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2017 Solid Waste Data Update

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Introduction

In the *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 Massachusetts to manage its solid waste during 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 2017 and revised waste management capacity projections through 2023 based on the 2017 data.

MassDEP continues to implement a wide range of program initiatives to reduce waste and increase recycling and composting, while ensuring that remaining waste is managed and disposed of safely. These initiatives are described in the *Master Plan*.

Goals and Methodology Summary

In the *Master Plan*, MassDEP established a vision to maximize the diversion of materials from the waste stream by 2020. Unlike previous plans that measured progress through waste reduction, the *2010-2020 Plan* shifted its metrics to a disposal reduction target. Thus, MassDEP will measure disposal reduction by comparing the total disposal in a future year against disposal in 2008 as a baseline year. Moreover, the *Master Plan* establishes a specific goal: reduce annual disposal by 2 million tons, or 30 percent, from 6,550,000 tons in 2008 to 4,550,000 tons in 2020. Given this change, MassDEP is no longer reporting on recycling, composting, and other diversion data on an annual basis. MassDEP believes that disposal reduction is a simpler, more direct, and more effective metric for evaluating waste reduction and diversion progress.

Table 1 summarizes the methodology for the disposal reduction calculation.

Table 1 Methodology Summary		
Waste Reduction Rates		Equation
Disposal Tonnage	=	In State Disposal (Landfill & Municipal Waste Combustor) + Export for Disposal – Import for Disposal
Disposal Tonnage Reduction	=	2008 Disposal Tons – Current Year [2017] Disposal Tons
% Disposal Reduction	=	$\frac{2008 \text{ Disposal Tons} - \text{Current Year [2017] Disposal Tons}}{2008 \text{ Disposal Tons}}$

Progress in Meeting Disposal Reduction Milestone

Total disposal in 2017 was 5,720,000 tons, a decrease of 830,000 tons, or 13 percent, from 2008.

Solid Waste Management Overview

Table 2 highlights how solid waste disposal changed from 2016 to 2017, measured in tonnage and percent change. From 2016 to 2017, total disposal increased by 2 percent. Of the total waste that required disposal, 4.5 million tons were disposed in-state, of which 1.3 million tons were land filled and 3.2 million tons were combusted. Massachusetts exported 1.8 million tons for disposal and imported 570,000 tons, and thus was a net exporter of about 1,230,000 tons of waste requiring disposal. See Table 5 for a more detailed picture of disposal import and export data by state.

		2016	2017	Tons Change	% Change
Disposal (Incl. Net Exports)		5,610,000	5,720,000	110,000	2.0%
In-State Disposal		4,520,000	4,490,000	(30,000)	-0.7%
	Landfill	1,330,000	1,310,000	(20,000)	-1.5%
	MSW	1,170,000	1,140,000	(30,000)	-2.6%
	C&D	70,000	70,000	0	0.0%
	Other	90,000	110,000	20,000	22.2%
	Combustion	3,190,000	3,180,000	(10,000)	-0.3%
	MSW	3,170,000	3,140,000	(30,000)	-0.9%
	Non-MSW	20,000	30,000	10,000	50.0%
Net Exports		1,090,000	1,230,000	140,000	12.8%
	Exports	1,560,000	1,790,000	230,000	14.7%
	MSW	680,000	820,000	140,000	20.6%
	Non-MSW	880,000	970,000	90,000	10.2%
	Imports	460,000	570,000	110,000	23.9%
	MSW	420,000	540,000	120,000	28.6%
	Non-MSW	40,000	20,000	(20,000)	-50.0%

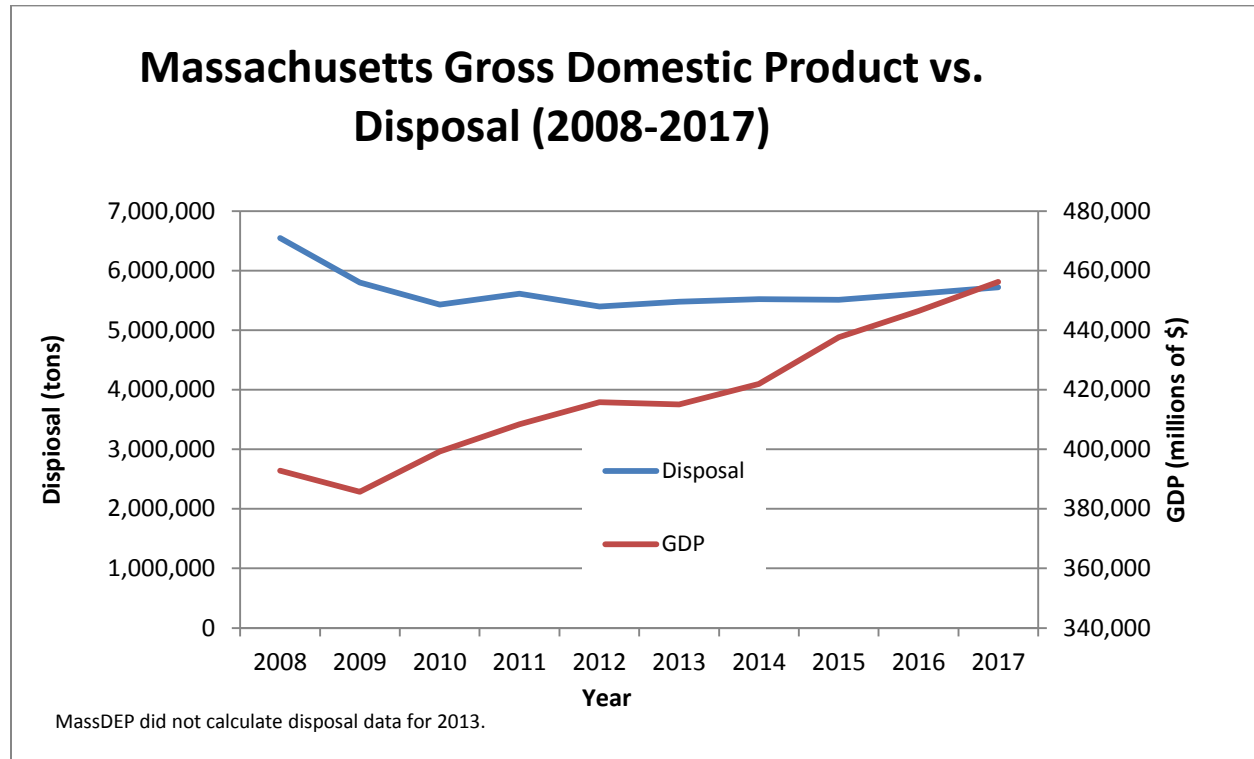
Note: % Change is calculated based on the rounded amounts in this table.
Percentages may not add exactly to 100% due to rounding.

Table 3 presents solid waste disposal data from 2010-2017, excluding 2013, when MassDEP did not publish statewide solid waste data. Tables 3 and 4 also show the Master Plan baseline year of 2008 for comparison purposes. Table 4 shows how MSW and non-MSW disposal changed from 2008 through 2017. Total MSW disposal decreased by 40,000 tons from 2016-2017, and total non-MSW disposal increased by 140,000 tons.

Table 3 Solid Waste Disposal 2010-2017 (all data in tons)									
		2008	2010	2011	2012	2014	2015	2016	2017
Disposal		6,550,000	5,430,000	5,610,000	5,400,000	5,520,000	5,510,000	5,610,000	5,720,000
	Landfill	1,740,000	1,560,000	1,650,000	1,700,000	1,560,000	1,380,000	1,330,000	1,310,000
		MSW	1,560,000	1,280,000	1,390,000	1,380,000	1,380,000	1,260,000	1,140,000
		C&D	130,000	120,000	70,000	100,000	50,000	50,000	70,000
		Other	50,000	170,000	190,000	220,000	130,000	90,000	110,000
	Combustion	3,230,000	3,180,000	3,260,000	3,210,000	3,270,000	3,250,000	3,190,000	3,180,000
		MSW	3,210,000	3,170,000	3,250,000	3,210,000	3,260,000	3,170,000	3,140,000
		Non-MSW	10,000	10,000	10,000	-	-	10,000	30,000
	Net Exports	1,580,000	690,000	700,000	490,000	690,000	880,000	1,090,000	1,230,000
	Exports	1,850,000	1,270,000	1,340,000	1,050,000	1,190,000	1,380,000	1,560,000	1,790,000
		MSW	840,000	690,000	630,000	510,000	460,000	620,000	820,000
		Non-MSW	1,010,000	580,000	710,000	540,000	730,000	880,000	970,000
	Imports	270,000	580,000	640,000	560,000	490,000	500,000	460,000	570,000
		MSW	240,000	440,000	390,000	420,000	460,000	420,000	540,000
		Non-MSW	30,000	140,000	240,000	150,000	40,000	50,000	20,000

Table 4 MSW and NON MSW Disposal 2008-2017										
	2008	2010	2011	2012	2014	2015	2016	2017	% change vs 2008	% change vs 2016
Total Disposal (Tons)	6,540,000	5,440,000	5,620,000	5,390,000	5,510,000	5,510,000	5,620,000	5,720,000	-13%	2%
MSW	5,370,000	4,700,000	4,880,000	4,680,000	4,640,000	4,670,000	4,600,000	4,560,000	-15%	-1%
Non-MSW	1,170,000	740,000	740,000	710,000	870,000	840,000	1,020,000	1,160,000	-1%	14%

Comparing Disposal Trends to State Economic Trends



The chart above gives a visual representation of Massachusetts waste disposal totals from 2008-2017 in the context of the state’s Gross Domestic Product (GDP) over the same time frame, measured in millions of chained 2009 dollars.

While GDP has grown by 16 percent from 2008-2017, disposal decreased by 13 percent during that same period. From 2016 to 2017, GDP increased by 2 percent and disposal increased by 2 percent. Note that the 2013 disposal data in this chart is estimated based on averaging 2012 and 2014 disposal.

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	% change vs. 2008	% change vs. 2016
GDP (millions of dollars)	392,817	385,698	399,239	408,409	415,832	415,030	421,940	437,633	446,476	456,176	16%	2%
Total Disposal (tons)	6,550,000	5,800,000	5,430,000	5,610,000	5,400,000	5,480,000	5,520,000	5,510,000	5,610,000	5,720,000	-13%	2%

Disposal Import/Export Data for 2015-2017

Table 5 shows MSW and C&D data exported and imported for disposal 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 calculate the most inclusive 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.

MSW Exported				C&D Exported			
State	2,015	2,016	2,017	State	2,015	2,016	2,017
CT	14,339	11,078	37,638	CT	21,630		13,443
ME	52,372	20,400	46,800	ME	11,863	-	8,864
NH	332,804	372,210	398,872	NH	14,872	24,098	891
NY	30,095	62,950	148,271	NY	68,274	144,060	184,746
OH	181,064	209,419	189,201	OH	229,708	228,575	360,744
RI	29	-	-	RI	827	23	1,579
VT	9,206	-	3,219	TOTAL	347,174	396,756	570,267
TOTAL	619,909	676,057	824,001				
MSW Imported				C&D Imported			
State	2,015	2,016	2,017	State	2,015	2,016	2,017
CT	189,171	62,386	85,134	CT	4	14	195
ME	2,182	1,095	6,830	ME	22	59	75
NH	85,217	126,079	220,429	NH	4,801	6,439	9,391
NY	20,357	22,622	18,802	NY	-	-	1
RI	157,274	206,816	210,642	RI	76	5,588	4,783
VT	1,202	1,741	1,466	VT	-	-	5
TOTAL	455,403	420,739	543,303	TOTAL	4,903	12,100	14,450

Waste Management Capacity Projections

The disposal capacity projections in Table 6 reflect either actual permitted capacity, approved capacity contingent on receiving permits, or capacity based on facility contract commitments. However, some 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. In other cases, a landfill may choose to accept a different material than MSW, such as municipal waste combustion ash, so that a portion of this permitted capacity may not be available for MSW. MassDEP attempts to take these factors into account by projecting only the percent of potential landfill capacity that is actually used for MSW and C&D disposal. The combustion capacity is shown as level based on permit limits, although this actual amount managed will always be somewhat lower than these limits.

Table 7 projects waste management capacity through 2023. These projections are based in part on the disposal capacity projections shown in Table 6. These projections also assume that 93% of potential landfill disposal capacity is utilized (based on 2017 capacity utilization rates). The waste management capacity projections estimate two different scenarios:

- 1) Total disposal remains level from 2018 to 2023
- 2) Total disposal decreases 7.3% per year from 2018-2020, meeting the Solid Waste Master Plan goal of reducing disposal tonnage by 2 million tons from 2008 to 2020, down to 4,550,645 tons, and a 1% per year reduction from 2021-2023.

The projections show projected management capacity and net export through 2023. Under scenario 1, net export for disposal in 2023 is projected to be about 1.9 million tons. Under scenario 2, the projection shows that about 570,000 tons of waste will be exported on a net basis in 2023.

Municipality	Permitted Capacity	End of current permitted capacity	Lifetime of LF	2018	2019	2020	2021	2022	2023
Active Landfills									
Boume	30,000	2021	2024	30,000	30,000	30,000	30,000	30,000	219,000
Carver	101,125	2018	2020	101,125	101,125	101,125	0	0	0
Chicopee	365,000	2018	2018	365,000	0	0	0	0	0
Dartmouth	115,000	2018	2026	115,000	115,000	115,000	115,000	115,000	115,000
Middleborough	60,000	2020	2031	60,000	60,000	60,000	60,000	60,000	60,000
Nantucket	26,000	2020	2030	26,000	26,000	26,000	26,000	26,000	26,000
Southbridge	405,600	2018	2018	280,600	0	0	0	0	0
Taunton	120,120	2019	2020	120,120	120,120	120,120	0	0	0
Westminster	390,000	2024	2024	390,000	390,000	390,000	390,000	390,000	390,000
Municipal Waste Combustors									
Agawam	131,400			131,400	131,400	131,400	131,400	131,400	131,400
Haverhill	602,250			602,250	602,250	602,250	602,250	602,250	602,250
Millbury	529,575			529,575	529,575	529,575	529,575	529,575	529,575
North Andover	460,500			460,500	460,500	460,500	460,500	460,500	460,500
Pittsfield	84,000			84,000	84,000	84,000	84,000	84,000	84,000
Rochester	1,250,000			1,250,000	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000
Saugus	460,500			460,500	460,500	460,500	460,500	460,500	460,500
	5,131,070	3,518,225							
TOTAL PERMITTED COMBUSTION CAPACITY	3,518,225			3,518,225	3,518,225	3,518,225	3,518,225	3,518,225	3,518,225
ADJUSTED TOTAL COMBUSTION CAPACITY*				3,190,000	3,190,000	3,190,000	3,190,000	3,190,000	3,190,000
TOTAL PERMITTED CAPACITY				5,006,070	3,940,470	3,724,345	3,604,225	3,578,225	3,578,225
TOTAL POTENTIAL CAPACITY				4,677,845	4,032,245	4,032,245	3,811,000	3,811,000	4,000,000
KEY:									
Permitted Capacity	Number without shading								
Potential Additional Cap:	Number with shading								
ESTIMATED TOTAL POTENTIAL AVAILABLE CAPACITY				4,400,342	3,875,155	3,875,155	3,695,175	3,695,175	3,848,924
81% of potential for LFs and 91 % of potential for combustion									
Actual combustion varies per year, has never reached capacity									
Total Potential Landfill Capacity				1,210,342	685,155	685,155	505,175	505,175	658,924
Actual 2017 disposal for MWCs is actual tonnage burned minus post combustion metal recovery.									
MWC disposal capacity is not a fixed tonnage amount, but rather a function of the facility's air permit and may vary slightly.									
2017 % Landfill Capacity	81%								

Table 7: Waste Management Capacity Projections: 2018-2023							
	2017	2018	2019	2020	2021	2022	2023
Total Disposal (baseline)	5,720,000	5,720,000	5,720,000	5,720,000	5,720,000	5,720,000	5,720,000
Total Disposal (reduced)	5,720,000	5,300,152	4,911,121	4,550,645	4,505,138	4,460,087	4,415,486
Combustion Capacity	3,180,000	3,190,000	3,190,000	3,190,000	3,190,000	3,190,000	3,190,000
Potential LF Capacity	1,310,000	1,210,342	685,155	685,155	505,175	505,175	658,924
In-state Disposal Capacity	4,490,000	4,400,342	3,875,155	3,875,155	3,695,175	3,695,175	3,848,924
Net Disposal Export (baseline disposal)	1,230,000	1,319,658	1,844,845	1,844,845	2,024,825	2,024,825	1,871,076
disposal)	1,230,000	899,810	1,035,966	675,489	809,963	764,911	566,562

