



SESSION #2

WASTE & RECYCLING

Purpose of Session

To uncover opportunities for students to assist or lead waste minimization & recycling efforts?



VISION

To transform waste into resources.

MISSION

Providing waste reduction and recycling assistance for the benefit of business and the environment.



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®**



a program of aashe

STARS®



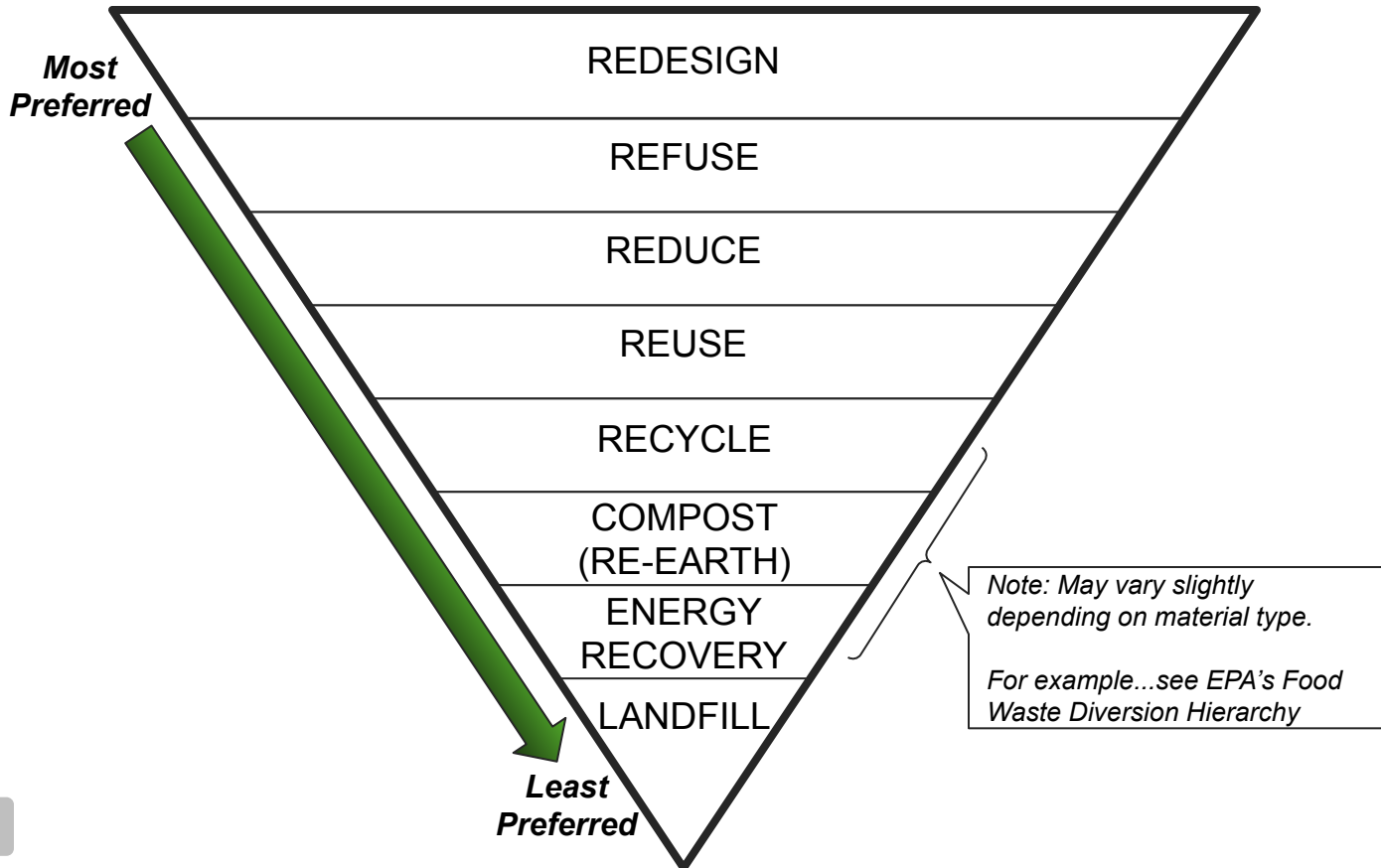
**Living Building
Challenge®**

Background

“

“Waste is just a resource in
the wrong place.”

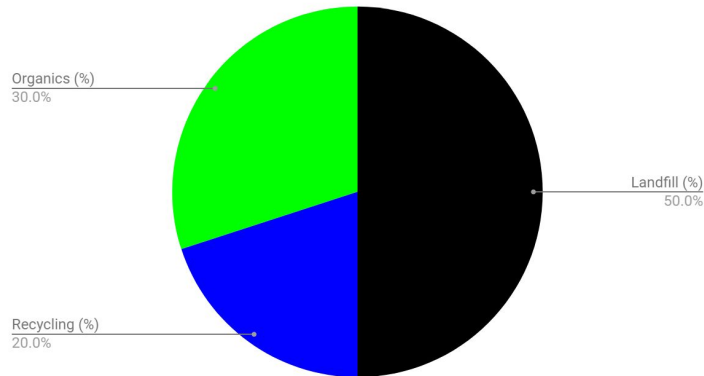
Waste Hierarchy



Goal #1 - Clean Stream



Composition of Landfill Waste Container

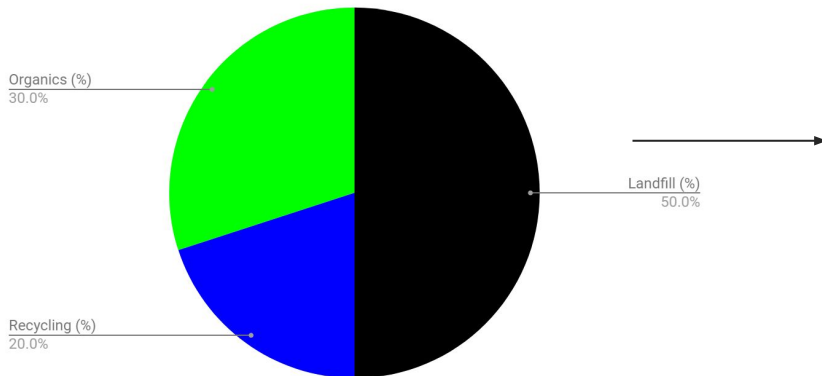


Audit #1

Goal #1 - Clean Stream

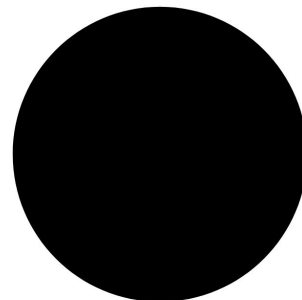


Composition of Landfill Waste Container



- + 100% Clean Stream
- + Potential Reduction

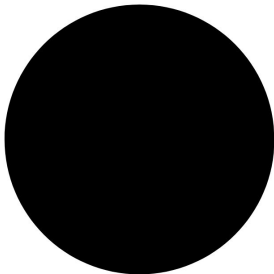
Composition of Landfill Waste Container



Goal #2 - Reduce Amount

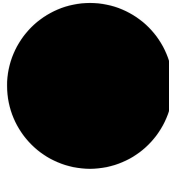


Amount of Materials in Landfill Waste Container



Year 1

Amount of Materials in Landfill Waste Container



Year 2

Amount of Materials in Landfill Waste Container



Year 3

Amount of Materials in Landfill Waste Container



Year 4

Service Offerings



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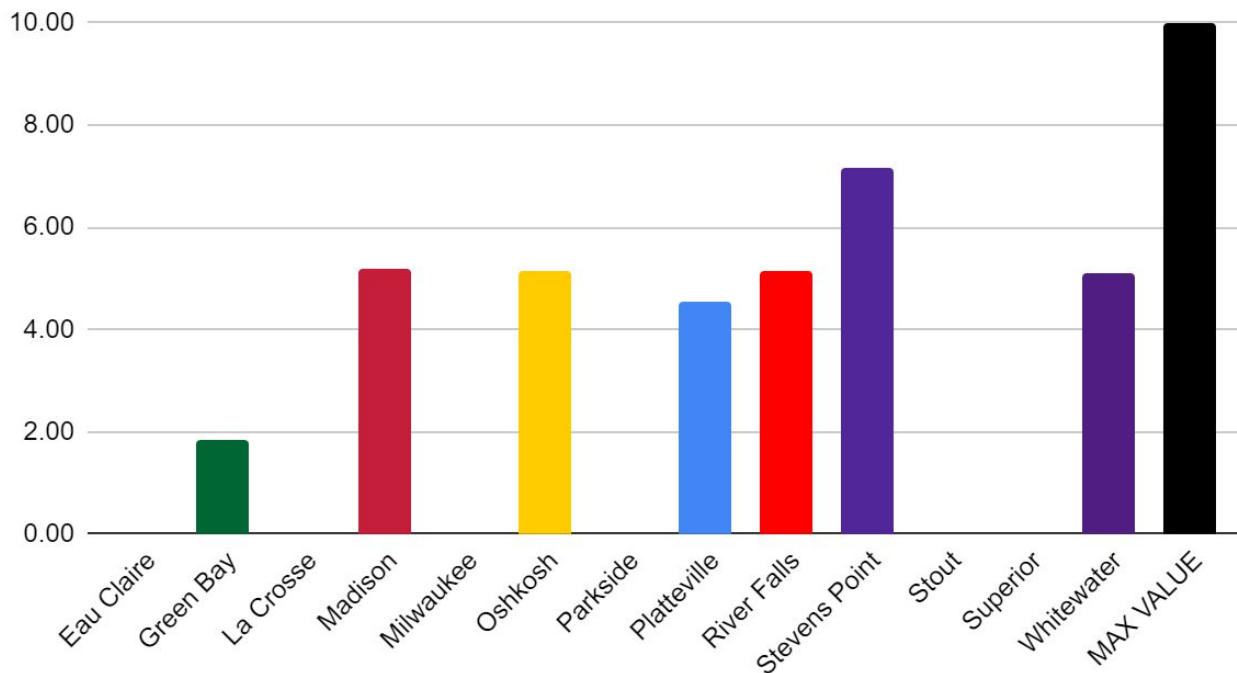
**Living Building
Challenge®**

STARS

Operations - Waste

Waste Category Performance

Waste Category Scores of Active STARS Ratings

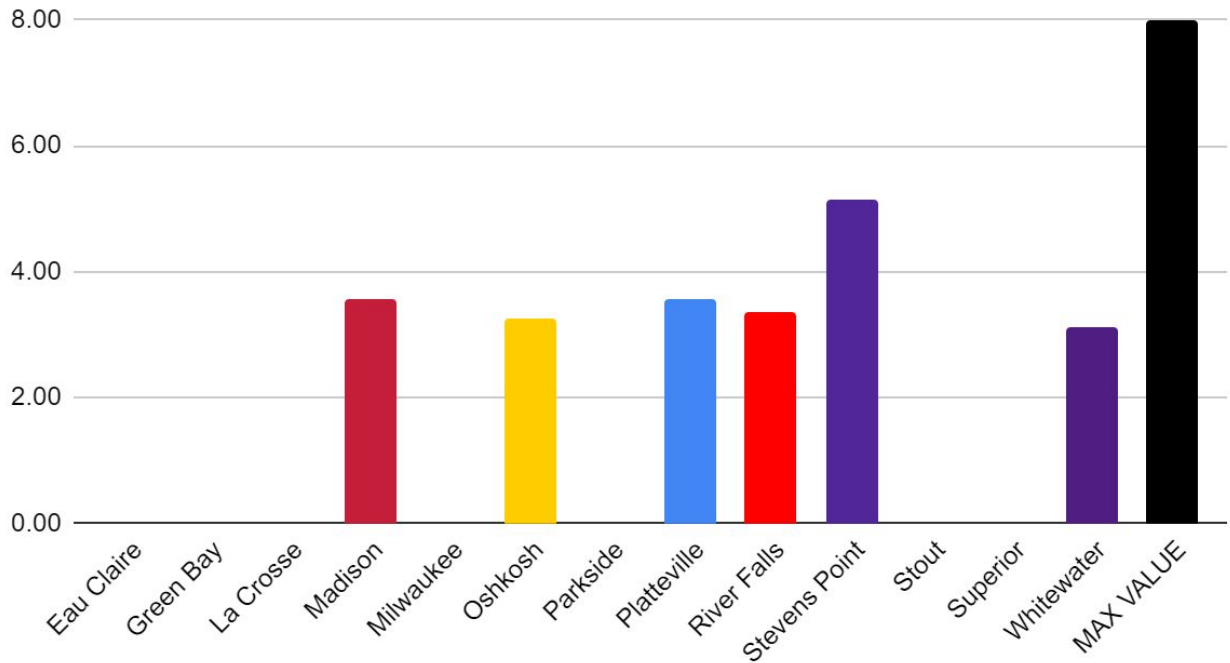


OP 19

Waste Minimization & Diversion

Waste Minimization & Diversion

OP 19: Waste Minimization & Diversion



Waste Minimization & Diversion

UW-Milwaukee Example

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

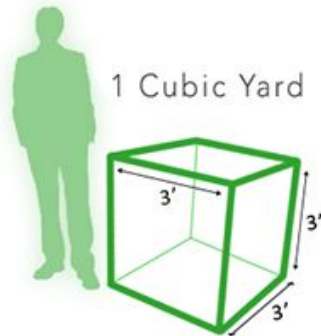
Baseline Year = 3,930 tons

Goal: UWM needs to reduce 1,965 tons of waste

Waste Minimization & Diversion

UW-Milwaukee Example Visualization

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

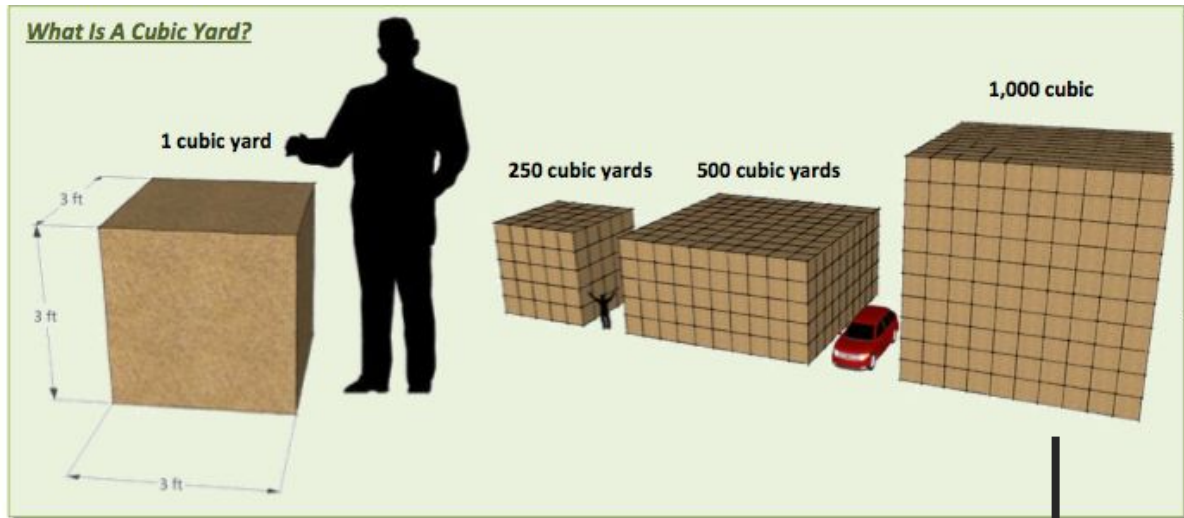


x 28,480

MSW (Uncompacted): 138 lbs. = 1 cu. yd

Waste Minimization & Diversion

UW-Milwaukee Example Visualization



↓
x 28

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?

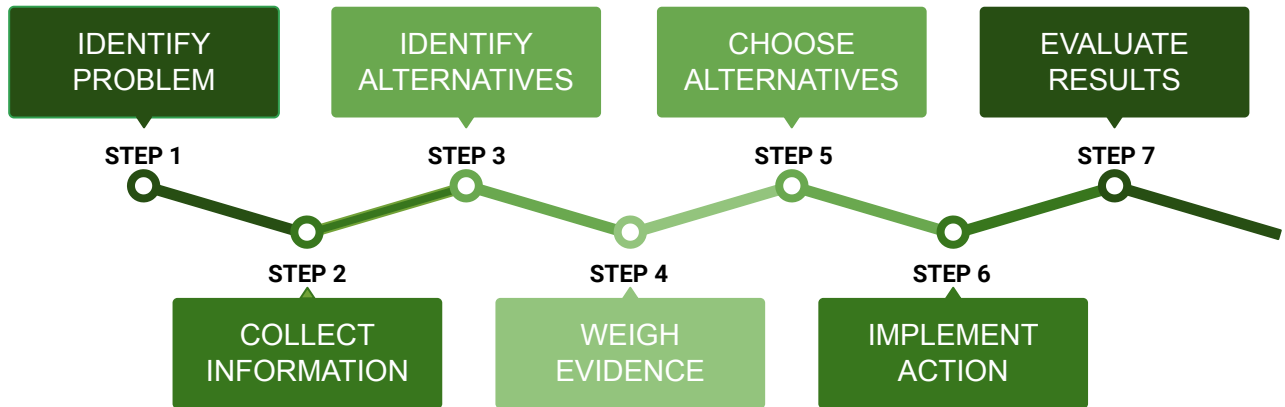
Waste Minimization & Diversion

UW-Milwaukee Example

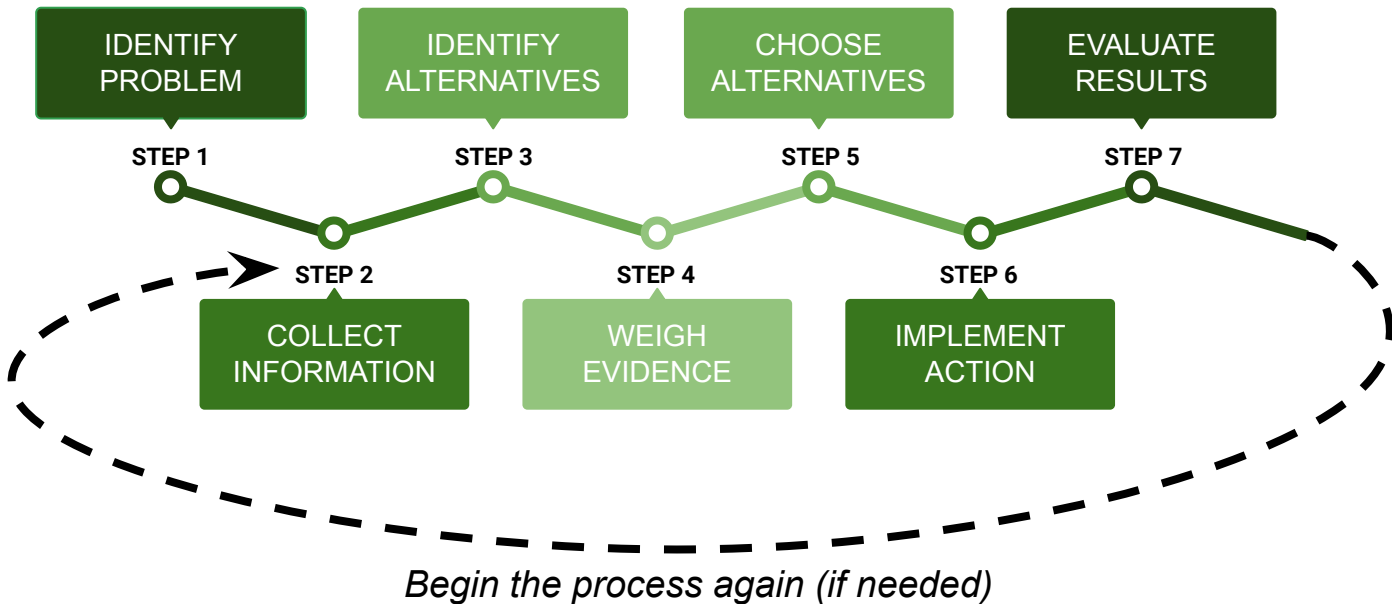
Possible Initial Questions

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?

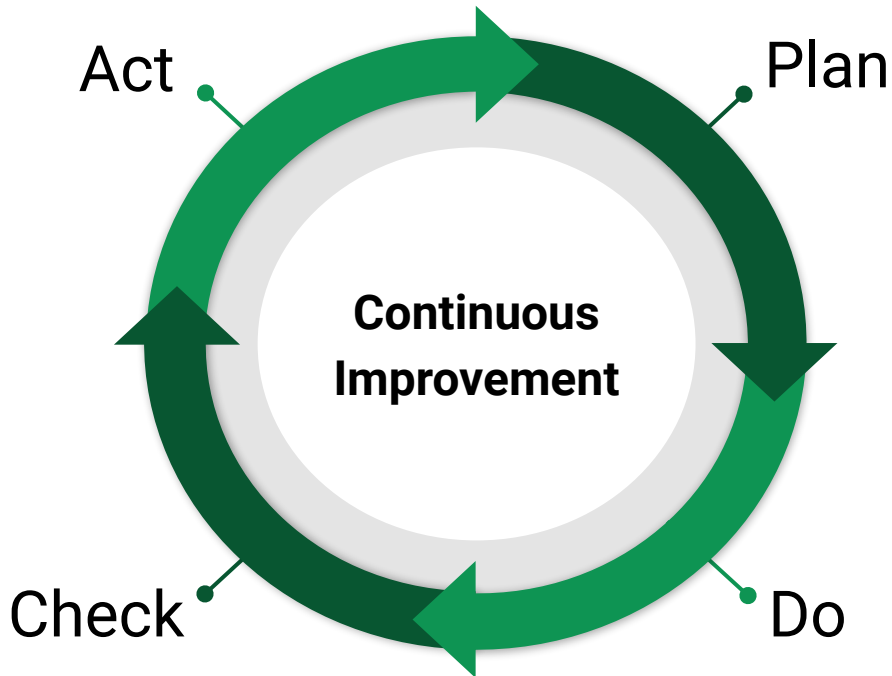
Decision Making Process



Decision Making Process



Continuous Improvement



Good to Great (Business Example)

IMPLEMENTATION

STAGES

01

Engaging (Good)

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

02

Accelerating

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

03

Leading

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

04

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?

Waste Minimization & Diversion

UW-Milwaukee Example

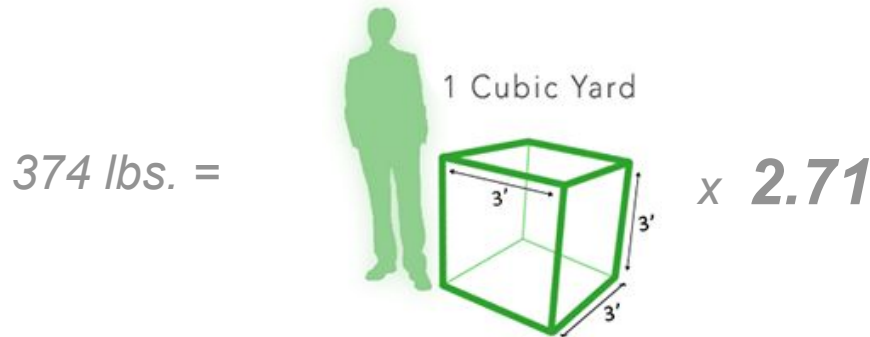
PART 2 (2.5 points) - Need annual total waste generation of 90% (per campus user) less than the performance threshold of 0.5 tons.

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

Target = 100 lbs. per user (WCU)
(90% less than threshold)

Waste Minimization & Diversion

UW-Milwaukee Example Visualization



MSW (Uncompacted): 138 lbs. = 1 cu. yd

Waste Minimization & Diversion

PART 3 (3 points) - Divert 100% of materials generated from landfill.

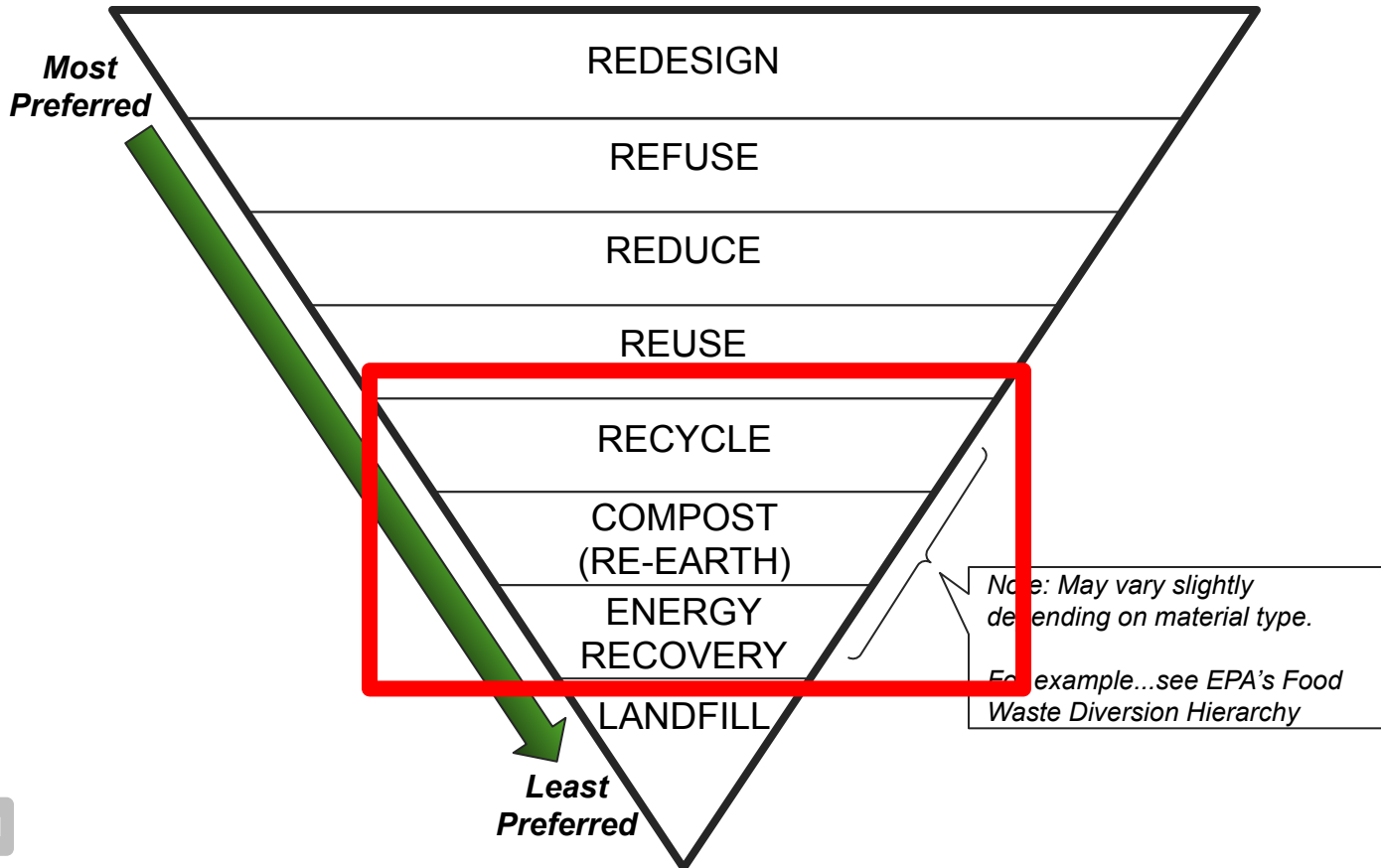
How would you approach this challenge?

Waste Minimization & Diversion

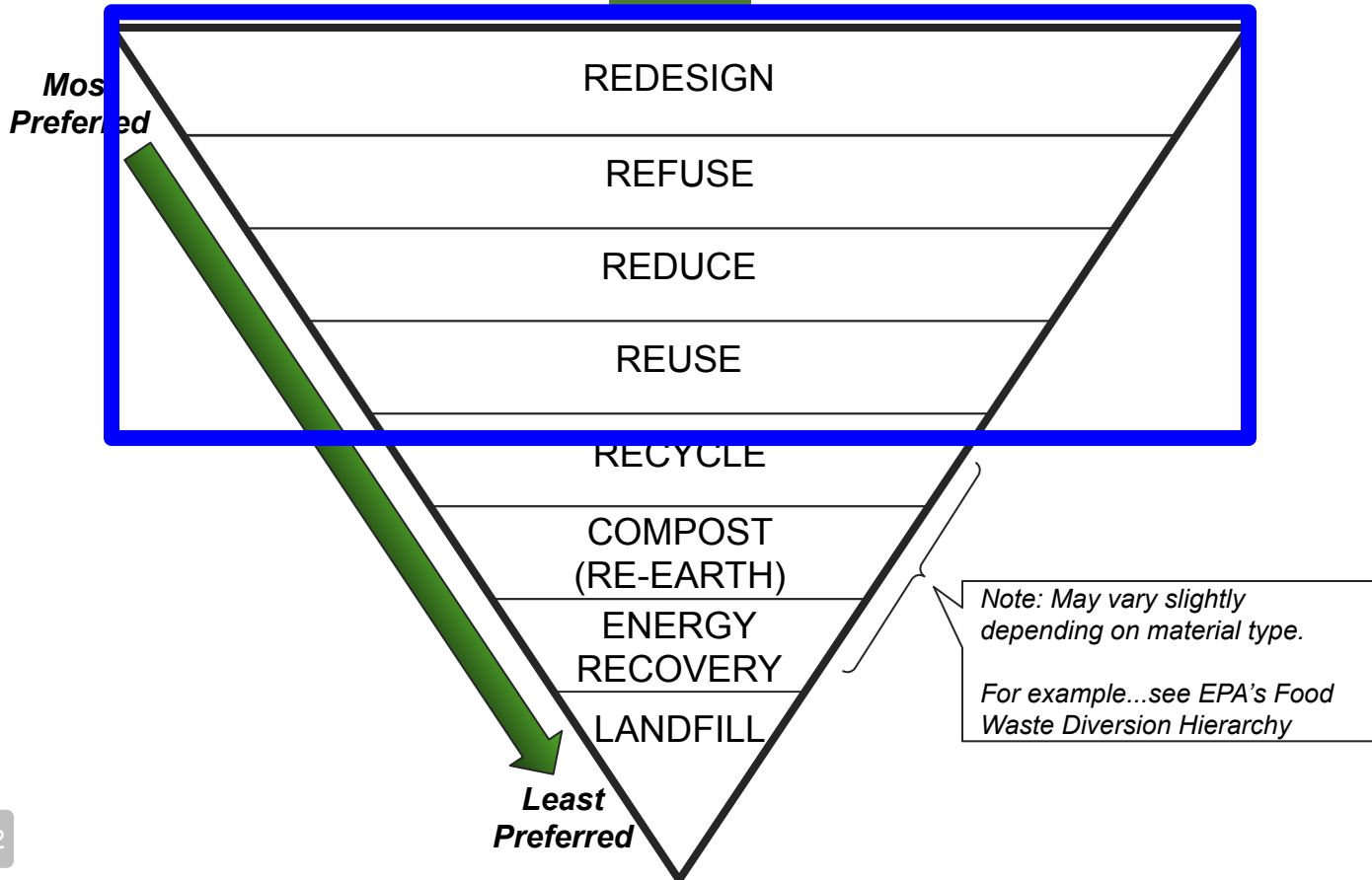
State of Waste & Recycling

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



Waste Hierarchy

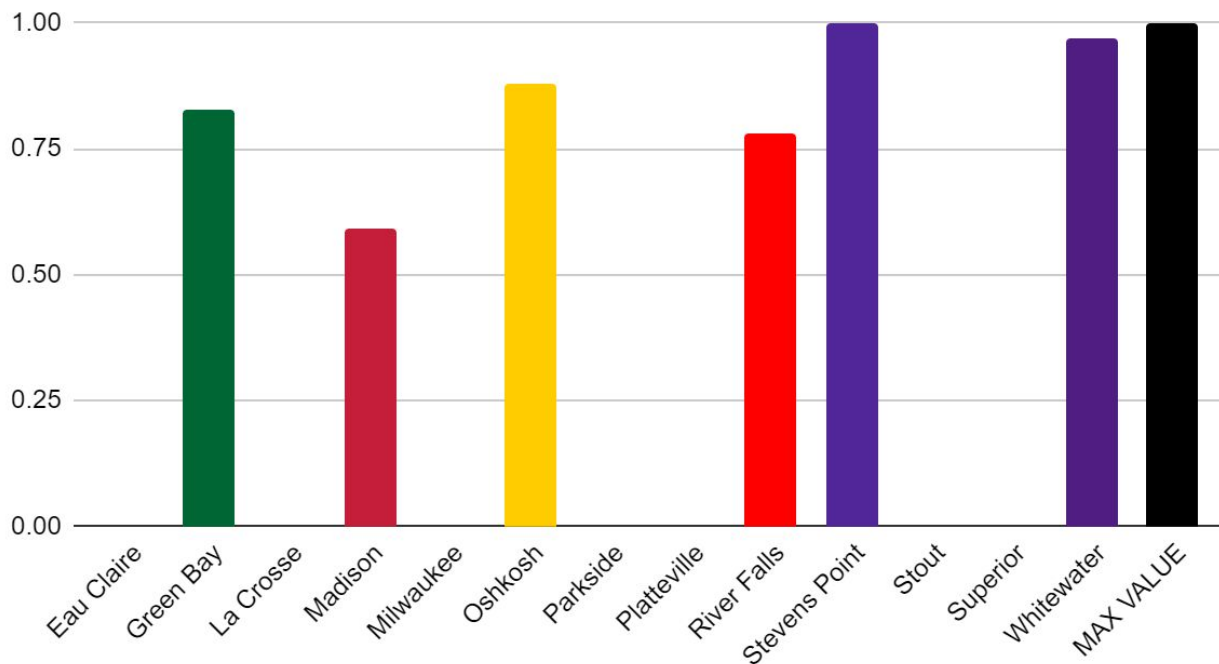


OP 20

Construction & Demolition

Construction & Demolition Diversion

OP 20: Construction and Demolition Diversion



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

Waste reduction & minimization efforts in these credits will heavily impact the Waste Category.

- 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

Questions & Answers (Q&A)



Contact Information



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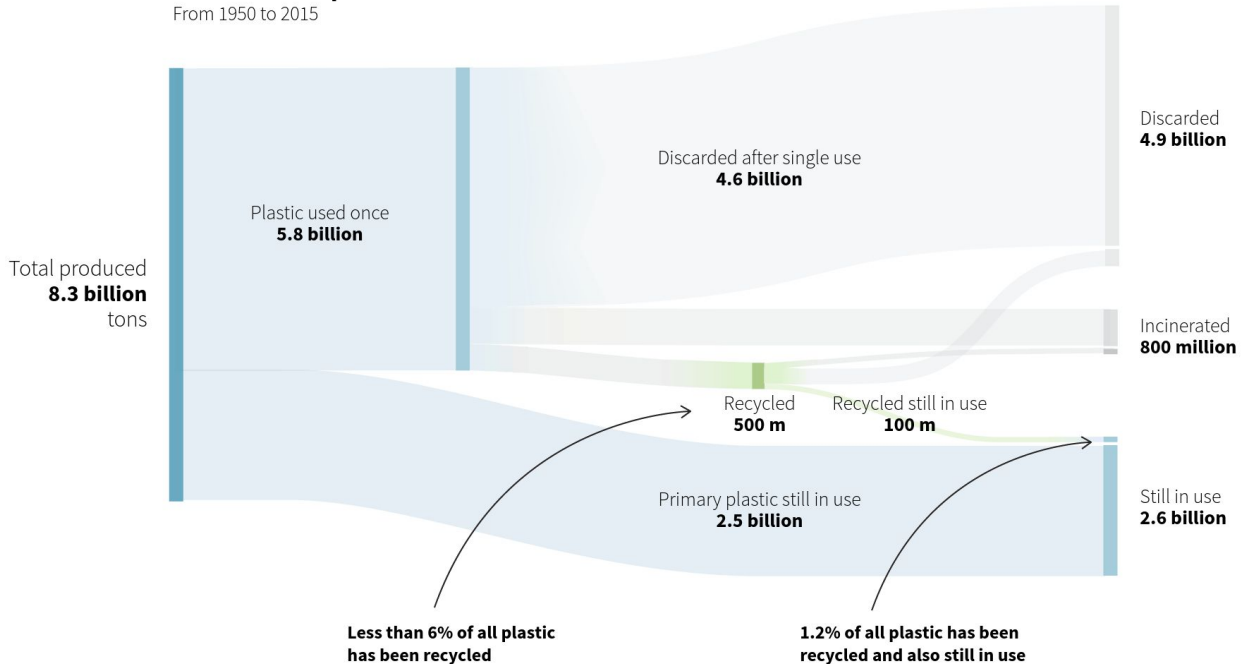
www.wastecap.org

Additional Resources

Plastics Recycling (1950 - 2015)

The fate of all plastic

From 1950 to 2015



Oil Subsidies

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

