COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ONE WINTER STREET, BOSTON, MA 02108 617-292-5500

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

IAN A. BOWLES
Secretary

LAURIE BURT
Commissioner

2007 Solid Waste Data Update on the *Beyond 2000 Solid Waste Master Plan*

May 2009

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 (EEA) and the Massachusetts Department of Environmental Protection (MassDEP) established a plan and vision for how Massachusetts will manage its solid waste for the 2001-2010 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 2007 and revised waste management capacity projections through 2015 based on the 2007 data. This report includes an update on waste reduction and recycling rates and an overview of solid waste management for calendar year 2007[1].

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. In the meantime, MassDEP has begun to develop a new Solid Waste Master Plan that will provide a new framework for the next decade, replacing the *Beyond 2000 Solid Waste Master Plan*. MassDEP has held extensive public meetings and workgroup meetings to obtain input into a new Solid Waste Master Plan. MassDEP expects to issue a draft new Solid Waste Master Plan in summer 2009 and issue a final plan by the beginning of 2010.

Summary of Waste Reduction and Recycling Rate Methodology

MassDEP calculates the following waste reduction rates for municipal solid waste (MSW) and Non-MSW solid waste:

Waste Reduction Rates		**Equation**
Total Waste Reduction Rate	=	(MSW Recycling[2] + MSW Source Reduction[3]) + (C&D Recycling + Other C&D Diversion+ Non-MSW Source Reduction) / Total Potential Generation[4]
MSW Waste Reduction Rate	=	MSW Recycling + MSW Source Reduction / MSW Potential Generation
Non-MSW Waste Reduction Rate	=	C&D Recycling +Other C&D Diversion + Non-MSW Source Reduction / Non-MSW Potential Generation

[1] Please note that some of the 2006 data in this report has been revised and updated from that published in the *2006 Solid Waste Data Update*.
[2] MSW recycling includes both recycling and off-site composting, but does not include home composting, which is considered source reduction.
[3] Source reduction refers to the difference between potential generation and actual generation.
[4] Potential generation refers to what generation would have been without source reduction and is an estimate of the amount of waste expected based on economic activity. MassDEP uses Massachusetts Gross Domestic Product (GDP) (formerly referred to as 'gross state product' or GSP) as the economic "driver" to estimate potential generation.

MassDEP calculates the following recycling rates for municipal solid waste (MSW) and construction and demolition (C&D) waste:

Recycling Rates		Equation
MSW Recycling Rate	=	MSW Recycling / MSW Actual Generation (MSW Recycling + MSW Disposal)
C&D Recycling Rate	=	C&D Recycling / C&D Actual Generation (C&D Recycling + C&D Other Diversion + C&D Disposal)

Progress in Meeting Waste Reduction Milestones

In the *Beyond 2000 Plan*, MassDEP established a vision to dispose of the "irreducible minimum" amount of waste through waste reduction efforts. The *Beyond 2000Plan* included a goal of 70 percent waste reduction by 2010. MassDEP believes that a waste reduction goal that measures source reduction and recycling is a better measure than recycling alone; however, MassDEP has found that a recycling goal is simpler and easier to explain. Therefore, MassDEP also established a recycling goal of 56 percent in the 2006 Master Plan Revision.

Table 1 summarizes waste reduction rates from 2005 through 2007. Waste Reduction rates are based on Potential Generation, which includes Source Reduction. Total waste reduction rose from 59% in 2006 to 61% in 2007. Municipal solid waste (MSW) waste reduction increased from 45% in 2006 to 47% in 2007, and non-municipal solid waste (Non-MSW) waste reduction increased from 86% in 2006 to 87% in 2007, remaining just below the 88% non-MSW milestone set in the *Beyond 2000 Solid Waste Master Plan*.

Table 1
Waste Reduction Rates Based on *Potential* Generation[5]

	2005	2006	2007	2010 Milestone
Total Waste Reduction Rate	58%	59%	61%	70%
MSW Waste Reduction Rate	42%	45%	47%	60%
Non-MSW Waste Reduction Rate	87%	86%	87%	88%

The Total Waste Reduction rate includes source reduction (preventing waste from being generated), recycling (including off-site composting), and other C&D diversion.[6] The Source Reduction tonnage estimate is based on economic data from the United States Bureau of Economic Analysis (BEA). On an annual basis the BEA releases Gross Domestic Product (GDP) by State[7] data that quantifies economic growth rates for each state in the United States. MassDEP uses the GDP figure in conjunction with reported generation data to estimate what generation would be if waste generation increased at the same rate as GDP (i.e., "potential generation.") The difference between actual generation and estimated potential generation is considered to be source reduction. This estimate of tons source reduced is used to calculate the total waste reduction rate. As a point of reference, the BEA GDP data for the past 3 years are listed in Table 2 in millions of chained dollars.

[5] Potential Generation refers to what generation would have been without source reduction and is an estimate of the amount of waste expected based on economic activity.
[6] For a discussion of how MassDEP measures waste reduction, see pages 3-6 and 3-7 of the *Beyond 2000 Solid Waste Master Plan*.
[7] MassDEP uses Massachusetts Gross Domestic Product (GDP) by State, formerly identified as gross state product (GSP), as the economic "driver" to estimate potential generation.

Table 2 Massachusetts Gross Domestic Product by State	
Year	**Millions of Chained Dollars[8]**
2005	$292,225
2006	$300,753
2007	$305,400

The increase in waste reduction can be attributed in part to the continued light-weighting of materials, reuse of materials, and reduction in newspapers and other subscriptions' size and numbers. For example, newsprint consumption in the Northeast United States decreased 7.5 percent from 2005 to 2006 (from 1,649,000 tons to 1,526,000 tons) and decreased 9.4 percent from 2006 to 2007 (from 1,526,000 tons to 1,383,000 tons)[9]. This trend appears to be due to a combination of factors:

- Reduced hard-copy subscriptions replaced by increased electronic subscriptions
- Width reductions in newspaper pages
- Basis weight reductions (i.e., shifting to lighter weight paper)
- Reductions in hard-copy classified advertisements

Table 3 shows recycling rates based on actual generation, which does not include source reduction. Of the total waste that was generated in 2007, 44% was recycled, a decrease of 2% when compared to 2006. The MSW recycling rate decreased from 34% in 2006 to 33% in 2007. The C&D recycling rate increased from 69% in 2006 to 70% in 2007.

The high value of certain materials in 2007, particularly metals, could be a contributing factor to the decrease in MSW recycling. These high material values may have resulted in increased scavenging and the transport of materials directly to port for export, which would likely not be reported to MassDEP by commercial processors and, therefore, not reflected in the state's recycling data. MassPort reported a 118% increase in metal exported from Massachusetts sources from 2006 to 2007[10], while metal recycling reported to MassDEP decreased by 18%.

Table 3 Recycling Rates Based on Actual Generation			
	2005	**2006**	**2007**
Overall Recycling	47%	46%	44%
MSW Recycling *	36%	34%	33%
C&D Recycling	70%	69%	70%

*Excludes backyard composting which is source reduction

[8] Bureau of Economic Analysis, US Department of Commerce 2008 GDP News Release.
[9] Data and trend analysis information provided by the Newspaper Association of America, March 2009.
[10] WISERTrade: State Exports from U.S. Census Bureau Foreign, Trade Division.

Environmental and Economic Benefits of Recycling

In 2007, Massachusetts prevented the disposal of 10 million tons of waste through a combination of recycling, composting and other waste reduction, saving enough landfill space to eliminate the need for 23 landfills, each equal to the state's largest (1,200 tons per day). In addition to saving landfill space, waste reduction also slows climate change by conserving natural resources, saving energy, and preventing pollution. In 2007, Massachusetts is estimated[11] to have:

- Reduced greenhouse gas emissions by more than 1.8 million tons of carbon equivalent per year.
- Saved nearly 70 trillion BTUs of energy, equivalent to the annual energy consumption of 12 million barrels of oil, or 550 million gallons of gasoline.
- Saved over one million tons of iron ore, coal, and limestone.

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[12].

[11] Source: *Environmental Benefits Calculator*, Northeast Recycling Council, September 2006.
[12] *U.S. Recycling Information Study*, prepared for the Northeast Recycling Council, February 2009.

Solid Waste Management Overview

Table 4 presents a comprehensive picture of solid waste management in Massachusetts for calendar years 2001-2007. Table 5 highlights how solid waste management changed from 2006 to 2007. Please note that data for potential generation and source reduction are calculated estimates that rely on annual Massachusetts Gross Domestic Product data, whereas data for total generation, diversion and disposal are based on reports submitted to MassDEP by municipalities, businesses, and facilities.

Table 4

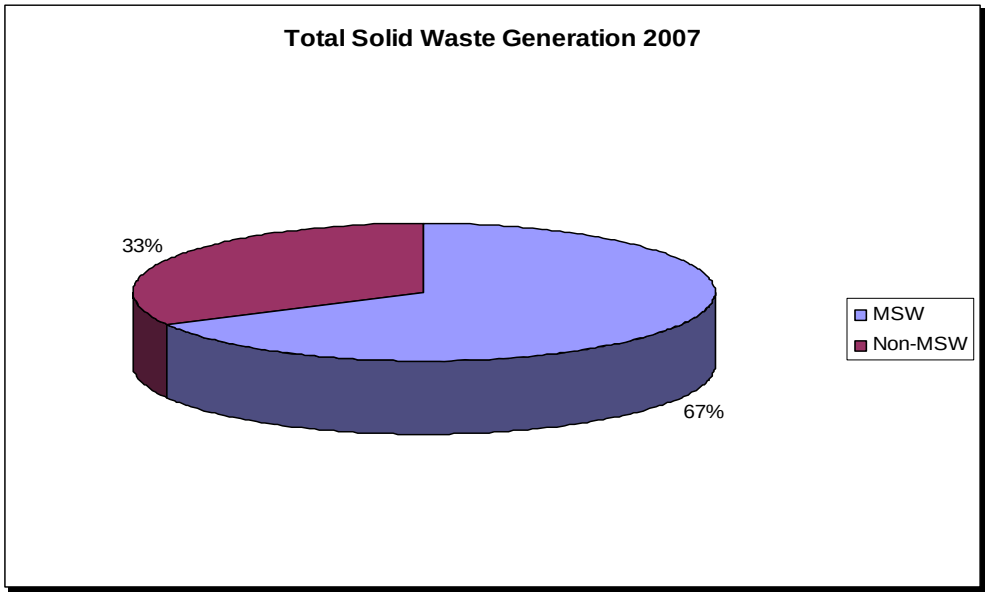
Integrated Solid Waste Management System 2001-2007								
			2001	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**
Potential Generation			**14,660,000**	**14,440,000**	**15,250,000**	**15,990,000**	**16,090,000**	**16,130,000**	**16,450,000**
	MSW		9,380,000	9,260,000	9,800,000	10,280,000	10,350,000	10,370,000	10,530,000
	Non-MSW		5,250,000	5,180,000	5,450,000	5,750,000	5,750,000	5,760,000	5,920,000
Source Reduction			**1,880,000**	**1,200,000**	**2,040,000**	**2,050,000**	**1,600,000**	**2,880,000**	**4,030,000**
	MSW		1,270,000	900,000	1,340,000	1,550,000	1,040,000	1,660,000	2,160,000
	Non-MSW		610,000	300,000	700,000	500,000	560,000	1,220,000	1,870,000
Total Generation			**12,780,000**	**13,240,000**	**13,210,000**	**13,930,000**	**14,490,000**	**13,260,000**	**12,420,000**
MSW			8,130,000	8,350,000	8,460,000	8,720,000	9,310,000	8,710,000	8,370,000
		Residential	3,130,000	3,300,000	3,520,000	3,510,000	3,510,000	3,490,000	3,530,000
		Commercial	5,000,000	5,050,000	4,940,000	5,210,000	5,790,000	5,220,000	4,840,000
Non-MSW			4,650,000	4,890,000	4,750,000	5,210,000	5,190,000	4,550,000	4,050,000
		C&D	4,540,000	4,820,000	4,720,000	5,160,000	5,100,000	4,460,000	3,940,000
		Other	110,000	70,000	30,000	50,000	90,000	90,000	110,000
Diversion			**6,440,000**	**6,790,000**	**6,860,000**	**7,580,000**	**7,750,000**	**6,710,000**	**6,010,000**
MSW			2,780,000	2,610,000	2,870,000	3,070,000	3,300,000	2,970,000	2,740,000
	Residential Recycling		520,000	520,000	540,000	540,000	530,000	530,000	580,000
	Commercial Recycling		1,640,000	1,400,000	1,660,000	1,880,000	2,010,000	1,690,000	1,480,000
	Residential Composting		340,000	330,000	350,000	340,000	350,000	360,000	340,000
	Commercial Composting		280,000	360,000	330,000	580,000	410,000	380,000	340,000
Non-MSW			3,660,000	4,180,000	3,990,000	4,500,000	4,450,000	3,740,000	3,270,000
		C&D Recycling	3,150,000	3,590,000	3,360,000	3,650,000	3,530,000	3,070,000	2,750,000
	Other C&D Diversion		510,000	590,000	630,000	860,000	930,000	670,000	510,000
Disposal			**6,340,000**	**6,450,000**	**6,340,000**	**6,360,000**	**6,750,000**	**6,550,000**	**6,410,000**
	Landfill		1,710,000	1,790,000	1,710,000	1,720,000	2,070,000	2,080,000	1,900,000
		MSW	1,030,000	1,210,000	1,310,000	1,430,000	1,760,000	1,880,000	1,760,000
		C&D	620,000	520,000	370,000	270,000	240,000	130,000	60,000
		Other	60,000	60,000	20,000	30,000	70,000	70,000	70,000
	Combustion		3,130,000	3,090,000	3,130,000	3,080,000	3,090,000	3,100,000	2,970,000
		MSW	3,130,000	3,080,000	3,120,000	3,070,000	3,080,000	3,090,000	2,960,000
		Non-MSW	*0	*0	*0	*0	10,000	10,000	10,000
	Net Exports		1,500,000	1,570,000	1,510,000	1,560,000	1,580,000	1,370,000	1,540,000
		Exports	1,690,000	1,830,000	1,790,000	1,840,000	1,820,000	1,620,000	1,790,000
		Imports	190,000	250,000	280,000	280,000	250,000	250,000	240,000
*Non-MSW combustion was less than 5,000 tons									

Table 5

Solid Waste Tonnage and Percent Change Summary: 2006-2007						
			2006	**2007**	**Tons Change**	**% Change**
Potential Generation			**16,130,000**	**16,450,000**	**320,000**	**2.0%**
	MSW		10,370,000	10,530,000	**160,000**	**1.5%**
	Non-MSW		5,760,000	5,920,000	**160,000**	**2.8%**
Source Reduction			**2,880,000**	**4,030,000**	**1,150,000**	**39.9%**
	MSW		1,660,000	2,160,000	**500,000**	**30.1%**
	Non-MSW		1,220,000	1,870,000	**650,000**	**53.3%**
Generation			**13,260,000**	**12,420,000**	**(840,000)**	**-6.3%**
MSW			8,710,000	8,370,000	**(340,000)**	**-3.9%**
		Residential	3,490,000	3,530,000	**40,000**	**1.1%**
		Commercial	5,220,000	4,840,000	**(380,000)**	**-7.3%**
Non-MSW			4,550,000	4,050,000	**(500,000)**	**-11.0%**
		C&D	4,460,000	3,940,000	**(520,000)**	**-11.7%**
		Other	90,000	110,000	**20,000**	**22.2%**
Diversion			**6,710,000**	**6,010,000**	**(700,000)**	**-10.4%**
MSW			2,970,000	2,740,000	**(230,000)**	**-7.7%**
	Residential Recycling		530,000	580,000	**50,000**	**9.4%**
	Commercial Recycling		1,690,000	1,480,000	**(210,000)**	**-12.4%**
	Residential Off Site Composting		360,000	340,000	**(20,000)**	**-5.6%**
	Commercial Composting		380,000	340,000	**(40,000)**	**-10.5%**
Non-MSW			3,740,000	3,270,000	**(470,000)**	**-12.6%**
	C&D Recycling		3,070,000	2,750,000	**(320,000)**	**-10.4%**
	Other C&D Diversion		670,000	510,000	**(160,000)**	**-23.9%**
Disposal (Incl. Net Exports)			**6,550,000**	**6,410,000**	**(140,000)**	**-2.1%**
In-State Disposal			5,180,000	4,870,000	**(310,000)**	**-6.0%**
	Landfill		2,080,000	1,900,000	**(180,000)**	**-8.7%**
		MSW	1,880,000	1,760,000	**(120,000)**	**-6.4%**
		C&D	130,000	60,000	**(70,000)**	**-53.8%**
		Other	70,000	70,000	**-**	**0.0%**
	Combustion		3,100,000	2,970,000	**(130,000)**	**-4.2%**
		MSW	3,090,000	2,960,000	**(130,000)**	**-4.2%**
		Non-MSW	10,000	10,000	**-**	**0.0%**
Net Exports			1,370,000	1,540,000	**170,000**	**12.4%**
	Exports		1,620,000	1,790,000	**170,000**	**10.5%**
		MSW	1,000,000	1,090,000	**90,000**	**9.0%**
		Non-MSW	620,000	690,000	**70,000**	**11.3%**
	Imports		250,000	240,000	**(10,000)**	**-4.0%**
		MSW	230,000	180,000	**(50,000)**	**-21.7%**
		Non-MSW	30,000	60,000	**30,000**	**100.0%**
Note: % Change is calculated based on the rounded amounts in this table.						

In 2007, 12.4 million tons of solid waste were generated in Massachusetts. Of this amount, 8.4 million tons were MSW (67%) and 4.1 million tons were Non-MSW (33%)[13]. Generation decreased by 6.9% from 13.3 million tons to 12.4 million tons. Of the 12.4 million tons generated, 6.0 million tons (48%) were diverted (includes recycling, composting, and other diversion) and 6.4 million tons (52%) were disposed.

Figure 1



From 2006 to 2007 total disposal decreased by 2.1%. Of the total waste that required disposal, 4.9 million tons (77%) were disposed in-state of which 1.9 million tons were landfilled and 3.0 million tons were combusted. Massachusetts exported 1.8 million tons for disposal and imported 0.24 million tons, thus was a net exporter of about 1.5 million tons (24%) of waste requiring disposal. See Tables 13 and 14 for a more detailed picture of import/export data by state.

Municipal Solid Waste Management

In 2007, 8.4 million tons of MSW were generated in Massachusetts. Of this amount, 33% was recycled (including off-site composting, but excluding on-site backyard composting), down from 34% in 2006.

Table 6
How MSW was Managed from 2005 - 2007

	2005	2006	2007
Recycled	36%	34%	33%
Combusted	33%	35%	35%
Landfilled	18%	22%	21%
Net Exported for Disposal	13%	9%	11%

[13] Percentages may not add exactly due to rounding.

The per capita MSW recycling rate decreased from 2.5 pounds per person per day in 2006 to 2.3 pounds per person per day in 2007. The per capita disposal rate (including export) decreased from 5.4 pounds per person per day in 2006 to 5.3 pounds per person per day in 2007.

From 2006 to 2007:

- MSW generation decreased 4%, from 8.7 million tons to 8.4 million tons. Per capita MSW generation also decreased from 7.4 to 7.1 pounds per person per day.
- Residential MSW generation remained about the same at 3.5 million tons while commercial MSW generation decreased 7.3%, from 5.2 million tons to 4.8 million tons.
- MSW recycling (including off-site composting) decreased 7.7%, from 3.0 million tons to 2.7 million tons. This was primarily due to a decrease of 12.4% in commercial recycling, whereas residential recycling increased by 9.4% in the same period.
- Total MSW disposal (disposal in-state and net exported out of state for disposal) dropped slightly from 5.7 million tons to 5.6 million tons.
- MSW net exports for disposal increased from 0.8 million in 2006 to 0.9 million in 2007.

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

Figure 2

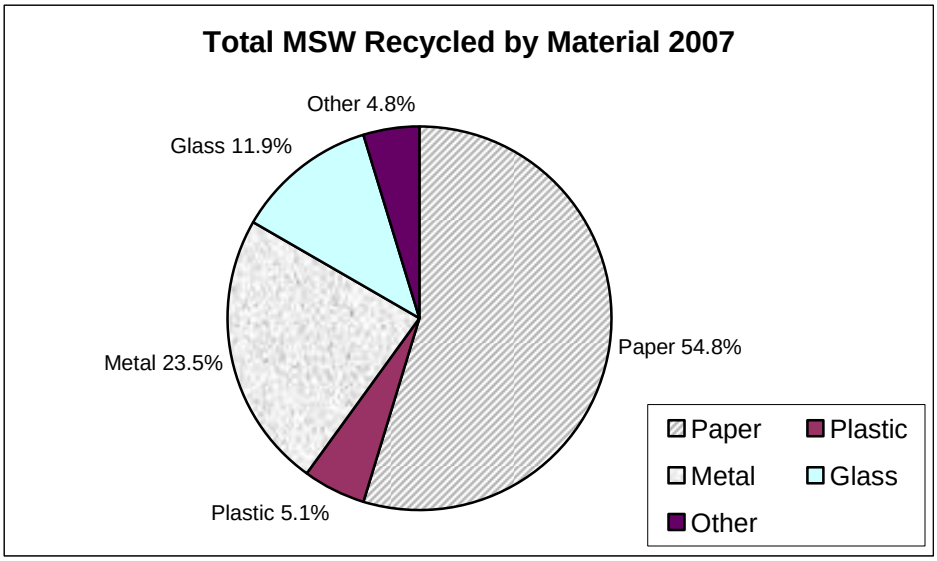


Figure 3

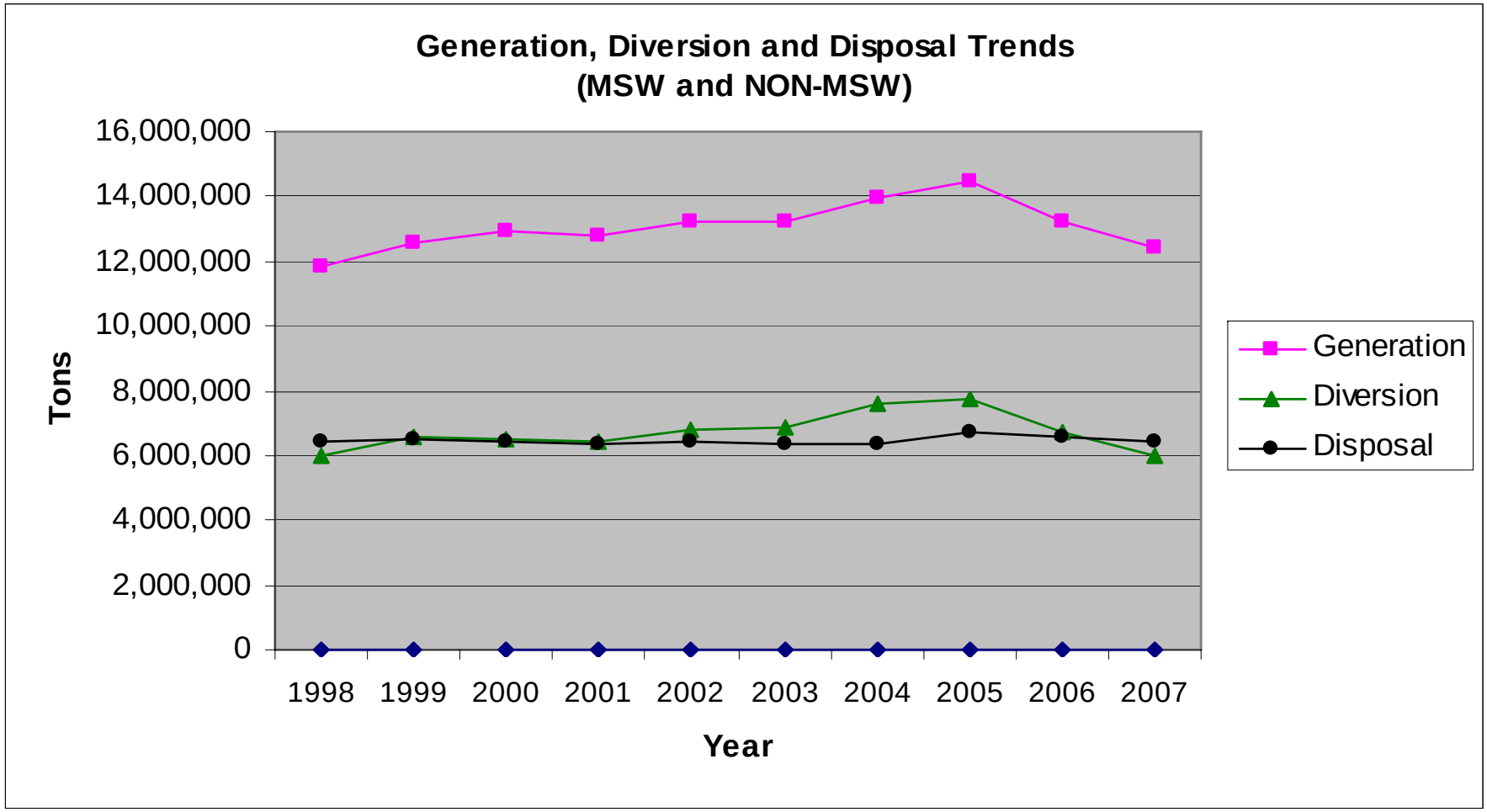

Generation, Diversion and Disposal Trends
(MSW and NON-MSW)
16,000,000
14,000,000
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
0
Tons
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
Year
Generation
Diversion
Disposal

Table 7 shows the calculation of MSW waste reduction in 2007. Waste reduction is the combined effect of source reduction and recycling as a percentage of potential waste generation.

Table 7 **2007 MSW Waste Reduction (in tons)**	
Potential MSW Generation without Source Reduction	10,530,000
Source Reduction	2,160,000
% of potential generation	21%
Recycling*	2,740,000
% of potential generation	26%
Total Waste Reduction	4,900,000
% of potential generation	47%
*The recycling rate is 33% when based on actual MSW generation	

The distribution of residential recycling rates by municipality by year is shown in Table 8. The first column provides the number of municipalities that achieved a rate within a particular range. The second column shows the percentage distribution in terms of those municipalities that reported. While the number and percentage of municipalities with residential recycling rates greater than 30% decreased in 2007, overall residential recycling tonnage increased by 9% from 2006 to 2007. In addition, more municipalities reported data through the yearly Municipal Recycling and Diversion data sheet distributed by MassDEP.

Table 8
Residential Recycling Rates by Municipality

Municipalities Achieving:	**CY2003**		**CY2004**		**CY2005**		**CY2006**		**CY2007**	
30% or greater	162	54%	156	55%	159	52%	161	52%	147	47%
20-29%	86	29%	78	28%	84	27%	85	28%	96	30%
10-19%	41	14%	41	14%	55	18%	50	16%	58	18%
1-9%	11	4%	8	3%	10	3%	12	4%	15	5%
Not included due to incomplete or missing data	51		68		43		43		35	

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 disposal capacity for other materials.

In 2007, 3.9 million tons of C&D were generated in Massachusetts, down from 4.5 million tons in 2006. Of the amount generated, 70% was recycled, up from 69% in 2006. Table 9 shows how C&D was managed in 2005-2007.

Table 9 C&D Management by Tonnage 2005 - 2007			
	2005	**2006**	**2007**
Generated	**5,100,000**	**4,460,000**	**3,940,000**
Disposed	**700,000**	**720,000**	**670,000**
• **In-State**	240,000	130,000	60,000
• **Net Export Out-of-State**	460,000	590,000	610,000
Diverted	**4,320,000**	**3,740,000**	**3,270,000**
• **C&D Recycled**	**3,530,000**	**3,070,000**	**2,750,000**
o *Asphalt, Brick, and Concrete (ABC)*	3,330,000	2,840,000	2,550,000
o *Metal*	90,000	90,000	40,000
o *Wood for Non-fuel Uses*	30,000	50,000	90,000
o *Wood Waste*	50,000	50,000	30,000
o *Other**	20,000	40,000	40,000
• **C&D Other Diversion**	**930,000**	**670,000**	**510,000**
o *C&D Fines/Residuals*	870,000	580,000	400,000
o *C&D Wood for Fuel*	60,000	90,000	110,000

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

Table 10 shows the calculation of non-MSW waste reduction in 2007. Waste reduction is the combined effect of recycling, source reduction and other C&D diversion as a percentage of *potential* generation.

Table 10 2007 Non-MSW Waste Reduction (in tons)	
Potential generation without source reduction	5,920,000
Source Reduction	1,870,000
% of potential generation	32%
C&D Recycling*	2,750,000
% of potential generation	46%
C&D Other Diversion	510,000
% of potential generation	9%
Total Waste Reduction	5,130,000
% of potential generation	87%

* The recycling rate is 70% based on *actual* generation.

Other Non-MSW Management

A relatively small amount of 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 2007, 110,000 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 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 11 shows materials used as daily cover at active landfills.

Table 11 Reported Daily Cover Material at Active Landfills (in tons)			
	2005	**2006**	**2007**
Auto Shredder Residue	60,000	130,000	110,000
Soil/Sand	220,000	180,000	130,000
Contaminated Soils	250,000	310,000	320,000
C&D Fines and Residuals	330,000	230,000	190,000
Other Materials[14]	320,000	420,000	330,000
TOTAL	**1,180,000**	**1,270,000**	**1,080,000**

Municipal Waste Combustor Ash

Seven waste-to-energy combustors operated in Massachusetts in 2007. In 2007, these combustors generated approximately 805,000 tons of combustion ash (excluding recovered post-burn metals), 143,000 of which was beneficially reused and 662,000 tons of which was disposed. A number of landfills in Massachusetts that accept combustion ash are nearing their capacity, and efforts are underway by a number of combustors to expand capacity. 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 12.

Table 12 Active MSW Combustion Ash Landfills		
Municipality	**Site Name**	**Current Permit Expires**
Agawam	Bondi's Island Ash Landfill	2011
Saugus	Wheelabrator Ash Landfill	2015
Haverhill	Ward Hill Neck Ash Landfill	2015
Shrewsbury	Shrewsbury Ash Landfill	2011
Carver	CMW Ash Landfill	2015

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

Disposal Import/Export Data for 2005-2007 for MSW and C&D

Tables 13 and 14 show 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 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.

Table 13: Tons of MSW Exported by Massachusetts to Other States: 2005-2007

	2005	2006	2007
CT	38,236	29,493	60,108
ME	238,415	207,627	218,445
MI	136	3,879	10,270
NH	281,375	171,570	162,707
NY	224,456	191,616	198,061
OH	85,092	12,255	67,307
PA	4,045	722	
Quebec	0	90	383
RI	6,304	5,684	
SC	479,496	380,266	366,054
VA	1,996	1,554	8,100
VT	4,195		2,145
TOTAL	**1,363,746**	**1,004,756**	**1,093,580**

Table 13a: Tons of MSW Imported by Massachusetts from Other States: 2005-2007

	2005	2006	2007
CT	81,569	114,363	69,291
ME	11,697	1,779	1,779
NH	45,769	42,475	34,579
NY	7,979	7,483	17,735
Quebec	0	1,677	1,278
RI	30,996	31,547	38,941
VT	18,905	26,171	19,862
TOTAL	**196,915**	**225,495**	**183,465**

Table 14: C&D Exported by Massachusetts to Other States: 2005-2007

	2005	2006	2007
CT	2,179	1,642	4,071
ME	148,691	192,129	224,873
MI			2,460
NH	4,287	73,248	121,987
NJ	0	0	8,360
NY	14,860	16,588	10,452
OH	257,510	279,046	224,534
Quebec	0		7,828
RI	14,409	40,745	51,537
SC		67	
VA			65
VT			273
TOTAL	**441,936**	**603,465**	**656,440**

Table 14a: C&D Imported by Massachusetts from Other States: 2005-2007

	2005	2006	2007
CT	32,003	13,883	39,151
NH	6,763	2,741	2,756
NY			23
RI	1,158	450	5,890
VT	247	140	70
TOTAL	**40,171**	**17,214**	**47,890**

Waste Management Capacity Projections

Figures 5 and 6 project waste management capacity through 2015. These projections are based in part on the landfill capacity projections shown in Figure 4. These projections assume that waste generation remains level from 2007 through 2015[15]. 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 along with generation (i.e., the recycling rate remains the same), and
2) recycling tonnage increases 5% per year to meet the Solid Waste Master Plan goal of a 56% recycling rate (met in this scenario by 2012).

The projections show projected management capacity and net export through 2015. Under scenario 1, net export for disposal in 2015 is 2.7 million tons. Under scenario 2, net export for disposal in 2015 is 1.1 million tons.

Inactive Landfill Closures

In addition to the active disposal capacity shown in this chart, a number of inactive, closed landfills that are undergoing closure and/or capping activities may accept materials as part of the construction or repair of the landfill cap. In most cases, these projects take in soil materials, but they may also accept other materials, including C&D fines and/or residuals. The capacity of these projects to take materials is not factored into the state's management capacity projections since these are temporary and generally do not take a significant amount of MSW and/or C&D materials. Current landfill closure projects include:

Amesbury – The Titcomb Pit Landfill has estimated capacity to take 200,000 cubic yards of soils through 2010.
Charlton – The Charlton landfill is nearing completion and now only accepting small amounts of soils.
Haverhill – The Groveland Road landfill has estimated capacity to take 311,000 cubic yards of soils through September 2010.
Newburyport – The Crow Lane landfill is completing closure under a judgment entered in Suffolk Superior Court on April 30, 2009 which provides for completion of the cap by the end of 2009.
Stoughton – The Stoughton landfill has estimated capacity to take 400,000 cubic yards of soil and C&D fines and/or residuals.

[15] Due to recent declines in waste generation, current economic conditions and future uncertainty, MassDEP has assumed no growth in future waste generation.

Figure 4
Projected Landfill Capacity (Tons Per Year)

Municipality	2007 Permitted Capacity	End of current permit	Lifetime of LF	2008	2009	2010	2011	2012	2013	2014	2015
Active Landfills											
Barre	93600	2010	**2013**	93600	93600	93600	93600	93600	93600	0	0
Bourne	219000	2010	**2027**	219000	219000	219000	219000	219000	219000	219000	219000
Carver	167,000	2009	**2015**	167000	167000	167000	167000	167000	167000	167000	167000
Chicopee	365000	2011	**2012**	365000	365000	365000	365000	365000	0	0	0
Dartmouth	115,000	2012	**2021**	115000	115000	115000	115000	115000	115000	115000	115000
Fall River	468000	2011	**2011**	468000	468000	468000	468000	0	0	0	0
Granby	235000	2011	**2011**	235000	235000	235000	235000	0	0	0	0
Middleborough	9620	2011	**2011**	9620	9620	9620	9620	0	0	0	0
Nantucket	26000	2009	**2017**	26000	26000	26000	26000	26000	26000	26000	26000
Northampton	50000	2010	**2010**	50000	50000	50000	0	0	0	0	0
South Hadley	156000	2013	**2013**	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	2012	**2014**	120120	120120	120120	120120	120120	120120	120120	0
Warren	2000	2012	**2012**	2000	2000	2000	2000	2000	0	0	0
Wayland	2345	2008	**2008**	2345	0	0	0	0	0	0	0
Westminster	390000	2010	**2021**	390000	390000	390000	390000	390000	390000	390000	390000
TOTAL PERMITTED CAPACITY				**2,600,055**	**2,597,710**	**2,404,710**	**1,652,110**	**574,490**	**181,370**	**181,370**	**181,370**
TOTAL POTENTIAL CAPACITY				**2,600,055**	**2,597,710**	**2,597,710**	**2,547,710**	**1,835,090**	**1,468,090**	**1,218,490**	**1,098,370**

KEY:

Permitted Capacity	Number without shading
Potential Additional Capacity	Number with shading

Figure 5

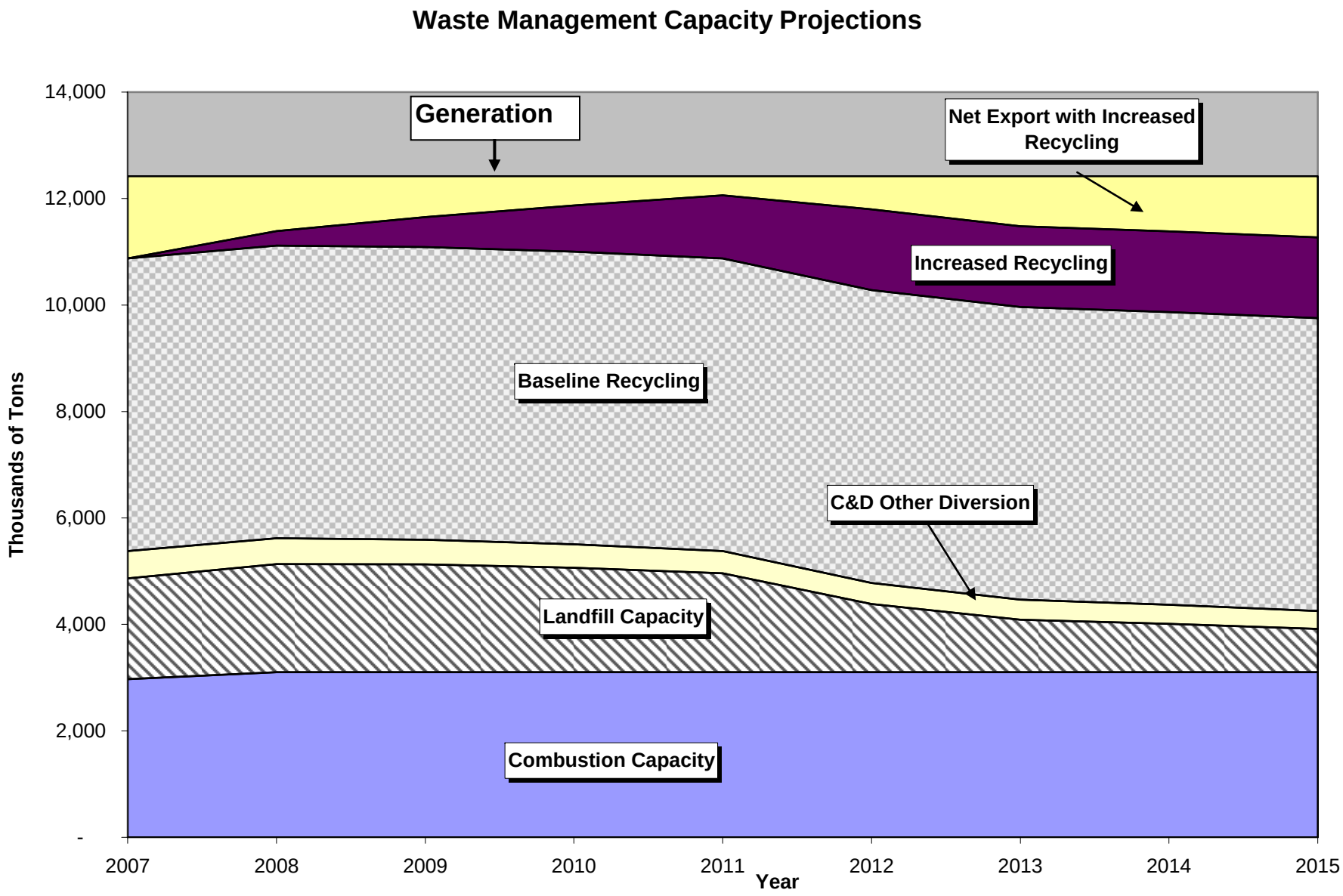

Waste Management Capacity Projections
Generation
Net Export with Increased Recycling
Increased Recycling
Baseline Recycling
C&D Other Diversion
Landfill Capacity
Combustion Capacity
Thousands of Tons
14,000
12,000
10,000
8,000
6,000
4,000
2,000
-
2007
2008
2009
2010
2011
2012
2013
2014
2015
Year

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 2012. These figures are not shaded.

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total Generation	12,417,848	12,417,848	12,417,848	12,417,848	12,417,848	12,417,848	12,417,848	12,417,848	12,417,848
Baseline Recycling	5,497,702	5,497,702	5,497,702	5,497,702	5,497,702	5,497,702	5,497,702	5,497,702	5,497,702
Increased Recycling (to meet 56% goal)	0	274,885	563,514	866,575	1,184,789	1,518,914	1,518,914	1,518,914	1,518,914
Total Recycling (to meet 56% goal)	5,497,702	5,772,587	6,061,216	6,364,277	6,682,491	7,016,616	7,016,616	7,016,616	7,016,616
Increased Recycling Rate	44.3%	46.5%	48.8%	51.3%	53.8%	56.5%	56.5%	56.5%	56.5%
C&D Other Diversion	511,148	485,591	461,311	438,246	416,333	395,517	375,741	356,954	339,106
Combustion Capacity	2,968,583	2,968,583	2,968,583	2,968,583	2,968,583	2,968,583	2,968,583	2,968,583	2,968,583
Potential LF Capacity	1,897,481	1,904,906	1,903,124	1,843,844	1,746,564	1,204,972	926,052	854,916	763,625
Total In-state Capacity (baseline recycling)	10,874,914	10,856,781	10,830,720	10,748,374	10,629,182	10,066,774	9,768,078	9,678,155	9,569,016
Total In-state Capacity (total recycling)	10,874,914	11,131,667	11,394,234	11,614,949	11,813,971	11,585,688	11,286,992	11,197,069	11,087,930
Net Export (baseline recycling)	1,542,934	1,561,066	1,587,128	1,669,474	1,788,666	2,351,074	2,649,770	2,739,693	2,848,832
Net Export (total recycling)	1,542,934	1,286,181	1,023,614	802,898	603,877	832,160	1,130,856	1,220,779	1,329,918

Assumptions[1]:

Generation Increase	0.0% (annual)
Baseline Recycling Tonnage Increase	0.0% (annual)
Total Recycling Tonnage Increase	5.0% (annual)
C&D Other Diversion Decrease	-5.0% (annual)

Combustion Capacity is projected to remain level from 2008 through 2015.

Landfill capacity is calculated to be 76% 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.

[1] Generation Increase, Baseline Recycling Tonnage Increase and Total Recycling Increase reduced from 2%, 2% and 7%, respectively, from assumptions in 2006 update.