

Introduction to EPA's Planning for Natural Disaster Debris Guidance

Sustainable Materials
Management (SMM) Web
Academy Webinar

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June 20, 2019

PLANNING
FOR
NATURAL
DISASTER
DEBRIS



Planning for Natural Disaster Debris, April 2019

PLANNING FOR NATURAL DISASTER DEBRIS



- **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
- **Contents:**
 - EPA's comprehensive, pre-incident planning process to help prepare communities for effective disaster debris management
 - 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



Disaster Debris Management Challenges

Larger Quantity of Debris



Wider Variety of Debris



Wider Area of Impact



Change in Public Perception



Possible Natural Disaster Debris Streams



- Asbestos-containing material
- Ammunition and explosives
- Animal carcasses
- Ash
- Asphalt
- Building contents
- Commingled debris
- Construction and demolition (C&D) debris
- Cylinders and tanks
- Electronics waste
- Food waste
- Hazardous waste
- Household hazardous waste
- Lead-based paint
- Marine or waterway debris
- Medical waste
- Metals
- Mixed waste
- Municipal solid waste (MSW)
- PCB-containing waste
- Pharmaceuticals
- Radiological-contaminated waste
- Scrap tires
- Soils, sediments, and sandbags
- Treated wood
- Used oil and oil-contaminated waste
- Vegetative debris
- Vehicles and vessels
- White goods

Natural disaster debris refers to the material and waste streams resulting from a natural disaster

Range of Debris Management Activities

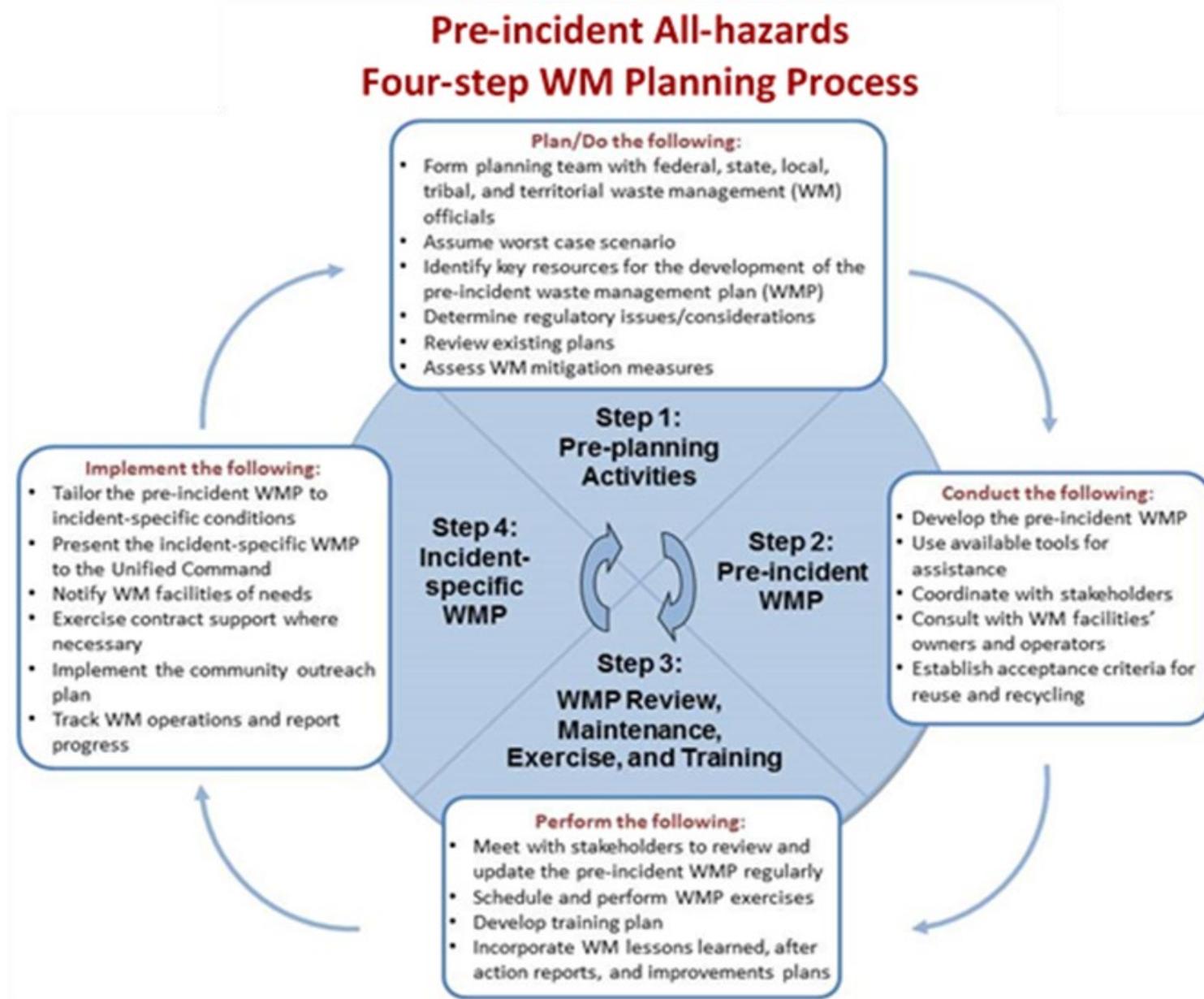
- Estimating debris quantities
- Assessing debris management options
- Triaging debris management
- Segregating debris into different material and waste streams
- Identifying debris management sites and facilities and their available capacities
- Collecting and hauling debris from the field and/or curb
- Removing debris from waterways and sensitive habitats (e.g., shorelines, wetlands, marshes)
- Sampling and analysis of debris
- Characterizing debris, including identifying hazardous waste, for proper management
- Obtaining emergency permits
- Processing debris (e.g., volume reduction, refrigerant removal, asbestos removal)
- Packaging and labeling debris for transport
- Transporting debris to debris management sites and facilities
- Managing debris through reuse, recycling, treatment, and/or disposal
- Monitoring incoming debris at debris management sites and facilities
- Tracking debris from the original deposited point to final destination
- Conducting debris management oversight activities at debris management sites, including:
 - site visits
 - inspections
 - environmental monitoring at
- Communicating with the public about debris collection and other management activities

Benefits of Pre-incident Planning



- Saves valuable time and resources during a response to a disaster
- Allows more efficient, effective, and environmentally responsible waste management decision-making during a disaster
- Encourages stakeholders (e.g., state, local, tribal, and territorial governments, owners of private storage, treatment, and disposal facilities, residents) to work together before a disaster occurs
- Boosts the community's resiliency in the wake of a disaster and positions it for a quicker and less costly recovery to its pre-incident state
- Enhances the community's adaptation to the debris-related impacts of climate change
- Minimally detracts from, or otherwise impacts, the broader response and recovery efforts due to the efficient implementation of debris management activities

Planning Process for Natural Disaster Debris



Step 1: Conduct Pre-planning Activities

- Set up a planning team
- Increase resiliency to natural disasters so that communities:
 - Generate less debris to manage
 - Contain less harmful materials that can be released, which minimizes hazardous debris
 - Recover faster, encouraging residents and businesses to stay in the area
 - Can reduce disruption of critical services, including power and water
 - Spend less money on cleanup and debris management
 - Use fewer resources to rebuild and recover
- Determine all applicable waste management-related regulations, requirements, issues, and considerations
- Identify federal, tribal, territorial, regional, state, local, and organization-specific resources





Step 2: Develop a Comprehensive Pre-incident Debris Management Plan

- What debris streams should your community expect?
- How much debris could be generated in your community by a natural disaster?
- Are there any requirements that will apply to debris management in your community?
- What reuse and recycling options are available inside and outside your community?
- How will the debris be collected, segregated, staged/stored, sampled, packaged, transported, treated, disposed, and monitored?
- Where should temporary debris management sites be located?
- What are the equipment and staffing needs for handling the disaster debris?

EPA's Suggested 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



Step 3: Keep the Debris Management Plan Updated

- The pre-incident debris management plan should be regularly reviewed, exercised, and revised as necessary
 - Are current practices and policies reflected in the plan?
 - Are changes in the community captured?
 - Are lessons learned incorporated?
 - Are there gaps or deficiencies in the plan?
 - Are stakeholders familiar with the content?
- Plan updates may include:
 - Updating capacity information for waste management and recycling facilities
 - Verifying the continued viability of pre-determined temporary debris management sites
 - Adding new reuse, recycling, and composting opportunities
 - Updating contact information officials and waste management facilities
 - Incorporating new contracts or agreements
 - Documenting changes in available equipment and other resources
 - Incorporating new residential and commercial developments
 - Changing debris types and quantities to correspond to changes in the community's character and building stock





Step 4: Implement the Debris Management Plan During a Natural Disaster

- The information in the pre-incident plan should form the basis of the disaster-specific debris management plan
 - Pre-identified waste management facilities should be notified of anticipated needs
 - Pre-negotiated contract support should be exercised where necessary
- The disaster-specific plan should be updated with disaster-specific information:
 - Estimated debris quantities
 - Debris locations
 - Locations of operational debris management sites and facilities

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

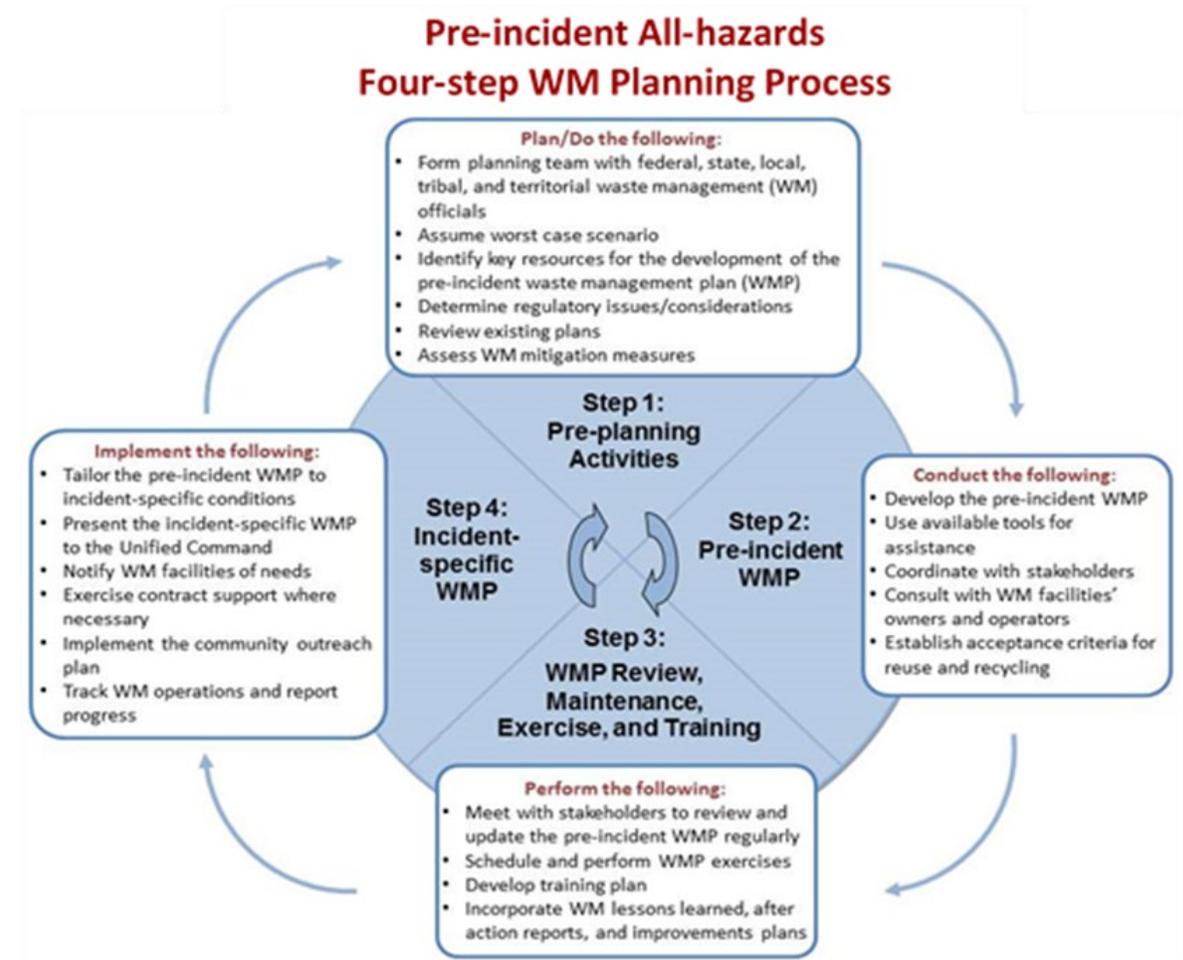
- Not working with the whole community
- Keeping debris commingled instead of segregating the debris by type, hazard, and/or contamination
- Not pre-selecting locations or criteria for debris management sites
- Relying on one or only a few debris management facilities



Additional Resources

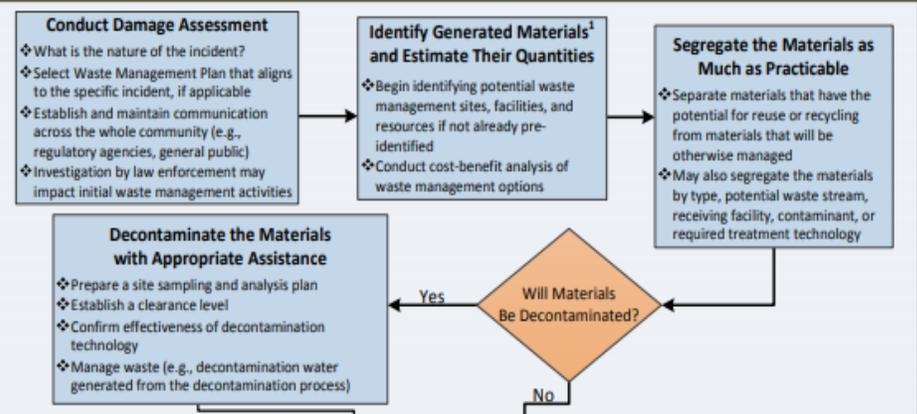
Pre-incident All-hazards Waste Management Plan Guidelines: Four-Step Waste Management Planning Process

- Describes the cyclical and ongoing process of waste management planning for homeland security incidents, including natural disasters
- The four-step waste management planning process:
 - Step 1) Conduct pre-planning activities
 - Step 2) Develop a comprehensive pre-incident waste management plan
 - Step 3) Keep the waste management plan updated
 - Step 4) Implement the waste management plan during a natural disaster
- Provides a suggested outline for an all-hazards waste management plan

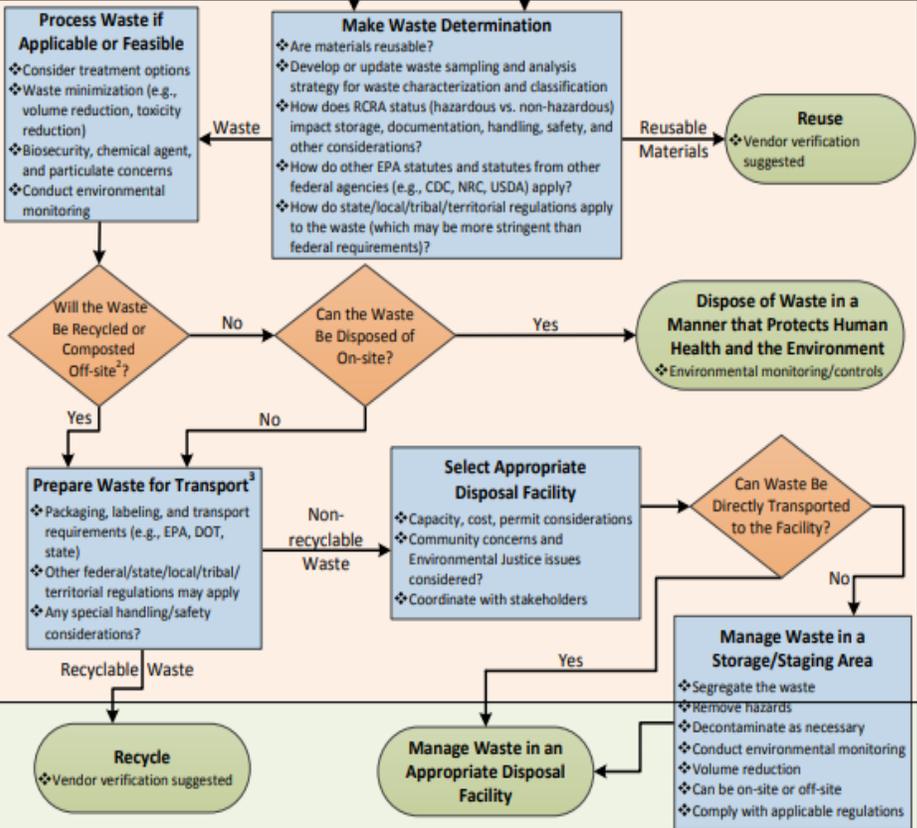


All-hazards Waste Management Decision Diagram

Initial Activities



On-site Activities



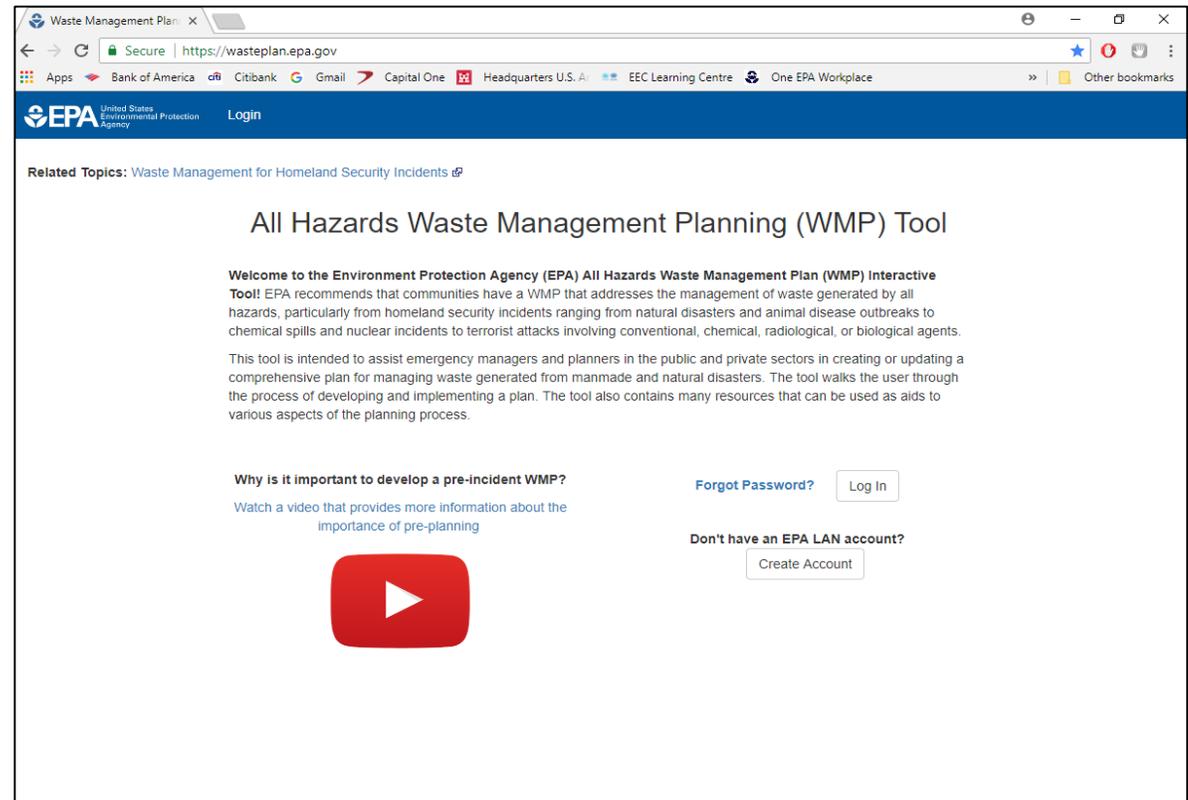
Off-site Activities

¹Material is defined broadly at this point in the process: materials ultimately may be reused, recycled, or disposed of as waste.
²In some circumstances, waste can be recycled (e.g., breaking up and grinding concrete on-site for immediate use in backfill) or composted (e.g., in-house composting of poultry) on-site.
³Waste identified as hazardous would need to meet the RCRA hazardous waste management requirements for transportation, recycling, storage, treatment, disposal, etc.

- Describes the waste management decision-making process during homeland security incidents, including natural disasters
- Provides information to consider when making decisions during an incident response
- Identifies areas where pre-incident waste management planning can be useful

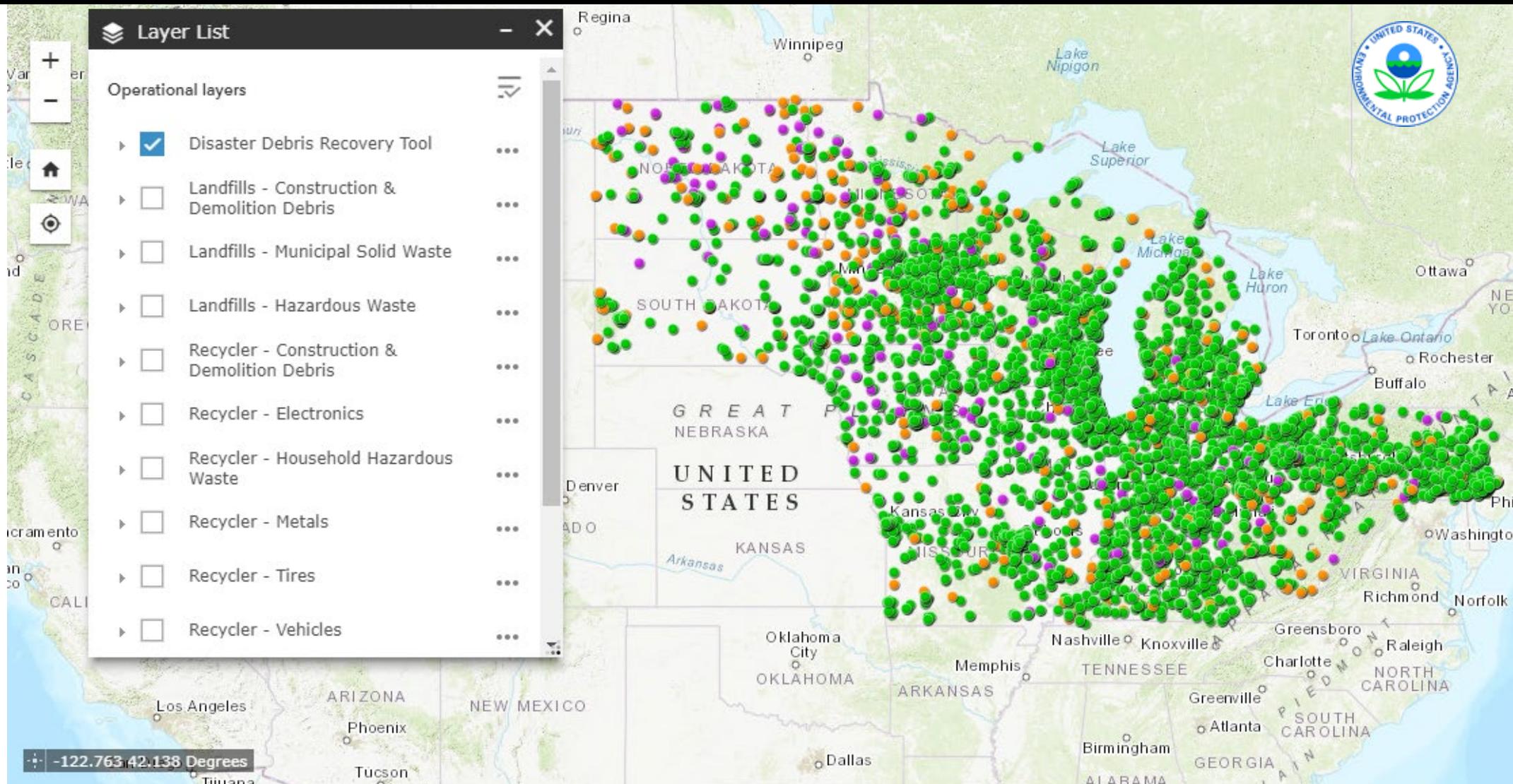
Online Waste Management Planning Tool

- Assists communities with preparing and updating a waste management plan
- Walks through the development of the most critical elements of a plan
- Provides general guidance on plan development and format help
- Contains checklists to help ensure that the user has considered certain critical issues
- Can be downloaded and saved as a Microsoft Word document



<https://wasteplan.epa.gov/>

Disaster Debris Recovery Tool



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

Questions?

For more information:

- Contact:
 - Melissa Kaps at kaps.melissa@epa.gov or 703-308-6787, EPA's Office of Resource Conservation and Recovery (ORCR)
- Visit:
 - ORCR's Managing Materials and Wastes for Homeland Security Incidents website at <https://www.epa.gov/homeland-security-waste>