

Disposal Bans' Impact on Market Development

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Overview

- Brief history
- Implementation
- Insuring Success
- Impact of Bans
 - E-Waste
 - C&D Debris
- Challenges
- Proposed new bans



Snapshot of solid waste in Mass

- 6.2 million people – 12.6 million TPY of solid waste
 - 8.4 million tons MSW
 - 4.2 million tons non-MSW
- MSW tip fees range from \$60-80/ton
- 16 MSW landfills
- 7 municipal waste combustors
- 207 transfer stations
- In 2008, Mass recycled 44% of its waste through recycling/composting



Massachusetts Waste Bans

- Cornerstone of the 1990 Massachusetts Solid Waste Master Plan
- Recycling rate of 10% in 1990
- First bans took effect in 1991
- Definition: Restrictions on the disposal, *or transfer for disposal*, of certain hazardous and recyclable wastes at solid waste facilities in Massachusetts
- Statutory authority: Solid Waste Act of 1987
- Solid waste facility management regulations



Purpose of Waste Bans...

- Conserve capacity at existing disposal facilities
- Minimize the need for new disposal facility construction
- Support the recycling industry by ensuring that large volumes of material are available on a consistent basis

Waste Ban Items

Item	Effective Date
Lead acid batteries	12/31/1990
Leaves	12/31/1991
White Goods	12/31/1991
Whole tires (landfills only)	12/31/1991
Other yard waste	12/31/1992
Alum, metal and glass containers	12/31/1992
Recyclable paper and cardboard	12/31/1994
Single polymer plastics	12/31/1994
Cathode Ray Tubes	4/1/2000
C&D waste (asphalt, brick, concrete, metal, wood)	7/1/2006



Permitted facility requirements:

- Disposal and transfer facilities:
 - Waste ban compliance plan
 - Conduct ongoing monitoring and comprehensive load inspections
 - Record keeping
 - Response to failed loads
 - Training, signage, annual waste ban report
- Failure to comply – permit violation



Critical steps to insure success

- Careful planning and lead time to:
 - Engage stakeholders in dialogue
 - Establish collection and processing infrastructure
 - Financial assistance to generators, processors, end-markets for start-up
 - Insure end-markets are available
 - Provide training (compost site operators, solid waste facility operators, generators)
 - Establish state contracts as needed (e-waste processing)
- When the work is done, then ban takes effect



Creating Infrastructure: early years

- Leaf/yard waste processing capacity
 - Municipal grants (capital for site improvements, equipment -- \$1.5 million)
 - Extensive training for site operators
- Recyclables collection/processing
 - State built first MRF (1990)
 - \$10 million in grants to cities and towns (1989-1994)
- Protest of unfunded mandate resulted in voluntary program for municipalities
 - (Dept Approved Recycling Program (DARP))
 - 314 out of 351 municipalities had DARP status by 1997



Early ban results

- Municipal recycling programs increase (1989 to 2000)
 - Municipal recycling programs - 190 to 330.
 - Curbside recycling – 20 to 168
- Leaf/yard waste composting sites:
 - 12 facilities in 1992 to 200 facilities in 2000
- Private sector built 6 MRFs in mid-late 90s
- New compost related businesses: screening, grinding, turning
- Recycling rate grew from 10% to 30% by 1995



Lead-up to CRT disposal ban

Starting in 1997:

- Exempt intact CRTs from haz waste regulations
- Research and develop markets
- Establish statewide contract for CRT/e-waste recycling
- CRT processing grants to municipalities
- Ban CRTs from disposal: April 2000



MassDEP Investment: CRTs/E-Waste

- EPA Jobs-through-Recycling Grant - funded team of researchers and consultants
- Focus on markets for residential materials
- Demanufacturing trials with consumer electronics
- Pilot collection programs (drop-off, curbside, one-day)
- Researched:
 - Export markets for reuse and repair
 - Opportunitites for repair/reuse through existing infrastructure
 - Existing recycling markets



MassDEP Investment (cont'd)

- Market development grants - electronics recycling businesses
- Six companies received \$270,00 for:
 - Capital equipment for demanufacturing
 - CRT glass processing
 - End-use/product manufacturing

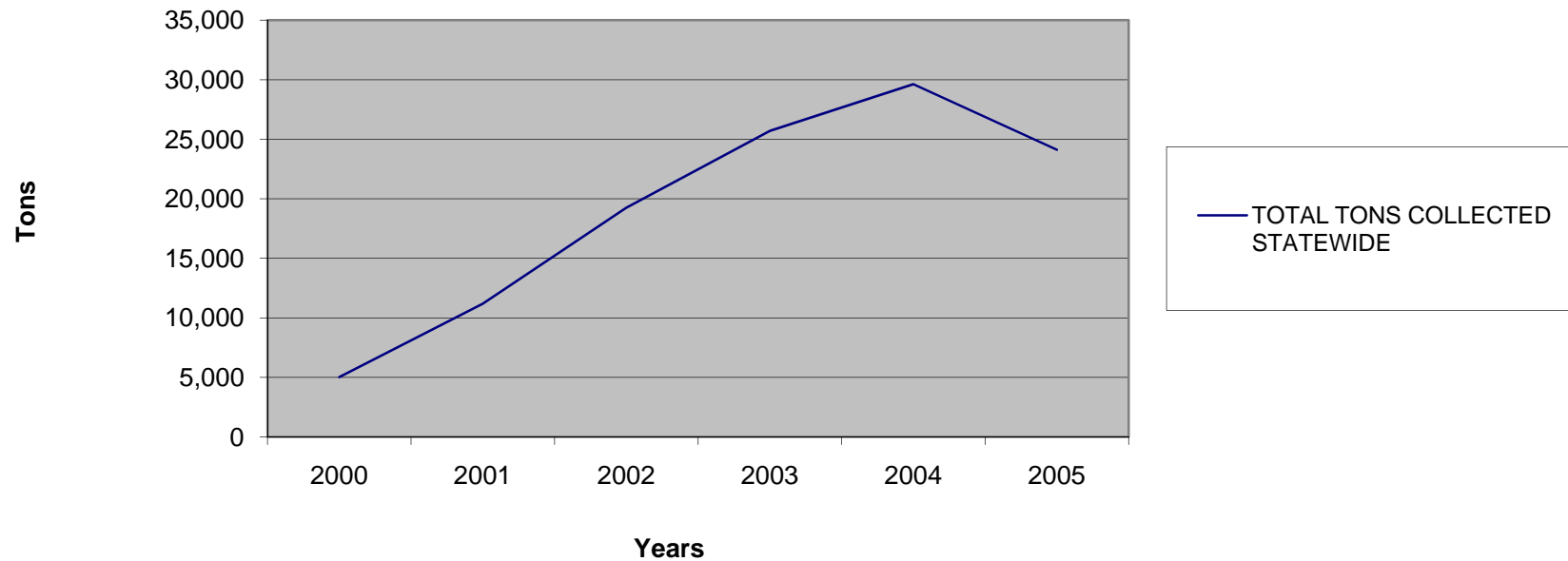


Impact of CRT Ban

- E-Waste processing/recycling capacity
 - 1997 - no companies accepting consumer electronics
 - 2010 - 40+ companies (Mass, NH, CT, ME, RI)
- Tons collected for recycling (municipal)
 - 2000 - 167 tons
 - 2007 - 7,718 tons
- Tons collected for recycling (aggregate)
 - 2000 - 4,686 tons
 - 2008 - 26,979 tons

E-Waste Collected for Recycling

**TOTAL TONS OF ELECTRONICS
RECYCLED STATEWIDE: 2000-2005**





More Impacts...

- Cost of processing municipally collected e-waste fell 50% in 5 years
- Job training/development
 - Non profits, voc-tech programs
- Repair/Resale
 - Goodwill – refurbishes, sells at retail stores
 - Some processors cull TVs for repair and resale
 - Parts salvage/resale (eBay, internet)



Lead-up to C&D Ban

- Work with stakeholders
 - C&D Committee (150+ stakeholders, 2001 to present)
 - Associated General Contractors of Massachusetts
 - Boston Society of Architects
 - Solid Waste Handling Facilities
- Work with State Division of Capital Asset Management to encourage C&D recycling /reuse.
 - Waste management plans require 75% recycling rate of total waste generated.
 - Mandatory clean gypsum wallboard recycling on projects greater than 20,000 sf.



MassDEP Investment: C&D processing capacity

- Recycling Loan Fund
 - \$1.3 million to six companies
 - Leveraged \$5.1 million in private capital
 - 129 jobs created or retained
- Recycling Industry Grants
 - 14 grants totalling \$650,000
 - Leveraged \$4.3 million in matching funds



Effects of C&D Disposal Ban

- Established a regulatory framework for C&D markets to operate
- Existing C&D processors invested in sorting /separation technology for mixed C&D debris.
- Increased outlets for recycling/reusing
 - 15 permitted Massachusetts C&D processing facilities
 - 1 Massachusetts gypsum wallboard recycling facility
 - 3 Massachusetts asphalt shingle recycling facilities
- \$30 million in tax exempt industrial development bonds issued to C&D processors.



Effects of Disposal Ban (cont'd)

- Construction industry changes:
 - New role - waste reduction planners
 - Adoption of new practices = cost savings to projects
 - Niche for “green builders” – in concert with LEED startup
- New service providers
 - Waste reduction consultants (IRN’s WasteMiser)
 - Cost/benefit analysis
 - LEED certification documentation
 - Collection and hauling



C&D Market Spotlight: Tafisa

- Canadian particleboard manufacturer
- DEP connected Tafisa with Mass C&D processors
- Supplied tonnage data on wood waste
- Result: a closed loop system:
 - Tafisa hauls wood from Mass C&D processors
 - Produces particleboard
 - Delivers to 3 Mass cabinet makers
 - Backhauls wood waste from C&D processors to Quebec
 - Demand is exceeding supply



Challenges

- Claim of “unfunded mandate”
- Include transfer stations from outset
- Enforcement
 - Lack of staff resources
 - Solution: Integrate waste bans into routine facility inspections done by C&E staff
- Lack of awareness among commercial generators
- C&D fines and residuals for shaping/grading/daily cover resulted in hydrogen sulfide odor issue
 - Required modification of beneficial use determination (BUD) for C&D fines



Next in Massachusetts....

- Clean gypsum wallboard ban
 - Promulgation of regs expected late 2010
- Commercial/institutional food waste
 - Proposed for 2014 in draft SWMP
- Asphalt shingles
 - Post-consumer asphalt shingles workgroup
 - Working regionally with transportation agencies to develop specs for post-consumer asphalt shingles in road applications



Conclusions

- Proposed ban = driver for planning/programmatic decisions
- Invest in infrastructure development
- Engage stakeholders in planning process
- Biggest impact on business activity: collection and processing sector
- Bans will attract new end-use markets once collection/processing is in place
- Enforcement authority on haulers/generators - contentious but valuable



Web links

Waste ban web page:

www.mass.gov/dep/recycle/solid/wastebans.htm

C&D debris web page:

www.mass.gov/dep/recycle/reduce/managing.htm

Gypsum wallboard regulation (pending):

<http://www.mass.gov/dep/public/hearings/gypsum.htm>

Draft 2010 Solid Waste Master Plan:

www.mass.gov/dep/recycle/priorities/dswmpu01.htm



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