



Construction and Demolition Waste Management at UVM



Definition of C&D Waste

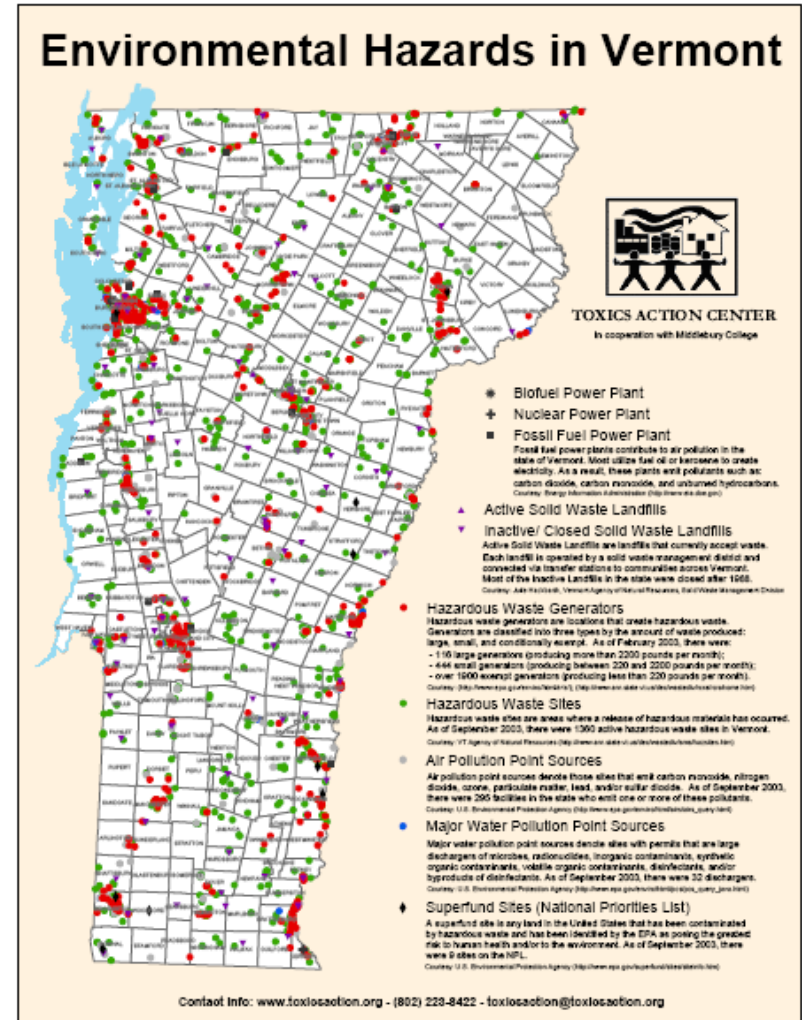
“Waste material that is produced in the process of construction, renovation, or demolition of structures. Structures include buildings of all types (both residential and non-residential) as well as roads and bridges. Components of C&D debris typically include concrete, asphalt, wood, metals, gypsum wallboard and roofing”.

-EPA



Background: Environmental Impacts

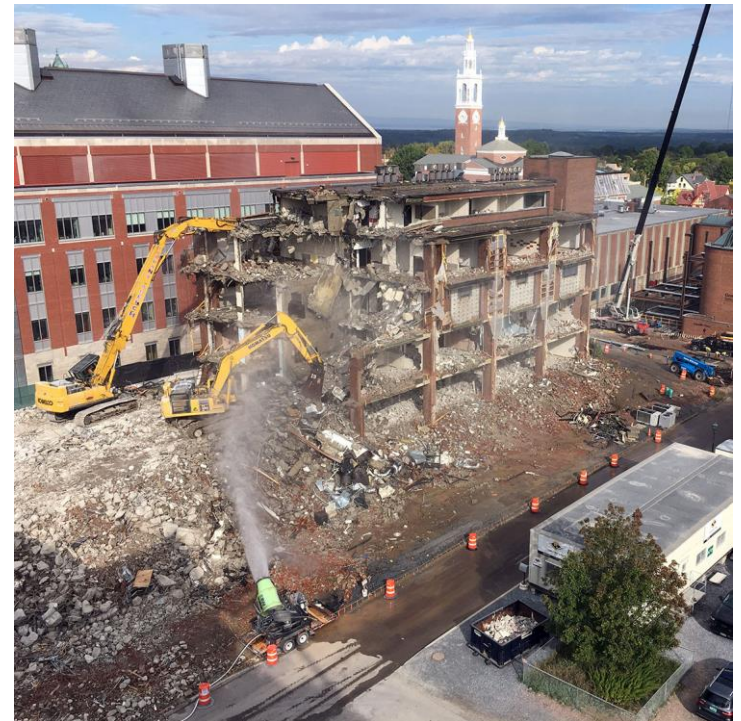
- Landfill leaks
- Methane gas generation
- Energy lost by not recycling / re-claiming materials
- Transportation: greenhouse gas emissions





Background: Construction and Demolition Waste Opportunities

- Divert as much material from the landfill as possible.
- Construction and demolition waste is 20-40% of the waste stream going to landfills nationally
- C+D waste is being generated at UVM everyday; we estimate there are nearly one hundred active projects on campus on any given day.

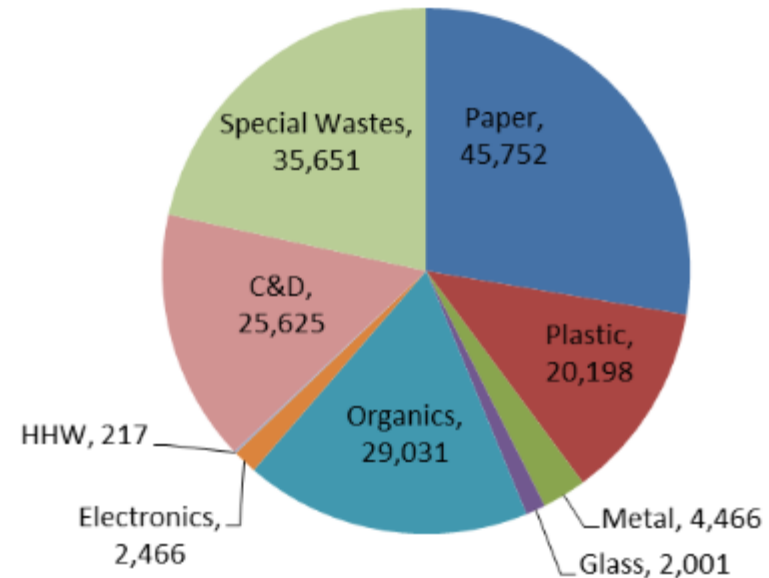




Key Terms

- Construction waste- waste generated while constructing a new building or structure
- Demolition waste- waste generated while taking down an existing building or structure
- Deconstruction- the taking apart of an existing building so that materials can be re-used elsewhere

FIGURE ES-4:
ESTIMATED 2011 DISPOSAL OF ICI WASTE
BY MATERIAL TYPE (In Tons)

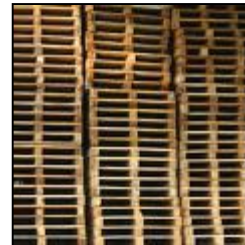


<http://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/finalreportvermontwastecomposition13may2013.pdf>



Typical C&D Waste Materials

- Asphalt, Asphalt Shingles
- Carpet
- Carpet padding
- Clean wood/pallets
- Concrete
- Corrugated cardboard





Typical C&D Waste Materials



- Gypsum (drywall)
- Land clearing debris
- Scrap metal
- Salvage
- Other...



Requirements at UVM

- The waste management plan will be based on LEED[®] guidelines for C+D waste management and the Vermont Act 250 permit application
- The plan must divert at least 90% of waste generated from new projects, and at least 50% from renovation projects
- Workers must view training presentation as part of job site orientation



Requirements apply to all projects

- Major projects: new buildings, major renovations
- Minor projects: short term or partial building projects
- Ongoing renovations: Physical Plant routine maintenance and renovation



LEED Requirements

- The Leadership in Energy and Environmental Design (LEED®) Green Building Rating System is the nationally accepted benchmark for the design, construction and operation of high performance green buildings.
- It gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance, by promoting a whole-building approach to sustainability.



LEED Requirements

- LEED certification is required for all capital projects and major renovations at UVM
 - According to the 2007 “Environmental Design in New and Renovated Buildings” Policy, UVM projects must achieve a required ‘Silver’ certification level.
- In the LEED BD+C v.4 Rating system, there are up to 3 points available for Construction and Demolition waste diverted from the landfill. See next slide for details.



Materials And Resources Credit: Construction and Demolition Waste Management Requirements

1) 1 point *Prerequisite*

2) OPTION 1. DIVERSION (1–2 POINTS)

- Path 1. Divert 50% and Three Material Streams (1 point)
- Divert at least 50% of the total construction and demolition material; diverted materials must include at least three
- material streams.

OR

- Path 2. Divert 75% and Four Material Streams (2 points)
- Divert at least 75% of the total construction and demolition material; diverted materials must include at least four material streams.

OR

3) OPTION 2. REDUCTION OF TOTAL WASTE MATERIAL (2 POINTS)

- Do not generate more than 2.5 pounds of construction waste per square foot (12.2 kilograms of waste per square meter) of the building's floor area.



Demolition/Deconstruction and New Construction Requirements

- Collection containers must be on site and labeled clearly before demolition can begin
- Waste must be separated into appropriate categories
- Labeled bins will remain on site for waste generated in new construction
- All waste shipped off-site must be tracked in LEED database