Best Materials Management Practices for Public Events
• Advocacy
• Equipment Grants
• Events
  o Collection
  o Educational
  o Networking
• Professional Development
• Public Education
• Technical Assistance
  o Recycling
  o Organics
  o Zero Waste
  o C&D Waste
  o Toxics
Local, State, and National Partners
If you’re not for zero waste...

How much waste are you for?
Oh, Plastics

• 9% of the world’s plastics are recycled
• 8 million metric tons of plastic flow into the oceans every year
• Packaging consumes 35 to 45% of all synthetic polymers produced in total
• By 2025 there will be 1 ton of plastics in the ocean for every 3 tons of fish
• By 2050, there will be **more plastics than fish**
Oh, China

Remember when you said you’d use recycled content if there was only more of it?

Yeah....?

Well...I’ve got about a BILLION POUNDS that won’t be going to CHINA this year...
• 38th largest state in population - 1.9 million
• 16th largest state in size – 76,825 square miles
• 23.8 people per square mile (87 mi² nationally)
• Access to recycling is 55% in towns with populations of 100-800 compared to 92%+ in larger communities*
• 17% recycling rate (National average 34%)*
• Low landfill tipping fees average $40/ton vs $55/ton nationally = disincentive to recycle

*Nebraska Recycling Study, 2015
Event Considerations

• Waste streams
• Service Providers
• Food and exhibition vendors
• Volunteers and staffing
• Marketing and communications
• Purchasing
• Measurement
Understanding Existing Conditions

• How many people attend the event?
• How much waste is typically generated at the event?
• Who manages the collection?
• Who hauls it away?
• What types of trash and recycling containers are used and who provides them?
• What are the waste-related costs for trash and recycling containers, hauling, disposal, recycling, and labor (either in dollars or volunteer time)?
• What materials are recycled?
• Who generates what types of waste and how much? (Guessing is okay!)
• What recycling opportunities exist in the community?
• Are there local organizations, agencies, or individuals that might be interested in supporting recycling efforts?
Create or upgrade your management plan

- Get commitment from senior managers
- Designate a point person and/or steering committee
- Identify sustainability goals/objectives
- Research materials and equipment
- Plot specific activities, metrics and outcomes, and who is responsible
- Involve and inform key players early on
- Create a realistic plan and build on it
Plan Outline

1. Goal
2. Program Management
3. Targeted Wastes
4. Communications plan
5. Materials/Supplies Needed
6. Labor
7. Itemized Costs
8. Savings- Revenue and Avoided Costs
Negotiating with Haulers

- **Tipping fee**: based on amount of material disposed of at landfill
- **Pull charge**: charge for removing or emptying a dumpster
- **Rental fee**: cost of using a dumpster for a specific period of time
- **Cubic yard**: common measurement of volume of solid waste = 202 gallons
- **Tons**: common measurement of weight of solid waste = 2,000 lbs
- **Density**: weight per unit of volume – food is heavy/dense
- **Dumpster**: also called container – from 1 to 40 cubic yards
- **Compactor**: dumpster with internal mechanism that compacts waste – commonly used for cardboard
- **Toter carts**: wheeled carts for trash or recycling, 60 to 100 gallon capacity
- **Commingled**: when different materials are collected in a single recycling bin, like steel, aluminum, and plastic food and beverage containers
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YARDS</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>12</td>
<td></td>
<td>56</td>
</tr>
</tbody>
</table>

**CAMP GROUND FRONT LOAD (residential type garbage, take-out, only garbage available in area; estimated @ 150 lb/yd)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YARDS</td>
<td>21</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>13</td>
<td></td>
<td>70</td>
<td></td>
</tr>
</tbody>
</table>

**BARN AREA FRONT LOAD (vendor waste, organics, guests; estimated at 175 lb/yd)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YARDS</td>
<td>4</td>
<td>18</td>
<td>22</td>
<td>24</td>
<td>36</td>
<td>26</td>
<td>14</td>
<td>26</td>
<td>24</td>
<td>4</td>
<td>24</td>
<td>36</td>
<td>28</td>
<td>36</td>
<td>25</td>
<td>361</td>
</tr>
</tbody>
</table>

**FOOD PODS REAR LOAD (food court area, no organics collection available, est. 275 lb/yd)**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>YARDS</td>
<td>8</td>
<td>16</td>
<td>4</td>
<td>20</td>
<td>24</td>
<td>8</td>
<td>4</td>
<td>12</td>
<td>16</td>
<td>18</td>
<td>18</td>
<td>8</td>
<td>20</td>
<td></td>
<td>192</td>
<td></td>
</tr>
</tbody>
</table>

**EVENT CENTER REAR LOAD (light weight "fluff", materials from guests after shows, est 150 lb/yd)**

<table>
<thead>
<tr>
<th>DATE</th>
<th>8/24</th>
<th>9/4</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTER</td>
<td>1</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>21</td>
</tr>
</tbody>
</table>

**TOTERS @ NEBRASKA BUILDING (96 gal, "fluff", v. minimal, est. 150 lb/yd) 96 gal = 0.475 yd**

<table>
<thead>
<tr>
<th>DATE</th>
<th>8/24</th>
<th>9/4</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTER</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.748125</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>recycle</th>
<th>landfill tonage</th>
<th>O'Neill</th>
<th>REARLOAD &amp; FRONTLOAD TRASH</th>
<th>REARLOAD RECYCLE</th>
<th>pulls</th>
<th>4H-FFA</th>
<th>Pinnacle Bank Expo</th>
<th>BEEF PIT</th>
</tr>
</thead>
</table>

Measure what matters

- Paper used or conserved
- Waste/by-products – landfilled, reused, composted or recycled
- Water used or avoided
- Food sourced locally and/or organic foods
- GHG emissions produced or avoided
- Food donated or given to animals
## Full Cost Accounting

<table>
<thead>
<tr>
<th>Costs</th>
<th>Avoided Costs/Revenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Supplies- barrels, carts, signs, bags</td>
<td>• Payment for recovered commodities (if any)</td>
</tr>
<tr>
<td>• Labor- volunteer and staff</td>
<td>• Tipping fees avoided</td>
</tr>
<tr>
<td>• Contracted hauling services</td>
<td>• Materials not used</td>
</tr>
<tr>
<td>• Disposal fees</td>
<td></td>
</tr>
</tbody>
</table>
Waste Reduction Strategies

• Reduce
  • Vendors
  • Printed materials
• Reuse
  • Vendors
  • Signage
• Recycle
  • Vendors
  • Attendees
  • Haulers
  • Recyclers
Recycling

• OCC- Set up a covered storage area(s)
  • Non-waxed cardboard
  • Flattened
• Paper- just flyers, maps
• Cans, bottles
• Glass
• Wood pallets- Vendors take back, or provide specific location; dimensional lumber
• Grease & Cooking Oils- Rendering companies, Biofuels companies; 55 gal. barrels
• Regulated waste- automotive oil, oil filters, fluorescent tubes, batteries
Bottled Water Alternative
One is Beer, One is Water
Organics

Types of materials
• Animal manure and bedding
• Soiled paper and cardboard
• Vegetative waste e.g. flowers, wood, leaves, etc.
• Food waste
• Compostable flatware, dishware, napkins, bags

Service Provider Concerns
• Guidelines for contamination
• Types and number of containers
• Location of containers
• Frequency of pulls
• Odor management
Food Vendor Requirements

• List of acceptable items
• List of banned items- no Styrofoam, etc.
• Instructions for use of sorting bins, materials e.g. flatten cardboard, rinse containers, where grease goes
• Standards for compostable ware (if used)
• Location of central recycling containers
• Vendor responsible for removing all other waste upon departure
• Provisions for donating food
• Contact information for vendor liaison
• Liaison speaks to each vendor at start
Compostable Products

- www.bpiworld.org
- ASTM D6400 (plastics)
- ASTM D6868 (coatings)
Bill Emerson Good Samaritan Food Donation Act

• Protects from liability when food is donated to a non-profit organization
• Protects from civil and criminal liability should the product donated in good faith later cause harm to the recipient;
• Standardizes donor liability exposure in all 50 states; and
• Sets a floor of "gross negligence" or "...knowledge... that the conduct is likely to be harmful to the health...of another person."
Exhibitor Requirements

• Least amount of packaging or remove packaging before distributing
• Compostable “goodie” bags rather than plastic
• Post-consumer paper or highest recycled content paper you can find
• No neon or fluorescent or dark colored paper
• No candy wrappers, energy bars, chip bags, and packaging from pre-packaged food- these are all landfill items
Pre-event Publicity

• Official web site
• Social media
• Press release, newsletters ads, radio, TV, etc.
• Official event printed materials
• Explain what your waste diversion goals are for this year
“[Event name] is helping to reduce our impact on the environment by diverting at least [50%, 75%, 90%] of our waste from the landfill. Help us reduce waste by using the Resource Recovery Stations around this event to compost and recycle. Thank you for contributing to a greener [Event name or Community name].”
Post-Event - Environmental Benefits

One ton of paper
• 17 trees
• 380 gallons of oil
• 3 cu. yards of landfill space
• 4,000 KW of energy
• 7,000 gallons of water

Recycled paper uses
• 64% less energy
• 58% less water

One tree can filter up to 60lbs. of pollutants from the air each year
Event Management

- Point person
- Set Up
  - Confirm delivery and P/U times and locations of dumpsters with hauler
  - Review trash and recycling logistics with staff
  - Contact volunteers, set schedules
  - Inventory containers, signs, other materials
  - Reminder to vendors about recycling and materials responsibilities
- During the Event
  - Master roster for who, what, where, when
  - Have phone, walkie-talkie, or contact booth so staff, volunteers and vendors can speak with lead person
  - Lead should visit all receptacle sites for issues periodically
  - Check on recycling containers to make sure they are being used correctly
  - Volunteers should be at Recovery Stations
Staffing and Volunteers

• Recruiting
• Leader
• Training
• Volunteer kit
• Assignments
• Supplies
Volunteer Appreciation

• Reasonable shifts, especially if they want to attend the event
• Confirm all volunteer commitments before the start of the event
• Recruit more volunteers then needed to cover for no-shows
• Give recognition e.g. free pass, t-shirt, thanks in event publicity
• Thank volunteers each day and get a commitment for the next day
Material Recovery Stations
confusion = contamination
Color, consistency, clarity

www.RecycleAcrossAmerica.org
Signage

Recycle  Reciclar
Empty, Caps On

PLASTIC BEVERAGE BOTTLES ONLY
Handling Collected Materials
Handling Full Receptacles

• Where will full bags be taken?
• Will bags be stored? How long?
• Who will measure?
• How often?
• How will materials be weighed?
• Where will materials be weighed?
• Who will record metrics?
<table>
<thead>
<tr>
<th>Waste Stream</th>
<th>Time</th>
<th>Station #</th>
<th>Weight</th>
<th>Contaminated?</th>
<th>Auditor’s Name</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-mingled Recycling (Plastic, paper, aluminum, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Weight of Station Collections
**How many sorting stations?**

<table>
<thead>
<tr>
<th>Attendees</th>
<th>&lt;100</th>
<th>100-500</th>
<th>500-1000</th>
<th>1000-5000</th>
<th>5000-10,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stations</td>
<td>1-3</td>
<td>3-5</td>
<td>5-8</td>
<td>8-12</td>
<td>12-15</td>
</tr>
</tbody>
</table>

- Quantity of food and materials distributed
- Venue layout
- Venue size
Calculate Diversion Rate

\[
\text{Total Recovered} = \text{Reused} + \text{Recycled} + \text{Composted}
\]

\[
\text{Event Diversion Rate} = \frac{\text{Total Recovered}}{\text{Total Generated}}
\]
# Zero Waste Results

<table>
<thead>
<tr>
<th></th>
<th>Half-Marathon</th>
<th>CO Marathon</th>
<th>Totals in lbs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compost lbs</td>
<td>427</td>
<td>1068</td>
<td>1495</td>
</tr>
<tr>
<td>Recycle lbs</td>
<td>239</td>
<td>570</td>
<td>809</td>
</tr>
<tr>
<td>Landfill lbs</td>
<td>1/4</td>
<td>1/4</td>
<td>245</td>
</tr>
<tr>
<td>Total Weight lbs</td>
<td>737</td>
<td>1812</td>
<td>2549</td>
</tr>
<tr>
<td>Diversion Weight</td>
<td>666</td>
<td>1638</td>
<td>2304</td>
</tr>
<tr>
<td>Percent Diverted</td>
<td>90.36%</td>
<td>90.39%</td>
<td>90.38% Diverted</td>
</tr>
</tbody>
</table>
Final Thoughts

• Develop a plan well in advance
• Make it easy for attendees
  • Material Recovery Stations
  • Provide clarity
• Support behavior change
  • Gaming or Awards
  • Signage and verbal reminders
  • Direct assistance at recovery stations
• Use technology
  • Apps, digital media, web sites
• Celebrate continuous improvement
‘A vision without a plan is just a dream. A plan without a vision is just drudgery...but a vision with a plan can change the world.’