



2015 Diversion and Disposal Report

A summary of solid waste management in the State of Vermont

Prepared by:

Waste Management & Prevention Division
Solid Waste Program

February 2017

Introduction

The Waste Management and Prevention Division's Solid Waste Program respectfully submits the Program's Annual report describing how solid waste was managed in Vermont during the 2015 calendar year. Beginning in 2013, the format of this report transitioned from a strictly table based report to this current version with more narrative; however, it should be noted that the tables and figures of this report are available without the narration.

In 2012, the Universal Recycling law was signed unanimously by the Vermont legislature. This new solid waste legislation focuses on increasing the convenience and choices available in the state for the proper management of recyclables and organics. In 2014, the State's new Material Management Plan (MMP) was adopted with significant changes and new performance measures in comparison to the previous 2006 Solid Waste Management Plan. These two documents have guided significant changes to the Vermont solid waste management system in Vermont over the last several years. As landfills bans have been implemented (recyclables in July 2015), the solid waste management systems in the state have adjusted accordingly. Additionally, in 2014 construction and demolition debris management was afforded significant legislative attention with the passage of 10 V.S.A. Chapter 159 §6605m outlining guidelines for architectural waste recycling. This has resulted in new facility management practices regarding the separation and diversion of these particular wastes.

It should be noted that the data and information presented within this report is primarily based on data that is required to be submitted annually by permitted solid waste facilities across the State. All permitted solid waste facilities (including landfills, transfer stations, material recovery facilities and organics management facilities) are required to provide the Program with detailed information on the flow of solid waste under their management. As such, the data presented in this report is only as reliable as the data submitted. Though there is some quality control maintained over the submitted data, it remains likely that there are inaccuracies in the reporting. On a statewide basis, it is believed that these inaccuracies only have a minor influence on the compiled information present within this report. Additionally, it has been necessary to utilize estimates based on information collected during earlier comprehensive waste composition studies or other work in order to complete the description of materials management within the State. When an estimate from another source is used within the report it is notated and cited. The program believes that the methodology utilized in the development of this report is based on sound principal, and that the new Diversion and Disposal report structure continues to present comparable information to that of the older reports, such that past comparisons and future projections can continue to be made.

Report Sections	Page
Executive Summary and Method Approach	4
I. Disposal Activities	5
II. Diversion Activities	8
III. Total Municipal Solid Waste Generation Summary	12
IV. Other Materials Management	15

List of Tables and Figures:	Page
Table 1: Status of Vermont Landfills	5
Table 2: Materials Disposed in Vermont Landfills	5
Table 3: Solid Waste Sourced in Vermont, Disposed Out-of-State	6
Table 4: Landfill Beneficial Use of Solid Waste Materials	7
Table 5: Adjustment of MSW tonnages for C&D Component	7
Table 6: Summary of 2014 Diversion Activities	10
Table 7: Historic Perspective on Generation, Diversion and Disposal Totals	13
Table 8: Summary of Historic Hazardous Waste Collections and Participation	15
Figure 1: Destination of Municipal Solid Waste Generated in Vermont	6
Figure 2: Comparison of Materials Marketed Directly from a Vermont Solid Waste Facility	11
Figure 3: Projections of Waste Generation, Diversion and Disposal	12
Figure 4: Pounds of Waste Per Day Per Person Generated by Vermonters	14
Appendix A: Household Hazardous Waste Report	17

References

- 2013, DSM Environmental Services, Inc., Tellus Institute and RLS. System Analysis of the Impact of Act 148 on Solid Waste Management in Vermont: Final Report. Prepared for Vermont Department of Environmental Conservation, Solid Waste Management Program.
- 2002, DSM Environmental Services, Inc. Vermont's Municipal Solid Waste Diversion Rate: 2001; Results of Recycling and Reuse Survey. Final Report. Prepared for Vermont Department of Environmental Conservation, Solid Waste Management Program.

Executive Summary

In 2015 Vermont generated 602,617 tons of municipal solid waste (MSW). This is a decrease of 1.4% over the 611,472 tons generated in 2014. Of the solid waste generated in the State, the established materials management system resulted in the diversion of 212,065 tons of materials and the disposal of 390,552 tons. The resultant 35% diversion rate is an increase over the 33% average diversion rate of the last 17 years. State-wide goals are to reduce the disposal of municipal solid waste to 2.76 pounds per person, and to increase diversion rates to 50% by 2022 (approximately 2 years after the comprehensive food scrap landfill ban goes into effect per the Universal Recycling Law).

Approach: Tracking the Flow of Vermont's Solid Waste

Within Vermont, public and private solid waste facilities are required to submit annual or quarterly reports to the Solid Waste Management Program ('Program') on the types, amounts and management of solid waste materials handled by their facility. Facilities include, but are not limited to, transfer stations, material recovery facilities, compost facilities, landfills, and recycling centers. 2013 was the first year that all this information was all collected through the use of online submission software, ReTRAC Connect™, which was customized for the Program by Emerge Knowledge Inc. Supplemental data has also been collected from other Divisions within the Department of Environmental Conservation that manage specific components of the Vermont solid waste stream, namely biosolids data from the Residuals Management Section of the Watershed Management Division. In some cases, estimates from previous detailed analysis of the Vermont's material management system are also used. These alternative data sources are noted throughout the report as appropriate. It is likely that this approach to tracking the flow of solid waste throughout the state underrepresents the solid waste managed within the state. This is particularly true with regard to non-residential waste. Often commercial and industrial waste does not pass through a permitted Vermont facility as it may be backhauled or transferred directly to a market in significant quantities.

The Program has the greatest control and confidence in tracking the final management activities of the State's waste materials. With only a few landfills operating within the state and a limited number of transfer stations and material recovery facilities that sell directly to markets or reuse materials, the end-use management data aggregated by these types of facilities has the highest likelihood of being consistently and reliably tracked and reproduced from year to year. The ability to document the source and generation of solid waste is a much more challenging task. With a wider variety of types of facilities and collection points within the Vermont, generation data collection is often incomplete and inaccurate. The Program recognizes that this is an area that can be improved; however, it is unlikely that generation data will be as reliable as the disposal and diversion data within the near future. For this reason, the information presented within this report is a calculated generation value based on the summation of the tonnages reported from final management activities. In its most simplistic format:

$$\text{Disposal (tons) + Diversion (tons) = Generation (tons)}$$

I. Disposal Activities

Disposal at Vermont Facilities — In 2015 there were three permitted and operating solid waste landfills within Vermont (Table 1). One of these landfills ceased accepting waste and initiated closure in November of 2015. Together these landfills accepted 86% of the disposed municipal solid waste generated within Vermont (Table 2). The remaining 14% of Vermont’s disposed municipal solid waste was transported, either directly from the source or from a facility, to an out-of-state (OOS) facility (Figure 1, Table 3).

Table 1. Status of Vermont landfills that were permitted for waste acceptance in 2015

Solid Waste Landfills	Location	Status	Permitted Fill Rate (tons/year)
New England Waste Services, Vermont (NEWSVT): Phase IV: Cells 1-4	Coventry	Operating	600,000
Salisbury Landfill	Salisbury	Operating, unlined	1,000
Bristol Landfill	Bristol	Completed Closure November 2015	
Northwest Solid Waste District – Sheldon: Cell 1	Sheldon	Permitted, no current plans for construction, not operating	20,000

Table 2. In-state and Out-of-State (OOS) materials disposed *within* Vermont landfills, as reported in 2015

	Total Tons (as reported by disposal facilities)	OOS Tons	VT Tons (Total tons minus OOS tons)
MSW	371,510	---	371,510
C&D	6,651	5,166	1,486
Sludge (WWTP)	24,610	15,137	9,473
Asbestos	22,042	20,906	1,137
Ash	1,494	615	879
Contaminated Soil	6,322	5,780	541
Sewer Grit	1,021	---	1,021
Paper Sludge	235	---	235
Medical Waste	86	---	86
Other	18,482	16,017	2,465
TOTAL	452,454	63,620	388,833

Disposal Occurring Out-of-State – Documentation of Vermont waste disposed OOS is derived from two sources. Facilities do report the quantity of materials that they have sent OOS for final management; however, this does not capture materials that are hauled directly OOS without passing through a reporting Vermont facility. For this reason, an independent audit is also completed annually, collecting data from OOS facilities that are known to manage Vermont solid waste. The auditor reports these values annually to the Program and this information in addition to the Vermont facility reports is used to derive the OOS transport tonnage.

Table 3. Solid waste sourced in Vermont but disposed at an Out-of-State facility

	Massachusetts	New Hampshire	New York	Total
MSW	1,883	38,880	35,865	76,628
C&D	---	21,542	11,436	32,978
Other	---	21	---	21

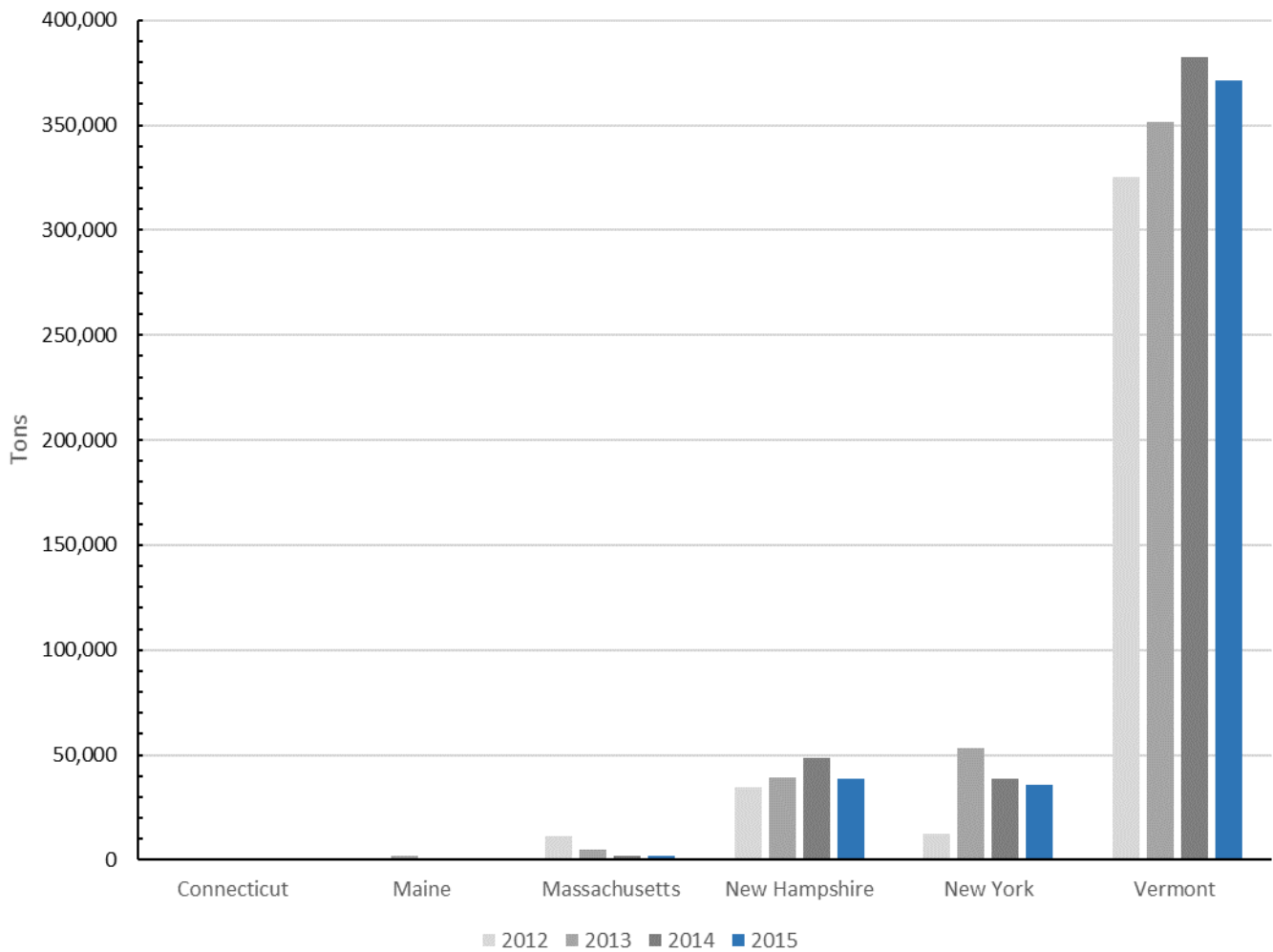


Figure 1: Destination of disposed MSW that was generated in Vermont in 2015, with recent years for comparison. While the majority of MSW stays within the State for disposal, 26% was transferred out of state for disposal at landfills or incinerators, primarily in New York and New Hampshire. This is comparable to the 20% transferred out of state for disposal in 2014.

Beneficial Use in Vermont Landfills — In addition to the disposal of materials within Vermont’s landfills, there are several material types that can be used for beneficial purposes within the necessary operations of the landfill (Table 4). These materials are used in place of virgin materials for daily cover and operations, and although their ultimate end use is within the airspace of the landfill, they are not included in MSW disposal or the diversion tonnages.

Table 4. Beneficial use of solid waste materials within Vermont landfill operations

Material	Use	Tonnage
Contaminated Soils	Landfill Alternative Daily Cover	22,670
Foundry Sand	Landfill Alternative Daily Cover	---
Paper Sludge	Landfill Alternative Daily Cover	961
Ground C&D	Landfill Alternative Daily Cover	956
Sludge – cut with soil	Landfill Alternative Daily Cover	9,872
Asphalt, Brick, Concrete	Landfill Road Base	10
Ground C&D	Landfill Road Base	4,108
Sawdust	Landfill Road Base	781
Wood Debris	Landfill Road Base	2
Total		39,360

Adjusting MSW for Construction & Demolition Debris –Some Construction and Demolition (C&D) materials are tracked separately from MSW, and are reported as either being sent for disposal, beneficial use, or recycling. Other times, C&D materials are not tracked individually. Loads of disposal materials are often co-mingled at transfer facilities and reported solely as MSW, though the load may contain C&D. It is often difficult to separate these materials from the municipal solid waste (MSW) stream given the current materials management systems in the state.

For this reason, the results of a 2013 waste composition study prepared for the State of Vermont by DSM Environmental is utilized to estimate and differentiate the C&D and MSW components of reported disposed materials. Manual and visual separation of MSW materials during the waste composition study indicated that 10.2% of residential MSW consisted of C&D waste, and made up 15.5% of the sorted Industrial, Commercial and Institutional (ICI) MSW(2013, DSM Environmental). As residential and ICI waste tonnages are not differentiated within the values reported by facilities, an average of 12.85% was utilized to estimate the component of reported tonnages that was realistically MSW and/or C&D waste (Table 5).

Table 5. Adjustment of MSW tonnage for estimated C&D component

	Reported Tonnages	C&D tonnage (12.85% of reported MSW)	Remaining MSW Tonnage
Vermont MSW In-state Disposal	371,510	47,739	323,771
Vermont MSW Out-of-State Disposal	76,628	9,847	66,781
Total Vermont MSW Disposal	448,138	57,586	390,552

II. Diversion Activities

The diversion of materials from the solid waste stream destined for a landfill occurs through a variety of pathways in Vermont. While the Solid Waste Management Program has reliable reporting systems in place on some components of these diversion pathways, others are not directly reported and require approximation. Broadly, there are four principal avenues of material diversion which are accounted for by this report (Table 6):

Group A – From a Reporting Facility to a Market

As with the data regarding disposal, the majority of the State's ability to capture the flow of diverted materials within Vermont comes from self-reporting by facilities. Within Vermont there are currently four material recovery facilities (MRF's) that manage the majority of diverted recyclable materials. These facilities collect, sort, and process materials for distribution to recycling markets. As permitted solid waste facilities, they report quarterly to the Solid Waste Program. Additionally, some materials that are collected by transfer stations and recycling centers do not require further separation and can be sold directly by the collection facility to market. Within Vermont, the direct transfer of marketable materials from a collection facility to market is largely limited to bulky items such as scrap metal and tires, and clean, easily separated materials like corrugated cardboard. Eighty-five collection facilities reported selling some type of material directly to a market without the use of a MRF.

In 2015 there were 12 compost facilities within the State that were certified to process food scraps and/or leaf and yard debris diverted from the solid waste stream. Because these materials are managed and processed by organics facilities for resale or reuse as a new soil product, the tonnages reported are also included in this group.

Construction and demolition (C&D) materials are also tracked in these diverted materials. Historically, C&D materials have been excluded from the materials tracked in the diversion tonnages. These materials are difficult to track due to the significant reuse of materials occurring outside of the Solid Waste system. However, in late 2013 the State's first dedicated C&D recycling facility was opened and several other solid waste facilities have since adopted more active separation programs to collect and market the valuable C&D materials throughout 2014 and 2015. In July of 2014, the Vermont Legislature passed Act 175 which mandated the recycling of architectural waste, a subset of construction and demolition waste (i.e. scrap metal, asphalt shingles, clean wood, drywall, plywood, and oriented strand-board).

Group B – Estimate of Direct to Broker or Market (Economic Recycling)

In some cases, the recovery of materials occurs directly between business entities and brokers, thereby bypassing a reporting Vermont solid waste facility. For example, a supermarket may sell and ship large quantities of cardboard directly to a broker instead of hiring a hauler, because it makes economic sense for a business of this scale to sell its recyclables directly. In a 2001 Vermont Diversion Rate study (2002, DSM Environmental), a survey of Vermont employers and manufacturing facilities identified and estimated the amount of recyclable materials that were either backhauled or sold directly to a broker by the business sector. On the basis of an extrapolated survey, this study estimated the tonnage of fibers, containers and scrap metal delivered directly to a broker or market in 2001. Because "economic recycling" was shown to be a significant contributor to the diversion of materials, these estimates have been included in the annual Vermont Diversion and Disposal Report since the completion of this study. As packaging and economic recycling trends have changed since 2001, these estimates are certainly of limited accuracy and should be updated in the future. The other category of material types sent directly to a broker without passing through a Vermont solid waste facility is the estimated 17,480 tons of beverage containers collected and processed through the Vermont Bottle Bill for distribution to market (Table 40; 2013, DSM Environmental). As Vermont redemption centers are not considered solid waste facilities, they are not required to report annual tonnages on this important diversion activity.

Group C – Reported Reuse Activities

There are numerous reuse, resale and repair businesses throughout Vermont; however, the diversity of material reused across the State makes estimates of this activity difficult, highly variable and inaccurate. For that reason, this report is limited to listing reuse totals derived from facility reporting. In other words, only materials collected at permitted solid waste facilities for the purpose of local reuse are captured. As an example, the majority of the reuse tonnage reported here is listed under containers and represents ground glass which is utilized in local projects, often as road base material. Reported reuse does not capture the vast amount of materials that are taken from the point of generation (residences, businesses, etc.) directly to a reuse or salvage store, or re-purposed at the point of generation.

Group D – Estimated Household Composting

A 2001 study on Vermont's Municipal Solid Waste Diversion Rate outlined an approach for estimating rates of backyard composting for both yard waste and food scraps (2002, DSM Environmental). This estimate is based on a Vermont survey which identified that 39% of Chittenden county households were composting yard wastes, while 29% composted food scraps. With estimates of 250 pounds of yard waste and 350 pounds of food scraps composted per household per year, and an estimated 326,894 Vermont households in 2015, the resultant home composting estimates for 2015 are: 15,936 tons of yard waste and 16,590 tons of food scraps. This 32,526 tons of organics managed in 2015 by home composting is likely an underestimate as rates of home composting have likely increased since 2001. With the advent of Universal Recycling within the State, home composting is likely to continue increasing as a diversion tool, and more work is required to refine these numbers and provide better estimates for future reports.

Table 6. Summary of Vermont's 2015 diversion activities.

(in tons)	Fibers	Containers	Single Stream	C&D	Scrap Metal	Organics	Foodbank Food Rescue	Miscellaneous
A- From Reporting Facility to Market	65,989	10,156	4,960	8,150	7,414	17,408		3,252
B- Estimate of Direct to Broker or Market (Economic Recycling)	33,495 [†]	17,480* 117 [†]			251 [†]			
C- Reported Reuse Activities	651	6,070		6			3,320 [†]	820
D – Estimated Household Composting						32,526 [†]		
TOTALS	100,135	33,823	4,960	8,156	7,665	49,934	3,320	4,072
						A + B + C + D = Total Diversion: 212,065		

*Denotes an estimate derived from the System Analysis of the Impact of Act 148 on Solid Waste management in Vermont (2013, DSM Environmental Services, Inc.).

[†]Denotes an estimate derived from the Vermont's Municipal Solid Waste Diversion Rate 2001 study (2002, DSM Environmental). See above descriptions of the diversion groups for details.

[†]Denotes tonnages that have been provided by the Vermont Foodbank

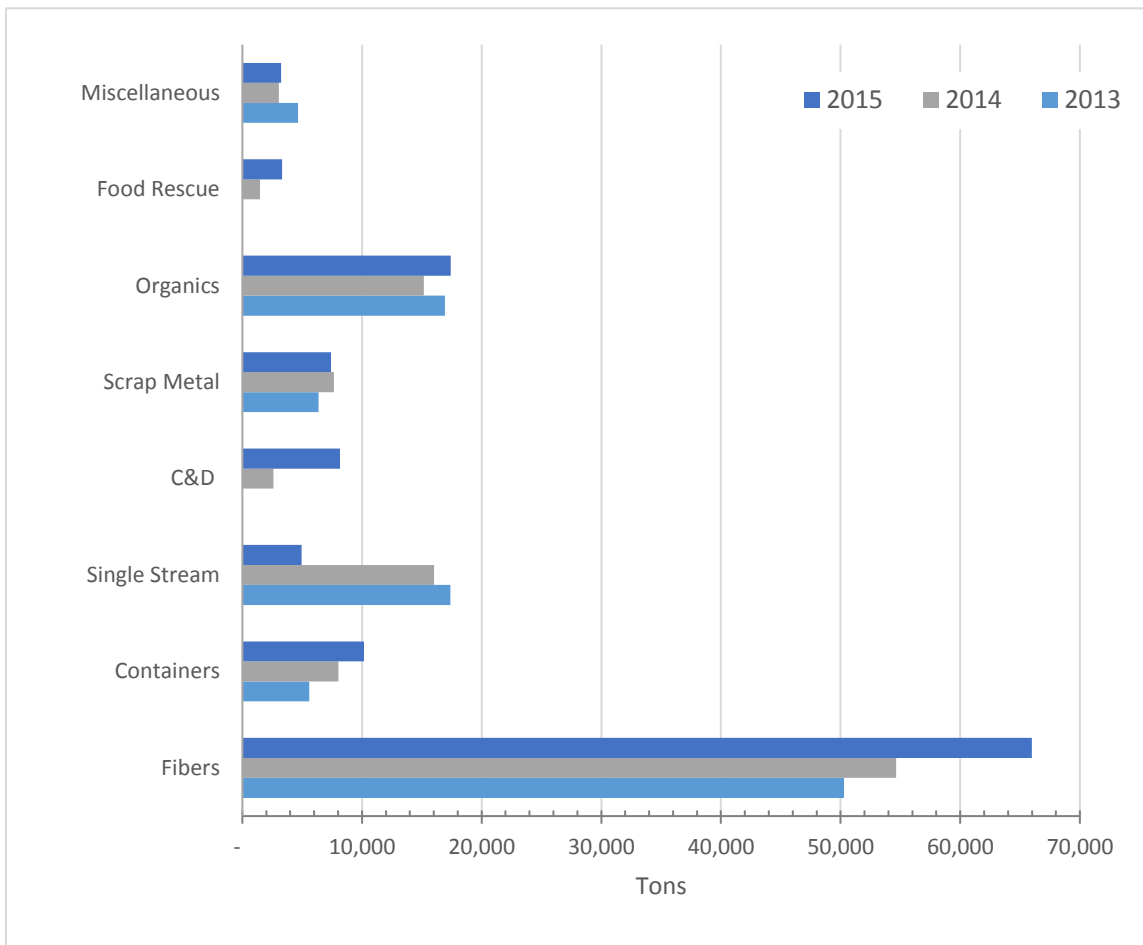


Figure 2: 2013-2015 comparison of materials marketed directly from Vermont solid waste facilities (Group A from Table 6).

Figure 2 demonstrates the contrast in the composition of recyclable materials sold to market year-to-year. Though the total tonnage of diverted material increased from 2014 to 2015, the way in which the increase occurred was not distributed uniformly across all material types. For example, in 2015 the sale of used fibers and containers increased while single stream diversion decreased. Organics diversion through both composting facilities processing and food bank donations and rescue increased, reflecting the some of the impacts from the implementation of Universal Recycling. Diverted C&D also saw a substantial increase in 2015, largely due to the implementation of Act 175 and the increased attention to separation and marketing of these materials. It is important to look past the overall net gain of recycling activity in order to observe the effect of fluctuating markets on the relative amount of material types recycled in any given year. Trending diversion tonnages by material type allows the Program to view the impacts of market conditions on recycling activity in Vermont.

III. Total Municipal Solid Waste Generation and Summary

On the basis of the previously stated formula:

$$\text{Disposal} + \text{Diversion} = \text{Generation}$$

Vermont generated **602,617 tons** of municipal solid waste materials in 2015. Total MSW disposal (adjusted to remove C&D component) was 390,552 tons, a significant decrease from 2014 while diversion increased to 212,065 tons.

It is recognized that this figure is an under-representation of the complete material management tonnages for the state, but it does represent the components that the Solid Waste Program can accurately and consistently reproduce and track year to year for meaningful comparisons. This total generation figure is stripped of as many dated estimates as possible at this stage of development of the State tracking system, and is an improvement upon the methodologies of the past decade.

- 2015 diversion and disposal rates indicated relatively consistent solid waste management habits by Vermonters in comparison to previous years. This year's diversion rate of 35% is consistent with the average diversion rate (33%) over the last 17 years, but does indicate that the trends may be changing (Figure 2, Table 7). The 2015 disposal rate of 65% is the lowest for the state since the late 1990's. Universal Recycling (Act 148) was adopted in May of 2012, and is the most substantial update to the Vermont material management system in nearly 25 years. It should continue to increase diversion rates in coming years with continued implementation efforts. Vermont residents continue to generate approximately the same amount of waste and divert similar volumes as they have for the past 17 years, but there is some indication that things are changing. (Figure 3).
- The State remains committed to reaching a 50% diversion goal by 2020 in order to achieve lower solid waste management costs, have a positive impact on the environment, and lessen the need for additional solid waste disposal capacity development.

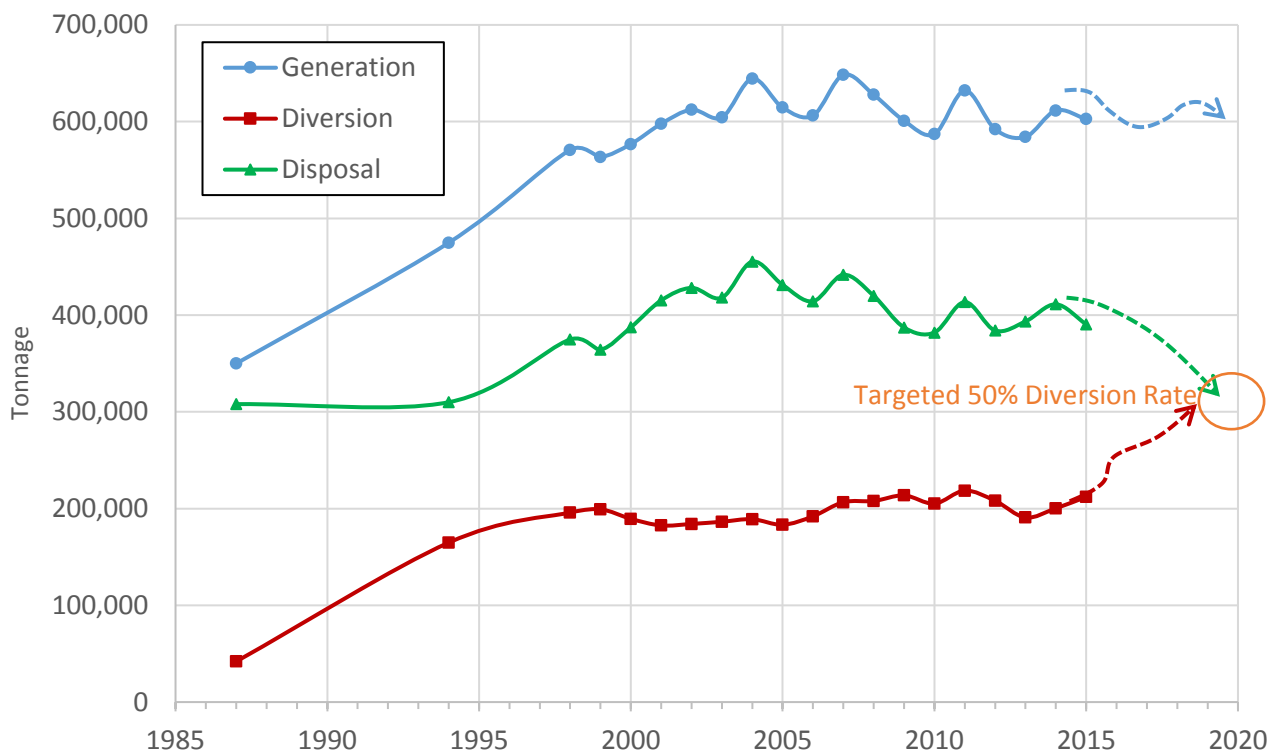


Figure 3: Projections of waste generation, diversion, and disposal with the implementation of Universal Recycling over coming years

Table 7. Vermont generation, diversion and disposal totals for municipal solid waste. Includes tonnages, per capita breakdowns and percentage rates.

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Generation	570750	563564	576797	597811	577449	569612	609497	579689	571446	613517	592981	566042	552297	597254	557302	584235	611472	602617
Diversion	195930	199301	189401	182562	149319	151577	154217	148459	157173	171818	173024	178796	170326	183737	173258	190797	200272	212,065
Disposal	374820	364263	387396	415249	428130	418035	455281	431230	414273	441699	419957	387246	381971	413517	384044	393438	411200	390552
Population [1]	600416	604683	609909	612225	615250	617101	618794	619736	620778	621254	621270	621750	625741	626592	625953	626630	626562	626042
Per Capita MSW Generation (Tons/Year)	0.95	0.93	0.95	0.98	0.94	0.92	0.98	0.94	0.92	0.99	0.95	0.91	0.88	0.95	0.89	0.93	1.0	0.96
(Pounds/Day)	5.21	5.11	5.18	5.35	5.14	5.06	5.40	5.13	5.04	5.41	5.23	4.99	4.84	5.22	4.88	5.11	5.35	5.27
Per Capita MSW Diversion (Tons/Year)	0.33	0.33	0.31	0.30	0.24	0.25	0.25	0.24	0.25	0.28	0.28	0.29	0.27	0.29	0.28	0.30	0.32	0.34
(Pounds/Day)	1.79	1.81	1.7	1.63	1.33	1.35	1.37	1.31	1.39	1.52	1.53	1.58	1.49	1.61	1.52	1.67	1.75	1.86
Per Capita MSW Disposal (Tons/Year)	0.62	0.6	0.64	0.68	0.70	0.68	0.74	0.70	0.67	0.71	0.68	0.62	0.61	0.66	0.61	0.63	0.66	0.62
(Pounds/Day)	3.42	3.3	3.48	3.72	3.81	3.71	4.03	3.81	3.66	3.90	3.70	3.41	3.34	3.62	3.36	3.44	3.60	3.42
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Generation	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Diversion	34%	35%	33%	31%	26%	27%	25%	26%	28%	28%	29%	32%	31%	31%	31%	33%	33%	35%
Disposal	66%	65%	67%	69%	74%	73%	75%	74%	72%	72%	71%	68%	69%	69%	69%	67%	67%	65%

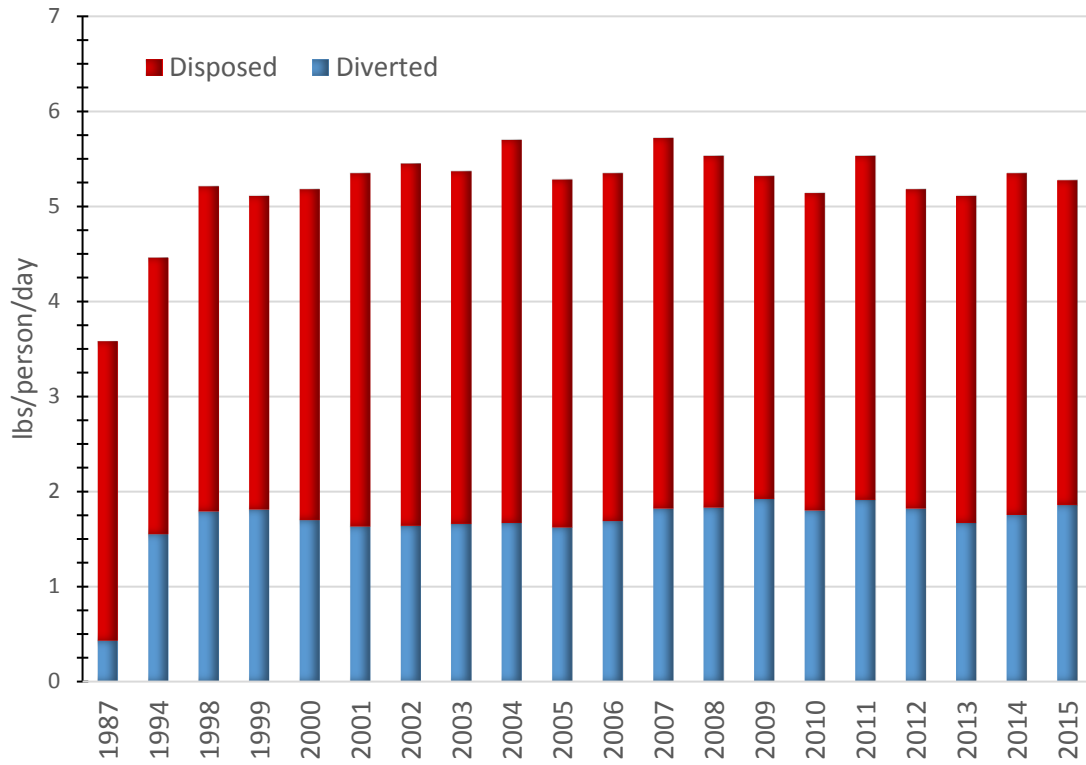


Figure 4: Pounds of waste generated per day per person (disposed + diverted) by Vermonters

IV. Other Material Management Activities – Not included in disposal or diversion tonnages

Hazardous Waste

Household hazardous waste (HHW) and conditionally exempt generator (CEG) hazardous waste is collected and managed at several fixed full-time facilities in the state and at numerous collection events, 98 in 2015, hosted by municipalities throughout the year. Information on the materials collected over the course of the year is reported through the ReTRAC™ online reporting system in a manner similar to the solid waste facility reporting, as described earlier. This data is summarized in an annual HHW Survey Results report (Appendix A). A total of 899 tons of combined HHW and CEG materials were collected in 2015, a 20% increase over the 752 tons collected in 2013 (Table 8). The factors leading toward increased collection volumes in 2015 may include the success of the first year of the Vermont PaintCare program (see below for more details), and improved HHW/CEG reporting from municipalities and successful implementation of solid waste implementation plans across the state. It is important to note that values reported within the HHW Survey results report only reflects materials collected at fixed HHW facilities and events, it does not capture all HHW that is collected through extended producer responsibility programs and reported upon below.

Table 8. Summary of historic hazardous waste collections and participation.

	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006
Total HHW and CEG tons collected	899	752	525	460	467	489	566	436	444	521
% participating VT households (avg.)	6%	6%	7%	9%	7%	6%	8%	9%	7%	6%
Pounds collected per household (avg.)	131	102	62	34	47	46	45	30	39	44

Mercury Programs

In 2007, Act 149 effectively banned the knowing disposal of products containing mercury within Vermont landfills. Extended Producer Responsibility (EPR) programs for collection and recycling of mercury were established for thermostats in 2008 and for mercury-containing lamps in 2012.

Mercury-containing thermostats are collected and reported on by the Thermostat Recycling Corporation to the State of Vermont. This program collected 14.23 pounds of mercury in 2015. Mercury-containing lamps are collected and reported on by the National Electrical Manufacturers Association over a program collection year which runs July 1st – June 30th annually. During the July 2014-June 2015 period 205,155 lamps were collected while the July 2015-June 2016 period saw 233,820 lamps collected.

Vermont Electronic Recycling Program

The Vermont Electronic Recycling Program (E-cycles) was first implemented in July of 2011. This program provides no-cost electronic device recycling for covered entities and devices. The program operates on a fiscal year of October 1st to September 30th and therefore reporting on the diversion of these electronic devices is not comparable to the annual reporting period of this report.

Over the state fiscal year of July 1, 2014 to June 30, 2015 – 4,691,724 pounds of electronic waste were collected under the state standard plan, equivalent to approximately 7.5 lbs of waste for every Vermonter.

PaintCare

In May of 2013, Vermont Legislature passed paint product stewardship legislation (Act 58) that establishes free paint collection sites at retailers and permitted solid waste facilities across the State, funded by a small fee appended to paint sales in Vermont. This program is implemented by a stewardship organization called PaintCare, who worked with the Solid Waste Program in 2013 to develop the final Vermont Paint Stewardship Program Plan. The program officially launched on May 1, 2014. An annual report is due to the Program by September of each year, with a reporting period of July 1-June 30th. During the first collection year, which ran from May 2014 until June 2015, 116,961 gallons were collected. This is a significant increase over the average annual collection of 60,000 gallons in years prior to the PaintCare program.

Appendix A: Household Hazardous Waste Report

SUMMARY OF 2015 VERMONT HHW/CEG WASTE PROGRAMS

All Solid Waste Districts and Alliances, in alphabetical order

HHW/CEG Material Collected (all materials in tons) [†]		All Solid Waste Districts and Alliances, in alphabetical order															
		Addison SWMD	Bennington County Solid Waste Alliance	Central Vermont SWMD	Chittenden SWD	Greater Upper Valley SWD	Lamoille RSWMD	Londonderry Group	Mad River RMA	Northeast Kingdom WMD	Rutland County SWD	Solid Waste Alliance	Southern W/V Counties	Mountain Alliance	Windham SWD	White River Alliance	
1	Acids	0.59	0.15	0.42	2.39	0.2	0.2	0.08	0.40	0.78	1.84	0.04	0.2	0.08	0.44	0.24	
2	Aerosols	0.8	1.18	2.00	8.2	0.5	0.88	0.18	0.89	0.34	4.42		1.73	0.25	0.74	0.74	
3	Bases	0.48	0.28	0.95	3.18		0.34		0.59	0.28			0.17	0.04	0.44	0.18	
4	Flammables & Solvents	7.48	5.28	2.74	34.98	3.3	2.98	1.82	1.32	9.38	0.06		7.04	0.5	3.39	1.04	
5	Glycols (Antifreeze)	3.26	0.41	1.24	10.8	0.00024			1.98	1.25	1.84	0.12		0.1			
6	Oxidizers	0.4	0.62	0.12	0.65		0.14		0.48	0.08	1.55		0.18	0.03	0.44	0.14	
7	Lead Paint Chips & Debris	0.35			0.39												
8	Paints - Latex	27.88			112.44			2.86				5.97		0.7			
9	Paints - Oil	12.94			48.07			1.97			13.21	1.77		1.13			
10	Paints - Oil + Latex, Mixed		18.6				0.62		12.18	12.18	99.00		2.21		16.62		
11	Paints - Non-process Resins	3.74		1.80			3.37	1.25	3.69	6.12	17.82		3.69			0.74	
12	Pesticides	1.58	2.57	3.58	10.78	0.95	0.96	0.38	2.18	0.95	5.73	0.23	3.43	0.33	2.34	1.04	
13	Reactives	0.08	0.28	0.08	0.13		0.07			0.23							
14	Toxics	0.15	0.14		0.31		0.07		0.15	0.1							
15	Photo Chemicals	0.22			0.59												
16	Waste Oil - Uncontaminated	8.75		1.80	22.02		2.5		0.35		2.52	0.78			4.08		
17	Waste Oil - Contaminated							0.1					2.29		2.2		
18	Waste Oil - Dirty Debris	2.24			4.92		0.27				3.64						
19	Waste Oil - Oil Filters	5.05			1.95					2.08		0.03			7.48		
20	Dirty Water	1.54			1.88												
21	Mercury - Fluorescent Tubes	6.48	0.03		19.61		2.88		0.11	3.12	3.61	0.05			19.54		
22	Mercury - Other Lamps		0.24						3.80	0.23	2.39			0.28	0.68		
23	Mercury-Added Products		0.15	0.04	0.52	0.0025	0.0015		0.10	0.05			0.04				
24	Mercury - Elemental																
25	Mercury Compounds		0.14					0.11		0.02	0.10					0.02	
26	Primary Batteries	0.67	0.34		2.04		0.22			1.69							
27	Rechargeable Batteries	2.83	1.09		5.28		0.52		0.03	0.53				0.01	0.27		
28	Lead-Acid Batteries	3.14	0.14		6.7		5.08	0.0025	0.17	5.21	0.96			0.08	2.33	0.01	
29	Other misc. products	1.2	1.22	1.16	12.52	1.97	0.17	0.18	2.41	0.88	0.19	0.55	0.18	0.002	0.6	0.04	
Demographics																	
Household Units in Area ^{††}		13,354	14,505	22,117	61,815	7,765	10,906	1,478	7,797	19,288	19,953	5,788	13,475	2,886	16,298	3,971	
Program Profiles																	
Number of Events Held		n/a	2	5	n/a	2	3	2	2	10	29	11	4	2	2	2	
# of households served		1989	676	277	9758	312	549	173	631	4350	1282	149	608	85	344	78	
# of businesses served		98			673					2	54						
% household participation		15%	5%	1%	16%	4%	5%	12%	8%	23%	6%	3%	5%	3%	2%	2%	
Total HHW/CEG (tons)		91.6	30.8	15.9	310.3	6.9	21.3	8.9	30.8	45.3	158.7	9.5	21.1	3.5	61.6	4.2	
Total CEG Collected (tons)		5.29			104.61		1.88	0.07	1.58	0.4	4.3		0.1				
Total HHW Collected (tons)		86.3	30.8	15.9	205.7	6.9	19.4	8.9	29.2	44.9	154.4	9.5	21.0	3.5	61.6	4.2	
Avg. HHW/per household (tons)		0.044	0.048	0.058	0.021	0.022	0.035	0.051	0.048	0.010	0.122	-	0.035	0.042	0.179	0.054	
Avg. CEG/per business (tons)		0.055	-	-	0.155	-	-	-	-	0.200	-	-	-	-	-	-	

SEE
VERMONT
TOTALS FOR
EACH
MATERIAL
ON PAGE 2

[†] All reported materials are converted to tons using VT Solid Waste Program Combined HHW Conversion Factors.
^{††} Household estimates were derived from the US Census Bureau: *Population, Housing Units, Area and Density: 2010*.

SUMMARY OF 2015 VERMONT HHW/CEG WASTE PROGRAMS

All Independent Towns, Shared HHW Events

HHW/CEG Material Collected (all materials in tons)		All Independent Towns, Shared HHW Events								VERMONT TOTALS
		Carson	Fairfax	Hartford	Salisbury	St. Johnsbury	Coventry shared with Barton, Burke, Lowell and Newport City	Northwest SWMD shared with Franklin		
1	Acids		0.05	0.05	0.2	0.2	0.28	0.42	9.3	
2	Aerosols	0.07	0.08	0.25	0.1	0.15	1.32	0.84	25.6	
3	Bases		0.01		0.04	0.3	0.48	0.58	8.3	
4	Flammables & Solvents	0.2	0.21	4.05	0.7	0.44	2.24	1.84	89.8	
5	Glycols (Antifreeze)			2.4		0.88		1.84	25.5	
6	Oxidizers		0.03	0.07	0.1	0.06	0.58		5.6	
7	Lead Paint Chips & Debris								0.7	
8	Paints - Latex		0.55					22.37	172.6	
9	Paints - Oil		0.15					5.88	85.1	
10	Paints - Oil + Latex, Mixed				0.4	2.95	2.08		164.8	
11	Paints - Non-process Resins					0.74		6.99	50.0	
12	Pesticides		0.07	0.5	0.4	0.4	1.31	1.18	40.9	
13	Reactives				0.02				0.9	
14	Toxics		0.07		0.1	0.01		0.08	1.1	
15	Photo Chemicals								0.8	
16	Waste Oil - Uncontaminated							3.17	46.0	
17	Waste Oil - Contaminated							2.84	7.2	
18	Waste Oil - Oily Debris								11.1	
19	Waste Oil - Oil Filters								16.6	
20	Oily Water								3.4	
21	Mercury - Fluorescent Tubes		0.03		0.2	0.5	0.35	1.63	58.1	
22	Mercury - Other Lamps				2.1	0.15		0.08	9.9	
23	Mercury-Added Products		0.0005		0.2	0.01			1.1	
24	Mercury - Elemental								0.0	
25	Mercury Compounds						0.02	0.000025	0.4	
26	Primary Batteries		0.04	0.05			0.13	0.24	5.4	
27	Rechargeable Batteries				0.02	0.04	0.01	2.42	13.1	
28	Lead-Acid Batteries							1.74	25.5	
29	Other misc. products		0.0005	3.01	0.02	1.48	1.32	1.55	30.4	
Demographics										
Household Units in Area ^{††}		439	1,591	4,448	444	3,158	9,121	18,513	231,472	
Program Profiles										
Number of Events Held		2	2	2	2	2	2	10	98	
# of households served		18	118	55	48	194	31	925	22,606	
# of businesses served								1	826	
% of households participating		4%	7%	1%	10%	6%	0%	5%	6%	
Total HHW/CEG (tons)		0.3	1.3		4.5	8.1	10.1	55.1	899	
Total CEG Collected (tons)						1.6	0.13	0.1	120	
Total HHW Collected (tons)		0.3	1.3		4.5	8.1	10.1	55.0	781	
Avg. HHW/per household (tons)		0.015	0.011		0.098	0.042	0.328	0.059	0.07	
Avg. CEG/per business (tons)								0.100	0.15	

† All reported materials are converted to tons using VT Solid Waste Program Combined HHW Conversion Factors. See cover page for details.

†† Household estimates were derived from the US Census Bureau: Population, Housing Units, Area and Density: 2010.