



VERMONT SOLID WASTE DIVERSION & DISPOSAL - 1999

Vermont Solid Waste Management Program

December 20, 2000

Vermonters Are Committed To Diversion of Municipal Solid Waste From Disposal.

In 1999, the municipal solid waste (MSW) diversion rate increased slightly due to a small increase in recycling and composting coupled with a small decrease in the amount disposed. The diversion rate increased from 33.8% in 1998 to 34.6% in 1999. Completion of an updated survey of the economic recycling sector and metal processors is expected to confirm that the diversion rate is in fact greater than data currently available for 1999 suggests.

Waste Reduction, Reuse, Recycling and Composting Must Increase To Accomplish A 50% Diversion Rate in 2005.

Over the next five years MSW generation is expected to increase. In order to achieve a 50% diversion rate in 2005 we will need to divert an additional 112,000 tons of MSW per year through reuse, recycling and composting. To achieve this goal we will also need to limit the amount of MSW we dispose to 304,000 per year, a reduction of about 60,000 tons from today's estimates. Reducing the amount of MSW generated is the best option to avoid expending our limited resources on diversion or disposal of Vermont's solid waste.

Vermont Solid Waste Diversion and Disposal Data For 1999 Includes The Following:

Table 1 1998 & 1999 State Wide Diversion Rate. Municipal Solid Waste.

Table 2 Vermont Solid Waste Recycling - 1999. Recycled Materials Reported By Solid Waste Facilities.

Table 3 Vermont Solid Waste Composting - 1999. Materials Reported By Solid Waste Facilities.

Table 4 Vermont Construction & Demolition Waste - 1999. Construction & Demolition Waste Diverted From Disposal Through Acceptable Uses.

Table 5 Generation, Diversion and Disposal. Vermont Municipal Solid Waste. 1998 & 1999 (Actual) and 2000 - 2005 (Projections).

Table 6 Vermont Solid Waste - 1999. Disposal and Incineration.

Table 7 Vermont Solid Waste - 1999. Disposal and Incineration - Destination.

Table 8 Operating Solid Waste Disposal Capacity in Vermont. Status as of January 2001.

For more information:

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TABLE 1

**1998 & 1999 State Wide Diversion Rate
Vermont Municipal Solid Waste**

Reuse, Recycling & Composting (Tons)

	<u>1998</u>	<u>1999</u>
Reuse facilities ¹	260	320
Bottle Returns reused ²	4,000	4,000
Recycling processors and transfer ³	83,116	85,112
Bottle returns recycled ²	16,100	16,100
Economic recycling ⁴	32,160	32,160
Metal processors ⁴	42,780	42,780
Backyard Composting	7,098 ⁵	7,398 ⁵
Composting Facilities	4,935	4,134
Exempt & Categorical Composting	<u>825</u>	<u>972</u>
Total:	191,274	192,976

Disposal - Municipal / Mixed Solid Waste (Tons)

	<u>1998</u>	<u>1999</u>
municipal/mixed solid waste ⁶	374,820	364,263

MSW Diversion - 1998 & 1999

Diversion = (Reuse + Recycling + Composting) / (Reuse + Recycling + Composting + Disposal)

1998 MSW Diversion = 191,274 / (191,274 + 374,820) = 33.8%⁷

1999 MSW Diversion = 192,976 / (192,976 + 364,263) = 34.6%

Notes:

- ¹ 1994 reuse data with the exception of salvage or concrete, plus 1999-2000 VMAX (63 tons)
- ² 1996 data prepared by Northbridge Environmental Management Consultants.
- ³ Includes tonnage for cans, glass, cardboard, office paper, newspaper, PETE, HDPE, metals and "other recyclables" which include a variety of materials.
- ⁴ 1994 data for ANR report "Vermont's Solid Waste Diversion In 1994, August 1996."
- ⁵1998 6100 tons (1994 data) plus 998 tons (estimated from additional 5320 bins sold since 1994 handling 375# of food waste per bin per year)
- ⁵1999 1998 estimate plus 300 tons (estimated of additional 1600 bins sold in 1999 handling 375# of food waste per bin per year)
- ⁶ Mixed solid waste includes some C&D in mixed loads from transfer stations.
- ⁷ The percentage representing the diversion rate for municipal solid waste is underestimated due to the presence of C&D in mixed loads from transfer stations. The diversion rate is expected to increase when updated data is collected for various recycling activities (see footnote 2 & 4).

TABLE 2

**VERMONT SOLID WASTE RECYCLING - 1999
RECYCLED MATERIALS REPORTED BY SOLID WASTE FACILITIES**

MATERIAL	MATERIALS RECYCLING FACILITIES ³ (TONS)	STORAGE AND TRANSFER FACILITIES ⁴ (TONS)
CO-MINGLED CONTAINERS	77 ⁵	790
CANS	2,145 ⁵	926
GLASS	10,467 ⁵	1,513
CO-MINGLED FIBERS	0	1,536
CORRUGATED CARDBOARD	21,367 ⁵	4,960
WHITE OFFICE PAPER	1,169 ⁵	216
NEWSPAPERS	8,711 ⁵	2,943
OTHER PAPER	16,578 ⁵	2,990
PETE (#1)	693 ⁵	81
HDPE (#2)	1,280 ⁵	336
FERROUS METALS	1,496 ⁵	12,097 ⁵
NON-FERROUS METALS	109 ⁵	687 ⁵
OTHER RECYCLABLES ²	4,737 ⁵	3,499 ⁵
FACILITY TOTAL:	68,829	32,574
TOTAL TONS FOR MATERIALS FOR MSW DIVERSION RATE (85,112 TONS)	68,829	16,283

¹ Data obtained from solid waste management facility quarterly reports submitted to the Vermont State Solid Waste Management Program for calendar year 1999.

² Other Recyclables" includes miscellaneous materials including textiles, mixed fibers, books, and any of the materials listed in the table above.

³ This data represents estimated state totals for these materials handled by Vermont recycling facilities. These facilities process recyclables collected at locations throughout Vermont including the storage and transfer facilities for which data is provided above in column 3.

⁴ This data is provided to show estimated totals for materials which are handled by recycling storage and transfer facilities before being transferred to a material processing facility for further treatment or directly to market. Categorical recycling facilities are not included.

⁵ Materials & tonnage included in the calculation of the state wide diversion rate for municipal solid waste.

TABLE 3

**VERMONT SOLID WASTE COMPOSTING - 1999
MATERIALS HANDLED BY VERMONT SOLID WASTE FACILITIES ¹**

MATERIAL	TONS
FOOD WASTE ²	1,039
PAPER ²	20
LEAF AND YARD WASTE ²	2,023
WOOD WASTE ²	1,052
PAPER SLUDGE	652
TOTAL TONS:	4,786

¹ Data obtained from solid waste management facility quarterly reports submitted to the Vermont State Solid Waste Management Program for calendar year 1999. Categorical composting facilities **are not** included.

² Materials & tonnage included in the calculation of the state wide diversion rate for municipal solid waste.

TABLE 4

VERMONT CONSTRUCTION & DEMOLITION WASTE - 1999

**CONSTRUCTION & DEMOLITION WASTE DIVERTED FROM DISPOSAL
THROUGH ACCEPTABLE USES¹
TONS REPORTED BY SOLID WASTE FACILITIES**

	MATERIALS PROCESSING FACILITIES ² (TONS)	STORAGE AND TRANSFER FACILITIES ³ (TONS)
CONSTRUCTION/DEMOLITION WASTE (C&D)	21,920 ⁴	2,332 ⁴
WOOD	470 ⁴	75 ⁴
DEBRIS RECYCLED AS FILL	11,200	
GROUND C&D USED IN LANDFILLS		7,317 ⁴
TOTAL TONS:	33,590	9,724
TOTAL TONS FOR MATERIALS FOR C&D ACCEPTABLE USE DIVERSION RATE (32,114 TONS)	22,390	9,724

1999 C&D Disposal: 58,640 Tons

1999 C&D Acceptable Use Rate = (Reuse⁵ + Recycling) / (Reuse⁵ + Recycling + Disposal)

1999 C&D Acceptable Use Rate = 32,114 / (32,114 + 58,640) = 35.4%

¹ Data obtained from solid waste management facility quarterly reports submitted to the Vermont State Solid Waste Management Program for calendar year 1999.

² This data represents estimated state totals for these materials handled by Vermont recycling facilities.

³ This data is provided to show estimated totals for materials which are handled by recycling, storage and transfer facilities before being transferred to a material processing facility for further treatment or directly for use.

⁴ Materials & tonnage included in the calculation of an acceptable use rate for construction & demolition waste.

⁵ Currently data is not collected for C&D reuse operations.

TABLE 5

**GENERATION, DIVERSION AND DISPOSAL
VERMONT MUNICIPAL SOLID WASTE
1998 & 1999 (ACTUAL)
2000 - 2005 (PROJECTIONS IN ORDER TO REACH 50% DIVERSION RATE)
UPDATED 12/20/00**

MSW Generation, Diversion & Disposal - Actual & Projections (Tons) ³								
	1998	1999	2000	2001	2002	2003	2004	2005
Generation ¹	566,094	557,239	565,598	574,082	582,693	591,493	600,305	609,309
Diversion	191,274	192,976	197,959	218,151	238,904	260,235	282,143	304,655
Disposal	374,820	364,263	367,639	355,931	343,789	331,208	318,162	304,654
Population Estimate ²	590,579	593,740	596,709	599,643	602,691	605,705	608,733	611,776
Per Capita (Tons/Yr): MSW Generation	0.96	0.94	0.95	0.96	0.97	0.98	0.99	1.00
Per Capita (Tons/Yr) MSW Diversion	0.33	0.33	0.33	0.36	0.40	0.43	0.46	0.50
Per Capita (Tons/Yr): MSW Disposal	0.63	0.61	0.62	0.60	0.57	0.55	0.53	0.50

% Of MSW Waste Generation ³								
	1998	1999	2000	2001	2002	2003	2004	2005
Generation	100%	100%	100%	100%	100%	100%	100%	100%
Diversion	33.8%	34.5%	35%	38%	41%	44%	47%	50%
Disposal	66.2%	65.5%	65%	62%	59%	56%	53%	50%

NOTES:

¹ MSW generation as projected in "Characterization of Municipal Solid Waste In The United States: 1998 Update", Franklin Assoc. August 1999. MSW generation is projected to increase 1.5 percent per year between 2000 and 2005.

² Vermont estimate - 0.5% increase in population from 1998 to 1999. Increase projected at this rate through 2005. US Census Bureau - ST-99-1. www.census.gov/population/www/estimates/statepop.html

³ 1998 & 1999, actual. 2000 - 2005, projected to achieve goal of 50% diversion in the year 2005.

TABLE 6

**Vermont Solid Waste - 1999
Disposal & Incineration**

DESTINATION	TYPE OF WASTE					Waste Used in Landfill ⁽²⁾
	MSW (Tons)	C&D/Wood (Tons)	Other ⁽¹⁾ (Tons)	Total (Tons)	% Disposed	
In-state						
Landfill	275,916	47,249 ⁽³⁾	2,941	326,106	76%	21,016
Incineration ⁽⁴⁾		6,617		6,617	2%	
Subtotal:	275,916	53,866	2,941	332,723	78%	21,016
Out-of-State						
Landfill	53,590	4,579	1,226	59,395	14%	5,807
Incineration ⁽⁵⁾	34,757	195		34,952	8%	
Subtotal:	88,347	4,774	1,226	94,347	22%	5,807
Total:	364,263	58,640	4,167	427,070		26,823

(1) Defined as asbestos waste, bulky waste, dead animals, industrial waste, petroleum contaminated soil, medical waste and "other" waste. Does not include 2,861 tons of biosolids disposed in Vermont landfills during 1999.

(2) Waste used in landfills - Petroleum contaminated soils (1552 tons), foundry sand (4337 tons), biosolids (7803 tons) and paper sludge (4827) used as alternative cover material. Ground C&D (2497 tons) used as road base material at Vermont landfills and as alternative cover material (4820 tons) at an out of state landfill.

(3) Does not include 637 tons of C&D from Massachusetts disposed at the Burgess landfill.

(4) 6226 tons of clean wood waste was collected by the Chittenden Solid Waste District and chipped and burned for energy recovery at the McNeil generating plant. 391 tons of clean wood was reported to have been burned at transfer station sites.

(5) Does not include 6,226 tons of incinerator ash disposed at the NH/VT Solid Waste Project Ash Landfill attributed to VT waste burnt at the Wheelabrator Claremont Incinerator

TABLE 7

**Vermont Solid Waste - 1999
Disposal & Incineration - Destinations**

STATE	FACILITY	MSW & Mixed (Tons)	C&D (Tons)	Other ⁽¹⁾ (Tons)	Total	Waste Used in Landfill ⁽²⁾
Vermont	Waste USA Landfill	163,336	29,815	1,376	194,527	11,342
	WSI Landfill	110,411	6,721	1,563	118,695	9,674
	4 - 1000 ton unlined landfills	2,169	371	2	2,542	
	Burgess C&D Landfill ⁽³⁾		9,017		9,017	
	Hartford C&D Landfill		1,043		1,043	
	On-site disposal clean wood at transfer stations		282		282	
	On-site burning of clean wood at transfer stations ⁽⁴⁾		391		391	
	McNeil - Burn clean wood ⁽⁴⁾		6,226		6,226	
	1999 TOTAL IN- STATE:	275,916	53,866	2,941	332,723	21,016
New Hampshire	Wheelabrator Claremont Incinerator ⁽⁵⁾	28,466	195		28,661	
	Keene Landfill	705			705	
	Lebanon Landfill	14,477			14,477	4,820
	North Country Landfill	8,363	1,766	1,169	11,298	987
	Mt. Carberry Landfill	924			924	
	Turnkey Landfill (estimate)	1,104			1,104	
	Subtotal NH:	54,039	1,961	1,169	57,169	5,807

New York	Adirondak Resource Recovery	4,137			4,137	
	Albany Landfill	2,050			2,050	
	Schuyler Falls Landfill	22,325	2,813		25,138	
	Seneca Meadows Landfill	2,510			2,510	
	Subtotal NY:	31,022	2,813	0	33,835	0
Massachusetts	Pittsfield Resource Recovery	1,513			1,513	
	Bernardston Landfill	1,125			1,125	
	Chicopee Landfill	7		57	64	
	Subtotal MA:	2,645	0	57	2,702	0
Connecticut	Mid Conn Resource Recovery	641			641	
	1999 TOTAL OUT OF STATE	88,347	4,774	1,226	94,347	5,807
	1999 TOTAL - IN-STATE & OUT-OF-STATE	364,263	58,640	4,167	427,070	26,823

(1) Defined as asbestos waste, bulky waste, dead animals, industrial waste, petroleum contaminated soil, medical waste and "other" waste. Does not include 2,861 tons of biosolids disposed in Vermont landfills during 1999.

(2) Waste used in landfills - Petroleum contaminated soils (1552 tons), foundry sand (4337 tons), biosolids (7803 tons) and paper sludge (4827) used as alternative cover material. Ground C&D (2497 tons) used as road base material at Vermont landfills and as alternative cover material (987 tons) at an out of state landfill.

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(5) Does not include 6,226 tons of incinerator ash disposed at the NH/VT Solid Waste Project Ash Landfill attributed to VT waste burnt at the Wheelabrator Claremont Incinerator.

TABLE 8

**Operating Solid Waste Disposal Capacity in Vermont ⁽¹⁾
Status as of January 2001**

MSW Landfills ⁽²⁾	Remaining Capacity (tons)	Maximum Permitted Fill Rate 2001		Actual Fill Rate For 1999 Permit Year (tons/year)	Remaining Years of Capacity
		(tons/day)	(tons/year)		
Waste USA, Coventry (Phase I, II, III)	1,990,000	1,500	240,000	179,812 ⁽³⁾ (4/1/99 - 3/31/00) (permitted max - 180,000 tons)	8.3 ⁽⁴⁾
WSI 3 ⁽⁵⁾ , Moretown (Cell 2)	680,000	400	125,000	118,695 ⁽³⁾ (1/1/99 - 12/31/99) (permitted max - 120,000 tons)	5.7 ⁽⁴⁾
Totals	2,670,000	1,900	360,000	298,497	7.4 ⁽⁴⁾
Vermont Solid Waste Requiring Disposal (1999)				427,070	6.3 ⁽⁶⁾

(1) Does not include other capacity certified by ANR that has not been developed (Northwest District, Greater Upper Valley District, Lamoille District, and Town of Randolph), capacity proposed for permitting by one privately owned landfill, or potential capacity involved in other legal proceedings (Chittenden Solid Waste District).

(2) Does not include the three 1000 TPY unlined landfills operating in Bristol Town, Shaftsbury, and Salisbury.

(3) Actual fill rate for permit years includes biosolids disposed.

(4) Based on maximum yearly permitted fill rate.

Note: Waste USA received an additional 11,342 tons of waste and WSI received an additional 9,674 tons of waste which were used in the landfills as alternative daily cover or road base material.

(5) WSI = Waste Systems International, Inc.

(6) Years of capacity remaining if all Vermont MSW, sludges, construction/demolition debris, and "other waste" were to be disposed of in-state. Does not include biosolids.