

# Sustainable Materials Management, Resiliency, and Planning for Natural Disaster Debris

Suzie Boxman

Office of Resource Conservation and Recovery

U.S. Environmental Protection Agency (U.S. EPA)

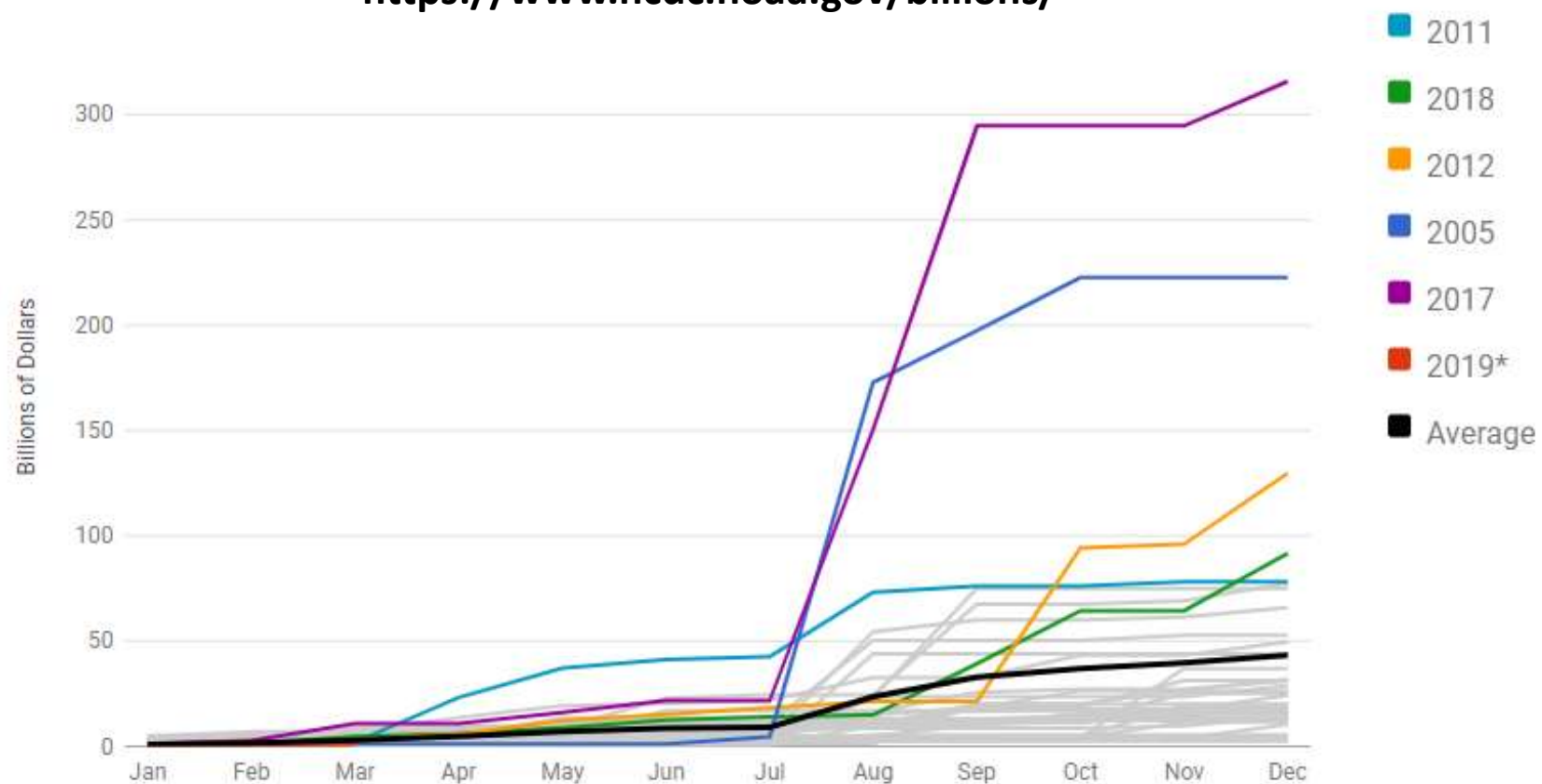
June 11, 2019

# Why Address Natural Disaster Debris?

## 1980-2019 Year-to-Date United States Billion-Dollar Disaster Event Cost (CPI-Adjusted)

Event statistics are added according to the date on which they ended.

<https://www.ncdc.noaa.gov/billions/>



Statistics valid as of April 9, 2019.

\*Cost statistics not included for Midwest Flooding (March 2019)

# Disaster Debris Management Challenges

**Larger Quantity of Debris**



**Wider Variety of Debris**

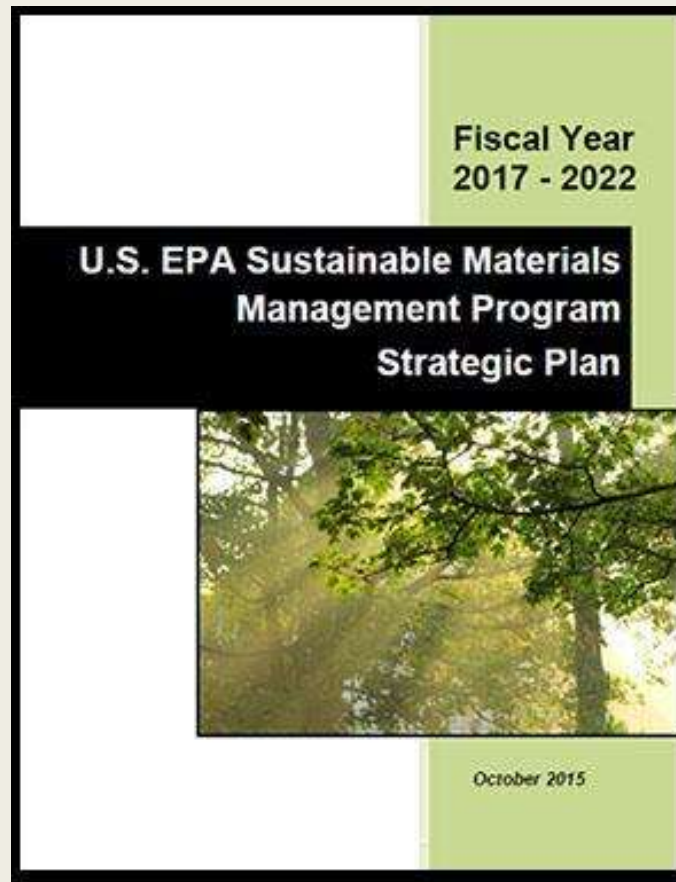
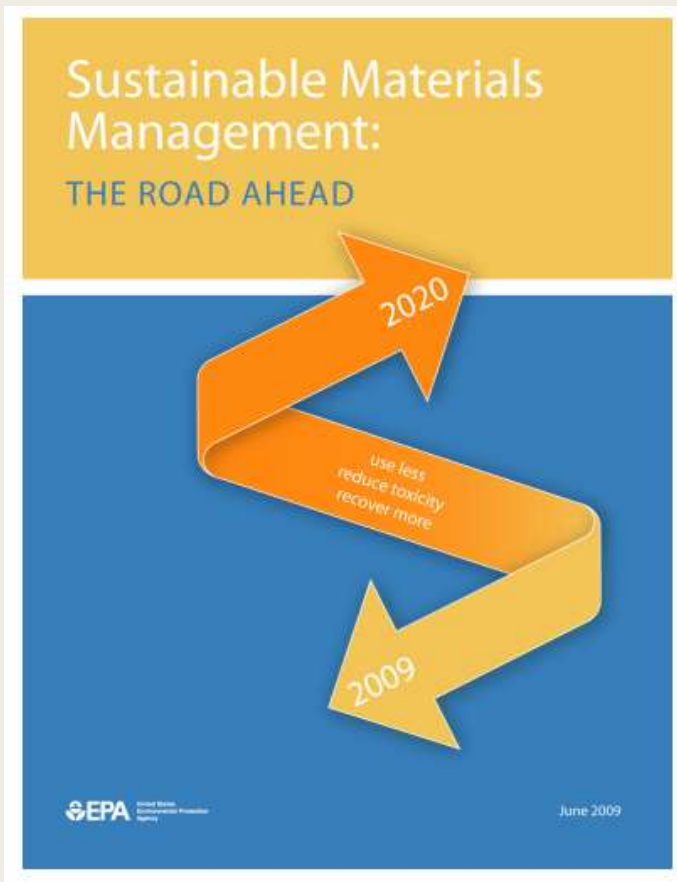


**Wider Area of Impact**



**Change in Public Perception**





# U.S. EPA'S CONNECTION

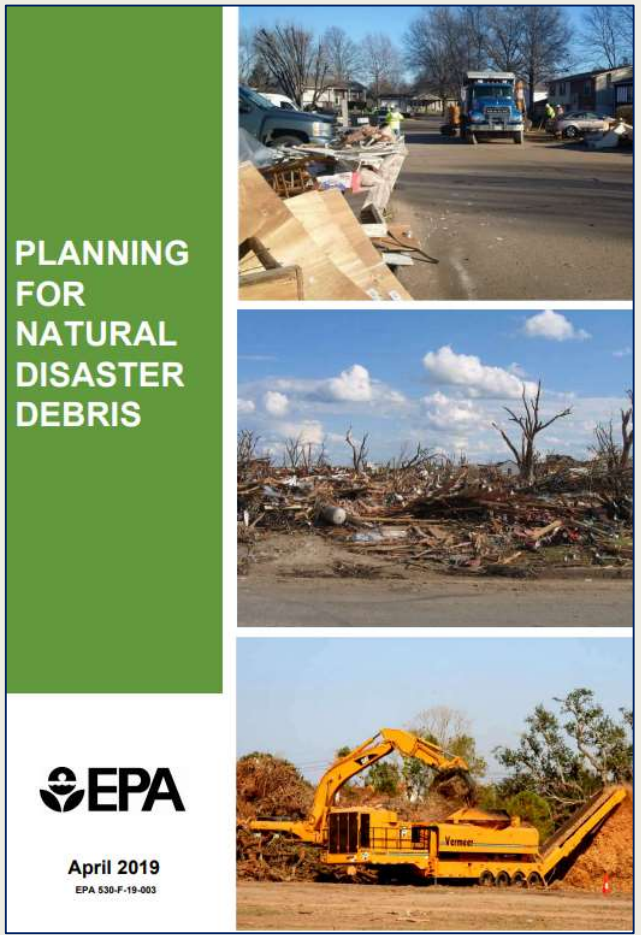
# The Role of SMM in the Disaster Management Cycle

- Maintenance and growth of built environment will require billions of tons of materials
- More frequent storms weaken infrastructure = need for more materials
- SMM = reducing waste



# The Role of SMM in the Disaster Management Cycle

- Use SMM during rebuilding to use materials efficiently
  - Use recycled content
  - Reuse materials
    - E.g. concrete debris used as aggregate in new roadway construction



# U.S. EPA'S CONNECTION



# Planning for Natural Disaster Debris, April 2019

Purpose: To assist communities (including cities, counties, states, tribes) in planning for debris before a natural disaster occurs to:

- Increase community preparedness
- Enhance community resiliency
- Significantly aid decision-making during a response





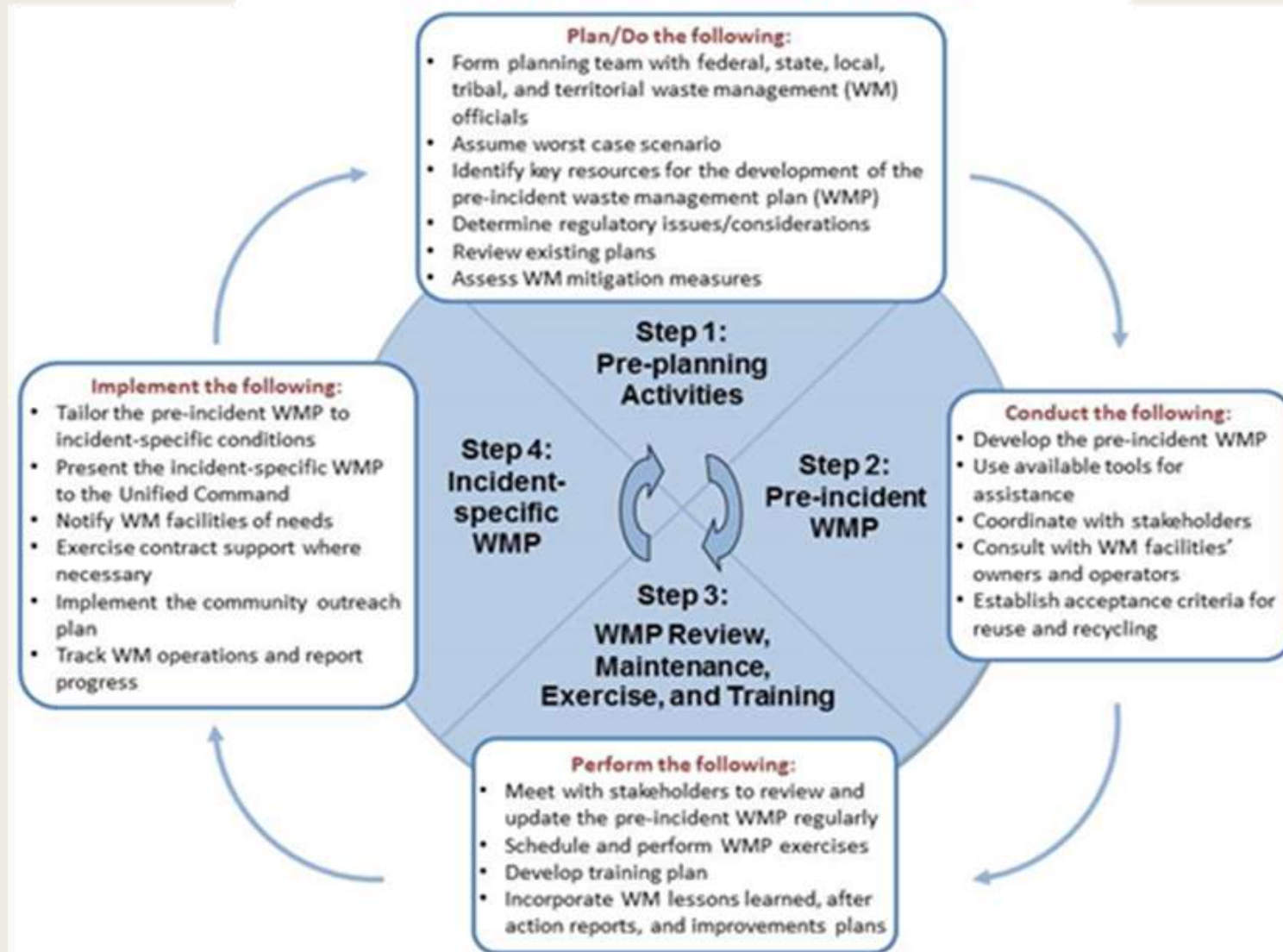
# Planning for Natural Disaster Debris, April 2019

## Contents:

- Recommended components of a debris management plan
- Suggested management options for various natural disaster debris streams
- A collection of case studies that highlights how several communities prepared for and managed debris generated by recent natural disasters
- Resources for natural disaster debris planning and response, including resources on community resiliency and planning, debris management facilities, federal disaster assistance, and health and safety
- EPA's comprehensive, pre-incident planning process to help prepare communities for effective disaster debris management

# Planning Process for Natural Disaster Debris

## Pre-incident All-hazards Four-step WM Planning Process



# EPA's Suggested Pre-incident Debris Management Plan Outline

- I. Plan Overview (e.g., contact list, roles and responsibilities, regulatory requirements)
- II. Materials and Debris Streams
- III. Debris Quantities
- IV. Waste Characterization Sampling and Analysis
- V. Debris Management Strategies/Options (e.g., segregation, collection, storage)
- VI. Waste Management Facilities (e.g., pre-selected facilities)
- VII. Transportation (e.g., hauler information)
- VIII. Debris and Material Tracking and Reporting System
- IX. Community Communications/Outreach Plan
- X. Health and Safety for Debris Management Activities
- XI. Resource Summary (e.g., equipment and staffing needs, pre-negotiated contracts, mutual aid agreements)

Recommended Appendices (e.g., job aids for debris management staff positions, maps of waste management facilities and transportation routes)

# Planning with Limited Time and Resources

- Planning is not an all-or-nothing effort
- Planning activities that may provide the greatest benefit include:
  - *Consulting with interested stakeholders*
  - *Identifying potential debris streams and possible quantities*
  - *Evaluating existing reuse and recycling programs*
  - *Considering waste collection strategies*
  - *Determining locations (or criteria) and capacities for debris management sites*
  - *Selecting potential reuse, composting, recycling, treatment, and disposal facilities*
  - *Creating a debris management-focused community outreach plan*
  - *Addressing health and safety considerations*



# Lessons Learned: Beneficial Practices



- Planning before a disaster occurs
- Contacting waste management facilities to determine what debris they will accept
- Reusing and recycling disaster debris as much as practicable
- Segregating the debris as early as possible

# Lessons Learned: Adverse Practices

- Not working with the whole community
  - *Keeping debris commingled instead of segregating the debris by type, hazard, and/or contamination*
- Not pre-selecting locations or criteria for debris management sites
- Relying on one or only a few debris management facilities



# Disaster Debris Recovery Tool

Disaster Debris Recovery Tool U.S. EPA Region 5 Find address or place

Search DDRT

By Shape By Value Results

Select Search Criteria Clear Fields

All Facilities

Search All Facilities by:

Company Name:

Address:

City Name:

State (Abbr.):

Construction & Demolition Debris Landfill:

Municipal Solid Waste Landfill:

Hazardous Waste Landfill:

Effingham County Transfer Station

Address: 2184 N 300th St  
Mason, IL 62443

Phone #: 618-483-3563

Latitude: 38.9454360

Longitude: -88.7491710

Landfill: (No)

- Construction & Demolition No
- Municipal Solid Waste No
- Hazardous Waste No

Recycle/Recovery: (Yes)

- Construction & Demolition No
- Household Hazardous Waste No
- Metal No
- Tires No
- Vehicles No

Zoom to

<https://www.epa.gov/large-scale-residential-demolition/disaster-debris-recovery-tool>

# Disaster Debris Recovery Tool (DDRT)

- EPA Region 5 developed the DDRT, an interactive mapping dataset of 12 types of recyclers and landfills that manage disaster debris.
  - *Intended users: disaster planning, response, and recovery experts*
  - *Enables responders to find viable recycling options during a response; increasing recycling levels, saving time, money and landfill capacity*
  - *Improves community resiliency after disasters with quicker and less costly recovery*
- States are actively engaged: Illinois EPA has used the DDRT for tornado response
- Tribes within Region 5 have used the DDRT to include recycling facilities in disaster plans and training events.
- The DDRT is included as a resource in EPA's Planning for Natural Disaster Debris guidance.
- As an E-Enterprise initiative, it is scaling up nationally and aims to include all states in the dataset in the EPA GeoPlatform by end of calendar year 2019.



# SMM Web Academy Webinar: Introduction to EPA's Planning for Natural Disaster Debris Guidance

- Melissa Kaps will be providing an in-depth review of the updated Planning for Natural Disaster Debris Guidance document
- June 20, 2019, from 1:00 - 2:00 p.m. ET
- Registration Link:  
<https://register.gotowebinar.com/register/679295174037404163>

# Questions?

*For more information:*

– *Contact:*

- Suzie Boxman [Boxman.Suzanne@epa.gov](mailto:Boxman.Suzanne@epa.gov) or 703-347-8169

– *Visit:*

- ORCR's Managing Materials and Wastes for Homeland Security Incidents website at <https://www.epa.gov/homeland-security-waste>
- ORCR's Sustainable Materials Management website at <http://www.epa.gov/smm>