Conducting a Waste Audit on Campus

Thursday April 26, 2018

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Waste Audits and Campus Sustainability

Illinois Green Economy Network
Seven Generations Ahead
IGEN and Seven Generations Ahead

Project Name:
Building Illinois’ Local Food Shed Through Advancing Food Scrap Composting

IGEN Webinar Series:
4.26.18 Conducting a Waste Audit on Campus
5.22.18 Composting & Recycling on Campus

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Outline and Panel Speakers

**Waste Audits 101:** Using Waste Audits to Identify Opportunities
   Jen Nelson – Zero Waste Program Manager, Seven Generations Ahead

**Illinois Audits:** Illinois Waste Audit Requirements
   Allison Preble – Sustainability Associate, Seven Generations Ahead

**Triton Community College:** Waste Audits - an ongoing process
   Adrian Fisher – Sustainability Coordinator

**College of Lake County:** Engaging Students in Audits and Sustainability
   David Husemoller - Sustainability Manager
Waste Audits 101
Using Waste Audits Identify Opportunities

Jen Nelson
Seven Generations Ahead
Zero Waste Program Manager
jennifer@sevengenerationsahead.org
Why Audit?

- **support sustainability** on campus - evaluate existing projects and guide continued improvement

- **identify opportunities** - how much paper, cardboard and single stream recycling is still ending up in the waste stream

- **communicate and educate** about existing programs and global issues of sustainability

- **student and staff engagement** and participation

- **state or other funding requirement**
ReUselt Room
office supply exchange (3-ring binders, to dry erase markers, to tape dispensers, to desk organizers)

Campus Recycling
change to single stream

Library Book Recycling

Starting Campus Composting

and more...
What to Audit?

What is the purpose of the waste audit?

**DETAILED**
- All campus waste (multiple buildings and resources)
- Funding requirement

**Focus on a single item**
(single use water bottles, food scraps, paper)

**GENERAL OVERVIEW**
Hauler data on amount landfilled vs amount recycled
Green Campus Initiatives

- Recycling Program
- Sustainable Resource Management (SRM) Certificate program
- Special library collection devoted to sustainability materials
- KCC Recycling Challenge

2015 diversion rate of 69.1%, far exceeding the 40% requirement

**RECYCLED**
- almost 24,000 lbs. of paper
- 20,000 lbs. of cardboard
- 11,700 lbs. of plastics
- 4,400 lbs. of pallets
- 418 pounds of books

**SOLD**
- 385 lbs. of aluminum
- 7,200 lbs. of scrap metal
- 204 lbs. of batteries
- fluorescent bulbs, cell phones and glass.
Volume vs Weight

- What data can you obtain from your hauler?
- What needs to be audited separately?
- Will you want to track hauler data over time?

How is your institution waste and recycling measured by your hauler? Some operations charge by volume dumped, while others charge by weight.

Lightweight items that take up more space in a waste receptacle require more frequent services and more trips to the landfill.
Where to Audit

Separate campus into buildings to more clearly identify problem areas in your program at the beginning and moving forward.

Considering each building allows your team to see which buildings are performing better or worse than others and where there is the greatest opportunity for change.
May 2017 Waste Audit
Partnered with the Illinois Sustainable Technology Center

Receptacle Audit
Room by room infrastructure audit

Student Textbook Exchange Program (STEP)
to help students give and receive used textbooks at a reduced cost.

Campus Recycling and Composting
Composting both back of house and front of house
When to Audit

Regular school year operations

Consider any unusual fluctuations:
• events on campus
• campus tours
• visits from non-campus residents
• construction or renovation
Tools and Resources

IGEN website
http://www.igencc.org/resources/sustainability-resources/

AASHE Sustainability Hub
https://hub.aashe.org/

RECYCLING WORKS: A Tool Kit for Reducing Waste in the Workplace

USEPA Waste Reduction Model
https://www.epa.gov/warm

Seven Generations Ahead
www.sevengenerationsahead.org

Illinois Food Scrap Coalition
www.illinoiscomposts.org
Illinois Audits
State Waste Audit Requirements

Allison Preble
Seven Generations Ahead
Sustainability Program Associate
allison@sevengenerationsahead.org
Section 20/3.1 of the Illinois Solid Waste Management Act mandates that all of Illinois’ "State-supported institutions of higher learning" develop 10-year comprehensive waste reduction plans.

Initial plans were due January 1, 1995, and the Act mandates that they be updated every five years. Next updates are due in 2020.

Recycling provisions for 40% reduction

DCEO’s Illinois College Assistance Program for Recycling (I-CAP)
What is required of IL institutions?

Focus on reducing waste
40% reduction

A professional, full blown waste audit may be desired, but other more cost friendly options may be employed.

Next updates in 2020
Current requirements

2017: Executive Order 2017-3 signed by Governor Rauner moved all recycling and waste reduction functions to the Illinois Environmental Protection Agency (IEPA)

Waste audit for 2020

Questions? Contact James.M.Jennings@illinois.gov
Triton Community College

Adrian Fisher
Sustainability Coordinator
adrianfisher@triton.edu
The 2015 ICAP Survey

- IGEN webinar with the government coordinator
- Phone meetings with the coordinator
- Used data from our hauler (general audits)
- Explained our programs and goals
- Coordinator checked draft before formal submission
General Audit

2015 average diversion: 48% for year; 77% if including clean heavy debris
Waste Diversion

- Electronics: recycled
- Metal: recycled or sold
- Building and construction waste: recycled or sold
- Unused furniture and equipment: sold
Waste Diversion

Mixed stream recycling

Food scraps and used cooking oil
Waste Diversion

ReUseIt Room

Zero Waste events
An Ongoing Process

Participants:
- Faculty and staff
- Students
- Green Committee
- O&M
Conducting a Waste Audit on Campus

David Husemoller, LEED AP O+M
College of Lake County
Conducting a Waste Audit on Campus

David Husemoller, LEED AP O+M
College of Lake County
Waste Audits

- DCEO’s Illinois College Assistance Program for Recycling and Waste Reduction (I-CAP)
- CLC completed solid waste audits every 5 years: 2000, ‘05, ‘10, ‘15 …
- Diversion rates > 40%

- But for our STARS report 2017 – AASHE rejected our waste audit findings from 2015
- So, what do we do now???
Audit Process – Where We Started

- Pick a “typical” day
- Full attendance
- Main campus
- All trash and recycling funneled through one location
- Each bag or stack of boxes weighed and recorded
Planning for Success – Filling in the Gaps

• 3 Campuses:
  – Grayslake – the main campus
  – Lakeshore – in Waukegan
  – Southlake – in Vernon Hills

• Population during Semesters vs. Breaks?
How are we doing?

<table>
<thead>
<tr>
<th>Campus</th>
<th>Trash</th>
<th>Recycling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grayslake</td>
<td>223.1</td>
<td>196.8</td>
</tr>
<tr>
<td>Lakeshore</td>
<td>32.9</td>
<td>9.0</td>
</tr>
<tr>
<td>Southlake</td>
<td>21.1</td>
<td>13.6</td>
</tr>
</tbody>
</table>
## Diverting Recycling from the Landfill

### Diversion by Campus

<table>
<thead>
<tr>
<th>Campus</th>
<th>Diversion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grayslake</td>
<td>46.9%</td>
</tr>
<tr>
<td>Lakeshore</td>
<td>21.5%</td>
</tr>
<tr>
<td>Southlake</td>
<td>39.3%</td>
</tr>
</tbody>
</table>

![Waste Diversion Rates by Campus](chart.png)
But How Are We Really Doing?

• Custodial staff took the extra step in the waste audit
• After weighing each bag separately, then poking through and identifying how much:
  – How much trash in recycling
  – How much recycling in the trash
  – (Just considering the bulkier items)
Folks are not throwing trash in the recycling... There is hope!

Missorted Waste Rates by Campus

Inaccurate Sorting Rates

<table>
<thead>
<tr>
<th>Campus</th>
<th>Missorted Recycling</th>
<th>Missorted Trash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grayslake</td>
<td>15.2%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Lakeshore</td>
<td>22.8%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Southlake</td>
<td>13.9%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>
What is the difference with full house of faculty and students?

<table>
<thead>
<tr>
<th>Waste Disposal - Grayslake</th>
<th>Break</th>
<th>Semester</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Weight</td>
<td>365.9</td>
<td>419.9</td>
<td>53.9</td>
</tr>
<tr>
<td>Initial Diversion Rate</td>
<td>50.8%</td>
<td>46.9%</td>
<td>-4.0%</td>
</tr>
<tr>
<td>Missorted Recycling Rate</td>
<td>21.0%</td>
<td>15.2%</td>
<td>-5.8%</td>
</tr>
<tr>
<td>Missorted Trash Rate</td>
<td>3.2%</td>
<td>3.0%</td>
<td>-0.2%</td>
</tr>
</tbody>
</table>

Could staff be the problem?
Can we improve sorting? How?

• This question may be as old as the first recycling bin

• Do we need better signage?
  – Simple words
  – Pictures
  – Colors
  – Shapes
Enter our sustainability intern …

Dan designed his own audit:
- 8 categories
- 3 types of signs and stations without signs
- Classroom bins and Hallway stations
- Randomized locations
- 4 weeks in a row
Can we improve sorting? How?

- Signage DID make a significant difference in the classrooms
- But not so much in the hallways
- There were no noticeable differences in sorting behavior with pictures on top or bottom, or just words

<table>
<thead>
<tr>
<th>Waste Diversion</th>
<th>With Signage</th>
<th>Without Signage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Bins</td>
<td>89.1%</td>
<td>68.0%</td>
</tr>
<tr>
<td>Hallway Stations</td>
<td>51.1%</td>
<td>48.5%</td>
</tr>
</tbody>
</table>
Spot audit – Observation:

• Cans MUST be paired – folks won’t sort recycling if they have to walk across the room
• Even when a blue can is at a printer, lots of garbage still goes in …
• The trash in the smaller can was removed from this blue can
Recycling, What’s Next??

COMPOST, It Happens!

Closing the loop
Going full Circle

From the dirt it came, to the dirt it shall return
Sustainable CLC!!
Thank you!

David Husemoller
Sustainability Manager
CLC Facilities - C043F

Dan Buranosky
Sustainability Intern
Questions?
Next Webinar: Campus Composting and Recycling

May 22, 2018
11:30am - 12:30pm

Join this webinar to learn more about the EPA’s Food Recovery Challenge and program implementation information for your college’s composting and recycling initiatives. Whether your school has been composting for years or is just beginning to contemplate a composting program, the information presented will help you to identify the factors you need to develop these sustainability initiatives.

Registration link coming soon!
Thank You!