



Sorting Recycling Facts from Fiction

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Today's Goals

- Regulatory Considerations
- Recycling 101
 - The Basics
 - How to do it right!
- Program Planning
- Contracting Considerations
 - Why does recycling cost money?
 - The State of Recycling and Landfilling in Michigan
- Conclusions and Q&A



Michigan DEQ Recycling Specialists

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Regulatory Considerations

- Part 175 of Act 451, Recycling Reporting
- Part 115 of Act 451, Solid Waste Management Requirements
- Other potential requirements:
 - Part 115 Solid Waste Management
 - Part 173 Electronics
 - Part 121 Liquid Industrial By-products
 - Part 167 Used Oil Recycling
 - Part 169 Scrap Tires
 - Part 171 Battery Disposal
- Local Requirements

Recycling Program Types

- Single Stream: All recyclables go into a single cart, increasing convenience and participation
- Dual Stream: Recyclables are sorted into different categories
- Commonly fibers are separated from plastics, metals and glass

Safety at Recycling Facilities

- Remember that people are employed at recycling centers to sort, manage and store the recyclable items
- Used medical devices and personal hygiene items should never be placed in curbside bins
- Recycling facilities are not equipped to handle syringes/sharps, diapers, medical waste or hygiene items



The Truth about Contamination

- Three types to consider:
 - Placing garbage in your recycling bin
 - Contamination from excessive residue
 - Material contamination (i.e. wishful recycling)

Why Does Contamination Matter?

- Recyclables are competing in market against virgin materials
- Commodity values are currently low, increasing the importance of quality recyclables
- Material Recovery Facility operations are absorbing the cost of waste management and operational challenges, increasing the cost to process

Cleaning your Recyclables

- Generality, the higher the contamination, the lower the value of the collected materials
- Some recyclables are cleaned before re-manufacturing, but collection of dirty recyclables can still contaminate fiber materials during transport and processing

Fiber Materials and Contamination

- When fiber materials are recycled they are mixed with water and turned into a slurry (“paper pulp”)
- Residues such as grease, food, and beauty products follow the paper pulp through the process and cause holes and imperfections in final paper product
- For pizza boxes, cut the clean top off and recycle it and put the greasy bottom in the garbage

Material Contamination

- When you place the wrong items in the recycling bin, you’re not doing the recycling center any favors!
- “Wishful recycling” slows the recycling process and sends items on a longer trip to the landfill or reduces the value of recycled bales
- Commonly misunderstood “fiber based” items:
 - Paper coffee cups lined with a thin layer of wax or plastic to keep coffee from leaking through cup
 - Frozen food boxes: manufactured with wet strength chemicals to help box maintain structure when wet (reinforces fiber web)
 - Carton containers: often mistaken for paperboard, carton containers are three materials layered together (paper, plastic, aluminum)

Examples of Material Contamination

- Carton containers recycling programs are increasing across the United States
- They are not material contamination- if the local program accepts them.
- Plastic bags and film packaging
- Expanded polystyrene (Styrofoam)
- Random household items like garden hoses, old furniture, etc.
- Bulky rigid plastics
- Incorrect plastic resins

Incorrect Resins

- What does the number symbol on plastic really mean?
- “Resin Identification Code” labeling system (not a universal recycling code)
- Resin Fast Facts:
 - #1 and #2 are the most widely accepted plastics
 - #3-6 are more difficult, but are still commonly accepted
 - #7 most challenging, some programs do not accept

Use This Information to Recycle Right!

- Always work with your material recovery facility to understand what they can recycle
- If you run a municipal program, coordinate education to residents about acceptable recyclables
- Help people understand what happens to recyclables when they leave the curb

Educational Resources

- [Recycling 101](#)
- [Why Does Recycling Cost Money?](#)
- [Why Recycling Matters for Your Community](#)

- [You Can Make a Difference!](#)
- [Guide: Operational and Funding Options for Municipal Recycling](#)
- [Guide: Use of Special Assessments to Fund Recycling Services](#)

Program Planning

- Learn your current program and obtain management support
- Obtain maintenance/janitorial support
 - Consider a coordinator or sustainability team
- Contact your waste hauler
- Conduct a waste assessment and plan your program or program improvements
- Budgeting
- Promotion and educate

Program Planning Consider some key questions

- Who from your business will be involved in implementing any changes?
- How much and what type of waste does your business generate?
- Who is your current waste hauler and do they provide recycling services? Existing contracts?
- What, where, when, why and how?
- Do you have adequate storage space for additional containers?
- Do employees understand the recycling program and its benefits?

Contracting Considerations

- What is your goal?
- Standard contracts can be changed to fit with your organizational or community needs
 - Establish clear expectations, roles and responsibilities of both parties in the contract
- How to protect both parties from market fluctuations
 - Who owns materials?
 - Revenue sharing, ceiling/floor pricing
- Collection details
 - Frequency, ownership of containers, etc.
- Contamination
 - Maximum non-recyclables level / reject limit
 - Who pays for disposal of rejected loads?
- Education/outreach
 - Must be continuous
 - Clear roles/ responsibilities of each party
 - Deliverable specifications
- Customer service
- Metrics
 - Importance
 - Establish type, format, frequency of reports
- Performance requirements
 - Goals
 - Bonuses
- Recommend obtaining 3-5 bids
- Must be win/win for both parties
- Building a relationship

Partnerships: Maximizing the impact

- Types of Partnerships:
 - Public/Public
 - Public/Private
 - Private/Private

Why Does Recycling Cost Money?

- It is commonly overlooked that recycling is a service that costs money
- When recyclables and solid waste leave our curb, they are managed through the recycling system or the

disposal system

- Costs associated with each are reflected in the following table:

Landfill

Collection costs \$
Tipping fee \$
Engineering design and construction \$
Operational management and monitoring \$
Closure costs and long term monitoring \$

Recycling

Collection costs \$
Tipping fee \$
Engineering design and construction \$
Processing costs \$
Market considerations \$
Feedstock for local, state, regional, national,
international manufacturing

- When you recycle, the costs necessary to transport and process the recyclables support the manufacturing of new materials
- When you do not recycle, the recyclable items are buried in a landfill and must be managed as a waste for years to come

Fun Facts

- A recycled aluminum pop can can be back on the shelf as a new aluminum can in as little as 60-days. It can be recycled over and over again.

The State of Landfilling in Michigan

- In 2015 a total of 47,417,841 cubic yards of waste were disposed of in Michigan landfills.
 - Increase of 690,381 cubic yards since 2014 (~1.5%)
 - Enough to pack over 90 of Michigan State University's Spartan stadiums with waste
 - The State of Recycling In Michigan
- Current Estimate: 15.3%
 - ~1,414,029 tons
- Goal: Double our Municipal Solid Waste (MSW) recycling rate from 15% to 30%