

C&D Recycling and Deconstruction in the Southeast

Southeast Recycling Conference &
Tradeshow
Orange Beach, Alabama
March 13, 2007

Overview

- Defining Construction and Demolition Debris (C&D)
- Why focus on C&D Recycling and Deconstruction?
- U.S. EPA's Role Nationally
- Deconstruction Examples
- EPA Region 4 Initiatives
- Resources/Contacts

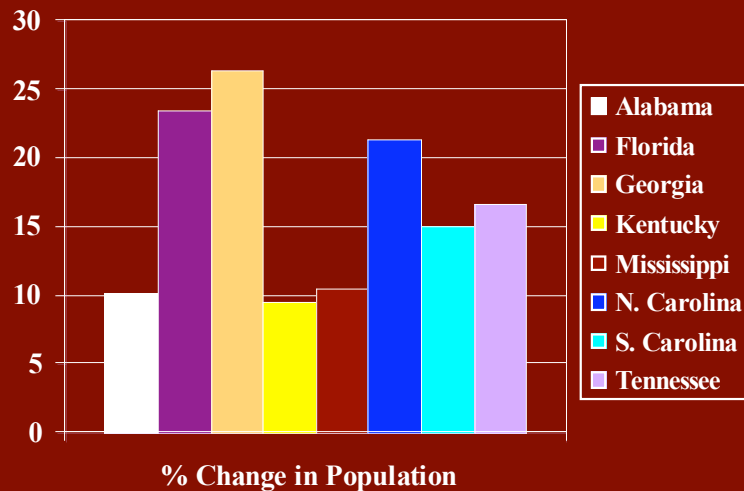
Defining C&D Debris

- **Building waste -- from construction, renovation and demolition**
- Transportation waste -- from construction and demolition of roads, bridges, etc.
- Land clearing waste -- from clearing land for new construction
- Disaster waste -- from natural disasters, hurricanes, flooding, etc.

Why This Region 4 Focus?

- High Growth is Southeast
- Large Percentage of Total Waste Stream
 - 25-40% of the waste stream
- Largely Untapped for Recovery
- Environmental Concerns
- MANY unanswered questions....

Population Growth Increase 1990-2000



Other Populations Facts

- Currently over 53 Million people in Region 4
- Increased by over 10 Million in past 10 years
- Prior to 911
 - Florida - gaining over 1,000 new residents per/day
 - Atlanta - gaining over 300 new residents per/day

C&D: Environmental Issues

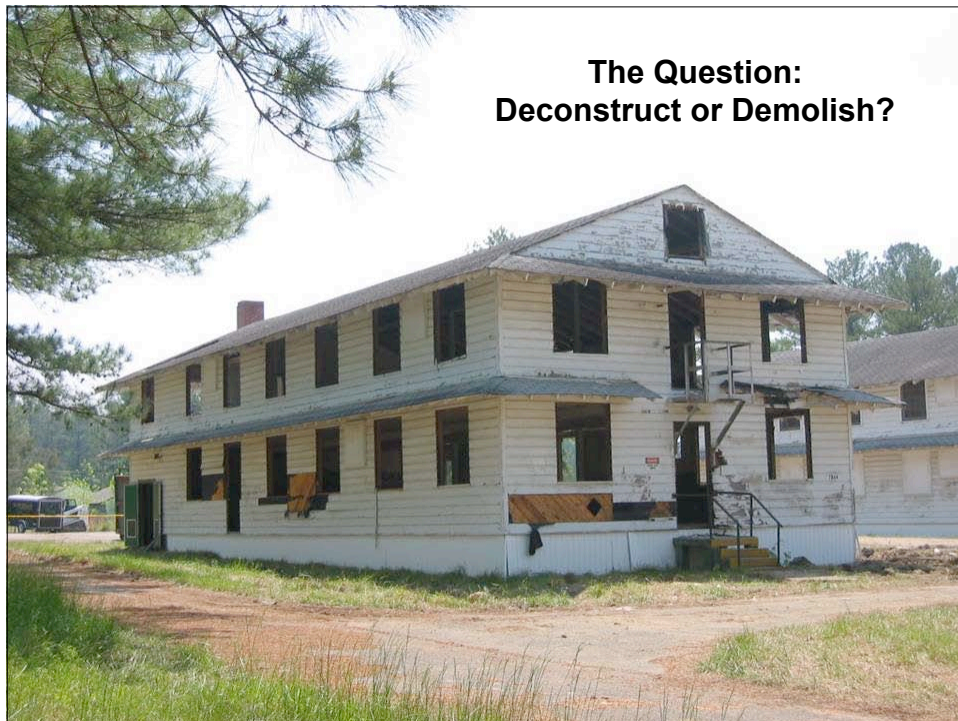
- Acute hazards (lead-based paint, asbestos)
- Disposal impacts (landfilling, incineration)
- Resource depletion
- Global climate change (manufacturing impacts, landfill emissions)

U.S. EPA Role

- Characterization
- Research and Development on C&D Reduction and Recovery
- Recycling Market Development
- Information Dissemination and Implementation

C&D Characterization

- EPA Building-Related C&D Report (1998)
 - Estimated C&D at 37 percent of total MSW
 - Estimated 136 million tons generated annually:
 - 8% from construction, 44% from renovation, 48% from demolition
- 2003 C&D Waste Characterization
 - Estimated over 330 million tons from buildings and road surfaces.



DOD Project: Fort Knox

- 258 Buildings and 451 Apartments
- Extended C&D landfill by 20 years
- 153,000 tons diverted
- \$1.5 million in landfill savings
- \$1.2 million in demolition savings
- \$256,000 in revenue

Local Government: Orange County Public Works Hillsborough, NC



Materials Recovered

- 39+ tons of building materials recovered for reuse through deconstruction
- 6 tons of metal
- 1 ton of white goods
- 140 tons of concrete
- Less than 100 tons of waste generated by deconstruction required disposal - rotted wood, mixed composition items, sheetrock, shingles

Cost Benefit Analysis

Demolition Costs

- Estimate: \$50,000

Deconstruction Costs

- Actual Expenditures: \$37,929

Savings

- Salvaged Materials Value: \$37,130*
- Landfill Fees Avoided: \$1,600

* Based on local vendor estimate

Region 4 Initiatives

- Construction and Demolition Debris Recycling
 - Research/Studies
 - Logistics model
 - Drywall
 - Medium Density Fiberboard – formaldehyde adhesive
 - Looking at other research needs
 - Lead-based Paint
 - CCA treated lumber recycling and disposal
- Deconstruction
 - Life Cycle Building Challenge
 - Life Cycle Construction Project
 - Katrina Rebuild Project
 - Computer Model to Assess Buildings for Deconstruction
 - DOD Deconstruction Projects

Lifecycle Building Challenge

- U.S. EPA and our partners are seeking lifecycle designs from professionals and students in the following categories:
 - Building: an entire building
 - Component: a single building assembly or connector
 - Service: a policy, tool, or practice
- Deadline for Entry: April 15, 2007
 - Entries must then be received by May 15, 2007.
- Partners: Building Materials Reuse Association, American Institute of Architects and West Coast Green

Lifecycle Construction Project

- Scale-up of 3 Innovation Pilots
 - Design for Disassembly Project – Atlanta, GA
 - Deconstruction and Building Material Reuse Project – Gainesville, FL
 - Row House Deconstruction – Philadelphia, PA
- Compiling Resource Document
- Train-the-Trainer

Resources

- EPA Construction and Demolition
www.epa.gov/epaoswer/non-hw/debris-new/basic.htm
- EPA Region 4 State Links
www.epa.gov/region4/waste/rcra/cdstatelinks.htm
- Construction Industry Compliance Assistance Center
www.cicacenter.org
- Building Material Reuse Association
www.buildingreuse.org
- Construction Material Recycling Association
www.cdrecycling.org
- National Recycling Coalition – Industrial Materials Recycling Council
www.nrc-recycle.org/default.htm

EPA Contacts

- EPA Headquarters

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THANK YOU!!

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