Update on EPA Programs

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SERDC 2016 Summit
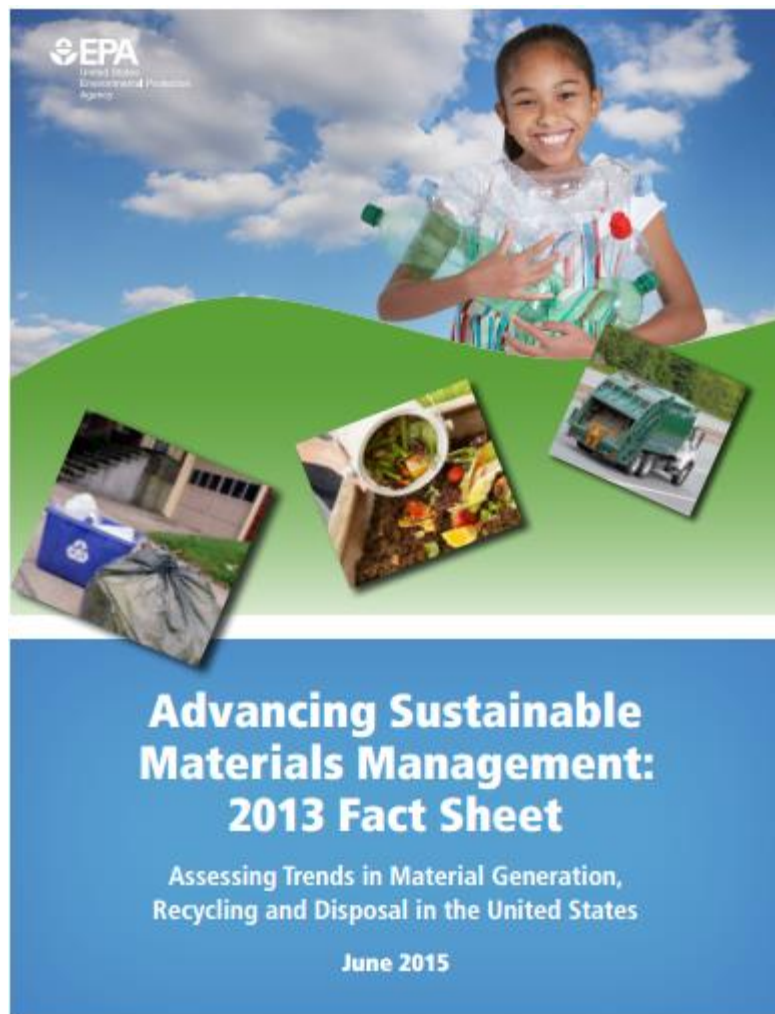November 8, 2016

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Outline

- Advancing Sustainable Materials Management: Facts and Figures Report
  - Overview and new trends
  - Key Data
  - Methodology Updates
- Recycling Economic Information (REI) Jobs Report
  - Study overview
  - New definition of recycling
  - REI Methodology
  - Summary
- Waste Food Mapping Tool
  - Objective
  - Generators and Processors
  - Methodology
  - Map

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EPA Facts & Figures

Advancing Sustainable Materials Management: 2013 Fact Sheet

Assessing Trends in Material Generation, Recycling and Disposal in the United States

June 2015

- Data for more than 30 years

- Report issued every year

- New for 2014 report:

    - Removed "Recovery" and "Disposal"

    - Replaced with generation, recycling, energy recovery, and landfill

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Key Data for 2014

- ## 258 million tons of MSW generated
  - 4.44 pounds per person, per day
  - Increase of 3 million tons (0.02 pounds per day)

- ## 34.6 % recycling rate
  - Recycling and composting
  - Increased by 1.8 million tons (0.3%)
  - Paper and paperboard accounted fro the largest portion of this increase (1 million tons).

- ## 38.4 million tons of wasted food generated
  - 241 pounds per person per year
  - Increase of 7 pounds per year
  - Composting rose 100,000 tons (0.1%)
  - 21.6 percent of our MSW landfilled

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Methodology Updates

Electronics

- New life span distribution model
  - Replaced used a uniform distribution
  - Results in a higher generation for 2013

Construction and Demolition (C&D)

- Account for fly ash to Portland cement in annual concrete consumption
- New estimate of C&D debris generation for railroad ties
- Revised drywall and plaster generation figures
  - Based on updated gypsum consumption data published by USGS

Food Waste

- Applies the 2013 methodology for food waste generation, but adds data from new studies

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Recycling Economic Information (REI)

- First national REI study since 2001

- The 2016 study:

  - Explores alternative approaches to measuring economic impacts of recycling

  - Provides a new definition of recycling

  - Addresses key areas of uncertainty in the 2001 study

  - Uses a Waste Input-Output (WIO) model that distinguishes recycling/ recyclable material flows within economic sectors

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New Recycling Definition

Recycling is defined as the recovery of useful materials, such as paper, glass, plastics, metals, organics from the waste stream along with the *transformation* of that material to make new products, reducing the amount of virgin raw materials needed to meet consumer demand.

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REI Methodology

- Waste Input-Output (WIO) Table
  - Augments national input-output table by the Bureau of Economic Statistics (BEA) distinguishing:
    - Flows of recyclables;
    - Flows of recycled products/materials; and
    - Recycling industries.
  - Uses nine major material categories
    - Ferrous metals, Aluminum, Paper, Glass, Plastics, Rubber, Electronics, Construction & Demolition and Organics

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REI Methodology: Intermediate Approach

Delineates activities as direct or indirect

- **Direct activities** are those associated with the transformation of recyclable materials into marketable products
  - Example: the transformation of aluminum scrap into semi-fabricated products (ingots) in a secondary smelter

- **Indirect activities** are those associated with recycling, reuse, and food donation include the value chain of direct processes
  - Example: the collection, sorting, and transportation of aluminum scrap to the smelter or the transportation of donated food from the food bank to the local food pantry

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2016 REI Summary

- Recycling accounts for:
  - 757,000 jobs
    - 1.57 jobs per 1,000 tons
  - $36.6 billion in wages
  - $6.7 billion in tax revenues

- Most significant contributors to the national economy
  - Metals (ferrous and non-ferrous)
  - Construction and demolition (C&D)
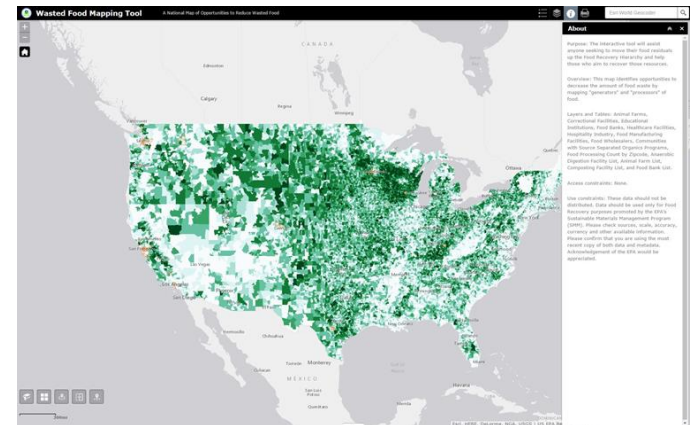
- The 2007 BEA numbers will updated in 2017

Wasted Food Mapping Tool

Objectives

- Identify opportunities to decrease the amount food going to landfill by:
  - Mapping potential generators and estimating waste volume
  - Mapping potential processors

- Potential users of the tool:
  - A food bank
  - A state, city or county
  - A prospective project developer

- Tool includes:
  - A paper to describe methodologies
  - A map with facility specific information

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Generators

1.3 million establishments

- – Correctional facilities
- – Educational institutions
- – Food banks
- – Healthcare facilities
- – Hospitality industry
- – Manufacturers & processors
- – Food wholesalers & distributors

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Processors

- Areas with organics collection

- Processors
  - 319 Food Organizations
  - 79,000 animals farms
  - 1,400 AD facilities
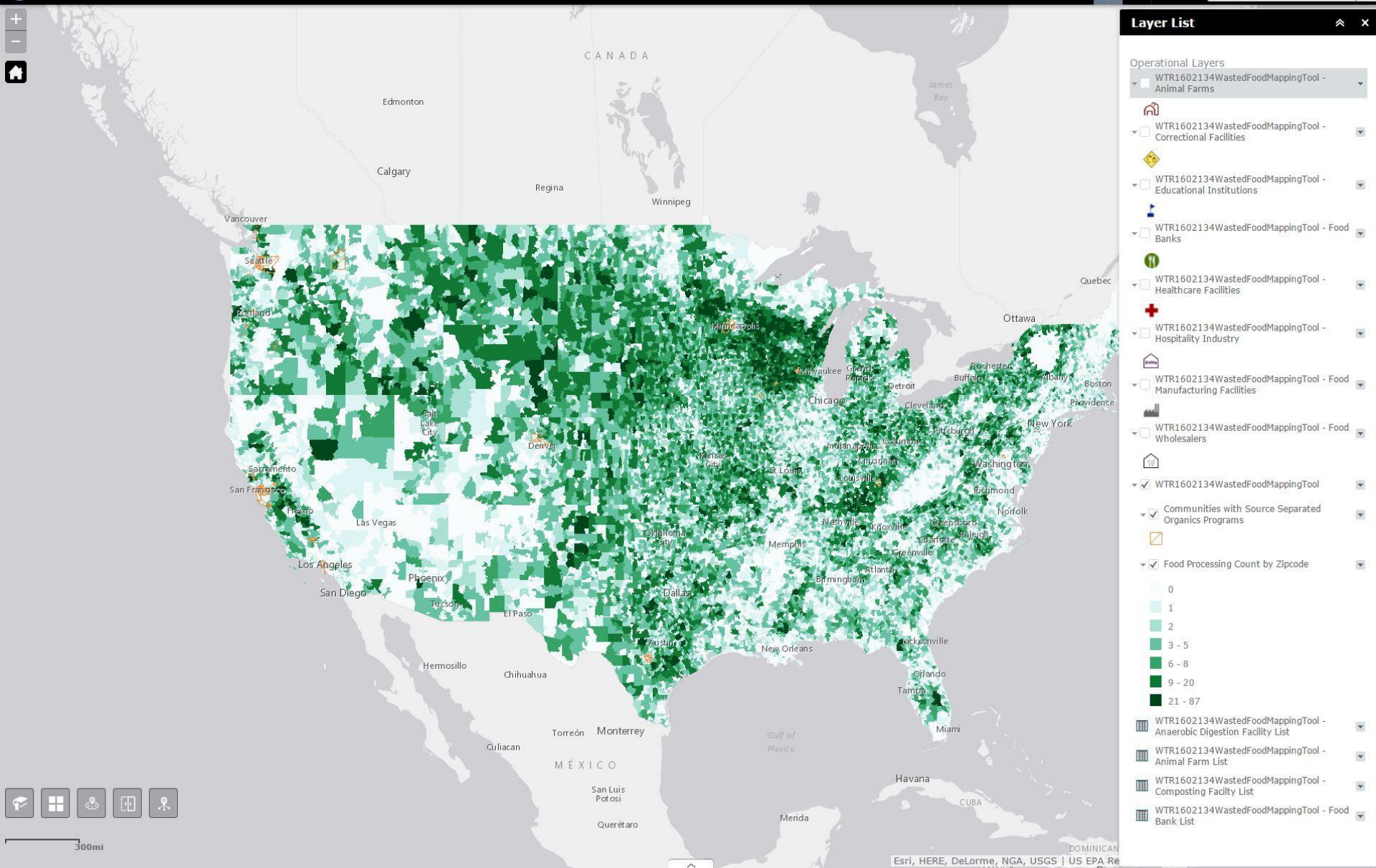 - 2,000 composting facilities

- Mapped by zip code

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Methodology

Sector	Parameter	Generation Factor
Educational Institutions		
Private Schools		63 lbs/student/year
Public Schools	# of Students	20 to 28.8 lbs/student/year
Colleges and Universities		141.8 lbs/residential student/year 37.8 lbs/non-residential student/year
Food Manufacturers and Processors	$ Revenue	0.053 lbs/ $ Revenue
Food Wholesalers and Distributors		
Supermarkets and Grocery Stores	# of Employees	3,000 lbs/employee/year
Other Food Wholesalers and Distributors	$ Revenue	0.01 lbs/ $ Revenue
Hospitality Industry	# of Employees	1,168.3 to 1,984 lbs/employee/year
Correctional Facilities	# of Employees	1,368.8 to 1,927.2 lbs/employee/year
Healthcare Facilities	Revenue ($ million)	147.3 to 335.8 lbs/revenue ($ million)/year

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Esri World Geocoder

Operational Layers

WTR1602134WastedFoodMappingTool - Animal Farms

WTR1602134WastedFoodMappingTool - Correctional Facilities

WTR1602134WastedFoodMappingTool - Educational Institutions

WTR1602134WastedFoodMappingTool - Food Banks

WTR1602134WastedFoodMappingTool - Healthcare Facilities

WTR1602134WastedFoodMappingTool - Hospitality Industry

WTR1602134WastedFoodMappingTool - Food Manufacturing Facilities

WTR1602134WastedFoodMappingTool - Food Wholesalers

WTR1602134WastedFoodMappingTool

Communities with Source Separated Organics Programs

Food Processing Count by Zipcode

- 0
- 1
- 2
- 3 - 5
- 6 - 8
- 9 - 20
- 21 - 87

WTR1602134WastedFoodMappingTool - Anaerobic Digestion Facility List

WTR1602134WastedFoodMappingTool - Animal Farm List

WTR1602134WastedFoodMappingTool - Composting Facilty List

WTR1602134WastedFoodMappingTool - Food Bank List

300mi

Esri, HERE, DeLorme, NGA, USGS | US EPA Re

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