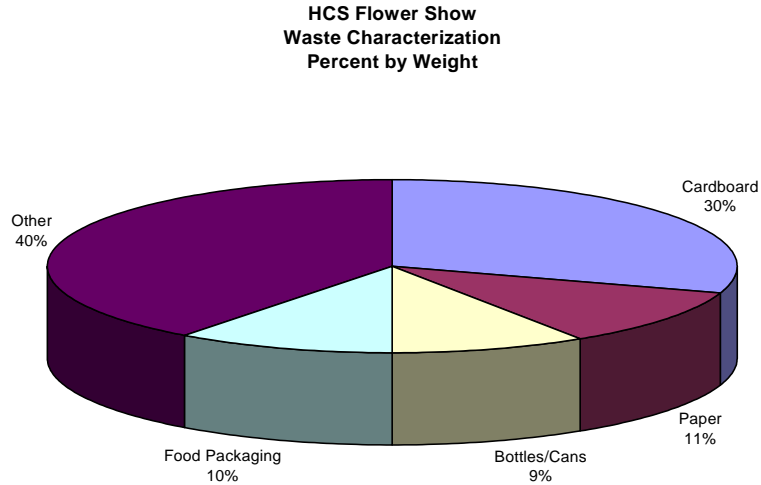
Material	Waste Sort Data		Total Material Generated			
	Net Weight (lbs)	Percent	Total Material Disposed (lbs)	Material Recycled (lbs)	Total (lbs)	Percent
Cardboard	86.3	25%	1629.4	474	2103.4	30%
Paper	40.6	12%	766.5		766.5	11%
Bottles/Cans	32.4	9%	611.7	35	646.7	9%
Food Packaging	38.5	11%	726.9		726.9	10%
Other	147.8	43%	2790.5		2790.5	40%
<b>Total</b>	<b>345.6</b>	<b>100%</b>	<b>6525.0</b>	<b>505</b>	<b>7034.0</b>	<b>100%</b>

Note: Weights of mulch, chipped wood, and flower pots are not counted in totals.

<sup>5</sup> A conversion rate of 500 pounds per cubic yard is used for woodchips based on EPA weight to volume conversion data.



**Figure 1. HCS Flower Show Waste Generation – Percent by Weight**



### **Observations From Waste Sort**

The bottle and can recycling program was effective in the sense that the recycling containers were not contaminated by other waste materials, as shown in the photo on the left, below. This is likely due to the fact that the recycling bins and garbage cans were placed next to each other, as shown in the photo on the right, below. However, only about 50 percent of the cans and bottles generated were recycled, the remainder showed up in the waste stream.



The cardboard recycling effort seemed to be moderately successful. However, only 22.5 percent of the cardboard generated at the event was diverted for disposal. This does not include cardboard that was reused and taken off the grounds by vendors, as that figure did not show up in our analysis. Thus, the total reuse and recycling figure could be much higher. Very little actual food waste was found in the sort, and only 10 percent of the waste was food packaging. There was very little plant waste in the material sorted, and

no mulch or wood chippings, all of which indicate a successful effort to divert those materials to higher end uses.

### **Waste Costs**

The only itemized cost for waste management at the event was a waste disposal fee of \$105. This computes to a \$32 per ton fee based on assumptions in this report, although it is likely that given market rates for waste, the actual per ton fee would be higher.

The other recyclable items (bottles and cans, and cardboard) were transported by event staff to the nearby recycling center where there is no fee to recycle items. The labor and gas/vehicle expenses to transport the recyclables are not directly accounted for.

### ***Recycling Recommendations for 2006***

The HCS Fairgrounds made a significant recycling effort in 2005, with very little lead time. Recommendations for 2006 are essentially to do more of the same:

#### **Bottle and Can Recycling**

Continue to place well labeled bottle and can recycling containers in the Food Court, next to garbage cans. Six containers were used in 2005, which seemed adequate. In addition, place additional containers near garbage cans in other locations; or at a minimum, place signs on all other garbage containers indicating that bottle and can recycling can take place in Food Court.

#### **Cardboard Recycling**

More cardboard recycling is warranted as there was a considerable amount of cardboard in the waste, some of it very large pieces. The recommendation is to have a location that vendors and staff are well aware of to store cardboard that is not likely to be reused. One option is to have the waste hauler drop a designated small dumpster for cardboard. Another, and less expensive, option is to create space in the barn outside for flattened cardboard to be stored until sufficient quantities are generated to divert to the recycling center. Clear written directions can be distributed to vendors to ensure they know the proper recycling procedures. See Appendix A for an example flier that could be given to vendors.

#### **Tree Waste, Mulch, Vegetative Waste and Flower Pots**

Continue to seek opportunities to find local contractor to chip wood waste for storage/use at fairground, reuse mulch, compost leftover vegetative waste, and seek creative reuse opportunities for flower pots. These are tremendous initiatives that save waste disposal costs, leverages working relationships, and create value-added end products.

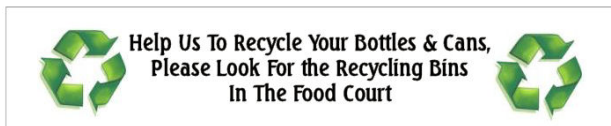
#### **Paper Recycling**

There was about 750 pounds, or 11 percent of the waste that was recyclable paper that could have been separated and brought to the transfer station. Much of this paper was generated by the fair or vendors themselves in the form of unused brochures or

newspapers. One recommendation is to ensure that only the amount of printed materials needed are printed in the first place. A second recommendation is to have a paper recycling container near the exit of the fair, and also in the food court, and to inform vendors of the opportunity to recycle paper. For simplicity, bags of recycled paper could be hauled to the recycling center along with cardboard and cans and bottles.

## **Recycling Communications**

As in 2005, continue to provide information about the recycling program to vendors and participants through the use of a simple, one-sided fact sheet to be posted in the food court near the recycling containers, and available at the HCS exhibit.



Also, continue to put information about the recycling initiative in flower show brochure (as depicted at left), or other media communications.

Make the connection between recycling, reuse, composting and gardening. Perhaps an exhibit on backyard composting could be developed in coordination with the Northeast Resource Recycling Association, or the local solid waste district. The flower show could promote its own composting and recycling efforts at the same place.

Inform vendors of the recycling efforts being implemented at the event and let them know they are expected to participate in this effort.

## ***Potential Future Recycling Initiatives***

### **Food Waste Composting**

In addition to the recommendations for 2006, food waste composting is one additional initiative that could be considered in the future. While there was not a lot of food waste generated, there was a considerable amount of food wrappers. To institute an effective food waste composting program, the fair would need to work with vendors to ensure that all cups, plates, utensils and other food wrappers used at the event were biodegradable. In addition, the material recovered from the waste would either need to be composted on site (in accordance with state and local regulations) or sent off-site to a permitted food waste composting operation.

Food waste composting is not likely to be a cost saving effort, as the cost of biodegradable dishware and utensils are more expensive than plastic ones. The major reason to consider this initiative would be to work toward being a zero waste event, and to demonstrate the potential to turn all waste into valuable soil amendments, which would be an educational message that is consistent with the theme of the event.

### ***Recycling Budget***

Following is an *estimated* budget for the recycling activities mentioned above. The budget is for *costs and time that will be different* than past waste management practices. (For example, no cost is assumed for bags used for recycling bins as they would have

been used for trash bins, but handling and storing recyclables will add some time as opposed to disposing of trash.)

**Table 3. Recycling Cost Estimate**

<i>Added Costs Due to Recycling (Estimates)at 2005 Event</i>	
Signage for bottle/ can recycling area	\$10.00
Use of recycling bins (Provided by NHAFE)	\$0.00
Pick up and return recycling bins (100 miles @ \$.375 per mile) mileage reimbursement	\$38.00 + 2 hours
Delivery of cardboard and bottles/cans to recycling center	\$5.00 + 1 hour
Communication with vendors about cardboard recycling (making handout, talking, showing)	3 hours
<u>Added</u> labor to pick up and store cardboard and bottles/cans (as opposed to collecting trash only)	2 hours (crew)
Chipping trees (service donated – no labor added)	\$0.00
<b>Total Added Costs Due to Recycling</b>	<b>\$53 and 8 hours</b>
<i>Cost Savings Due to Recycling at 2005 Event</i>	
Avoided disposal costs (509 pounds diverted/ 7034 pounds disposed) = 7 percent of total disposal cost	\$7.00
<b>Net recycling cost</b>	<b>\$46 plus 8 hours</b>



## Appendix A: Sample Recycling Sign

Please Help Us to

# Recycle Cardboard

at the HCS Flower Show This Year

**PUT ALL DRY CARDBOARD IN THE DESIGNATED  
CARDBOARD RECYCLING CONTAINER**

**DID YOU KNOW?**

**Each ton of recycled paper can save 17 trees, 380 gallons of oil, three cubic yards of landfill space, 4,000 kilowatts of energy and 7,000 gallons of water!**

**THANKS FOR PITCHING IN!**

