



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

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## Department of Environmental Protection

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# 2009 Solid Waste Data Update

## June 2011

## Introduction

In the *Draft 2010-2020 Solid Waste Master Plan (Master Plan)* the Executive Office of Energy and Environmental Affairs (EEA) and the Massachusetts Department of Environmental Protection (MassDEP) established a plan and vision for how Massachusetts will manage its solid waste for the 2011-2020 timeframe. 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 2009 and revised waste management capacity projections through 2020 based on the 2009 data.

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 managed and disposed of safely. These initiatives are described in the *Draft 2010-2020 Solid Waste Master Plan* and will be addressed in a series of Master Plan Implementation Plans.

## Goals and Methodology Summary

In the Draft Master Plan, the primary quantitative goal is to reduce the amount of annual waste disposal by 30 percent from 2008 – 2020, from 6,550,000 tons of disposal in 2008 to 4,550,000 tons of disposal in 2020. MassDEP also will continue to calculate recycling rates as a point of information, although Massachusetts does not have a recycling rate goal. The methodology for the disposal reduction goal and recycling rates is summarized in the table below.

<b>Table 1 Methodology Summary</b>		
<b>Waste Reduction Rates</b>		<b>Equation</b>
Disposal Tonnage	=	In State Disposal (Landfill & Municipal Waste Combustor) + Export for Disposal – Import for Disposal
Disposal Tonnage Reduction	=	2008 Disposal – Current Year [2009] Disposal
% Disposal Reduction	=	$\frac{2008 \text{ Disposal} - \text{Current Year [2009] Disposal}}{2008 \text{ Disposal}}$
MSW Recycling Rate	=	<b>MSW Recycling + Composting</b> MSW Actual Generation (MSW Recycling + Composting + MSW Disposal)
C&D Recycling Rate	=	<b>C&amp;D Recycling</b> C&D Actual Generation (C&D Recycling + C&D Other Diversion + C&D Disposal)

## Progress in Meeting Disposal Reduction Milestone

In the *Draft 2010-2020 Master Plan*, MassDEP established a vision to maximize the diversion of materials from disposal by 2020. The Draft Master Plan establishes a specific goal to reduce annual disposal by 2 million tons, or 30 percent, from 2008 to 2020. This is a change from the previous Master Plan, which expressed our waste reduction goals in terms of a waste reduction rate. MassDEP now believes that disposal reduction is a simpler, more direct, and more effective metric for evaluating waste reduction and diversion progress, including source reduction, recycling, composting, and other forms of diversion. Therefore, the *Draft 2010-2020 Plan* has shifted from a waste reduction rate to a disposal reduction target as our primary goal for measuring progress. MassDEP will measure disposal reduction by comparing the total disposal in a future year against disposal in 2008 as a baseline year. Because many people continue to rely on recycling rates as an indicator of progress, MassDEP also will continue to measure and evaluate the Commonwealth's recycling rate.

Total disposal in 2009 was 5,800,000 tons, a decrease of 750,000 tons, or 11.5 percent, from 2008. This decrease was not due to an increase in recycling and composting, but rather to a decrease of 1,860,000 tons, or 14.8 percent, in total waste generation.

Although MassDEP believes that the economic slowdown was a factor in the reduced waste generation from 2008 to 2009, it is not clear how much of the change was due to the slow economy versus source reduction activities, such as container or newspaper light-weighting or changes in consumption practices. The real gross domestic product by state for Massachusetts by year is shown below, in millions of chained 2005 dollars for 2007-2009<sup>1</sup>. The Massachusetts real GDP by state decreased approximately 2 percent from 2008 to 2009, after a slight increase from 2007 to 2008.

### Gross Domestic Product by State (millions of chained 2005 dollars)

2007	\$334,848
2008	\$338,814
2009	\$333,413

### Environmental and Economic Benefits of Recycling

In 2009 alone, Massachusetts prevented the disposal of nearly 5 million tons of waste through recycling, composting and other diversion, eliminating the need for the equivalent of 12 landfills the size of the state's largest (400,000 tons per year). In addition to saving landfill space, waste reduction conserves natural resources, saves energy, prevents pollution, and reduces greenhouse gas emissions. In 2009, Massachusetts is estimated<sup>2</sup> to have:

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<sup>1</sup> Real GDP by state is published by the United States Bureau of Economic Affairs and is available at [www.bea.gov](http://www.bea.gov). The real GDP by state is an inflation adjusted value.

<sup>2</sup> Source: *Environmental Benefits Calculator*, Northeast Recycling Council, April 2009.

- Reduced greenhouse gas emissions by nearly 1.8 million tons of carbon equivalent per year;
- Saved 70 trillion BTUs of energy, equivalent to the annual energy consumption of more than 12 million barrels of oil or nearly 600 million gallons of gasoline; and
- Avoided the use of 1.1 million tons of iron ore, coal, limestone and other natural resources.

Recycling also bolsters the state's economy. Recycling, reuse, and remanufacturing directly support an estimated 14,000 jobs in Massachusetts, maintain a payroll of nearly \$500 million, and bring in annual revenues of \$3.2 billion<sup>3</sup>.

### **Solid Waste Management Overview**

Table 2 presents a comprehensive picture of solid waste management in Massachusetts for calendar years 2002-2009. Table 3 highlights how solid waste management changed from 2007 to 2008, including the tonnage and percent change.

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<sup>3</sup> *U.S. Recycling Information Study*, prepared for the Northeast Recycling Council, February 2009.

**Table 2 Integrated Solid Waste Management System 2002-2009**

		2002	2003	2004	2005	2006	2007	2008	2009
<b>Total Generation</b>		<b>13,240,000</b>	<b>13,210,000</b>	<b>13,930,000</b>	<b>14,490,000</b>	<b>13,260,000</b>	<b>12,690,000</b>	<b>12,600,000</b>	<b>10,680,000</b>
MSW		8,350,000	8,460,000	8,720,000	9,310,000	8,710,000	8,370,000	8,360,000	7,610,000
Non-MSW		4,890,000	4,750,000	5,210,000	5,190,000	4,550,000	4,320,000	4,240,000	3,080,000
	C&D	4,820,000	4,720,000	5,160,000	5,100,000	4,460,000	3,940,000	3,800,000	2,870,000
	Other	70,000	30,000	50,000	90,000	90,000	380,000	440,000	210,000
<b>Diversion</b>		<b>6,790,000</b>	<b>6,860,000</b>	<b>7,580,000</b>	<b>7,750,000</b>	<b>6,710,000</b>	<b>6,010,000</b>	<b>6,050,000</b>	<b>4,880,000</b>
MSW		2,610,000	2,870,000	3,070,000	3,300,000	2,970,000	2,740,000	2,980,000	2,620,000
	Recycling	1,920,000	2,200,000	2,420,000	2,540,000	2,220,000	1,990,000	2,300,000	1,970,000
	Composting	690,000	680,000	650,000	760,000	740,000	740,000	680,000	650,000
Non-MSW		4,180,000	3,990,000	4,500,000	4,450,000	3,740,000	3,270,000	3,070,000	2,270,000
	C&D Recycling	3,590,000	3,360,000	3,650,000	3,530,000	3,070,000	2,750,000	2,520,000	1,850,000
	Other C&D Diversion	590,000	630,000	860,000	930,000	670,000	510,000	520,000	380,000
	Other Non-MSW Diversion						30,000	30,000	30,000
<b>Disposal</b>		<b>6,450,000</b>	<b>6,340,000</b>	<b>6,360,000</b>	<b>6,750,000</b>	<b>6,550,000</b>	<b>6,680,000</b>	<b>6,550,000</b>	<b>5,800,000</b>
	Landfill	1,790,000	1,710,000	1,720,000	2,070,000	2,080,000	1,900,000	1,740,000	1,500,000
	MSW	1,210,000	1,310,000	1,430,000	1,760,000	1,880,000	1,760,000	1,560,000	1,330,000
	C&D	520,000	370,000	270,000	240,000	130,000	60,000	130,000	120,000
	Other	60,000	20,000	30,000	70,000	70,000	70,000	50,000	60,000
	Combustion	3,090,000	3,130,000	3,080,000	3,090,000	3,100,000	2,970,000	3,230,000	3,180,000
	MSW	3,080,000	3,120,000	3,070,000	3,080,000	3,090,000	2,960,000	3,210,000	3,180,000
	Non-MSW	*0	*0	*0	10,000	10,000	10,000	10,000	10,000
	Net Exports	1,570,000	1,510,000	1,560,000	1,580,000	1,370,000	1,820,000	1,580,000	1,120,000
	Exports	1,830,000	1,790,000	1,840,000	1,820,000	1,620,000	2,060,000	1,850,000	1,590,000
	MSW	1,550,000	1,370,000	1,370,000	1,360,000	1,000,000	1,090,000	840,000	900,000
	Non-MSW	280,000	420,000	460,000	460,000	620,000	970,000	1,010,000	680,000
	Imports	250,000	280,000	280,000	250,000	250,000	240,000	270,000	470,000
	MSW	90,000	200,000	220,000	200,000	230,000	180,000	240,000	420,000
	Non-MSW	160,000	70,000	60,000	50,000	30,000	60,000	30,000	50,000

Amounts may not add exactly due to rounding.

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

**Table 3 Solid Waste Tonnage and Percent Change Summary: 2008 - 2009**

		2008	2009	Tons Change	% Change
<b>Generation</b>		<b>12,600,000</b>	<b>10,680,000</b>	<b>(1,920,000)</b>	<b>-15.2%</b>
MSW		8,360,000	7,610,000	(750,000)	-9.0%
Non-MSW		4,240,000	3,080,000	(1,160,000)	-27.4%
	C&D	3,800,000	2,870,000	(930,000)	-24.5%
	Other	440,000	210,000	(230,000)	-52.3%
<b>Diversion</b>		<b>6,050,000</b>	<b>4,880,000</b>	<b>(1,170,000)</b>	<b>-19.3%</b>
MSW		2,980,000	2,620,000	(360,000)	-12.1%
	Recycling	2,300,000	1,970,000	(330,000)	-14.3%
	Composting	680,000	650,000	(30,000)	-4.4%
Non-MSW		3,070,000	2,270,000	(800,000)	-26.1%
	C&D Recycling	2,520,000	1,850,000	(670,000)	-26.6%
	Other C&D Diversion	520,000	380,000	(140,000)	-26.9%
Other Non-MSW Diversion		30,000	30,000	0	
<b>Disposal (Incl. Net Exports)</b>		<b>6,550,000</b>	<b>5,800,000</b>	<b>(750,000)</b>	<b>-11.5%</b>
In-State Disposal		4,970,000	4,680,000	(290,000)	-5.8%
	Landfill	1,740,000	1,500,000	(240,000)	-13.8%
	MSW	1,560,000	1,330,000	(230,000)	-14.7%
	C&D	130,000	120,000	(10,000)	-7.7%
	Other	50,000	60,000	10,000	20.0%
	Combustion	3,230,000	3,180,000	(50,000)	-1.5%
	MSW	3,210,000	3,180,000	(30,000)	-0.9%
	Non-MSW	10,000	10,000	0	0.0%
Net Exports		1,580,000	1,120,000	(460,000)	-29.1%
	Exports	1,850,000	1,590,000	(260,000)	-14.1%
	MSW	840,000	900,000	60,000	7.1%
	Non-MSW	1,010,000	680,000	(330,000)	-32.7%
	Imports	270,000	470,000	200,000	74.1%
	MSW	240,000	420,000	180,000	75.0%
	Non-MSW	30,000	50,000	20,000	66.7%

Note: % Change is calculated based on the rounded amounts in this table.  
 Amounts may not add exactly due to rounding.

In 2009, 10.7 million tons of solid waste was generated in Massachusetts, down 15 % from 12.6 million tons in 2007. Of this amount, 7.6 million tons were municipal solid waste (MSW) (71%) and 3.2 million tons were non-MSW (29%). Of the 10.7 million tons generated, 4.9 million tons (46%) were diverted (includes recycling, composting, and other diversion) and 5.8 million tons (54%) were disposed.

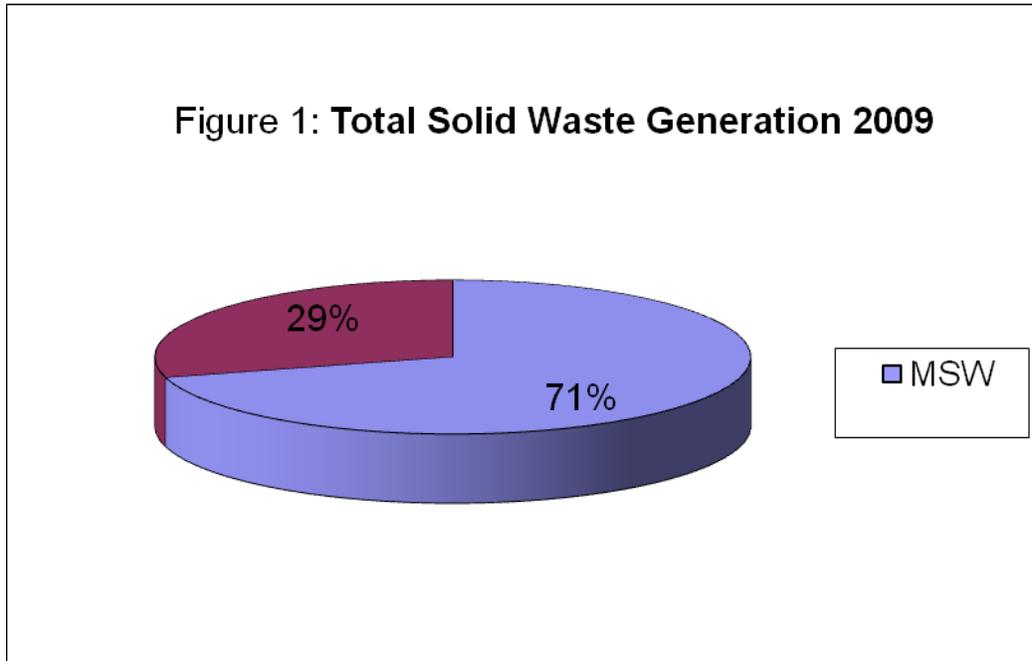


Table 4 shows recycling rates for overall waste (MSW and C&D combined), MSW, and C&D debris. Of the total waste that was generated in 2008, 42% was recycled, down from 44 % in 2008. The MSW recycling rate decreased from 36% in 2008 to 34% in 2008. The C&D recycling rate decreased from 66 % to 65%.

<b>Table 4</b>			
<b>Recycling Rates Based on Actual Generation</b>			
	<b>2007</b>	<b>2008</b>	<b>2009</b>
Overall Recycling	43%	44%	42%
MSW Recycling	33%	36%	34%
C&D Recycling	70%	66%	65%

From 2008 to 2009 total disposal decreased by 12 %. Of the total waste that required disposal, 4.7 million tons (82%) were disposed in-state, of which 1.5 million tons were landfilled and 3.2 million tons were combusted. Massachusetts exported 1.6 million tons for disposal and imported 0.5 million tons, and thus was a net exporter of about 1.1 million tons (18%) of waste requiring disposal. See Table 9 for a more detailed picture of disposal import and export data by state.

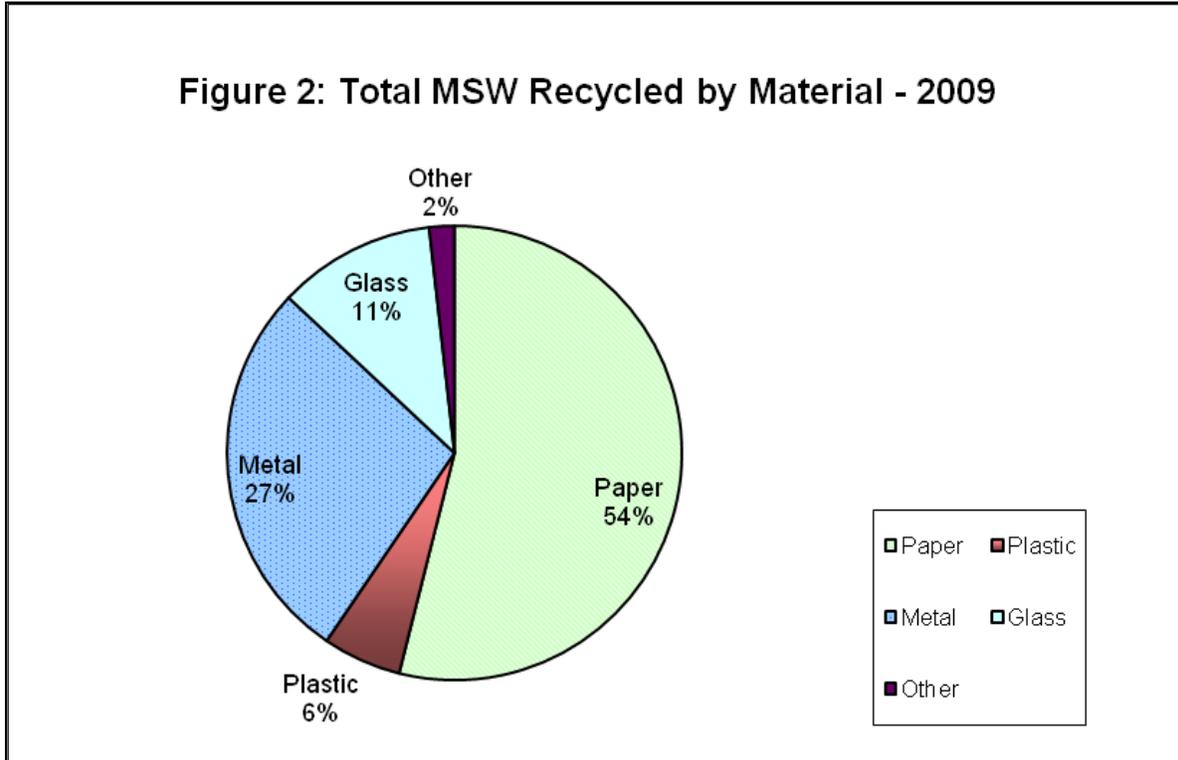
### **Municipal Solid Waste Management**

In 2009, 7.6 million tons of MSW were generated in Massachusetts. Of this amount, 34% was recycled or composted, down from 36% in 2008. From 2008 to 2009:

- MSW generation decreased 9 % from 8.4 million tons to 7.6 million tons.
- MSW recycling and composting decreased 16%, from 3.0 million tons to 2.6 million tons.
- MSW disposal (disposal in-state and net export out of state for disposal) decreased 7 % from 5.4 million tons to 5.0 million tons.
- MSW net exports for disposal decreased from 0.6 million tons to 0.5 million tons.

<b>Table 5</b>			
<b>How MSW was Managed from 2007 - 2009</b>			
	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Recycled</b>	33%	36%	34%
<b>Combusted (in state)</b>	35%	38%	42%
<b>Landfilled (in state)</b>	21%	18%	18%
<b>Net Exported for Disposal</b>	11%	7%	6%

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



### Non-MSW Waste Management

In 2009, 3.1 million tons of non-MSW were generated in Massachusetts, 2.9 million tons of which were C&D materials. C&D generation was down 25 percent from 3.8 million tons in 2008. Of the amount generated, 65% was recycled in 2009, down slightly from the 66 % recycling rate in 2008. The bulk of the C&D recycling tonnage was asphalt, brick and concrete (ABC), which decreased in both 2008 and 2009. Excluding ABC materials, the C&D recycling rate was 7%, up from 5% in 2008. Table 6 shows how C&D was managed in 2006-2008.

<b>Table 6</b>			
<b>C&amp;D Management 2007 – 2009 (Tons)</b>			
	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Generated</b>	<b>3,940,000</b>	<b>3,800,000</b>	<b>2,870,000</b>
<b>Disposed</b>	<b>670,000</b>	<b>760,000</b>	<b>630,000</b>
<i>In-state</i>	<i>60,000</i>	<i>130,000</i>	<i>110,000</i>
<i>Out-of-state</i>	<i>610,000</i>	<i>630,000</i>	<i>520,000</i>
<b>Diverted</b>	<b>3,270,000</b>	<b>3,040,000</b>	<b>2,240,000</b>
<i>Recycled</i>	<i>2,750,000</i>	<i>2,520,000</i>	<i>1,850,000</i>
ABC	2,550,000	2,330,000	1,650,000
Metal	40,000	40,000	70,000
Wood Non-Fuel	90,000	70,000	20,000
Wood Waste	30,000	40,000	40,000
Other*	40,000	50,000	80,000
<i>C&amp;D Other Diversion</i>	<i>490,000</i>	<i>520,000</i>	<i>380,000</i>
C&D Fines/Residuals	400,000	390,000	230,000
C&D Wood for Fuel	90,000	130,000	160,000

\*Other materials include ceiling tiles, carpet, gypsum wallboard, and asphalt roofing shingles. Amounts may not add exactly due to rounding.

#### **Other Non-MSW Management**

Non-MSW materials other than C&D are disposed in Massachusetts landfills and combustion facilities or sent out of state for disposal each year. In 2009, 60,000 tons of these materials were disposed in-state, including industrial waste, medical waste, wood waste, ash and sludge. Approximately 140,000 tons were disposed of out-of-state, primarily in New Hampshire (120,000 tons) and New York (20,000 tons). These materials disposed of out of state include asbestos-containing materials, sludge, and contaminated soils.

In addition, a significant amount of other non-MSW materials are managed each year in management systems that are 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 7 shows materials used as daily cover at active landfills in Massachusetts.

	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Auto Shredder Residue</b>	110,000	100,000	160,000
<b>Soil/Sand</b>	130,000	80,000	70,000
<b>Contaminated Soils</b>	320,000	410,000	300,000
<b>C&amp;D Fines and Residuals</b>	190,000	150,000	70,000
<b>Other Materials<sup>4</sup></b>	330,000	370,000	280,000
<b>TOTAL</b>	<b>1,080,000</b>	<b>1,110,000</b>	<b>880,000</b>

### **Municipal Waste Combustor Ash**

Seven waste-to-energy combustors operated in Massachusetts in 2008. In 2008, these combustors generated approximately 860,000 tons of combustion ash (excluding recovered post-burn metals), 140,000 of which was beneficially reused and 720,000 tons of which was disposed. Recent regulatory changes have eliminated the requirement to manage ash in a mono-fill facility, so that ash disposal locations may shift over time. The status of existing ash landfills is summarized in Table 8. MSW combustion ash also was disposed of in several other landfills in addition to those listed here in 2009.

Municipality	Site Name	Current Permit Expires
Agawam	Bondi's Island Ash Landfill	2020
Carver	CMW Ash Landfill	2012
Haverhill	Ward Hill Neck Ash Landfill	2015
Peabody	Peabody Ash Monofill	2019
Saugus	Wheelabrator Ash Landfill	2015
Shrewsbury	Shrewsbury Ash Landfill	2012

### **Disposal Import/Export Data for 2006-2009**

Table 9 shows MSW and C&D data exported and imported 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 export data provided in the AFR differed from that reported from other 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

<sup>4</sup> "Other Materials" includes approximately 15 various materials. The other materials used in the largest amounts include TriPak emulsion mix (60,000 tons) and street sweepings (30,000 tons).

<sup>5</sup> Although these landfills generally accept MSW combustion ash only, they may at times accept other materials for disposal.

reported that Massachusetts sent Connecticut 10,000 tons of MSW, and Connecticut reported receiving 29,000 tons of MSW from Massachusetts, 29,000 tons of export was used.

<b>MSW Exported</b>					<b>C&amp;D Exported</b>				
	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>		<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>CT</b>	29,493	60,108	42,513	20,209	<b>CT</b>	1,642	4,071	1,162	9,119
<b>ME</b>	207,627	218,445	231,789	263,398	<b>ME</b>	192,129	224,873	251,682	165,313
<b>MI</b>	3,879	10,270	14,605	0	<b>MI</b>		2,460	18,705	0
<b>NH</b>	171,570	162,707	410,466	230,145	<b>NH</b>	73,248	121,987	72,338	33,576
<b>NY</b>	191,616	198,061	175,252	136,107	<b>NJ</b>	0	8,360	0	0
<b>OH</b>	12,255	67,307	6,745	91,376	<b>NY</b>	16,588	10,452	78,217	69,301
<b>PA</b>	722	0	528	0	<b>OH</b>	279,046	224,534	174,038	227,868
<b>RI</b>	5,684	0	732	22,704	<b>RI</b>	40,745	51,537	21,126	34,192
<b>SC</b>	380,266	366,054	274,745	138,956	<b>SC</b>	67	0	0	0
<b>VA</b>	1,554	8,100	3,063	109	<b>VA</b>	0	65	0	0
<b>VT</b>	0	2,145	0	0	<b>VT</b>	0	273	0	0
<b>CANADA</b>	90	383	0	0	<b>CANADA</b>	0	7,828	21,954	0
<b>TOTAL</b>	<b>1,004,756</b>	<b>1,093,580</b>	<b>1,160,438</b>	<b>903,004</b>	<b>TOTAL</b>	<b>603,465</b>	<b>656,440</b>	<b>639,222</b>	<b>539,369</b>
<b>MSW Imported</b>					<b>C&amp;D Imported</b>				
	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>		<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>CT</b>	114,363	69,291	83,061	136,349	<b>CT</b>	13,883	39,151	312	2,001
<b>ME</b>	1,779	1,779	1,709	1,637	<b>ME</b>	0	0	47	13
<b>NH</b>	42,475	34,579	44,113	92,581	<b>NH</b>	2,741	2,756	6,617	9,379
<b>NY</b>	7,483	17,735	7,657	18,579	<b>NY</b>	0	23	13	1
<b>RI</b>	31,547	38,941	88,804	148,035	<b>RI</b>	450	5,890	330	10,587
<b>VT</b>	26,171	19,862	11,226	18,073	<b>VT</b>	140	70	0	18
<b>CANADA</b>	1,677	1,278	1,834	0	<b>TOTAL</b>	<b>17,214</b>	<b>47,890</b>	<b>7,319</b>	<b>21,999</b>
<b>TOTAL</b>	<b>225,495</b>	<b>183,465</b>	<b>238,404</b>	<b>415,254</b>					

## Waste Management Capacity Projections

Table 11 projects waste management capacity through 2020. These projections are based in part on the disposal capacity projections shown in Table 10. These projections assume that waste generation declines slightly through 2010 (1 percent/year) and then increases slightly from 2011-2020 (1 percent/year). These projections also assume that 76% of potential landfill disposal capacity is utilized (based on recent historical capacity utilization rates). The waste management capacity projections estimate two different scenarios:

- 1) baseline recycling remains level with generation (i.e., the recycling rate remains the same), and
- 2) recycling tonnage increases 1% per year from 2009-2010 and 4% per year from 2011-2020, meeting the goal of reducing disposal tonnage by 30% by 2020.

The projections show projected management capacity and net export through 2020. Under scenario 1, net export for disposal in 2020 is projected to be 2.6 million tons. Under scenario 2, net export for disposal in 2020 is projected to be 700,000 tons.

The disposal capacity projections in Table 10 reflect either actual permitted capacity or approved capacity contingent on receiving permits. However, in some cases, landfills may take in less than their permitted tonnage in a particular year. In these cases, capacity for a particular landfill may last beyond the date shown in these projections. MassDEP attempts to take this factor into account by projecting only 76% of potential landfill capacity in showing waste management capacity projections in future years. The combustion capacity is shown as level based on actual 2009 tons burned, although this actual amount managed will vary slightly from year to year.

**Table 10 Projected Disposal Capacity 2010-2020 (Tons Per Year)**

Municipality	2008 Permitted Capacity	End of current permitted capacity	Lifetime of LF	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Active Landfills</b>														
Barre	93,600	2010	2013	93600	93600	93600	93600	0	0	0	0	0	0	0
Bourne	219,000	2014	2025	219000	219000	219000	219000	219000	219000	219000	219000	219000	219000	219000
Carver	175,000	2013	2013	175000	175000	175000	175000	0	0	0	0	0	0	0
Chicopee	365,000	2011	2014	365000	365000	365000	365000	365000	0	0	0	0	0	0
Dartmouth	115,000	2012	2021	115000	115000	115000	115000	115000	115000	115000	115000	115000	115000	115000
Fall River	468,000	2011	2012	468000	468000	468000	0	0	0	0	0	0	0	0
Granby	235,000	2012	2012	235000	235000	235000	0	0	0	0	0	0	0	0
Middleborough	39,676	2013	2029	39676	39676	39676	39676	39676	39676	39676	39676	39676	39676	39676
Nantucket	26,000	2010	2020	26000	26000	26000	26000	26000	26000	26000	26000	26000	26000	26000
Northampton	50,000	2011	2011	50000	50000	0	0	0	0	0	0	0	0	0
South Hadley	156,000	2012	2012	156000	156000	156000	0	0	0	0	0	0	0	0
Southbridge	180,960	2019	2019	180960	305000	405000	405000	405000	405000	405000	405000	405000	405000	0
Sturbridge	410	2016	2016	410	410	410	410	410	410	410	0	0	0	0
Taunton	120,120	2013	2015	120120	120120	120120	120120	120120	120120	0	0	0	0	0
Warren	2,000	2012	2012	2000	2000	2000	0	0	0	0	0	0	0	0
Westminster	390,000	2010	2021	390000	390000	390000	390000	390000	390000	390000	390000	390000	390000	390000
<b>Municipal Waste Combustors</b>														
Agawam	130,000			130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000	130,000
Haverhill	600,000			600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000	600,000
Millbury	490,000			490,000	490,000	490,000	490,000	490,000	490,000	490,000	490,000	490,000	490,000	490,000
North Andover	450,000			450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000	450,000
Pittsfield	80,000			80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000	80,000
Rochester	1,050,000			1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000
Saugus	440,000			440,000	440,000	440,000	440,000	440,000	440,000	440,000	440,000	440,000	440,000	440,000
<b>TOTAL PERMITTED CAPACITY</b>				<b>5,875,766</b>	<b>5,022,206</b>	<b>4,707,206</b>	<b>4,079,086</b>	<b>3,864,410</b>	<b>3,765,530</b>	<b>3,645,410</b>	<b>3,645,000</b>	<b>3,645,000</b>	<b>3,645,000</b>	<b>3,240,000</b>
<b>TOTAL POTENTIAL CAPACITY</b>				<b>5,875,766</b>	<b>5,999,806</b>	<b>6,049,806</b>	<b>5,188,806</b>	<b>4,920,206</b>	<b>4,555,206</b>	<b>4,435,086</b>	<b>4,434,676</b>	<b>4,434,676</b>	<b>4,434,676</b>	<b>4,029,676</b>
<b>KEY:</b>														
Permitted Capacity			Number without shading											
Potential Additional Capacity			Number with shading											
<b>TOTAL POTENTIAL CAPACITY WMCP</b>				<b>5,243,182</b>	<b>5,337,453</b>	<b>5,375,453</b>	<b>4,721,093</b>	<b>4,516,957</b>	<b>4,239,557</b>	<b>4,148,265</b>	<b>4,147,954</b>	<b>4,147,954</b>	<b>4,147,954</b>	<b>3,840,154</b>
<b>76% of potential for LFs combustion capacity based on 2009 tons burned, rounded to the nearest 10,000 tons actual combustion amount will vary slightly year to year</b>														

<b>Table 11 Waste Management Capacity Projections: 2009-2020</b>												
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Generation</b>	10,682,311	10,575,488	10,681,243	10,788,055	10,895,936	11,004,895	11,114,944	11,226,094	11,338,355	11,451,738	11,566,256	11,681,918
<b>Baseline Recycling</b>	4,468,687	4,424,000	4,468,240	4,512,923	4,558,052	4,603,632	4,649,669	4,696,165	4,743,127	4,790,558	4,838,464	4,886,849
<b>Increased Recycling</b>	4,468,687	4,513,374	4,693,909	4,881,665	5,076,932	5,280,009	5,491,210	5,710,858	5,939,292	6,176,864	6,423,939	6,680,896
<b>Non-M SW Other Diversion</b>	412,039	407,919	411,998	416,118	420,279	424,482	428,727	433,014	437,344	441,717	446,135	450,596
<b>Combustion Capacity</b>	3,240,000	3,240,000	3,240,000	3,240,000	3,240,000	3,240,000	3,240,000	3,240,000	3,240,000	3,240,000	3,240,000	3,240,000
<b>Potential LF Capacity</b>	1,500,105	1,933,262	2,027,533	2,065,533	1,481,093	1,276,957	908,265	908,265	907,954	907,954	907,954	600,154
<b>In-state Capacity (baseline recycling)</b>	9,620,831	10,005,181	10,147,771	10,234,573	9,699,423	9,545,071	9,226,661	9,277,445	9,328,425	9,380,230	9,432,552	9,177,598
<b>In-state Capacity (increased recycling)</b>	NA	10,094,555	10,373,439	10,603,316	10,218,304	10,221,448	10,068,202	10,292,137	10,524,590	10,766,535	11,018,027	10,971,646
<b>Net Disposal Export (baseline recycling)</b>	1,061,480	570,307	533,472	553,482	1,196,512	1,459,825	1,888,284	1,948,649	2,009,930	2,071,509	2,133,703	2,504,320
<b>Net Disposal Export (increased recycling)</b>	NA	480,933	307,804	184,740	677,632	783,448	1,046,743	933,956	813,765	685,203	548,229	710,272
<b>Assumptions for Annual Percent Change:</b>												
	<b>2010</b>	<b>2011-2020</b>										
<b>Generation</b>	-10%	10%										
<b>Baseline Recycling Tonnage</b>	-10%	10%										
<b>Increased Recycling Tonnage</b>	10%	4.0%										
<b>Non-M SW Other Diversion</b>	-10%	10%										
2009 figures reflect actual 2009 data.												
Baseline recycling assumes recycling changes at the same rate as generation.												
Non-MSW Other Diversion includes fines and residuals for landfill uses and non-M SW for fuel.												
Combustion Capacity is projected to remain level from 2010 through 2020 based on 2009 tonnage.												
Future landfill capacity is calculated to be 76% of total potential based on historical disposal patterns.												
Net export is calculated by subtracting In-State Management Capacity from Generation.												
In-State Management Capacity is the sum of Recycling, other Non-MSW Diversion, Combustion Capacity and Potential Landfill Capacity.												

