



# The Commonwealth of Massachusetts

AUDITOR OF THE COMMONWEALTH

DIVISION OF LOCAL MANDATES

100 NASHUA STREET, ROOM 1010  
BOSTON, MASSACHUSETTS 02114

A. JOSEPH DENUCCI  
AUDITOR

TEL. (617) 727-0980  
1-800-462-COST

## A Financial Effect Determination of Unlined Landfill Closure on Massachusetts Cities and Towns

April 1993

### **Office of the State Auditor**

Division of Local Mandates

A. Joseph DeNucci, Auditor



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AUDITOR OF THE COMMONWEALTH

STATE HOUSE, BOSTON 02133

A. JOSEPH DENUCCI

AUDITOR

TEL. (617) 727-2075

April 13, 1993

The Honorable Steven V. Angelo, House Chairman of the Joint  
Committee on Natural Resources  
The Honorable Robert A. Durand, Senate Chairman of the Joint  
Committee on Natural Resources  
Honorable Members of the General Court

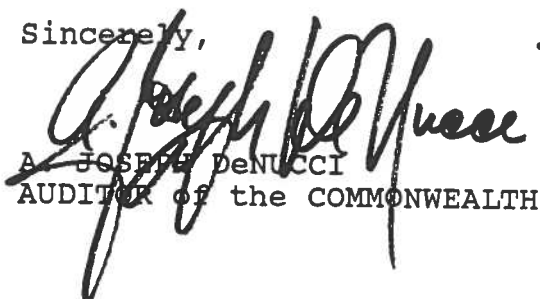
I am pleased to submit this review of the fiscal impact of the Department of Environmental Protection regulations, 310 CMR 19.000, as amended on July 3, 1992, which require that all unlined landfills cease accepting waste by January 1, 1994 and complete final closure by July 1, 1995. This study was undertaken in accordance with G.L. c.11, s.6B, which allows the State Auditor's Division of Local Mandates to determine the financial effect of regulations impacting cities and towns.

These landfills closure requirements will have a significant financial impact on 90 municipalities throughout the state. My report estimates that the statewide cost impact of these closure requirements will be \$265 million and that the affected municipalities will also have to spend an additional \$27 million annually to pay for alternative methods of waste disposal.

The importance of having a safe and clean environment dictates that protective action be taken now. However, I respectfully request that you consider the immediate and significant fiscal consequences that these closure requirements will have on municipal budgets. I hope that you can develop a means to provide fiscal relief to the affected communities.

If you have any questions or need any additional information regarding this report, please contact Thomas Collins, Director of the Division of Local Mandates, at 727-0980. I look forward to continuing to work with you on this and other issues affecting the quality of state and local government and the services that the Commonwealth provides to its citizens.

Sincerely,

  
A. JOSEPH DENUCCI  
AUDITOR of the COMMONWEALTH

## INTRODUCTION

The Office of the State Auditor, Division of Local Mandates (DLM) conducted this statewide cost impact study at the request of the House Chairman of the Joint Committee on Natural Resources and Agriculture. The purpose of the study is to estimate the cost impact on Massachusetts cities and towns of a Department of Environmental Protection (DEP) regulatory requirement that unlined landfills stop accepting solid waste by January 1, 1994, and complete DEP final closure requirements by July 1, 1995.

The cost to affected cities and towns includes capping, post-closure monitoring, and providing for alternative disposal. Capping includes covering the landfill with an impervious seal to keep precipitation from percolating through trash layers, and covering this seal with a topsoil layer to support vegetation as an erosion control measure. Post-closure monitoring systems must be installed to analyze potential air and water pollution for 30 years after closure. Alternatives to disposal at closed landfills will increase the cost to local taxpayers no matter which alternative is chosen. These alternatives are contracting with a private landfill or incineration facility, constructing a lined landfill on a local or regional basis, (in areas where landfills are not prohibited by DEP location restrictions), or even allowing residents to determine their own disposal options if a local government decides that this is a responsible approach.

Although these costs are a major problem, municipal officials realize that all landfills must eventually reach approved capacity and close down. However, it is the timing of DEP's closure requirement that is also troublesome. Most municipalities had expected that remaining capacity would last at least a few years. Many planned to use their landfills well into the next century.

This report is divided into six sections:

- o A brief synopsis of the regulatory and statutory history of this requirement;
- o Study methodology;
- o Cost impact findings;
- o Financial implications for municipalities;
- o The state mandate issue; and
- o Appendices.

## HISTORY AND BACKGROUND

The requirement originated in Department of Environmental Protection (DEP) Solid Waste Management Facility Regulation 310 CMR 19.022(1), effective July 3, 1992.

### 310 CMR 19.022(1): Accelerated Closure Schedules

#### Existing Landfills.

(a) Existing landfills which are located in areas described at 310 CMR 19.038(2)(c) 1. or 2. [Zone II, IWPA, sole source aquifer, and unmonitorable area] shall complete closure of the entire landfill prior to July 1, 1995.

(b) Existing landfills or phases thereof, other than those described above at 310 CMR 19.022(1)(a), shall cease accepting solid waste in all unlined phases prior to January 1, 1994 and shall have completed closure of those unlined phases no later than July 1, 1995.

Prior to this amendment to the regulations, many municipal landfill operators had anticipated that unlined landfill capacity would remain available according to landfill plans formerly approved by DEP. Section 19.022 now requires simultaneous closure of all unlined landfills unless the conditions necessary for a variance can be demonstrated to DEP's satisfaction. (See 310 CMR 19.080: Variances.)

Section 23 of Chapter 153 of the Acts of 1992 took effect on August 7, 1992. Section 23, among other things, provides a statutory recognition of DEP's regulatory authority to allow landfilling in unlined areas beyond the January 1, 1994 cut-off date, if a landfill operator can demonstrate that migration of leachate does not present a threat to public health, etc.

Federal law also plays a newly expanded role in state regulation of landfills. Revisions to Subtitle D-Criteria of the Federal Resource Conservation and Recovery Act (40 CFR 258), effective October 9, 1993, require new landfills and lateral expansions of existing landfills to have a composite liner and leachate collection system or, in EPA-approved states, an alternative design that will control leachate. According to the federal regulations, "lateral expansion means a horizontal expansion of the waste boundaries of an existing [Municipal Solid Waste Landfill] unit."

Although there are similarities between EPA and DEP requirements, there are also differences. For example, the federal regulations do not prohibit vertical expansions, i.e., depositing solid waste on areas of landfill space actively receiving waste as of October 9, 1993.

In the preamble to regulation 40 CFR 258, EPA recognizes the traditional role of states in regulating landfills. It also states its intention for states to maintain the lead role in implementing solid waste policy. After reviewing state programs, EPA will approve those it deems adequate. (Massachusetts applied for program approval in March.) Approved states may allow, under certain conditions, alternative compliance schedules and methods or procedures. Once DEP receives approval of its program from EPA, DEP will control landfill design standards, compliance schedules, and enforcement in Massachusetts with oversight from EPA.

#### METHODOLOGY

At the time of the Committee's request, DLM found that data available from DEP's Division of Solid Waste Management was limited and outdated. We nonetheless used DEP's listing of Massachusetts landfills as a guide to DLM's original research for this study. Other data compiled by DEP at our request was also helpful.

DLM developed a questionnaire and attempted to contact all cities and towns as a check against DEP's data. This first screening was intended to identify municipalities which operate an active unlined landfill.

Having identified these municipalities, the questionnaire sought information concerning the number of acres to be capped, the estimated capping cost per acre, and whether a variance from the closure regulations had been requested. The questionnaire also sought information concerning current solid waste disposal costs and the cost of providing an alternative to unlined municipal landfill capacity. In addition, the survey asked for an estimate of the useful life of remaining landfill capacity.

Definitive answers to some of these questions were readily available from the municipal officials questioned, e.g., the number of acres to be capped. For the few instances where this information was not known, we used information from DEP's list. Other questions were more difficult, and many answers were based on the best estimates of the respondents, e.g., tons of solid waste disposed per year. DLM used the standard generation rate of approximately one-half ton per capita where no answer was provided. Relatively few respondents could predict the cost of alternative disposal. Where the respondent could not answer, DLM inserted the average of actual responses to this question. This average cost was in line with the average actual commercial disposal cost reported by cities and towns in our report on mandatory recycling submitted to the Committee on Natural Resources and Agriculture last June.

Our findings assume that all affected cities and towns will need to seek outside funding sources for closure costs. To put the capital cost of landfill closure into perspective, DLM consulted the Department of Revenue's (DOR) Division of Local Services. DOR provided current bond debt service schedules for landfill projects. These schedules are based on interest rates available in today's bond market and could change next year when most closure projects will begin. Annual and total debt service costs are provided. Data used to determine the impact of debt service on the tax rate of a typical affected municipality, the average residential tax bill and excess levy capacity was also made available by DOR. (See Appendices.)

The appendix to this report provides supplemental data for individual municipalities based on DLM's survey and estimates, and other detailed information that will clarify both the methodology and findings of this study.

#### COST IMPACT FINDINGS

The Department of Environmental Protection's landfill closure requirements will have an immediate and significant financial impact on 90 cities and towns. A summary of our study results is as follows:

- o There are 90 unlined municipal landfills that must be closed and 1,372 acres that must be capped. These landfills currently dispose of approximately 500,000 tons of solid waste per year.
- o The average cost of capping is \$123,535 per acre, and the estimated capping cost (90 landfills) is \$169,490,505.
- o Assuming that municipalities will avail themselves of the 15-year maximum time period allowed by law to finance the closures, the total estimated statewide cost (principal and interest) would be \$264,405,188.
- o The average closure cost for a typical municipality will be approximately \$2,000,000. If the obligation is financed over 15 years, the debt service will be \$3,111,250.
- o The impact on an individual taxpayer in a typical municipality would be \$59 per year, or \$890 over the 15-year life of financing.

- o Alternatives to closed landfills will increase disposal costs for the 90 communities by an estimated \$27,026,339 per year, with the average cost per community being approximately \$300,000 per year.
- o For the 90 municipalities in the aggregate, first year costs for debt service (15-year) is \$23.2 million; alternative disposal costs will increase solid waste expenditures by 27 million for a statewide year one impact of approximately 50.2 million.
- o Municipalities do not have excess capacity in their property tax levy limit to fund the closure and alternative disposal costs, and would either have to reduce other budgetary items, raise or initiate fees or ask voters for a Proposition 2 1/2 override and/or debt service exclusion.

As requested by the Committee, the scope of this study is to identify unlined municipal landfills which are actively accepting solid waste but which will be required to complete closure by July 1, 1995. Included in the 90 municipalities we have identified are nine municipalities that were not included on the DEP list delivered to the Committee on March 25, 1993. Municipal sources informed DLM that these landfills are active and unlined. In Appendix I these municipalities are designated with an asterisk. Other landfills among the 90 cities and towns, particularly in southeastern Massachusetts, provide landfill service only for bulky or non-combustible waste that is not acceptable to their waste-to-energy vendors.

In addition to the 90 "active" municipal landfills listed in the report, there are many landfills which have been inactive for years but have not completed final closure requirements. These landfills are not included in this study but, on their own, represent a major municipal financial liability. The DEP list provided to the Committee on March 25, 1993 also included three municipalities -- Longmeadow, New Marlborough, and Walpole -- which, according to municipal sources, should be placed in the inactive category because their landfills were de-activated and closed many years ago.

The 90 landfills (See Appendix I) to be closed serve cities and towns with a combined population of over one million residents. They are in every region of the state, with a heavy concentration in Southeastern Massachusetts and the islands; Hampshire, Hampden, and southern Worcester County; and along the borders with New Hampshire and Vermont. See Appendix IV.

## ESTIMATED CAPPING AND ALTERNATIVE DISPOSAL COSTS 90 UNLINED MUNICIPAL LANDFILLS

### Estimated Landfill Closure Cost Data

Population Affected - 1,054,349

Average Cost per Acre - \$123,535<sup>1</sup>

Number of Acres to Be Capped - 1,372<sup>2</sup>

**Estimated Capping Cost (90 landfills) - \$169,490,505**

Average Landfill Capping Cost - \$1,883,228

### Hypothetical<sup>3</sup> Debt Service and Tax Rate Impact on Typical Municipality Bond Term 15 Years @ 7 % Interest

Principal (avg. closure \$ incl. design and environmental reports) - \$2,000,000

Total Interest - \$1,111,250

Total Debt Service - \$3,111,250

Debt Service (year 1) - \$275,000

Assessed Valuation - \$559,644,828<sup>4</sup>

Impact on Tax Rate (year 1) - \$.49 / \$1,000<sup>4</sup>

**Impact on Tax Bill (year 1) - \$79<sup>5</sup>**

**Impact on Tax Bill (15 years) - \$890<sup>5</sup>**

### Estimated Annual Alternative Disposal Cost Increase<sup>1</sup>

Solid Waste Tons per Year - 497,200

Operating and Maintenance Cost (90 landfills) - \$12,876,289

Operating and Maintenance Cost per Ton - \$25.90

Alternative Disposal Cost - \$39,902,628

Alternative Disposal Cost per Ton - \$80.25

**Cost Increase - \$27,026,339**

Cost Increase per Ton - \$54.35

<sup>1</sup> From DIVISION OF LOCAL MANDATES Survey and Analysis.

<sup>2</sup> DLM Survey and DEP "ACTIVE MSW LANDFILLS IN MASSACHUSETTS," January 6, 1993.

<sup>3</sup> Source: DOR and State Street Bank and Trust Co.

<sup>4</sup> Based on DOR F.Y. 1992 median of total assessed values.

<sup>5</sup> Based on DOR average F.Y. 1992 single family assessed values.



These landfills provide disposal capacity for almost 500,000 tons of municipal solid waste per year (one-sixth of the MSW generated in Massachusetts) The operating cost of these landfills is approximately \$12.9 million, or about \$26 per ton. Alternative disposal at commercial facilities will cost about \$80 per ton, or almost \$40 million. The hauling distance to the new facility, and whether a city or town may also need to construct a transfer station, will have an influence on this figure. Some cities and town intend to construct a lined landfill section. The per-ton costs should be comparable to commercial disposal costs even though municipal landfills are not run for profit and there are no hauling costs. The economies of scale of large commercial facilities may outweigh the profit and hauling distance advantages of smaller municipal facilities.

Capping all 90 landfills within the same time frame will put the services of environmental engineering and construction companies in great demand. Ninety closure plans must be drafted and 1,372 acres must be capped according to DEP specifications. The average estimated capping cost at the time of DLM's survey was \$123,535 per acre. This figure is based on responses from 77 of the 90 affected municipalities contacted in December of 1992. The total capital cost of capping 90 municipal landfills based on this per-ton cost is almost \$170 million. Both inflation and the high demand for capping services may drive the capital cost of closure projects beyond \$170 million.

#### FINANCIAL IMPLICATIONS

As a result of the local revenue raising limitations of Proposition 2 1/2 and the cutbacks in state aid over the last few years, the financial condition of cities and towns is unstable and fragile. It has become extremely difficult for local officials to balance annual budgets and accommodate increases in fixed costs such as pensions and health insurance along with collective bargaining and maintaining the capital infrastructure.

Major unanticipated expenditures, such as accelerated landfill closure, could have a severely negative impact on a municipality's financial position. Of the 90 communities that we have identified as being affected by closure requirements, only five municipalities have over \$200,000 in excess property tax levy capacity<sup>1</sup> sufficient to at least, in part, provide a certain degree of financial flexibility necessary to accommodate closure expenditures. (See Appendix III.)

It is apparent that the impacted cities and towns would not be capable of funding the closure of a landfill, estimated on average to be \$2,000,000, as a one-time expenditure from an operating budget.

1. Excess levy capacity exists when a municipality sets its property tax levy below the maximum allowed levy limit under Proposition 2 1/2. The difference between the actual levy and the maximum allowed levy limit is "excess capacity."

The only reasonable alternative available to finance this expenditure is through borrowing, which spreads the expenditure over a number of years. Although this method of financing mitigates the annual budgetary impact, cities and towns would be required to reduce other budgetary items or ask voters for a Proposition 2 1/2 debt service exclusion to accommodate the annual debt service on these bonds.

Cities and towns are allowed under the G.L. c. 44, s. 8, clause 24 to borrow for up to 15 years to close a landfill. In Appendix II, the annual financial impact of the debt service requirements for a community is demonstrated. The scenarios presented are 5-, 10-, and 15-year bond issues at the currently prevailing rates of interest in the municipal market. A 15-year, \$2 million bond issue at an interest rate of 7% would cost a municipality \$3,111,250 in principal and interest over the 15-year life of the bond issue.

In addition, Appendix II simulates the impact on the average property taxpayer in financing a \$2 million closure. For example, in a 15-year financing, the impact on an individual taxpayer in a typical municipality would be \$59 per year, or \$890 over the life of the financing.

Finally, Appendix I shows the estimated additional disposal costs that municipalities may be faced with as a result of landfill closure. Many communities were not able to provide individual estimates because specific alternative plans had not been formulated.

Based on the information that is available, we estimate that it will cost the 90 municipalities an additional \$39.9 million annually, or an average of \$80.25 per ton to dispose of 497,200 tons of waste. Our annual alternative disposal cost of \$39.9 million is offset by the \$12.9 million for landfill maintenance costs that would be no longer necessary. Therefore, we estimate that solid waste disposal budgets for the 90 cities and towns will increase in the aggregate by \$27 million.

For the average community, an additional \$300,000 per year would have to be budgeted and funded either through a trash fee, reductions in other budgetary accounts, or a Proposition 2 1/2 override.

#### THE STATE MANDATE ISSUE

The landfill closure requirement is clearly a "mandate" to local governments, as that term is commonly understood. In the absence of state assistance, 90 communities must secure up to \$265 million to comply, and there is no way to avoid this cost. However, the local mandate law (G.L. c. 29, s. 27C) does not protect cities and towns from all types of state-imposed costs; it does shield municipalities from state mandates that meet the terms of the statute -- as those terms have been further defined by the courts of the Commonwealth.

In general terms, G.L. c. 29, s. 27C provides that any post-1980 law or regulation imposing additional costs upon any city or town must be either locally accepted or fully funded by the Commonwealth. A city or town aggrieved by such an unfunded law or regulation may petition superior court to be exempted from compliance until the Commonwealth provides the necessary reimbursement. In such a proceeding, the court must accept DLM's determination as prima facie evidence of the amount of state funding necessary to sustain the mandate.

While it may appear that the local mandate law would apply to the landfill closure requirement, in light of the Supreme Judicial Court's decision in Town of Norfolk v. Department of Environmental Quality Engineering, it is our opinion that it does not. See 407 Mass. 233 (1990). The issue in Norfolk was whether the state funding provisions of the local mandate law applied to state regulations requiring, among other things, installation of a liner at an expansion of Norfolk's solid waste landfill. Norfolk petitioned superior court to be exempted from the liner requirement. The superior court judge ruled in favor of the town, but that decision was reversed on appeal.

The Supreme Judicial Court ruled that "... G.L. c. 29, s. 27C does not exempt municipalities from laws or regulations of general applicability governing activities engaged in by private businesses, when the municipality voluntarily engages in such activities." The court viewed Norfolk's situation as resulting from its own voluntary action (i.e., establishment of the landfill), and concluded: "These costs are not meant to be viewed as mandatory under the provisions of Proposition 2 1/2." Id. at 240.

Based upon the court's reading of the local mandate law in the Norfolk case, it is DLM's opinion that G.L. c. 29, s. 27C would not apply to the landfill closure requirement, as this, too, is a generally applicable regulation governing what the court deems to be a voluntary municipal activity. DLM has informed municipalities that raised the question with us that they retain the right to judicial review of the matter, notwithstanding our opinion.

Additionally, DLM retains the authority to conduct this fiscal impact study. Whether or not the local mandate law applies, G.L. c. 11, s. 6B authorizes DLM to review any law or regulation having a significant financial impact on cities and towns. As documented by the results of this study, the landfill closure requirement has a significant and long-term impact on municipal finances.

**NINETY MUNICIPAL UNLINED LANDFILLS  
DLM SURVEY RESULTS**

<b>MUNICIPALITY</b>	<b>POPULATION 1990 Federal Census</b>	<b># OF ACRES TO BE CAPPED</b>	<b>CAPPING COST (INCLUDES ESTIMATES)</b>	<b>TON PER YEAR (INCLUDES ESTIMATES)</b>	<b>LANDFILL OPERAT. &amp; MAINT. COST (INCLUDES ESTIMATES)</b>	<b>ALTERNATIVE DISPOSAL COSTS (INCLUDES ESTIMATES)</b>	<b>TOTAL ADDITIONAL DISPOSAL COSTS</b>
ADAMS	9,445	13	\$1,794,000	5,300	\$180,000	\$225,000	\$45,000
ASHBURNHAM *	5,433	5	700,000	2,500	107,000	400,000	293,000
ASHBY	2,717	10	1,235,350	1,223	34,246	99,768	65,522
ATHOL	11,451	15	1,995,000	6,000	200,000	446,000	246,000
BARNSTABLE	40,949	30	4,500,000	13,000	350,000	1,040,000	690,000
BERNARDSTON	2,048	6	600,000	6,170	172,822	503,472	330,650
BLACKSTONE	8,023	10	1,496,250	4,000	51,000	310,000	259,000
BOLTON	3,134	4	500,000	800	15,000	64,000	49,000
BOURNE	16,064	5	750,000	7,229	202,479	589,870	387,391
BOXFORD	6,266	6	750,000	2,820	78,980	230,088	151,108
BREWSTER	8,440	15	1,300,000	4,200	117,642	342,720	225,078
BROOKFIELD	2,968	6	750,000	800	30,000	59,400	29,400
BUCKLAND	1,928	15	1,853,025	4,500	80,000	367,200	287,200
CHARLTON	9,576	22	2,717,770	4,309	120,701	351,631	230,930
CHATAM	6,579	20	2,500,000	2,000	56,020	163,200	107,180
CHILMARK	650	5	700,000	293	8,193	23,868	15,675
CLARKSBURG	1,745	2	349,500	785	17,000	64,076	47,076
COLRAIN	1,757	3	300,000	1,000	30,500	81,600	51,100
DARTMOUTH *	27,244	20	2,700,000	12,260	343,397	1,000,400	657,003
DEERFIELD	5,018	12	1,200,000	7,000	95,000	571,200	476,200
DENNIS	13,864	40	4,000,000	6,239	174,749	509,086	334,337
DIGHTON	5,631	9	1,125,000	2,500	100,000	200,000	100,000
DUDLEY	9,540	20	2,000,000	4,000	85,000	326,400	241,400
EAST BRIDGEWATER	11,104	37	4,570,795	4,997	139,960	407,739	267,779
EASTON *	19,807	12	1,620,000	3,000	80,000	250,000	170,000
EDGARTOWN	3,062	19	2,347,165	1,378	38,595	112,437	73,842
FAIRHAVEN	16,132	28	3,500,000	7,259	203,336	592,367	389,031
FALMOUTH	27,960	10	1,250,000	12,582	352,422	1,026,691	674,269
FOXBOROUGH	14,637	20	2,000,000	5,000	100,000	400,000	300,000
FRIBETOWN	8,522	14	2,100,000	3,835	107,416	312,928	205,512
GARDNER	20,125	25	3,750,000	18,700	270,000	1,559,000	1,289,000
GOSNOLD	98	1	123,535	44	1,235	3,599	2,363
GREAT BARRINGTON	7,725	15	1,853,025	3,476	97,370	283,662	186,292
HAMPDEN	4,709	10	1,235,350	2,119	59,355	172,914	113,560
HARWICH	10,275	22	2,750,000	4,624	129,511	377,298	247,787
HINGHAM	19,821	6	800,000	8,000	200,000	800,000	600,000
HOLBROOK	11,041	20	2,400,000	9,000	160,000	1,000,000	840,000
HOLLAND	2,185	1	120,000	120	4,300	9,792	5,492
KINGSTON	9,045	6	600,000	4,070	114,008	332,132	218,125
LAKVILLE	7,785	12	1,800,000	2,900	93,000	198,000	105,000
LEVERETT *	1,785	3	370,605	803	22,499	65,545	43,046
LUDLOW	18,820	19	2,375,000	8,469	237,217	691,070	453,854
LUNENBURG	9,117	6	450,000	3,000	100,000	300,000	200,000
MARION	4,496	1	100,000	2,023	56,670	165,093	108,423
MARSHFIELD	21,531	23	2,200,000	9,689	271,387	790,618	519,231

MUNICIPALITY	POPULATION 1990 Federal Census	# OF ACRES TO BE CAPPED	CAPPING COST (INCLUDES ESTIMATES)	TON PER YEAR (INCLUDES ESTIMATES)	LANDFILL OPERAT. & MAINT. COST (INCLUDES ESTIMATES)	ALTERNATIVE DISPOSAL COSTS (INCLUDES ESTIMATES)	TOTAL ADDITIONAL DISPOSAL COSTS
MASHPEE	7,884	10	1,200,000	3,548	99,374	289,500	190,127
MATTAPOISSETT	5,850	10	1,500,000	25,000	450,000	1,500,000	1,050,000
MEDFIELD	10,531	6	741,210	4,739	132,738	386,698	253,960
MERRIMAC	5,166	10	1,300,000	4,000	100,000	326,400	226,400
MIDDLETON	4,921	10	1,000,000	3,650	150,000	300,000	150,000
MILTON	25,725	40	8,000,000	10,000	170,000	650,000	480,000
MONTAGUE	8,316	12	1,170,000	2,200	61,622	179,520	117,898
NANTUCKET	6,012	15	3,000,000	2,705	75,778	220,761	144,982
NEEDHAM	27,557	40	6,000,000	12,401	347,342	1,011,893	664,551
NEW BEDFORD *	99,922	55	6,794,425	44,965	1,259,467	3,669,136	2,409,669
NEWBURY	5,623	12	1,800,000	3,000	125,000	300,000	175,000
NORTH ATTLEBOROUGH	25,038	22	3,498,000	17,000	475,000	1,205,000	730,000
NORTH BROOKFIELD	4,708	10	700,000	2,119	59,342	172,878	113,536
OAK BLUFFS	2,804	7	900,000	1,262	35,343	102,963	67,620
ORANGE	7,312	8	1,600,000	4,000	104,000	326,400	222,400
ORLEANS *	5,838	20	1,255,000	2,627	73,585	214,371	140,786
PALMER	12,054	14	1,400,000	6,000	187,000	489,600	302,600
PEPPERELL *	10,098	13	900,000	4,544	127,280	370,799	243,518
PLYMOUTH	45,608	16	2,000,000	20,524	574,866	1,674,726	1,099,860
PROVINCETOWN	3,561	25	1,800,000	1,602	44,885	130,760	85,875
RAYNHAM	9,867	5	625,000	8,000	110,000	540,000	430,000
REHOBOTH	8,656	5	1,000,000	3,895	109,105	317,848	208,744
ROCKLAND	16,123	92	11,365,220	7,255	203,222	592,037	388,814
ROYALSTON	1,147	3	150,000	516	14,457	42,118	27,660
SALISBURY	6,882	15	1,800,000	3,097	86,744	252,707	165,963
SCITUATE	16,786	57	5,700,000	6,500	182,065	530,400	348,335
SEEKONK	13,046	12	1,200,000	5,871	164,438	479,049	314,611
SHIRLEY *	6,118	2	110,000	3,200	100,000	200,000	100,000
SOUTH HADLEY	16,685	11	1,300,000	2,000	180,000	163,200	(16,800)
SOUTHAMPTON	4,478	5	800,000	416	10,000	33,946	23,946
SUNDERLAND	3,399	3	400,000	1,530	42,843	124,811	81,969
SUTTON	6,824	7	800,000	2,700	80,000	200,000	120,000
TAUNTON	49,832	15	1,500,000	13,000	364,130	1,060,800	696,670
TEMPLETON	6,438	7	1,500,000	3,000	84,030	244,800	160,770
TOPSFIELD	5,754	25	2,500,000	2,589	72,526	211,287	138,761
WARE	9,808	7	700,000	4,800	65,000	391,680	326,680
WARWICK	740	3	275,000	600	10,000	48,960	38,960
WEST BROOKFIELD	3,532	8	480,000	1,700	60,000	138,720	78,720
WEST TISBURY	1,704	8	988,280	767	21,478	62,571	41,093
WESTFIELD	38,372	40	4,200,000	17,267	250,000	1,409,020	1,159,020
WESTHAMPTON	1,327	2	200,000	1,000	15,000	81,600	66,600
WESTPORT	13,852	12	1,507,000	6,233	174,598	508,645	334,048
WILLIAMSTOWN	8,220	6	1,000,000	3,400	113,000	277,440	164,440
WINCHENDON *	8,805	12	1,200,000	3,962	110,983	323,320	212,337
YARMOUTH	21,174	55	7,500,000	4,000	112,040	326,400	214,360
<b>SUM</b>	<b>1,054,349</b>	<b>1,372</b>	<b>\$169,490,505</b>	<b>497,200</b>	<b>\$12,876,289</b>	<b>\$39,902,628</b>	<b>\$27,026,339</b>

ESTIMATES BASED ON:

CAPPING COST = DEP ACRES x \$123,535 (AVG. BASED ON SUMS);  
 TONS PER YEAR (TPY) = POPULATION x .45;  
 LANDFILL O & M = TPY x \$28.01 (AVG. FROM SURVEY);  
 ALTERNATIVE DISPOSAL = TPY x \$81.60 (AVG. FROM SURVEY).

\* MUNICIPALITIES EXCLUDED FROM DEP "Status of Unlined, Active, Publicly Owned MSW Landfills," (3/24/93).  
 NOTE: MUNICIPALITIES INCLUDED IN DEP "Status of Unlined, Active, Publicly Owned MSW Landfills,"(3/24/93) -  
 LONGMEADOW, NEW MARLBOROUGH, AND WALPOLE. DLM SURVEY INDICATES THESE ARE  
 CLOSED AND CAPPED.

**THEORETICAL MUNICIPAL DEBT SERVICE  
AND IMPACT ON AVERAGE RESIDENTIAL TAX BILL**

**15 YEARS**

YEAR	PRINCIPAL OUTSTANDING	PRINCIPAL	INTEREST (7.00%)	ANNUAL DEBT SERVICE	IMPACT ON TAX RATE *	IMPACT ON TAX BILL **
1	\$2,000,000	\$135,000	\$140,000	\$275,000	\$0.49	\$79
2	1,865,000	135,000	130,550	265,550	0.47	76
3	1,730,000	135,000	121,100	256,100	0.46	73
4	1,595,000	135,000	111,650	246,650	0.44	71
5	1,460,000	135,000	102,200	237,200	0.42	68
6	1,325,000	135,000	92,750	227,750	0.41	65
7	1,190,000	135,000	83,300	218,300	0.39	62
8	1,055,000	135,000	73,850	208,850	0.37	60
9	920,000	135,000	64,400	199,400	0.36	57
10	785,000	135,000	54,950	189,950	0.34	54
11	650,000	130,000	45,500	175,500	0.31	50
12	520,000	130,000	36,400	166,400	0.30	48
13	390,000	130,000	27,300	157,300	0.28	45
14	260,000	130,000	18,200	148,200	0.26	42
15	130,000	130,000	9,100	139,100	0.25	40
<b>TOTAL</b>		<b>\$2,000,000</b>	<b>\$1,111,250</b>	<b>\$3,111,250</b>		<b>\$890</b>

**10 YEARS**

YEAR	PRINCIPAL OUTSTANDING	PRINCIPAL	INTEREST (6.00%)	ANNUAL DEBT SERVICE	IMPACT ON TAX RATE *	IMPACT ON TAX BILL **
1	\$2,000,000	\$200,000	\$120,000	\$320,000	\$0.57	\$91
2	1,800,000	200,000	108,000	308,000	0.55	88
3	1,600,000	200,000	96,000	296,000	0.53	85
4	1,400,000	200,000	84,000	284,000	0.51	81
5	1,200,000	200,000	72,000	272,000	0.49	78
6	1,000,000	200,000	60,000	260,000	0.46	74
7	800,000	200,000	48,000	248,000	0.44	71
8	600,000	200,000	36,000	236,000	0.42	67
9	400,000	200,000	24,000	224,000	0.40	64
10	200,000	200,000	12,000	212,000	0.38	61
<b>TOTAL</b>		<b>\$2,000,000</b>	<b>\$660,000</b>	<b>\$2,660,000</b>		<b>\$760</b>

**5 YEARS**

YEAR	PRINCIPAL OUTSTANDING	PRINCIPAL	INTEREST (5.00%)	ANNUAL DEBT SERVICE	IMPACT ON TAX RATE *	IMPACT ON TAX BILL **
1	\$2,000,000	\$400,000	\$100,000	\$500,000	0.89	\$143
2	1,600,000	400,000	80,000	480,000	0.86	137
3	1,200,000	400,000	60,000	460,000	0.82	132
4	800,000	400,000	40,000	440,000	0.79	126
5	400,000	400,000	20,000	420,000	0.75	120
<b>TOTAL</b>		<b>\$2,000,000</b>	<b>\$300,000</b>	<b>\$2,300,000</b>		<b>\$658</b>

\* Based On DOR F.Y. 1992 Median Total Assessed Values - Unlined Landfill Municipalities.

\*\* Based On DOR Average F.Y. 1992 Single Family Assessed Values - Unlined Landfill Municipalities.

**EXCESS TAX LEVY CAPACITY  
FISCAL YEAR 1992**

MUNICIPALITY	MAXIMUM LEVY LIMIT	ACTUAL TAX LEVY	EXCESS CAPACITY
ADAMS	\$4,545,877	\$4,512,285	\$33,592
ASHBURNHAM	3,189,483	3,188,908	575
ASHBY	1,661,572	1,657,818	3,754
ATHOL	3,793,115	3,740,870	52,245
BARNSTABLE	45,868,790	45,835,983	32,807
BERNARDSTON	1,377,175	1,329,427	47,748
BLACKSTONE	4,037,122	4,031,519	5,603
BOLTON	3,903,844	3,830,219	73,625
BOURNE	15,544,471	15,537,199	7,272
BOXFORD	7,155,460	7,152,624	2,836
BREWSTER	12,324,321	12,321,363	2,958
BROOKFIELD	1,480,503	1,478,662	1,841
BUCKLAND	1,292,990	1,280,063	12,927
CHARLTON	4,686,864	4,684,291	2,573
CHATHAM	11,402,674	11,393,189	9,485
CHILMARK	1,974,057	1,972,873	1,184
CLARKSBURG	723,153	722,371	782
COLRAIN	N/A	N/A	N/A
DARTMOUTH	17,079,199	17,064,480	14,719
DEERFIELD	3,122,003	3,120,220	1,783
DENNIS	15,668,864	15,667,231	1,633
DIGHTON	3,974,197	3,973,184	1,013
DUDLEY	3,095,755	3,094,534	1,221
EAST BRIDGEWATER	8,115,249	8,106,706	8,543
EASTON	16,110,148	16,105,151	4,997
EDGARTOWN	7,590,839	7,555,842	34,997
FAIRHAVEN	10,659,338	10,657,412	1,926
FALMOUTH	34,309,305	34,278,083	31,222
FOXBOROUGH	13,067,063	13,039,851	27,212
FREETOWN	5,484,885	5,480,379	4,506
GARDNER	8,725,922	8,720,334	5,588
GOSNOLD	231,126	204,125	27,001
GREAT BARRINGTON	7,215,836	6,947,510	268,326
HAMPDEN	3,847,684	3,845,303	2,381
HARWICH	15,161,921	15,136,853	25,068
HINGHAM	25,088,588	25,054,403	34,185
HOLBROOK	8,463,794	8,455,935	7,859
HOLLAND	N/A	N/A	N/A
KINGSTON	8,092,887	8,089,412	3,475
LAKEVILLE	4,903,011	4,902,791	220
LEVERETT	1,591,042	1,590,793	249
LUDLOW	11,615,236	11,536,734	78,502
LUNENBURG	6,508,070	6,505,936	2,134
MARION	5,802,183	5,793,012	9,171
MARSHFIELD	18,596,688	18,582,177	14,511

MUNICIPALITY	MAXIMUM LEVY LIMIT	ACTUAL TAX LEVY	EXCESS CAPACITY
MASHPEE	\$15,164,660	\$15,146,824	\$17,836
MATTAPOISETT	6,033,175	6,032,971	204
MEDFIELD	10,968,540	10,908,367	60,173
MERRIMAC	N/A	N/A	N/A
MIDDLETON	5,355,338	5,340,489	14,849
MILTON	25,185,451	25,181,680	3,771
MONTAGUE	5,234,195	5,145,056	89,139
NANTUCKET	19,308,485	19,281,156	27,329
NEEDHAM	36,604,412	36,593,629	10,783
NEW BEDFORD	41,430,281	41,418,419	11,862
NEWBURY	4,938,946	4,840,655	98,291
NORTH ATTLEBOROUGH	16,692,073	16,677,974	14,099
NORTH BROOKFIELD	1,974,051	1,972,929	1,122
OAK BLUFFS	5,656,457	5,652,201	4,256
ORANGE	3,734,636	3,733,616	1,020
ORLEANS	10,447,832	10,090,782	357,050
PALMER	6,865,119	6,861,007	4,112
PEPPERELL	6,026,070	6,025,243	827
PLYMOUTH	55,610,588	55,221,423	389,165
PROVINCETOWN	6,970,734	6,518,317	452,417
RAYNHAM	7,124,701	7,123,977	724
REHOBOTH	6,081,550	6,077,659	3,891
ROCKLAND	9,805,331	9,804,431	900
ROYALSTON	484,814	470,146	14,668
SALISBURY	5,524,385	5,521,462	2,923
SCITUATE	17,976,607	17,967,460	9,147
SEEKONK	11,788,465	11,689,068	99,397
SHIRLEY	2,452,469	2,451,393	1,076
SOUTH HADLEY	9,324,467	9,291,423	33,044
SOUTHAMPTON	3,032,597	3,032,346	251
SUNDERLAND	1,680,733	1,678,427	2,306
SUTTON	5,416,583	5,415,960	623
TAUNTON	24,545,419	24,540,821	4,598
TEMPLETON	1,848,141	1,843,916	4,225
TOPSFIELD	6,296,521	5,907,666	388,855
WARE	4,703,593	4,701,522	2,071
WARWICK	N/A	N/A	N/A
WEST BROOKFIELD	1,827,791	1,827,729	62
WEST TISBURY	3,416,158	3,415,952	206
WESTFIELD	23,821,789	23,814,849	6,940
WESTHAMPTON	1,175,351	1,174,183	1,168
WESTPORT	8,817,952	8,812,902	5,050
WILLIAMSTOWN	5,474,417	5,471,058	3,359
WINCHENDON	3,809,594	3,804,628	4,966
YARMOUTH	22,453,122	22,363,227	89,895

Source : Department of Revenue , Division of Local Services

N/A : Not Available



# MASSACHUSETTS CITIES AND TOWNS WITH ACTIVE UNLINED MUNICIPAL LANDFILLS

