








The Measure of Success – How to Measure Recycling Program Success in the Era of the Evolving Ton

Presented by
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Presentation Objectives

- Consider why using weight to measure recycling success is problematic
- Discuss alternatives to recycling measurement
- Present examples of communities that are employing alternative metrics



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“Recycling is Garbage”

“American recycling is stalling, and the big blue bin is the reason why “

“Recycling Industry Faces ‘Nationwide Crisis’, Waste Management CEO Says”



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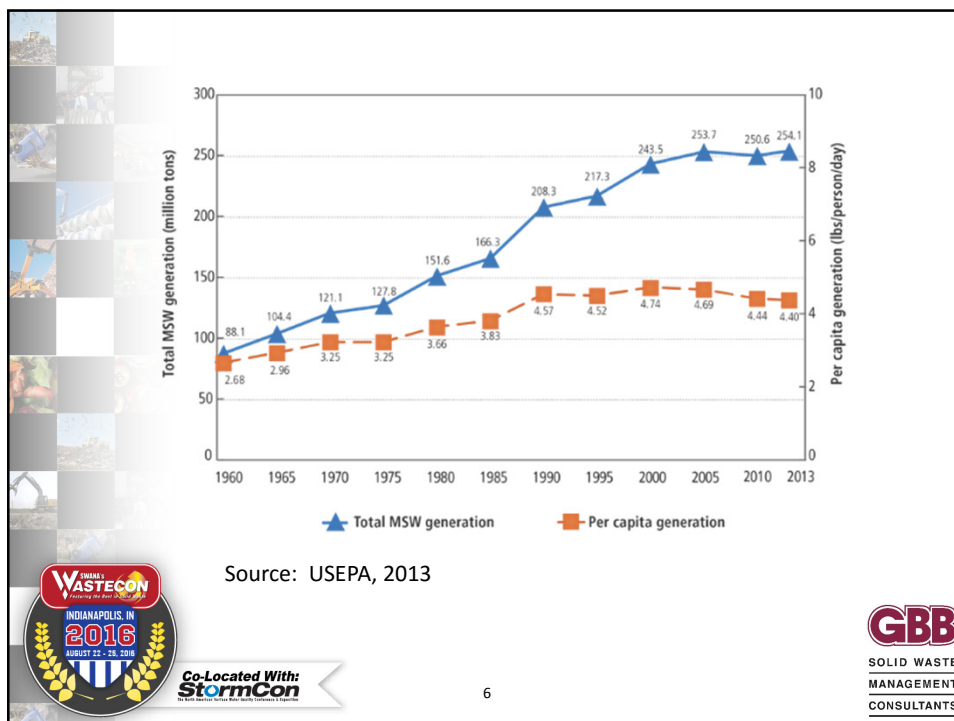
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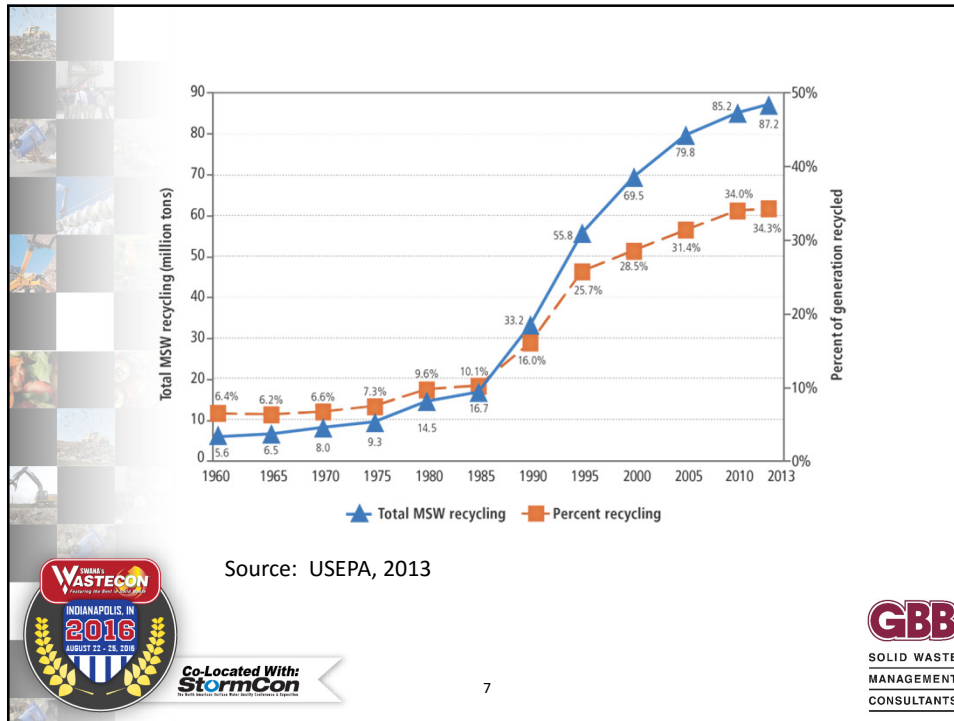
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The Changing Ton




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US MSW Composition

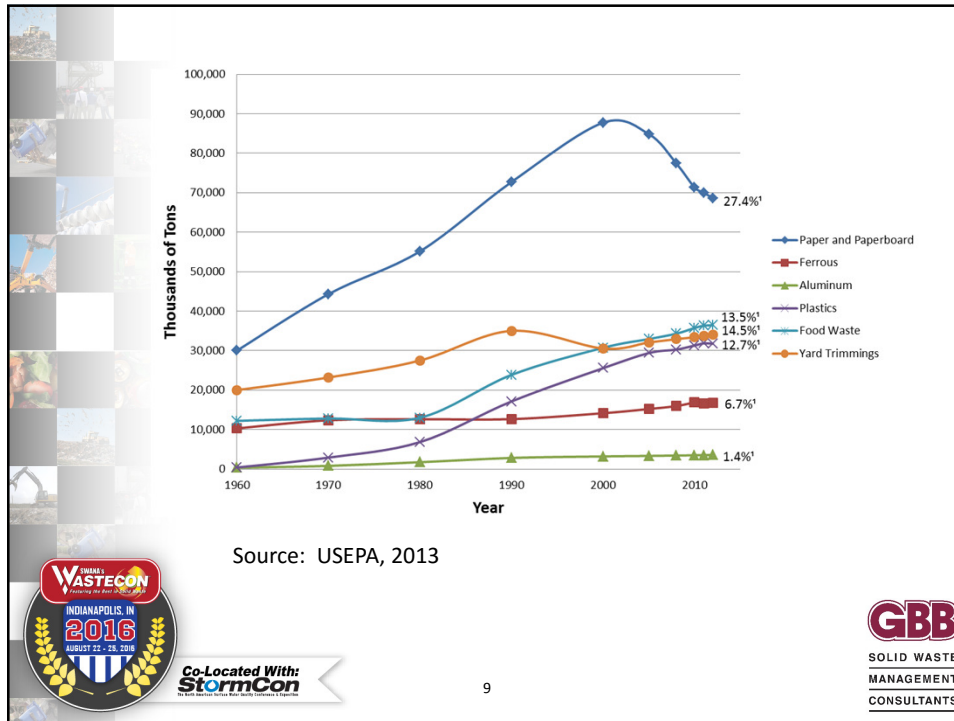
Material	1994	2009	Difference
Paper	32.9%	16.1%	-51.1%
Plastic	11.8%	17.2%	45.8%
Metals	6.3%	8.5%	34.9%
Glass	6.4%	5.5%	-14.1%
Organics	31.5%	37.6%	19.4%

Source: USEPA, Municipal Solid Waste Generation, Recycling, and Disposal in the United States, 1995 and 2011

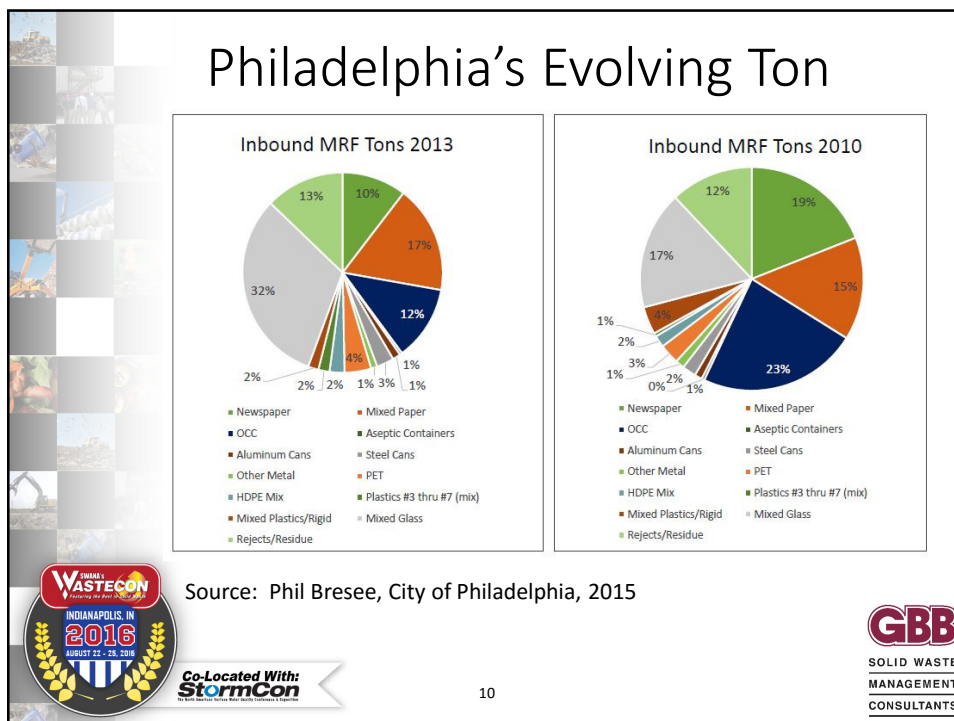
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Measuring Success



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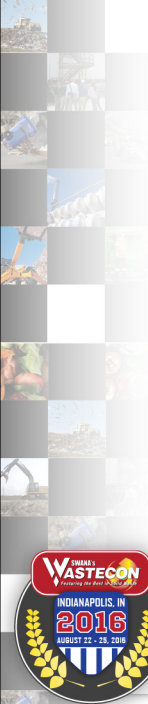
Metrics

- Recycling Rate
- Diversion Rate
- Generation Rate
- Participation Rate
- Recovery Rate




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- **Recycling Rate**
= Tons Recycled / Tons Generated

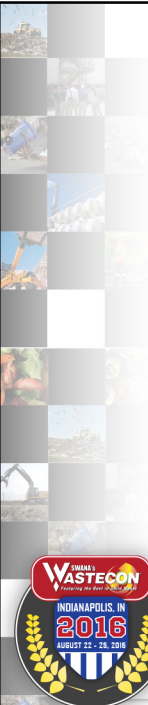



- **Diversion Rate**
= (Tons Reduced + Tons Reused + Tons Recycled + Tons Composted) / Tons Generated




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- **Generation Rate (per capita)**
= Tons Generated / Population




- Hard to truly define generation
- Income Plays a Big Role
- Doesn't Adequately Address Commercial Waste

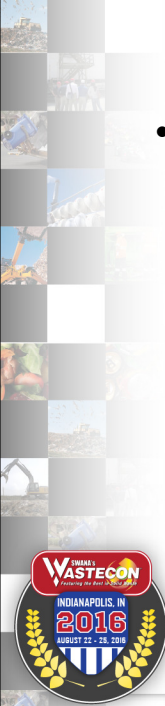
- **Participation Rate**
= # Households Participating in Recycling Program (in a given time frame, e.g. month) / # Households Served by Program




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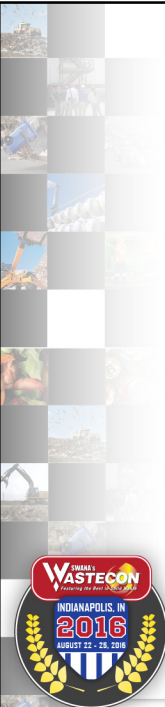



- **Recovery Rate**
 - = Tons Recovered for Recycling or Composting / Total Tons Generated
 - Can be applied to individual components, e.g. aluminum cans
 - Can be summed of all individual components of interest




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Example Goal Setting




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California

- Combined per-capita generation rate and diversion rate
- 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020
- Generated means Landfilled + Exported Disposal + Transformation + ADC + AIC + Beneficial Reuse + Waste Derived Fuel
- 10.7 lbs. per day average per resident generation from 1990 to 2010 (e.g. 8 lbs. recycled, 2.7 lbs. disposed)



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New York City

New York City will send zero waste to landfills by 2030.



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Colorado

Table 6-11: Diversion Goals for Recycling in Colorado¹

Diversion Goals (recycling and organics combined)	2016	2021	2026	2036
Front Range	NA	32%	39%	51%
Rest of State	NA	10%	13%	15%
Statewide	23% ²	28%	35%	45%

1. Conservative Goals reflecting No New Legislative Authorities; includes recycling and organics
2. From CDPHE

Table 6-12: Secondary Goals for Recycling in Colorado – Percent Recoverables Remaining (PRR)

Diversion Goals (recycling and organics combined)	2016	2021	2026	2036
Front Range	21%	17%	14%	10%
Rest of State	45%	40%	34%	28%
Statewide	27%	21%	17%	13%

Source: Colorado Integrated Solid Waste & Materials Management Plan, June 2016



Closing Thoughts



SMART Goals


Specific

Measurable

Achievable

Relevant


Time Bound



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Elizabeth Rice Solid Waste Sustainability Index


Recycling Rate	Diversion Rate	“ER-SWS” Index
 <input type="checkbox"/> Recycling Tons	 <input type="checkbox"/> Recycling Tons <input type="checkbox"/> Composting Tons <input type="checkbox"/> WTE Tons	 <input type="checkbox"/> Recycling Tons <input type="checkbox"/> Composting Tons <input type="checkbox"/> WTE Tons <input type="checkbox"/> GHG Avoidance <input type="checkbox"/> Cost per Ton <input type="checkbox"/> Jobs



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Thank You!



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