Purpose of Session

To uncover opportunities for students to assist or lead waste minimization & recycling efforts?
MISSION
Providing waste reduction and recycling assistance for the benefit of business and the environment.

VISION
To transform waste into resources.

About WasteCap Resource Solutions
WasteCap Resource Solutions, Inc. is an industry supported 501(c)(3) nonprofit organization whose mission is to provide waste reduction and recycling assistance for business and the environment. Its vision is to transform waste into resources. In 1996, this organization was founded as WasteCap Wisconsin.
Service Offerings

- C&D Waste Diversion
- Operational Waste Diversion
- Training & Education
- Measurement, Tracking & Reporting

3rd Party Certification Assistance

- LEED®
- TRUE Zero Waste®
- STARS®
- Living Building Challenge®
Background
“Waste is just a resource in the wrong place.”
Waste Hierarchy

Most Preferred

- REDESIGN
- REFUSE
- REDUCE
- REUSE
- RECYCLE
- COMPOST (RE-EARTH)
- ENERGY RECOVERY
- LANDFILL

Least Preferred

Note: May vary slightly depending on material type.

For example...see EPA’s Food Waste Diversion Hierarchy
Goal #1 - Clean Stream
Goal #1 - Clean Stream

Composition of Landfill Waste Container

- Organics (%): 30.0%
- Landfill (%): 50.0%
- Recycling (%): 20.0%

+ 100% Clean Stream
+ Potential Reduction
Goal #2 - Reduce Amount

Year 1

Year 2

Year 3

Year 4
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Waste Category Performance

Waste Category Scores of Active STARS Ratings

Eau Claire | Green Bay | La Crosse | Madison | Milwaukee | Oshkosh | Parkside | Platteville | River Falls | Stevens Point | Stout | Superior | Whitewater | MAX VALUE
OP 19
Waste Minimization & Diversion
Waste Minimization & Diversion

OP 19: Waste Minimization & Diversion

Bar chart showing waste minimization and diversion rates for different cities.
Waste Minimization & Diversion

_UW-Milwaukee Example_

**PART 1 (2.5 points) - Reduce total waste generation by 50%**

Baseline Year = 3,930 tons  
**Goal:** UWM needs to reduce 1,965 tons of waste
Waste Minimization & Diversion

UW-Milwaukee Example Visualization

1,965 tons = (3,930,000 lbs.)

MSW (Uncompacted): 138 lbs. = 1 cu. yd
Waste Minimization & Diversion

UW-Milwaukee Example Visualization

What Is A Cubic Yard?

1 cubic yard

250 cubic yards

500 cubic yards

1,000 cubic yards
Waste Minimization & Diversion

**UW-Milwaukee Example**

PART 1 (2.5 points) - Reduce total waste generation by 50%

Baseline Year = 3,930 tons
Goal: UWM needs to reduce 1,965 tons of waste

How would you approach this challenge?
Waste Minimization & Diversion

UW-Milwaukee Example

Possible Initial Questions
1. Where did the material enter the campus?
2. Who made the decision introduce the material to campus?
3. What do you measure (weight/volume, service)?
4. What departments do you need to involve?
5. How often do you take measurements?
6. What is the composition of the waste stream?
7. What’s the purpose of material and what’s an alternative?
8. Where (building / collection area) is the waste generated?
9. How can I (student) make a difference?
Decision Making Process

- **STEP 1**: Identify Problem
- **STEP 2**: Collect Information
- **STEP 3**: Identify Alternatives
- **STEP 4**: Weigh Evidence
- **STEP 5**: Choose Alternatives
- **STEP 6**: Implement Action
- **STEP 7**: Evaluate Results
Decision Making Process

1. **Identify Problem**
2. **Collect Information**
3. **Identify Alternatives**
4. **Weigh Evidence**
5. **Choose Alternatives**
6. **Implement Action**
7. **Evaluate Results**

Begin the process again (if needed)
Continuous Improvement

Act → Continuous Improvement → Check → Do → Plan → Act
Good to Great (Business Example)

**STAGES**

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**Engaging (Good)**
- Measure and track waste metrics
- Conduct regular audits
- Renegotiate hauling contracts
- Implement *Hazardous Waste Program*

**Accelerating**
- Share waste metrics publically
- Implement *Waste Reduction Program*
- Set and meet waste reduction goals
- Shift to highest and best use for materials

**Leading**
- Join Membership Program
- Develop process for continuous improvement
- Implement a product take-back program
- Collaborate through industrial symbiosis

**Transforming (Great)**
- Achieve 3rd party zero waste certification
- Decouple waste generation and output
- Redesign systems, products, and services
- Be a part of a circular economic structure
Waste Minimization & Diversion

Existing Program & Initiatives

1. Have you researched existing programs & initiatives?
2. Is there a gap or shortage of resources?
3. Can you start a student-led initiative (ex. Green Fund)?
4. What student groups can you engage?
5. How much funding is required and what’s the return?
Waste Minimization & Diversion

Don’t Have Resources? Get Creative.

1. Crowdsourcing Opportunity to Collect Data
   a. Citizen Science (SciStarter / Citizenscience.gov)
   b. All of Us (National Institutes of Health)
   c. Can you create a campus platform?

2. Is there an entrepreneurial opportunity beyond the campus?
   a. What problem are you solving?
   b. Do other campuses have this problem?

3. Have you addressed behavioral and structural elements?
PART 2 (2.5 points) - Need annual total waste generation of 90% (per campus user) less than the performance threshold of 0.5 tons.

UWM Current Generation = \(~ 374\) lbs. per user (WCU)
\(\text{(62\% less than threshold)}\)

Target = \(100\) lbs. per user (WCU)
\(\text{(90\% less than threshold)}\)
Waste Minimization & Diversion

UW-Milwaukee Example Visualization

374 lbs. = \text{MSW (Uncompacted)}: 138 lbs. = 1 \text{ cu. yd} \\
\times 2.71
PART 3 (3 points) - Divert 100% of materials generated from landfill.

How would you approach this challenge?
1. Economics of Municipal Solid Waste (MSW)
   a. Cost to MSW Disposal in Landfill - Low in Wisconsin
      i. Universities - What’s your average cost / ton?
2. Economics of Commingled Recycling
   a. Price of commingled recycling is rising
   b. Price of virgin plastic (oil & natural gas) remains low
      i. If you’re a product manufacturer, why would you use recycled plastic?
3. Acceptable Material
   a. Contamination issues?
   b. What are the new rules that your campus is facing?
Waste Hierarchy

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OP 20

Construction & Demolition
Construction & Demolition Diversion

OP 20: Construction and Demolition Diversion

Eau Claire, Green Bay, La Crosse, Madison, Milwaukee, Oshkosh, Parkside, Platteville, River Falls, Stevens Point, Stout, Superior, Whitewater, MAX VALUE
Construction & Demolition

1) Stevens Point...how did you achieve full-credit?
2) Where do you find C&D waste diversion data for capital projects costing over $5 million?
3) How are you collecting information for projects under $5 million (renovations, interior projects, etc.)?
4) Have you considered specifications for design-for-disassembly, adaptive reuse, or deconstruction?
5) Promote potential DOA-DFDM program upgrade...
   a) Lower capital requirement from $5 million to $3 million
   b) Increase required diversion from 50% to 75%
Impacted Credits
Impacted Credits

1) EN 7: Employee Educators Program
2) OP 1: Greenhouse Gas Emissions
3) OP 7: Food and Beverage Purchasing
4) OP 8: Sustainable Dining
5) OP 11: Sustainable Procurement
6) OP 12: Electronics Purchasing
7) OP 13: Cleaning & Janitorial Purchasing
8) OP 14: Office Paper Purchasing
Impacted Credits

1) EN 7: Employee Educators Program
2) OP 1: Greenhouse Gas Emissions
3) OP 7: Food and Beverage Purchasing
4) OP 8: Sustainable Dining
5) OP 11: Sustainable Procurement
6) OP 12: Electronics Purchasing
7) OP 13: Cleaning & Janitorial Purchasing
8) OP 14: Office Paper Purchasing

Waste reduction & minimization efforts in these credits will heavily impact the Waste Category.
Questions & Answers (Q&A)
Contact Information

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Additional Resources
Plastics Recycling (1950 - 2015)

The fate of all plastic
From 1950 to 2015

Total produced 8.3 billion tons

Plastic used once 5.8 billion

Discarded after single use 4.6 billion
Discarded 4.9 billion

Recycled 500 m
Recycled still in use 100 m

Primary plastic still in use 2.5 billion
Still in use 2.6 billion

Less than 6% of all plastic has been recycled
1.2% of all plastic has been recycled and also still in use

Oil Subsidies

G7 countries continue to provide at least $100 billion a year supporting fossil fuels.

https://www.nrdc.org/experts/danielle-droitsch/time-us-end-fossil-fuel-subsidies