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Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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2019 Solid Waste Data Update

October 2020

Goals and Methodology Summary

MassDEP's current waste reduction goal in the 2020 Solid Waste Master Plan is to reduce disposal on an annual basis from 6,550,000 tons in 2008 to 4,550,000 tons by 2020. In the *Draft 2030 Solid Waste Master Plan*, MassDEP has proposed a goal to reduce waste disposal from 5,660,000 tons in 2018 to 4,020,000 tons by 2030, a reduction of 1,640,000 tons on an annual basis. Table 1 summarizes the methodology for the disposal reduction calculation in future years.

Table 1: Methodology Summary		
		Equation
Disposal Tonnage	=	In State Disposal (Landfill & Municipal Waste Combustor) + Export for Disposal – Import for Disposal
Disposal Tonnage Reduction	=	2008 Disposal Tons – Current Year (2019) Disposal Tons
% Disposal Reduction	=	$\frac{2008 \text{ Disposal Tons} - \text{Current Year (2019) Disposal Tons}}{2008 \text{ Disposal Tons}}$

Progress in Meeting Current Disposal Reduction Milestone

Total disposal in 2019 was 5,510,000 tons, a decrease of 1,040,000 tons, or 16 percent, from 2008.

Solid Waste Management Overview

Table 2 highlights how solid waste disposal changed from 2018 to 2019, measured in tonnage and percent change. From 2018 to 2019, total disposal decreased by 3 percent. Of the total waste that required disposal, 3,870,000 tons were disposed in-state, of which 880,000 tons were land filled and 2,990,000 tons were combusted. Massachusetts collectively exported 1,970,000 tons for disposal and imported 330,000 tons, and thus was a net exporter of about 1,640,000 tons of waste requiring disposal. See Table 6 for a more detailed picture of disposal import and export data by state.

Table 2: Solid Waste Tonnage and Percent Change Summary: 2018-2019				
	2018	2019	Tons Change	% Change
Disposal (Incl. Net Exports)	5,660,000	5,510,000	(150,000)	-2.7%
In-State Disposal	4,470,000	3,870,000	(600,000)	-13.4%
Landfill	1,270,000	880,000	(390,000)	-30.7%
MSW	1,190,000	820,000	(370,000)	-31.1%
C&D	-	-	-	-
Other	70,000	60,000	(10,000)	-14.3%
Combustion	3,200,000	2,990,000	(210,000)	-6.6%
MSW	3,180,000	2,970,000	(210,000)	-6.6%
Non-MSW	20,000	10,000	(10,000)	-50.0%
Net Exports	1,190,000	1,640,000	450,000	37.8%
Exports	1,820,000	1,970,000	150,000	8.2%
MSW	750,000	820,000	70,000	9.3%
Non-MSW	1,070,000	1,140,000	70,000	6.5%
Imports	630,000	330,000	(300,000)	-47.6%
MSW	610,000	310,000	(300,000)	-49.2%
Non-MSW	20,000	20,000	-	0.0%

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

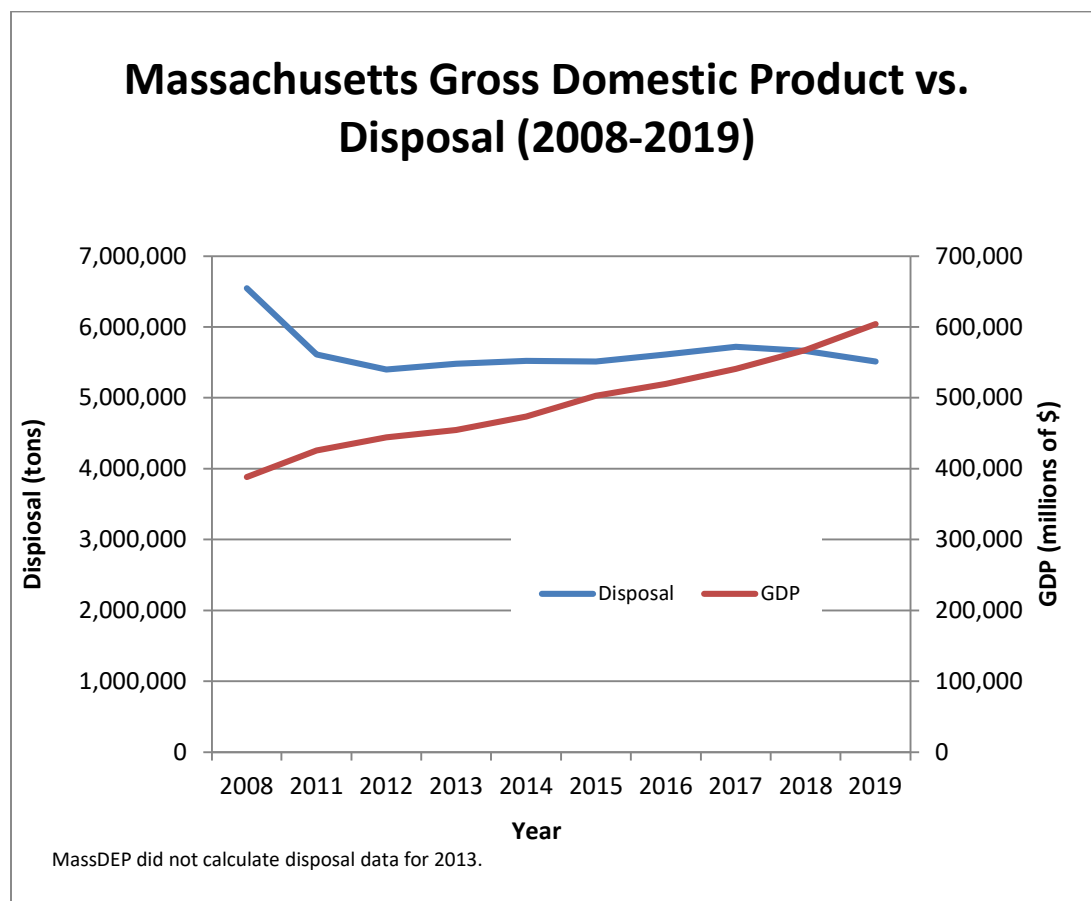
Percentages may not add exactly to 100% due to rounding.

Table 3 presents solid waste disposal data from 2010-2019, 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 municipal solid waste (MSW) and non-MSW disposal changed from 2010 through 2019. Total MSW disposal decreased by 260,000 tons from 2018-2019, and total non-MSW disposal increased by 30,000 tons.

Table 3 Solid Waste Disposal 2010-2019 (all data in tons)											
			2010	2011	2012	2014	2015	2016	2017	2018	2019
Disposal			5,430,000	5,610,000	5,400,000	5,520,000	5,510,000	5,610,000	5,720,000	5,660,000	5,510,000
	Landfill		1,560,000	1,650,000	1,700,000	1,560,000	1,380,000	1,330,000	1,310,000	1,270,000	880,000
		MSW	1,280,000	1,390,000	1,380,000	1,380,000	1,260,000	1,170,000	1,140,000	1,190,000	820,000
		C&D	120,000	70,000	100,000	50,000	50,000	70,000	70,000	0	0
		Other	170,000	190,000	220,000	130,000	70,000	90,000	110,000	70,000	60,000
	Combustion		3,180,000	3,260,000	3,210,000	3,270,000	3,250,000	3,190,000	3,180,000	3,200,000	2,990,000
		MSW	3,170,000	3,250,000	3,210,000	3,260,000	3,250,000	3,170,000	3,140,000	3,180,000	2,970,000
		Non-MSW	10,000	10,000	0	0	10,000	20,000	30,000	20,000	10,000
	Net Exports		690,000	700,000	490,000	690,000	880,000	1,090,000	1,230,000	1,190,000	1,640,000
	Exports		1,270,000	1,340,000	1,050,000	1,190,000	1,380,000	1,560,000	1,790,000	1,820,000	1,970,000
		MSW	690,000	630,000	510,000	460,000	620,000	680,000	820,000	750,000	820,000
		Non-MSW	580,000	710,000	540,000	730,000	760,000	880,000	970,000	1,070,000	1,140,000
	Imports		580,000	640,000	560,000	490,000	500,000	460,000	570,000	630,000	330,000
		MSW	440,000	390,000	420,000	460,000	460,000	420,000	540,000	610,000	310,000
		Non-MSW	140,000	240,000	150,000	40,000	50,000	40,000	20,000	20,000	20,000

Table 4 MSW and NON MSW Disposal 2010-2019										
	2010	2011	2012	2014	2015	2016	2017	2018	2019	% change vs 2018
Total Disposal (Tons)	5,440,000	5,620,000	5,390,000	5,510,000	5,510,000	5,620,000	5,720,000	5,650,000	5,490,000	-0.03
MSW	4,700,000	4,880,000	4,680,000	4,640,000	4,670,000	4,600,000	4,560,000	4,510,000	4,300,000	-0.05
Non-MSW	740,000	740,000	710,000	870,000	840,000	1,020,000	1,160,000	1,140,000	1,190,000	0.04

Comparing Disposal Trends to State Economic Trends



The chart above gives a visual representation of Massachusetts waste disposal totals from 2008-2019 in the context of the state's Gross Domestic Product (GDP) over the same time frame, measured in millions of current dollars. While GDP has grown by 55 percent from 2008-2019, disposal decreased by 16 percent during that same period. From 2018 to 2019, GDP increased by 7 percent and disposal decreased by 3 percent. Note that the 2013 disposal data in Table 5 below is estimated based on averaging 2012 and 2014 disposal.

Table 5: Gross Domestic Product by State (millions of current dollars)

	2008	2011	2012	2013	2014	2015	2016	2017	2018	2019	% change vs. 2008	% change vs. 2018
GDP (millions of dollars)	388,583	425,593	444,330	454,346	473,454	502,678	519,741	540,949	567,255	604,208	55%	7%
Total Disposal (tons)	6,550,000	5,610,000	5,400,000	5,480,000	5,520,000	5,510,000	5,610,000	5,720,000	5,660,000	5,510,000	-16%	-3%

Accessed from the BEA website - <https://bea.gov/regional/index.htm> - July 2020

Disposal Import/Export Data for 2018-2019

Table 6 shows MSW and construction and demolition debris (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.

Table 6 Disposal Import/Export Data by State (tons): 2018-2019

MSW Exported			C&D Exported		
State	2018	2019	State	2018	2019
AL	-	959	CT	-	18
CT	1,857	12,200	ME	20,647	209
ME	40,762	27,652	NH	108,147	29,959
MI	-	86	NY	77,037	63,899
NH	388,499	382,764	OH	556,091	617,597
NY	164,743	287,255	RI	11,474	-
OH	140,229	38,038	VA	-	13,093
RI	-	-	VT	-	457
SC	-	51,345	TOTAL	773,396	725,232
VA	15,966	21,935			
TOTAL	752,056	822,234			

MSW Imported			C&D Imported		
State	2018	2019	State	2018	2019
CT	93,516	44,851	CT	596	1,407
ME	52	6	ME	79	1
NH	290,444	89,231	NH	6,219	13,947
NY	33,970	6,564	NY	1	-
RI	191,336	163,720	RI	643	532
VT	2,012	2,620	VT	0	16
TOTAL	611,330	306,992	TOTAL	7,538	15,903

Management of Ash from Municipal Waste Combustors

Table 7 shows the amount of ash generated by individual MWCs and where it was disposed, as well as the amount of metal recovered from each. Table 7A shows the Massachusetts landfills accepting municipal waste combustion (MWC) ash and their anticipated lifespan according to current permit conditions.

Table 7: Municipal Waste Combustor Ash Management (2019)				
Combustion Facility	Ash Disposed (tons)	Disposal Facilities	Pre-Combustion Metal Recovery (tons)	Post-Combustion Metal Recovery (tons)
Haverhill	151,230	Ward Hill, Haverhill	175	15,033
Millbury	206,665	Shrewsbury	55	9,339
North Andover	98,394	Shrewsbury		7,762
Pittsfield	6,100	Bondi's Island, Springfield		2,187
Saugus	110,068	Saugus, Shrewsbury		6,946
SEMASS	182,568	Bourne, Carver/Marion/Wareham	28,769	10,940
Springfield	36,901	Bondi's Island, Springfield	167	4,425
Totals	791,926		29,166	56,632

Table 7A: Ash Landfills Anticipated Capacity	
Landfill	Projected Closure Year
Bondi Island, Springfield	2030
Carver Marion Wareham	2020
Ward Hill Neck, Haverhill	2021
Peabody	2025
Wheelabrator Saugus	2022
Wheelabrator Shrewsbury	2028

Rail Transfer Capacity

Table 8 illustrates the growing trend of increased rail disposal capacity in Massachusetts, including the current permit status, tons/day, tons/year, and types of waste accepted.

Table 8: Summary of Rail Transfer Facilities						
Facility Name	Region	Town	Current Status	Tons/Day	Tons/Year	Waste
Champion City Recovery	SERO	Brockton	Operating	1,000	286,000	C&D
Devens Recycling Center	CERO	Devens	Operating	1,500	390,000	MSW, C&D
Lenox Valley Waste Transfer Facility	WERO	Lenoxdale	Operating	198	53,262	MSW, C&D
McNamara Transfer Station	WERO	Springfield	Operating	699	181,740	MSW, C&D
New England Waste Disposal	SERO	Taunton	Operating	940	244,400	MSW, C&D
Tri-County Recycling	WERO	Ware	Operating	750	195,000	C&D
Trojan Recycling	SERO	Brockton	Operating	500	140,400	MSW, C&D
Upper Cape Regional Transfer Station	SERO	Falmouth	Operating	286	74,360	MSW, C&D
Western Recycling	WERO	Wilbraham	Operating	645	167,700	MSW, C&D
Yarmouth-Barnstable Regional Rail Transfer Station	SERO	Yarmouth	Operating	530	137,800	MSW
Casella	WERO	Holyoke	Permitted	1,250	382,500	MSW, C&D
Howard Transfer Station	NERO	Roxbury	Permitted	-	-	-
United Materials Management of Leominster	CERO	Leominster	Permitted	1,000	300,000	MSW, C&D
Wood Recycling, Inc.	NERO	Peabody	Permitted	-	-	-
Parallel Products of New England	SERO	New Bedford	Seeking approval	1,500	390,000	MSW, C&D
TLA Holbrook	SERO	Holbrook	Seeking Approval	1,000	260,000	MSW
Totals				10,099	2,721,422	

Waste Management Capacity Projections

The disposal capacity projections in Table 9 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.

The waste management capacity projections shown in Table 10 show two scenarios:

1. Baseline Disposal Tonnage – Assumes that disposal tonnage remains at 2019 levels through 2030.
2. Reduced Disposal Tonnage – Assumes that disposal tonnage will decrease in line with achieving the proposed 2030 disposal reduction goal of 4,000,000 tons.

Table 9: Projected Disposal Capacity 2020-2030 (Tons Per Year)														
Municipality	Permitted Capacity	End of current permitted capacity	Lifetime of LF	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Active Landfills														
Bourne	30,000	2021	2024	30,000	30,000	219,000	219,000	219,000	0	0	0	0	0	0
Carver	101,125	2020	2020	101,125	0	0	0	0	0	0	0	0	0	0
Dartmouth	115,000	2024	2026	115,000	115,000	115,000	115,000	115,000	115,000	115,000	0	0	0	0
Middleborough	60,000	2020	2031	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Nantucket	26,000	2029	2029	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	26,000	0
Taunton	120,120	2019	2020	35,954	0	0	0	0	0	0	0	0	0	0
Westminster	390,000	2020	2024	390,000	538,200	538,200	538,200	538,200	0	0	0	0	0	0
Municipal Waste Combustors														
Agawam	131,400			131,400	131,400	131,400	131,400	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	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	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	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	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	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	460,500	460,500	460,500	460,500	460,500
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	3,518,225	3,518,225	3,518,225	3,518,225	3,518,225
ADJUSTED TOTAL COMBUSTION CAPACITY*														
				3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000
TOTAL PERMITTED CAPACITY				4,276,304	3,689,225	3,659,225	3,659,225	3,659,225	3,544,225	3,544,225	3,544,225	3,544,225	3,544,225	3,518,225
TOTAL POTENTIAL CAPACITY				3,918,079	3,929,200	4,118,200	4,118,200	4,118,200	3,361,000	3,361,000	3,246,000	3,246,000	3,246,000	3,220,000
KEY:														
Permitted Capacity	Number without shading													
Potential Additional Cap.	Number with shading													
ESTIMATED TOTAL POTENTIAL AVAILABLE CAPACITY				3,918,079	3,929,200	4,118,200	4,118,200	4,118,200	3,361,000	3,361,000	3,246,000	3,246,000	3,246,000	3,220,000
100% of potential for LFs and 90 % of potential for combustion														
Actual combustion varies per year, has never reached capacity														
Total Potential Landfill Capacity				758,079	769,200	958,200	958,200	958,200	201,000	201,000	86,000	86,000	86,000	60,000
Actual 2019 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.														
2019 % Landfill Capacity				100%										
2015-2019 % Permitted Combustion Capacity Used				89.82%										
Average total combustion (last five years):				3162000										
Note: Bourne -85% of annual capacity to SEMASS ash disposal ENDS De. 2021.														

Table 10: Waste Management Capacity Projections: 2020-2030												
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Disposal (baseline)	5,510,000	5,510,000	5,510,000	5,510,000	5,510,000	5,510,000	5,510,000	5,510,000	5,510,000	5,510,000	5,510,000	5,510,000
Total Disposal (reduced)	5,510,000	5,350,210	5,195,054	5,044,397	4,898,110	4,756,065	4,618,139	4,484,213	4,354,171	4,227,900	4,105,291	3,986,237
Combustion Capacity	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000	3,160,000
Potential LF Capacity	842,245	758,079	769,200	958,200	958,200	958,200	201,000	201,000	86,000	86,000	86,000	60,000
In-state Disposal Capacity	4,002,245	3,918,079	3,929,200	4,118,200	4,118,200	4,118,200	3,361,000	3,361,000	3,246,000	3,246,000	3,246,000	3,220,000
Net Disposal Export (baseline disposal)	1,640,000	1,591,921	1,580,800	1,391,800	1,391,800	1,391,800	2,149,000	2,149,000	2,264,000	2,264,000	2,264,000	2,290,000
Net Disposal Export (reduced disposal)	1,640,000	1,432,131	1,265,854	926,197	779,910	637,865	1,257,139	1,123,213	1,108,171	981,900	859,291	766,237
Assumptions for Annual Percent Change:												
Baseline Disposal Tonnage	0.0%											
Decreased Disposal Tonnage/year	2.9%											
2019 data shows actual figures.												

Landfill Cover Material

Table 11 shows the amount of materials that Massachusetts landfills reported using as cover material in 2019. This material is not included in the disposal data shown earlier in this report.

Table 11: Landfill Cover Material Use in 2019	
Material Type	Tons
Contaminated Soil	486,501
Auto Shredder Residue/Auto Fluff	100,659
Soil/Sand	77,598
Bottom Ash	65,177
WWTP Grit	20,750
C&D Fines	19,143
Other	17,221
Street Sweepings	15,673
Compost	9,126
Cullet (crushed glass)	5,554
Wood Chips	4,312
Foundry Sand	2,814
Sludge Ash	1,835
C&D Residuals	109
Total	826,472