

# Introduction to EPA's Planning for Natural Disaster Debris Guidance

Sustainable Materials  
Management (SMM) Web  
Academy Webinar

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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

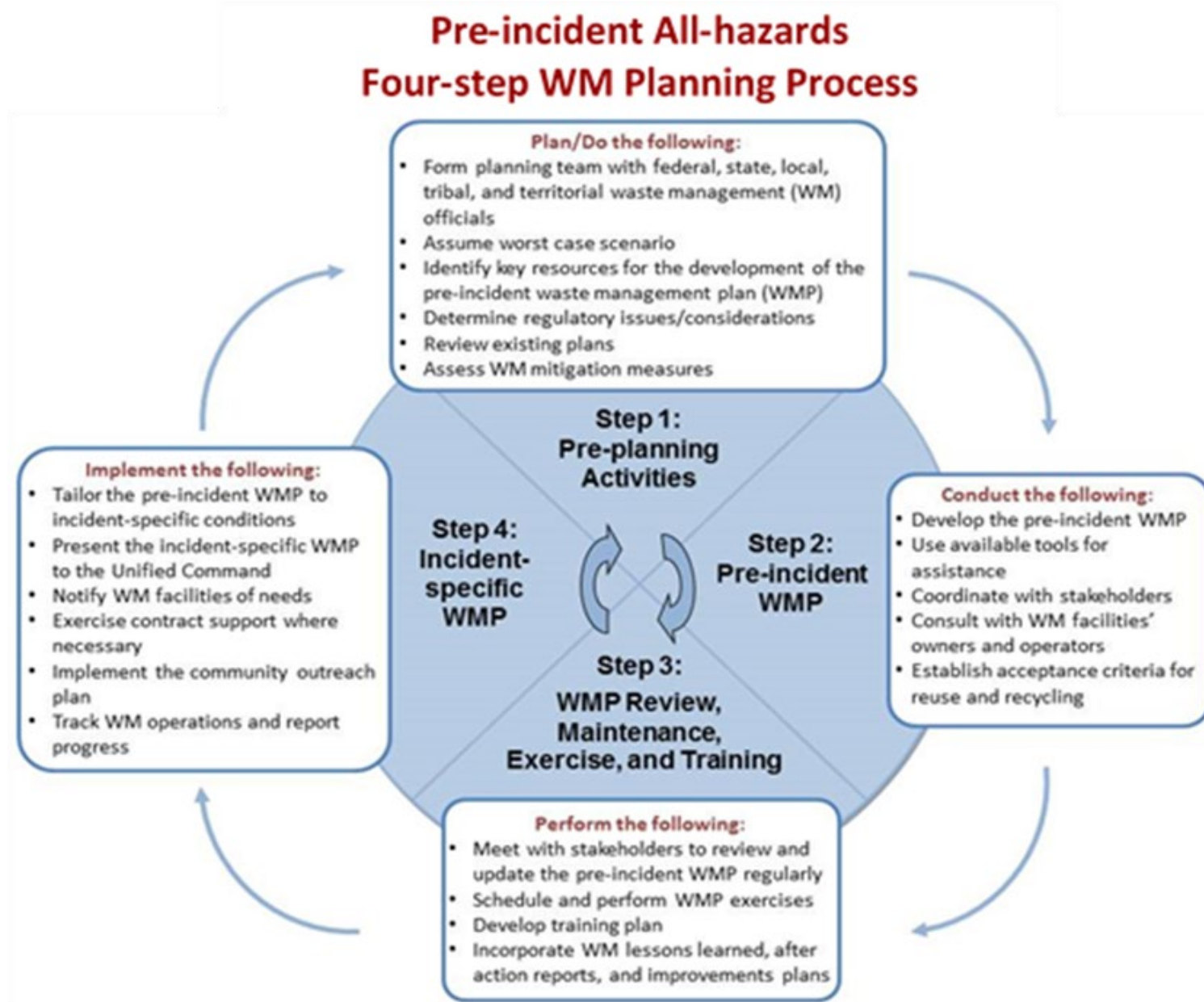


# Benefits of Pre-incident Planning



- 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

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- 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

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- 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

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- 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

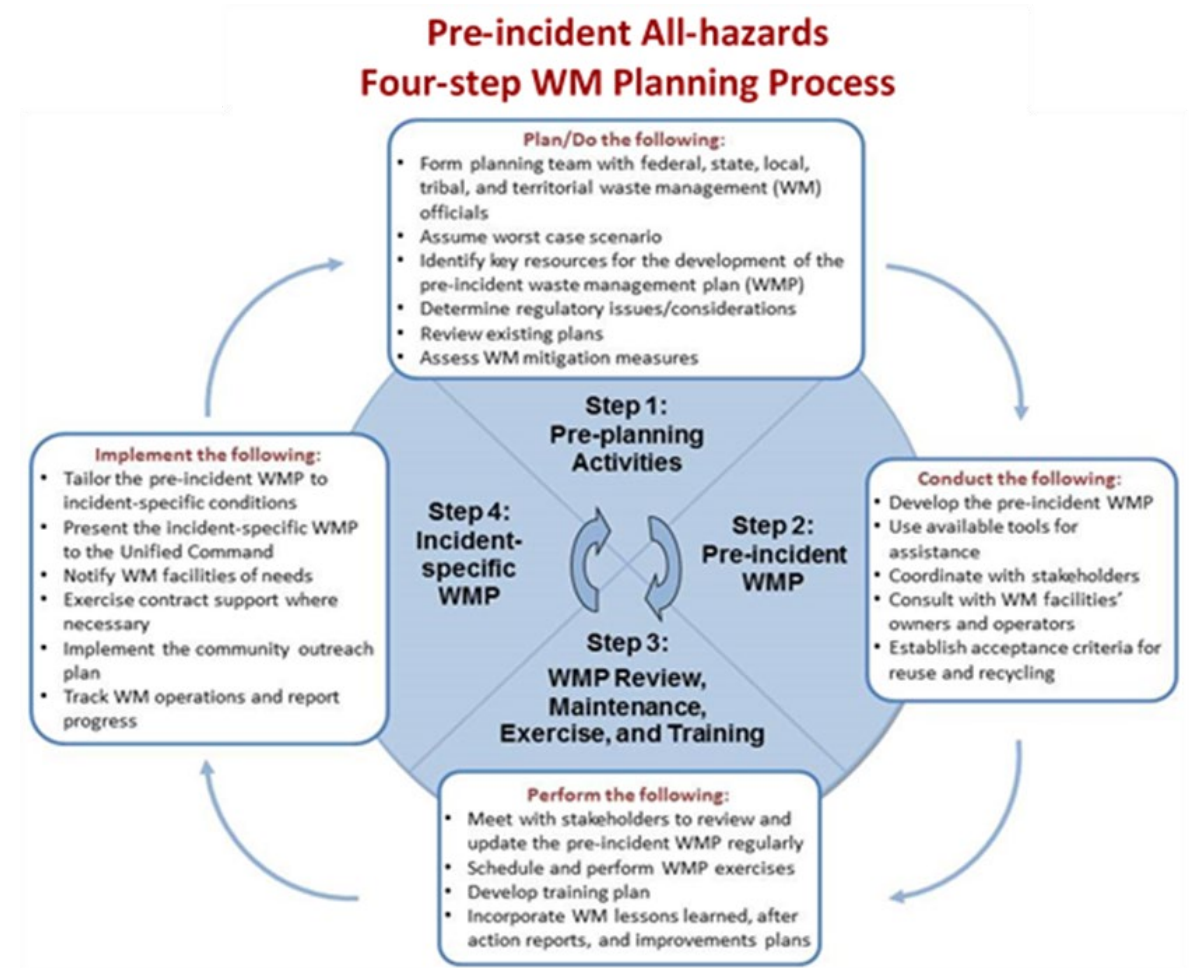


# Additional Resources

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

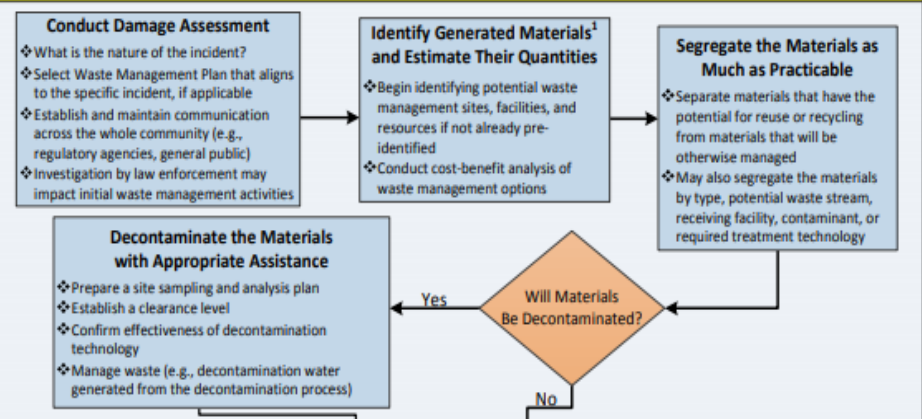
- Describes the cyclical and ongoing process of waste management planning for homeland security incidents, including natural disasters
- The four-step waste management planning process:
  - Step 1) Conduct pre-planning activities
  - Step 2) Develop a comprehensive pre-incident waste management plan
  - 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



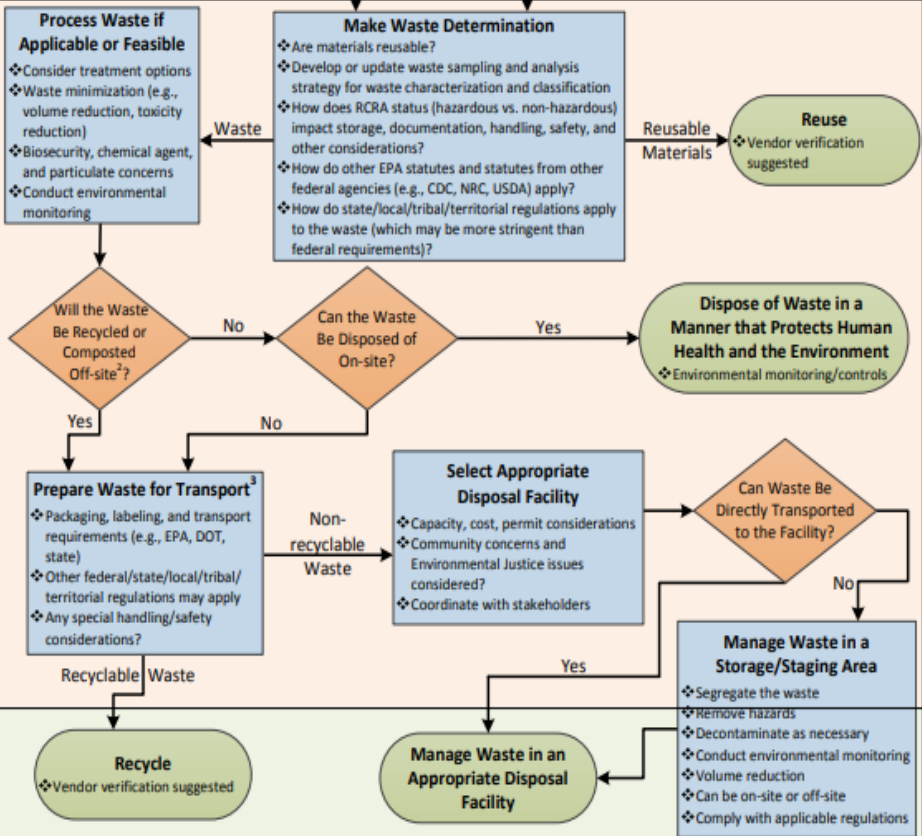


# All-hazards Waste Management Decision Diagram

Initial Activities



On-site Activities



Off-site Activities

<sup>1</sup>Material is defined broadly at this point in the process: materials ultimately may be reused, recycled, or disposed of as waste.

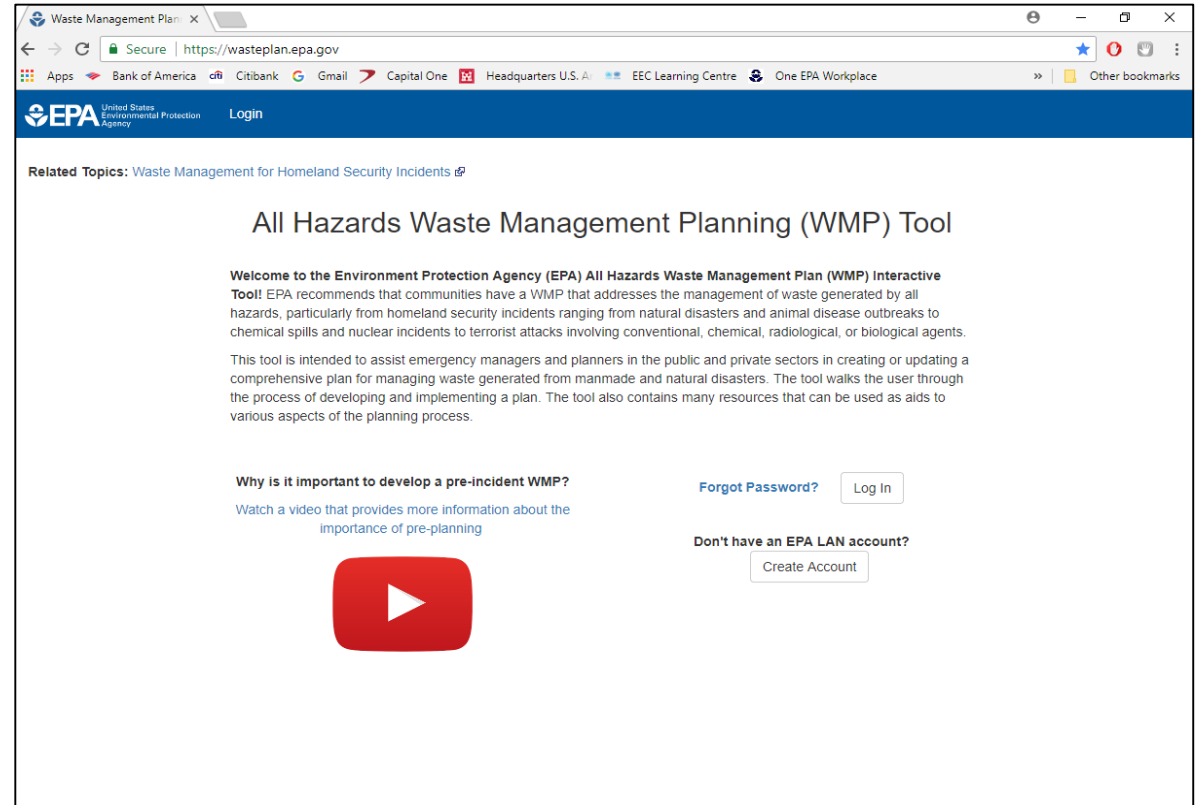
<sup>2</sup>In some circumstances, waste can be recycled (e.g., breaking up and grinding concrete on-site for immediate use in backfill) or composted (e.g., in-house composting of poultry) on-site.

<sup>3</sup>Waste 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

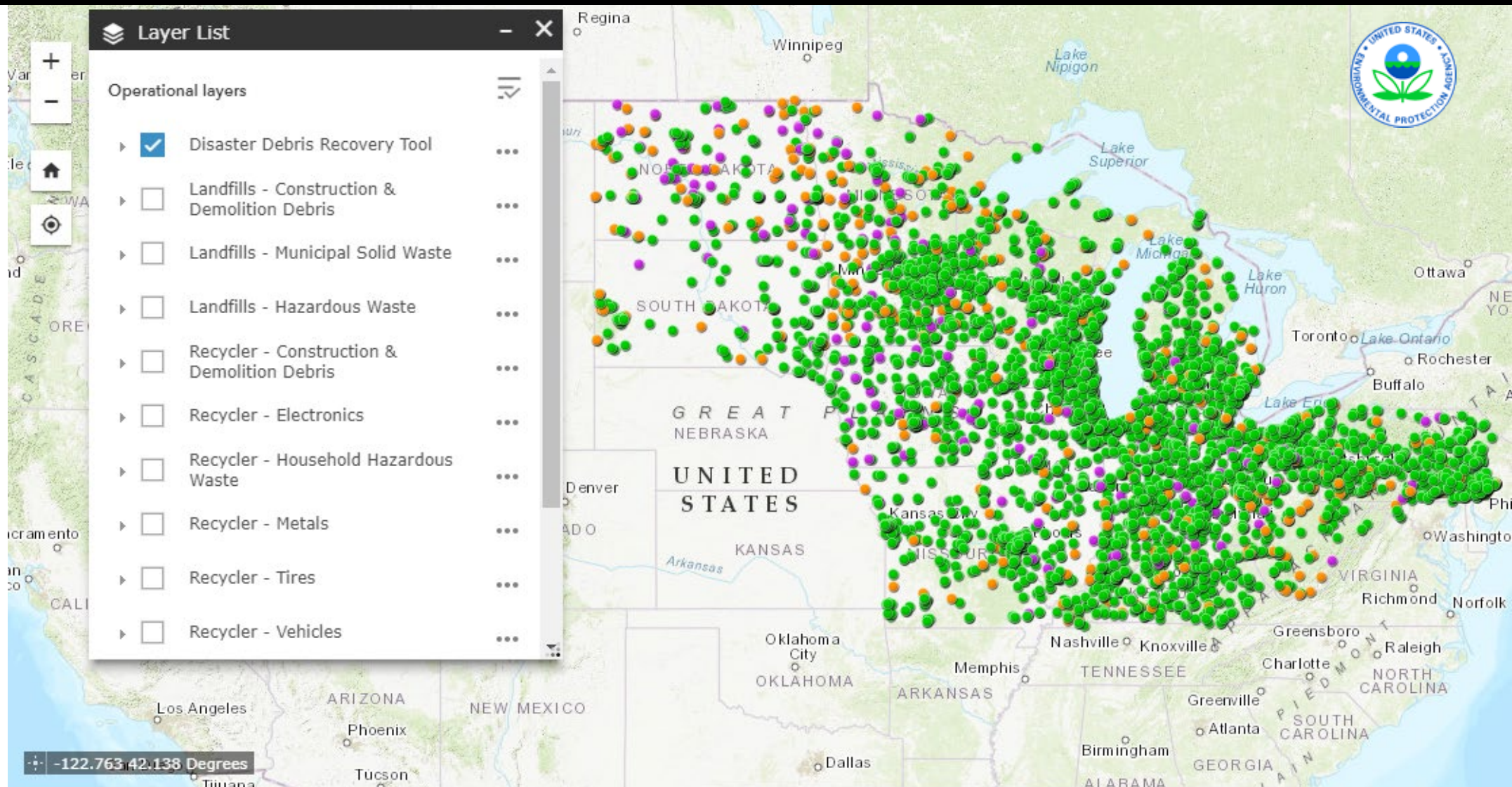
- Assists communities with preparing and updating a waste management plan
- Walks through the development of the most critical elements of a plan
- Provides general guidance on plan development and format help
- Contains checklists to help ensure that the user has considered certain critical issues
- 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](mailto: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>