Children’s Discovery Museum
Waste Audit Results—January 2009

Prepared by:

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Overview

In partnership with the City of San Jose Environmental Services Department (ESD), a diversion program for recyclable and compostable materials was implemented at the Children’s Discovery Museum in April 2008. ESD staff performed a waste audit on January 26, 2009 to gauge the composition of materials generated and the effectiveness of the new program, in order to make recommendations for changes or improvements.

To characterize the various streams by user type, the audit areas were divided into three categories: Public Areas, Office/Staff Areas and Kitchen Areas. An aggregate characterization chart is included for each area, along with material details for each waste or recycling stream.

A chart with the types of items found in the trash, compostable and recyclable streams is included as an appendix for reference. The chart contains a column adjacent to each stream denoting the correct placement of each type of material indicated with a C for compost, R for recycling or T for trash. Please refer to this appendix for specific material details referenced in this report.

Public Area Analysis

As shown in the Aggregate Results Chart (below), 34% of the total materials generated (paper and other recyclables) are currently being diverted from landfill. The overwhelming majority of materials generated both in the public area trash and recycling streams was compostable in content, approximately 44% of the total materials disposed. The bulk of this stream was soiled paper, including paper towels, art and craft papers, plates, napkins and paper soufflé cups that made their way out of the café area. It is important to note in the chart that this compostables component is currently being disposed, and could be captured separately and sent offsite for composting to improve the overall facility recycling rate to as high as 78%.

Trash. True non-recyclable and non-compostable trash comprises 22% of the overall materials generated by the public. This stream consists mostly of plastic bags, aseptic containers (juice packs and boxes), food wrappers, and polystyrene (Styrofoam™).

Given the high percentage (53%) of compostable materials in the trash, this would indicate an opportunity for increased diversion by adding additional compostable or soiled paper collection bins in key areas (see Recommendations below).

Outside the downstairs Diaper Room, and in Bubbles and Waterways, paper towel waste was the main material found in trash cans. In the Birthday Room, all paper plates, cups and napkins found in the trash could be diverted along with the compost stream, as well as food waste. Since not everyone is familiar with the term “compost” or “compostable,” labeling bins specifically for paper towels, craft papers, or food waste plus paper plates, cups and napkins might aid in diversion of these materials. Another option would be to direct people via signage to the compost bin in the café area to dispose of soiled paper and food related materials.

Seven percent (7%) of the material found in the trash bins was recyclable plastics, bottles and cans, and 11% was paper that could have been recycled instead of going to landfill. This low percentage of recyclables in the trash cans is a good indication of the proper use of the recycling containers.

Recycling. Fifty percent (50%) of the material found in the recyclables containers were recyclable materials, including a combination of aluminum cans, plastic and glass bottles, yogurt containers (35%), and cardboard and paper (15%). The second most common material type found in the public area
recycling bins was compostable products, accounting for 36% of materials disposed of in recycling. Most of the compostable materials were paper products from the café or paper that became soiled from other liquids in the recycling containers. Soiled paper is often incorrectly placed in recycling containers. ESD recommends checking with your hauler to find out if they can actually recycle the soiled paper or whether it is removed as a contaminant and sent to landfill. If it is going to landfill, this could be diverted by introducing a compost collection container for public areas as recommended below.

Fourteen percent (14%) of the material found in the recycling containers was actually trash/landfill materials, which should have been disposed of in the trash receptacles. Plastic bags, aseptic containers, food wrappers, and polystyrene (Styrofoam™) accounted for most of the items included in this category. The typical acceptable level of contamination in recycling containers is 10%, so there may be issues with extra fees or costs if the contamination of the recycling stream increases or is not brought below the 10% level. While there is still room for improvement, the overall public recycling component is successful.

**Recommendations.**

1. To divert compostables from the trash stream, strategically place additional compostable or soiled paper collection bins in the following areas:
   - Outside the Diaper Room
   - Bubbles
   - Waterways
   - Birthday Room
   - Art Loft

2. Check with your hauler to find out whether soiled paper in the recycling bins is recycled or landfilled.

3. Ask your hauler about current recycling contamination levels and any associated charges.

**Public Areas**

**Aggregate Results – Public Areas**

![Public Area Combined Totals Chart](chart.png)

(Note: compostables not currently collected separately)
Staff/Office Areas

Staff/office areas showed a slight difference in the composition of materials disposed when compared to the public area containers. The greatest difference was in the disposal of paper, which is to be expected in an office area, accounting for 26% of the total products disposed versus 13% disposed of in public areas. As shown in the Aggregate Totals chart below, staff/office areas currently divert 43% of materials from landfill (Paper and Recyclables), and can potentially divert another 31% (Compostables), for a total potential diversion of 74%.

Trash. Forty-five percent (45%) of the material found in the trash containers was true non-recyclable material. A majority of this true trash found in staff areas included polystyrene (Styrofoam™), which cannot be composted or recycled. Just as we found in the public areas, compostable items, including soiled paper products, accounted for half of the materials disposed of as trash. This was especially true in the kitchen area, where coffee grounds and other food materials could be collected separately as compost.

Recycling. Staff seems to have a good grasp on materials acceptable for recycling, although 15% of discards in the recycling stream was non-recyclable, 10% trash and 5% compostable, which is in excess of the acceptable contamination level previously mentioned. Properly-recycled materials included paper,
cardboard, aluminum cans, plastic bottles and containers, and tin cans. Contaminants included compostable cups, Styrofoam™ products, food wrappers, plastic report covers, and photographs. Staff should receive clear directions for proper recycling to help reduce the contamination rate below 10%.

Recommendations.

1. We did not analyze the type of paper recycled, but given the volume, source reduction measures (i.e., double-sided printing) are recommended to save costs and materials. Additional source-reduction measures to consider include reusing packaging material, purchasing rechargeable batteries, minimizing the use of forms and documents, and maximizing correspondence through email. Also consider working with your vendors to reduce packaging material or inquire as to whether they offer take back programs.

2. A majority of the true trash found in staff areas included polystyrene (Styrofoam™), which cannot be composted or recycled. Trash content could be significantly reduced by replacing polystyrene products with paper products, and collecting the soiled paper and food waste as compost. In addition to setting up a compostables collection container in the kitchen for food waste and soiled paper products, staff should also be encouraged to bring their own plates, cups and utensils to work versus using disposables to reduce overall material generation.

Aggregate Totals – Staff Areas

<table>
<thead>
<tr>
<th></th>
<th>Staff Area Combined Totals</th>
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<tbody>
<tr>
<td></td>
<td>Paper 26%</td>
</tr>
<tr>
<td>Trash</td>
<td>26%</td>
</tr>
<tr>
<td>Recyclables</td>
<td>17%</td>
</tr>
<tr>
<td>Compostables</td>
<td>31%</td>
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</table>

Trash Stream Details – Staff Areas

<table>
<thead>
<tr>
<th></th>
<th>Staff Trash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trash</td>
<td>45%</td>
</tr>
<tr>
<td>Recyclables</td>
<td>5%</td>
</tr>
<tr>
<td>Compostables</td>
<td>50%</td>
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</tbody>
</table>
Recycling Stream Details – Staff Areas

### Staff Recycling

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Trash</td>
<td>10%</td>
</tr>
<tr>
<td>Compostables</td>
<td>5%</td>
</tr>
<tr>
<td>Recyclables</td>
<td>33%</td>
</tr>
<tr>
<td>Paper</td>
<td>52%</td>
</tr>
</tbody>
</table>

### Kitchen/Café Areas

It is important to note that the compostables collected in the café area are included in this section instead of the public area. Since the café was the only public area where compostables were collected separately from trash and recycling, ESD staff felt it would be more appropriate to combine the information in the kitchen/café area report versus the public area of the report. As shown in the Aggregate Totals chart below, kitchen/café areas currently divert 81% of materials from landfill (Compostables and Recyclables), which is an incredible success story. The kitchen/café areas can potentially divert another 9% (8% Compostables, 1% Recyclables), for a total potential diversion of 90%.

**Compostables.** As we would expect, the majority of materials disposed of in the kitchen/café area was compostable. The staff did an excellent job of removing contaminants from the materials collected as compost in the public areas, with only a 3% rate of contamination. This is remarkable! The kitchen staff is to be commended for diligently removing non-compostable materials from the compost stream before it is placed in the debris bins outside. Five gold stars to the kitchen team!

**Trash.** The trash generated and disposed of in the kitchen area had a high level of compostable content, roughly 43%. Since the kitchen staff obviously knows what is compostable versus not, it would greatly help increase diversion by providing a separate compost container in the kitchen work and prep areas. That way, staff can continue the program back-of-house without the need for additional sorting. Plastic bags and food wrappers accounted for the actual trash disposed of in this area. If the plastic bags and film are kept separate from other materials, these materials may be recyclable. Please check with your hauler for this additional diversion opportunity.

**Recycling.** A separate pie chart for recycling was not included since only two containers were used for collection of recycling in the kitchen area. One container was marked “Paper” and included only paper products, which was perfect! The second recycling container held 75% plastic packaging (ketchup bottles, etc.), 20% steel cans and 5% plastic film. Therefore, the kitchen staff successfully utilized the recycling program containers in their area, with only 5% contamination from plastic film that should have been disposed of as trash.

**Recommendations.**

1. Continue the excellent training of the kitchen staff, and provide reminders to take extra care to remove contaminants from the compostables.
(2) Add a compostables collection container in the kitchen for staff to use during food preparation.

(3) Ask the hauler if plastic bags, film, and bubble wrap are included in your recycling program.

Aggregate Totals – Kitchen/Cafe

Trash Stream Details – Kitchen/Cafe

Compost Stream Details – Kitchen/Cafe
**Additional Study Area: Dock**

The dock area had two containers for material disposal. The sources of the materials generated in the wheeled dock carts (containers) were not readily apparent. In the trash, only two items were found, both reusable: a shopping tote bag and a scarf. Recyclable items in the trash (5%) included plastic bottles, cups, and paper bags. The recyclables container was made up of 100% recyclable items (paper, plastics and cans) and was contaminant-free.

**Recommendations.**

1. Ensure that each container is labeled for its appropriate use.
2. Post wall signage above the containers for added emphasis.
3. Check with your hauler to see if they accept clean textiles for recycling.
4. Setup a reuse area/donation station for staff that have clean, reusable items to exchange amongst themselves or donate.

**Aggregate Results – Dock**

![Aggregate Dock Totals](image)

- **Paper:** 3%
- **Recyclables:** 49%
- **Compostables:** 0%
- **Trash:** 48%

**Trash Stream Details - Dock**

![Dock Trash](image)

- **Paper:** 1%
- **Recyclables:** 4%
- **Compostables:** 0%
- **Trash:** 95%
Other Recommendations

Special Event Waste
The weekend prior to the study, a special event had been held that generated giveaway pedometers. We found a cardboard trash box full of the packaging (boxes, film wrap, and bubble wrap), as well as a significant quantity of (potentially defective) pedometers in a trash bin near the exit. The trash box contents are potentially all recyclable; check with your hauler to determine whether the film and bubble wrap are acceptable. ESD recommends working with event organizers to ensure that any extra giveaway items are their responsibility for removal and do not generate additional trash at CDM.

Buy Recycled
It is important to secure the market for the materials recovered in recycling programs, which is best accomplished by providing a demand for the products manufactured by them. Purchase recycled-content products whenever possible (i.e. office paper, business cards, toner cartridges, other office supplies) and environmentally preferred products that lessen or reduce effects on human health and the environment when compared with competing products that serve the same purpose.

Green Policies & Green Business Certification
Formalize your environmental efforts and be recognized for them. The development of a green policy will demonstrate to the community that CDM is committed to the conservation of natural resources and assist San Jose in achieving its Zero Waste goals by 2022.

CDM may also consider becoming a Santa Clara County-certified Green Business. The Green Business Program is a successful partnership of environmental agencies and utilities that assists, recognizes and promotes businesses and government agencies that volunteer to operate in a more environmentally responsible way. To be certified "green," participants must be in compliance with all regulations and meet program standards for conserving resources, preventing pollution and minimizing waste. The program offers an easy-to-use framework for improving environmental performance. Over 1500 businesses and public agencies have been certified since 1996 bay area wide and over 330 of those are in Santa Clara County.
Program Promotion
The recycling and composting programs must be continuously promoted to both employees and the public in order to be successful. Effectiveness is directly linked to employee participation, which is greatly enhanced by management commitment, so promote waste prevention by all employees. This can take many forms, including new employee orientation and train the trainer sessions to enable each employee to become public ambassadors of recycling and composting. Also seek employee input for creative options to reuse or repurpose materials at CDM.

In public areas, additional signage and colorful informational displays or kiosks can gain the public's attention. Also consider working recycling and composting themes into story time, arts and crafts and other hands-on programs.

Conclusion
The newly implemented public area recycling program has clearly been a success, and has resulted in positive diversion numbers for the facility. There is opportunity to expand the recycling and composting efforts, and make an even more significant impact on the facility’s waste disposal. By building upon the efforts already started nearly one year ago, CDM can become a model facility for venues of its kind. Ongoing monitoring is key to evaluating waste diversion programs and making adjustments as necessary that will help to continue to fine tune the program.

It is possible to divert additional materials and potentially reduce overall hauling costs. To that effect, implementation of the recommendations included in this report will greatly aid in diverting additional recyclable and compostable materials. ESD recommends the continuous monitoring of the waste, recycling, and compostables dumpsters to ensure that the level of service matches up to the volumes generated, which will help to control operational costs.

Upon request, ESD will provide the necessary technical assistance to aid in the implementation of the recommended options and continue to work with CDM to evaluate the level of program success. We appreciate your efforts and the opportunity to partner with this key San Jose venue, and look forward to working with the museum to continue to expand the program.