Recovery Requires Debris Removal
Debris Removal
Session Overview

(A) Importance to Recovery

(B) Adopting a Process

(C) Actions to Execute

(D) Conclusion
Importance of Debris Plan

- Reduces time needed to identify debris management options.
- Reduces danger by identifying hazards.
- Who will mitigate.
- How to mitigate.
- Saves money by avoiding rushed decisions that could result in costly mistakes.
Importance of Debris Plan

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- **Reduces danger** by identifying
  - hazards
  - who will mitigate
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[http://www.epa.gov/osw/conserve/imr/edm/debris.htm](http://www.epa.gov/osw/conserve/imr/edm/debris.htm)
Template for Debris Removal

Typically, the debris removal recovery phase begins after the emergency access routes are cleared and police, firefighters, and other first responders have the necessary access.

FEMA Handout

SWANA Handout

Seattle Checklist Handout
Priorities for Debris Removal

#1 priority: Clear debris from key roads

#2 priority: access to critical facilities

#3 priority: Eliminate debris related threats to health and safety
Debris Types: Household

• Furniture
• White goods
• Food (Biohazards)
Debris Types: Construction

- Concrete
- Asphalt
- Metal
- Brick
- Wood
- Drywall

Review: Debris Types

Byproducts of Disaster Event

- Old Tires
- Old Appliances
- Vegetative
- Sediment
- Soil
- Biohazards

Actions

Calculating Debris

FEMA conducted an empirical study following Hurricane Floyd in North Carolina in 1999, and developed a formula for estimating debris associated with demolished single family residences.

Length x Width x S x 0.20 x VCM = CY

\[ S \quad = \text{number of storeys} \]
\[ VCM \quad = \text{Vegetative Cover} \]


Table for Single Family, Single Story Homes

<table>
<thead>
<tr>
<th>Typical House (Square Feet)</th>
<th>Vegetative Cover Multiplier</th>
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<tbody>
<tr>
<td></td>
<td>None</td>
</tr>
<tr>
<td>1000 SF</td>
<td>200 CY</td>
</tr>
<tr>
<td>1200 SF</td>
<td>240 CY</td>
</tr>
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<td>280 CY</td>
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<td>320 CY</td>
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<tr>
<td>2400 SF</td>
<td>480 CY</td>
</tr>
<tr>
<td>2600 SF</td>
<td>520 CY</td>
</tr>
</tbody>
</table>
Calculating Debris

To estimate the amount of debris generated by a building in cubic yards:

\[
\text{Length} \times \text{Width} \times \text{Height} \times 0.33 = \text{CY}
\]
Calculating Debris

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\[ \text{Length} \times \text{Width} \times \text{Height} \times 0.33 = \text{CY} \]

27
Calculating Debris

Table for Single Family, Single Story Homes

<table>
<thead>
<tr>
<th>Typical House (Square Feet)</th>
<th>None</th>
<th>Light (1.1)</th>
<th>Medium (1.5)</th>
<th>Heavy (1.5)</th>
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</thead>
<tbody>
<tr>
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</tbody>
</table>

Length x Width x Height x 0.33 = CY

http://www.sepa.ca/planning-tools.html

Actions

Sunday, March 17, 2013
Damage Assessment

- Situational Awareness
- Establish Priorities
- Efficient Resource Use
• Situational Awareness
• Establish Priorities
• Efficient Resource Use
Ushahidi: Situational Awareness

- Haiti Earthquake

the most common use was in support of situational awareness for strategic, operational and tactical organizations.

- 20,000 reports in first hours
- 25,000 per day
Ushahidi: Local Experience

Actions

Sunday, March 17, 2013
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http://www.epa.gov/osw/conserve/imr/cdm/debris.htm


http://www.swananorthernlights.org/

http://www.sepa.ca/planning-tools.html

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