

How to collect and submit diversion & disposal data for SWIP Reports

According to the Vermont Materials Management Plan (MMP), Solid Waste Management Entities (SWMEs) are required to do the following:

“SWMEs will track and report diversion rates biennially and disposal rates annually for their region as it pertains to the materials discussed in the subsequent chapters of the MMP.”

The Agency of Natural Resources (ANR) is tasked with providing the standard form or method that SWMEs will use to complete this annual and every other year requirement. The benefit of having a standardized method for all SWMEs is twofold. When SWMEs collect disposal and diversion data using the same method year-to-year, comparable datasets are generated that help inform the direction of individual programs. Likewise, having all SWMEs in the State use the same method to collect their data allows ANR to better compare Vermont’s regional progress in waste reduction, and evaluate where improved services are needed.

This sheet provides an overview on how SWMEs are expected to compile and submit data for their annual SWIP Reports. Ultimately, the process has been simplified to the following:

1. Disposal rate is determined using an analytical report in Re-TRAC. This process is standard for all SWMEs. The report pulls together regional data. Light manipulation and addition of the aggregated data by SWMEs is necessary to arrive at a final regional disposal rate.
2. Diversion rate (reported biennially) is estimated individually by SWMEs and may be calculated using a methodology of the SWMEs choice. There is flexibility in how SWMEs choose to report diversion rates because it is more challenging to track than MSW. However, remember to document the methodology so that it can be replicated in future reports.

It is not crucial for SWMEs to report diversion rates in a standardized manner, because it remains that the **per capita disposal rate is the ultimate measure of waste reduction for a region**. Per capita diversion rates alone do not signify great improvements in materials management. Diversion rates can increase significantly while disposal rates continue to increase. Thus, there will be a **focus on quality disposal rate reporting annually** for each SWME region.

How should my district/alliance/municipality compile necessary data?

Annual Disposal Data

Disposal data is compiled using an analytical tool in Re-TRAC. This tool was made available to SWMEs in February 2015. ANR staff are available to answer questions on how to use Re-TRAC to find the needed data.

TOOLS NEEDED:

- ✓ Microsoft Excel
- ✓ An account on Re-TRAC Connect

HOW IT WORKS:

Every solid waste facility in Vermont has legal requirements to report the amount and kinds of materials handled, processed, or transferred at their facility each calendar year. This includes transfer stations, drop-off centers, recycling facilities, composting facilities, and asphalt, brick, and concrete processors. All facilities report to ANR using Re-TRAC.



The analytical tool that is available to SWMEs consists of two modules: a “Vermont Material Generation Report” and a “Vermont Material Destination Report.” To complete a regional disposal rate evaluation, SWMEs will use the first module to filter all data submitted to ANR during a specific calendar year to display results that only show: **municipal solid waste** (under Choose Material) **accepted at any facility in Vermont** (under Choose Members, select all) that came **from a specific SWME** (under Municipalities Served and/or State).

The snapshot below shows an example of what part of the report configuration would look like for Addison County Solid Waste Management District (ACSWMD) for CY 2015. MSW is the only material type selected, and the towns/regions selected would be ACSWMD.

VERMONT MATERIAL GENERATION REPORT

Member: PROGRAM MANAGERS

Choose Survey

Annual
 Quarterly

Select All Select None

Choose Year

2015

Choose Period

Quarter 1
 Quarter 2
 Quarter 3
 Quarter 4

Select All Select None

Choose Members

ACSWMD SWIP Reporting (ACSWMD SWIP Reporting)
 AD002 (Middlebury Recycling Facility)
 AD004 - Middlebury College CatDisposal (Vermont)
 AD006 - Middlebury College Campus Facility (Middlebury College)

Select All Select None

Choose Material

Mixed Rigid Plastic
 Municipal Solid Waste
 Newspaper
 Other Batteries

Select All Select None

Choose In-State or Out of State

In-State
 Out of State

Select All Select None

Choose Municipalities Served and/or State

ADDISON COUNTY SOLID WASTE MANAGEMENT DISTRICT
 BENNINGTON ALLIANCE
 CENTRAL VERMONT SOLID WASTE MANAGEMENT DISTRICT
 CHITTENDEN SOLID WASTE DISTRICT

Select All Select None

GENERATE REPORT

The resulting report is a filtered set of data that shows all MSW reported as coming from Addison County SWMD. The data can then be exported to Excel and manipulated lightly to assure that double-counting does not take place. To do this, check the individual facility reports (either within the destination analytical reports, or by utilizing the



'read-only' reports) to see where the facility reported sending generated MSW. If it went to another certified Vermont facility and that facility is also within the excel sheet stating they accepted waste from the SWME, the duplicate tonnage should be removed from the final tonnage calculation.

The population of the SWME region must be obtained from the U.S. Census Bureau estimates and used to calculate a per capita disposal rate for the calendar year.

Note: "Municipal solid waste" *does not* include special wastes, construction and demolition debris, or biosolids.

HOW TO SUBMIT:

Ultimately, ANR is looking for two numbers to satisfy this portion of the annual SWIP report:

1. Total tons MSW disposed from region
2. Per capita MSW disposal rate from region

These two numbers should be entered into the Annual SWIP Report in Re-TRAC under *G1. Disposal Rate*.

TIMING:

Disposal rate must be calculated every year. Reporting is due July 1 for data on the previous calendar year.

Biennial Diversion Data

Diversion data is inherently more complicated to track and document than disposal data. As some SWMEs may have access to data in addition to that which can be most easily obtained, ANR is not requiring that the method for diversion rate calculation be fully standardized across all SWMEs. However, the goal of this approach outlined below is to provide guidance on the minimum level of data compilation that ANR believes all SWMEs can compile and report upon.

Diversion rate does not solely mean the calculation of the recycling rate and it is important to look towards documenting activities that fall outside of regular facility reporting within Re-TRAC. ANR encourages SWMEs to use the following table as a guide for collecting information and data on diversion activities. Each row represents a main method used for materials diversion in Vermont, including marketing of materials (from solid waste facilities [A] and directly from businesses [B]); reuse of materials in alternative projects [C]; backyard composting [D]; Extended Producer Responsibility (EPR) programs [E] and other Diversion activities if available [F]. The total of all six groups [A+B+C+D+E+F] represents the approximate diversion tonnage.

As the methodology for diversion rate calculation is not required to be standardized, it is important for SWMEs to carefully document and record the approach used to calculate the reported diversion rate. Diversion rate calculation will be required again in two years. This initial diversion rate calculation is setting the baseline for determining progress and success with SWIP implementation. The comparison of diversion rates needs to be comparable for an individual SWME from year to year, it does not need to be comparable between different SWMEs with differing levels of data availability.



EXAMPLE TABLE FOR DIVERSION REPORTING *Adapted from Vermont Diversion & Disposal Reports*

(in tons)	Fibers	Containers	Single Stream	Scrap Metal	Organics	Miscellaneous
A- From Reporting Facility to Market	Data comes from what is collected at facilities in your area; some data can be found in Re-TRAC, or by direct reports from facilities to SWMEs (if applicable).					
B- Estimate of Direct to Broker or Market (Economic Recycling)	Data comes from businesses or manufacturers in region that are willing to share recycling data; some SWMEs have authority in their ordinance to require certain large businesses to report.					
C- Reported Reuse Activities	Some re-use data can be found in Re-TRAC. Other source is to connect with public works entities for info on re-use of glass in construction projects, etc.					
D – Estimated Household Composting						
E – EPR Programs, HHW and Universal Waste Collection						
F – Other Diversion Activities, if available						
Total Diversion (Sum Row A + B + C + D + E + F): _____						

HOW IT WORKS:

ANR encourages SWMEs to share methods on best techniques for gathering recycling estimates at the point of generation. Here is a list of suggested methods for collecting recycling estimates and existing data by diversion group type within the table above:

Row A—From Reporting Facility

- Use the Vermont Material Generation and Destination reports in Re-TRAC to view recycling tonnages reported as outgoing from facilities in your region, or reported accepted by MRFs from your region. Access to this data is completed as described in the disposal data section above.
- Work with facilities in your area to improve records of the sources of incoming loads/drop-offs of divertible materials (improve source data).
- What counts as ‘diversion’ within these categories (and the reuse categories)? Below are the ReTRAC material types that the state diversion calculations incorporate into each category:
 - Fibers = Paper (mixed, other, office), boxboard, cardboard, textiles



- Containers = Aluminum (cans, foil), Glass (bottles and jars, some ground), HDPE (film, rigid), LDPE (film, rigid), mixed #3-#7, mixed (containers, film, rigid), other (cans, glass, plastic), PET #1, Steel/Tinned Cans
 - Single Stream = Single Stream
 - Scrap Metal = Scrap metal and some 'other recycling' items (primarily copper wire)
 - Organics = Animal Offal/Carcasses, burlap, mixed organics, other composting, cooking oil/grease, food processing residuals, food scraps, clean high carbon bulking, clean wood
 - Miscellaneous = 'recycled' (not disposed/incinerated) and tires (this is a small percentage of tires reported) and true miscellaneous items which vary from reporting year to reporting year (i.e. maple tubing, agricultural plastics, propane tanks, cork, cereal bags etc.) often reported under 'other plastics' or 'other recycling'.
 - Please note that tires that are sent for incineration for TDF are not counted as diversion.
- Remember that, similar to the calculation of the disposal data, it's important to avoid double counting of materials. If a facility reports sending recyclable materials to another reporting Vermont facility, you will need to look at that facility's report to determine whether it should remain in your calculation or if it's already included.
 - Also, please note we are looking to measure diversion at the point of generation, so the SWME location of the generator is what matters. For example: If materials are picked up in a Solid Waste Alliance Communities (SWAC) town and pass through the Addison County SWMD facility on their way to be managed at the Northwest Vermont SWMD facility – SWAC would count the diversion, while Addison and Northwest would not.

Row B—Estimate of Direct to Broker or Market (Economic Recycling)

- Phone Survey – Attempt to achieve contact with a certain percentage of businesses in your area; determine who uses a local processor or who contacts a broker directly; collect estimated volumes/tonnage.
- Require businesses to report materials diverted through a broker or sent to non-SWME facilities—As an example, CSWD has a provision in their ordinance that allows the district to require reporting of diverted materials from businesses. CSWD also licenses and requires reporting by recycling and composting facilities in their jurisdiction, including those that are not required to obtain a solid waste facility certification from ANR, like document shredding companies.
- Make the connections with the large supermarkets, businesses, etc. in your area and maintain the relationship with an annual check-in. The most successful outreach and communications with businesses has occurred when they are assured that business information will remain confidential and that SWMEs will only distribute aggregated information.
- Bottle bill estimate for your area: use the estimate of diverted containers within the entire Vermont system (approx. **17, 480 tons**) each year, and interpolate an estimate for your area using the population of your region against the population of the entire State. The Bottle Bill estimate is supplied in Table 40 (p. 92) of the [Act 148 Systems Analysis Report](#) (2013, DSM Environmental).

Row C—Reported Reuse Activities

- Use basic facility reporting data in Re-TRAC as accessed through the Vermont Material Destination report and selecting 'reused' under 'Choose Fate of Materials'.

Row D—Estimated Household Composting



- Use results of survey that was completed in first year of SWIP adoption to estimate percentage of households that compost within your SWME. CSWD's latest [Household Survey \(2015\)](#) showed that 49% of residents in Chittenden County manage their food scraps at home, and 51% manage their yard trimmings at home.
- DSM Environmental made a conservative estimate that average households produce 350 pounds of food waste and 250 pounds of leaf and yard debris annually in [this 2001 study](#) (pg. 16). Estimate the percentage of households in your area that backyard compost, and apply that percentage to the number of households in your area (U.S. Census data). Finally, multiply the average pounds of organics diverted per household by the number of households composting.
- Other approaches may include:
 - Compost bin sales (likely an underestimate)
 - Regional phone survey

Row E—EPR Programs, HHW and Universal Waste Collection

- Use total collection numbers for paint, mercury containing lamps, e-cycles and batteries that are provided from each of the EPR programs.
- For additional materials that are not covered under an EPR program such as HHW and non-program lamps and/or batteries, provide your region's collection totals. These totals should have already been compiled for the annual Re-TRAC HHW collection event or facility survey.

Row F— Other Diversion Activities, if available

- These diversion activities will be the ones that vary significantly from SWME to SWME dependent on the type of data tracked or available. It is important to note that in order for a material to be counted towards diversion tonnage, it must have originally been destined for the municipal solid waste stream before the diversion activity occurred (i.e. ANR does not consider metals processed through salvage yards (cars, bulk metal etc.) diversion as that material would not typically have been included within a municipal solid waste stream). Examples of this type of data might include, food residuals that are processed for a beneficial use.

HOW TO SUBMIT:

Every other year (starting in year 2), SWMEs will submit the per capita diversion rate and a brief description of the methods used to obtain the data. The reporting will be done through the Re-TRAC Annual SWIP Report in the *G1. Disposal Rate* section. SWMEs do not need to submit a version of the diversion table presented above; the table is meant to act as work sheet that helps SWMEs develop a total diversion estimate.

TIMING:

The first SWIP Report that requires estimated diversion data for a SWME's region is due July 1, 2017. The estimates submitted with the report should reflect either calendar year 2015 or 2016.

REMEMBER:

To calculate a diversion rate as a percentage, you will need to know your disposal tonnage as well as your diversion tonnage before starting:

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

and

$$\text{Diversion Rate} = \frac{\text{Diversion Tonnage}}{\text{Generation Tonnage}}$$



How do I calculate the population of my town or region?

The U.S. Census Bureau projects population figures by town based on the most recent Census data and predicted growth rates. For updated figures for Vermont, visit the [dataset webpage for Vermont](#) at the U.S. Census Bureau website.

To estimate the seasonal population in your area, visit the [Vermont Housing Finance Agency's database](#) and search for housing stock data by city/town (entering the towns/cities in your region one by one). The database will return information on the number of vacant housing units "for seasonal, recreational, and occasional use" for the town or county typed into the search, based off of most the recent Census data (2010). Multiply this number by the average number of people per household for Vermont (2.34 persons/household) to return the seasonal population for that town/county. Add the seasonal population to base population when calculating per capita disposal and diversion rates.

What if my region already collects and produces these metrics?

If your SWME already has a data collection system for disposal and diversion in your region, you may submit that data in the annual SWIP report for years 2 through 5. A brief description of the methods used to calculate disposal and diversion will also need to be submitted. Please do try to be consistent with the minimum guidelines outlined above.

I don't think this is very accurate. What's the point?

There are obvious challenges with regional data collection. However, the main goal of this MMP requirement is to have a method that all SWMEs can use to estimate disposal and diversion rates in their area. This method is accessible by all parties, and does not interfere with ongoing efforts. Instead, it builds upon the growing data collection system and seeks to improve our collective understanding of it.

It is important to develop an approach that is replicable in coming years. Although it may not be accurate and may not capture all diversion, it will at least provide a baseline to evaluate future success and aid in targeting future priorities.

Recognized challenges:

The way solid waste is handled, priced, and transported in different corners of Vermont varies greatly, and materials move fluidly between towns in a landscape of private and public service providers, many of whom are not familiar with which towns are members of which solid waste management entity.

Other recognizable challenges are:

- Haulers do not always report every town that was served on route; generalizations are made
- Franchise fee on trash encourages accurate reporting of MSW; there is no incentive to get diversion right
- SWMEs vary in their ability to compile data depending on number of private facilities in area vs. publicly-owned
- Some MSW gets hauled directly out-of-state by private haulers; not captured on regional-level by Vermont reporting system
- Regions without a district surcharge may see increased tonnage attributed to avoid payment by hauler of surcharge



Additional Resources:

- **Sample Cover Letters:** The E.P.A. provides great sample cover letters that can be sent to businesses to ask for voluntary reporting of materials recycling. Copy and paste the text of the Word document if you like what you see, re-format to meet your needs, and print mailings as needed. The first cover letter (page 145) appears to be the most pertinent to the needs of Vermont SWMEs, since all staff will be able to access facility reporting data.
- **Survey Form for Large Businesses:** The E.P.A. provides a survey form that may be found useful for obtaining voluntary recycling data from large businesses. The form is highlighted to show what SWMEs would fill out, and gray rectangles block out data entry blocks that would not be pertinent to large businesses. Use drawing tools in Adobe Acrobat Reader to highlight areas you would want businesses to fill out.
- **Conversion Factor Sheet:** A conversion chart from the E.P.A. showing approximate volume-to-weight conversions for common MSW materials.
- **Vermont Household and Population Data (2010 Census) by SWME Region:** The Solid Waste Program has to organize Census data every few years in order to calculate population and household data by SWME region for grants, HHW/CEG reports, and more. We pass on this information to you since it's already been done!

CONTACT:

If you have any questions or need assistance, please call the Solid Waste Program staff at 828-1138. Please e-mail any SWIP questions to: Mia.Roethlein@vermont.gov

