



**NORTHEAST INDIANA
SOLID WASTE MANAGEMENT DISTRICT**

Serving DeKalb, LaGrange, Noble and Steuben Counties www.niswmd.org
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Local Government Planning
FEMA Compliant
Debris Management Plan

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Keep it in Perspective

- * Remember Commissioners are the administrative body, Council is the fiscal. (usually the EMA is vested w/ responsibility and authority to do Debris Plan.)
- * Relax, this is a process, not a project. Projects have endings, this process does not.
- * One of the reasons; Debris Plan should have training component.
- * As a result create the best “e-trail” possible. “Get outside the issue”, it’s bigger than you and I.

Key Point From Start To Finish

- * The debris management plan is a Coordinating Document to guide response and recovery operations.
- * The Debris management plan is NOT a how-to, step-by-step ops manual.

Key Players in the event of.....

- * Person in charge-either County EMA Director or Highway Department Supervisor
- * Damage assessment teams
- * Debris monitoring teams

Meetings Held

January 2010
March 2010
April 2010
June 2010
August 2010
November 2010
June 2011
July 2011

August 2011
October 2011
March 2012

Who Was Involved?

- * Major Players:
 - * County EMA Directors
 - * County GIS Employees
 - * IN Department of Homeland Security Regional Representative
- * Other Contributors:
 - * Highway departments
 - * Street departments
 - * Various others

Critical Debris Issues

- * Identification of responsible agencies
- * Capabilities of in-house resources
- * Identification of work to be contracted
- * Identification of applicable environmental and historic laws
- * Requirements for FEMA funding

Critical Debris Issues Cont.

- * Types of potential disasters
- * Estimated quantities and types of debris
- * How will debris be:
 - * Collected
 - * Stored
 - * Reduced
 - * Disposed

Don't forget assessment and deployment packages developed

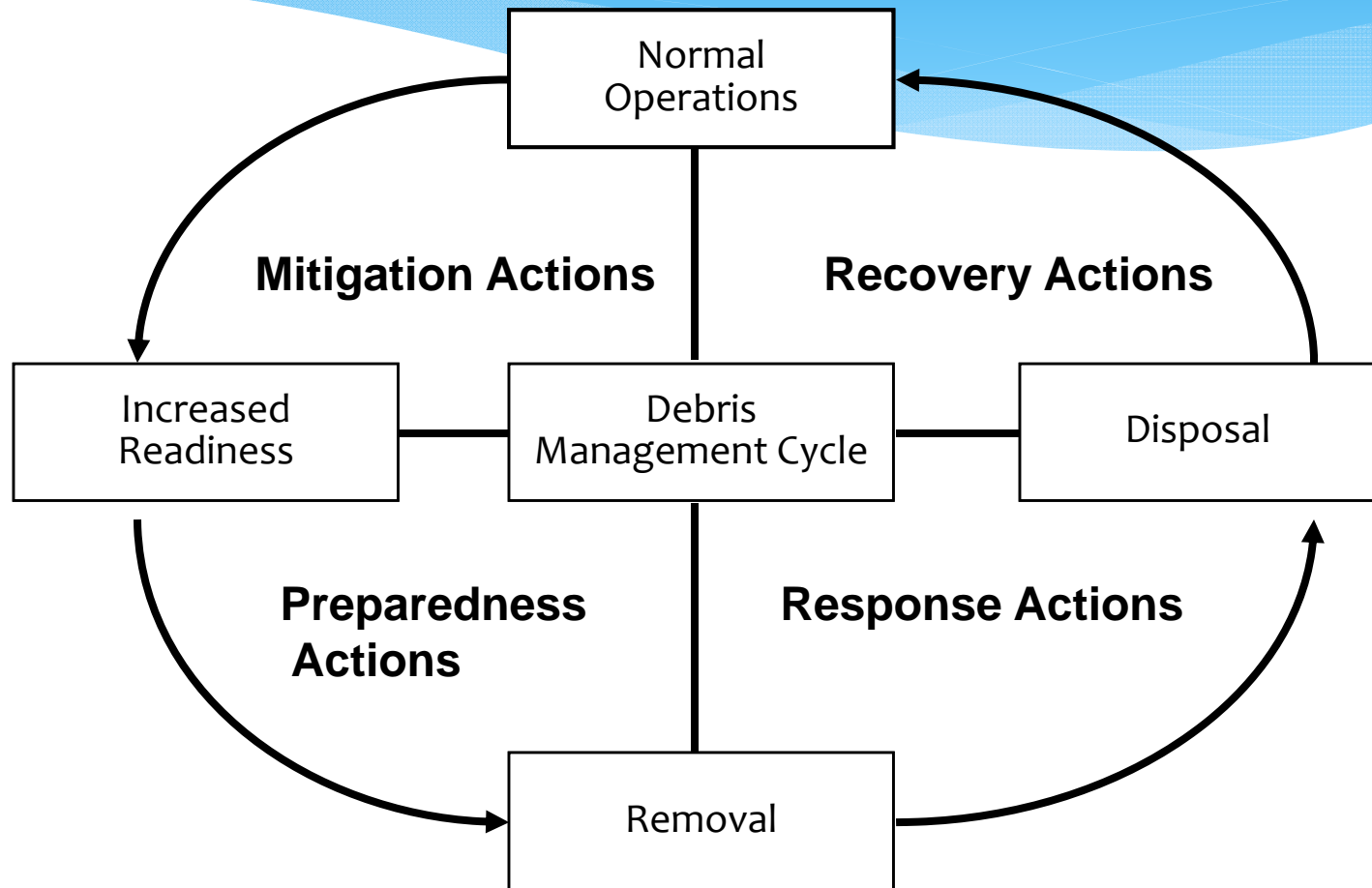
Things to Consider:

- * Emergency routes (GIS plays in here)
- * Rights-of-way
- * Temporary staging areas
- * County-owned equipment
- * Local contractors and equipment
- * Public information methods and messages

Long Term

- * Include Debris Management Planning with routine quarterly or semi annual meetings.
- * Keep once or twice a year training as part of plan update.
- * Seek out in-house resources-there is more available to you than you think.

Debris Management Cycle



What Laws and Regulations Apply?

- * Stafford Act, sections 403, 407, 502
- * Title 44 CFR, section 206.224, 206.225
- * FEMA policies (especially 325)
- * IC 10-14-3 Emergency Management and Disaster Law

Stafford Act Presidential Declaration

- * Get to know FEMA 325
- * Debris assessment is critical
- * Debris monitoring is even more critical because of FEMA reimbursement documentation requirements- have load tickets printed up and ready to go (3 part copies)
- * Have pre-established contracts similar to snow removal under blizzard conditions.

Natural vs. Human Caused Disasters

Natural Disasters

- Hurricanes and Typhoons
- Floods
- Earthquakes
- Tsunamis
- Tornados
- Wildfires
- Ice Storms
- Volcanoes

Human Caused

- Oil and Chemical Spills
- Transportation and Industrial Accidents
- Deliberate Release of Chemical, Biological or Radiological Materials

General Characteristics of Wastes Produced in Natural Disasters

- Extremely large quantities produced in very short time periods
- Overwhelm waste management infrastructure
- Dispersed over very large areas
- Toxic and hazardous materials pose threats to health and the environment
- Interfere with emergency response, transportation, access to critical facilities
- Require regional or national response
- Must be planned for in advance

Wastes Produced by Natural Disasters

- Destroyed Buildings and Structures (C&D Debris)
- Fallen Trees and Vegetative Debris
- Furnishings, Appliances and Personal Property
- Destroyed Vehicles
- Displaced Soil and Sediments
- Animal Carcasses
- Hazardous Waste

Sediment



Destroyed Houses



Construction and Demolition

Burnt Structures



Vehicles



Personal Property on Private Property



Debris on Private Property



Household Hazardous Waste



Vegetation



Clean Woody Debris



White Goods



Road Side Debris Pile



Animal Carcasses



Kids, We R OK Send Money M&D



Elements of a Disaster Waste Management Plan

1. Identify Waste Types and Estimate Waste Quantities
2. Define Responsibilities
3. Inventory Current Capacity
4. Identify Temporary Storage Sites
5. Establish Debris Removal Strategy
6. Establish Waste Prevention Strategy
7. Establish Communication Plan
8. Identify Harmful Materials
9. Inventory Equipment and Administrative Needs
10. Establish Regulations, Agreements and Contracts

1. Identify Waste Types and Estimate Waste Quantities

- Previous Experience and Experience in Other Communities
- Forecast Tools/Models
- Factors:
 - Location and geography
 - Storm wind intensity
 - Rainfall intensity
 - Household density
 - Commercial density
 - Vegetation density

2. Define Responsibilities for Waste and Debris Management

- National, Regional and Local Agencies and Departments
- Functions Include:
 - Engineering
 - Administration
 - Legal
 - Operations
 - Contract and Procurement
 - Communication
- Contracts in Place with Companies Experienced in Handling and Processing Disaster Debris

3. Inventory Current Capacity for Waste Management

- **Recycling, Composting, Combustion and Disposal Facilities**
- **Permitted Capacity for Different Types of Wastes**
- **Facilities Outside of Immediate Area**
- **Transfer and Transportation Needs**
- **Mutual Aid Agreements with Neighboring Communities**

4. Identify Temporary Waste Storage and Processing Sites

- Debris Likely to Exceed Existing Capacity
- Pre-select Temporary Sites for Storing, Sorting, Transferring and Processing of Debris
- Closed Landfills, Industrial Facilities, Military Bases, Parks
- Establish Regulatory and Permitting Requirements

5. Inventory Equipment and Administrative Needs

- **In Advance, Identify Necessary Equipment and Supplies**
- **Equipment for Debris Processing**
- **Equipment for Administrative Purposes:**
 - **Office, Lodging and Sustenance,**
 - **Communication and Monitoring Equipment**
- **Fuel Needs and Fueling Facilities**

6. Create a Debris Removal Strategy

- **Priorities for Clearing and Removing Debris**
- **High Priority:**
 - Debris that Hinders Life Saving Actions
 - Debris that Poses Threats to Health and Safety
- **Clear Access Routes for Emergency Vehicles, Law Enforcement, Critical Services and Utilities**
- **Open Important Community Facilities**

9. Identify Harmful Materials

- **Examples: Asbestos, PCBs, Explosives, Flammable Substances**
- **Household Hazardous Waste: batteries, pesticides, solvents, compressed gas containers, automotive fluids**
- **Identify, Separate and Dispose of Properly**
- **Identify Regulatory Requirements**

10. Establish Regulations Agreements and Contracts

- All Regulations that Govern Waste Handling
- Listing of Regulatory Officials
- Opportunities for Financial Aid and Eligibility and Application Process
- Mutual Aid Agreements e.g. for Loan of Equipment and Personnel
- Pre-disaster Contracts for Services

Waste and Debris Management Technologies

- Volume Reduction
- Reuse and Recycling
- Waste-to-Energy
- Landfill Disposal

Volume Reduction Technologies

- **Grinding and Shredding of Woody Debris**
 - Mulch, Wood Chips or Fuel
- **Metal Baling for Recycling**
- **Incineration**
 - Open Air
 - Air Curtain Pit Incinerators
 - Environmental Standards and Safeguards?

Grinding and Chipping Equipment



Tub Grinder



Brush Chipper

Mulch



Unsuitable Mulch



Suitable Mulch

Metal Recycling



Baled Metal



Metal Mauler

Air Curtain Pit Incinerator

- No Industrial Standards
- Need Manufacturer Data
- Design Considerations:
 - Minimum blower air velocity
 - Pit construction configuration
 - Pit material
 - Ash handling
 - Smoke levels
 - Air monitoring



Air Curtain Burn Pit in Operation



Recycling and Reuse

- **Identify Markets in Disaster Management Plan**
- **Vegetation → Compost, Mulch, Fuel**
- **Demolished Buildings**
 - **Masonry and Concrete → Aggregate**
 - **Lumber → Mulch and Boiler Fuel**
 - **Asphalt Shingles → Asphalt Pavement and Cement**
 - **Gypsum Drywall → Drywall and Cement**
- **Food Waste → Compost**
- **Metals → Metals**
- **Repair and Reuse of Equipment**

Waste-to-Energy

- **Burn Combustible Waste to Produce Energy:**
 - Steam and Electricity
- **Reduce Landfill Volume by 85 to 90 %**
- **Subject to Strict Environmental Standards**
- **Additional Storage Capacity May Be Needed**
- **Consider Industrial Furnaces and Boilers and Cement Kilns**
- **May be Available Locally**

Landfill Disposal

- **Residues Remaining Can Be Disposed in Municipal Waste Landfill or a C&D Landfill**
- **Municipal Waste Landfill**
 - Stringent Environmental Safeguards
 - Requirements Specified in an Operating Permit
- **C&D Landfill**
 - Less Stringent Standards
 - Suitable for Cleaner Residue
 - Gypsum Wallboard disposal may Produce H₂S

Conclusions

- **A Disaster Waste Management Plan will Significantly Improve the Speed and Quality of the Response**
- **All Elements of the Plan Need to be Addressed Beforehand**
- **Affected Communities Believe that Their Disaster Waste Management Plan Gave them an Important Place to Start and Made them Better Prepared**

Conclusions

“The speed of initial debris clearance, removal and disposal operations depends upon the depth of pre-disaster planning...debris clearance, removal and disposal activities are a visible sign of action that helps restore a sense of normalcy to a stunned community.”

Federal Emergency Management Agency 2007



Separating Your Debris

Debris should be placed curbside, without blocking the roadway or storm drains.

NO PICKUP ZONE

Any debris placed from the sidewalk toward your property will not be picked up.

DEBRIS SEPARATION

Separate debris into the six categories shown below.

DO NOT STACK OR LEAN

Placing debris near or on trees, poles, or other structures makes removal difficult. This includes fire hydrants and meters.

UNSURE WHERE TO PLACE DEBRIS?

If you don't have a sidewalk, ditch, or utility line in front of your house, place debris at the edge of your property before the curb.



Normal Household Trash

Normal household trash and bagged debris of any kind will not be picked up with debris as part of this program. You should continue to follow your normal garbage removal schedule.



VEGETATIVE DEBRIS

- Leaves (do not put in bags)
- Logs
- Plants
- Tree branches



CONSTRUCTION & DEMOLITION DEBRIS

- Building materials
- Carpet
- Drywall
- Furniture
- Lumber
- Mattresses
- Plumbing



APPLIANCES & WHITE GOODS

- Air conditioners
- Dishwashers
- Freezers
- Refrigerators
- Stoves
- Washers, dryers
- Water heaters



ELECTRONICS

- Computers
- Radios
- Stereos
- Televisions
- Other devices with a cord



HOUSEHOLD HAZARDOUS WASTE

- Cleaning supplies
- Batteries
- Lawn chemicals
- Oils
- Oil-based paints and stains
- Pesticides

City of Houston
Solid Waste Management

For more information visit
www.houstonsolidwaste.org



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NOTE: This plan has been formatted to comply with Appendix A of FEMA Public Assistance Debris Management Guide, *FEMA 325, July 2007*.

This plan has been written for Steuben County by the Northeast Indiana Solid Waste management District—Steven P. Christman, QEP, Executive Director