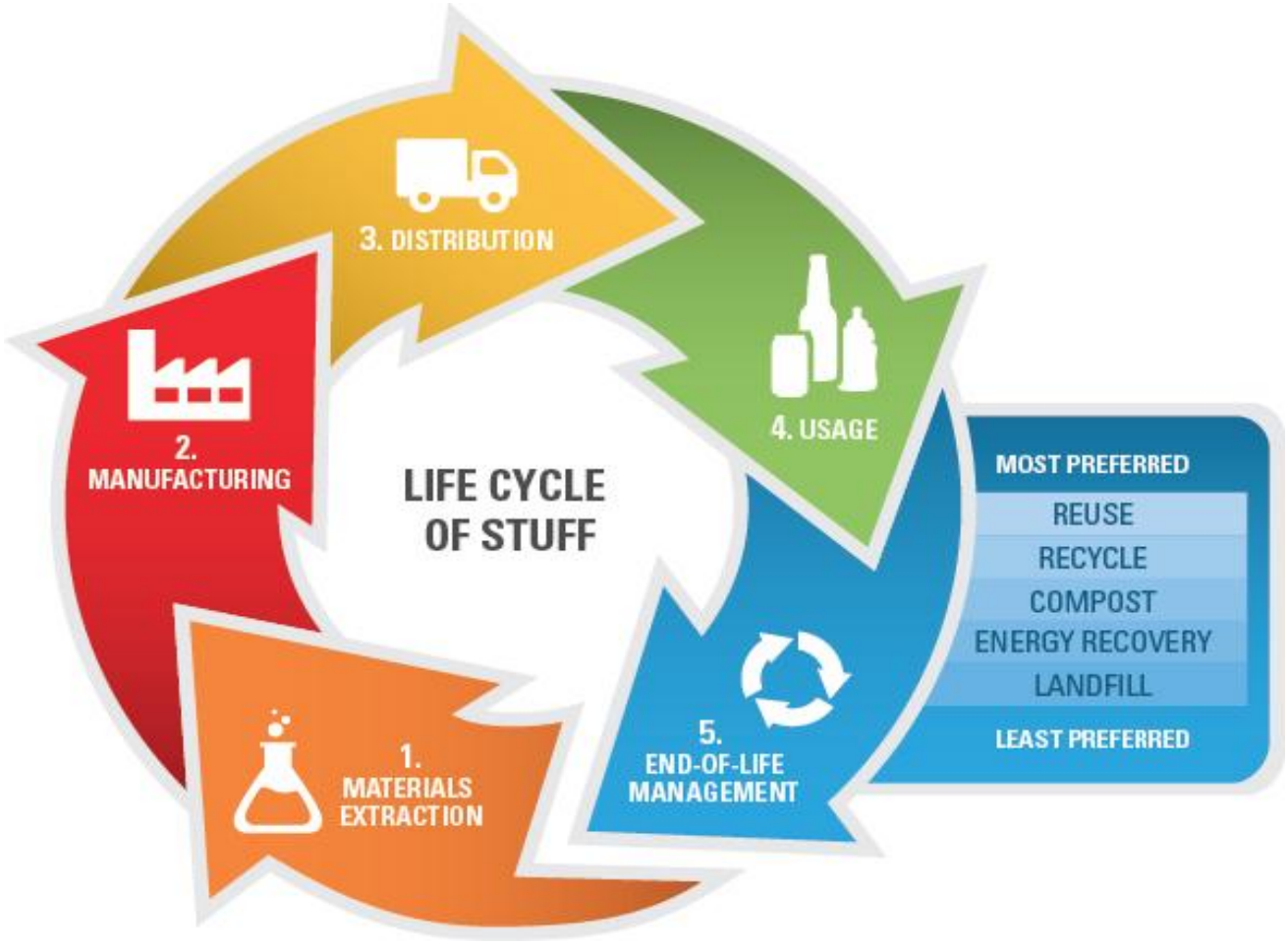
The U.S. EPA's Strategic Outlook on Sustainable Materials Management

RFT February 2016

What is Sustainable Materials Management?



"An approach to serving human needs by using/reusing resources productively and sustainably throughout their life cycles, generally minimizing the amount of materials involved and all associated environmental impacts."

Sustainable Materials Management: The Road Ahead, EPA

SMM: A Global Priority

- G7 World Leaders met in June 2015 and final Summit Declaration & Annex are publicly available.
- Declaration establishes an Alliance on Resource Efficiency that will:
  - Serve as a forum to share knowledge and create information networks on a voluntary basis and
  - Collaborate with businesses, SMEs and other relevant stakeholders to advance opportunities offered by resource efficiency, promote best practices and foster innovation.
- UNEP International Resource Panel to prepare a synthesis report highlighting the most promising potentials and solutions for resource efficiency.
- OECD invited to develop policy guidance supplementing the synthesis report.
- U.S. will host a workshop around the auto sector and supply chain in the Spring of 2016.

EPA's SMM Program: Brief History

- RCRA provides the legislative basis for EPA's SMM Program efforts.
- 2002: EPA's report, *Beyond RCRA: Waste and Materials Management in 2020* made the argument for focusing efforts on materials management.
- 2009: *SMM: The Road Ahead* provided recommendations and an analytical framework for moving toward sustainable materials management.
- 2011: SMM Program launched with focus areas of federal government leading by example; sustainable electronics management; Sustainable Food Management, and beneficial use of industrial materials (e.g. coal ash, C&D materials)

EPA's SMM Strategic Plan

SMM Program Objectives: FY 2017 – FY 2022

1. **Decrease disposal rate**

Includes source reduction, reuse, recycling and prevention

2. **Reduce environmental impacts of materials**

Reductions related to specific materials management activities; use of GHG as primary environmental impact measure

3. **Increase socio-economic benefits.**

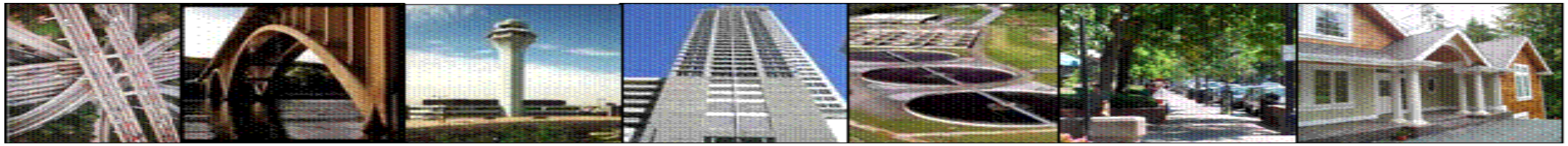
Track and report material impacts on the economy along with social aspects

4. **Increase capacity of state and local governments, communities and key stakeholders to adopt and implement SMM policies, practices and incentives.**

EPA's SMM Strategic Plan FY 2017 – FY2022

Strategic Priority Areas	Additional Emphasis Areas
The Built Environment	Sustainable Electronics Management
Sustainable Food Management	Lifecycle Assessment
Sustainable Packaging	International Efforts
	Measurement

SMM Strategic Priorities: The Built Environment

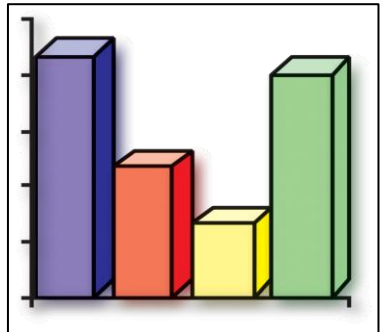


- Investment in repairing or replacing the nation's aging public infrastructure is expected to continue to be a top U.S. priority, with billions of tons of concrete, steel, wallboard, and other materials needed to do so.
- The range of materials, goods, and services used to construct, maintain, repair, and renovate the built environment is complex, involving—directly or indirectly—almost every sector of the U.S. economy.
- Meanwhile, natural disasters will continue to strike the U.S. creating huge quantities of debris.
- Increasing the safe disposal, reuse and recycling of building materials and debris presents a challenge and opportunity to advance SMM

SMM Strategic Priorities: The Built Environment

Critical Action Areas

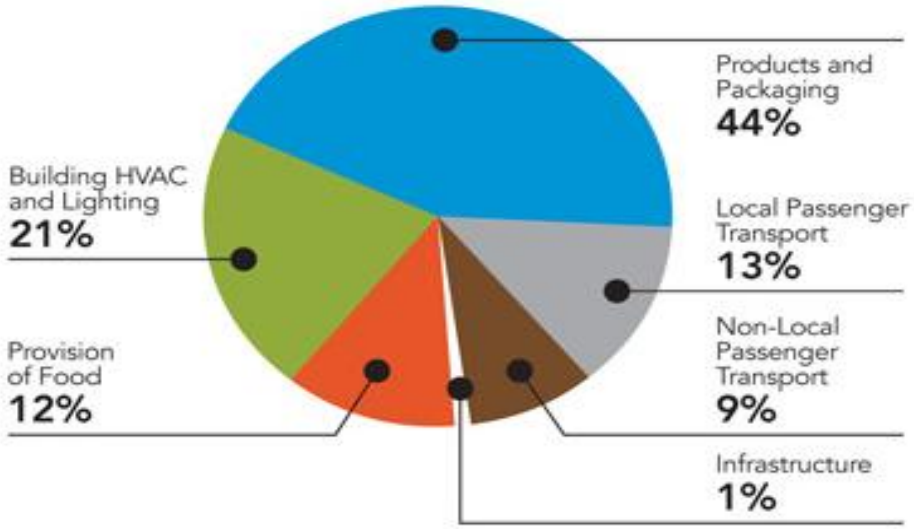
1. **Incorporate life cycle SMM concepts into the built environment marketplace.**
2. **Support & advance climate adaptation and community resilience efforts.**
3. **Improve and enhance data and measurement of C&D and industrial byproduct materials.**



SMM Strategic Priority: Sustainable Packaging

Packaging Link to Carbon Pollution

44% of the U.S. greenhouse gas emissions come from products and packaging in a systems-based analysis.



Source: Joshuah Stolaroff, "Products, Packaging, and U.S. Greenhouse Gas Emissions," Product Policy Institute, 2009.

Value of Wasted Packaging Materials in the U.S.

Paper: $1,294,625,417

Glass: $97,325,060

Steel: $285,000,000

Aluminum: $1,446,228,571

PET: $2,917,345,309

HDPE: $2,854,896,000

PVC: $136,000,000

LDPE/LLDPE: $726,000,000

PP: $1,273,600,000

PS: $371,000,000

Total: **$11,402,020,357**

Source: See Appendix 1 for methodology and plastic material definitions.

SMM Strategic Priority: Sustainable Packaging

Critical Action Areas

1. **Convene and foster partnerships around infrastructure development**

2. **Work with Federal Agencies as Strategic Partners.**

3. **Research, Data and Standards for Packaging.**

SMM Strategic Priority: Sustainable Packaging

FY16 Budget Initiative – Packaging Emphasis

- If funded, establishes a $1.3 million grant program with states, local governments and NGOs
- Focuses on infrastructure development, behavior change and technical assistance
- EPA is presented with the opportunity to leverage private sector dollars and amplify efforts across the US to increase MSW recycling (the Closed Loop Fund, the Recycling Partnership, AMERIPEN)

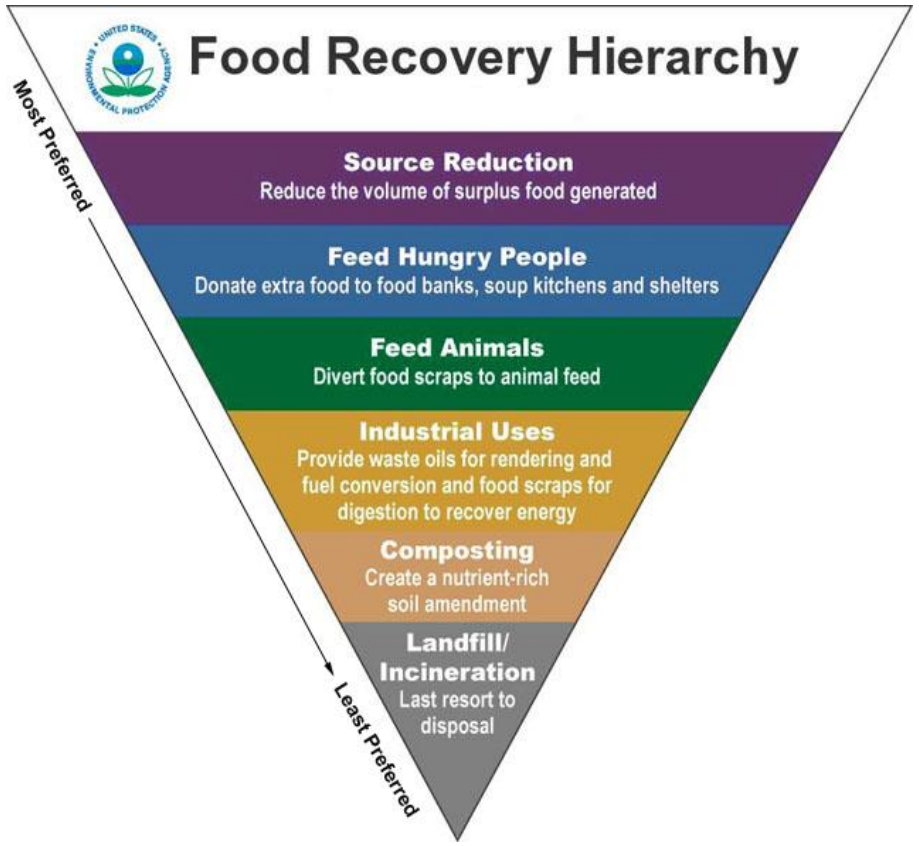
SMM Strategic Priority: Sustainable Food Management

- Getting food to our table accounts for 10% of U.S. energy consumption, uses 50% of U.S. land, and 80% of fresh water consumed in the U.S. (NRDC 2012)
- Uneaten food ends up in landfills where organic matter accounts for 16% of methane emissions
- If we recovered only 15% of the wasted food we could feed 25 million Americans (NRDC 2012)
- The UNEP's global indicators goal is to "halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses" by 2030.

SMM Strategic Priority: Sustainable Food Management

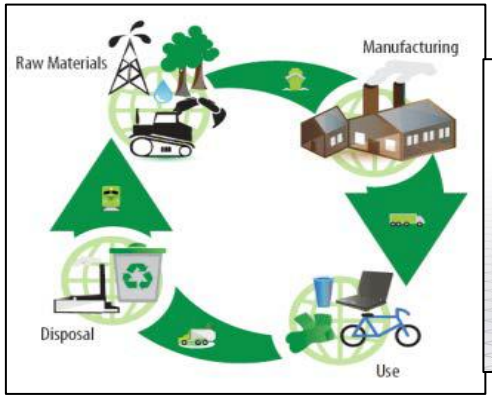
Critical Action Areas

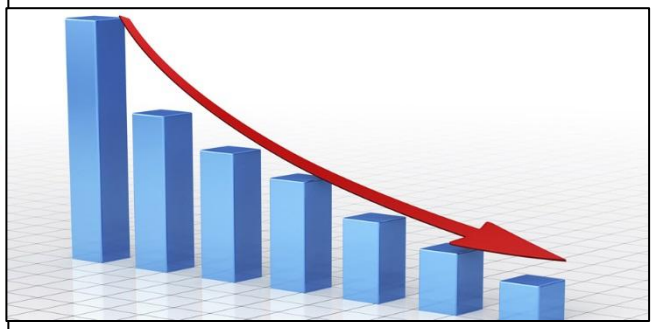
1. **Develop an infrastructure to support alternatives to landfill disposal of wasted food.**
2. **Promote opportunities across food life cycle to reduce wasted food from landfills, with preference for approaches higher on EPA food recovery hierarchy.**
3. **Improve and standardize measurement of wasted food.**



SMM Strategic Plan: Additional Emphasis Areas

- Sustainable Electronics Management
- Lifecycle Assessment efforts
- SMM International efforts
- Overarching measurement and analysis





SMM Strategic Plan: Transition Year Ahead & Opportunities for Engagement

- SMM Strategic Plan Focuses on FY2017 – FY2022
- Our transition year ahead (through December of 2016/7) will be focused on obtaining stakeholder input on implementation of the Strategic Plan
- We welcome your input and feedback on specific activities and areas where you see alignment and shared goals between your organizations and the EPA.

Fuels and RCRA

- Non-Hazardous Secondary Materials (NHSM)
  - Material is deemed not a solid waste, although it can remain such under state rules.
- Renewable Fuels Standard 2 (RFS2)
  - Material is used to make a fuel, and gains credits towards production
- Burn as a solid waste under CISWI

Function of The Rule

- EPA issued the Identification of Non-Hazardous Secondary Materials (NHSM) final rule in March 2011
- NHSM Rule Identifies Non-hazardous Secondary Materials that are solid wastes when used as fuels or as ingredients, 40 CFR Part 241.
- Intent was to define and clarify:
  - Solid Wastes subject to CAA 129 Standards (CISWI)
  - Fuels subject to CAA 112 Standards (Boiler MACT)

Must be processed and have legitimacy as a fuel

- The non-hazardous secondary material must be managed as a valuable commodity based on the following factors:
  - (A) The storage of the non-hazardous secondary material prior to use must not exceed reasonable time frames;
  - (B) Where there is an analogous fuel, the non-hazardous secondary material must be managed in a manner consistent with the analogous fuel or otherwise be adequately contained to prevent releases to the environment;
  - (C) If there is no analogous fuel, the non-hazardous secondary material must be adequately contained so as to prevent releases to the environment;
- The non-hazardous secondary material must have a meaningful heating value and be used as a fuel in a combustion unit that recovers energy.
- The non-hazardous secondary material must contain contaminants at levels comparable in concentration to or lower than those in traditional fuels which the combustion unit is designed to burn. Such comparison is to be based on a direct comparison of the contaminant levels in the non-hazardous secondary material to the traditional fuel itself

Options: Self Implementation or Comfort Letter

- Self Implementation: EPA emphasizes that industry can and should utilize the self-implementing regulations under 40 CFR Part 241 and document their activities and determinations. This is required by the recordkeeping requirements under the boiler/CISWI rules which refer to specific records required under 40 CFR Part 241
- Comfort Letter: If the facility continues to want an EPA NHSM "clarification letter" where EPA provides a determination regarding the waste/non-waste status of the material, it must submit all necessary and appropriate information. After this information is received, the review take an undetermined length of time for EPA to issue its determination.

Renewable Fuels Standard 2

- Only applies to biogenic portion of MSW
- There must be a MSW separation plan
- MSW separation plan must account for recycling, disposal, and use of biogenic portions
- Contaminates in the biogenic stream must be minimal