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2005 Solid Waste Data Update on the *Beyond 2000 Solid Waste Master Plan*

July 2007

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Introduction

In the *Beyond 2000 Solid Waste Master Plan (Master Plan)* and the *Master Plan 2006 Revision*, the Executive Office of Energy and Environmental Affairs (EOEEA) and the Massachusetts Department of Environmental Protection (MassDEP) established a plan and vision for how Massachusetts will manage its solid waste for the next decade. To assist in implementing the *Master Plan*, MassDEP annually collects and analyzes solid waste management system data. The data are used to track progress in meeting waste reduction milestones and to evaluate solid waste management capacity needs. MassDEP has updated the solid waste data for calendar year 2005 and revised waste management capacity projections through 2013 based on the 2005 data. This report includes an update on waste reduction and recycling rates and an overview of solid waste management for calendar year 2005.

MassDEP continues to implement a wide range of program initiatives to reduce waste and increase recycling and composting, while also ensuring that remaining waste is disposed of safely. Since the issuance of the *Beyond 2000 Solid Waste Master Plan: 2006 Revision* (June 2006), MassDEP has implemented a number of important initiatives to address solid waste management challenges and opportunities. These include:

- **Enhancing Waste Ban Enforcement:** MassDEP has extended waste ban enforcement to waste haulers and generators, citing 12 businesses and haulers for illegal disposal of cardboard from nine locations. All have returned to compliance. At the same time, MassDEP continues to work with businesses and haulers to improve their recycling programs and waste ban compliance. MassDEP's waste ban enforcement also has bolstered municipal enforcement of local mandatory recycling programs, as MassDEP has worked with about 20 municipalities to implement mandatory recycling initiatives at the local level.
- **Expanding Effective Municipal Waste Reduction Programs:** MassDEP continues to work with municipalities to implement proven recycling and waste reduction strategies such as Pay As You Throw (PAYT) and local mandatory residential recycling. Since the start of 2005, nine municipalities have implemented PAYT, bringing the total number of PAYT programs to 120, while 15 more municipalities have PAYT programs under development. MassDEP also revised Department Approved Recycling Program (DARP) criteria, highlighting key initiatives such as PAYT and mandatory recycling.
- **Implementing Mercury Products Law:** MassDEP is implementing the Massachusetts Mercury Management Act, which contains extensive provisions to reduce the use of mercury in products and safely recycle remaining mercury-containing products.
- **Construction and Demolition Debris Residuals Management:** In response to serious hydrogen sulfide concerns at several landfill closure projects accepting construction and demolition debris fines and residuals, MassDEP has undertaken extensive oversight of these existing projects. MassDEP also has permitted a demonstration project to pilot the use of C&D materials that undergo more rigorous separation of gypsum wallboard during processing to determine whether these materials can be used in landfill closures without generating problematic levels of hydrogen sulfide. MassDEP also has revised its landfill closure policy to ensure that C&D materials that are used for landfill closure projects are managed safely and developed a separate hydrogen sulfide policy requiring landfills undertaking such closure projects to develop an odor contingency plan that establishes an odor action level and a hydrogen sulfide action level and establishes specific management actions whenever those levels are reached.

Summary of Waste Reduction and Recycling Rate Methodology

MassDEP calculates the following waste reduction and recycling rates:

Waste Reduction Rates	Equation
Overall Waste Reduction Rate	$= \frac{(\text{MSW Recycling}^1 + \text{Source Reduction}^2) + (\text{C\&D Recycling} + \text{Source Reduction} + \text{Other Diversion})}{\text{Total Potential Generation}^3}$
MSW Waste Reduction Rate	$= \frac{\text{MSW Recycling} + \text{Source Reduction}}{\text{MSW Potential Generation}}$
Non-MSW Waste Reduction Rate	$= \frac{\text{Non-MSW Recycling} + \text{Source Reduction} + \text{C\&D Other Diversion}}{\text{Non-MSW Potential Generation}}$

Recycling Rates	Equation
MSW Recycling Rate	$= \frac{\text{MSW Recycling}}{\text{MSW Actual Generation (Recycling+Disposal)}}$
C&D Recycling Rate	$= \frac{\text{C\&D Recycling}}{\text{C\&D Actual Generation (Recycling +Other Diversion+Disposal)}}$

Progress in Meeting Waste Reduction Milestones

MassDEP continues to work toward meeting the 70% waste reduction goal by 2010, as established in the original Beyond 2000 Master Plan. Table 1 below summarizes waste reduction rates in 2004 and 2005. Waste reduction includes source reduction (preventing waste from being generated), recycling (including composting), and other C&D diversion.⁴ Total waste reduction remained constant at 60%. Municipal solid waste (MSW) waste reduction decreased from 45% to 44% in 2005, and non-municipal solid waste (Non-MSW) waste reduction decreased from 88% to 87%, slightly below the 88% non-MSW milestone set in the Beyond 2000 Solid Waste Master Plan.

	2004	2005	2010 Milestone
Total Waste Reduction Rate	60%	60%	70%
MSW Waste Reduction Rate	45%	44%	60%
Non-MSW Waste Reduction Rate	88%	87%	88%

¹ MSW recycling includes both recycling and off-site composting, but does not include home composting, which is considered source reduction.

² Source reduction refers to the difference between potential generation and actual generation.

³ Potential generation refers to what generation would have been without source reduction. MassDEP has historically used Gross State Product data to estimate what generation would be without source reduction. MassDEP estimated the 2005 waste reduction rate using 2005 GSP data.

⁴ For a more detailed discussion of how MassDEP measures waste reduction, see page 3-7 of the Beyond 2000 Solid Waste Master Plan.

⁵ Potential Generation is an estimate of the amount of waste expected based on economic activity. MassDEP uses Massachusetts Gross State Product (GSP) as the economic "driver" to estimate potential generation.

In addition to the 70% waste reduction milestone, the *2006 Master Plan Revision* set an overall recycling rate goal of 56% by 2010. Table 2 shows the overall recycling rate and corresponding MSW & commercial recycling rates based on actual generation. Of the total waste that was generated in 2005, 48% was recycled, the same as in 2004. The MSW recycling rate increased from 35% in 2004 to 36% in 2005. The C&D recycling rate remained level at 71% in 2005.

Table 2		
Recycling Rates Based on Actual Generation⁶		
	2004	2005
Overall Recycling	48%	48%
MSW Recycling *	35%	36%
C&D Recycling	71%	71%

*Excludes backyard composting which is source reduction

Environmental and Economic Benefits of Recycling

In 2005, Massachusetts prevented the disposal of 9.6 million tons of waste through a combination of recycling, composting and other waste reduction, saving enough landfill space to eliminate the need for 22 landfills, each equal to the state's largest (1,200 tons per day). In addition to saving landfill space, waste reduction also slows global warming by conserving natural resources, saving energy, and preventing pollution. In 2005, Massachusetts is estimated⁷ to have:

- Reduced greenhouse gas emissions by more than 2.6 million tons of carbon equivalent per year.
- Saved nearly 102 trillion BTUs of energy, equivalent to the annual energy consumption of 18 million barrels of oil, or nearly 820 million gallons of gasoline.
- Saved nearly 1.8 tons of iron ore, coal, and limestone and saved nearly 19 million trees.

Recycling also bolsters the state's economy. Recycling, reuse, and remanufacturing directly support 19,000 jobs in Massachusetts, maintain a payroll of nearly \$600 million, and bring in annual revenues of \$3.6 billion. Total direct and indirect economic activity from recycling, reuse, and remanufacturing is estimated to generate more than \$142 million annually in state revenues for Massachusetts⁸.

Solid Waste Management Overview

Table 3 presents a comprehensive picture of solid waste management in Massachusetts for calendar years 2000-2005. Table 4 highlights how solid waste management changed from 2004-2005. Please note that data for potential generation and source reduction are calculated estimates that rely on annual Gross State Product data to estimate source reduction quantities, whereas data for total generation, diversion and disposal are based on reports submitted to MassDEP by municipalities, businesses, and facilities.

⁷ Source: *Environmental Benefits Calculator*, Northeast Recycling Council, September 2006.

⁸ *Recycling Economic Information Study*, prepared for the Northeast Recycling Council by R.W. Beck, Inc, June 2000.

Table 3
Solid Waste Management 2000-2005 (in tons per year)

		2000	2001	2002	2003	2004	2005
Potential Generation		14,850,000	14,660,000	14,440,000	15,250,000	15,990,000	16,090,000
	MSW	9,520,000	9,380,000	9,260,000	9,800,000	10,280,000	10,350,000
	Non-MSW	5,330,000	5,250,000	5,180,000	5,450,000	5,750,000	5,750,000
Source Reduction		2,040,000	1,880,000	1,200,000	2,040,000	2,050,000	1,950,000
	MSW	1,530,000	1,270,000	900,000	1,340,000	1,550,000	1,260,000
	Non-MSW	510,000	610,000	300,000	700,000	500,000	690,000
Total Generation		12,960,000	12,780,000	13,240,000	13,210,000	13,930,000	14,140,000
MSW		7,990,000	8,130,000	8,350,000	8,460,000	8,720,000	9,090,000
	Residential	3,130,000	3,130,000	3,300,000	3,520,000	3,510,000	3,510,000
	Commercial	4,860,000	5,000,000	5,050,000	4,940,000	5,210,000	5,570,000
Non-MSW		4,970,000	4,650,000	4,890,000	4,750,000	5,210,000	5,050,000
	C&D	4,480,000	4,540,000	4,820,000	4,720,000	5,160,000	4,970,000
	Other	490,000	110,000	70,000	30,000	50,000	90,000
Diversions		6,500,000	6,440,000	6,790,000	6,860,000	7,580,000	7,620,000
MSW		2,700,000	2,780,000	2,610,000	2,870,000	3,070,000	3,300,000
	Residential Recycling	470,000	520,000	520,000	540,000	540,000	530,000
	Commercial Recycling	1,640,000	1,640,000	1,400,000	1,660,000	1,880,000	2,010,000
	Residential Composting	340,000	340,000	330,000	350,000	340,000	350,000
	Commercial Composting	250,000	280,000	360,000	330,000	580,000	410,000
Non-MSW		3,800,000	3,660,000	4,180,000	3,990,000	4,500,000	4,320,000
	C&D	3,500,000	3,150,000	3,590,000	3,360,000	3,650,000	3,520,000
	Other C&D Diversions	300,000	510,000	590,000	630,000	860,000	800,000
Disposal		6,460,000	6,340,000	6,450,000	6,340,000	6,360,000	6,520,000
	Landfill	1,760,000	1,710,000	1,790,000	1,710,000	1,720,000	2,070,000
	MSW	1,010,000	1,030,000	1,210,000	1,310,000	1,430,000	1,760,000
	C&D	660,000	620,000	520,000	370,000	270,000	240,000
	Other	90,000	60,000	60,000	20,000	30,000	70,000
	Combustion	3,070,000	3,130,000	3,090,000	3,130,000	3,080,000	3,090,000
	MSW	3,060,000	3,130,000	3,080,000	3,120,000	3,070,000	3,080,000
	Non-MSW	*0	*0	*0	*0	*0	10,000
	<i>Net Exports</i>	<i>1,630,000</i>	<i>1,500,000</i>	<i>1,570,000</i>	<i>1,510,000</i>	<i>1,560,000</i>	<i>1,350,000</i>
	<i>Exports</i>	<i>1,770,000</i>	<i>1,690,000</i>	<i>1,830,000</i>	<i>1,790,000</i>	<i>1,840,000</i>	<i>1,600,000</i>
	<i>Imports</i>	<i>140,000</i>	<i>190,000</i>	<i>250,000</i>	<i>280,000</i>	<i>280,000</i>	<i>250,000</i>

*Non-MSW combustion was less than 5,000 tons

For 2000, 2001, and 2002 total generation includes "other C&D Diversions" tonnage that was not included in previous years.

Note: Numbers do not all add exactly due to rounding.

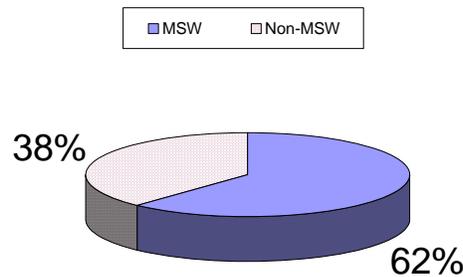
Table 4

Tonnage and Percent Change Summary: 2004-2005						
		2004	2005	Tons Change	% Change	
Potential Generation		15,990,000	16,090,000	100,000	0.6%	
	MSW	10,280,000	10,350,000	70,000	0.7%	
	Non-MSW	5,710,000	5,750,000	40,000	0.7%	
Source Reduction		2,050,000	1,950,000	(100,000)	-4.9%	
	MSW	1,550,000	1,260,000	(290,000)	-18.7%	
	Non-MSW	500,000	690,000	190,000	38.0%	
Total Generation		13,930,000	14,140,000	210,000	1.5%	
MSW		8,720,000	9,090,000	370,000	4.2%	
	Residential	3,510,000	3,510,000	-	0.0%	
	Commercial	5,210,000	5,570,000	360,000	6.9%	
Non-MSW		5,210,000	5,050,000	(160,000)	-3.1%	
	C&D	5,160,000	4,970,000	(190,000)	-3.7%	
	Other	50,000	90,000	40,000	80.0%	
Diversion		7,580,000	7,620,000	40,000	0.5%	
MSW		3,070,000	3,300,000	230,000	7.5%	
	Residential Recycling	540,000	530,000	(10,000)	-1.9%	
	Commercial Recycling	1,880,000	2,010,000	130,000	6.9%	
	Residential Off Site Composting	340,000	350,000	10,000	2.9%	
	Commercial Composting	310,000	410,000	100,000	32.3%	
Non-MSW		4,500,000	4,320,000	(180,000)	-4.0%	
	C&D	3,650,000	3,520,000	(130,000)	-3.6%	
	Other C&D Diversion	860,000	800,000	(60,000)	-7.0%	
Disposal		6,360,000	6,520,000	160,000	2.5%	
	Landfill	1,720,000	2,070,000	350,000	20.3%	
	MSW	1,430,000	1,760,000	330,000	23.1%	
	C&D	270,000	240,000	(30,000)	-11.1%	
	Other	30,000	70,000	40,000	133.3%	
	Combustion	3,080,000	3,090,000	10,000	0.3%	
	MSW	3,070,000	3,080,000	10,000	0.3%	
	Non-MSW	10,000	10,000	-		
	<i>Net Exports</i>	1,560,000	1,350,000	(210,000)	-13.5%	
	<i>Exports</i>	1,840,000	1,600,000	(240,000)	-13.0%	
	<i>Imports</i>	280,000	250,000	(30,000)	-10.7%	

Note: % Change is calculated based on the rounded amounts in this table.

In 2005 14.1 million tons of solid waste were *actually* generated in Massachusetts. Of this amount, 9.1 million tons were MSW (62%) and 5.1 million tons were Non-MSW (38%). Generation increased by 1.5% from 13.9 million tons to 14.1 million tons. Of the 14.1 million tons generated, 7.6 million tons (54%) were diverted (includes recycling, composting, and other diversion) and 6.5 million tons (46%) were disposed.

Figure 1
Total Solid Waste Generation in 2005



From 2004 to 2005 total disposal increased by 2.5%. Of the total waste that required disposal, 5.2 million tons (79%) was managed in-state. 2.1 million tons of in-state waste was disposed of by landfilling and 3.1 million tons was disposed of by combustion. The state exported for disposal 1.6 million tons and imported 0.3 million tons, and thus was a net exporter of 1.3 million tons (21%) of waste requiring disposal. See tables 10 and 11 for more detailed picture of import/export data by state.

Municipal Solid Waste Management

In 2005, 9.1 million tons of MSW were generated in Massachusetts. Of this amount, 36% was recycled (including off-site composting, but excluding on-site backyard composting), which is an increase from 35% in 2004 and 34% in 2003.

	2003	2004	2005
Recycled	34%	35%	36%
Combusted	37%	35%	34%
Landfilled	15%	16%	18%
Net Exported	14%	14%	12%

The per capita MSW recycling rate increased from 2.5 pounds per person per day in 2004 to 2.8 pounds per person per day in 2005. The per capita disposal rate (including export) also increased, from 4.8 pounds per person per day in 2004 up to 5.1 pounds per person per day in 2005. The residential MSW recycling rate (excluding home composting) was 25% and the commercial MSW recycling rate was 44%⁹.

⁹ Published municipal recycling rates include home composting and therefore are somewhat higher on average than the 25% statewide rate, which excludes home composting.

From 2004 to 2005:

- MSW generation increased 4%, from 8.7 million tons to 9.1 million tons. Per capita MSW generation rose from 7.5 pounds per person per day to 7.8 pounds per person per day.
- Residential MSW generation remained the same at 3.5 million tons while commercial MSW generation increased 6.9%, from 5.2 million tons to 5.6 million tons.
- MSW recycling (including composting) increased 7.5%, from 3.1 million tons to 3.3 million tons. This was primarily due to increased commercial recycling, whereas residential recycling and composting remained the same during this two-year period.
- Total MSW disposal (disposal in-state and exported out of state for disposal) increased from 5.7 million tons to 5.8 million tons.
- MSW net exports for disposal decreased about 17%, from 1.2 million tons to 1 million tons.

Figure 2 shows the breakdown of MSW recycling by material category.

Figure 2
Breakdown of MSW Materials Recycled in 2005
(excluding composting)

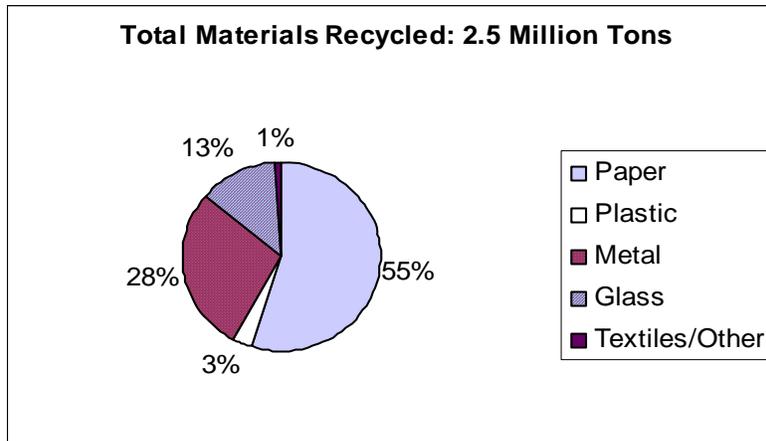
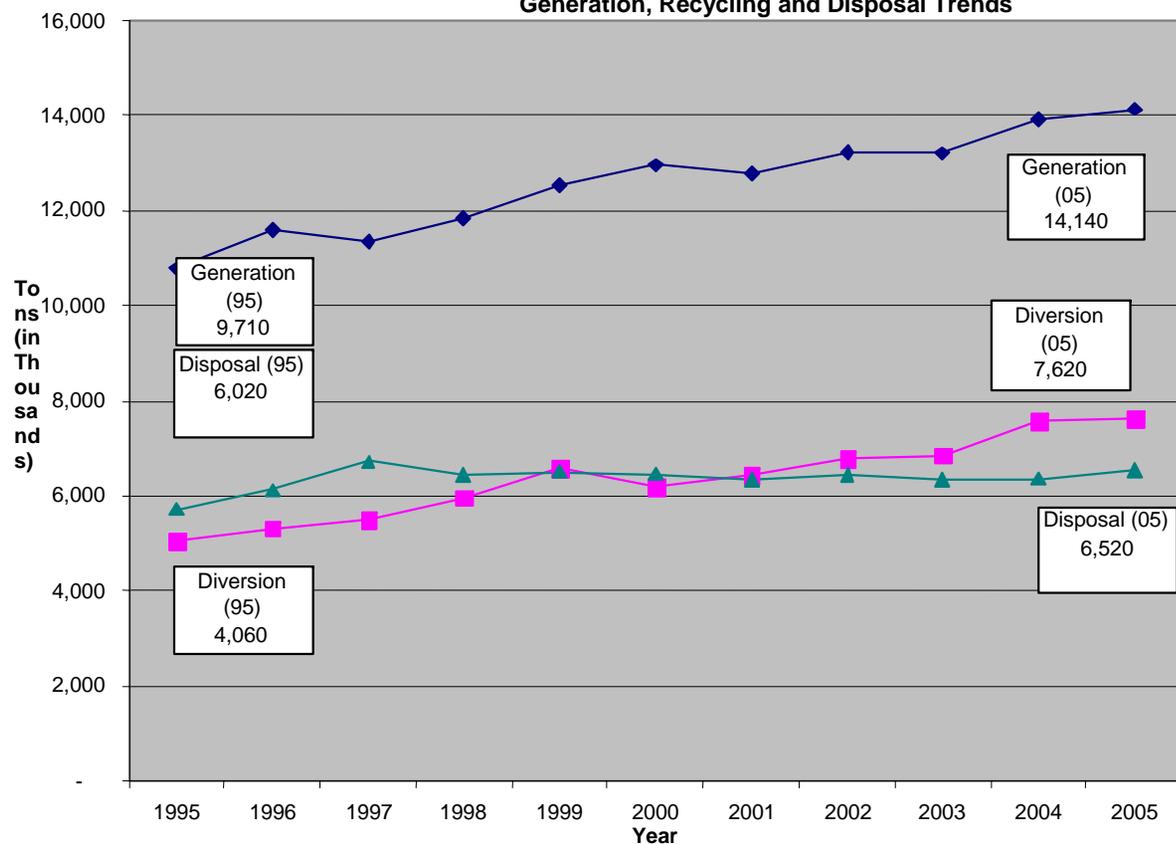


Figure 3
Generation, Recycling and Disposal Trends



- ◆ Total Generation
- Diversion
- ▲ Disposal

Generation includes Disposal, Recycling, Composting, and Other Diversion

Diversion includes MSW recycling, composting, C&D recycling and Other C&D Diversion

Disposal includes MSW and C&D disposal at in-state landfills and combustion facilities and exports out of state

Table 6 shows the calculation of MSW waste reduction in 2005. Waste reduction is the combined effect of source reduction and recycling as a percentage of *potential* waste generation.

Table 6	
2005 MSW Waste Reduction (in tons)	
	2005
Potential MSW Generation without Source Reduction	10,350,000
Source Reduction	1,260,000
<i>% of potential generation</i>	12%
Recycling*	3,300,000
<i>% of potential generation</i>	32%
Total Waste Reduction	4,560,000
<i>% of potential generation</i>	44%
*The recycling rate is 36% when based on <i>actual</i> MSW generation	
Note: percentages do not add exactly due to rounding.	

Municipal recycling rates by year are shown in Table 7. This table shows that the distribution of municipal recycling rates has not changed substantially over the past five years. (Note: MassDEP did not collect FY02 municipal recycling data because it switched to a calendar year datasheet time frame to match other solid waste reporting.)

Table 7					
Municipal Recycling Rates					
Municipalities Achieving:	FY2001	CY 2002	CY2003	CY2004	CY2005
30% or greater	182	181	162	156	159
20-29%	73	61	86	78	84
10-19%	34	41	41	41	55
5-9%	7	5	11	8	10
Not included due to incomplete or missing data	55	63	51	68	43

Non-MSW Waste Management

In 2001, MassDEP added a new category called “C&D Other Diversion” to account for materials such as C&D fines and wood for fuel used for beneficial uses. In 2002, an additional material, “C&D residuals”, was added to account for materials used for grading and shaping at landfill closure projects that began in 2002. This tonnage is counted as generation, but not as recycling or disposal since this use is not considered to be either recycling or disposal. However, these activities are considered diversion since they divert material from disposal and free up capacity for other materials.

In 2005, 5 million tons of C&D were generated in Massachusetts, down from 5.2 million tons in 2004. Of the amount generated, 71% was recycled, the same as in 2004. Including C&D other diversion with recycling, the overall C&D diversion rate was 87% in 2005. Table 8 shows how C&D was managed from 2003-2005.

Table 8			
C&D Management by Tonnage 2003 - 2005			
	2003	2004	2005
Generated	4,720,000	5,290,000	4,970,000
Disposed	720,000	660,000	650,000
• In-State	370,000	270,000	240,000
• Out-of-State	350,000	390,000	400,000
Diverted	3,990,000	4,640,000	4,320,000
• Recycled	3,360,000	3,770,000	3,520,000
o <i>Asphalt, Brick, and Concrete (ABC)</i>	3,200,000	3,470,000	3,330,000
o <i>Metal</i>	80,000	100,000	90,000
o <i>Wood for Non-fuel Uses</i>	20,000	30,000	30,000
o <i>Wood Waste</i>	40,000	50,000	50,000
o <i>Other*</i>	20,000	20,000	20,000
• C&D Other Diversion	630,000	860,000	800,000
o C&D Fines/Residuals	540,000	810,000	750,000
o C&D Wood for Fuel	90,000	50,000	60,000

*Other materials include ceiling tiles, carpet, gypsum wallboard, and asphalt roofing shingles.

Table 9 shows the calculation of non-MSW waste reduction in 2005. Waste reduction is the combined effect of recycling, source reduction and other C&D diversion as a percentage of *potential* generation.

Table 9	
2005 Non-MSW Waste Reduction (in tons)	
Potential generation without source reduction	5,750,000
Source Reduction	690,000
<i>% of potential generation</i>	12%
Recycling*	3,520,000
<i>% of potential generation</i>	61%
C&D Other Diversion	860,000
<i>% of potential generation</i>	15%
Total Waste Reduction	4,800,000
<i>% of potential generation</i>	87%
* The recycling rate is 71% based on <i>actual</i> generation. Note: percentages do not add exactly due to rounding.	

Other Non-MSW Management

A relatively small amount of non-MSW materials other than C&D are disposed in Massachusetts's landfills or sent out of state for disposal each year. In 2005, 17,000 tons of these materials were disposed including industrial waste, medical waste, wood waste, ash and sludge.

In addition, a significant amount of other non-MSW materials are managed each year in management systems that have in the past been tracked separately from the primary MSW/C&D waste management system. These include MSW combustion ash disposal, use of materials as alternative daily cover at landfills (both active and inactive), and other beneficial uses of materials in non-landfill applications. Table 10 shows materials used as daily cover at landfills.

Table 10			
Reported Daily Cover Material at Active Landfills			
(in tons)¹⁰			
	2003	2004	2005
Auto Shredder Residue	20,000	50,000	60,000
Soil/Sand	180,000	230,000	217,000
Contaminated Soils	140,000	280,000	250,000
C&D Fines and Residuals	300,000	300,000	330,000
Other Materials¹¹	300,000	240,000	315,000
TOTAL	940,000	1,100,000	1,170,000

Municipal Waste Combustor Ash

Seven waste-to-energy combustors operated in Massachusetts in 2005. In 2005, these combustors generated approximately 800,000 tons of combustion ash (excluding recovered post-burn metals), 110,000 of which was beneficially reused and 690,000 tons of which was disposed. A number of mono-fills in Massachusetts that accept combustion ash are nearing their capacity, and efforts are underway by a number of combustors to expand capacity. The current status of these ash landfills is summarized in Table 11.

Table 11		
Active MSW Combustion Ash Landfills		
Municipality	Site Name	Current Permit Expires
Agawam	Bondi's Island Ash Landfill	2008
Peabody	Peabody Ash Landfill	2006*
Saugus	Wheelabrator Ash Landfill	2008
Haverhill	Ward Hill Neck Ash Landfill	2009
Shrewsbury	Shrewsbury Ash Landfill	2014
Carver	CMW Ash Landfill	2015

*Currently not in operation, permit application pending

Tables 12 and 13 show MSW and C&D export and import data by state. The export and import data for Massachusetts was collected from annual facility reports (AFR) submitted to MassDEP and from direct correspondence with other states. In some instances, the MSW export data provided in the AFR differed from that reported from the states. In order to make the most conservative estimate of export, the higher number from the two sources was used. For example, if an AFR reported that Massachusetts sent Connecticut 10,000 tons of MSW, and Connecticut reported receiving 29,000 tons of MSW, 29,000 tons of export was used.

¹⁰ Daily Cover tonnages have been revised for consistency across time, and do not include material disposed at Quarry Hills, since this is not an active landfill.

¹¹ "Other Materials" includes approximately 20 various materials such as ground asphalt and DPW wastes.

Table 12: Tons of MSW Exported from Massachusetts by State: 2003-2005			
	2003	2004	2005
CT	39,088	39,060	38,236
ME	222,957	230,686	238,415
NH	301,022	186,000	64,506
NY	193,817	277,716	224,456
OH	120,450	130,284	85,092
PA	5,039	3,695	4,045
RI	5,984	6,223	6,304
SC	446,351	492,295	479,496
VA	12,107	3,696	1,996
VT		4,195	4,195
Other Unknown	43		
TOTAL	1,366,858	1,374,918	1,142,682

Table 12a: Tons of MSW Imported to Massachusetts by State: 2003-2005			
	2003	2004	2005
CT	60,969	53,028	81,569
ME	9,066	20,787	11,697
NH	26,426	41,027	45,769
NY	77,530	73,473	7,979
RI	24,539	26,155	30,996
VT	4,627	5,475	18,905
TOTAL	203,157	219,945	196,915

Table 13: Tons of C&D Exported from Massachusetts by State: 2003-2005			
	2003	2004	2005
CT	5,404	1,117	2,179
ME	148,317	137,751	148,691
NH	14,410	11,713	4,287
NY	19,591	17,965	14,860
OH	180,702	240,484	257,510
PA		1,912	
RI	4,046	1,024	14,409
SC	31,933	32,403	
VA	10,440		
VT	26		
TOTAL	414,869	444,369	441,936

Table 13a: Tons of C&D Imported to Massachusetts by State: 2003-2005			
	2003	2004	2005
CT	54,473	36,869	40,171
ME	983		
NH	2,414	10,205	6,763
NY	6,579	7,676	7,979
RI	34	626	1,158
VT			247
TOTAL	64,483	55,656	56,381

Figure 4: Projected Landfill Capacity (Tons Per Year)

Town	2005 Permitted Capacity	End of current permit	Lifetime of LF	2006	2007	2008	2009	2010	2011	2012	2013	
Active Landfills												
Barre	93600	2010	2013	93600	93600	93600	93600	93600	93600	93600	93600	
Bourne	219000	2011	2024	219000	219000	219000	219000	219000	219000	219000	219000	
Carver	97982	2013	2013	97982	97982	97982	97982	97982	97982	97982	97982	
Chicopee	365000	2011	2012	365000	365000	365000	365000	365000	365000	365000	0	
Dartmouth	132600	2012	2028	132600	132600	132600	132600	132600	132600	132600	132600	
Fall River	468000	2008	2011	468000	468000	468000	468000	468000	468000	0	0	
Granby	235000	2008	2011	235000	235000	235000	235000	235000	235000	0	0	
Hardwick	82800	2006	2006	82800	0	0	0	0	0	0	0	
Middleborough	9620	2011	2011	9620	9620	9620	9620	9620	9620	0	0	
Nantucket	26000	2007	2017	26000	26000	26000	26000	26000	26000	26000	26000	
Northampton	50000	2009	2009	50000	50000	50000	50000	0	0	0	0	
South Hadley	156000	2007	2011	156000	156000	156000	156000	156000	156000	0	0	
Southbridge	180960	2019	2019	180960	180960	180960	180960	180960	180960	180960	180960	
Sturbridge	410	2016	2016	410	410	410	410	410	410	410	410	
Taunton	120120	2011	2013	120120	120120	120120	120120	120120	120120	120120	120120	
Warren	2000	2012	2012	2000	2000	2000	2000	2000	2000	2000	0	
Wayland	2345	2008	2008	2345	2345	2345	0	0	0	0	0	
Westminster	296400	2007	2025	296400	296400	296400	296400	296400	296400	296400	296400	
TOTAL PERMITTED CAPACITY				2,537,837	2,355,037	1,976,637	1,271,292	1,221,292	1,127,692	413,952	279,352	
TOTAL POTENTIAL CAPACITY				2,537,837	2,455,037	2,455,037	2,452,692	2,402,692	2,402,692	1,534,072	1,167,072	

KEY:

Permitted Capacity Number without shading

Potential Additional Capacity Number with shading

Figure 5: Waste Management Capacity Projections

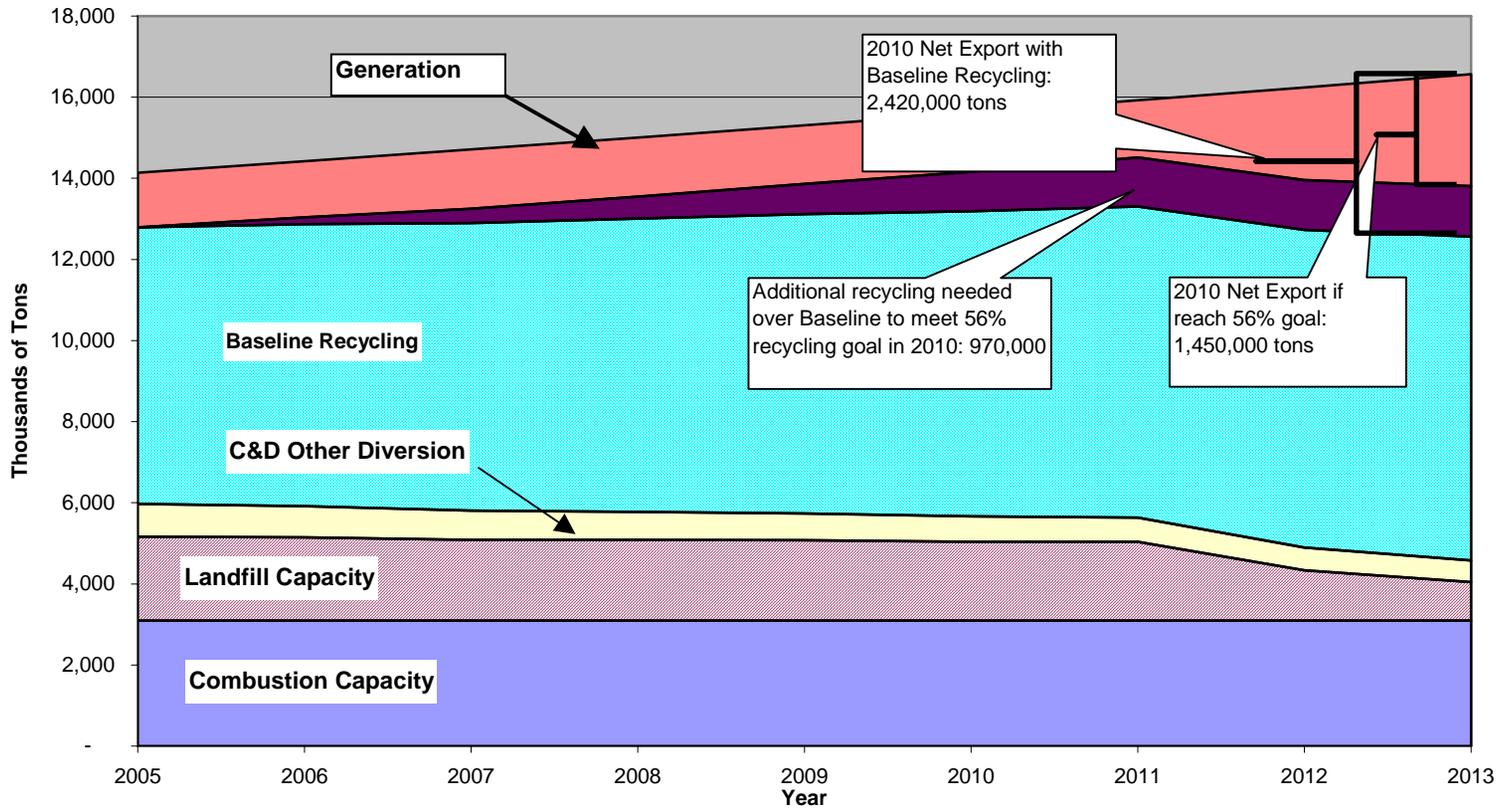


Figure 6: Waste Management Capacity Projections

This chart projects in-state waste management capacity and net export under two scenarios: 1) The same recycling rate is maintained throughout these projections. These figures are shaded in light grey. 2) The recycling rate increases to meet the 56 % goal by 2010. These figures are not shaded.

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total Generation	14,140,081	14,422,882	14,711,340	15,005,567	15,305,678	15,611,792	15,924,028	16,242,508	16,567,358
Baseline Recycling	6,817,359	6,953,706	7,092,780	7,234,636	7,379,329	7,526,915	7,677,454	7,831,003	7,987,623
Increased Recycling (to meet 56% goal)		204,521	423,358	657,309	907,214	1,173,954	1,458,460	1,487,629	1,517,381
Total Recycling (to meet 56% goal)	6,817,359	7,158,227	7,516,138	7,891,945	8,286,542	8,700,870	9,135,913	9,318,631	9,505,004
Increased Recycling Rate	48.2%	49.6%	51.1%	52.6%	54.1%	55.7%	55.7%	55.7%	55.7%
C&D Other Diversion	803,529	763,353	725,185	688,926	654,479	621,755	590,668	561,134	533,078
Combustion Capacity	3,094,732	3,094,732	3,094,732	3,094,732	3,094,732	3,094,732	3,094,732	3,094,732	3,094,732
Potential LF Capacity	2,070,445	2,055,648	1,988,580	1,988,580	1,986,681	1,946,181	1,946,181	1,242,598	945,328
Total In-state Capacity (baseline recycling)	12,786,065	12,867,439	12,901,277	13,006,874	13,115,221	13,189,584	13,309,034	12,729,467	12,560,760
Total In-state Capacity (total recycling)	12,786,065	13,071,960	13,324,635	13,664,183	14,022,435	14,363,538	14,767,494	14,217,096	14,078,142
Net Export (baseline recycling)	1,354,016	1,555,444	1,810,063	1,998,693	2,190,457	2,422,208	2,614,993	3,513,041	4,006,598
Net Export (total recycling)	1,354,016	1,350,923	1,386,705	1,341,384	1,283,243	1,248,254	1,156,534	2,025,413	2,489,217

Assumptions:

Generation Increase	2.0% (annual)
Baseline Recycling Tonnage Increase	2.0% (annual)
Total Recycling Tonnage Increase	5.0% (annual)
C&D Other Diversion Decrease	-5.0% (annual)

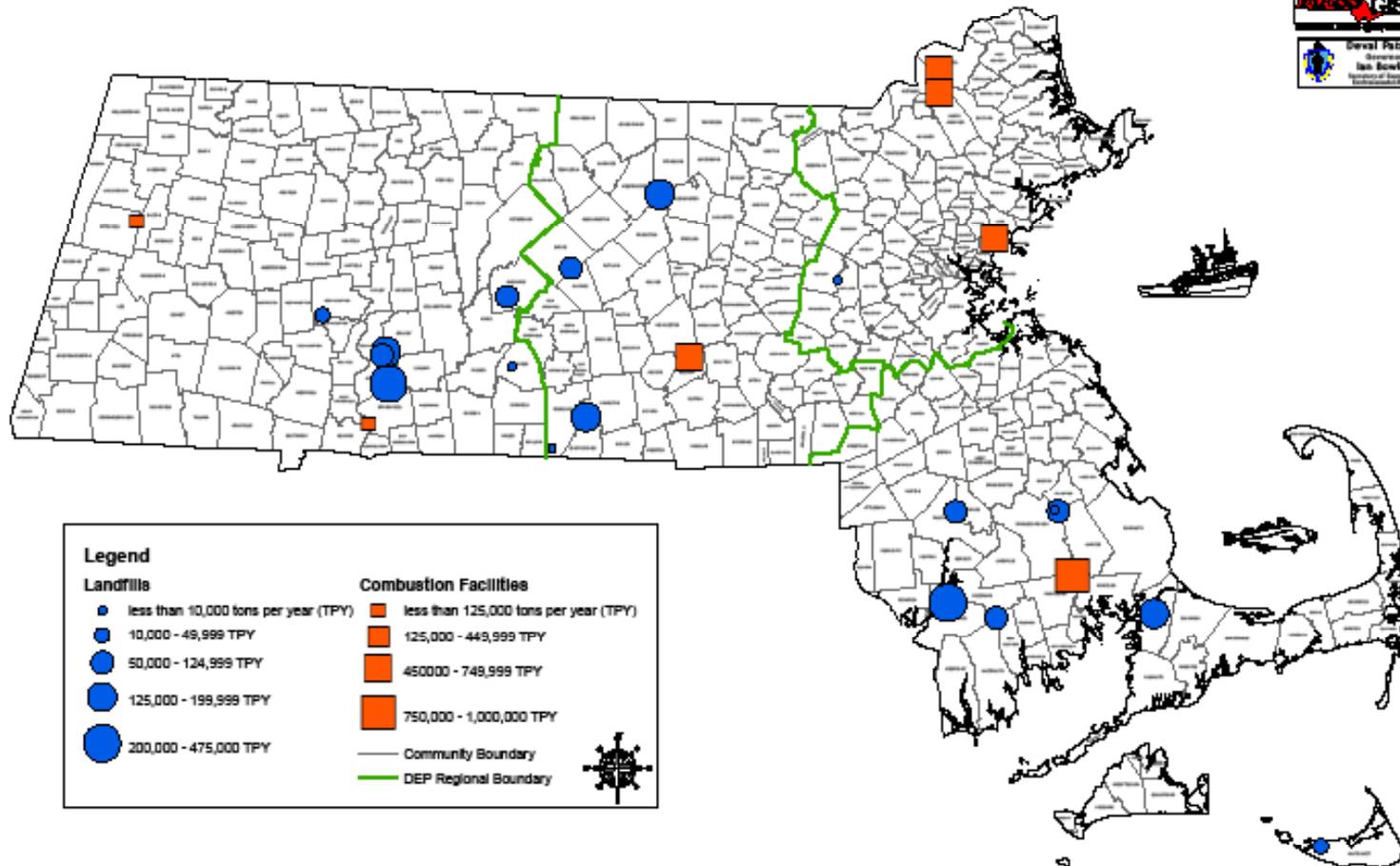
Combustion Capacity is projected to remain level from 2005 through 2013.

Landfill capacity is calculated to be 81% of total potential based on historical disposal patterns.

Net export is calculated by subtracting Total In-State Management Capacity from Total Generation.

Total In-State Management Capacity is the sum of Total Diversion, Combustion Capacity and Potential Landfill Capacity.

Integrated Solid Waste Management System: Disposal Facilities (2005)



Legend

Landfills	Combustion Facilities
● less than 10,000 tons per year (TPY)	■ less than 125,000 tons per year (TPY)
● 10,000 - 49,999 TPY	■ 125,000 - 449,999 TPY
● 50,000 - 124,999 TPY	■ 450,000 - 749,999 TPY
● 125,000 - 199,999 TPY	■ 750,000 - 1,000,000 TPY
● 200,000 - 475,000 TPY	— Community Boundary
	— DEP Regional Boundary

Data Sources

LANDFILLS AND COMBUSTION FACILITIES- DEP Bureau of Waste Prevention, Solid Waste Facility Database. Sources include: focus maps, parcel maps, estimated extent of waste compiled onto USGS topo quads. Digitized using USGS topo or digital orthophoto base. 1/25/06. March 2006. 2006 reported tonnage for all facilities except Chicopee Landfill (2004). From DEP SWP Solid Waste Database, October 2006.

MUNICIPAL BOUNDARIES - EOEA/MassGIS. Boundaries digitized from 1:25,000 USGS quadrangle maps.

DEP REGIONAL BOUNDARIES - EOEA/MassGIS, MassDEP Administrative Regions, based on municipal boundaries described above. May 2006

