



# Dealing with Debris 101

After the storm has passed and floodwaters recede, the debris that remains can cause serious pollution problems and poses risks to public health and safety. The complexities of removing, processing and disposing of various types of debris presents a tremendous challenge to people who are already stressed by disaster response. In places where debris repeatedly causes flooding by damming ditches, bridges and culverts, measures can be taken in advance of storm events to clear and remove obstructions during periods of high water.

## Why it Matters

Beyond the high cost of cleaning up debris after a major disaster, large amounts of debris can threaten public health and safety by harboring rodents and disease, pose fire hazards, increase exposure to contaminated solid and hazardous waste, jam waterways leading to greater flooding and block road access for emergency and repair vehicles, as well as those bringing vital supplies. Clean-up operations not only improve general sanitation but are important signals to the public that recovery and restoration is underway.

## How to Deal with Debris

The wide variety of debris that lands on property after a flood poses significant challenges for removal. Debris can include muck and mud, yard debris and fallen trees, appliances, building materials, spoiled food, dead livestock, hazardous waste, tanks/gas cylinders and more. As feasible, debris should be segregated at the points where it accumulates into the following categories to allow for proper size reduction, recycling, composting, or disposal of the particular waste stream:

- ➔ Vegetative waste
- ➔ Construction and demolition waste
- ➔ Household hazardous waste

## DEBRIS TEAMS – A STATE SOLUTION THAT WORKS

Debris was a hot topic following Tropical Storm Irene with questions ranging from what material to remove and how, to who is responsible for debris removal, to how to recover the expense and whether FEMA would cover removal costs. To complicate matters, the type of debris – gravel, woody, or building material – could impact the response and solution.

In order to help communities manage the questions of what to do with woody debris, the Agency of Natural Resources, in partnership with the Agency of Transportation, initiated ‘Debris Teams’ to assess streams that had woody debris and to answer questions on removal and the potential impacts on the community. Response times to requests were quick – teams generally arrived and responded in less than a week after a call. Most communities were concerned about debris causing future jamming of the waterway and subsequent flood damage so the team was able to evaluate and determine whether the debris was better left in place or removed.

- Municipal solid waste with obnoxious odors and capable of attracting animals
- Household appliances
- Scrap metal
- Soil, sediment, silt and sand
- Electronic waste (e-waste)

Separating the debris into these categories before moving it, can reduce cost and result in more efficient reuse and disposal. For example, keeping clean woody debris separate enables it to be chipped for mulch, processed for fuel, or converted into compost bulking agent. Once different types of debris become comingled, it is very difficult to separate them into clean, recyclable or reusable sub-components. The only option for mixed debris is landfill and disposal capacity in Vermont and throughout the Northeast United States is limited and expensive.

Individuals may be able to handle their own debris clean up if it can be removed by hand on small properties, but when large amounts of debris need to be removed, individuals will need to find private waste haulers and contractors with heavy equipment to do the work. Municipalities may also need to hire private haulers and contractors to assist with removing debris.

### Leaving Woody Debris in Streams

Fallen trees and other large woody debris can be beneficial to streams and rivers systems, as they increase the roughness of the stream channel that can slow rushing stormwater and reduce the water’s power to damage stream beds and banks. In addition, large woody debris is important to fish habitat and provides critical ecological benefits. During major storms or in narrow confined valleys where damming from accumulated debris can create serious damage to roads and crossing structures, removing this type of debris may be necessary, but in most situations large woody debris should be left in place. Contact the [Department of Environmental Conservation Rivers Management Engineer serving your area](#) for advice on whether or not large wood, gravel and other natural debris should be removed from stream channels.

| DEBRIS REMOVAL   | WHO IS RESPONSIBLE?   |
|--|---|
| On private property  | Individual Landowners   |
| On local roads, rights-of-way and public buildings and facilities  | Municipality  |
| Planning for statewide debris management (Comprehensive Debris Management Annex to the VT State Emergency Operations Plan) | Agency of Natural Resources and <a href="#">Vermont Division of Emergency Management and Homeland Security</a>    |
| Planning for local debris removal  | Municipality  |
| Guidance on solid waste disposal   | Your local <a href="#">Solid Waste Management District</a> or <a href="#">ANR Solid Waste Management Division</a> |
| Guidance and permits on removal of natural debris from streams and rivers  | <a href="#">Vermont Department of Environmental Conservation Rivers Program</a>                                   |

Stream alteration statutes were changed after Irene to require an ANR approval for all instream debris removal activities involving more than 10 cubic yards of gravel and debris. For details see [technical guidance on sediment and debris removal](#) (pages 129-148) from the Rivers Program.