FINAL PROPOSED RULE # _____.

Final Proposed Filing - Coversheet

Instructions:

In accordance with Title 3 Chapter 25 of the Vermont Statutes Annotated and the "Rule on Rulemaking" adopted by the Office of the Secretary of State, this filing will be considered complete upon filing and acceptance of these forms with the Office of the Secretary of State, and the Legislative Committee on Administrative Rules.

All forms shall be submitted at the Office of the Secretary of State, no later than 3:30 pm on the last scheduled day of the work week.

The data provided in text areas of these forms will be used to generate a notice of rulemaking in the portal of "Proposed Rule Postings" online, and the newspapers of record if the rule is marked for publication. Publication of notices will be charged back to the promulgating agency.

PLEASE REMOVE ANY COVERSHEET OR FORM NOT REQUIRED WITH THE CURRENT FILING BEFORE DELIVERY!

Certification Statement: As the adopting Authority of this rule (see 3 V.S.A. § 801 (b) (11) for a definition), I approve the contents of this filing entitled:

2024 Materials Management Plan

/s/ Julie Moore, ANR Secretary _____ , on 9.19.24

(signature) (date)

Printed Name and Title:

RECEIVED BY: _____

- ☐ Coversheet
- ☐ Adopting Page
- ☐ Economic Impact Analysis
- ☐ Environmental Impact Analysis
- ☐ Strategy for Maximizing Public Input
- ☐ Scientific Information Statement (if applicable)
- ☐ Incorporated by Reference Statement (if applicable)
- ☐ Clean text of the rule (Amended text without annotation)
- ☐ Annotated text (Clearly marking changes from previous rule)
- ☐ ICAR Minutes
- ☐ Copy of Comments
- ☐ Responsiveness Summary

1. TITLE OF RULE FILING:
   2024 Materials Management Plan

2. PROPOSED NUMBER ASSIGNED BY THE SECRETARY OF STATE
   24P019

3. ADOPTING AGENCY:
   Agency of Natural Resources

4. PRIMARY CONTACT PERSON:
   (A PERSON WHO IS ABLE TO ANSWER QUESTIONS ABOUT THE CONTENT OF THE RULE).

   Name: Josh Kelly

   Agency: Agency of Natural Resources

   Mailing Address: 1 National Life Drive, Davis 1, Montpelier, VT 05620

   Telephone: 802-522-5897 Fax: 802-828-1011

   E-Mail: josh.kelly@vermont.gov

   Web URL *(WHERE THE RULE WILL BE POSTED)*:
   https://dec.vermont.gov/waste-management/solid

5. SECONDARY CONTACT PERSON:
   (A SPECIFIC PERSON FROM WHOM COPIES OF FILINGS MAY BE REQUESTED OR WHO MAY ANSWER QUESTIONS ABOUT FORMS SUBMITTED FOR FILING IF DIFFERENT FROM THE PRIMARY CONTACT PERSON).

   Name: Anne Bijur

   Agency: Agency of Natural Resources

   Mailing Address: 1 National Life Drive, Davis 1, Montpelier, VT 05620

   Telephone: 802-522-5783 Fax: 802-828-1011

   E-Mail: anne.bijur@vermont.gov

6. RECORDS EXEMPTION INCLUDED WITHIN RULE:
   (DOES THE RULE CONTAIN ANY PROVISION DESIGNATING INFORMATION AS CONFIDENTIAL; LIMITING ITS PUBLIC RELEASE; OR OTHERWISE, EXEMPTING IT FROM INSPECTION AND COPYING?) No

   IF YES, CITE THE STATUTORY AUTHORITY FOR THE EXEMPTION:

   PLEASE SUMMARIZE THE REASON FOR THE EXEMPTION:

7. LEGAL AUTHORITY / ENABLING LEGISLATION:

(THE SPECIFIC STATUTORY OR LEGAL CITATION FROM SESSION LAW INDICATING WHO THE ADOPTING ENTITY IS AND THUS WHO THE SIGNATORY SHOULD BE. THIS SHOULD BE A SPECIFIC CITATION NOT A CHAPTER CITATION).

10 VSA § 6604

8. EXPLANATION OF HOW THE RULE IS WITHIN THE AUTHORITY OF THE AGENCY:
State statute (10 VSA 6604) requires the Agency of Natural Resources (ANR)to prepare and adopt a state Solid Waste Management Plan once every 5 years. Although this is a Plan, not a Rule, statute requires the Agency to use the administrative rules process to adopt the Plan.

9. THE FILING HAS CHANGED SINCE THE FILING OF THE PROPOSED RULE.

10. THE AGENCY HAS INCLUDED WITH THIS FILING A LETTER EXPLAINING IN DETAIL WHAT CHANGES WERE MADE, CITING CHAPTER AND SECTION WHERE APPLICABLE.

11. SUBSTANTIAL ARGUMENTS AND CONSIDERATIONS WERE NOT RAISED FOR OR AGAINST THE ORIGINAL PROPOSAL.

12. THE AGENCY HAS INCLUDED COPIES OF ALL WRITTEN SUBMISSIONS AND SYNOPSES OF ORAL COMMENTS RECEIVED.

13. THE AGENCY HAS INCLUDED A LETTER EXPLAINING IN DETAIL THE REASONS FOR THE AGENCY'S DECISION TO REJECT OR ADOPT THEM.

14. CONCISE SUMMARY (**150 WORDS OR LESS**):

The intended impact of the 2024 Materials Management Plan (MMP or Plan) is to reduce Vermont's waste generation and improve the state's waste management, including convenient options for recyclables, food scraps, and safe disposal of household hazardous waste, rather than being landfilled. This 2024 MMP amends the previous Plan, which was adopted in 2019. Sections include: Introduction; Market and Facilities Assessment, Agency of Natural Resources-Strategies and Actions; Solid Waste Implementation Plan Requirements and Approval Process; Solid Waste Management Entities-Strategies and Actions. Subsections within the Introduction include: Statutory Authority; Plan Priorities and Goals; Vermont's Waste; Challenges in Materials Management; Climate Change; Equity,

Accessibility, and Environmental Justice. The Strategies and Actions replace the "Performance Standards" from the 2019 Plan and are requirements for the Agency and Municipal Solid Waste Management Entities (SWMEs) for the five-year Plan period.

15. EXPLANATION OF WHY THE RULE IS NECESSARY:

This Plan is required by statute (10 VSA § 6604) and directs ANR and municipal Solid Waste Management Entities (districts, alliances of towns, and independent towns) to work to reduce and properly manage discarded materials regulated as solid waste.

16. EXPLANATION OF HOW THE RULE IS NOT ARBITRARY:

The Plan's Stategies and Actions ensure that a level playing field exists between municipal entities, and that baseline services are convenient and accessible to all Vermonters.

17. LIST OF PEOPLE, ENTERPRISES AND GOVERNMENT ENTITIES AFFECTED BY THIS RULE:

The Plan mainly affects municipal Solid Waste Management Entities by requiring them to provide infrastructure related to the management of landfill-banned and/or dangerous materials like recyclables, food scraps, and household hazardous waste, and solid waste-related information, education, and services to their community members.

18. BRIEF SUMMARY OF ECONOMIC IMPACT (150 WORDS OR LESS):

The 2024 Materials Management Plan, in general, requires a similar amount of work by municipal Solid Waste Management Entities (SWMEs) as the 2019 Plan. As in 2019, the most costly portion of the 2024 Plan is collection of household hazardous waste through either a facility or 2 events per year. The 2024 Plan also requires each SWME to submit a Disaster Debris Management Plan, the goal of which is to help municipalities be more prepared for managing disaster-related trash and other debris in a way that keeps hazardous materials out of the landfill and increases the liklihood of FEMA-reimbursement.

19. A HEARING WAS HELD.

20. HEARING INFORMATION

(THE FIRST HEARING SHALL BE NO SOONER THAN 30 DAYS FOLLOWING THE POSTING OF NOTICES ONLINE).

IF THIS FORM IS INSUFFICIENT TO LIST THE INFORMATION FOR EACH HEARING, PLEASE ATTACH A SEPARATE SHEET TO COMPLETE THE HEARING INFORMATION.

Date: 7/8/2024
Time: 02:30 PM
Street Address: 2178 Airport Rd, Unit B, Berlin
Zip Code: 05602
URL for Virtual:

Date: 7/10/2024
Time: 07:00 PM
Street Address: Virtual
Zip Code:
URL for Virtual:

https://www.microsoft.com/en-us/microsoft-teams/join-a-meeting Meeting ID: 223 542 265 447 Passcode: DiypCD

Date: 7/16/2024
Time: 06:00 AM
Street Address: 1302 Main St., Saint Johnsbury
Zip Code: 05819
URL for Virtual:

Date:
Time: AM
Street Address:
Zip Code:
URL for Virtual:

21. DEADLINE FOR COMMENT (NO EARLIER THAN 7 DAYS FOLLOWING LAST HEARING): 7/23/24

KEYWORDS (PLEASE PROVIDE AT LEAST 3 KEYWORDS OR PHRASES TO AID IN THE SEARCHABILITY OF THE RULE NOTICE ONLINE).

Materials Management Plan

MMP

Solid Waste Plan

SWIP

Solid Waste Management Entity

SWME

VERMONT
AGENCY OF NATURAL RESOURCES

State of Vermont
Department of Environmental Conservation
Waste Management & Prevention Division
1 National Life Drive – Davis 1
Montpelier, VT 05620-3704

Legislative Committee on Administrative Rules
c/o Legislative Council
115 State Street, Drawer 33
Montpelier, VT 05633-5301

September 19, 2024

RE: Changes to Proposed Rule, 2024 Vermont Materials Management Plan

To the Vermont Legislative Committee on Administrative Rules:

This letter summarizes changes made to the "2024 Vermont Materials Management Plan" (hereinafter "MMP" or "Plan") as a result of the public notification process.

Please note that although this is a Plan not a Rule, statute requires the Agency to use the administrative rules process to adopt the Plan.

Attached with this letter please find the following:

- LCAR Filing Documents
  - Final Proposed Rule Cover Sheet
  - Adopting Page
  - Economic Impact Analysis Form
  - Environmental Impact Analysis Form
  - Public Input Form
  - Scientific Information Form
  - Incorporation by Reference Form
- Text of proposed rule – final draft of the "2024 Vermont Materials Management Plan"
- Annotated text showing changes – Strikethrough of the "2019 Vermont Materials Management Plan" NOTE: Because this a Plan and not a rule, the Plans change entirely from Plan to Plan rather than rules that may be amended with tracked changes. Thus, a full strikethrough version of the 2019 Vermont Materials Management Plan is submitted.
- Copies of all written comments on the draft 2024 Plan
- Responsiveness Summary to comments on the draft 2024 Plan
- Copy of the ICAR Approval Memo

Summary of Changes (listed by section of the 2024 Materials Management Plan)

VERMONT'S WASTE: The phrase "and will continue to need" was added to the following sentence: "While waste reduction is the goal, Vermont has always needed, and will continue to need, disposal capacity for waste materials that cannot be reduced, reused, recycled, or composted."

MARKETS AND FACILITIES ASSESSMENT: Added 2022 Bottle Bill tonnage from TOMRA; changed a section title from "Biosolids, Sludge, Septage, and Residuals" to "Residuals Management" and made some minor changes to that section.

ANR STRATEGIES AND ACTIONS:

A-4.4 – Solid Waste Program Website: Language was removed relating to tracking the number of state offices assisted with waste reduction outreach and was replaced with a commitment to continue to support BGS and other state agencies with recycling and food scrap diversion.

A-R1 – Recycling Market Development: Added "emergent topics of concern, such as PFAS and bears" to the list of website content ANR will develop.

A-4.7 – Direct Business and Institution Outreach: changed "safely manage hazardous waste" to "responsibly manage."

A-5.6 – Technical Assistance and Trainings: Added flexibility to residuals meeting frequency to be "approximately annual," with ANR having the ability to not hold a meeting in a given year.

SWME STRATEGIES AND ACTIONS:

4.1.2 – SWIP Approval Process: added "and follows the ANR SWIP template."

S-2.2 –SWME Materials Management Website: Added "examples of options for providing contact information will be provided in the ANR A-Z Waste and Recycling Guide Minimum Requirements."

S-2.6 – School Outreach: Language was added to clarify the number of schools that must be visited each year and that in-person outreach must be attempted, but phone, video calls, and emails can count if in-person outreach is not possible; changed "safely manage hazardous waste" to "responsibly manage."

S-2.7 – Direct Business Outreach: Reduced the minimum number of businesses per year from 20 to 15 and removed the clause that explained outreach for SWMEs with fewer than 20 businesses, as it was confusing and did not apply to very many entities.

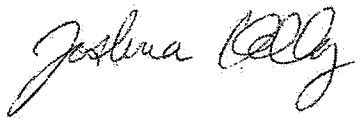
S-4.2 – Residuals Management Meetings: added flexibility to residuals meeting frequency to be "approximately annual," with ANR having the ability to not hold a meeting in a given year.

GLOSSARY OF TERMS
Added definitions for Community Based Social Marketing and Inert Disaster Debris and changed "Conditionally Exempt Generator" to Very Small Quantity Generator" to reflect the term change.

Minor edits were made to the MMP to correct typos, grammar, and to make minor clarifications.

Thank you for the opportunity to present this draft Plan to LCAR.

Sincerely,



Josh Kelly
Solid Waste Program Manager

Adopting Page

Instructions:

This form must accompany each filing made during the rulemaking process:

Note: To satisfy the requirement for an annotated text, an agency must submit the entire rule in annotated form with proposed and final proposed filings. Filing an annotated paragraph or page of a larger rule is not sufficient. Annotation must clearly show the changes to the rule.

When possible, the agency shall file the annotated text, using the appropriate page or pages from the Code of Vermont Rules as a basis for the annotated version. New rules need not be accompanied by an annotated text.

1. TITLE OF RULE FILING:
   2024 Materials Management Plan
2. ADOPTING AGENCY:
   Agency of Natural Resources
3. TYPE OF FILING (*PLEASE CHOOSE THE TYPE OF FILING FROM THE DROPDOWN MENU BASED ON THE DEFINITIONS PROVIDED BELOW*):
   - **AMENDMENT** - Any change to an already existing rule, even if it is a complete rewrite of the rule, it is considered an amendment if the rule is replaced with other text.
   - **NEW RULE** - A rule that did not previously exist even under a different name.
   - **REPEAL** - The removal of a rule in its entirety, without replacing it with other text.

   This filing is **AN AMENDMENT OF AN EXISTING RULE** .

4. LAST ADOPTED (*PLEASE PROVIDE THE SOS LOG#, TITLE AND EFFECTIVE DATE OF THE LAST ADOPTION FOR THE EXISTING RULE)*:

   SOS LOG 19-057. 2019 Vermont Materials Management Plan: Reducing Solid waste and Increasing Recycling and Composting. Effective on November 19, 2019.

State of Vermont
Agency of Administration
109 State Street
Montpelier, VT 05609-0201
www.aoa.vermont.gov

[phone] 802-828-3322

Kristin L. Clouser, Secretary

INTERAGENCY COMMITTEE ON ADMINISTRATIVE RULES (ICAR) MINUTES

Meeting Date/Location: May 13, 2024, virtually via Microsoft Teams
Members Present: Chair Sean Brown, Diane Sherman, Jared Adler, Jennifer Mojo, Michael Obuchowski, Natalie Weill, and Nicole Dubuque
Members Absent: John Kessler
Minutes By: Melissa Mazza-Paquette

- 2:04 p.m. meeting called to order, welcome and introductions.
- Review and approval of minutes from the April 4, 2024 meeting.
- No additions/deletions to agenda. Agenda approved as drafted.
- No public comments made.
- Presentation of Proposed Rules on pages 2-7 to follow.
  1. Recovery Services Organization Certification Rule, Vermont Department of Health, page 2
  2. Ambulance Services, Agency of Human Services, page 3
  3. Beneficiary Protections and Responsibilities, Agency of Human Services, page 4
  4. Marriage Ceremony For Incarcerated Individuals, Department of Corrections, page 5
  5. 2024 Materials Management Plan, Agency of Natural Resources, page 6
  6. Agency Designation, Agency of Human Services, page 7
- Next scheduled meeting is June 10, 2024 at 2:00 p.m.
- 3:08 p.m. meeting adjourned.

Proposed Rule: 2024 Materials Management Plan, Agency of Natural Resources
Presented By: Josh Kelly, Alyssa Eiklor and Anne Bijur

Motion made to accept the rule by Sean Brown, seconded by Natalie Weill, and passed unanimously except for Jen Mojo who abstained, with the following recommendations:

1. Public Input Maximization Plan, #3:
    a. Identify the solid waste stakeholders.
    b. Include the Vermont Department of Health Emergency Preparedness Division and Environmental Health Division.

Economic Impact Analysis

Instructions:

In completing the economic impact analysis, an agency analyzes and evaluates the anticipated costs and benefits to be expected from adoption of the rule; estimates the costs and benefits for each category of people enterprises and government entities affected by the rule; compares alternatives to adopting the rule; and explains their analysis concluding that rulemaking is the most appropriate method of achieving the regulatory purpose. If no impacts are anticipated, please specify "No impact anticipated" in the field.

Rules affecting or regulating schools or school districts must include cost implications to local school districts and taxpayers in the impact statement, a clear statement of associated costs, and consideration of alternatives to the rule to reduce or ameliorate costs to local school districts while still achieving the objectives of the rule (see 3 V.S.A. § 832b for details).

Rules affecting small businesses (excluding impacts incidental to the purchase and payment of goods and services by the State or an agency thereof), must include ways that a business can reduce the cost or burden of compliance or an explanation of why the agency determines that such evaluation isn't appropriate, and an evaluation of creative, innovative or flexible methods of compliance that would not significantly impair the effectiveness of the rule or increase the risk to the health, safety, or welfare of the public or those affected by the rule.

1. TITLE OF RULE FILING:

   2024 Materials Management Plan

2. ADOPTING AGENCY:

   Agency of Natural Resources

3. CATEGORY OF AFFECTED PARTIES:

   LIST CATEGORIES OF PEOPLE, ENTERPRISES, AND GOVERNMENTAL ENTITIES POTENTIALLY AFFECTED BY THE ADOPTION OF THIS RULE AND THE ESTIMATED COSTS AND BENEFITS ANTICIPATED:

   This Plan affects all Vermonters, as it seeks to provide them with education, information, and convenient options for recycling, composting, donating, reusing, reducing, and safely managing waste materials. This Plan specifically establishes strategies and actions for Solid Waste Management Entities (districts, groups, alliances, and independent towns) to meet

through the adoption and implementation of their conforming Solid Waste Implementation Plans (SWIPs), as required by state statute.

Most Solid Waste Management Entities (SWMEs) will see a similar cost as from the 2019 Plan. The most costly activity for SWMEs is the collection and management of Household Hazardous Waste (HHW). ANR estimates that SWMEs collectively spend approximately $2.2M annually on HHW collection and management. Annually, ANR offers grants to SWMEs to assist with the costs of HHW and other Plan requirements. The 2024 Plan also requires that every SWME have a Disaster Debris Management plan, including locations of a certified facility for the collection of woody debris and inert debris. While many SWMEs already have facilities that meet this requirement, siting and certification of new facilities may be a cost for some municipalities. However, the reason for this requirement is to better prepare municipalities for having FEMA-eligible disaster-debris management in place for future natural diasters, which could save municipalities money.

4. IMPACT ON SCHOOLS:

INDICATE ANY IMPACT THAT THE RULE WILL HAVE ON PUBLIC EDUCATION, PUBLIC SCHOOLS, LOCAL SCHOOL DISTRICTS AND/OR TAXPAYERS CLEARLY STATING ANY ASSOCIATED COSTS:

The Plan has no direct economic cost impact on schools, and may reduce school costs through the offering of free assistance and education on improving recycling, composting, and safe management of hazardous materials, as required by state law. SWMEs must visit and work with schools to assist them with waste reduction, recycling, and safe management of hazardous materials.

The Agency is providing outreach about the importance of reducing food waste, which can help schools save money.

5. ALTERNATIVES: *CONSIDERATION OF ALTERNATIVES TO THE RULE TO REDUCE OR AMELIORATE COSTS TO LOCAL SCHOOL DISTRICTS WHILE STILL ACHIEVING THE OBJECTIVE OF THE RULE.*

There is no direct cost impact to schools from this 2024 Plan.

6. IMPACT ON SMALL BUSINESSES:
INDICATE ANY IMPACT THAT THE RULE WILL HAVE ON SMALL BUSINESSES (EXCLUDING IMPACTS INCIDENTAL TO THE PURCHASE AND PAYMENT OF GOODS AND SERVICES BY THE STATE OR AN AGENCY THEREOF):

Similar to schools, there is no direct economic cost impact of this Plan on small businesses. State law requires recycling, composting, and safe disposal of hazardous materials. This Plan will increase outreach and education to businesses on recycling, composting, and safe management of hazardous materials.

7. SMALL BUSINESS COMPLIANCE: *EXPLAIN WAYS A BUSINESS CAN REDUCE THE COST/BURDEN OF COMPLIANCE OR AN EXPLANATION OF WHY THE AGENCY DETERMINES THAT SUCH EVALUATION ISN'T APPROPRIATE.*

This Plan makes no requirements of small businesses specifically. The Plan requires that SWMEs educate businesses on existing state solid waste laws that require such things as recycling, composting, and safe disposal of hazardous materials. The Agency is actively working with businesses to help them reduce overall waste, which has the potential to help businesses save money on expenses such as trash hauling and purchasing.

8. COMPARISON:
COMPARE THE IMPACT OF THE RULE WITH THE ECONOMIC IMPACT OF OTHER ALTERNATIVES TO THE RULE, INCLUDING NO RULE ON THE SUBJECT OR A RULE HAVING SEPARATE REQUIREMENTS FOR SMALL BUSINESS:
This is a Plan, not a rule, and the Plan is required by statute. The purpose of this Plan is to provide clear requirements for the Agency and SWMEs to meet state goals to reduce waste generation and increase recycling and composting. The current Plan is a legislative requirement, as are the inclusion of state goals and performance standards for SWMEs. The 2024 Plan responds directly to the requirements of state statute 10 V.S.A. § 6604.

9. SUFFICIENCY: *DESCRIBE HOW THE ANALYSIS WAS CONDUCTED, IDENTIFYING RELEVANT INTERNAL AND/OR EXTERNAL SOURCES OF INFORMATION USED.*
This economic impact analysis provides the Agency's best assessment of the economic impact of this Plan based on the information available.

Environmental Impact Analysis

Instructions:

In completing the environmental impact analysis, an agency analyzes and evaluates the anticipated environmental impacts (positive or negative) to be expected from adoption of the rule; compares alternatives to adopting the rule; explains the sufficiency of the environmental impact analysis. If no impacts are anticipated, please specify "No impact anticipated" in the field.

Examples of Environmental Impacts include but are not limited to:

- Impacts on the emission of greenhouse gases
- Impacts on the discharge of pollutants to water
- Impacts on the arability of land
- Impacts on the climate
- Impacts on the flow of water
- Impacts on recreation
- Or other environmental impacts

1. TITLE OF RULE FILING:

   2024 Materials Management Plan

2. ADOPTING AGENCY:

   Agency of Natural Resources

3. GREENHOUSE GAS: *EXPLAIN HOW THE RULE IMPACTS THE EMISSION OF GREENHOUSE GASES (E.G. TRANSPORTATION OF PEOPLE OR GOODS; BUILDING INFRASTRUCTURE; LAND USE AND DEVELOPMENT, WASTE GENERATION, ETC.):*
   The implementation of this Plan helps reduce greenhouse gas emissions through overall reduction of waste generation and through the reduction of landfilled recyclable and organic materials. The breakdown of landfilled organic materials produces methane, a greenhouse gas more powerful than carbon dioxide. A 2013 Systems Analysis study on the impact of Act 148 estimated a 37% reduction in greenhouse gas emissions as a result of full implementation of Vermont's recycling and composting goals.

4. WATER: *EXPLAIN HOW THE RULE IMPACTS WATER (E.G. DISCHARGE / ELIMINATION OF POLLUTION INTO VERMONT WATERS, THE FLOW OF WATER IN THE STATE, WATER QUALITY ETC.):*
   Through its emphasis on waste reduction and proper waste management, this Plan indirectly maintains or improves Vermont's water quality. Reducing waste and reducing the toxicity of waste such as through proper management of household hazardous waste, for example, has the potential to protect rivers and streams from pollution either through preventing illegal disposal, or preventing disposal in landfills that creates leachate which requires waste water treatment. Further, recycling and composting can both have water quality benefits. Recycling products saves natural resources which reduce water quality impacts from mining, natural resource extraction, and processing. Composting properly turns organic waste, like food scraps, into a stable humus like material that can be used to support new plant growth and further reduces leachate formation from landfilled organic waste. Finally, solid waste education through the implementation of this Plan should help ensure proper disposal of materials so they are less likely to end up in waterways.

5. LAND: *EXPLAIN HOW THE RULE IMPACTS LAND (E.G. IMPACTS ON FORESTRY, AGRICULTURE ETC.):*
   The Plan may result in minor enhancements to existing transfer stations, materials recovery facilities, commercial composting facilities, and anaerobic digestion facilities. Most of these enhancements have already taken place in response to the previous Plan and implementation of Vermont's Universal Recycling law (Act 148 of 2012). The biggest potential impact is for municipalities that choose to site and permit a new categorical disposal facility (or "stump dump") for vegetative and inert debris.

6. RECREATION: *EXPLAIN HOW THE RULE IMPACTS RECREATION IN THE STATE:*
   There is little to no impact on recreational areas from the Plan, but indirectly it may encourage recycling and composting options to be available at recreational areas.

7. CLIMATE: *EXPLAIN HOW THE RULE IMPACTS THE CLIMATE IN THE STATE:*
   The Plan is anticipated to improve Vermont's climate by reducing greenhouse gas emissions from waste by recycling and reducing landfilling of organic materials.
8. OTHER: *EXPLAIN HOW THE RULE IMPACT OTHER ASPECTS OF VERMONT'S ENVIRONMENT:*
9. SUFFICIENCY: *DESCRIBE HOW THE ANALYSIS WAS CONDUCTED, IDENTIFYING RELEVANT INTERNAL AND/OR EXTERNAL SOURCES OF INFORMATION USED.*
   This environmental impact analysis provides the Agency's best assessment of the environmental impact of this Plan based on the information available.

Public Input Maximization Plan

Instructions:

Agencies are encouraged to hold hearings as part of their strategy to maximize the involvement of the public in the development of rules. Please complete the form below by describing the agency's strategy for maximizing public input (what it did do, or will do to maximize the involvement of the public).

This form must accompany each filing made during the rulemaking process:

1. TITLE OF RULE FILING:

   2024 Materials Management Plan

2. ADOPTING AGENCY:

   Agency of Natural Resources

3. PLEASE DESCRIBE THE AGENCY'S STRATEGY TO MAXIMIZE PUBLIC INVOLVEMENT IN THE DEVELOPMENT OF THE PROPOSED RULE, LISTING THE STEPS THAT HAVE BEEN OR WILL BE TAKEN TO COMPLY WITH THAT STRATEGY:

   ANR will host three public meetings during the comment period on this draft Plan in Montpelier, St. Johnsbury, and virtually. ANR will circulate the draft Plan to solid waste stakeholders (including: Solid Waste Management Entities; Town Clerks; permitted solid waste haulers; certified solid waste facilities; VT Agency of Agriculture, Farms, and Markets; Vermont Department of Health; Vermont Emergency Management; Vermont Retail and Grocers Association; Conservation Law Foundation; Vermont Public Interest Research Group; Don't Undermind Memphramagog's Purity) and post it to our website for public review. Public comments will be reviewed and considered for incorporation into the draft Plan. The Responsiveness Summary will document the public comment period, comments received, and ANR's response.

4. BEYOND GENERAL ADVERTISEMENTS, PLEASE LIST THE PEOPLE AND ORGANIZATIONS THAT HAVE BEEN OR WILL BE INVOLVED IN THE DEVELOPMENT OF THE PROPOSED RULE:

Public Input

In 2023, to start the public input process, ANR solicited feedback from Agency staff and solid waste management entities (SWMEs) on the 2019 MMP and what they would like to keep or change in the 2024 Plan. ANR incorporated these comments into the preliminary draft 2024 Plan, which was then sent to the SWMEs and solid waste stakeholders (including: Solid Waste Management Entities; Town Clerks; permitted solid waste haulers; certified solid waste facilities; VT Agency of Agriculture, Farms, and Markets; Vermont Department of Health; Vermont Emergency Management; Vermont Retail and Grocers Association; Conservation Law Foundation; Vermont Public Interest Research Group; Don't Undermind Memphramagog's Purity) at the beginning of February, 2024 for a 30-day comment period. We also presented the preliminary draft 2024 Plan to SWMEs at a 1-hour meeting and Q&A on February 21, 2024. After the ICAR meeting, we will hold a public meeting and comment period and incorporate feedback into the final draft 2024 Plan.

ANR intends to hold two in-person and one virtual public hearings on this Plan, in Montpelier and in St. Johnsbury. Most Solid Waste Management Entities participate in regular meetings in Montpelier of the Vermont District Managers. The majority of independent towns are located in the Northeast Kingdom region.

Scientific Information Statement

THIS FORM IS ONLY REQUIRED IF THE RULE RELIES ON SCIENTIFIC INFORMATION FOR ITS VALIDITY.

PLEASE REMOVE THIS FORM PRIOR TO DELIVERY IF IT DOES NOT APPLY TO THIS RULE FILING:

Instructions:

In completing the Scientific Information Statement, an agency shall provide a summary of the scientific information including reference to any scientific studies upon which the proposed rule is based, for the purpose of validity.

1. TITLE OF RULE FILING:

   2024 Materials Management Plan

2. ADOPTING AGENCY:

   Agency of Natural Resources

3. BRIEF EXPLANATION OF SCIENTIFIC INFORMATION:

   The 2024 Plan references information from:

   Vermont 2022 Diversion & Disposal Report

   2023 Vermont Waste Composition Study

   2018 Waste Characterization Study

   2022 study on microplastics

   2023 University of Vermont study on the impact of Vermont's food waste ban.

   US EPA's Advancing Materials Management: 2018 Fact Sheet

   US EPA Overview of Greenhouse Gasses

4. CITATION OF SOURCE DOCUMENTATION OF SCIENTIFIC INFORMATION:

   2022 Vermont Diversion and Disposal Report. ermont Department of Environmental Conservation Solid Waste Program. 2024.

2023 Vermont Waste Composition. Prepared for Vermont Department of Environmental Conservation Solid Waste Program by MSW Consultants. 2024.

2018 Vermont Waste Characterization. Prepared for Vermont Department of Environmental Conservation Solid Waste Program by DSM Environmental. 2018.

Impact of Vermont's Food Waste Ban on Residents and Food Businesses. Belarmino et al. University of Vermont. 2023.

Microplastics in Composts, Digestate and Food Wastes. A New Comprehensive Review of Scientific Literature Finds that Microplastics are a Systematic Challenge in Organics Recycling Porterfield, K.K.; Hobson, S.A.; Neher, D.A.; Niles, M.T.; Roy, E.D., Journal of Environmental Quality. 2022.

Advancing Sustainable Materials Management: 2018 Fact Sheet; Assessing Trends in Material Generation, Recycling, Composting, Combustion with Energy Recovery and Landfilling in the United States. United States Environmental Protection Agency. 2018.

US EPA Ovewview of Greenhouse Gasses. https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane

5. INSTRUCTIONS ON HOW TO OBTAIN COPIES OF THE SOURCE DOCUMENTS OF THE SCIENTIFIC INFORMATION FROM THE AGENCY OR OTHER PUBLISHING ENTITY:

The 2022 Diversion and Disposal Report, 2023 Waste Composition Study, and 2018 Waste Characterization Study will be available at: VTANR, Waste Management & Prevention Division, Solid Waste Management Program, Publications and Reports. dec.vermont.gov/waste-management/solid/publications-and-reports

Impact of Vermont's Food Waste Ban on Residents and Food Businesses. https://scholarworks.uvm.edu/calsfac/198/

Microplastics in Composts. https://pubmed.ncbi.nlm.nih.gov/36645846/

The US EPA 2018 fact sheet can be obtained at: https://www.epa.gov/sites/default/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf

The US EPA Overview of Greenhouse Gasses web page: https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane

Incorporation by Reference

THIS FORM IS ONLY REQUIRED WHEN INCORPORATING MATERIALS BY REFERENCE. PLEASE REMOVE PRIOR TO DELIVERY IF IT DOES NOT APPLY TO THIS RULE FILING:

Instructions:

In completing the incorporation by reference statement, an agency describes any materials that are incorporated into the rule by reference and how to obtain copies.

This form is only required when a rule incorporates materials by referencing another source without reproducing the text within the rule itself (e.g., federal or national standards, or regulations).

Incorporated materials will be maintained and available for inspection by the Agency.

1. TITLE OF RULE FILING:

   2024 Materials Management Plan

2. ADOPTING AGENCY:

   Agency of Natural Resources

3. DESCRIPTION (*DESCRIBE THE MATERIALS INCORPORATED BY REFERENCE)*:

   This is a Plan, not a rule, and it does not incorporate by reference any other rules. It does refer to the ANR DEC Hazardous Waste Management Program: Regulations & Statutes, in order to clarify that waste collected from Conditionally Exempt Generators must be managed according to the Vermont Hazardous Waste Management Regulations.

4. FORMAL CITATION OF MATERIALS INCORPORATED BY REFERENCE:
   See below

5. OBTAINING COPIES: *(EXPLAIN WHERE THE PUBLIC MAY OBTAIN THE MATERIAL(S) IN WRITTEN OR ELECTRONIC FORM, AND AT WHAT COST)*:

   The ANR DEC Hazardous Waste Management Program Regulations & Statutes can be found at:

http://www.anr.state.vt.us/dec/wastediv/rcra/regs.htm, and
http://www.anr.state.vt.us/dec/wastediv/rcra/hazregs/VHWMR_Sub9.pdf

6. MODIFICATIONS (*PLEASE EXPLAIN ANY MODIFICATION TO THE INCORPORATED MATERIALS E.G., WHETHER ONLY PART OF THE MATERIAL IS ADOPTED AND IF SO, WHICH PART(S)ARE MODIFIED)*:

   There were no modifications to the incorporated material.

Run Spell Check

Responsiveness Summary to
Comments on the Draft 2024 Vermont Materials Management Plan
10 V.S.A. §6604

From June 6, 2024, to July 19, 2024, the Agency of Natural Resources (ANR), Department of Environmental Conservation (DEC) posted the Draft 2024 Vermont Materials Management Plan (MMP) for public comment. The 2024 MMP is submitted in compliance with 10 V.S.A. §6604. ANR also held three public meetings on the Draft 2024 MMP, on July 8th in Berlin, July 10th virtually, and July 16th in St Johnsbury. This Responsiveness Summary was prepared and is submitted to fulfill the Secretary of State filing procedures.

ANR received comments during the comment period from: Addison County Solid Waste Management District, Central Vermont Solid Waste District, Solid Waste Alliance Communities (towns from Rutland County region), the towns of Londonderry and Sheffield, The American Chemistry Council, Don't Undermine Memphremagog's Purity (DUMP), and an individual, Ed Stanak, on behalf of DUMP.

Some comments were received related to grammar and wording within the MMP, including suggestions for the Glossary. We incorporated these suggestions into the draft when appropriate but did not add them to the responsiveness summary as they did not warrant individual responses.

1 Introduction

No comments received on this section.

1.1 Statutory Authority

1. **COMMENT:** The first and most important issue with this 2024 Materials Management Plan is that the Plan is premised on the outdated Vermont State Solid Waste Policy found in 10 VSA Chapter 159, referred to in your Draft Plan as Act 78. It is imperative that the State update that policy before any Materials Management Plan will be credible. The current reality of actual solid waste management and prevention efforts in Vermont are vastly substantively different from the underlying premises of the antiquated State policy. The primary purpose of a Solid Waste Management Plan is to ensure the protection of the environment and the health and safety of the public. The State policy was enacted in a past era and the intent back then was that municipalities would have the primary role [See 10 VSA 6601(e)]. The policy was the result of the idealistic goals of (and viewed through the "rose colored" glasses worn by) the General Assembly back in 1987. The current circumstances involving all aspects of the realities of actual "waste management and prevention" efforts in Vermont are vastly different from the underlying premises of the antiquated State policy. Because of the failure to implement the 1987 State policy - and there are many reasons for this the private sector has stepped into the resulting vacuum. More to the point, a single corporate entity operates the sole landfill facility in the Green Mountains and the

volume of out of state wastes (including WWTF sludge and other non-household wastes) being imported to that facility increases almost daily. Efforts to reduce the waste stream in Vermont are anemic at best. The effect of the lack of a meaningful State solid waste management policy has resulted in a default "out of sight, out of mind" attitude by most Vermont urban residents toward the disposal of wastes. Many legislators and environmental advocates in 1987 thought that Act 78 (subsequently codified as 10 VSA Chapter 159) would obviate the effects of the US Supreme Court's 1978 decision in City of Philadelphia v State of New Jersey holding that solid waste disposal is protected by the interstate commerce clause of the Constitution. The idea in 1987 was that municipal facilities would ensure both the safeguarding of the capacity of landfill facilities and prevent importation of out of state wastes. Other states are now acting boldly to consider state owned and operated facilities for these very same reasons. Suffice to say that the day to day "real world" generation and disposal of wastes in Vermont are untethered from the existing State policy. It makes no sense to proceed with proverbial "blinders on" on to adopt a new Materials Management Plan that relies upon a State policy that is disconnected from actual practices. In closing, I suggest that the WMPD cease any further action on the draft plan and instead prepare to present data and recommendations to the 2025-2026 General Assembly that will result in the enactment of an updated State solid waste policy appropriate for the challenges facing Vermont in the early 21st century.
RESPONSE: Changes to state statute are the purview of the Vermont General Assembly.

1.2 Plan Priorities and Goals

No comments received on this section.

1.3 Vermont's Waste

1. **COMMENT:** Please add "and will continue to need" to this sentence "While waste reduction is the goal, Vermont has always needed and will continue to need disposal capacity for waste materials that cannot be reduced, reused, recycled, or composted."
   RESPONSE: Change made.

2. **COMMENT:** The current privately owned model prioritizes landfilling; whereas a publicly owned solid waste facility could prioritize reduction, reuse and recycling over landfilling. The Draft MMP casually dismisses any idea that the State should be the owner of landfill properties. Other states are successfully implementing this model of solid waste management. In Vermont, State or Municipal ownership would allow much greater control over the materials deposited in the landfill. An added benefit is that Vermont would not be required to accept the waste imported from out-of-state, most of it highly contaminated. The acceptance of highly contaminated, or any, waste from out-of-state is a complete contradiction of Vermont's desire to reduce waste and protect the environment. Reduction, reuse and recycling goals cannot be achieved under the current privately-owned landfill model. Because the Coventry

Landfill is permitted to accept up to 600,000 tons of waste each year, any Vermont waste that is reduced would simply be replaced by solid waste imported from out-of-state. Therefore, there would be no reduction in waste deposited in Vermont. The idea underlying Act 78 was that municipal facilities would ensure both the safeguarding of the capacity of landfill facilities and prevent importation of out of state wastes. Other states are now acting boldly to consider state owned and operated facilities for these very same reasons.
RESPONSE: A state-run landfill would not necessarily prevent the establishment of privately run landfills in the state, which could accept out-of-state wastes.

3. **COMMENT:** The amount of Vermont waste disposed out-of-state is a concern given that some part of Vermont's exported waste is incinerated in NY State. Toxic and hazardous contaminants, including incompletely combusted PFAS chemicals, become airborne, and then prevailing winds carry and precipitate these PFAS chemicals onto soil and water threatening the environment in their path including in Vermont. The NEWSVT landfill captures most of their methane landfill gas, which is used to produce electricity.
RESPONSE: Vermont currently disposes of approximately 15-20% of its waste out of state.

4. **COMMENT:** What is not captured is flared at temperatures insufficient to destroy toxic and hazardous contaminants such as PFAS chemicals, which become airborne and precipitate to contaminate soil and water downwind.
RESPONSE: On pages 71-74 of the EPA's April 2024 Interim Guidance on the Destruction and Disposal of PFAS Substances and Materials containing PFAS Substances, it states that "The fate of PFAS in landfill gas that is managed through on-site gas collection and control systems, including on-site flares, engines, boilers, and turbines is unknown...as the data are still limited."

5. **COMMENT:** In reference to "While siting additional landfills would provide more disposal options for Vermont's waste, the Agency is not aware of any projects currently being planned." This is unacceptable- the agency should be the first to know by asserting its authority, granted by the VT legislature, over all solid waste planning. Given that the agency estimates less than 20 years of operation, planning for future solid waste management disposal must begin immediately. However, it cannot begin until the Vermont Solid Waste Policy is updated.
RESPONSE: Through this next MMP, ANR plans to initiate a stakeholder process for Vermont disposal capacity of the future. Any new or expanded solid waste facilities must first apply to the Agency for a solid waste certification before operating.

6. **COMMENT:** in reference to "Some may advocate for a state-owned landfill or incinerator, as exists in some other states. A state-owned landfill would, in effect, bear all the liability for the waste facility, while the profits would be held by the private contractor hired to operate it." This is an inaccurate statement- where is the evidence supporting this claim? The allusion to an "incinerator" should be removed

from the first sentence, and the word "some" should be changed to "many" other states. State ownership would provide stricter control and oversight over SWMF operations, limiting liability concerns. Currently, the state receives tipping fees for every ton of waste deposited in Vermont's sole, privately-owned landfill, generating significant annual revenue for the State. The private solid waste industry is hugely profitable and means of sharing these revenues in a state-run model should be pursued.
RESPONSE: Through this next MMP, ANR plans to initiate a stakeholder process for Vermont disposal capacity of the future. This will be the venue for these discussions.

7. **COMMENT:** in reference to "Regionally, a 2021 Northeast Waste Management Officials Association (NEWMOA) report on Solid Waste Disposal Capacity4 showed that disposal capacity in the Northeast is constricting, with 23% of the region's waste being managed by landfills that will reach their currently-permitted capacity within the next 5 years." This will place greater pressure on Vermont to accept more out-of-state-waste unless the State assumes responsibility for a municipal SWMF model, thereby circumventing the Federal Interstate Commerce Clause which prevents states from banning import of out-of-state waste.
RESPONSE: Through this next MMP, ANR plans to initiate a stakeholder process for Vermont disposal capacity of the future. This will be the venue for these discussions.

8. **COMMENT:** Rail transport out-of-state of Vermont waste should not be an option- Vermont must bear responsibility for disposal of Vermont generated waste.
RESPONSE: Through this next MMP, ANR plans to initiate a stakeholder process for Vermont disposal capacity of the future. This will be the venue for these discussions.

1.4 Challenges in Materials Management

1. **COMMENT:** The Draft MMP needs to address the toxicity of "forever" PFAS chemicals in all mitigation, storage and disposal plans. We have provided comments to some specific sections regarding PFAS that are part of this submission; however, there are too many places in which PFAS need to be considered for us to point out each and every one. The entire Plan needs to be reviewed to be sure that reference to PFAS are included in every section that references hazardous, special or other distinct types of waste, including all mitigation, storage and disposal plans, and be revised accordingly.
RESPONSE: Some changes to incorporate PFAS within the MMP have been made in response to comments. PFAS is contained in a multitude of consumer products at varying levels making it challenging to regulate.

2. **COMMENT:** ACC supports efforts to manage challenges in materials to conserve natural resources, reduce greenhouse gas emissions, decrease landfill capacity, and minimize environmental impacts of products.
RESPONSE: Thank you for your comment.

3. **COMMENT:** Per- and polyfluoroalkyl substances (PFAS), or Fluorotechnology, are a diverse universe of chemistries that makes possible the products that power our lives – the cellphones, tablets and telecommunications we use every day to connect with our friends and family; the aircraft that power the U.S. military; alternative energy sources critical to sustainability goals; and medical devices that help keep us healthy. However, all PFAS are not the same. Individual chemistries have their own unique properties and uses, as well as environmental and health profiles. Under Act 131 of 2024, Section 9, ANR is directed to develop and implement a program to identify and restrict the sale and distribution of consumer products containing PFAS that could impact public health and the environment. ACC encourages ANR to thoroughly and thoughtfully consider the following when developing a program:
   Overall Product Design, Safety, Performance, and Sustainability Factors – Effective evaluation of uses should include the multiple factors that are important for overall product design and performance, including critical attributes related to efficacy and sustainability. Absent a robust and holistic assessment process, this new program could foster regrettable substitution and detract from some of the underlying objectives of the program. Moreover, there are a host of sustainability issues to consider in the context of overall electronic product design and performance, including energy efficiency, durability, light weighting, and material selection, among other factors. Failure to consider these factors could ultimately impact product safety, performance, sustainability, and innovation. Active engagement with the actual end-users for the use will be important for a successful program.

   Consideration of Existing Product Codes and Standards – Evaluation of uses should consider existing product codes and standards. There are numerous existing codes and standards that help inform and guide overall product design and performance. In addition, it is important to recognize that these are often viewed as minimum requirements for many Original Equipment Manufacturers (OEM) and that overall performance and safety can often go beyond these standards for specific applications. Changes in product design may affect the ability to meet certain standards and/or require product redesign, re-sourcing, re-testing and recertification.

   Robust Assessment of Alternatives – The assessment of alternatives is critical for this new program and is also needed to help avoid regrettable substitution. Key considerations for the assessment of alternatives include:
   - The safety and efficacy of alternatives.
   - The ability of the alternative to provide equivalent functional performance. This includes whether an alternative can meet relevant product and performance standards.
   - The regulatory environment for the identified alternatives as well as broader circularity and safety considerations relevant for product design related to the available alternative.

   Alignment with Federal and International Regulations – Any restrictions should reflect state, federal and international alignment on health and safety standards. This will ensure that Vermont is not an outlier, with potentially fewer

products available for purchase in the state and potentially impacting broader product safety, innovation, and sustainability.

Consideration of Relevant, Existing Safety Assessments and Regulatory Determinations

In many cases there are existing assessments and regulatory determinations that govern the use of specific chemistries. This includes instances where specific PFAS substances have been identified as a preferred alternative. Consideration of such information must be an important part of ANR's assessment.

- **Global Supply–Chain Considerations** – Product restrictions should consider the supply chain necessary for the substance in use. Product manufacturers operate in a global regulatory environment and must consider a broad range of product safety and design factors. This includes complex considerations related to product certification, performance, use and end of life, and even chemical registration and use. In addition, many manufacturers rely on a global supply chain for components and subcomponents. Any product assessment should consider these important global considerations. Products are designed for worldwide compliance and this needs to be considered.
- **Product Innovation and New Technologies** – Similarly, advances in technology and/or the emergence of new societal needs and challenges may result in new products requiring fluorotechnology. Failure to consider this will undermine product innovation and new technologies. The most recent examples of this include recent technological developments related to EV batteries, alternative energy sources, etc.
- **Utilization of Established, Science-Based Frameworks** – In order to support fact based decision-making, ANR should employ established methods and framework for risk assessment, life cycle assessment, alternatives analysis and socio-economic analysis and include transparent stakeholder engagement in their process. ANR should obtain broad stakeholder and expert input and carefully consider the uses under consideration.

RESPONSE: ANR's responsibilities under Act 131 are separate and are not relevant to this Materials Management Plan.

4. **COMMENT:** Microplastics-- A science- and risk-based system is necessary to better understand the potential risks from microplastics. ACC supports funding responsible, scientifically grounded research necessary to close information needs identified by the World Health Organization and to inform risk assessment. Several critical measures are needed to ensure that regulators have access to high quality data, and include:
    - Adoption of a standardized definition for microplastic and supporting definitions to avoid uncertainties when enforcing any regulation.
    - Development and adoption of standardized and validated analytical methods to accurately measure microplastics quantity and composition in various environmental media and biological samples (e.g., tissue).

- Development and use of scientifically robust hazard screening and testing methods, including quality assurance and quality control criteria for hazard testing, and reference materials.
- Adoption of a risk assessment framework that addresses the complexities of microplastics, hazards and exposures.

RESPONSE: These comments highlight a lot of the ongoing research needs related to this emerging contaminant.

1.5 Climate Change

1. **COMMENT: Plastics can play a helpful role in addressing climate change.** Plastics can help Vermont meet emissions reduction requirements as required by the Global Warming Solutions Act (Act 153 of 2020) and its Climate Action Plan. Plastics play a vital role in a low carbon economy if we want clean energy, electric cars, sustainable food production, and to help our share of the Paris Agreement goals. A 2022 research report from Franklin Associates found that while the production of four major plastics increased over the past decade, associated GHG emissions decreased significantly – the equivalent of removing one million cars from our roads for one year. The positive trend toward lower GHGs. The research also identified a decrease in energy use during production, a positive trend expected to continue due to efficiency improvements in the production of resins and their precursors. A 2022 study by McKinsey & Company that compared fourteen applications where plastics and alternative materials vigorously compete for market share found that plastic lowered total GHG contribution in 13 of 14 cases compared to alternatives in cases where it was used at scale1. The study demonstrated that in terms of both product lifecycle and use impact, GHG savings range from 10 to 90 percent. Moreover, plastics adoption in additional areas could contribute to decarbonization by reducing food spoilage and energy use, resulting in even lower GHG emissions. For example, the use of 1.5 grams of plastic wrap can extend the freshness of cucumbers for 14 days, compared to 3 days without, and packaging for grapes can reduce spoilage by 20 percent. Reducing food waste is important because the U.S. Environmental Protection Agency (EPA) estimates that more food reaches landfills and incinerators than any other single material in our everyday trash, constituting 22 percent of discarded municipal solid waste. The United Nations Food and Agriculture Organization also reports that food waste is the third largest source of greenhouse gas emissions.
   RESPONSE: The Agency is aware of some of the benefits plastics provide to society.

1.6 Equity, Accessibility, and Environmental Justice

1. **COMMENT:** There are physical and situational disabilities that happen at the transfer station all the time. There needs to be a balance between safety and access. Insurance carriers require barriers so people do not get hurt or fall into different areas. These barriers sometimes require a person to lift a 30 pound or heavier trash bag up over a gate/barrier 3-4 feet high. Many people are not able to do that or require assistance.

RESPONSE: ANR has provided grants to facilities to improve infrastructure to make them more safe and more accessible. We hope to provide these types of grants again in the future.

2. **COMMENT:** The net effect of the current approach to waste management in Vermont is that the Landfill operation in Coventry poses environmental threats and injustice to the people of the rural Northeast Kingdom. The legislature has recently enacted provisions that will supposedly foster environmental justice. The net effect of the *status quo* approach to wastes in Vermont is that the landfill operation in Coventry is a poster child of environmental injustice, as evidenced by the burdens endured by the people of the rural Northeast Kingdom.
   RESPONSE: Monitoring wells around this landfill facility have not indicated offsite environmental impacts.

2 Markets and Facilities Assessment

1. **COMMENT:** The cost to recycle has more than doubled in the last few years making doing the right thing extremely cost prohibitive.
   RESPONSE: The recycling system requires a lot of inputs – trucks, drivers, machines and staff to sort materials, education, etc. The Agency has also observed high recycling costs in recent years and does not regulate the costs of solid waste or recycling services. The variety of unrecyclable and disruptive packaging is one factor and some states have passed extended producer responsibility for packaging to improve recycling outcomes.

2. **COMMENT:** Where are the two anaerobic digesters that have been permitted but not built?
   RESPONSE: Locations added.

3. **COMMENT:** Does ANR have rationale as to why HHW collection totals went from 983.5 tons in 2021 to 689.5 tons in 2022?
   RESPONSE: There was both a decrease in the number of participants and in the amount of material (by weight) collected in 2022 versus 2021 and we do not have data that can explain this decrease.

4. **COMMENT:** What is the difference in participation rates for permanent versus one day collections?
   RESPONSE: Both permanent facilities and one day collection events keep track of the number of households who utilize their services. Permanent facilities are open at least seasonally and 2 days a week and one day collection events are only offered a few times a year.

5. **COMMENT:** HHW EPR Law - How will this program impact participation rates and accessibility and lower the cost of HHW collection?
   RESPONSE: The HHW EPR law will require manufacturers of HHW products to pay for end-of-life management and proper disposal in the form of a reimbursement to the municipalities (SWMEs) who operate the HHW collection programs thus

reducing costs for municipalities. In addition, EPR may encourage better product design so that all of the product is used up and there is less waste product remaining that needs proper management and/or manufacturers will provide less toxic alternative products. These and other cost efficiencies may be gained as manufacturers bear responsibility for end-of-life costs for their products. The HHW EPR law requires that as a part of the stewardship program(collection) plan there will be convenient and reasonable access for all Vermonters to collection facilities and events and ANR is tasked with ensuring these requirements and a minimum participation rate are met.

6. **COMMENT:** Are there figures for the number of tons of cans/bottles diverted through the Bottle Bill?
   RESPONSE: Yes, the tonnage of containers processed by TOMRA was added.

7. **COMMENT:** While ANR requires testing for arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, polychlorinated biphenyls (pcbs), they may not require testing for hormones, pharmaceuticals, pfas, viruses, pathogens, dioxins, bisphenol A (bpas), microplastics, or hospital waste. More research and significantly higher testing capabilities needs to occur before promoting "the beneficial use of biosolids".
   RESPONSE: Biosolids testing requirements include pathogens (fecal coliform or salmonella, and in some cases, helminth ova and enteric viruses). The EPA conducts risk assessments of pollutants in sewage sludge. EPA's study of the presence of dioxin in sludge/biosolids and subsequent risk assessment resulted in their decision not to regulate dioxins in land-applied sewage sludge. In October 2020, the Vermont Solid Waste Rules were updated to include testing for PFAS in all biosolids generated in or imported to Vermont, as well as soils and groundwater at certified land application sites. In addition, as of April 2024, Vermont has adopted screening standards for five regulated PFAS in biosolids and short paper fiber. The EPA is currently conducting a risk assessment of two PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), in biosolids.

8. **COMMENT:** There is no mention of the PFAS content in sludge/biosolids and septage. In fact, within the paragraph titled, Diversion in this section, the ANR even admits that not all septage is even partially treated. There is no "beneficial use" of sludge/biosolids and septage. These residual materials are not all non-hazardous, most will contain PFOA or PFOS, which have been identified by the EPA as hazardous substances, and will also contain PFAS, which is known to have detrimental effects on human health. Wastewater from any and all communities will contain PFAS. The current WWTF's in Vermont are incapable of treating wastewater to remove PFAS. There is no acceptable "beneficial reuse" of these hazardous and toxic residuals.
   RESPONSE: Section 2.8 "Markets" discusses PFAS in wastewater treatment and residual materials, including ANR's efforts to mitigate risk associated with land applied biosolids.

9. **COMMENT:** Object to classifying septage as "partially treated". In fact, within the paragraph titled, Diversion in this section, the ANR even admits that not all septage is even partially treated. Septage is dangerous to all living things – humans, wildlife, plants, and contaminates the water. Maybe some septage is partially treated, but that does not make it safe for human consumption. There is no filtration of PFAS from any septage. PFAS is not safe in any amount – and there is no treatment that will remove it. Septage applied to fields growing food for human consumption will contaminate the soil, and the food products will be contaminated from the contaminated soil. It is not safe to eat by any living being.
RESPONSE: Per the Solid Waste Rules, § 6-1306 (u), only domestic septage is allowed to be land applied, after screening and stabilization to reduce pathogens and vector attraction. In October 2020, the Vermont Solid Waste Rules were updated to include monitoring for PFAS in septage for programs certified for land application, as well as soils and groundwater at certified land application sites. Per § 6-1306 (m) of the Solid Waste Rules, crops for human consumption may not be grown on certified, septage land application sites.

10. **COMMENT:** These materials are not capable of any "beneficial use"; the alleged treatments cannot and do not destroy PFAS and will result in the creation of even more concentrated PFAS. Land application results in PFAS contamination of soil, groundwater and air because PFAS partitions to all three. This then spreads PFAS to surface water and private water wells. PFAS spread on the soil will contaminate anything grown on that soil, producing an even higher concentration. Any food products grown in such contaminated soil should not be consumed, and will be banned from being sold because they will contain PFAS. Airborne PFAS can travel and then precipitate up to **3 Kilometers**, or approximately **2 Miles** from the site of application. In order to protect the public health, ANR must not approve any land application of these residuals. There is no "beneficial use" and in fact, such land application will cause detrimental health effects to humans, and any animals who eat the plants, and to the entire food chain.
RESPONSE: Section 2.8 "Markets" discusses PFAS in wastewater treatment and residual materials, including ANR's efforts to mitigate risk associated with land applied biosolids.

11. **COMMENT:** All WWTFs treat residential wastewater, and produce sludge, which is significantly contaminated by residential PFAS. There is no filtration for PFAS. For this reason, wastewater sludge or partially treated septage contain concentrated PFAS and it is detrimental to human health if it is permitted to be recycled to agricultural lands or remediation sites as a soil nutrient source. Current Rules do not address PFAS. Vermont's Solid Waste Policy must be revised to include PFAS, and ban land application AND sludge whether on land, at remediation sites, or at as daily cover in the landfill. Vermont permits the importation of tons of toxic sludge to be deposited or used as cover at the Coventry Landfill. All sludge is significantly contaminated with PFAS, and using as a daily cover allows PFAS to partition to air,

or concentrate in leachate and in runoff. All land applications of "biosolids", sludge and septage regardless of "treatment" is a threat to the health and safety of the public, the environment, natural resources, and domestic and wild animals. There is absolutely no beneficial use of toxic sludge and septage. If Vermont insists on using toxic contaminants in land application, all such applications must be published on ANR's website with detailed descriptions of exactly where such toxicity exists. Not on the permit website, which is extremely difficult for the public to access and understand. Farmers and the general public need to be warned of where their feed and food is coming from, and any food or other plants that come from such contaminated sites must have appropriate warning labels. The WWTF's must be upgraded to treat for these hazardous substances. A WWTF is the most commonsense place to have such treatment available. Vermont must not allow the importation of tons of toxic out of state sludge. Vermont doesn't even know how to dispose of its own sludge, as stated in the next section on **Diversion Status**.
RESPONSE: In October 2020, the Vermont Solid Waste Rules were updated to include testing for PFAS in all biosolids generated in or imported to Vermont, as well as soils and groundwater at certified land application sites. In addition, as of April 2024, Vermont has adopted screening standards for five regulated PFAS in biosolids and short paper fiber. Section 2.8 "Markets" discusses PFAS in wastewater treatment and residual materials, including ANR's efforts to mitigate risk associated with land applied biosolids. Sludge is not imported to Vermont for land application. Exceptionally Quality (EQ) biosolids may only be imported to Vermont after approval by ANR and must adhere to all Vermont rules and PFAS screening standards.

12. **COMMENT:** The primary consideration in the decision to recycle or dispose of residual materials must also include the impact on the public health and safety. Public health and safety must be the primary consideration, before economics, companies, or municipalities. There is no benefit to using biosolids in land application. Any so-called "benefits" are short term, the environmental contamination caused by land application of biosolids is long-term, as in "forever" chemicals such as PFAS, and other contaminants that remain after "treatment".
RESPONSE: The purpose of the Vermont Solid Waste Rules, and procedures for the management of short paper fiber and wood ash are to establish procedures and standards to protect public health and the environment by ensuring the safe, proper, and sustainable management of solid waste in Vermont.

13. **COMMENT:** Tons of sludge are imported from out-of-state. This sludge has been shown to be full of toxic contaminants. ANR can't manage what is produced in-state; and yet it is allowing even more toxic out of- state sludge to be imported. It is deposited in the Coventry landfill, or used as a daily cover, meaning that it is emitting toxics into the air that we breathe, the water that we drink and the food that we eat. And, it is contaminating Lake Memphremagog, which is the drinking water supply of approximately 175,000 Canadians.
RESPONSE: Landfills across the United States accept sludge from municipalities within and outside the State boundaries where they are sited. Sludge and biosolids

are not managed solely on the State level but regionally based on available capacity and beneficial use markets. Surveys of various waste types disposed at the NEWSVT landfill indicate that PFAS is present in many different types of materials, including sludges and textiles. Vermont has and is adopting legislation that ban PFAS in consumer and industrial products, thereby reducing PFAS in waste destined to for the landfill.

14. **COMMENT:** Untreated septage is unacceptable for any use. It contains pathogens, such as E.coli or salmonella, pharmaceuticals, and other hazardous contaminants such as PFAS. ANR must find a way to have ALL septage treated. All WWTFs must have the ability to deal with septage – over half of Vermont residences are on septic systems. Solid Waste Policy must be updated to require a ban on land application and require landfilling of sludge and septage to capture and contain PFAS in order to extensively treat and destroy PFAS to prevent reentry to the environment. Banning the importation of out-of-state sludge would allow more Vermont sludge to be captured in the landfill rather than contaminating Vermont's agricultural lands and consequently the food supply.
RESPONSE: The EPA 503 Rule, *Standards for the Use or Disposal of Sewage Sludge* and Vermont Solid Waste Rules require that septage must be lime stabilized to reduce pathogens and vector attraction prior to land application. There is currently one, certified septage land application in Vermont, therefore, between 96-98% of all septage is hauled to wastewater treatment facilities. ANR has recently conducted a state-wide septage capacity study and the report is available to the public. Since Fall 2023, ANR has been conducting PFAS testing on septage delivered to wastewater facilities.

15. **COMMENT:** When did ANR implement the requirement for PFAS testing of beneficially reused residual materials, and where does the public find the results of this testing? When did ANR implement the requirement for PFAS testing of soils and groundwater at certified land application sites, and where does the public find the results of these tests? When did this testing begin? What is the interim strategy to reduce risk associated with PFAS in land applied residuals? What are the PFAS screening standards? Where is the data that ANR is using in its assessments? What decisions and rules have been made as a result of these assessments? If Vermont insists on using toxic contaminants in land application, all such applications must be published on ANR's website with detailed descriptions of exactly where such toxicity exists. Not on the permit website, which is extremely difficult for the public to access and understand. Farmers and the general public need to be warned of where their feed and food is coming from, and any food or other plants that come from such contaminated sites must have appropriate warning labels.
RESPONSE: On October 31, 2020, the Vermont Solid Waste Rules were updated to include testing for PFAS in all biosolids generated in or imported to Vermont, as well as soils and groundwater at certified land application sites. All PFAS testing data, including testing of sludges and biosolids via studies conducted prior to the Rule

update, is available at the "Wastewater Inventory Website": anrweb.vt.gov/DEC/WWInventory/ListFacilities.aspx

16. **COMMENT:** Below are recommendations that could help bolster Vermont's recycling system. Some of these suggestions may require public policy directives, others may be best implemented by creating incentives or creating guidelines.
    a. **Economic development.** Reframe recyclable items as valuable feedstock which offer potential for reduced landfilling, less waste, and new businesses that create jobs. Work with commerce and economic development departments to develop markets for feedstock.
    b. **Recycling center.** Washington State created a "recycling center." The center facilitates research, but also contracts with third parties to provide direct "marketmaker" activities and directly support the private and public sector. It also has a special focus developing markets by partnering with organizations like The Recycling Partnership to bolster local recycling programs.
    c. **Recycling technology investment.** Consider eliminating barriers or creating incentives for investment in recycling technology. This might include:
    o *Infrastructure investment.* Work with industry, state and local government sources, etc. on directly funding infrastructure build-out and development.
        i. *Demonstration projects.* Based on studies or beliefs where recycling infrastructure could be improved, fund demonstration projects or proof of concepts to confirm feasibility. For example, ACC is a sponsor of a Secondary Sorting Pilot project in the Pacific Northwest.
    d. **Recognition.** Recognize public and private purchase of recycled content through programs sponsored by state and local governments and other nonprofit organizations. EPA assists organizations in developing programs based on EPA's existing programs and guidelines.
    e. **Industry engagement.** Continue industry engagement and engagement with other parts of the value chain.
    f. **Uniform recycling guidelines.** Urge uniform recycling guidelines to reduce consumer confusion, increase recycling efficiencies, and maximize communications, education, and economies of scale for recyclers. This could also be a platform to encourage best practices such as appropriate moisture reduction or making deposits that are recycling system appropriate.
    g. **Collection Infrastructure** ACC and its members support "Five Actions for Sustainable Change" that includes a reasonable extended producer responsibility (EPR) system for packaging. These systems help increase recycling while also helping to generate a consistent supply of quality post-use materials for recycling. Supply side policies like this will be required to develop the infrastructure to collect and process greater volumes of post-use plastics and other materials. A well-designed EPR program for consumer packaging will strengthen the circular economy and help fund infrastructure.

RESPONSE: The Agency has provided several rounds of recycling infrastructure grants to help improve recycling in the state. Vermont also has many successful existing EPR programs.

17. **COMMENT: HHW EPR Law (Act 58 of 2022):** This law requires manufacturers of certain types of solid waste to assist with covering costs for managing those wastes at their end of life. ANR is tasked with developing guidance, managing registration (2025), and implementing a collection plan (2026). ACC's Center for the Polyurethanes Industry (CPI) urges exempting one-component spray foam cans from the HHW program for the following reasons:
    a. Spray foam cans offer an affordable way for consumers to improve the energy efficiency of their homes and living spaces. EPR would cause an increased cost that could deter consumers' use of energy saving materials and thus undermine progress on Vermont's climate goals.
    b. Consumer spray polyurethane foam product one-component cans are typically disposable as nonhazardous household waste when empty due to advances in innovations. 2 3

    RESPONSE: Changes to state statute are the purview of the Vermont General Assembly. ANR's responsibilities under Act 58 are separate and are not relevant to this Materials Management Plan.

18. **COMMENT:** I am wondering why food containers were not included in the single use plastic ban. I have heard so many comments that if we go to the market to buy our groceries, all in plastic, then we legally can't put them in a plastic bag. My recommendation would be to work toward banning plastic as a container. Ie. If you purchase olive oil, it is required by the manufacturer to be in a glass bottle. I know that glass jars are much more reusable than a plastic jar (like the mayonnaise jar) for canning and storage. However, these commonly used items are all in plastic containers. Since we know that only about 6-8% of the plastic recycled actually gets recycled and is usually shipped overseas to end up in rivers and the ocean. Why not force our country's manufacturers to use a container that is better suited for reuse and the environment. The motto for modern RRR should be "stop exporting our pollution). Just because our trash/recycling is in another country or state does not make us environmentally sound.

    RESPONSE: The Single-Use-Products law, written by the Vermont legislature, does prohibit expanded polystyrene food and beverage packaging to be used and sold into the state with a few exceptions (such as meat packaging). Other states are commonly regulating packaging through extended producer responsibility laws that can provide incentives for more sustainable and recyclable packaging.

3 ANR Strategies and Actions

A-1 ANR Strategy – Rules, Procedures, Policies, and Guidance

A-1.1 – Solid Waste Management Rules:

No comments received on this section.

A-1.2 – Solid-Waste Related Guidance, Policies, and Procedures:

No comments received on this section.

A-2 ANR Strategy – Permitting

A-2.1 – Solid Waste Facility Certifications

No comments received on this section.

A-2.2 – Solid Waste Hauler Permits

No comments received on this section.

A-3 ANR Strategy – Compliance

A-3.1 – Solid Waste Facility and Hauler Compliance

No comments received on this section.

A-3.2 – Waste Generator Compliance

1. **COMMENT:** Once a year is not a "periodic" spot-check. It is NOT a spot-check. Loads should be checked once per week or at least twice per month. Otherwise, it is meaningless.
   RESPONSE: ANR's goal is to conduct twice per year spot-checks of waste loads. Previously there were no load inspections in the MMP.

A-3.3 – Extended Producer Responsibility (EPR) Program Compliance

No comments received on this section.

A-4 ANR Strategy – Outreach

A-4.1 – MMP Publicity

No comments received on this section.

A-4.2 – Waste Reduction

1. **COMMENT:** Waste reduction cannot be achieved without updating the SW Policy. The current privately owned model prioritizes landfilling; whereas a publicly owned solid waste facility could prioritize reduction, reuse and recycling over landfilling.
   RESPONSE: Vermont's waste streams are the accumulation of individual actions by Vermont businesses, institutions, and residents. Through this next MMP, ANR plans to initiate a stakeholder process for Vermont disposal capacity of the future. This will be the venue for these discussions.

A-4.3 – Equity and Accessibility

No comments received on this section.

A-4.4 – Solid Waste Program Website

No comments received on this section.

A-4.5 – Outreach Materials

No comments received on this section.

A-4.6 – General Outreach

No comments received on this section.

A-4.7 – Direct Business and Institution Outreach

1. **COMMENT:** Reducing and safely managing hazardous waste must include PFAS. Any collection options under must also include PFAS containing products.
   RESPONSE: Liquid PFAS products that are determined to be a hazardous waste are incorporated into the HHW EPR collection program (under Act 58 of 2023) for certain generators of this waste.

2. **COMMENT:** Follow up on complaints is not "outreach". Complaints must be handled as they occur, investigated and reported on.
   RESPONSE: ANR follows up on complaints as they occur with the goal to reach compliance of any potential violations. If the outreach team is not able to achieve voluntary compliance, a complaint will be passed over to the compliance team.

A-4.8 – School Outreach

1. **COMMENT:** How will ANR ensure schools have information on waste reduction, recycling, organics diversion, and landfill ban disposal requirements?
   RESPONSE: While ANR will annually contact the Agency of Education, Principals' Association, and Superintendents' Association and present at school related conferences. ANR cannot know whether or not waste management information is reaching all individual schools in Vermont.

A-4.9 – State Building Outreach

1. **COMMENT:** Add "And products containing PFAS." These are just a few sections in which we have identified the need to include PFAS when referring to hazardous, special or other types of waste. The entire Plan should be reviewed to be sure that references to PFAS are included in every section that references hazardous, special or other distinct types of waste, including all mitigation, storage and disposal plans. As we have stated, PFAS is dangerous to human health, and to the environment as a "forever" chemical.
   RESPONSE: In response to comments like this, the Agency has added "emergent topics of concern, such as PFAS…" in at least one additional location in the MMP. There are simply too many contaminants of concern to list them all in all forms of outreach.

A-5 ANR Strategy – Technical Assistance and Collaborations

A-5.1 – Markets, Policy, and Emerging Solutions to Waste Challenges

No comments received on this section.

A-5.2 – Disaster Preparedness

No comments received on this section.

A-5.3 – Infrastructure
No comments received on this section.

A-5.4 – Construction and Demolition Debris
No comments received on this section.

A-5.5 – Networks and Collaborations
No comments received on this section.

A-5.6 – Technical Assistance and Trainings
No comments received on this section.

A-6 ANR Strategy – Grant Funding

A-6.1 – Grants
No comments received on this section.

A-7 ANR Strategy – Data and Reports

A-7.1 – Diversion and Disposal Reports
No comments received on this section.

A-7.2 – Legislative Reports
No comments received on this section.

A-7.3 – Disposal Capacity Stakeholder Process
1. **COMMENT:** Please specify representation of stakeholders in that process, to include citizen representation, and omit participation by corporate solid waste entities with potential to gain monetarily from decisions made in this process. This process must begin as soon as possible, 5 years is too long to wait to initiate this process.
   RESPONSE: ANR intends to begin this process in year 1 of the MMP term and be as inclusive of stakeholders that wish to join as possible.

4 SWME Requirements

4.1 Solid Waste Implementation Plan and Approval Process

4.1.1 Minimum SWIP requirements:
No comments received on this section.

4.1.2 SWIP Approval Process:
No comments received on this section.

5 SWME Strategies and Actions

S-1 SWME Strategy: Data and Reporting

S-1.1 – Disposal and Diversion Reporting

No comments received on this section.

S-2 SWME Strategy: Outreach

S-2.1 – Accessible Communications

1. **COMMENT:** Is this really needed? All SWMEs have websites and those websites are reviewed yearly by ANR. Any issues would be brought up at that time. This seems like additional work without much additional benefit.
   RESPONSE: This requirement is simply for training; ANR is not currently holding SWMEs to any accessibility standards in their websites or other materials. However, ANR wants to acknowledge the importance of accessible communications and is aware that current SWME websites and other communication efforts are highly variable in how accessible they are. The hope is that increased awareness of accessibility best practices will lead to improved websites and other materials.

S-2.2 – SWME Materials Management Website

1. **COMMENT:** A-Z Recycling Guide - An address and phone number on each of the materials listed is not needed or applicable. Materials like aluminum cans, pie plates, and foil, appliances, batteries, cardboard, and electronics, glass bottles and jars and many others have ongoing collections that do not require addresses and phone numbers.
   RESPONSE: The goal with this requirement is to make it so a new resident could go to the A-Z guide, look up any material, and have all the information they needed to know exactly where to bring it. This could look like full contact info for collection sites in individual A-Z guide entries or it could look like embedded hyperlinks such as an entry that said "cardboard can be put in curbside or fast trash mixed recycling or brought to any district recycling center" with the words "recycling center" linked to a page that listed full contact info for the recycling centers. The ANR A-Z Waste and Recycling Guide Minimum Requirements document will include examples on how to meet this requirement.

S-2.3 – Digital Outreach

No comments received on this section.

S-2.4 – Print Outreach

No comments received on this section.

S-2.5 – Municipality and Facility Connections

1. **COMMENT:** Libraries can be a great way to help get the word out, but to require the type of contact that is being requested seems unreasonable and adds unnecessary

additional burden onto the libraries and the SWMEs. Large SWMEs have a significant number of libraries. Many libraries are in very rural areas and are not open every day or all day. Some only have limited night-time hours. An email list-serve to get information out to the libraries seems to satisfy the requirement. Libraries could be added to yearly business outreach goals.
RESPONSE: Yes, an annual email to all libraries in a SWME region would meet the requirement (although in-person visits or phone calls would be encouraged). This requirement is separate from business outreach because the primary purpose is to develop relationships between SWMEs and libraries.

S-2.6 – School Outreach

1. **COMMENT:** Since ANR has the authority to visit schools and ascertain compliance, and the Superintendent and Principals Association will have the information to distribute, and the SWMEs do not have authority to require access to the schools, why does this need to be a requirement placed on the SWME's?
   RESPONSE: ANR has made some modifications to this requirement in the MMP in response to comments. The MMP makes it clear that SWMEs must attempt in-person school outreach. If the school rejects that contact, the SWME can notify ANR and interact with the school via phone, email, or video calls instead and still be compliant with their SWIP Reporting actions. ANR staff do not have the capacity to conduct sufficient in-person school outreach throughout the state. Moreover, since SWMEs are the local waste management experts, it is important for SWMEs to have the opportunity to develop relationships with their local schools.

2. **COMMENT:** "In Section S-2.6(B)(v), change sentence to read: 'How to responsibly manage hazardous waste.'
   RESPONSE: Change made.

3. **COMMENT:** Section S-2.6(F), change the first sentence to read: 'One of the primary roles of a SWME is waste reduction, diversion, and hazardous waste reduction outreach and assistance.'
   RESPONSE: Change made.

4. **COMMENT:** request to look at removing the in - person school outreach. The requirements are fine, but the in-person makes this extremely difficult if not impossible to fulfill. SWMEs can attempt to provide information and outreach and should be required to document attempts, but in-person outreach should not be a requirement. In addition, with schools experiencing safety and security concerns, many schools are reluctant to allow outsiders into their schools. SWMEs have no authority to require schools to allow entry or provide and request information from them. The agency should not be asking SWMEs to ask schools to further compromise school safety.
   RESPONSE: Clarified the requirement so that phone calls, video calls, or emails (with responses) could count if initial attempts at in-person outreach are unsuccessful.

5. **COMMENT:** ANR will be working with the Principal's Association and Superintendent's Association and providing educational materials to them for distribution. By doing so, consistent information will be provided to each school.
   RESPONSE: Providing information to associations and hoping that the information will reach and be acted upon by individual school administrators and staff is not as effective as actually visiting schools and having conversations with key administrators and staff.

6. **COMMENT:** ANR should consider hiring one FTE to gather the information they are requesting.
   RESPONSE: ANR staff also conducts school outreach and is available to assist SWMEs with school outreach, upon request. Creating new state employee positions is difficult and requires an extensive approval process, in addition to funding.

7. **COMMENT:** providing the checklist information to ANR is analogous to the SWMEs providing enforcement data to ANR (even though ANR says they don't use it that way). This is an unreasonable request.
   RESPONSE: ANR requires SWMEs to report on business outreach to ensure that there is a minimum level of business outreach occurring statewide. ANR does not use outreach documentation in SWIP reports as enforcement information for individual schools or businesses.

8. **COMMENT:** it is not only important to support schools in having effective waste reduction and diversion programs in place, but it is also important to educate those involved in utilizing those systems, which is where education for students and teachers comes in (particularly for food waste, trash, and recycling in cafeterias and classrooms). Otherwise, you risk having a school community with proper systems in place, but without the knowledge to use them effectively in waste separation and diversion. Taking the aforementioned into consideration, I think it makes sense, from a SWIP perspective, that student and teacher education should be recognized for the value it provides and should count toward meeting SWIP requirements for school outreach. More education for our children on why RRR is so important! We need to make sure the next generation picks up the baton and keeps working towards better ways. Education is key!!
   RESPONSE: ANR agrees that classroom outreach is valuable and encourages SWMEs to work with students and teachers as a supplement to outreach with school administrators and facilities staff. The minimum requirement of the MMP, is to ensure all schools have diversion systems in place and that those systems are working well.

S-2.7 – Business Outreach

1. **COMMENT:** Although it is estimated that there are 80 businesses within the LSWG making it more than 20, I have visited much of the businesses over the last SWIP period. I also question the 80 businesses. I asked that there be some kind of waiver. We are in a very rural part of the state and have been losing businesses due to flooding, lack of a waste water system and lack of housing and help.

RESPONSE: In response to comments ANR has reduced the annual business outreach requirement for entities with fewer than 1000 businesses from 20 to 15. We also removed the sentence about SWMEs with fewer than 20 businesses as it was confusing and did not apply to many entities.

S-3 SWME Strategy: Collection Infrastructure

S-3.1 – Variable Rate Pricing

1. **COMMENT:** ANR should ensure haulers are meeting variable rate pricing requirements not the SWMEs. ANR should require haulers to certify compliance when they renew or apply for their hauler licenses.
   RESPONSE: According to statute 24 V.S.A. §2202a(d), municipalities are responsible for implementing the variable rate pricing system, not ANR: "by no later than July 1, 2015, a municipality shall implement a variable rate pricing system that charges for the collection of municipal solid waste from a residential customer for disposal based on the volume or weight of the weight of the waste collected."

S-3.2 – HHW Collection Facilities and Events

No comments received on this section.

S-3.3 – Collection of Landfill/Disposal-Banned and Dangerous Materials

No comments received on this section.

S-3.4 – Disaster Debris Plan

1. **COMMENT:** The Department of Public Safety requires all towns to have an emergency management plans and update that plan annually. FEMA funds are applied for by the town not the SWME. (b) - Are transfer stations considered Certified under FEMA as a disaster debris management area? What would other debris tracking methods entail? Please define.
   RESPONSE: SWMEs are also municipalities that can apply for FEMA Public Assistance. CVSWMD was an example of this after the 2023 flood. Transfer stations that are certified by ANR-DEC have been acceptable to FEMA. Most town transfer stations are too small to handle the capacity of disaster debris management, as they typically only have the capacity for day-to-day MSW. For FEMA reimbursement, debris tracking needs to be from cradle to grave. ANR is already working collaboratively with the Department of Public Safety-Vermont Emergency Management on the design of these Disaster Debris Plans. More information and training will be made available and SWME/Municipal input can be given that can improve this planning process.

S-3.5 – Clean Wood and Inert Debris Management Sites

No comments received on this section.

S-3.6 – Collection of Textiles

No comments received on this section.

S-4 SWME Strategy: Residuals Management

S-4.2 – Residuals Management Meetings

No comments received on this section.

From: Esther Fishman <RECYCLE@londonderryvt.org>
Sent: Wednesday, May 22, 2024 12:45 PM
To: Eiklor, Alyssa (she/her)
Subject: Re: [ANR-SWME] comments for Draft MMP due 3-8-24

Importance: High

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Good afternoon Alyssa,

I haven't heard any followup from the SWMEA's comments about the MMP yet. I know you already have my comments about the number of outreach requirements in that doc. To emphasize my comments I wanted to let you know that 2 of the 3 schools in my SWME have closed as well a 3 more businesses that I can think of off the top of my head. Please add my additional comments to the mix if possible.

Thanks
Esther

Esther Fishman
Recycling Coordinator
Londonderry Solid Waste Group
100 Old School Street
South Londonderry, VT 05155
PH 802-824-3356-O (sporadic)
PH 802-824-3306-H
recycle@londonderryvt.org
www.londonderryvt.org

> On Feb 29, 2024, at 11:42 AM, Eiklor, Alyssa (she/her) <Alyssa.Eiklor@vermont.gov> wrote:
>
> Dear Solid Waste Management Entities,
>
> This is a reminder that **written comments on the Draft 2024 MMP are due** to alyssa.eiklor@vermont.gov by **Friday March 8th, at 4:00 PM**.
>
> You can review and download the Draft 2024 MMP and a summary of its key changes from the 2019 MMP on the Planning page of our website. This is a **preliminary** public comment period. Agencies and Departments frequently provide preliminary public comment periods to ensure feedback is received early in the rulemaking drafting process.
>
> A second public comment period will take place once the draft has gone through the ICAR (Interagency Committee on Administrative Rules) process and been officially posted by the Secretary of the State. During this public comment period, the DEC Solid Waste Management Program will also hold two public meetings where anyone can comment in-person.
>
> Please let me know if you have any questions about the process. As always, we greatly appreciate your feedback.

Sincerely,
Alyssa Eiklor

Alyssa Eiklor | Environmental Analyst (she/her)
Vermont Agency of Natural Resources | Department of Environmental Conservation
Waste Management and Prevention Division, Solid Waste Program
1 National Life Dr, Davis 1 | Montpelier, VT 05620-3520
802-477-2097 cell
alyssa.eiklor@vermont.gov | VTrecycles.com | Facebook | Instagram

Please note that I work Monday-Thursday

The Agency of Natural Resources supports telework, and there are times when I may be working from another office location. You can reach me by phone and email, or request an in-person meeting.

ANR-SWME mailing list
ANR-SWME@list.vermont.gov
https://list.vermont.gov/mailman/listinfo/anr-swme

From: Esther Fishman <RECYCLE@londonderryvt.org>
Sent: Monday, July 22, 2024 5:38 PM
To: Eiklor, Alyssa (she/her)
Cc: Solid Waste Management Entities
Subject: Re: [ANR-SWME] clarification on preliminary MMP comments

Importance: High

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Okay, Alyssa,

Here I go again. This piece of the MMP is of great concern for the LSWG:Although it is estimated that there are 80 businesses within the LSWG making it more than 20, I have visited much of the businesses over the last SWIP period. I also question th 80 businesses. I asked that there be some kind of waiver. We are in a very rural part of the state and have been losing businesses due to flooding, lack of a waste water system and lack of housing and help. Please revisit this request.

1.

i.

S-2.7 – Business Outreach

To ensure businesses and institutions (hospitals, nursing homes, colleges, correctional facilities, and other large waste generators) understand the requirements of the Universal Recycling law, state disposal bans, how to reduce waste, reuse, recycle, compost, donate, and safely manage materials responsibly; and that waste reduction and diversion programs are being implemented effectively, SWMEs must:

A. SWMEs must conduct business outreach and education either **in person or via phone** to at **least 2% or 20 businesses/institutions (whichever is greater)** within their jurisdiction each year.

   i. The number of businesses in a SWME region may be estimated by the Department of Labor list (provided by ANR in Year 1 of the MMP term), or a SWME may use a different method that meets ANR approval.

Esther Fishman
Recycling Coordinator
Londonderry Solid Waste Group
100 Old School Street
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On Jul 22, 2024, at 12:57 PM, Eiklor, Alyssa (she/her) <Alyssa.Eiklor@vermont.gov> wrote:

Dear SWMEs,

I just learned that there is some confusion regarding the different drafts of the Materials Management Plan and the preliminary comments vs the official comment period.

The draft of the 2024 MMP that is available on our Planning Page is newer than the draft that you all had the opportunity to review during the preliminary comment period; we made some changes based on the preliminary comments.

The SWME Q&A document that is on the Planning page is a summary of the Feb 21st SWME Q&A meeting, and is **not** a responsiveness summary of all of the preliminary comments.

We will have a responsiveness summary of the preliminary comments, but it is not finalized yet.

We will also have a responsiveness summary of all comments received in the official comment period, which ends tomorrow (this comment period and responsiveness summary are required; the preliminary comment period and responsiveness summary were not required).

If you look at the current draft MMP and feel like we did not make the changes that you were hoping to see, you are welcome to submit a new comment (or resubmit your previous comment) by 4:00 PM tomorrow (Tuesday July 23, 2024). There are a lot of factors that go into finalizing the MMP, but we truly appreciate your perspectives and value all of the work that you do.

Thank you for your patience and I'm so sorry about any lack of clarity on my part!
Best,
Alyssa

Alyssa Eiklor | Environmental Analyst (she/her)
Vermont Agency of Natural Resources | Department of Environmental Conservation
Waste Management and Prevention Division, Solid Waste Program
1 National Life Dr, Davis 1 | Montpelier, VT 05620-3520
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Please note that I work Monday-Thursday

The Agency of Natural Resources supports telework, and there are times when I may be working from another office location. You can reach me by phone and email, or request an in-person meeting.

From: Town Clerk Town of Sheffield VT <sheffieldvttownclerk@gmail.com>
Sent: Friday, June 7, 2024 9:50 AM
To: Eiklor, Alyssa (she/her)
Subject: Re: Public Comment Period for 2024 Materials Management Plan ends July 19, 2024

Good Morning-

Thank you for sending out this draft management plan. I found it to be quite interesting. Especially the increase in plastics usage. I am wondering why food containers were not included in the single use plastic ban. I have heard so many comments that if we go to the market to buy our groceries, all in plastic, then we legally can't put them in a plastic bag. My recommendation would be to work toward banning plastic as a container. Ie. If you purchase olive oil, it is required by the manufacturer to be in a glass bottle. I know that glass jars are much more reusable than a plastic jar (like the mayonnaise jar) for canning and storage. However, these commonly used items are all in plastic containers. Since we know that only about 6-8% of the plastic recycled actually gets recycled and is usually shipped overseas to end up in rivers and the ocean. Why not force our country's manufacturers to use a container that is better suited for reuse and the environment. The motto for modern RRR should be "stop exporting our pollution). Just because our trash/recycling is in another country or state does not make us environmentally sound.

I will aso state that more education for our children on why RRR is so important! We need to make sure the next generation picks up the baton and keeps working towards better ways. Education is key!!

Best Regards,

Erika Lavallee

Sheffield Town Clerk / Treasurer

sheffieldvttownclerk@gmail.com

37 Dane Rd

PO Box 165

Sheffield VT 05866-0165

Phone 802-626-8862

Fax 802-626-0424

Regular Office Hours

Monday and Friday 9 am to 3 pm, Wednesday 9am to 6 pm

Please note that this email message, along with any response or reply, is considered a public record, and thus, subject to disclosure under the Vermont Public Records Law (1 V.S.A. §§ 315-320).

On Thu, Jun 6, 2024 at 3:08 PM Eiklor, Alyssa (she/her) <Alyssa.Eiklor@vermont.gov> wrote:

> Dear Town Clerks,
>
> (thank you for your understanding if you receive this email more than once)
>
> The Department of Environmental Conservation (DEC) DRAFT 2024 Materials Management Plan (MMP) is posted on the Secretary of State List of Proposed Rules (number 24P019) for public comment. Please submit comments to Alyssa Eiklor (Alyssa.eiklor@vermont.gov by **4:00 PM on Friday, July 19, 2024.**
>
> You can review and download the Draft 2024 MMP and a summary of its key changes from the 2019 MMP on the Planning page of our website.
>
> **Public meetings will be held:**
>
> - Monday July 8, 2024, 2:30 PM. Dill Building, Room 135. 2178 Airport Rd, Unit B, Berlin.
> - Wednesday July 10, 2024, 7:00 PM. Virtual, through Microsoft Teams (calendar invite attached).
> - Thursday, July 11, 2024, 6:00 PM. St. Johnsbury Welcome Center, 51 Depot Square, St. Johnsbury.
>
> Please let me know if you have any questions. We greatly appreciate your feedback.
>
> Sincerely,
> Alyssa
>
> **Alyssa Eiklor** | Environmental Analyst (she/her)
> Vermont Agency of Natural Resources | Department of Environmental Conservation
> Waste Management and Prevention Division, Solid Waste Program
> 1 National Life Dr, Davis 1 | Montpelier, VT 05620-3520
> 802-477-2097 cell
> alyssa.eiklor@vermont.gov | VTrecycles.com | Facebook | Instagram
>
> *Please note that I work Monday-Thursday*
>
> *The Agency of Natural Resources supports telework, and there are times when I may be working from another office location. You can reach me by phone and email, or request an in-person meeting.*

From: Solid Waste Alliance Communities <solidwastealliancecommunities@gmail.com>
Sent: Wednesday, July 10, 2024 7:29 PM
To: Eiklor, Alyssa (she/her)
Subject: Resubmitted comments
Attachments: Draft MMP comments 2024.pdf

Hi Alyssa:

I'm just re-submitting my comments.

Thanks.

–
Pam

Pamela Lavoie Clapp, Administrator
Solid Waste Alliance Communities
www.rutlandcountyswac.org
802-342-5701

Draft MMP Comments
2024

Page 13 under 1.6 first paragraph "individual access to information and services for waste reduction, recycling and safe management can be hindered by barriers such as geography, socio-economic restrictions, English language proficiency, physical disabilities and situational disabilities".

There are physical and situational disabilities that happen at the transfer station all the time. There needs to be a balance between safety and access. Insurance carriers require barriers so people do not get hurt or fall into different areas. These barriers sometimes require a person to lift a 30 pound or heavier trash bag up over a gate/barrier 3-4 feet high. Many people are not able to do that or require assistance.

2. Markets and Facilities Assessment - 2.1 Recyclables - The cost to recycle has more than doubled in the last few years making doing the right thing extremely cost prohibitive.

Where are the two anaerobic digesters that have been permitted but not built?

2.4 HHW - Does ANR have rationale as to why hhw collection totals went from 983.5 tons in 2021 to 689.5 tons in 2022?

What is the difference in participation rates for permanent versus one day collections?

HHW EPR Law - How will this program impact participation rates and accessibility and lower the cost of hhw collection?

2.5.5 Are there figures for the number of tons of cans/bottles diverted through the Bottle Bill?

2.8 Biosolids, Sludge, Septage, and Residuals - While ANR requires testing for arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, polychlorinated biphenyls (pcb's), they may not require testing for hormones, pharmaceuticals, pfas, viruses, pathogens, dioxins, bisphenol A (bpa's), microplastics, or hospital waste. More research and significantly higher testing capabilities needs to occur before promoting "the beneficial use of biosolids".

A-4.8 - School Outreach - A. How will ANR ensure schools have information on waste reduction, recycling, organics diversion, and landfill ban disposal requirements? Since ANR has the authority to visit schools and ascertain compliance, and the Superintendent and Principals Association will have the information to distribute, and the SWMEs do not have authority to require access to the schools, why does this need to be a requirement placed on the SWME's?

S-2.1 - Accessible Communications - Is this really needed? All SWMEs have websites and those websites are reviewed yearly by ANR. Any issues would be brought up at that time. This seems like additional work without much additional benefit.

S-2 SWME Strategy: DATA and REPORTING - S-2.2 - SWME Materials Management Website - Biii. A-Z Recycling Guide - An address and phone number on each of the materials listed is not needed or applicable. Materials like aluminum cans, pie plates, and foil, appliances, batteries, cardboard, and electronics, glass bottles and jars and many others have ongoing collections that do not require addresses and phone numbers.

S-2.5 - Community Outreach - Libraries can be a great way to help get the word out, but to require the type of contact that is being requested seems unreasonable and adds unnecessary additional burden onto the libraries and the SWMEs. Large SWMEs have a significant number of libraries. Many libraries are in very rural areas and are not open every day or all day. Some only have limited night-time hours. An email list-serve to get information out to the libraries seems to satisfy the requirement. Libraries could be added to yearly business outreach goals.

S-2.6 - School Outreach - ANR will be working with the Principal's Association and Superintendent's Association and providing educational materials to them for distribution. By doing so, consistent information will be provided to each school. SWMEs have no authority to require schools to allow entry or provide and request information from them. ANR should consider hiring one FTE to gather the information they are requesting. SWMEs can attempt to provide information and outreach and should be required to document attempts, but in-person outreach should not be a requirement. In addition, providing the checklist information to ANR is analogous to the SWMEs providing enforcement data to ANR (even though ANR says they don't use it that way). This is an unreasonable request. In addition, with schools experiencing safety and security concerns, many schools are reluctant to allow outsiders into their schools. The agency should not be asking SWMEs to ask schools to further compromise school safety.

INFRASTRUCTURE S-3.1 – Variable Rate Pricing To encourage waste reduction, SWMEs must: A. Implement a variable rate pricing system that charges for the collection of municipal solid waste from a residential customer for disposal based on the volume or weight of the waste collected. SWMEs may elect to establish licensing or registration programs to accomplish this requirement and can refer to the Variable Rate Pricing Guide for more

ANR should require haulers to certify compliance when they renew or apply for their hauler licenses.

S-3 SWME Strategy: Collection Infrastructure - Documentation in Annual SWIP Report - ANR should ensure haulers are meeting variable rate pricing requirements not the SWMEs.

S-3.4 - Disaster Debris -

C - The Department of Public Safety requires all towns to have an emergency management plans and update that plan annually. FEMA funds are applied for by the town not the SWME.

(b) - Are transfer stations considered Certified under FEMA as a disaster debris management area? What would other debris tracking methods entail? Please define.

From: Solid Waste Alliance Communities <solidwastealliancecommunities@gmail.com>
Sent: Tuesday, July 23, 2024 9:30 AM
To: Eiklor, Alyssa (she/her)
Subject: Re: [ANR-SWRecyCo] clarification on preliminary MMP comments

Alyssa, I'd like to re-iterate my request to look at removing the in - person school outreach. The requirements are fine, but the in-person makes this extremely difficult if not impossible to fulfill.

Thank you.

Pam

On Tue, Jul 23, 2024 at 6:28 AM Eiklor, Alyssa (she/her) <Alyssa.Eiklor@vermont.gov> wrote:

> I got permission to share the track-changes version. Hope it's helpful!
>
> Best,
> Alyssa
>
> **Alyssa Eiklor** | Environmental Analyst (she/her)
> Vermont Agency of Natural Resources | Department of Environmental Conservation
> Waste Management and Prevention Division, Solid Waste Program
> 1 National Life Dr, Davis 1 | Montpelier, VT 05620-3520
> 802-477-2097 cell
> alyssa.eiklor@vermont.gov | VTrecycles.com | Facebook | Instagram
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>
> ---
>
> **From:** Solid Waste Alliance Communities <solidwastealliancecommunities@gmail.com>
> **Sent:** Monday, July 22, 2024 4:35 PM
> **To:** Eiklor, Alyssa (she/her) <Alyssa.Eiklor@vermont.gov>
> **Subject:** Re: [ANR-SWRecyCo] clarification on preliminary MMP comments
>
>
>
> By any chance, do you have a cheat sheet? (:
>
> On Mon, Jul 22, 2024 at 1:27 PM Eiklor, Alyssa (she/her) <Alyssa.Eiklor@vermont.gov> wrote:
>
> > Hi Pam,
> >
> > Here's the draft from the preliminary comment period so you can compare the two side-by-side.
> >
> > Hope this helps!
> > Alyssa
> >
> > **Alyssa Eiklor** | Environmental Analyst (she/her)
> > Vermont Agency of Natural Resources | Department of Environmental Conservation
> > Waste Management and Prevention Division, Solid Waste Program

1 National Life Dr, Davis 1 | Montpelier, VT 05620-3520
802-477-2097 cell
alyssa.eiklor@vermont.gov | VTrecycles.com | Facebook | Instagram

Please note that I work Monday-Thursday

The Agency of Natural Resources supports telework, and there are times when I may be working from another office location. You can reach me by phone and email, or request an in-person meeting.

From: Solid Waste Alliance Communities <solidwastealliancecommunities@gmail.com>
Sent: Monday, July 22, 2024 1:33 PM
To: Eiklor, Alyssa (she/her) <Alyssa.Eiklor@vermont.gov>
Cc: ANR-SWRecyCo@list.vermont.gov
Subject: Re: [ANR-SWRecyCo] clarification on preliminary MMP comments

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Alyssa, is there a document that shows the changes from the "old" version we reviewed to the newer version?

Thanks.

Pam

Pamela Lavoie Clapp, Administrator
Solid Waste Alliance Communities
www.rutlandcountyswac.org

On Mon, Jul 22, 2024 at 9:58 AM Eiklor, Alyssa (she/her) <Alyssa.Eiklor@vermont.gov> wrote:

> Dear SWMEs,
>
> I just learned that there is some confusion regarding the different drafts of the Materials Management Plan and the preliminary comments vs the official comment period.
>
> The draft of the 2024 MMP that is available on our Planning Page is newer than the draft that you all had the opportunity to review during the preliminary comment period; we made some changes based on the preliminary comments.
>
> The SWME Q&A document that is on the Planning page is a summary of the Feb 21st SWME Q&A meeting, and is **not** a responsiveness summary of all of the preliminary comments.
>
> We will have a responsiveness summary of the preliminary comments, but it is not finalized yet.
>
> We will also have a responsiveness summary of all comments received in the official comment period, which ends tomorrow (this comment period and responsiveness summary are required; the preliminary comment period and responsiveness summary were not required).
>
> If you look at the current draft MMP and feel like we did not make the changes that you were hoping to see, you are welcome to submit a new comment (or resubmit your previous comment) by 4:00 PM tomorrow (Tuesday July 23, 2024). There are a lot of factors that go into finalizing the MMP, but we truly appreciate your perspectives and value all of the work that you do.

Thank you for your patience and I'm so sorry about any lack of clarity on my part!
Best,
Alyssa

Alyssa Eiklor | Environmental Analyst (she/her)
Vermont Agency of Natural Resources | Department of Environmental Conservation
Waste Management and Prevention Division, Solid Waste Program
1 National Life Dr, Davis 1 | Montpelier, VT 05620-3520
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Please note that I work Monday-Thursday

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–
Pam

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802-342-5701

From: Ed Stanak <stanakvt@gmail.com>
Sent: Thursday, July 11, 2024 1:36 PM
To: Eiklor, Alyssa (she/her)
Subject: Draft Materials Management Plan
Attachments: ES&MMPlan.pdf

Alyssa-

Attached is a written version of the verbal comments I provided at the WMPD public meeting on July 8th at the VTRANS Dill Building in Berlin.

Ed Stanak
802-479-1931

Draft 2024 Vermont Materials Management Plan
Agency of Natural Resources
Department of Environmental Conservation
Waste Management and Prevention Division

Comments of Ed Stanak

(The following is a written version of comments provided verbally at the July 8, 2024 WMPD public meeting at the VTRANS Dill Building in Berlin, Vermont)

By way of introduction my name is Ed Stanak and I am a resident of Barre City. My perspective on the draft Materials Management Plan is based on both my role as a former Act 250 District Coordinator and ,in retirement, as a person who has been involved over the last 6 years in the grassroots organization up in the Northeast Kingdom known as "Don't Undermine Memphremagog's Purity" (DUMP), which is committed to protecting the watershed of Lake Memphremagog.

As a former state employee, I was deeply involved in the regulation (ie familiarity with all applicable Vermont statutory and regulatory provisions) of the now closed unlined landfill facility in East Montpelier ((including a proposal for a lined facility at the same site) and the lined landfill facility in Moretown. As a member of DUMP, I have experienced firsthand the lack of efficacy of State regulatory reviews and enforcement oversight regarding the NEWSVT Inc. landfill operation in the Town of Coventry. Having said that, I recognize that this meeting is not an appropriate forum for a detailed critique of the State's track record concerning the facility in Coventry on the shore of Lake Memphremagog.

My comments are not intended in any way to be a criticism of the staff of the WMPD or other divisions within the ANR. I have high regard for the work performed by the rank and file employees of the ANR on behalf of the public interest.

I have reviewed online the draft Materials and Management Plan. The draft Plan should be tabled and further action postponed. The plan is premised on the outdated 37 year old State policy on solid waste management found in 10 VSA Chapter 159, specifically the provisions of 10 VSA 6601.

The State policy was enacted in a past era and the intent back then was that municipalities would have the primary role [See 10 VSA 6601(e)]. The policy was the result of the idealistic goals of (and viewed through the "rose colored" glasses worn by) the General Assembly back in 1987. The current circumstances involving all aspects of the realities of actual "waste management and prevention" efforts in Vermont are vastly different from the underlying premises of the antiquated State policy.

Because of the failure to implement the 1987 State policy - and there are many reasons for this- the private sector has stepped into the resulting vacuum. More to the point, a single corporate

entity operates the sole landfill facility in the Green Mountains and the volume of out of state wastes (including WWTF sludge and other nonhousehold wastes) being imported to that facility increases almost daily. Efforts to reduce the waste stream in Vermont are anemic at best.

The effect of the lack of a meaningful State solid waste management policy has resulted in a default "out of sight, out of mind" attitude by most Vermont urban residents toward the disposal of wastes. The legislature has recently enacted provisions that will supposedly foster environmental justice. The net effect of the *status quo* approach to wastes in Vermont is that the landfill operation in Coventry is a poster child of environmental injustice, as evidenced by the burdens endured by the people of the rural Northeast Kingdom.

Many legislators and environmental advocates in 1987 thought that Act 78 (subsequently codified as 10 VSA Chapter 159) would obviate the effects of the US Supreme Court's 1978 decision in City of Philadelphia v State of New Jersey holding that solid waste disposal is protected by the interstate commerce clause of the Constitution. The idea in 1987 was that municipal facilities would ensure both the safeguarding of the capacity of landfill facilities and prevent importation of out of state wastes. Other states are now acting boldly to consider state owned and operated facilities for these very same reasons.

Suffice to say that the day to day "real world" generation and disposal of wastes in Vermont are untethered from the existing State policy. It makes no sense to proceed with proverbial "blinders on" on to adopt a new Materials Management Plan that relies upon a State policy that is disconnected from actual practices. In closing, I suggest that the WMPD cease any further action on the draft plan and instead prepare to present data and recommendations to the 2025-2026 General Assembly that will result in the enactment of an updated State solid waste policy appropriate for the challenges facing Vermont in the early 21st century.

Dated at Barre City Vermont, July 11, 2024.

From: DeSantis, Erin <Erin_DeSantis@americanchemistry.com>
Sent: Thursday, July 18, 2024 3:11 PM
To: Eiklor, Alyssa (she/her)
Cc: Gorman, Margaret; Ali, Raza; Linsk, Abigail
Subject: American Chemistry Council Comments on the VT Materials Management Plan
Attachments: 071824_ ACC Comments. 2024 VT Materials Management Plan. Final.pdf

Good Afternoon,

The American Chemistry Council appreciates the chance to submit comments on the proposed 2024 Vermont Draft Materials Management Plan. Please feel free to reach out with questions or if you need additional information.

Thank you.

Erin DeSantis | American Chemistry Council
Director, Northeast Region
erin_desantis@americanchemistry.com
54 State Street, #304 | Albany, NY | 12207
O: 518-432-7835
C: 518-598-6599
www.americanchemistry.com

Mr. Josh Kelly
Agency of Natural Resources, State of Vermont
1 National Life Drive, Davis 1
Montpelier, Vermont 05620

July 19, 2024

Dear Mr. Kelly:

The American Chemistry Council (ACC) respectfully submits the following comments on behalf of its membership to the Agency of Natural Resources (ANR) on the draft "2024 Vermont Materials Management Plan".

ACC represents over 190 companies engaged in the business of chemistry—an innovative, $639 billion enterprise that is helping solve some of the biggest challenges facing our nation and the world. The business of chemistry drives innovations that enable a more sustainable future, creates approximately 555,000 manufacturing and high-tech jobs—plus over four million related jobs—that support families and communities, and enhances safety through the products of chemistry and investment in research.

ACC and its members are advancing responsible manufacturing processes to create the products crucial not only to their business success, but also to building a more sustainable future. This is why in 2024, ACC released its first sustainability report. We are proud of the progress we have made and are committed to continuing to meet sustainability challenges with solutions provided by chemistry.

Since 2017, there has been a 43% reduction in SOx emissions, an 8% decrease in greenhouse gas intensity, and an 18% reduction in NOx emissions from Responsible Care® companies. Between 2010-2021, Responsible Care companies reduced hazardous air pollutants (HAPS) by 26%, and, in 2022, chemical companies invested $13 billion in research and development to continue progress in areas of sustainability and circularity. In all these areas, our members continue to innovate to adapt to our changing environment.

ACC and its members support the pursuit of a more circular economy -- one that prioritizes resource conservation and efficiency, design innovations that enable longer product lifespans, and reuse, recycling, and recovery technologies that allow us to capture the greatest value from materials that have traditionally been discarded. Progress toward a circular economy should include responsible use of natural resources and enable the reuse, repurposing, recycling and recovery of the value in materials viewed as waste.

Our industry has set an ambitious goal that 100% of U.S. plastic packaging is recycled, recovered, or reused by 2040. The chemical and plastics industry is working to keep plastics out of landfills and the environment by pursuing supportive policies and innovations including advanced recycling that creates new, high-quality plastics out of used plastics.

To achieve the greatest societal and environmental benefits, circular economy initiatives should embrace a holistic view of the economy that considers both environmental and societal impacts of a product or material across its lifecycle.

Comments in Response to Draft 2024 Vermont Materials Management Plan

1.4 Challenges in Materials Management

ACC supports efforts to manage challenges in materials to conserve natural resources, reduce greenhouse gas emissions, decrease landfill capacity, and minimize environmental impacts of products.

1.4.1 Emerging Contaminants

PFAS: Per- and polyfluoroalkyl substances (PFAS), or Fluorotechnology, are a diverse universe of chemistries that makes possible the products that power our lives – the cellphones, tablets and telecommunications we use every day to connect with our friends and family; the aircraft that power the U.S. military; alternative energy sources critical to sustainability goals; and medical devices that help keep us healthy. However, all PFAS are not the same. Individual chemistries have their own unique properties and uses, as well as environmental and health profiles.

Under Act 131 of 2024, Section 9, ANR is directed to develop and implement a program to identify and restrict the sale and distribution of consumer products containing PFAS that could impact public health and the environment. ACC encourages ANR to thoroughly and thoughtfully consider the following when developing a program:

Overall Product Design, Safety, Performance, and Sustainability Factors – Effective evaluation of uses should include the multiple factors that are important for overall product design and performance, including critical attributes related to efficacy and sustainability. Absent a robust and holistic assessment process, this new program could foster regrettable substitution and detract from some of the underlying objectives of the program. Moreover, there are a host of sustainability issues to consider in the context of overall electronic product design and performance, including energy efficiency, durability, light weighting, and material selection, among other factors. Failure to consider these factors could ultimately impact product safety, performance, sustainability, and innovation. Active engagement with the actual end-users for the use will be important for a successful program.

Consideration of Existing Product Codes and Standards – Evaluation of uses should consider existing product codes and standards. There are numerous existing codes and standards that help inform and guide overall product design and performance. In addition, it is important to recognize that these are often viewed as minimum requirements for many Original Equipment Manufacturers (OEM) and that overall performance and safety can often go beyond these standards for specific applications. Changes in product design may affect the ability to meet certain standards and/or require product redesign, re-sourcing, re-testing and recertification.

Robust Assessment of Alternatives – The assessment of alternatives is critical for this new program and is also needed to help avoid regrettable substitution. Key considerations for the assessment of alternatives include:

- The safety and efficacy of alternatives.
- The ability of the alternative to provide equivalent functional performance. This includes whether an alternative can meet relevant product and performance standards.
- The regulatory environment for the identified alternatives as well as broader circularity and safety considerations relevant for product design related to the available alternative.

Alignment with Federal and International Regulations – Any restrictions should reflect state, federal and international alignment on health and safety standards. This will ensure that Vermont is not an outlier, with potentially fewer products available for purchase in the state and potentially impacting broader product safety, innovation, and sustainability.

Consideration of Relevant, Existing Safety Assessments and Regulatory Determinations In many cases there are existing assessments and regulatory determinations that govern the use of specific chemistries. This includes instances where specific PFAS substances have been identified as a preferred alternative. Consideration of such information must be an important part of ANR's assessment.

- **Global Supply–Chain Considerations –** Product restrictions should consider the supply chain necessary for the substance in use. Product manufacturers operate in a global regulatory environment and must consider a broad range of product safety and design factors. This includes complex considerations related to product certification, performance, use and end of life, and even chemical registration and use. In addition, many manufacturers rely on a global supply chain for components and subcomponents. Any product assessment should consider these important global considerations. Products are designed for worldwide compliance and this needs to be considered.

- **Product Innovation and New Technologies –** Similarly, advances in technology and/or the emergence of new societal needs and challenges may result in new products requiring fluorotechnology. Failure to consider this will undermine product innovation and new technologies. The most recent examples of this include recent technological developments related to EV batteries, alternative energy sources, etc.

- **Utilization of Established, Science-Based Frameworks –** In order to support fact-based decision-making, ANR should employ established methods and framework for risk assessment, life cycle assessment, alternatives analysis and socio-economic analysis and include transparent stakeholder engagement in their process. ANR should obtain broad stakeholder and expert input and carefully consider the uses under consideration.

Microplastics: A science- and risk-based system is necessary to better understand the potential risks from microplastics. ACC supports funding responsible, scientifically grounded research necessary to close information needs identified by the World Health Organization and to inform risk assessment. Several critical measures are needed to ensure that regulators have access to high quality data, and include:

- Adoption of a standardized definition for microplastic and supporting definitions to avoid uncertainties when enforcing any regulation.
- Development and adoption of standardized and validated analytical methods to accurately measure microplastics quantity and composition in various environmental media and biological samples (e.g., tissue).
- Development and use of scientifically robust hazard screening and testing methods, including quality assurance and quality control criteria for hazard testing, and reference materials.
- Adoption of a risk assessment framework that addresses the complexities of microplastics, hazards and exposures.

1.5 Climate Change

Plastics can play a helpful role in addressing climate change. Plastics can help Vermont meet emissions reduction requirements as required by the Global Warming Solutions Act (Act 153 of 2020) and its Climate Action Plan. Plastics play a vital role in a low carbon economy if we want clean energy, electric cars, sustainable food production, and to help our share of the Paris Agreement goals.

A 2022 research report from Franklin Associates found that while the production of four major plastics increased over the past decade, associated GHG emissions decreased significantly – the equivalent of removing one million cars from our roads for one year. The positive trend toward lower GHGsThe research also identified a decrease in energy use during production, a positive trend expected to continue due to efficiency improvements in the production of resins and their precursors.

A 2022 study by McKinsey & Company that compared fourteen applications where plastics and alternative materials vigorously compete for market share found that plastic lowered total GHG contribution in 13 of 14 cases compared to alternatives in cases where it was used at scale[1]. The study demonstrated that in terms of both product lifecycle and use impact, GHG savings range from 10 to 90 percent.

Moreover, plastics adoption in additional areas could contribute to decarbonization by reducing food spoilage and energy use, resulting in even lower GHG emissions. For example, the use of 1.5 grams of plastic wrap can extend the freshness of cucumbers for 14 days, compared to 3 days without, and packaging for grapes can reduce spoilage by 20 percent. Reducing food waste is important because the U.S. Environmental Protection Agency (EPA) estimates that more food reaches landfills and incinerators than any other single material in our everyday trash, constituting 22 percent of discarded municipal solid waste. The United Nations Food and Agriculture Organization also reports that food waste is the third largest source of greenhouse gas emissions.

[1] Report: Shrinking Environmental Footprints of Plastics

2. Markets and Facilities Assessment

2.1.4 Recyclables

Below are recommendations that could help bolster Vermont's recycling system. Some of these suggestions may require public policy directives, others may be best implemented by creating incentives or creating guidelines.

- **Economic development.** Reframe recyclable items as valuable feedstock which offer potential for reduced landfilling, less waste, and new businesses that create jobs. Work with commerce and economic development departments to develop markets for feedstock.
- **Recycling center.** Washington State created a "recycling center." The center facilitates research, but also contracts with third parties to provide direct "market-maker" activities and directly support the private and public sector. It also has a special focus developing markets by partnering with organizations like The Recycling Partnership to bolster local recycling programs.

- **Recycling technology investment.** Consider eliminating barriers or creating incentives for investment in recycling technology. This might include:
  - *Infrastructure investment.* Work with industry, state and local government sources, etc. on directly funding infrastructure build-out and development.
  - *Demonstration projects.* Based on studies or beliefs where recycling infrastructure could be improved, fund demonstration projects or proof of concepts to confirm feasibility. For example, ACC is a sponsor of a Secondary Sorting Pilot project in the Pacific Northwest.

- **Recognition.** Recognize public and private purchase of recycled content through programs sponsored by state and local governments and other nonprofit organizations. EPA assists organizations in developing programs based on EPA's existing programs and guidelines.

- **Industry engagement.** Continue industry engagement and engagement with other parts of the value chain.

- **Uniform recycling guidelines.** Urge uniform recycling guidelines to reduce consumer confusion, increase recycling efficiencies, and maximize communications, education, and economies of scale for recyclers. This could also be a platform to encourage best practices such as appropriate moisture reduction or making deposits that are recycling system appropriate.

Collection Infrastructure

ACC and its members support "Five Actions for Sustainable Change" that includes a reasonable extended producer responsibility (EPR) system for packaging. These systems help increase recycling while also helping to generate a consistent supply of quality post-use materials for recycling. Supply side policies like this will be required to develop the infrastructure to collect and process greater volumes of post-use plastics and other materials. A well-designed EPR program for consumer packaging will strengthen the circular economy and help fund infrastructure.

2.4 Household Hazardous Waste

HHW EPR Law (Act 58 of 2022): This law requires manufacturers of certain types of solid waste to assist with covering costs for managing those wastes at their end of life. ANR is tasked with developing guidance, managing registration (2025), and implementing a collection plan (2026).

ACC's Center for the Polyurethanes Industry (CPI) urges exempting one-component spray foam cans from the HHW program for the following reasons:

- Spray foam cans offer an affordable way for consumers to improve the energy efficiency of their homes and living spaces. EPR would cause an increased cost that could deter consumers' use of energy saving materials and thus undermine progress on Vermont's climate goals.
- Consumer spray polyurethane foam product one-component cans are typically disposable as nonhazardous household waste when empty due to advances in innovations. [2] [3]

Thank you for the opportunity to provide comments. ACC strongly supports the use of sound scientific principles during any rulemaking that impacts chemistry in commerce, and we stand ready to work with ANR during this process. Please feel free to contact Margaret Gorman at margaret_gorman@americanchemistry.com if you have any questions.

Sincerely,

Margaret M. Gorman

Margaret Gorman
Senior Director, Northeast Region
American Chemistry Council

[2] Great Stuff™ Consumer Safety Information
[3] Great Stuff™ Smart Dispenser™ Receives Gold Award for the 2020 Edison Awards™

From: DUMP <protect@nolakedump.com>
Sent: Friday, July 19, 2024 3:31 PM
To: Eiklor, Alyssa (she/her)
Subject: Comments to 2024 Draft Materials Management Plan
Attachments: 2024Jul19DUMPComments on Draft Materials Management Plan.pdf

Dear Ms. Eiklor

Attached as a PDF, please find DUMP's comments to the 2024 Draft Materials Managment Plan.

Thank you for the opportunity to comment on the Draft Plan. Please acknowledge receipt of this email and attached document.

Thank you,
Ann Lembo

DUMP
Don't Undermine Memphremagog's Purity
www.NoLakeDUMP.com
Protect Lake Memphremagog

DON'T UNDERMINE MEMPHREMAGOG'S PURITY
P.O. BOX 1402
NEWPORT, VERMONT 05855

July 19, 2024

Alyssa Eiklor
alyssa.eiklor@vermont.gov

Agency of Natural Resources
Department of Environmental Conservation
Waste Management and Prevention Division

Re: Comments on Draft 2024 Vermont Materials Management Plan

We have reviewed the online draft of the 2024 Vermont Materials Management Plan, and provide our comments on the Plan.

COMMENT: The first and most important issue with this 2024 Materials Management Plan is that the Plan is premised on the outdated Vermont State Solid Waste Policy found in 10 VSA Chapter 159, referred to in your Draft Plan as Act 78. It is imperative that the State update that policy before any Materials Management Plan will be credible.

The current reality of actual solid waste management and prevention efforts in Vermont are ~~vastly~~ substantively different from the underlying premises of the antiquated State policy. The primary purpose of a Solid Waste Management Plan is to ensure the protection of the environment and the health and safety of the public.

Recently, the legislature has enacted legislation intended to foster Environmental Justice. The net effect of the current approach to waste management in Vermont is that the Landfill operation in Coventry poses environmental threats and injustice to the people of the rural Northeast Kingdom.

COMMENT: The current privately owned model prioritizes landfilling; whereas a publicly owned solid waste facility could prioritize reduction, reuse and recycling over landfilling. The Draft MMP casually dismisses any idea that the State should be the owner of landfill properties. Other states are successfully implementing this model of solid waste management. In Vermont, State or Municipal ownership would allow much greater control over the materials deposited in the landfill. An added benefit is that Vermont would not be required to accept the waste imported from out-of-state, most of it highly contaminated. The acceptance of highly contaminated, or any, waste from out-of-state is a complete contradiction of Vermont's desire to reduce waste and protect the environment. Reduction, reuse and recycling goals cannot be achieved under the current privately-owned landfill model.

Because the Coventry Landfill is permitted to accept up to 600,000 tons of waste each year, any Vermont waste that is reduced would simply be replaced by solid waste imported from out-of-state. Therefore, there would be no reduction in waste deposited in Vermont.

COMMENT: The Draft MMP needs to address the toxicity of "forever" PFAS chemicals in all mitigation, storage and disposal plans. We have provided comments to some specific sections regarding PFAS that

are part of this submission; however, there are too many places in which PFAS need to be considered for us to point out each and every one. The entire Plan needs to be reviewed to be sure that reference to PFAS are included in every section that references hazardous, special or other distinct types of waste, including all mitigation, storage and disposal plans, and be revised accordingly.

COMMENTS TO SPECIFIC SECTIONS OF THE PLAN

We have copied specific sections of the Plan for which we are providing comments, our comments appear in italics below the language from the Plan.

1.3 Vermont's Waste Pages 5-7.

1.3.1 Disposal

While waste reduction is the goal, Vermont has always needed and will continue to need disposal capacity for waste materials that cannot be reduced, reused, recycled, or composted.

Comment: *Please add "and will continue to need" to this sentence as shown above in red.*

In Vermont, waste disposal is tracked annually through required reporting by regulated facilities. The amount of Vermont waste that is disposed out-of-state is tracked less precisely, as out-of-state facilities that accept Vermont waste do not report directly to ANR.

Comment: *The amount of Vermont waste disposed out-of-state is a concern given that some part of Vermont's exported waste is incinerated in NY State. Toxic and hazardous contaminants, including incompletely combusted PFAS chemicals, become airborne, and then prevailing winds carry and precipitate these PFAS chemicals onto soil and water threatening the environment in their path including in Vermont.*

The NEWSVT landfill captures most of their methane landfill gas, which is used to produce electricity.

Comment: *What is not captured is flared at temperatures insufficient to destroy toxic and hazardous contaminants such as PFAS chemicals, which become airborne and precipitate to contaminate soil and water downwind.*

As stated above in Section 1.2, under Act 78, municipalities were given responsibility for solid waste planning and management and part of the vision was the formation of regional districts for the collection, management, disposal, reduction, and recycling of waste. Millions of dollars were spent by the State and municipalities on regional landfill siting and design. However, none of these proposed facilities are operating today. Generally, this is due to the costs and required economies of scale associated with running modern landfills, as documented in this 2021 Report on Landfill Operation in the State.

Comment: *The idea underlying Act 78 was that municipal facilities would ensure both the safeguarding of the capacity of landfill facilities and prevent importation of out of state wastes. Other states are now acting boldly to consider state owned and operated facilities for these very same reasons.*

While regional landfills have struggled to be economically viable, having in-state disposal capacity certainly benefits the state, as demonstrated by the July 2023 flooding. The NEWSVT landfill reported receiving approximately 20,000 tons of waste from these floods. The Agency is aware that additional flood debris was disposed of out-of-state, but the exact amount is unknown.
Currently, the NEWSVT landfill is estimated to have less than 20 years of operating capacity remaining. While the state will need more disposal capacity in the future, this requires a broader view of materials management that does not unintentionally support disposal over waste reduction and diversion. As this 2008 life cycle assessment modeling study from Massachusetts concludes, source reduction, recycling, and composting are the most beneficial materials management options.

While siting additional landfills would provide more disposal options for Vermont's waste, the Agency is not aware of any projects currently being planned.

Comment: *This is unacceptable- the agency should be the first to know by asserting its authority, granted by the VT legislature, over all solid waste planning. Given that the agency estimates less than 20 years of operation, planning for future solid waste management disposal must begin immediately. However, it cannot begin until the Vermont Solid Waste Policy is updated.*

Some may advocate for a state-owned landfill or incinerator, as exists in some other states. A state-owned landfill would, in effect, bear all the liability for the waste facility, while the profits would be held by the private contractor hired to operate it.

Comment: *This is an inaccurate statement- where is the evidence supporting this claim? The allusion to an "incinerator" should be removed from the first sentence, and the word "some" should be changed to "many" other states. State ownership would provide stricter control and oversight over SWMF operations, limiting liability concerns. Currently, the state receives tipping fees for every ton of waste deposited in Vermont's sole, privately-owned landfill, generating significant annual revenue for the State. The private solid waste industry is hugely profitable and means of sharing these revenues in a state-run model should be pursued.*

Waste incinerators produce significant air emissions, and the ash still requires landfill disposal capacity. Traditionally, waste incinerators require huge upfrontcapital to build, requiring long-term contracts for large volumes of waste to ensure the debt can be repaid. This is partly the reason a waste incinerator that was proposed in Rutland in the 1980s failed and why no new incinerators are being proposed in Vermont or other New England states.

Comment: *Nor should they be.*

Vermont's annual disposed waste is low enough to present a significant economic challenge for the formation of both waste incinerators and regional landfills. For context, Vermont disposed of approximately 400,000 tons of MSW in 2021 while neighboring Massachusetts disposed of approximately 4,000,000 tons of MSW in 2019. Regionally, a 2021 Northeast Waste Management Officials Association (NEWMOA) report on Solid Waste Disposal Capacity4 showed that disposal capacity in the Northeast is constricting, with 23% of the region's waste being managed by landfills that will reach their currently-permitted capacity within the next 5 years.

Comment: *This will place greater pressure on Vermont to accept more out-of-state-waste unless the State assumes responsibility for a municipal SWMF model, thereby circumventing the Federal Interstate Commerce Clause which prevents states from banning import of out-of-state waste.*

Some northeast states are already using rail transport for waste disposal in states like Ohio, Pennsylvania, and Virginia. While rail transport could be a future option for Vermont waste, it would likely be costly, subject to disruptions, and challenging to regulate given the federal exemptions for rail operations.

Comment: *Rail transport out-of-state of Vermont waste should not be an option- Vermont must bear responsibility for disposal of Vermont generated waste.*

Over the next 5 years, ANR plans to initiate a stakeholder process for Vermont disposal capacity of the future.

Comment: *Please specify representation of stakeholders in that process, to include citizen representation, and omit participation by corporate solid waste entities with potential to gain monetarily from decisions made in this process. This process must begin as soon as possible, 5 years is too long to wait to initiate this process.*

Whatever the path, the state must not waiver waver? in its efforts to reduce, repair, reuse, recycle, compost, and safely manage waste and materials for the benefit of human health and the environment.

Comment: *Agreed.*

2.8 Biosolids, Sludge, Septage, and Residuals – Pages 34 - 36

Background: Wastewater sludges and biosolids, septage, short paper fiber, wood ash, and solids produced by drinking water treatment facilities are all categorized as residual materials. These residual materials are non-hazardous materials that are managed at certified solid waste facilities, such as landfills and wastewater treatment facilities (WWTFs), or may be beneficially reused, via land application, as a soil amendment.

***Comment**: There is no mention of the PFAS content in sludge/biosolids and septage. In fact, within the paragraph titled, **Diversion** in this section, the ANR even admits that not all septage is even partially treated. There is no "beneficial use" of sludge/biosolids and septage. These residual materials are not all non-hazardous, most will contain PFOA or PFOS, which have been identified by the EPA as hazardous substances, and will also contain PFAS, which is known to have detrimental effects on human health. Wastewater from any and all communities will contain PFAS. The current WWTF's in Vermont are incapable of treating wastewater to remove PFAS. There is no acceptable "beneficial reuse" of these hazardous and toxic residuals.*

Wastewater sludge is the solid or semi-solid byproduct produced by a WWTF during treatment and is regulated by the U.S. EPA's Code of Federal Regulations (40 CFR Part 503) and the Vermont Solid Waste Management Rules (Rules). Septage is the partially-treated material removed from an on-site septic system or holding tank. Additional residual materials regulated in Vermont are short paper fiber, the

byproduct of the paper making/recycling process, and wood ash, the byproduct of burning clean, untreated wood by large generator facilities.

Comment: *Object to classifying septage as "partially treated". In fact, within the paragraph titled,* ***Diversion*** *in this section, the ANR even admits that not all septage is even partially treated. Septage is dangerous to all living things – humans, wildlife, plants, and contaminates the water. Maybe some septage is partially treated, but that does not make it safe for human consumption. There is no filtration of PFAS from any septage. PFAS is not safe in any amount – and there is no treatment that will remove it. Septage applied to fields growing food for human consumption will contaminate the soil, and the food products will be contaminated from the contaminated soil. It is not safe to eat by any living being.*

Through a Solid Waste Management Facility Certification or ANR approval (See A-1 ANR Strategy – Rules, Procedures, Policy, and Guidance), residual materials may be beneficially reused after meeting treatment and/or pollutant standards. For example, prior to being recycled as biosolids, sludge must be treated in a process to reduce pathogenic content and vector attraction and meet pollutant standards for metals and other contaminants established in the Rules. All land application must be approved by ANR.

Comment: *These materials are not capable of any "beneficial use"; the alleged treatments cannot and do not destroy PFAS and will result in the creation of even more concentrated PFAS. Land application results in PFAS contamination of soil, groundwater and air because PFAS partitions to all three. This then spreads PFAS to surface water and private water wells. PFAS spread on the soil will contaminate anything grown on that soil, producing an even higher concentration. Any food products grown in such contaminated soil should not be consumed, and will be banned from being sold because they will contain PFAS. Airborne PFAS can travel and then precipitate up to* ***3 Kilometers****, or approximately* ***2 Miles*** *from the site of application. In order to protect the public health, ANR must not approve any land application of these residuals. There is no "beneficial use" and in fact, such land application will cause detrimental health effects to humans, and any animals who eat the plants, and to the entire food chain.*

Residuals Management Infrastructure: Throughout Vermont, 96 wastewater treatment facilities produce sludge as a byproduct of wastewater treatment processes. Wastewater sludge treated to biosolids standards or septage can be recycled to agricultural lands or remediation sites as a soil nutrient source if it meets the requirements of 40 CFR Part 503 and the Rules. ANR developed technical guidance and implemented a solid waste certification for all facilities producing biosolids or operating land application sites of biosolids or stabilized septage. Land application sites must be certified as solid waste facilities and meet the siting and operating criteria established in the Rules. Certifications for land application sites also include specific operating conditions for reducing potential impacts to environmental and human health. Solid waste certifications are administered by the DEC Residuals Management and Emerging Contaminants Program. While all sludge generators must routinely collect and analyze samples of residual materials, facilities operating under a solid waste certification have more extensive monitoring requirements, including routine sampling and analysis of soil and groundwater at land application sites. Managers of land application facilities must also calculate appropriate application rates based on agronomic data and manage fields in accordance with required agricultural practices established by the Vermont Agency of Agriculture, Food & Markets (AAFM).

Comment: *All WWTFs treat residential waste water, and produce sludge, which is significantly contaminated by residential PFAS. There is no filtration for PFAS. For this reason, wastewater sludge or partially treated septage contain concentrated PFAS and it is detrimental to human health if it is permitted to be recycled to agricultural lands or remediation sites as a soil nutrient source. Current Rules do not address PFAS. Vermont's Solid Waste Policy must be revised to include PFAS, and ban land application AND sludge whether on land, at remediation sites, or at as daily cover in the landfill. Vermont permits the importation of tons of toxic sludge to be deposited or used as cover at the Coventry Landfill. All sludge is significantly contaminated with PFAS, and using as a daily cover allows PFAS to partition to air, or concentrate in leachate and in runoff.*

All land applications of "biosolids", sludge and septage regardless of "treatment" is a threat to the health and safety of the public, the environment, natural resources, and domestic and wild animals. There is absolutely no beneficial use of toxic sludge and septage.

If Vermont insists on using toxic contaminants in land application, all such applications must be published on ANR's website with detailed descriptions of exactly where such toxicity exists. Not on the permit website, which is extremely difficult for the public to access and understand. Farmers and the general public need to be warned of where their feed and food is coming from, and any food or other plants that come from such contaminated sites must have appropriate warning labels.

The WWTF's must be upgraded to treat for these hazardous substances. A WWTF is the most common-sense place to have such treatment available. Vermont must not allow the importation of tons of toxic out of state sludge. Vermont doesn't even know how to dispose of its own sludge, as stated in the next section on ***Diversion Status****.*

Diversion Status: The decision to recycle or dispose of residual materials is made by the municipalities, industrial facilities, or companies managing the materials, and is based on factors including economics, capacity, geography, type of facilities (storage and treatment), and the mission of waste managers and generators. On average 11,000 to 12,000 dry tons of wastewater sludge is managed per year in Vermont and, over the last few years, approximately 65% of the sludge was beneficially reused as biosolids in Vermont or in neighboring states or provinces.

Comment: *The primary consideration in the decision to recycle or dispose of residual materials must also include the impact on the public health and safety. Public health and safety must be the primary consideration, before economics, companies, or municipalities.*

There is no benefit to using biosolids in land application. Any so-called "benefits" are short term, the environmental contamination caused by land application of biosolids is long-term, as in "forever" chemicals such as PFAS, and other contaminants that remain after "treatment".

Comment: *tons of sludge are imported from out-of-state. This sludge has been shown to be full of toxic contaminants. ANR can't manage what is produced in-state; and yet it is allowing even more toxic out-of-state sludge to be imported. It is deposited in the Coventry landfill, or used as a daily cover, meaning that it is emitting toxics into the air that we breathe, the water that we drink and the food that we eat. And, it is contaminating Lake Memphremagog, which is the drinking water supply of approximately 175,000 Canadians.*

With nearly 55% of Vermont residences on septic systems, between 40 and 45 million gallons of septage is pumped from Vermont septic tanks each year. The vast majority of septage is hauled to WWTFs for disposal, but not all WWTFs have the necessary infrastructure to receive and treat septage and, those that do, have limited capacity. Furthermore, many rural Vermont communities are not served by a WWTF or a WWTF that accepts septage. Although the practice has dramatically declined in recent years, historically, land applying stabilized septage through a Solid Waste Management Facility Certification has relieved some of the capacity limitations at WWTFs for treating septage and provided a more local solution for septage management in rural areas of the State.

Comment: *Untreated septage is unacceptable for any use. It contains pathogens, such as E.coli or salmonella, pharmaceuticals, and other hazardous contaminants such as PFAS. ANR must find a way to have ALL septage treated. All WWTFs must have the ability to deal with septage – over half of Vermont residences are on septic systems. Solid Waste Policy must be updated to require a ban on land application and require landfilling of sludge and septage to capture and contain PFAS in order to extensively treat and destroy PFAS to prevent reentry to the environment. Banning the importation of out-of-state sludge would allow more Vermont sludge to be captured in the landfill rather than contaminating Vermont's agricultural lands and consequently the food supply.*

Markets: Markets for residual materials are primarily driven by regulations, economics, disposal capacities, and concerns relating to emerging contaminants. Residual materials typically contain PFAS (see section 1.4.1 Emerging Contaminants), which is not removed by current wastewater treatment processes. For this reason, ANR requires PFAS testing of beneficially reused residual materials, as well as soils and groundwater at certified land application sites via the Solid Waste Rules. In addition, ANR has developed an interim strategy to reduce risk associated with PFAS in land applied residuals. The strategy employs PFAS screening standards for residual materials that are based on Vermont soil background levels.

The Agency of Transportation has also adopted the same screening standards for manufactured topsoil use in its Standards for Specifications for Construction. ANR continues to assess residuals management data while researching sludge and septage disposal capacities, contaminant presence, fate and transport, emerging technologies, and pollution prevention strategies to inform decisions and rulemaking processes.

Comment: *When did ANR implement the requirement for PFAS testing of beneficially reused residual materials, and where does the public find the results of this testing? When did ANR implement the requirement for PFAS testing of soils and groundwater at certified land application sites, and where does the public find the results of these tests? When did this testing begin? What is the interim strategy to reduce risk associated with PFAS in land applied residuals? What are the PFAS screening standards? Where is the data that ANR is using in its assessments? What decisions and rules have been made as a result of these assessments?*

If Vermont insists on using toxic contaminants in land application, all such applications must be published on ANR's website with detailed descriptions of exactly where such toxicity exists. Not on the permit website, which is extremely difficult for the public to access and understand. Farmers and the

general public need to be warned of where their feed and food is coming from, and any food or other plants that come from such contaminated sites must have appropriate warning labels.

A-3 ANR Strategy – Compliance Pages 37 - 41

A-3.2 – Waste Generator Compliance
To ensure that Vermont waste generators like businesses and institutions are in compliance with State solid waste laws and rules, including the Universal Recycling law, landfill bans, the Single-Use Products law, and other applicable laws, rules, and regulations, ANR will:
A. Respond to complaints and evidence of non-compliance such as those found during Business Outreach visits and facility spot checks.
B. Conduct periodic spot-checks (at least once per year) for disposal of banned items in solid waste brought in by generators and haulers at transfer stations and landfills.

Comment: *Completely inadequate. This must be a typographical error. Once a year is not a "periodic" spot-check. It is NOT a spot-check. Loads should be checked once per week or at least twice per month. Otherwise, it is meaningless.*

A-4.2 – Waste Reduction
To publicly demonstrate ANR's commitment to waste reduction and to proactively work toward the MMP waste reduction goals, ANR will:
A. Dependent on available funding and internal approval, conduct two media campaigns on priority topics related to waste reduction (such as reuse, repair, food waste reduction, etc.)
B. Dependent on available funding and internal approval, conduct a community-based social marketing project on a specific waste reduction topic.
Annual Documentation:
1. Years 1 and 3; date and results of any waste reduction media campaigns.
2. Date and summary of any community-based social marketing project, as applicable.

Comment: *Waste reduction cannot be achieved without updating the SW Policy. The current privately owned model prioritizes landfilling; whereas a publicly owned solid waste facility could prioritize reduction, reuse and recycling over landfilling.*

A-4.7 – Direct Business and Institution Outreach
To ensure businesses and institutions (hospitals, nursing homes, colleges, correctional facilities, and other large waste generators), and their industry groups and associations are aware of and in compliance with the Universal Recycling law and other applicable solid waste related laws, and understand the importance of waste reduction and diversion, ANR will:
A. Conduct direct outreach in person or via phone or email on (as applicable):
   i. Waste reduction.
   ii. Disposal ban information.
   iii. How to recycle correctly.
   iv. How to separate food scraps for composting.
   v. Food donation.

vi. How to reduce and safely manage hazardous waste.
vii. Single-Use Products law.
viii. Collection options available from Vermont's EPR Programs for electronics, paint, batteries, mercury containing bulbs and thermostats, and covered HHW.

Comment: *Reducing and safely managing hazardous waste must include PFAS. Any collection options under viii must also include PFAS containing products.*

B. ANR will conduct outreach (including following up on complaints) to at least 250 entities during the MMP term.

Comment: *Follow up on complaints is not "outreach". Complaints must be handled as they occur, investigated and reported on.*

A-4.9 – State Building Outreach
To ensure all State buildings are in compliance with the Universal Recycling law and other applicable solid waste-related laws, ANR will:
A. Annually, contact a minimum of two state Agencies and the corresponding Buildings and General Services regional contacts and provide guidance and training on:
i. Waste reduction
ii. How to recycle and manage food scraps more effectively in State owned and leased properties.
iii. Proper management of special waste such as batteries, mercury-containing lamps, electronics, and paint.

Comment: *Add "And products containing PFAS." These are just a few sections in which we have identified the need to include PFAS when referring to hazardous, special or other types of waste. The entire Plan should be reviewed to be sure that references to PFAS are included in every section that references hazardous, special or other distinct types of waste, including all mitigation, storage and disposal plans. As we have stated, PFAS is dangerous to human health, and to the environment as a "forever" chemical.*

From: Mary O'Brien <mobrien@marcvt.org>
Sent: Monday, July 22, 2024 4:00 PM
To: Eiklor, Alyssa (she/her)
Subject: new MMP comment

Good afternoon, Alyssa:

The only suggestion I have is that you include the description of "inert debris" in the Glossary of Terms. That phrase is defined on page 55 but it is mentioned earlier in the document without an explanation. And does "managed" mean it can stay onsite indefinitely or must the inert debris be staged and then transferred?

Thanks.

Sincerely,
Mary

Mary T. O'Brien
Recycling Coordinator
Southern Windsor/Windham Counties Solid Waste Management District
802-674-9235
mobrien@marcvt.org
www.vtsolidwastedistrict.org

From: John Jose <SZWCoordinator@cvswmd.org>
Sent: Monday, July 22, 2024 2:47 PM
To: Eiklor, Alyssa (she/her)
Subject: RE: clarification on preliminary MMP comments
Attachments: John Jose_CVSWMD_Comments on Draft 2024 MMP_7.22.2024.pdf

Hi Alyssa,

I hope you are doing well. I was able to see where some of the preliminary comments I made on the draft 2024 MMP were included in the current draft.

The attached is a resubmittal of a comment for a suggested change to the plan that I don't see reflected in the current draft. I appreciate this comment and the others I provided, on behalf of CVSWMD, being taken into consideration in drafting the 2024 MMP. Thank you.

Best,
John

From: Eiklor, Alyssa (she/her) <Alyssa.Eiklor@vermont.gov>
Sent: Monday, July 22, 2024 12:58 PM
To: ANR-SWRecyCo@list.vermont.gov
Subject: [ANR-SWRecyCo] clarification on preliminary MMP comments
Importance: High

Dear SWMEs,

I just learned that there is some confusion regarding the different drafts of the Materials Management Plan and the preliminary comments vs the official comment period.

The draft of the 2024 MMP that is available on our Planning Page is newer than the draft that you all had the opportunity to review during the preliminary comment period; we made some changes based on the preliminary comments.

The SWME Q&A document that is on the Planning page is a summary of the Feb 21st SWME Q&A meeting, and is **not** a responsiveness summary of all of the preliminary comments.

We will have a responsiveness summary of the preliminary comments, but it is not finalized yet.

We will also have a responsiveness summary of all comments received in the official comment period, which ends tomorrow (this comment period and responsiveness summary are required; the preliminary comment period and responsiveness summary were not required).

If you look at the current draft MMP and feel like we did not make the changes that you were hoping to see, you are welcome to submit a new comment (or resubmit your previous comment) by 4:00 PM tomorrow (Tuesday July 23, 2024). There are a lot of factors that go into finalizing the MMP, but we truly appreciate your perspectives and value all of the work that you do.

Thank you for your patience and I'm so sorry about any lack of clarity on my part!
Best,

Alyssa

Alyssa Eiklor | Environmental Analyst (she/her)
Vermont Agency of Natural Resources | Department of Environmental Conservation
Waste Management and Prevention Division, Solid Waste Program
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Please note that I work Monday-Thursday

The Agency of Natural Resources supports telework, and there are times when I may be working from another office location. You can reach me by phone and email, or request an in-person meeting.

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CVSWMD

Leading Member Communities to Reduce Waste

CENTRAL VERMONT SOLID WASTE MANAGEMENT DISTRICT

Date: July 22, 2024

From: John Jose, School Zero Waste Coordinator, Central Vermont Solid Waste Management District

To: Vermont ANR, Waste Management and Prevention Division

Re: RESUBMITTAL of a select comment on the Draft 2024 Vermont Materials Management Plan

The following comment is being provided in reference to the Draft 2024 Vermont Materials Management Plan, in particular components of the MMP that pertain to School Outreach conducted by SWMEs.

Section S-2.6, A:
Conduct in-person outreach and assistance to K-12 public and private school administrators and/or facilities and food service staff *at a minimum of 10% or 2 schools (whichever is greater) within their jurisdiction each year, ensuring that at least 50% of the schools are reached by the end of the SWIP term.*

Comment: I've recently come to understand that in order for a SWME to get credit for having visited a school, and provided required outreach, within a 5-year SWIP period, the outreach must be directed at administrators, facilities/custodial and food services staff, as state above, and the outreach must be focused on what is listed in Section B of the current Draft MMP, as follows:

B. The outreach to each school must focus on school-wide waste reduction and diversion programs covering, at minimum:
i. Disposal ban information.
ii. How to recycle correctly.
iii. How to separate food scraps for animal feed and/or composting or anaerobic digestion.
iv. How to reduce wasted food and donate (such as through the use of share table) what is appropriate.
v. How to safely manage hazardous waste.
vi. Collection options available from Vermont's Extended Producer Responsibility Programs for HHW, electronics, paint, batteries, mercury-containing bulbs and thermostats.

Since coming to this understanding, I've been focusing more of my outreach efforts on these specific audiences and the deliverables listed above, to better meet SWIP obligations for school outreach under the current SWIP. This has proven very beneficial to my outreach efforts and to the schools receiving them (based on feedback they've provided), and I plan to continue to focus this type of outreach on these audiences, particularly school facilities/custodial and food services staff.

I've also come to understand that classroom presentations and other educational programming SWMEs provide to students and teachers do not count, from a SWIP perspective, toward meeting SWIP obligations for having provided outreach to a school.

I believe it is not only important to support schools in having effective waste reduction and diversion programs in place, but it is also important to educate those involved in utilizing those systems, which is where education for students and teachers comes in (particularly for food waste, trash, and recycling in cafeterias and classrooms).

Otherwise, you risk having a school community with proper systems in place, but without the knowledge to use them effectively in waste separation and diversion. **Taking the afore-mentioned into consideration, I think it makes sense, from a SWIP perspective, that student and teacher education should be recognized for the value it provides and should count toward meeting SWIP requirements for school outreach.**

From: Emily Johnston <emily@acswmd.org>
Sent: Tuesday, July 23, 2024 10:12 AM
To: Eiklor, Alyssa (she/her)
Cc: Teri Kuczynski
Subject: RE: MMP comment period ends Tues July 23
Attachments: Staff comments on 2024 VT MMP.pdf

Hi Alyssa,

I hope you are having a nice summer! I'm unsure if you've been sent this by ACSWMD staff. If you have, please disregard this email. If you have not, attached are the comments made by ACSWMD Staff, approved by our Executive Board.

Thank you!
Emily

Emily Johnston (she/her), Public Outreach Coordinator
Addison County Solid Waste Management District
1223 Rte. 7 South | Middlebury, VT 05753
Phone: 802-388-2333 ext. 221 | Cell: 973-908-7460
www.AddisonCountyRecycles.org

From: Eiklor, Alyssa (she/her) <Alyssa.Eiklor@vermont.gov>
Sent: Thursday, July 18, 2024 4:47 PM
To: ANR-SWME@list.vermont.gov
Subject: [ANR-SWME] MMP comment period ends Tues July 23

Dear SWMEs,

The public comment period for the Department of Environmental Conservation (DEC) DRAFT 2024 Materials Management Plan (MMP) ends **4:00 PM on Tuesday, July 23, 2024.** Please submit comments to Alyssa Eiklor (Alyssa.eiklor@vermont.gov**.**

You can review and download the Draft 2024 MMP and a summary of its key changes from the 2019 MMP on the Planning page of our website.

Best,
Alyssa

Alyssa Eiklor | Environmental Analyst (she/her)
Vermont Agency of Natural Resources | Department of Environmental Conservation
Waste Management and Prevention Division, Solid Waste Program
1 National Life Dr, Davis 1 | Montpelier, VT 05620-3520
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The Agency of Natural Resources supports telework, and there are times when I may be working from another office location. You can reach me by phone and email, or request an in-person meeting.

ACSWMD Staff Recommendation to Executive Board on 7/10/2024 - Comments on Latest Draft of the 2024 VT Materials Management Plan:

" In Section S-2.6(B)(v), change sentence to read: 'How to responsibly manage hazardous waste.'

In Section S-2.6(F), change the first sentence to read: 'One of the primary roles of a SWME is waste reduction, diversion, and hazardous waste reduction outreach and assistance.'

These suggested edits reflect more of an emphasis on education around the environmental fate of chemicals versus the possible implied emphasis on safety and chemical hygiene. Education about hazard reduction and chemical safety usually includes topics such as Hazard Communication, proper personal protective equipment (PPE), and chemical exposure levels, each of which are more of a relevant focus for the Vermont Occupational Safety and Health Administration (VOSHA) and are tangential to the mission of Vermont's solid waste management entities (SWMEs). The SWMEs are primarily concerned about waste chemicals, whereas Hazard Communication relates to chemicals currently in use."

Annotated Copy

~~2019 VERMONT MATERIALS MANAGEMENT PLAN:~~

~~Reducing Solid Waste & Increasing Recycling and Composting~~

~~Effective Date November 19, 2019~~

TABLE OF CONTENTS

INTRODUCTION

At a time when landfill disposal capacity in New England is expected to decrease in the near future, it is imperative that Vermont move forward with reducing waste, improving recycling, and composting, thereby reducing our dependence on landfilling while also reducing greenhouse gas emissions.

The purpose of the Materials Management Plan (MMP or Plan) is to provide a framework for the State and its citizens to prevent waste from being generated and expand reuse, recycling, and composting efforts to attain Vermont's statewide goals.

The MMP outlines actions that both the Agency of Natural Resources (ANR) and Solid Waste Management Entities (SWMEs) will take to reduce the amount and toxicity of solid waste in Vermont. SWMEs—including solid waste districts, alliances, and independent towns—complete actions, called Performance Standards, outlined in their Solid Waste Implementation Plans (SWIPs) that must conform with this MMP.

STATUTORY AUTHORITY

Act 78 of 1987—Vermont's first major solid waste management law—established the requirement under 10 V.S.A. § 6604, that "the Secretary [of the Agency of Natural Resources] shall publish and adopt, after notice and public hearing…, a solid waste management plan which sets forth a comprehensive statewide strategy for the management of waste…" Statute also requires this solid waste plan be revised at least once every five years.

The first State Solid Waste Management Plan was adopted in 1989, revised in 2001, and then readopted in 2006. In 2007, a legislative mandate required ANR to evaluate the effectiveness of the plan and to develop a new vision for materials management. A group of stakeholders, the Solid Waste Working Group (SWWG), was tasked with evaluating and compiling a list of recommendations to accomplish State solid waste goals. The SWWG's 2009 report to the Legislature was a driving force behind the passage of Vermont's Universal Recycling law (Act 148 of 2012) and the 2014 plan, was named the "Materials Management Plan" (MMP) as it laid out a "sustainable materials management" vision. The 2019 MMP maintains the general "sustainable materials management" direction and actions laid out by the 2014 plan. ANR will continue to evaluate and prioritize sustainable materials management strategies that can reduce wastes and their impacts from production through end-of-life. Previous state solid waste plans and historic reports can be found on ANR/DEC's Solid Waste Program website.[1]

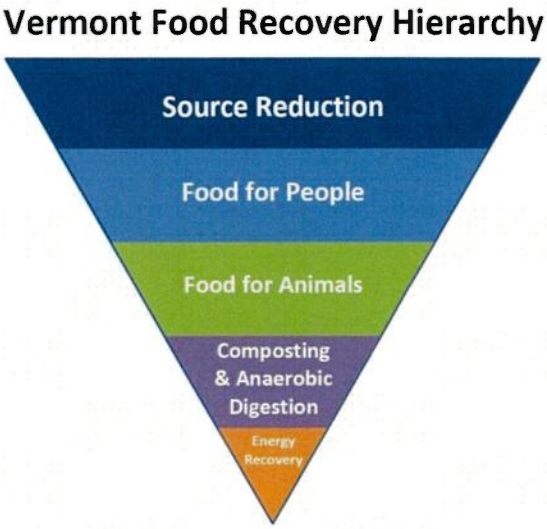
VERMONT'S WASTE

Act 78: Since the passage of Act 78 in 1987, progress has been made in establishing lined landfills and in reducing the toxicity and amount of waste disposed. While hundreds of unlined landfills once dotted the State, currently only one large double-lined landfill in Coventry handles the majority of Vermont's solid waste and captures landfill gas used to produce electricity. The closed Moretown landfill also captures landfill gas used to produce electricity. A small landfill still operates in Salisbury, but the Town voted in 2019 to proceed to closure. Under Act 78, much of the responsibility for solid waste planning, management and development of solid waste facilities was designated to local authorities. The State provided, and continues to provide, the guidance on what management practices are to be implemented and along with the SWMEs, provides the permitting authority to ensure that siting and management activities are followed and enforced. Initially, several regional landfills, including some under municipal ownership, were proposed and developed following implementation of Act 78.

[1] VTANR, Waste Management & Prevention Division, Solid Waste Management Program, Publications and Reports. dec.vermont.gov/waste-management/solid/publications-and-reports

None of these landfills are operating currently. This is generally due to the costs and required economies of scale associated with running landfills.

Universal Recycling (Act 148): In 2012, Vermont's Universal Recycling law (adopted as Act 148) unanimously passed the legislature. It was designed to reduce waste and increase recycling and organics diversion through disposal bans and convenience standards that require statewide collection of certain materials at the curb and at drop-off facilities. The law incentivizes reduction and diversion through variable rate pricing, or "pay-as-you-throw," and encourages investments in recycling and organics collection and management. Implementation of the law has been phased in over nearly a decade, allowing time to establish collection services and expand processing facilities for managing these materials. As noted by data shown in the recyclables and organics sections below, the Universal Recycling law is working.



2018 Waste Composition Study: Results from the most recent 2018 Waste Composition Study demonstrate:

a) Recycling policies are working, as evidenced by the statewide recovery rate of 72% — the percent of recyclables actually recycled.
b) A decrease in recyclable paper in the trash, from 16.7% of residential waste in 2002 to 8.6% in 2017.
c) Plastics, especially film plastics have increased in the trash in Vermont and elsewhere. Study authors estimate that by volume, plastics are the largest single material in the trash.
d) The percent of disposed residential food waste is not significantly different from the previous study. It is worth noting that decreases in one part of the waste stream have an impact on other parts. For example, as recycled paper and cardboard are increasingly recycled, food scraps and organics become a larger portion of what remains in the waste stream.

ANR expects that by 2023, when the next Waste Composition Study is due, we will be able to see more progress of the Universal Recycling law's ban on food scraps.

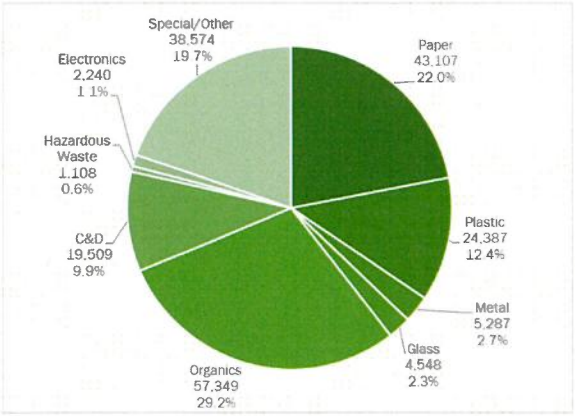


Figure 1. Residential Municipal Solid Waste (MSW) Composition (tons and % by weight), VT 2018

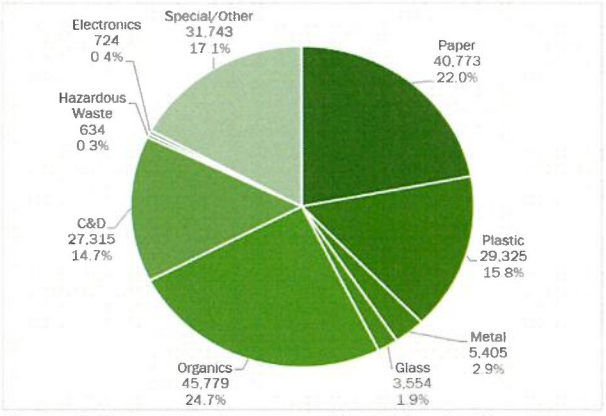


Figure 2. Industrial, Commercial, and Institutional MSW Composition (tons and % by weight), VT 2018

Even with improved recycling, food donation, and composting rates, waste generation in Vermont increased 11% from 2016 to 2017. Unfortunately, this reversed decreasing disposal trends seen in 2015 and 2016.

Vermont's 2018 Waste Composition study shows a similar percentage of food waste in the waste stream compared with the 2013 study. This reinforces ANR's support for maintaining the July 1, 2020 ban on food scraps in order to meet long-standing State diversion goals. Further, the Universal Recycling law's food scrap disposal ban provides assurance to those who are willing to invest in infrastructure, that food scraps will be available for processing. Several stakeholders have stated the law is part of their business plan and that they depend on the ban remaining intact.

PLAN PRIORITIES

As required by statute, the 2019 MMP Performance Standards were created to continue promotion of the following priorities established in 10 V.S.A. §6604(a)(1):

a) the greatest feasible reduction in the amount of waste generated;
b) sustainable materials management;
c) the reuse and closed-loop recycling of waste to reduce to the greatest extent feasible the volume remaining for processing and disposal;
d) the reduction of the State's reliance on waste disposal to the greatest extent feasible;
e) the creation of an integrated waste management system that promotes energy conservation, reduces greenhouse gas emissions and limits adverse environmental impacts; and
f) waste processing to reduce the volume or toxicity of the waste stream.

MARKETS and FACILITIES ASSESSMENT

Statute requires that the Materials Management Plan include the following:

a) an assessment of the feasibility and cost of diverting specific material categories defined as "marketable recyclables, leaf and yard waste residuals, food residuals, construction and demolition residuals, household hazardous waste, and other categories that the Secretary identifies that may be diverted to meet the waste reduction priorities of the Plan.";
b) a survey of existing and potential markets for the above materials;
c) methods to reduce and remove material from the waste stream including organics, textiles, and construction and demolition debris;
d) methods to separate, collect, recycle, treat or dispose of wastes that create environmental health, safety or management problems including tires, batteries, obsolete electronic equipment, and unregulated hazardous waste;
e) assurance of recycling and prevention of incineration or disposal of marketable recyclables;
f) an assessment of facilities and programs necessary at the State, regional, or local level to achieve the priorities identified in this Plan.

Each of these requirements is addressed in the material specific sections below.
Measurable diversion targets, coordinated education and outreach components, and performance and accountability measures are covered in the Performance Standards section of this Plan.

RECYCLABLES

Facilities: After decades of recycling investments, Vermont generally has the recycling facilities needed to process its recyclables for end-markets, though periodic assessment and upgrades are essential to adapt to changing inputs and ensure access to markets. Most recycling is processed by two single-stream material recovery facilities (MRFs) in Williston and Rutland; the rest is processed at smaller facilities like Pownal and Lyndonville or sent to recycling facilities out of State. With a shift in global market availability, there is a need to

provide improved processing of materials so that recyclables can better qualify as inputs into the manufacturing of new products.

Diversion Status: In 2015, Vermont's Universal Recycling law banned disposal of mandated recyclables defined as "aluminum and steel cans; aluminum foil and aluminum pie plates; glass bottles and jars from foods and beverages; polyethylene terephthalate (PET) plastic bottles or jugs; high density polyethylene (HDPE) plastic bottles and jugs; corrugated cardboard; white and colored paper; newspaper; magazines; catalogues; paper mail and envelopes; boxboard; and paper bags."

Vermonters regularly recycle, as evidenced by a strong statewide recovery rate of 72% from the 2018 Waste Composition Study. The study also found a noticeable decrease in recyclable paper from 16.7% of residential waste in 2002 to 8.6% in 2017. Over the last several years, recycling by weight has increased slightly but largely remained stable. This is a positive trend, considering that packaging is now up to 20% lighter than in the past, which means that the overall quantity of recycled items has actually increased.

Markets: Until recently, approximately one-third of U.S. recycling was sent to China.[2] In early 2018, China's National Sword initiative effectively banned the importation of many recycled materials. This loss of end-markets has resulted in a global over-supply of many recycled materials, which has reduced the value of these commodities, especially mixed paper (newspaper, office paper, cereal boxes, paper mail, magazines, etc.) and glass. As a result, tip fees at recycling facilities around the northeast have nearly doubled over the past year. To insulate Vermont and other New England states from abrupt changes in global markets, we should work collaboratively to develop more local domestic markets for recyclable materials and to encourage consumers to purchase, and manufacturers to produce, post-consumer recycled (PCR) content packaging and products.

Mixed Paper: Of the recyclables Vermonters produce, mixed paper is most impacted by China's policies. Prior to 2018, China was importing about 50% of all U.S. recycled mixed paper.[2] The loss of the Chinese mixed paper market has had direct economic impacts on Vermont. For example, in May 2018 it cost the Williston single-stream MRF $57.21 per ton to recycle mixed paper, as opposed to being paid $87.92 per ton in July 2017.

Not all of Vermont's recycled paper was being exported to China however. Both the Northwest Vermont Solid Waste District (NWSWD) and the Northeast Kingdom Waste Management District (NEKWMD) collect, sort, and bale their own recycled paper. NWSWD sends recycled paper to the West Rock Missisquoi paper mill in Sheldon Springs, Vermont to be made into food-grade box board, while NEKWMD sends recycled paper to Green Fiber in Pennsylvania for use in cellulose insulation.

In the spring of 2018, the Legislature authorized the ANR Secretary to issue a waiver allowing mixed paper disposal if insufficient recycling markets exist. This provision expires July 1, 2019. To date, no waivers have been requested.

Representatives from ANR, owners of both single-stream MRFs, and the Agency of Commerce and Community Development met with Soundview Holdings Inc. (previously known as Putney Paper) to discuss expanding their Putney paper mill to process recycled mixed paper into paper towels, napkins, and bath tissue. Creating domestic markets for recycled materials will help sustain recycling and retain recycling jobs in the United States and Vermont.

Recycled Glass: Glass from the Rutland single-stream MRF had been sent to Strategic Materials' Franklin, Massachusetts glass processing facility, where the material was sorted, cleaned and refined into feedstocks for

[2] National Public Radio and July 2018 webinar by Waste Management, Inc.

products like fiberglass insulation and new glass bottles. In the spring of 2018, Strategic stopped accepting recycled glass after the closure of a nearby bottle manufacturing plant. As a result, the regional markets for recycled glass dropped sharply.

ANR received a temporary request from Casella Waste Management to utilize recycled glass from the Rutland MRF in road base and construction projects at the NEWSVT landfill in Coventry. ANR granted the request for several months in 2018 and required Casella to submit short- and long-term plans for managing recycled glass. Casella has installed additional equipment at the Rutland MRF to clean glass that is currently sent to recycled glass processor 2M in Canada to be used in fiberglass insulation, aggregates, and abrasives. Casella also continues to look for additional markets for this recycled product.

Chittenden Solid Waste District has invested in glass processing equipment at their Williston MRF that can process glass to meet DEC's processed glass aggregate standard and construction specifications. ANR has been working with VTrans, Chittenden Solid Waste District and local road crews to utilize processed glass aggregate (recycled glass) in road projects.

ANR also met with representatives from Glavel, a New York company that creates a foam glass aggregate from recycled glass for use in building and construction projects. Glavel representatives are proposing to build a foam glass manufacturing facility in St. Albans, Vermont. The facility will use glass powder as a feedstock; some recycled glass from VT could eventually be used by this facility if the glass can be processed to their specifications.

ORGANICS

Background: The term "organics" refers to material derived from living organisms, and includes leaf and yard debris, food scraps, wood, paper and paperboard products (note: although technically organic, paper and paperboard products are considered recyclables in this Plan). According to the U.S. EPA, food and food scraps, are the largest single component of waste that is landfilled.[3] That is also true for Vermont, where food waste made up nearly 20%, or more than 77,000 tons, of the Vermont municipal solid waste stream according to the 2018 Vermont Waste Characterization Study.[4]

Diverting organics saves landfill space and significantly reduces production of methane gas—a greenhouse gas that is 21 times more damaging than carbon dioxide.[5] Reducing food waste saves natural resources invested in growing, packaging, distributing, processing, and selling food. Diverting organics also saves these valuable natural resources for uses such as food for people, food for animals, food production through use of compost as a fertilizer, stormwater filtration, erosion stabilization, and energy generation through anaerobic digesters.

Starting in 2014, Vermont's Universal Recycling (UR) law has required larger food scrap generators to separate food scraps from trash if they are located within 20 miles of a certified composting or digestion facility. The UR law also banned disposal of leaf and yard debris and clean wood in 2016 and will ban disposal of food scraps by any size generator beginning July 1, 2020.

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[3] US EPA, *Advancing Sustainable Materials Management: 2015 Fact Sheet,* (July 2018), fig. 8, page 8,https://www.epa.gov/sites/production/files/2018-07/documents/2015_smm_msw_factsheet_07242018_fnl_508_002.pdf

[4] https://dec.vermont.gov/sites/dec/files/wmp/SolidWaste/Documents/2018-VT-Waste-Characterization.pdf

[5] Houghton, J.B.; Meira Filho, L.G.; Callander, B.A.; Harris, N.; Kattenberg, A.; Maskell, K., Intergovernmental Panel on Climate Change, *Climate Change 1995: The Science of Climate Change*., 2 (1996).

Facilities:

Food & Food Scraps: Currently, Vermont has 12 certified food scrap processing facilities (11 composting & 1 anaerobic digestion) that operate year-round and process organics like food scraps and leaf and yard debris. Spent grain, whey and other food-manufacturing byproducts are commonly fed to animals at farms throughout the state. Vermont also has 17 on-farm digesters, some of which accept food-processing byproducts from dairy, brewing, and other food manufacturing to produce electricity and heat. See the 2019 Universal Recycling Status Report for a map of these facilities. ANR has confirmed via outreach and compliance checks that 108 transfer stations in Vermont are offering food scrap collection, representing 100% compliance with this state requirement.

The Vermont Foodbank has helped decrease the disposal of edible food through their Retail Store Program, which rescues food from stores and distributes to their network of over 200 Vermont food shelves and meal sites.

Leaf and Yard Debris and Clean Wood: Most leaf and yard debris and clean wood, that are not composted at homes or managed onsite, are used as mulch, animal bedding, composted at certified facilities, or, in the case of clean wood, used as fuel (such as wood stoves, or chipped for heat/power at locations like the McNeil Power Plant in Burlington). Each SWME ensures a location exists within their region where clean wood can be collected, such as at stump dumps or transfer stations. These materials are often chipped for mulch or composting. Thanks to the landfill ban, a relatively small amount of leaf and yard debris and clean wood is landfilled, comprising about 0.8% of the residential waste stream, according to the 2018 Waste Composition Study.

Diversion Status: The 2018 Vermont Waste Composition Study found that 26% (57,349 tons) of residential waste disposal is organic material and about 23% (45,779 tons) of industrial, commercial, and institutional (ICI) waste is organic. These numbers are similar to those found in the 2013 Waste Composition Study (28% residential and 18% ICI). However, due to limited funding for that study, the 2013 ICI waste figures were less accurate. ANR believes the most informative comparison will be between the 2018 study and the future 2023 Waste Composition Study, as they should have more comparable methodologies and the 2023 study will take place about two years after the 2020 ban on food scraps.

From 2014 to 2017, food donation almost tripled according to the VT Foodbank, in large part due to the Universal Recycling law which, starting in 2014, required large generators of food waste, like retail grocers, to divert food from the landfill. The Foodbank helps stores set up systems where staff set aside food for donation instead of putting it in the trash.

In 2017, Vermonters composted more than any time in the last 10 years. The amount of organic material managed by solid waste facilities increased 9% from 2016 to 2017. In addition, according to two recent surveys—UVM's 2018 VT Household Food Waste Behaviors Report and the 2018 Waste Composition Study's Vermont Food Scrap Survey by Castleton Polling Institute—approximately 50-70% of Vermonters say they separate some of or all of their food waste with backyard composting, vermiculture or feeding animals. The 2018 Waste Composition Study found an estimated 40% of residential food waste is diverted from trash primarily through composting (backyard, at drop-offs, and through curbside haulers). UVM's study also found that 56% of respondents strongly agree or somewhat agree that food waste should be banned from disposal in the landfill.

Using EPA WARM (Waste Reduction Model), DEC estimates that composting all of Vermont's food waste would reduce greenhouse gas emissions equivalent to taking over 7,000 vehicles off the road each year.

Markets: Donation of quality food to feed those in need has been a great and early success of Vermont's Universal Recycling law. Credit is due to the Vermont Foodbank, their partner food shelves and meal sites, and to the Vermont grocery stores and food establishments that take time to carefully rescue edible food from being wasted.

Composting is the most common method of recycling/diverting food scraps and other organics from the waste stream. In general, tipping fees (fees paid by haulers to tip the contents of their truck) for food scraps range from $20/ton to $60/ton. By comparison, trash disposal tip fees can range from $60/ton to $130/ton depending on volume and distance to a landfill.

It is worth noting that since passage of the Universal Recycling law in 2012, the number of haulers offering food scrap collection services has nearly doubled from approximately 12 to 21. This includes haulers that offer both trash, recycling and now food scraps collection as well as haulers that specialize in food scrap collection.

Currently, the markets for finished compost are mostly local, although some composters sell products in the Northeast and beyond. Retail prices vary depending on the quality, grade, and volume of compost sold. Average prices for one cubic yard of finished compost are typically between $46 and $72. As more compost is produced, ANR has been seeking ways to promote compost markets to help this diversion industry. Please see ANR Performance Standard AO1 for further detail.

The anaerobic digestion of food scraps is beginning to grow in- and out-of-State. In addition to heat and power from biogas, anaerobic digestion creates liquid and solid digestate that can both be used as fertilizer for farm fields. While digestion requires significant capital investment, its ability to produce power and heat can provide additional returns on that investment.

CONSTRUCTION AND DEMOLITION (C&D)

Facilities, Diversion Status, & Markets: According to the 2017 Vermont Diversion and Disposal Report, 85,234 tons of C&D waste materials were disposed in the landfill in 2017, and an additional estimated 12,036 tons were diverted for recycling.

Although C&D materials make up a significant segment of the waste stream, reuse and recycling is often hindered by a lack of convenient and cost-effective C&D recycling facilities. Construction & demolition materials frequently have a low recycling market value and require sorting, and often chipping or grinding, before being marketable. Trucking distance can play a big role in recycling cost-effectiveness, as national trucking costs have significantly increased due to firmer regulation and tracking of trucker hours and less interest in truck driving careers. Deconstruction can yield the most salvageable, reusable, and recyclable materials but has been slow to grow due to increased costs/time versus demolition.

Adopted in 2014 by the Vermont Legislature, Act 175 requires the recycling or reuse of six C&D materials - metal, clean wood, asphalt shingles, drywall, oriented strand board, and plywood - from large projects within 20 miles of a C&D recycling facility. The law requires that these materials be recycled by anyone building a project of two or more units that generates 40 cubic yards or more of architectural waste and is within 20 miles of a C&D recycling facility.

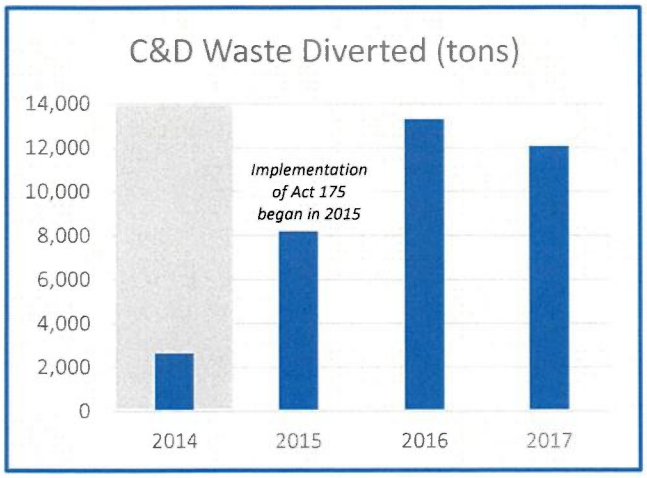

FIGURE 16: C&D WASTE DIVERTED

~~The Chittenden Solid Waste District reported that C&D recycling doubled from 2014-2017 after the siting of a C&D recycling facility in Chittenden County and the growing awareness within the construction industry of alternatives to C&D disposal. The combination of more facilities collecting and recycling C&D materials near Vermont's construction areas with access to better end markets is one way to make C&D recycling cost-competitive with disposal.~~

~~The Agency of Natural Resources and the Agency of Transportation have also been collaborating to use asphalt shingles in road construction projects.~~

~~Some other beneficial uses for C&D materials are the McNeil Generating Station in Burlington, where clean wood is burned to produce electricity; the nonprofit ReSource that operates household goods and building materials stores in Barre, Burlington, Hyde Park, and Williston; and other similar stores such as Cover and Vermont Salvage in White River Junction.~~

~~The market for recycled gypsum is currently limited. However, based on conversations with the industry and neighboring states, we believe markets will improve in the future. Synthetic gypsum, created from flue gas desulfurization at fossil fuel fired power plants, makes up about half of the gypsum used in drywall manufacturing. The supply of synthetic gypsum is waning as fossil fuel energy sources decrease as renewable energy sources increase. Further, construction and demolition waste recyclers do not want drywall in incoming mixed material loads as the drywall becomes pulverized and tends to devalue the quality of all recyclables. Landfills do not want drywall in the waste stream as the gypsum, when wetted in an anaerobic environment, creates toxic, odorous, and corrosive hydrogen sulfide gas. For these reasons, northeast States want to expand and strengthen drywall recycling markets. For more detail on C&D collection infrastructure, markets, and outreach see the December 2016 Report to the Vermont Legislature: on 10 V.S.A. §6605m Architectural Waste Recycling.~~

~~HOUSEHOLD HAZARDOUS WASTE, CONDITIONALLY EXEMPT GENERATOR HAZARDOUS WASTE, AND UNIVERSAL WASTE~~

~~**Background:** The US EPA describes household hazardous waste (HHW) as leftover household products that contain corrosive, toxic, ignitable, or reactive ingredients that pose a threat to the environment and public health. These chemicals are costly to collect and manage separately from municipal solid waste. Such products include automotive fluids, batteries, household chemicals, and electronic products with hazardous components.~~

~~Vermont Solid Waste Rules define HHW as "waste that would be subject to regulation as hazardous waste if it were not from households" (6-201 Definitions). Although HHW is exempt from state and federal regulation as hazardous waste, Vermont statute requires ANR to address the volume and toxicity of the waste stream. Vermont has worked carefully to segregate HHW from solid waste, to reduce production of toxic materials at the source, and to safely manage/recycle these materials at the point of waste generation.~~

~~Conditionally Exempt Generator (CEG) hazardous waste is hazardous waste from a business, municipality or other non-household entity that generates less than 220 pounds of hazardous wastes per month. Waste~~

collected from CEGs must be managed under Vermont Hazardous Waste Management Regulations (VHWMR) and therefore should be segregated from HHW.[6] If CEG waste is co-mingled with HHW, then all waste is managed as hazardous waste and the exemption for HHW management may not be utilized. Universal Waste refers to any of the following hazardous wastes that are handled under streamlined provisions to facilitate proper management: batteries, pesticides, thermostats, PCB-containing fluorescent light ballasts, fluorescent lamps, mercury-containing devices, cathode ray tubes (CRTs) and oil-based paint collected under the paint stewardship program.

Facilities and Collection Events: Since 1992, SWMEs have been required to include provisions in their SWIPs for the collection and management of "unregulated hazardous waste," which includes both HHW and CEG waste. The state MMP requires SWMEs to hold a minimum number of HHW collection events per year or provide access to a permanent HHW collection facility. To help offset costs of HHW collections, ANR has provided annual SWIP grants based on population of the region served and the number of member towns in districts or alliances.

Currently, there are five permanent HHW facilities in Addison County, Chittenden County, Northeast Kingdom (seasonal), Northwestern Vermont, and Rutland County. The remainder of the State is served by over 120 single-day collection events. SWMEs and ANR continue to evaluate the best way to manage HHW and, in the summer of 2017, ANR organized a HHW stakeholder group comprised of solid waste districts, towns and alliances, haulers, trade associations, State representatives, hazardous waste contractors, and environmental non-profits to find more convenient and cost-effective collection systems for HHW. The group agreed that a network of shared regional facilities coupled with possible rural collection events was the best option to serve Vermonters. There was no consensus on the best way to fund this model, but funding suggestions are listed in the November 2017 HHW Stakeholder Group Summary report.

The requirements set forth in the SWME Performance Standards below provide Vermonters with convenient collection services for HHW and CEG Hazardous waste while providing flexibility for solid waste management entities.

Diversion Status: In 2017, 865 tons of HHW/CEG hazardous waste were diverted from landfill disposal and collected by SWMEs. The 2018 Waste Composition Study estimated that less than 0.5%, or 1,489 tons, of the waste stream was HHW. This shows that strong efforts have been made to keep HHW/CEG hazardous waste out of the waste stream, but there is still room for improvement. Since this waste poses such serious risks to human health and the environment, it is imperative that the goal be zero disposal of HHW in landfills.

Current residential participation rates at both HHW facilities and HHW collection events in VT range from 0.5% to 15% of households served in a region annually. The regions with permanent HHW facilities tend to have higher participation rates than those with only seasonal HHW events. Considering the frequency with which HHW needs to be disposed of and the accessibility of collection programs, 14% is considered a successful participation rate goal. Because of the hazardous characteristics of HHW/CEG Hazardous Waste, there is a need to increase participation in order to prevent hazardous materials from being disposed of in the landfill or through other improper disposal methods, such as down the drain.

This Plan's Performance Standards seek to decrease the amount of hazardous materials being disposed of in the landfill and to increase the participation rate by ensuring that convenient access is provided for HHW/CEG Hazardous waste collection in all regions of the state.

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[6] Vermont Agency of Natural Resources, *Hazardous Waste Management Program: Regulations & Statues*, (2013), http://www.anr.state.vt.us/dec/wastediv/rcra/regs.htm, and Subchapter 9: Universal Waste Management Standards, http://www.anr.state.vt.us/dec/wastediv/rcra/hazregs/VHWMR_Sub9.pdf.

Markets: Due to their hazardous characteristics, HHW waste materials have limited market demand. HHW markets are predominantly associated with material that has value as fuel, such as used oil or oil-based paint, but most other HHW is costly to handle, transport, and process for recycling or safe disposal. Hazardous waste contractors and processors are paid for the removal and handling of HHW. Hazardous waste processing facilities charge the contractors a fee based upon the type of material and whether it can be processed for another use. In the case of used motor oil, there is a market to re-blend this fuel and reuse it for various applications. For other materials such as certain pesticides, the only option is for the waste to be disposed of in a hazardous waste landfill or hazardous waste incinerator.

By weight, oil and latex based paints are the most common household hazardous waste products that are collected at HHW facilities and events. Vermont's paint stewardship program, implemented by PaintCare, offers convenient oil and latex paint recycling collection at paint and hardware stores statewide. Latex paint that is collected is sorted by color, filtered and re-blended into new paint such as with Chittenden Solid Waste District's Local Color paint recycling program. Oil-based paints, while not recycled, can be processed for fuel blending. Some cities and counties have initiated their own latex paint collection and recycling programs similar to Chittenden's program. Paint stewardship programs like Vermont's have greatly increased latex paint recycling.

PRODUCT STEWARDSHIP & EXTENDED PRODUCER RESPONSIBILITY

Product Stewardship programs share the cost of recycling and safe materials management between manufacturers and consumers, alleviating financial burdens on municipalities and mitigating environmental impacts from disposal.

Extended producer responsibility (EPR) programs require product producers to take responsibility for the end of life management (or post-consumer management) of their products. The intent of all EPR and product stewardship programs is to nurture a shift in the waste management system from one subsidized by the taxpayer to one that places greater emphasis on producers and consumers to drive environmentally sound product design and recycling. Vermont has both voluntary product stewardship programs, such as recycling of auto batteries, and programs that are required by EPR laws.

Products with existing Vermont EPR programs and laws include mercury-containing (fluorescent) lamps and thermostats, mercury-containing automobile switches, electronics (TVs, computers, printers, and peripherals), primary batteries, and paint. In addition, there is a voluntary product stewardship program led by rechargeable battery manufacturers that collects rechargeable batteries for recycling. EPR in Vermont has historically targeted products with hazardous components. Vermont's beverage container redemption program is an example of product stewardship of a non-hazardous product; it is the longest-running EPR program in Vermont, at more than 40 years old.

Vermont's EPR programs are effective largely due to numerous convenient collection locations throughout the State, the dedicated collection efforts by stewardship organizations, SWMEs and private facilities; and direct outreach to consumers by the stewardship organizations, SWMEs, and Vermont DEC. The Agency of Natural Resources will continue to evaluate EPR and product stewardship programs that can reduce waste in both toxicity and volume and that can reduce costs for Vermonters. For more detail about these stewardship programs and their status and success, see the 2019 Biennial Report on Solid Waste.

TEXTILES (USED CLOTHING)

A 2015 stakeholder group on textiles determined that Vermont had been losing some convenient and affordable textile reuse/recycling options, especially in rural areas. While a few textile collectors still serve Vermont,

~~including Goodwill, Salvation Army, and Planet Aid, municipal solid waste managers are concerned that textile reuse and recycling markets are not strong and remain vulnerable. Domestic and global textile recycling options are limited, and reuse options are hampered by the lower quality of clothing and textiles being produced.~~

~~From 2014-2017, diversion data reported by solid waste facilities appears to indicate that textiles re-use and recycling has grown, however data is lacking from clothing reuse shops like Salvation Army and Goodwill, and these increases may be the result of improved reporting and may not be indicative of improvements in textile recycling trends.~~

~~Year~~	~~Tons Diverted~~
~~2014~~	~~248.4~~
~~2015~~	~~254.3~~
~~2016~~	~~303.1~~
~~2017~~	~~369.6~~

~~TEXTILE RE-USE & RECYCLING~~

~~The 2018 Waste Composition Study estimated that textiles make up 6.1% of Vermont's waste stream, or 11,867 tons annually. The 2013 Waste Composition study estimated textiles made up around 6.8% of the waste stream.~~

~~TIRES~~

~~An estimated 625,000 scrap tires are generated each year in Vermont. A 2012 statewide survey identified 62 scrap tire piles, with an estimated 417,000-458,000 problem tires. The Tire Stakeholder group, convened in 2015, identified three areas of concern: legacy scrap tire piles, ongoing illegally dumping of scrap tires, and lack of recycling markets (see Report to the Vermont Legislature on Problem Scrap Tire Piles – 2013).~~

~~The Agency of Natural Resources believes that most Vermont tires are legitimately managed, but the issues identified by the stakeholder group continue to be a concern. Most of Vermont's tires are now used to make tire-derived fuel. A small percentage of scrap tires are illegally disposed, and regional and national markets for scrap tires are weak due to other cheap fuel alternatives. Due to these challenges, establishing a product stewardship program for tires is often considered. Efforts to identify other national markets are ongoing. Tire Derived Aggregate will be used as underdrain for two upcoming VTrans projects, and ANR is in preliminary discussions with VTrans about the possibility of using Ground Tire Rubber Hot Mix Asphalt in future road projects.~~

~~BIOSOLIDS, SLUDGE, SEPTAGE, AND RESIDUALS~~

~~"Residuals" is a term encompassing several non-hazardous materials. Residual materials managed in Vermont include sludge, septage, short paper fiber, wood ashes, and solids produced by drinking water treatment facilities. Residual materials may be disposed of at certified solid waste facilities such as landfills or wastewater treatment facilities. Alternatively, after meeting specific standards established in the Vermont Solid Waste Rules (Rules), residual materials may be beneficially used and recycled as a soil amendment.~~

~~Wastewater sludge, the solid or semi-solid byproduct produced by a wastewater treatment facility (WWTF), and domestic septage, the partially-treated material removed from an on-site septic system or holding tank, may be managed via application to the land as biosolids (treated sludge) or as stabilized septage only after treatment to significantly reduce pathogen and vector attraction, and demonstration of meeting standards for contaminants (metals and poly-chlorinated biphenyls) established in the Rules. Biosolids treated in a process to further reduce pathogens are considered exceptional quality (EQ) biosolids and may be distributed to the public for soil amendment uses without restrictions.~~

~~Because residual materials have the potential to be recycled by application to agricultural lands or to remediation sites as a valuable soil nutrient source or soil conditioner, ANR has established Rules, developed technical guidance and implemented a solid waste certification for all facilities producing biosolids or operating land application sites for biosolids or stabilized septage.~~

~~Land application sites must be certified as solid waste facilities and meet the siting and operating criteria established in the Rules. Certifications for land application sites also include specific operating conditions for reducing potential impacts to environmental and human health. Solid waste certifications are administered by the ANR, DEC Residuals Management and Emerging Contaminants Program (Program). All solid waste facilities generating sludge, and not managing the material under the authority of a solid waste certification, are required to obtain a Sludge Management Plan administered by the Program. Pilot and research projects in the scope of residuals management are also authorized and supported by the Program on a case by case basis.~~

~~Generators of residual materials, such as WWTFs, as well as residual material managers, such as septage haulers, are required to report their activities to ANR on a quarterly basis. Monitoring requirements for residuals generators are established in either a sludge management plan or a solid waste certification for the facility. While all sludge generators must routinely collect and analyze samples of residual materials, facilities operating under a solid waste certification have more extensive monitoring requirements, including routine sampling and analysis of soil and groundwater at land application sites. Managers of land application facilities must also calculate appropriate application rates based on agronomic data and manage fields in accordance with required agricultural practices established by the Vermont Agency of Agriculture, Food & Markets (AAFM). Such calculations are submitted to ANR along with quarterly reports.~~

~~The decision to recycle or dispose of residual materials is made at the local level by municipalities and industrial and commercial enterprises and based on many factors including economics, geography, type of facilities (storage and treatment) and the mission of waste managers and generators. About half of the wastewater sludge produced in Vermont is beneficially used, a statistic that reflects the trend across the United States.~~

~~Septage generated in Vermont, with nearly 55% of residences on septic systems, is typically hauled to WWTFs for disposal. The remaining amount is land applied after lime stabilization for pathogen and vector attraction reduction. Because Vermont's WWTFs have limited treatment capacity and accept other high strength wastes such as landfill leachate and food processing wastewater, and because many rural Vermont communities are not served by a WWTF or a WWTF that accepts septage, the land application of stabilized septage relieves some of the capacity limitations that WWTFs have for accepting various wastes and also provides a more local solution for septage management in rural areas of the State that are not served by WWTFs.~~

Solid Waste Implementation Plan Requirements and Approval Process

State law requires that municipalities manage solid waste within their jurisdiction in conformance with the State Solid Waste Management Plan (now referred to as Materials Management Plan or MMP). Each municipality, either as an individual town or through a solid waste district or alliance, must adopt a Solid Waste Implementation Plan (SWIP) that is in conformance with the MMP. All towns, solid waste districts and alliances are collectively referred to as Solid Waste Management Entities (SWMEs).

All SWIPs must address all requirements outlined in 24 V.S.A. § 2202a, which are listed below.
Existing SWIPs, adopted in conformance with the 2014 State Materials Management Plan, will have to be revised to conform to this 2019 MMP.

To make the SWIP drafting process as easy as possible, ANR created a **SWIP Template** that requires no specific expertise to fill out. ANR Solid Waste Program staff are available to guide and assist SWMEs with SWIP drafting.

Minimum SWIP requirements:

1. **SWME Performance Standards.** SWIPs must address how each SWME Performance Standard is/will be completed during the SWIP term. SWIPs that adequately address the SWME Performance Standards are considered to be implementing the priorities of this MMP, as further outlined by 10 V.S.A. § 6604(a)(1). SWME Performance standards include all the requirements from 24 V.S.A. § 2202a.
2. **Solid Waste Facility Siting Criteria.** Describe siting criteria that will apply to solid waste facilities which may be proposed by any public or private entity in the SWME region. As required by 10 V.S.A. §6605(c), siting criteria shall not be less stringent than the criteria in Vermont Solid Waste Management Rules.
3. **Specify the Facilities that are Included in the SWIP and Describe How Proposed Facilities will be Reviewed for Inclusion.** Explain the process and standards to be used to determine if newly proposed solid waste facilities would be included in the SWIP. The process may reference siting criteria and existing zoning ordinances, may require a host town agreement, or may defer to requirements in the Vermont Solid Waste Management Rules for some or all types of solid waste facilities. The standard(s) for being included in the SWIP should be clear.
4. **Public Participation in the SWIP Approval Process.** Describe the process to be used to ensure public participation in the development and implementation of the SWIP. The local community should be notified of opportunities to participate in the SWIP development and implementation. In accordance with state statute, SWMEs must hold at least two public meetings on the draft SWIP.
5. **Ordinances.** Include copies of any solid waste related ordinances with the SWIP.
6. **Conformance with Other Plans.** Demonstrate that the SWIP is in conformance with any regional plan adopted in accordance with 24 V.S.A Chapter 117. Demonstration may be in the form of a letter from the applicable regional planning commission regarding conformance of the solid waste implementation plan with the regional plan(s), copies of pertinent sections of the regional plan(s), or other documentation that proves conformance.
7. **SWIP Reports.** All SWMEs must submit an annual SWIP Report on their Performance Standards and demonstrate completion of all required activities via ReTRAC by July 1st. ANR will provide SWIP Reporting Guidance.

SWIP Approval Process:

1. SWMEs must submit a draft SWIP to ANR by July 1, 2020 that is in conformance with the 2019 MMP.
2. Solid Waste Program staff will review the SWIP and send a letter outlining any unmet requirements.
3. SWMEs are responsible for submitting revised SWIPs within 30 days to address unmet requirements.

4. If the revised SWIP completely addresses all comments in the letter, ANR will recommend it for pre-approval. If the revised SWIP does not address all the comments, a follow-up review letter will be sent and the SWME will have another 30 days to address all comments in a subsequent revision.
5. Once a draft SWIP is recommended by ANR for pre-approval, the SWME must hold two public hearings in its region on the draft SWIP.
6. Upon completion of two public hearings and provided that no changes were made to the pre-approved SWIP, the SWME Board of Supervisors, Select Board or City Council may adopt the draft SWIP, which can then move toward full approval by ANR.
7. The following must be provided by the SWME as proof that public meetings were held in order to move toward final approval:
    a. dates of at least two public meetings that were held by the SWME warning the draft SWIP, and
    b. a summary of the meetings.
8. If no changes were recommended on the draft SWIP at the public meetings, then it can move forward for final approval from ANR. The ANR, DEC, Waste Management and Prevention Division Director will provide final approval of SWIPs via an ANR approval letter. If the draft SWIP is revised in any way, ANR will need to review the changes before moving it forward for final approval.

Possible Enforcement Actions:

SWMEs that have not adopted or implemented a SWIP in conformance with the MMP face consequences that may include:

a) An enforcement action pursuant to 10 V.S.A. Chapter 201 or 211,
b) The loss of grant eligibility,
c) Preclusion to secure solid waste management facility certification, and
d) A requirement to manage all disposed materials out of State.

Performance Standards

These performance standards were created to provide Vermonters with the greatest amount of information and convenience to reduce, reuse, recycle, compost, and safely dispose of as much of their materials as possible.

These performance standards reflect the effective actions that ANR and SWMEs can take to reduce waste in both volume and toxicity.

ANR PERFORMANCE STANDARDS

ANR – GENERAL STANDARDS

Fully implementing this MMP will assist with reaching state goals outlined below, however it is anticipated that other additional initiatives will be needed to fully achieve these goals. ANR will continue to work with stakeholders and partners to meet state materials management goals.

A1 – Waste Reduction and Diversion Goals

1. **REDUCTION GOAL: 10% decrease in annual material generation by the fifth year of the plan period. (Disposal + Diversion = Generation). Therefore, a goal of 606,063 tons generated per year in 2024, or less, as calculated from the 2018 Diversion and Disposal (D&D) Report baseline of 630,851 tons of waste (and recyclables) generated in Vermont that year.** The long-term goal is for Vermonters to consume fewer resources, waste less, and reuse more.

2. **DISPOSAL GOAL: 25% decrease in the annual waste each Vermonter disposes by the fifth year of the plan period. Therefore, a goal of no more than 1,000 pounds of MSW disposed per person per year in 2024, or less, as calculated from the 2018 D&D Report baseline of 436,166 tons of waste disposed in Vermont that year (436,166 tons waste disposed per year ÷ 626,299 population of VT in 2018 x 2,000 = 1,392.84 x .25 = 348.2 – 1,392.84 = ~1,000 pounds per person per year).**

3. **DIVERSION GOAL: 50% Recycling/Composting Rate by the fifth year of the plan period,** up from 35% in 2018, with the goal of diverting more of the materials that are currently being disposed. The goal is to recycle and compost everything that has a market and is required by state law.

4. **FOOD RESCUE GOAL: 10% increase in food rescue over the five-year plan period. Therefore, a goal of 4,302 tons per year in 2024, or more, as provided by the Vermont Foodbank. This was calculated from the 2018 D&D Report baseline of 3,911 tons rescued in Vermont that year.** We acknowledge that the ultimate goal is to not waste or overproduce food.

DOCUMENTATION:

1. Goals tracked annually through ANR's Diversion and Disposal Reports.
2. 2023 (5-year) VT Waste Composition Study to be used to measure success of recycling and organics diversion as well as evolving composition of the waste stream.
3. Data on food rescue provided annually by Vermont Foodbank.

A2 – MMP Publicity

DOCUMENTATION:

1. Post MMP on Vermont's Waste Management website within a month of adoption.
2. Submit press release announcing new MMP within two months of adoption.

~~A3 – Public Media Education and Outreach~~

~~ANR will continue to conduct public media outreach on waste reduction and recycling and organics diversion requirements, household hazardous waste, construction and demolition waste, and extended producer responsibility programs (EPR). This could include both paid and unpaid advertisements, social media posts, press releases, and articles. Whenever possible, ANR will strive to develop consistent statewide messaging with stakeholders, including consistency with the Northeast and other U.S. states.~~

~~**DOCUMENTATION:**~~

1. ~~Number of advertisements placed.~~
2. ~~Number of press releases and articles published.~~
3. ~~Social media engagement data.~~

~~A4 – Direct Business Outreach & Compliance~~

~~ANR will continue to conduct direct business outreach with SWMEs on waste reduction, recycling, food scrap diversion, food donation, EPR programs, and safe HHW & CEG hazardous waste management. The goal is to ensure compliance with state law and help meet waste reduction and diversion goals. Specifically, ANR will attempt to reach national chain businesses and those with headquarters outside of Vermont.~~

~~**DOCUMENTATION:**~~

1. ~~Number of businesses contacted by phone or visited during the MMP term, minimum of 250 contacts.~~
2. ~~Number of businesses that came into compliance with the Universal Recycling Law.~~

~~A5 – School Waste Reduction Outreach~~

~~ANR will provide support to SWMEs to assist schools with waste reduction and how to recycle and manage food scraps more effectively. ANR will work with the Agency of Education and other school organizations to ensure schools have information on waste reduction, recycling, organics diversion, and landfill ban disposal requirements. ANR will help schools safely manage hazardous materials.~~

~~**DOCUMENTATION:**~~

1. ~~Number of schools assisted (EAO and DEC Solid Waste Program).~~
2. ~~Number of presentations given at school-related conferences.~~
3. ~~Total amount of grant funds provided, if applicable.~~

~~A6 – State Building Waste Reduction Outreach~~

~~ANR will provide guidance to state offices and building managers on waste reduction and how to recycle and manage food scraps more effectively. ANR will help them safely manage hazardous materials.~~

~~**DOCUMENTATION:**~~

1. ~~Continue to support BGS and other state government agencies with recycling of mandated materials and diversion of food scraps in State leased and owned properties.~~

~~A7 – Solid Waste Facility and Hauler Compliance~~

~~ANR will continue to ensure solid waste haulers and facilities are compliant with State solid waste laws and rules, including Universal Recycling law landfill bans and collection requirements for mandated recyclables, leaf and yard debris, clean wood, and food scraps. ANR will respond to complaints of non-compliance and conduct routine inspections prioritizing the following facilities: larger capacity, and those whose certifications are due for renewal or have not been inspected recently. ANR will also conduct spot-checks for disposal of banned items in solid waste tipped at transfer stations and landfills.~~

DOCUMENTATION:

1. Number of resolved complaints.
2. Number of inspections.
3. Number of spot checks.

A8 – SWIP Compliance

DOCUMENTATION:

1. ANR will ensure that SWMEs continue to implement Solid Waste Implementation Plans (SWIPs) and complete annual performance standards through SWIP Reports. This includes reviewing and ensuring that variable rate pricing (VRP) systems are in place statewide.

ANR – RECYCLABLES

A-R1 – Recycling Market Development

In addition to the Reduction and Diversion Goals above, ANR will continue to collaborate with public and private stakeholders to improve North American markets for recyclables, especially lower value recyclables like glass and mixed paper.

DOCUMENTATION:

1. Participate in local, regional, and national discussions about materials management and share recycling market information to stakeholders when it is pertinent and can help improve recycling markets.
2. Outreach on the importance of buying and producing products and packaging with post-consumer recycled content (PCR).
3. Number of tons of recyclables reported/tracked annually in Diversion and Disposal Reports.

ANR – ORGANICS (FOOD/FOOD SCRAPS, LEAF/YARD, CLEAN WOOD)

A-O1 – Compost Market and Collection Infrastructure Development

In addition to the Reduction and Diversion Goals above, ANR will continue to collaborate with public and private stakeholders to improve domestic (Vermont, Northeast, and U.S.) markets for compost.

DOCUMENTATION:

1. Number of participants in the Master Composter courses.
2. Number of attendees at the Vermont Organics Recycling Summits.
3. Number of contracts for Compost Technical Assistance and Operator Trainings offered.
4. Participate in local, regional, and national discussions about materials management and share compost market information to stakeholders when it is pertinent and can help improve compost markets.
5. Number of tons of organics reported/tracked annually in Diversion and Disposal Reports.
6. Number of collaborative meetings and/or demonstration projects held with Regional Planning Commissions, municipal representatives, SWMES, AAFM, AOT and other state agencies on the use of finished compost on farms, state owned properties and in road projects and other applications or development of infrastructure and capacity for processing organics.

A-O2 – Food Scrap Drop off Development and Support

In order to ensure that convenient collection locations exist for residential food scraps, ANR will confirm compliance and the adequacy of solid waste facility/transfer station drop off collection and that there is awareness among residents that it is available.

DOCUMENTATION:

1. Complete confirmation of compliance with food scrap drop off collection 2 times during the Plan term.

A-O3 – Residential Curbside Food Scrap Collection

ANR will collaborate with SWMEs to hold regional meetings with haulers and stakeholders to support development of residential food scrap collection businesses.

DOCUMENTATION:

1. ANR will hold a minimum of 8 regional hauler stakeholder meetings during MMP term.

A-O4 – Food Rescue Support

ANR will continue to support and collaborate with others on food rescue and donation to put quality, usable food to its highest and best use.

DOCUMENTATION:

1. Number of presentations given in support of food rescue.
2. Number of meetings with food rescue groups such as the Vermont Foodbank.
3. Number of meetings with grocers and other generators of potentially donatable food.

ANR – HOUSEHOLD HAZARDOUS WASTE, CEG HAZARDOUS WASTE, EPR MATERIALS, AND UNIVERSAL WASTE

A-H1 – HHW/CEG Hazardous Waste Collection

ANR's goal is to reduce toxicity in the waste stream by preventing toxics use and providing convenient and cost-effective collection systems for household hazardous waste (HHW) and conditionally exempt generator (CEG) hazardous waste. ANR will continue to evaluate, with SWMEs and other stakeholders, the most cost effective, convenient, and efficient method(s) to collect and manage HHW, such as through collection facilities, events, and/or EPR and product stewardship programs for all residents.

DOCUMENTATION:

1. Amount of HHW collected and participation rate for HHW facilities and events.
2. Continued dialogue with HHW Stakeholders.
3. Number of HHW Network Group meetings coordinated.
4. Reports on HHW to the Legislature, if any.
5. Total grant funding allocated for HHW events, research, and collection costs.
6. Statewide outreach campaign promoting the reduction in use of hazardous products and encouraging proper disposal.

A-H2 – Sharps and Pharmaceutical Disposal

ANR will participate in the Sharps Disposal Task Force and the Unwanted Pharmaceutical (Drug) Disposal Task Force led by the VT Department of Health to encourage people to dispose of sharps and pharmaceuticals in the safest and most cost-effective manner and to determine the most convenient and effective collection systems.

DOCUMENTATION:

1. Post the most up-to-date methods for sharps and pharmaceutical disposal on the DEC website and disseminate information to SWMEs and other stakeholders.
2. Participate in discussions with Dept of Health and other stakeholders.

A-H3 – EPR Program Implementation

ANR will continue to support the implementation of Vermont's Extended Producer Responsibility programs for electronics, paint, batteries, and mercury-containing bulbs and thermostats.

DOCUMENTATION:

1. Annual collection rates per EPR program.

ANR – CONSTRUCTION & DEMOLITION (C&D)

A-C1 – Encourage C&D Waste Prevention, Diversion, and Recycling Markets

ANR will promote C&D waste prevention and diversion practices and continue to encourage the development of new recycling market outlets for clean wood, asphalt shingles, scrap metal, drywall, plywood, and oriented strand board in Vermont and regionally. ANR will provide guidance for SWMEs in meeting the MMP requirement to offer collection locations for asphalt shingles for the purpose of recycling these materials. ANR may suspend these standards upon finding that insufficient markets exist for these materials. As funding allows, ANR will consider grants for asphalt shingle and drywall collection infrastructure.

DOCUMENTATION:

1. Number of meetings attended or presentations given to Vermont building community and other related organizations.
2. Number of Act 250 Construction Site Waste Reduction Plans reviewed. ANR will share with SWMEs the C&D diversion plans in each region.
3. Annual growth, in tons, of C&D recycled at Architectural Waste Recycling Facilities.
4. Number of best management practices, guidance, or policies issued with DEC assistance on C&D materials recycling and reuse.

ANR – RESIDUALS – BIOSOLIDS, WOOD ASH, SHORT PAPER FIBER

A-RES 1 – Residuals Recycling Meetings

Historically, ANR has sought to achieve a 75% beneficial reuse rate of residual materials like biosolids, stabilized septage, short-paper fibers, and wood ash. To encourage this goal, ANR Residuals Program staff will work with SWMEs and other stakeholders to organize up to 12 regional meetings on residuals recycling around the state. The meetings will educate and promote the exchange of information to improve safe and effective reuse opportunities for residuals. ANR will also continue to improve its rules to reduce costs for facility operators while ensuring effective management of residuals.

DOCUMENTATION:

1. Number of Residuals Recycling Meetings organized and attended.

SWME PERFORMANCE STANDARDS

GENERAL STANDARDS

G1 – Disposal and Diversion Reporting

1. **DISPOSAL RATE:** To track progress with state waste reduction goals, SWMEs must report their disposal rate in SWIP years one and five. SWMEs may use the method in the *ANR Data Guidance* to calculate their disposal rate or another method approved by ANR. Disposal rate reports must be based on calendar year data and be submitted to ANR via ReTRAC by July 1st.

   DOCUMENTATION:

   1. First (1st) Year SWIP Report: report year 1 annual per person per year disposal rate.
   2. Fifth (5th) Year SWIP Report: report year 5 annual per person per year disposal rate.

2. **DIVERSION RATE:** SWMEs are not required to report diversion rates to ANR; however, it is strongly recommended that SWMEs track their diversion efforts to determine the success of their programs and services.

G2 – SWIP Posting & Publicity

To ensure community members are aware of and can access the SWIP, each SWME must—within one month of their SWIP approval—post their approved SWIP on their website and submit one press release about their SWIP to local newspapers within two months of SWIP approval.

DOCUMENTATION:

1. First (1st) Year SWIP Report: supply website link of SWIP and attach press release along with date released and list of newspapers where it was sent.

G3 – A-Z Waste & Recycling Guide

To ensure community members have access to local information on state disposal bans and how to reuse, recycle, donate, compost, and safely dispose of their unwanted materials, each SWME will develop and maintain an A-Z guide on their website that lists regional management options for various materials. This guide must be updated on the SWMEs website within the first SWIP year and remain accurate throughout the SWIP term. The list must contain, at minimum, information on how to manage, recycle, or divert all state disposal banned items in addition to information on where to recycle/reuse the following materials: clothing/textiles, asphalt shingles and drywall, sharps, pharmaceuticals, and food for donation.

DOCUMENTATION:

1. Provide A-Z website link in annual SWIP report.
2. A-Z website link must be easily found from the district, alliance or town's website within 2 clicks or fewer from the homepage.
3. Publicize the A-Z Waste & Recycling Guide with at least two forms of outreach annually throughout the SWIP term.

G4 – Variable Rate Pricing

SWMEs must implement a variable rate pricing system that charges for the collection of municipal solid waste from a residential customer for disposal based on the volume or weight of the waste collected.

DOCUMENTATION:

1. In annual SWIP report, explain the method used to ensure haulers and facilities are charging residents for trash based on volume or weight.

G5 – Solid Waste Hauling Services

To ensure community members have access to information on solid waste hauling services in their region or town, SWMEs must annually update the contact information and trash, recycling, and food scrap pickup services offered by all commercial solid waste haulers operating within their region on the SWME website. SWMEs may elect to establish licensing or registration programs to accomplish this requirement.

DOCUMENTATION:

1. In annual SWIP report, provide website link to hauler contact list and services haulers provide.

OUTREACH – RECYCLING, ORGANICS, HHW/CEG, EPR PROGRAMS

O1 – School Outreach

To ensure all K-12 public and private school children, faculty and staff understand state disposal bans and how to reduce waste, reuse, recycle, compost, donate, and safely manage materials responsibly, **SWMEs must annually visit and work with K-12 public and private schools to implement school-wide waste reduction programs — covering, at minimum, disposal ban information, how to recycle correctly, how to separate food scraps for composting, how to reduce wasted food and donate what is appropriate, how to safely manage hazardous waste, and collection options available from Vermont's Extended Producer Responsibility Programs for electronics, paint, batteries, mercury-containing bulbs and thermostats.** SWMEs must assist schools on a continual basis to ensure the effectiveness of waste reduction programs.

SWMEs must conduct in-person outreach and education assistance to at least 10% or 2 schools (whichever is greater) within their jurisdiction each year, ensuring that at least 50% of the schools are reached by the end of the SWIP term. SWMEs should prioritize outreach to schools that have not yet been visited. For SWMEs with fewer than 10 schools, assistance should be offered on an annual basis to at least 2 schools per year, with re-visits to schools if all schools in the jurisdiction are reached early in the SWIP term.

SWMEs may work with ANR's Environmental Assistance Office to obtain information and technical assistance on HHW/CEG handling, disposal, waste reduction, recycling, and finding cost effective disposal options.

DOCUMENTATION

1. Provide a list of schools contacted, dates visited, informational materials provided (such as VT Waste Not Guide), technical assistance or outreach offered, and status of recycling and food scrap diversion programs in annual SWIP report.

O2 – Direct Business Outreach

To ensure businesses and institutions (hospitals, nursing homes, colleges, correctional facilities, and other large waste generators) understand how to meet State requirements and reduce waste, recycle, compost, donate food/goods, and safely manage materials responsibly, **SWMEs must annually conduct business outreach and education either in person or via phone — covering, at minimum, disposal ban information, how to recycle correctly, how to separate food scraps for composting, how to reduce wasted food, how to safely manage hazardous waste, and collection options available from Vermont's Extended Producer Responsibility Programs for electronics, paint, batteries, mercury containing bulbs and thermostats.** SWMEs must provide business outreach and education on a continual basis to ensure the effectiveness of waste reduction programs.

SWMEs must conduct business outreach and education to at least 2% or 20 businesses/institutions (whichever is greater) within their jurisdiction each year and reach at least 10% of the businesses and institutions within their region by the end of the SWIP term. For SWMEs with fewer than 20 businesses, all businesses must receive outreach at least twice during the SWIP term.

SWMEs should prioritize outreach to businesses that have not yet been contacted or visited or those whose status is not yet known.

DOCUMENTATION

1. In annual SWIP report, provide list of businesses/institutions contacted, date contacted, outreach materials provided (such as the VT Waste Not Guide), and the status of recycling and food scrap diversion programs and whether follow-up is needed.

Q3 – Waste Reduction at Events

To ensure community members have resources to reduce waste, recycle, and divert food scraps from the trash at events, SWMEs must, at minimum, offer technical assistance which could include signage and coordination with local haulers and facilities accepting food scraps. Though not required, SWMEs are encouraged to host waste-sorting stations at events with SWME staff or volunteers or to loan community members basic supplies such as signage and collection bins.

DOCUMENTATION

1. Provide information on SWME or town website of event waste reduction and diversion resources and services and provide link in annual SWIP report.
2. In annual SWIP report, list events that have received assistance each year.

HHW & CEG HAZARDOUS WASTE

H1 – HHW Collection Events and Facilities

To ensure community members have convenient access to safely dispose of Household Hazardous Waste (HHW) and Conditionally Exempt Generator Hazardous Waste (CEG), SWMEs must provide a minimum of two (2) HHW/CEG hazardous waste collection events per year or access to a permanent HHW collection facility defined within this MMP as a facility that is open at least one day per week and open at minimum from May through October (ANR may consider approving requests for alternative operating days and seasonal openings and closures of permanent facilities when necessary). SWMEs that provide access to a permanent HHW collection facility in their region, are exempt from the requirement to offer all towns at least one annual collection event within 20 road-miles.

Minimum Requirements for SWMEs utilizing Collection Events: SWMEs must offer at least one event scheduled in the spring and one in the fall and events must operate for a minimum of 4 hours. SWMEs who only offer collection events or operate HHW facilities with operating hours similar to collection events must annually provide each of its towns with access to at least one collection event (or to a facility) within 20 road-miles; meaning a maximum distance of 20 road-miles from any point in the town. If a SWME provides additional events above the minimum requirement, waivers to the minimum duration for each event may be considered by ANR. To meet this 20-road-mile convenience requirement, certain regions may need to add collection events.

SWMEs may share access to events and facilities provided a signed agreement confirming access by the SWME's community members is obtained; and provided that an event or facility is within 20 road-miles from any point in a town that would be using that event or facility.

In the event an EPR Program is established for certain HHW materials, SWMEs would be required to ensure that collection exists for all other HHW materials not covered by the HHW EPR Program and to meet and maintain the above HHW collection and convenience standards.

DOCUMENTATION

1. In annual SWIP report, provide dates of events or link to facility hours on SWME website, number of participants and the amount of HHW/CEG hazardous waste collected.

H2 – Collection of Landfill-Banned and Dangerous Materials

Each SWME shall demonstrate that year-round collection options exist in their region for the following materials: **batteries, mercury containing lamps, mercury thermostats, 1- and 20-pound propane tanks, electronics, paint, tires, used oil, and white goods (including discarded refrigerators, washing machines, clothes dryers, ranges, water heaters, dishwasher, freezers)**. Collection locations can be privately or publicly owned, such as auto parts stores collecting used oil, or hardware stores collecting paint and fluorescent lamps. However, if the only collection location for a required material closes during the SWIP term, then the SWME must provide a collection option for its residents. All collection locations must be open at least one weekday and one weekend day per week. In addition, all outreach promoting the collection of these materials must make clear that the collection of these materials is separate from curbside, or blue-bin, recycling.

DOCUMENTATION

1. In annual SWIP report, provide link to SWME's A-Z Guide's listings with name, location, phone number, and website (if available) of the locations, by material type.

FOOD DONATION

F1 – Food Rescue

To ensure community awareness of food donation centers, SWMEs must, at minimum, list food donation groups on their website (this can be part of the A-Z Guide). SWMEs should contact and collaborate with local food redistribution groups to conduct outreach and education to food businesses and institutions about opportunities to donate quality food within the region to feed people. Related groups include Vermont Foodbank, hunger councils, food shelves, churches, schools, and other nonprofit and community organizations that accept and distribute donated food items.

DOCUMENTATION

1. In annual SWIP report, provide link to SWME's A-Z Guide's food donation listing, with name, location, phone number, and website (if available) of the food donation centers.

TEXTILES

T1 – Textile Reuse and Recycling

To ensure community members have access to textile reuse and recycling centers where used clothing can be donated, SWMEs must annually ensure that at least one collection location exists within their region. Textile reuse/recycling locations can be either privately or publicly owned. However, if the only collection location closes or ceases collection during the SWIP term, then the SWME is responsible for providing a collection option for its residents or partnering with another group that may coordinate an annual drop and swap event. Collection locations can also be shared amongst SWMEs so long as the facility is within the same county or SWME region. SWMEs must list where to donate and reuse/recycle "clothing/textiles" in their A-Z Guides.

DOCUMENTATION

1. In annual SWIP report, provide link to SWME's A-Z Guide's textiles reuse and recycling listing with name, location, phone number, and website (if available) of the textile reuse and recycling center.

CONSTRUCTION & DEMOLITION

C1 – Leaf, Yard, and Clean Wood Debris Recycling

To ensure community members have options to recycle leaf, yard, and clean wood debris that are banned from landfill disposal, SWMEs must annually ensure that at least one leaf, yard, and clean wood recycling collection location exists within their jurisdiction. This location can be either privately or publicly owned; however, if the only collection location closes or ceases collection during the SWIP term, then the SWME must provide a

collection option for its community members. SWMEs must list where to drop off clean wood in their A-Z Guides. Recycling options can include dimensional lumber that is reused, clean wood that is burned to produce heat and/or power for buildings (including wood stoves), clean wood that is chipped to create mulch or compost feedstocks, and other options listed in the state's Leaf, Yard, and Clean Wood Debris Guide. Collection locations should be co-located with solid waste facilities that collect C&D and trash to make clean wood recycling convenient.

DOCUMENTATION:

1. In annual SWIP report, provide link to SWME's A-Z Guide's clean wood recycling listing with name, location, phone number, and website (if available) of the collection location.

C2 – Asphalt Shingles and Clean Drywall Recycling

Asphalt Shingles Recycling: To ensure community members have options to recycle asphalt shingles, SWMEs must ensure that at least one recycling collection location exists within their region. Collection locations can be privately or publicly owned. However, if the only recycling collection location closes during the SWIP term, then the SWME must provide a collection option. Collection locations may be shared amongst SWMEs. ANR may suspend this requirement upon finding that insufficient markets exist for these materials.

Clean Drywall Recycling: To promote the recycling of clean drywall, SWMEs must list where to drop off clean drywall for recycling in their A-Z Guides (even if drywall recycling collection locations are outside of the SWME region). To encourage development of options for drywall recycling collection, SWMEs must contact drywall recycling collectors once during the SWIP term to determine costs for obtaining drywall recycling collection services in their region.

DOCUMENTATION:

1. In annual SWIP report, provide link to SWME's A-Z Guide's asphalt shingles and drywall recycling listing with name, location, phone number, and website (if available) of these recycling collection locations.
2. Fifth (5th) Year SWIP Report: describe contact made to drywall recyclers for costs for recycling option.

RESIDUALS – BIOSOLIDS, WOOD ASH, SHORT PAPER FIBER

R1 – Residuals Recycling Meetings

To promote the recycling of residual materials, each SWME must attend and help ANR Residuals Program staff host and coordinate at least one regional public meeting on residuals recycling during the SWIP term. ANR Residuals Program staff will help SWMEs organize the meetings, give a presentation, and identify speakers and invitees. SWMEs must reserve a space to hold the meetings and send invitations to water/wastewater and public works employees, town managers, select board members, septic and biosolids service providers, citizens, industrial waste generators, and others as appropriate. ANR Residuals Program staff will collaborate with SWMEs to develop a meeting agenda that best suits the needs or issues of the region and its towns. Meeting agendas could cover the benefits and challenges of recycling biosolids and other residual materials, like stabilized septage, wood ash, and short paper fibers, as well as education campaigns for the public on residual materials and keeping non-flushables and toxics out of the wastewater stream and septic systems.

DOCUMENTATION:

1. Collaborate with Residuals staff to host/coordinate regional public meeting on residuals recycling.
2. Report date of meeting and list of attendees in 5th year SWIP report.

Glossary of Terms

DISCLAIMER - The Glossary of Terms does not provide legal definitions of all terms. Instead, the intent is to provide consistent definitions of key words used in this Plan so that all readers have the same understanding of these terms as used in the context of this Plan.

Anaerobic Digestion: means the controlled anaerobic decomposition of organic food residuals, manure, animal feed waste, other natural organic waste materials inside a containment structure or vessel, generally resulting in the production of methane-rich gas. The initials "AD" may refer to the process of anaerobic digestion or the built system where anaerobic digestion takes place, also known as a digester.

Biogas: gas produced by the breakdown of organic material in the absence of oxygen.

Biosolids: primarily organic materials recovered from the wastewater treatment process and sewage sludge, both of which have been treated and shown to meet the standards such that it can be managed through beneficial use. Beneficial use includes land application or further treatment to produce compost or similar products. Disposal includes dewatering followed by landfilling or incineration.

Clean wood: has the same definition as "wood waste" in state statute and means trees, untreated wood, and other natural woody debris, including tree stumps, brush and limbs, root mats, and logs.

Conditionally Exempt Generator (CEG): a generator of hazardous waste that is conditionally exempted from certain provisions of the Vermont Hazardous Waste Management Regulations.

Composting: the controlled biological decomposition of organic matter through active management to produce a stable, humus-rich material.

Construction and Demolition (C&D) debris: means waste derived from the construction or demolition of buildings, roadways or structures including but not limited to clean wood, treated or painted wood, plaster, sheetrock, roofing paper and shingles, insulation, glass, stone, soil, flooring materials, brick, masonry, mortar, incidental metal, furniture and mattresses. This waste does not include asbestos waste, regulated hazardous waste, hazardous waste generated by households, hazardous waste from conditionally exempt generators, or any material banned from landfill disposal under 10 V.S.A. §6621a.

Disposal: the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or onto any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any ground or surface waters.

Diversion Rate: the measurement of the amount of waste diverted (by composting, reusing, and recycling materials), divided by the sum of waste diverted and waste disposed (at disposal facilities, landfills and incinerators). Materials used for alternative daily cover at landfills do not constitute materials diverted from the landfill.

That is calculated by using the following equation:

$$\text{Diversion Rate (\%)} = \frac{\text{tons diverted}}{\text{tons diverted + disposed}} \times 100 = \frac{\text{tons reused + composted + recycled}}{\text{tons reused + composted + recycled + landfilled + incinerated}} \times 100$$

Energy recovery (as it relates to the Food Recovery Hierarchy): Energy recovery as it relates to the food residual hierarchy does not include disposal by incineration, waste-to-energy incineration, or other such processes.

Extended Producer Responsibility (EPR): a mandatory type of product stewardship that includes, at a minimum, the requirement that the producer's responsibility for their product extends to post-consumer management of that product and its packaging. There are two related features of EPR policy: (1) shifting financial and management responsibility, with government oversight, upstream to the producer and away from the public sector; and (2) providing incentives to producers to incorporate environmental considerations in the design of their products and packaging.

Food Scraps/Residuals: source-separated and uncontaminated material that is derived from processing and discarding of food and that is recyclable; may include pre-consumer and post-consumer food scraps but does not necessarily include meat and meat-related products when the food residuals are composted by a resident on site.

Household Hazardous Waste (HHW): any waste from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas) that would be subject to regulation as hazardous wastes if it were not from households. Examples of HHW include paint, cleaners, oils, batteries, and pesticides. Because they contain potentially hazardous ingredients, these wastes require special management.

Leaf and yard debris: source-separated compostable, untreated vegetative matter, including grass clippings, leaves, kraft paper bags, and brush, which is free from non-compostable materials. It does not include such materials as pre-consumer and post-consumer food residuals, food processing residuals, or soiled paper.

Mandated recyclable: any of the following source-separated materials: aluminum and steel cans; aluminum foil and aluminum pie plates; glass bottles and jars from foods and beverages; polyethylene terephthalate (PET) plastic bottles or jugs; high density polyethylene (HDPE) plastic bottles and jugs; corrugated cardboard; white and colored paper; newspaper; magazine; catalogues; paper mail and envelopes; boxboard; and paper bags.

Management facilities: Facilities that are permitted by ANR to accept materials for recycling, processing, or disposal.

Materials Management: the lifecycle of materials as they trace their course through the economy, from raw material extraction to product manufacture, transport, use, source reduction, reuse, recycling, and disposal. (USEPA www.epa.gov/statelocalclimate/state/topics/waste-mgmt.html).

Municipal Solid Waste (MSW): combined household, commercial, and industrial waste materials generated in a given area.

Organic Materials: materials of a biological origin such as paper and cardboard, food, yard and garden waste, animal waste, biosolids and septage. For this MMP, biosolids and septage are discussed separately from other organic materials. Animal waste is not a subject addressed in this MMP.

Per Person Disposal Rate: the average amount of waste disposed (landfilled or incinerated) per person in a given year. Or, when expressed as an equation:

Per Person Disposal Rate = (total tons landfilled + total tons incinerated) per year by a given town or district or state / total population of that town or district or state (may be adjusted for seasonal population)

Plan term: the period of time by which the Materials Management Plan designates the earliest and latest possible date at which a performance standard must be completed. This term is scheduled for a 5-year period beginning on the date of adoption.

Product Stewardship: the act of minimizing health, safety, environmental, and social impacts of a product and its packaging, and maximizing economic benefits of a product and its packaging throughout all lifecycle stages. The producer of the product has the greatest ability to minimize adverse impacts, but other stakeholders, such as suppliers, retailers, and consumers, also play a role. Product stewardship can be either voluntary or required by law.

Recyclable Materials: solid waste which may be reclaimed and/or processed so that they may be used in the production of materials or products.

Recycling: the process of utilizing product residuals, packaging, or food scraps for the production of materials or products but does not include processing solid waste to produce energy or fuel products.

Recycling Rate: the percentage of material recycled compared divided by the sum of recycled and disposed material, multiplied by 100. Or, when expressed as a formula:

Recycling Rate (%) = tons of materials recycled / (tons of materials recycled + tons of waste disposed) (x 100)

ReTRAC: a database used to manage all diversion and disposal reports for the State of Vermont. Data can be tracked and reports run based upon facility, material, or region.

Reuse: use of a material or product more than once before it is recycled or discarded as solid waste.

Septage: the liquid and solid materials pumped from a septic tank or cesspool during cleaning.

Sludge: any untreated solid, semisolid, or liquid generated from a municipal, commercial, or industrial wastewater treatment plant or process, water supply treatment plant, air pollution control facility, or any other such waste having similar characteristics and effects.

Solid Waste (SW): any discarded garbage, refuse, or septage, or sludge from a waste treatment plant, water supply plant, or pollution control facility and other discarded material including solid, liquid, semi-solid, or contained gaseous materials resulting from industrial, commercial, mining, or agricultural operations and from community activities but does not include animal manure and absorbent bedding used for soil enrichment or solid or dissolved materials in industrial discharges which are point sources subject to permits under the Water Pollution Control Act. Solid waste that is also hazardous waste is subject to further regulation under the Vermont Hazardous Waste Management Regulations.

Solid Waste Implementation Plan (SWIP): that plan which is adopted to be consistent with the State Materials Management Plan (MMP). This plan must include all the elements required for consistency with the MMP and an applicable regional plan and shall be approved by the Secretary. This implementation plan is the basis for state certification of facilities.

Solid Waste Management: activities that result in the storage, transportation, transfer, treatment of solid waste or recyclable material, or disposal of solid waste.

~~***Solid Waste Management Entity (SWME):*** a term used to reference a town or groups of towns that have unified as a district, group, or alliance in order to share financial and human resources dedicated to managing the solid waste generated by organizations and residents residing within the particular town or group of towns.~~

~~***SWIP term:*** the term in which a Solid Waste Implementation Plan (SWIP) is approved by ANR until the time a new SWIP is approved following the adoption of a new MMP (referred to as a "solid waste management plan" by statute) or a revised SWIP is approved by ANR.~~

~~***Transfer Station:*** a solid waste management facility where solid waste is collected, aggregated, sorted, stored, and/or processed for the purpose of subsequent transfer to another solid waste management facility for further processing, treatment, transfer, or disposal.~~

~~***Universal Waste:*** establishes alternative management standards for certain hazardous wastes in order to streamline the management process. Examples of Universal Wastes are batteries, pesticides, thermostats, PCB-containing fluorescent light ballasts, lamps, mercury-containing devices, paint, and cathode ray tubes.~~

~~***Variable Rate Pricing (or Unit Based Pricing or Pay As You Throw):*** Charging a tiered or variable fee based on the volume or weight of the solid waste collected.~~

~~***Waste:*** a material that is discarded or is being accumulated, stored, or physically, chemically, or biologically treated prior to being discarded, or has served its original intended use or is a manufacturing or mining by-product, and is normally discarded.~~

~~***Waste Prevention:*** actions or choices that prevent the generation of waste. Waste prevention involves altering the design, manufacture, purchase, or use of products and materials to reduce the amount and toxicity of what gets thrown away.~~

~~***Waste Reduction:*** waste reduction combines the efforts of waste prevention, reuse, composting, and recycling practices.~~

Clean Copy

2024 Vermont Materials Management Plan

Effective Date: _____

VERMONT
AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation

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1 Introduction

In the five years since the last (2019) Materials Management Plan was written, much has changed both globally and locally that has impacted Vermont's waste stream:

a) the COVID-19 pandemic led to both an increase in certain wastes, such as beverage and food containers, and a temporary decrease in overall waste;
b) the Single-Use Products law and the full food scrap ban from the Universal Recycling law went into effect on July 1, 2020;
c) Vermont created and approved its first Climate Action Plan in 2021;
d) Vermont passed the Environmental Justice law in 2022;
e) Vermont implemented a product ban in 2023 on food packaging and other products with intentionally-added PFAS (per- and poly fluoroalkyl substances; see section 1.4.1);
f) Vermont passed a Household Hazardous Waste Extended Producer Responsibility law in 2023;
g) commodity values continue to fluctuate due to long-term implications of China's 2018 ban on certain solid wastes and strict limits to contamination in recyclables;
h) landfill disposal capacity in the New England region continues to decrease;
i) emergent contaminants like PFAS and microplastics have connected seemingly disparate topics like packaging design and land application of compost or digestate; and
j) historic flooding of July 2023 reminded us of the importance of waste management infrastructure and the impacts of climate change.

With all these new opportunities and challenges in mind, it is imperative that Vermont not only move forward with reducing waste and decreasing dependence on landfilling through improved recycling and composting, but also pursue ways to reduce greenhouse gas emissions, improve the resiliency of our communities, consider equitability of environmental benefits and burdens, and shift our culture toward a more circular economy.

The purpose of the 2024 Materials Management Plan (MMP or Plan) is to provide a framework for the State and its citizens to feasibly prevent waste from being generated, reduce the toxicity and environmental impacts of our waste stream, and expand reuse, recycling, and composting efforts to attain Vermont's statewide goals.

The MMP outlines actions that both the Agency of Natural Resources (ANR) and Solid Waste Management Entities (SWMEs) will take to reduce the amount and toxicity of solid waste in Vermont. SWMEs—including solid waste districts, alliances, and independent towns—will complete actions outlined in their Solid Waste Implementation Plans (SWIPs) that must conform with this MMP.

1.1 Statutory Authority

Act 78 of 1987—one of Vermont's most significant solid waste laws—established the requirement under 10 V.S.A. §6604, that "the Secretary [of the Agency of Natural Resources] shall publish and adopt, after notice and public hearing…, a solid waste management plan which sets forth a comprehensive statewide strategy for the management of waste…" Statute also requires this solid waste plan be revised at least once every five years.

The first State Solid Waste Management Plan was adopted in 1989, revised in 2001, and then readopted in 2006. In 2007, a legislative mandate required ANR to evaluate the effectiveness of the plan and to develop a new vision for materials management. A group of stakeholders, the Solid Waste Working Group (SWWG), was tasked with evaluating and compiling a list of recommendations to accomplish State solid waste goals. The SWWG's 2009 report to the Legislature was a driving force behind the passage of Vermont's Universal Recycling law (Act 148 of 2012) and the 2014 Plan was named the "Materials Management Plan" (MMP), as it laid out a "sustainable materials management" (SMM) vision.

The 2024 MMP maintains the general sustainable materials management direction and actions laid out by the 2014 Plan. ANR will continue to evaluate and prioritize environmentally, socially, and economically sustainable materials management strategies that can reduce waste and its impact from production through end-of-life. Previous state solid waste plans and historic reports can be found on ANR/DEC's Solid Waste Program website.[1]

What is Sustainable Materials Management?

The US EPA defines SMM as: "a systematic approach to using and reusing materials more productively over their entire life cycles. It represents a change in how our society thinks about the use of natural resources and environmental protection. By examining how materials are used throughout their life cycle, an SMM approach seeks to:

- Use materials in the most productive way with an emphasis on using less.
- Reduce toxic chemicals and environmental impacts throughout the material life cycle.
- Assure we have sufficient resources to meet today's needs and those of the future."

1.2 Plan Priorities and Goals

As required by statute, the 2024 MMP requirements for ANR and SWMEs were created to address the following priorities established in 10 V.S.A. §6604(a)(1):

a) the greatest feasible reduction in the amount of waste generated;
b) sustainable materials management;
c) the reuse and closed-loop recycling of waste to reduce to the greatest extent feasible the volume remaining for processing and disposal;
d) the reduction of the State's reliance on waste disposal to the greatest extent feasible;
e) the creation of an integrated waste management system that promotes energy conservation, reduces greenhouse gas emissions, and limits adverse environmental impacts; and
f) waste processing to reduce the volume or toxicity of the waste stream.

Based on these priorities and other, more recent, legislative priorities like the Environmental Justice law (Act 154 of 2022), the goals of the 2024 MMP, are as follows:

1. **Maximize overall waste reduction and minimize disposal.** Why? To use less energy, emit fewer greenhouse gases, consume fewer resources, and create less material that needs to be managed and disposed of properly.

[1] VTANR, Waste Management & Prevention Division, Solid Waste Management Program, Publications and Reports. dec.vermont.gov/waste-management/solid/publications-and-reports

2. **Promote sustainable materials management.** Why? To encourage the circulation of resources in the economy that can save energy, reduce greenhouse gas emissions, reduce the use of raw materials, and conserve resources for the future.

3. **Reduce toxicity of waste and the quantity of toxic products used**. Why? To reduce the toxicity of the waste stream and to protect public and environmental health.

4. **Reduce greenhouse gas emissions through better materials management and promote climate change resilience.** Why? To reduce the effects of materials management on climate change and build a more environmentally sustainable and resilient Vermont.

5. **Promote equity, accessibility, and environmental justice.** Why? Vermont's natural resources are held in trust for everyone and should be a source of inspiration and enjoyment for all. ANR is committed to ensuring that everyone living in and visiting Vermont has meaningful access and equal opportunity to participate in Agency programs, services, and activities.

Implementation of this plan is carried out primarily by the ANR, Department of Environmental Conservation Solid Waste Program, which consists of three sections: Certifications; Compliance; and Materials Management. As a regulatory agency, ANR is tasked with implementing many waste-related laws and has rule-making authority. Under Act 78 of 1987, municipalities were given responsibility for solid waste planning and management and must adopt and implement "Solid Waste Implementation Plans" ("SWIPs") in accordance with the current Vermont Materials Management Plan (MMP). Part of the vision of Act 78 was the formation of regional districts or planning units for the collection, management, disposal, reduction, and recycling of waste, which are represented by the Solid Waste Management Entities (or SWMEs) that we have today.

1.3 Vermont's Waste

According to 10 V.S.A. § 6604(a)(1)(B) "The [State's solid management waste] plan shall promote…the greatest feasible reduction in the amount of waste generated." The overall generation of waste reflects all materials that Vermonters use and discard—whether through disposal in the trash or through alternatives that divert materials from the trash, such as reuse, recycling, and composting. Tracking disposal, diversion, and waste generation over time is important as these trends reflect both cultural values and habits and the infrastructure and innovation necessary for diversion of particular materials.

1.3.1 Disposal

While waste reduction is the goal, Vermont has always needed, and will continue to need, disposal capacity for waste materials that cannot be reduced, reused, recycled, or composted. In Vermont, waste disposal is tracked annually through required reporting by regulated facilities. The amount of Vermont waste that is disposed out-of-state is tracked less precisely, as out-of-state facilities that accept Vermont waste do not report directly to ANR. However, all solid waste haulers are required to report and remit to the Vermont Tax department all

franchise tax revenues for Vermont waste that is disposed out-of-state. For more than a decade, ANR has used a contractor to review and audit haulers and facilities both in and out-of-state to ensure the franchise tax is being paid.

Since the passage of Act 78 in 1987, progress has been made in establishing modern lined landfills. While nearly every community once had its own unlined landfill, all have now closed and currently only the New England Waste Services of Vermont ("NEWSVT") landfill in Coventry is operating. NEWSVT is a large, double-lined, landfill that handles approximately 80% of the state's solid waste. This landfill is permitted to accept up to 600,000 tons of solid waste per year. In 2022, it accepted a total of 539,436 tons of waste, with 432,321 tons from Vermont, including 401,196 tons of municipal solid waste (MSW), plus construction and demolition debris (C&D), sludge, asbestos, ash, contaminated soil, sewer grit, and paper sludge. The landfill also accepted 107,115 tons from out-of-state, which included residue from material recovery facilities (MRF), C&D, sludge, asbestos, ash, contaminated soil, and sewer grit; the landfill is not permitted to accept out-of-state MSW. The landfill also uses contaminated soils and other materials, including processed C&D, sawdust, and sludge mixed with soil, for "acceptable uses" as alternative daily cover and for road base material. The NEWSVT landfill captures most of their methane landfill gas, which is used to produce electricity. More information on the disposition of Vermont's waste can be found in the Agency's annual Diversion and Disposal Reports.

As stated above in Section 1.2, under Act 78, municipalities were given responsibility for solid waste planning and management and part of the vision was the formation of regional districts for the collection, management, disposal, reduction, and recycling of waste. Millions of dollars were spent by the State and municipalities on regional landfill siting and design. However, none of these proposed facilities are operating today. Generally, this is due to the costs and required economies of scale associated with running modern landfills, as documented in this 2021 Report on Landfill Operation in the State[2].

While regional landfills have struggled to be economically viable, having in-state disposal capacity certainly benefits the state, as demonstrated by the July 2023 flooding. The NEWSVT landfill reported receiving approximately 20,000 tons of waste from these floods. The Agency is aware that additional flood debris was disposed of out-of-state, but the exact amount is unknown.

Currently, the NEWSVT landfill is estimated to have less than 20 years of operating capacity remaining. While the state will need more disposal capacity in the future, this requires a broader view of materials management that does not unintentionally support disposal over waste reduction and diversion. As this 2008 life cycle assessment modeling study from Massachusetts[3] concludes, source reduction, recycling, and composting are the most beneficial materials management options.

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[2] Report on Landfill Operation in the State. Completed as Required by 2019 Act 69. Vermont Agency of Natural Resources, Department of Environmental Conservation. 2021.

[3] Assessment of Materials Management Options for the Massachusetts Solid Waste Master Plan Review. Massachusetts Department of Environmental Protection. 2008.

While siting additional landfills would provide more disposal options for Vermont's waste, the Agency is not aware of any projects currently being planned. Some may advocate for a state-owned landfill or incinerator, as exists in some other states. A state-owned landfill would, in effect, bear all the liability for the waste facility, while the profits would be held by the private contractor hired to operate it. Waste incinerators produce significant air emissions, and the ash still requires landfill disposal capacity. Traditionally, waste incinerators require huge upfront capital to build, requiring long-term contracts for large volumes of waste to ensure the debt can be repaid. This is partly the reason a waste incinerator that was proposed in Rutland in the 1980s failed and why no new incinerators are being proposed in Vermont or other New England states. Vermont's annual disposed waste is low enough to present a significant economic challenge for the formation of both waste incinerators and regional landfills. For context, Vermont disposed of approximately 400,000 tons of MSW in 2021 while neighboring Massachusetts disposed of approximately 4,000,000 tons of MSW in 2019.

Regionally, a 2021 Northeast Waste Management Officials Association (NEWMOA) report on Solid Waste Disposal Capacity[4] showed that disposal capacity in the Northeast is constricting, with 23% of the region's waste being managed by landfills that will reach their currently-permitted capacity within the next 5 years. Some northeast states are already using rail transport for waste disposal in states like Ohio, Pennsylvania, and Virginia. While rail transport could be a future option for Vermont waste, it would likely be costly, subject to disruptions, and challenging to regulate given the federal exemptions for rail operations.

Over the next 5 years, ANR plans to initiate a stakeholder process for Vermont disposal capacity of the future. Whatever the path, the state must not waver in its efforts to reduce, repair, reuse, recycle, compost, and safely manage waste and materials for the benefit of human health and the environment.

1.3.2 Waste Composition Study

As required by statute, every five years ANR conducts a waste composition study in which contractors hired by ANR systematically sort through samples of trash (municipal solid waste) at key facilities throughout the state and categorize every item to determine what Vermonters throw away. Full methods can be found in the 2023 Waste Composition Study Report[5]. These studies provide detailed snapshots of what Vermonters throw in the trash and allow us to assess trends in disposal patterns at five-year intervals. It is worth noting, however, that factors other than disposal patterns also affect waste composition results. For example, light-weighting of materials means that a single cardboard box or a single plastic bottle in 2023 may weigh less than the equivalent item in previous years. Similarly, decreases in one part of the waste stream have an impact on other parts. For example, as paper and cardboard are increasingly recycled, heavier food scraps and organics inherently become a larger portion of the remaining waste stream.

[4] Solid Waste Disposal Capacity in the Northeast. Northeast Waste Management Officials Association. 2021.
[5] 2023 Waste Composition Study Report. Prepared for the Vermont Department of Environmental Conservation by MSW Consultants. 2024.

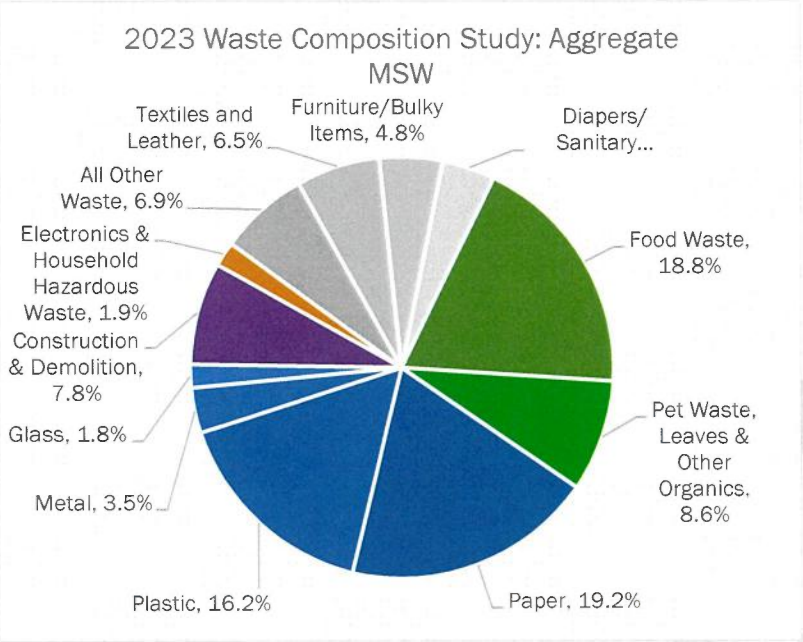

FIGURE 1: 2023 WASTE COMPOSITION STUDY RESULTS OF AGGREGATE MSW (378,042 TONS) SORT.

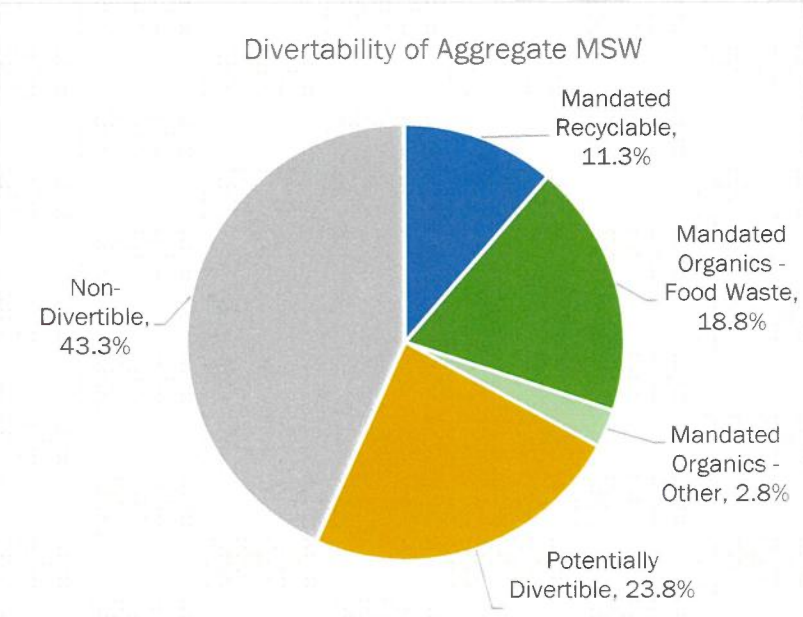

FIGURE 2: 2023 WASTE COMPOSITION STUDY AGGREGATE MSW CATEGORIZED BY DIVERTIBILITY.

Results from the most recent 2023 Waste Composition Study demonstrate:

a) As shown in figure 1, by weight, the largest single categories of municipal solid waste (MSW) were paper (19.2%), food waste (18.8%), and plastic (16.2%). It should be noted that food waste is a generally "wet" and heavy material and that disposed paper can become wet, and therefore heavier, than it would have been.

b) As shown in Figure 2, 43% of the material disposed in MSW was non-divertible trash. However, more than a quarter of the MSW could (and should) have been diverted through mixed recycling, food waste, and leaf and yard debris streams. The remaining 24% was potentially divertible items, such as matresses, textiles, electronics, and appliances.

c) Overall, the relative proportions of various materials in the aggregatte MSW waste stream is quite similar to that found in the 2018 Waste Characterization Study[6].

d) One notable change is the increase in plastic, from 13% in 2018 to 16.2% in 2023. This predominance of plastic would be even more notable if measured by volume instead of by weight.

e) There was also a decrease in construction and demolition (C&D) debris in the MSW, from 11% in 2018 to 7.8% in 2023. However, this only represents the C&D mixed in with the MSW

[6] 2018 Waste Characterization Study. Prepared for the Vermont Department of Environmental Conservation by DSM Environmental. 2018.

waste stream, and does not include the separate C&D waste stream, which is still a significant portion of waste.

See Markets and Facilities (Section 2) for more Waste Composition study results for individual materials.

1.3.3 Diversion and Waste Reduction

Tracking diversion, while just as important as tracking disposal, is more challenging because it not only includes recycling and composting data from regulated facilities, but also activities that ANR does not receive reports on, such as back-yard composting, sales from reuse stores, farm-based animal feed and composting, or when a retailer or manufacturer "back hauls" cardboard and other materials for recycling out-of-state. The overall goal is always to generate less waste, both by disposing less and diverting more and, most importantly, by having less material to manage in the first place.

Vermont's Universal Recycling law: In 2012, Vermont's legislature unanimously passed the Universal Recycling law (adopted as Act 148) designed to reduce waste and increase recycling and organics diversion through disposal bans and convenience standards that require statewide collection of certain materials at the curb and at drop-off facilities. The law incentivizes reduction and diversion through variable rate pricing, or "pay-as-you-throw," and encourages investments in recycling and organics collection and management. Implementation of the law was phased in over more than a decade, allowing time to establish collection services and expand processing facilities for managing these materials.

With few exceptions, the law is effective in establishing recycling services at the curb and at transfer stations wherever trash collection is offered. It also established food scrap drop-off and seasonal leaf and yard debris collection at over 100 transfer stations. It reinvigorated food donations in the state and incentivizes businesses and institutions to reduce food waste simply because they must prioritize separating it from the trash due to the statewide food waste disposal ban. In February 2023, UVM published results of a recent survey[7] that found an impressive 85% of Vermonters report that they are composting their food scraps.

[7] Impact of Vermont's Food Waste Ban on Residents and Food Businesses. Belarmino et al. University of Vermont. 2023.

Diversion & Reduction Goals: The data on how Vermonters generate and manage our waste are both encouraging and sobering. Through the waste composition studies and our annual Diversion and Disposal (D&D) Reports, ANR is able to estimate the amount of recyclables, food scraps, and other materials that are diverted from the waste stream versus those disposed of in the trash. Using the most current 2023 Waste Composition data and 2022 D&D data, we have a statewide recycling recovery rate of 72.1% of mandated recyclables (paper, cardboard, glass bottles and jars, plastics #1 and #2, and steel and aluminum cans). This is the same as the recycling recovery rate of 72% calculated after the 2018 Waste Composition study. Similarly, for the first time, we now have a food scrap recovery rate, calculated as around 53%. A food scrap recovery rate was not calculated in the 2018 study. Clearly, Vermonters are working hard to keep their recyclables and food scraps out of the trash.

What is the Recycling Recovery Rate?

The recycling recovery rate is the percentage of "blue bin recyclables" (paper, cardboard, steel, aluminum, glass, and plastics #1, 2, and 5) that were actually recycled (data from regulated solid waste facilities) out of all recyclable materials generated by Vermonters, which is the sum of materials that were recycled + materials that could have been recycled but were thrown in the trash (data from Waste Composition Study).

Recovery rate = $\frac{Recycled}{Recyclable}$ x 100

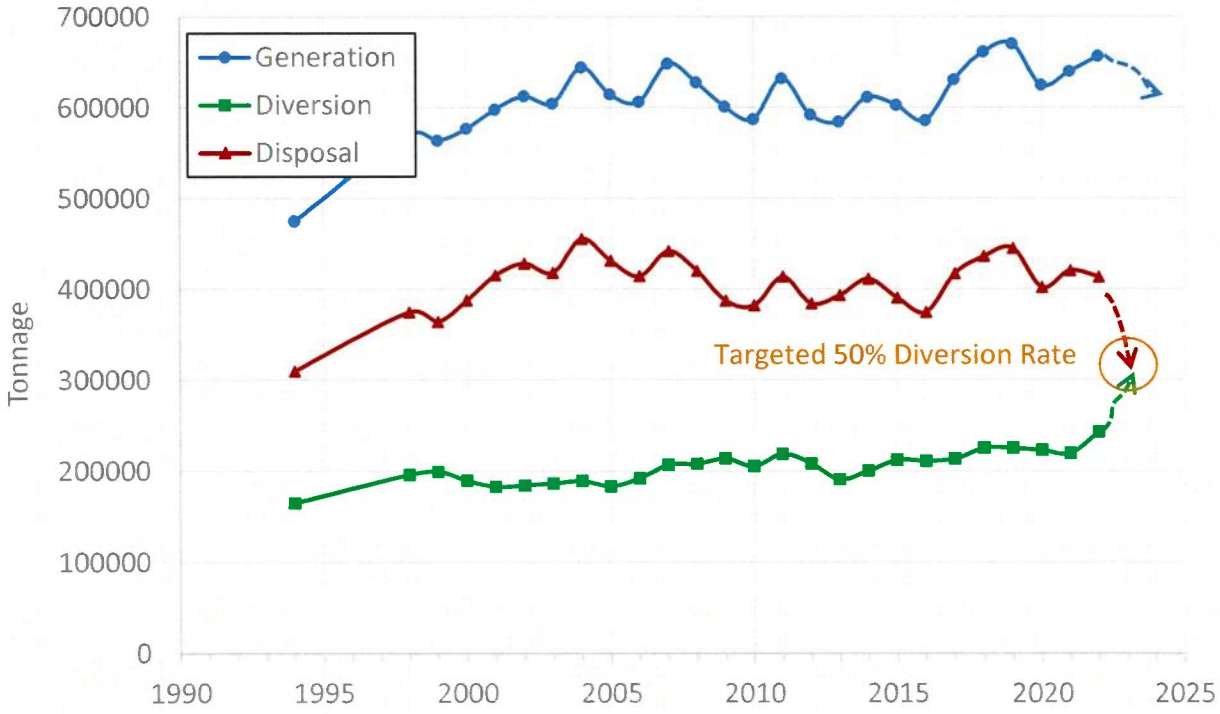

FIGURE 3: TRENDS IN WASTE GENERATION, DIVERSION, AND DISPOSAL.

In both the 2014 and 2019 MMPs, we had goals of reducing disposal of MSW by 25% and increasing diversion to 50% within the plan term. These are admirable goals, and achieving significant decreases in disposal and increases in diversion are necessary. However, in the last 10 years, the Agency's best data, shown in Figure 3, above, has not demonstrated significant progress toward either goal. Instead, since ANR began tracking diversion and disposal data in 1998, we have only once had three consecutive years of disposing less than

What are Disposal and Diversion?

Disposal of MSW includes everything that Vermonters throw in the "regular trash." It does not include construction and demolition debris or other materials that are landfilled like contaminated soil or sludge.

Diversion rate is the percentage of materials that Vermonters divert from disposal (i.e. an estimate of everything that Vermonters produce as waste but keep out of the trash by recycling, composting, reusing, etc.) out of all waste materials generated by Vermonters (MSW that was disposed + material that was diverted).

Diversion rate = $\frac{Diverted}{Generated}\ x\ 100$

A 50% diversion rate means that, of all the waste generated by Vermonters, half of the material would be kept out of the trash.

the year before—in 2007-2009. The biggest decrease in disposal in a single year was 10%, in 2020. Both of these periods of "low waste" corresponded with periods of economic recession. Overall, between 2018 and 2022, we have seen a 5% decrease in disposal but, between 2013 and 2022, we have not seen a decrease in waste disposal, but a 5% increase. This suggests that, despite relatively high recovery rates of recyclables and food scraps, general trends toward increased consumption may have a larger impact on waste generation.

Similarly, we are not progressing toward meeting the goal of increased diversion. Instead, the tonnage of material that we estimate as being diverted from the landfill has remained surprisingly consistent over time and the diversion rate, for as long as we have calculated it, has never reached above 37%. That said, while ANR calculates the diversion rate each year, this is an incomplete estimate because there are many instances of diversion that we do not have data for. Interestingly, some SWMEs that have collected more data than is possible at a state-wide level (such as by conducting extensive phone-interviews of businesses that back-haul recyclable material or divert material in other ways than through facilities that report to ANR) have quantified diversion rates over 50%.

While the state of Vermont produces relatively small amounts of waste compared to neighboring states with larger populations, more work is needed to improve waste reduction, recycling, and composting systems. As the upcoming Challenges in Materials Management (1.4) and Markets and Facilities Assessment (2) sections detail, reducing waste and increasing recycling must look upstream to the products and materials we consume and must acknowledge some of the unavoidable waste that may be required to meet other societal goals (new housing, for example). Together, wasting less, disposing less, and diverting more will conserve natural resources, reduce greenhouse gas emissions, and decrease the need for additional landfill capacity, which have been state goals since even before the passage of Act 78.

2019 Goal:
Decrease disposal by 25% from 2018 to 2024.

Progress: 5% decrease in disposal from 2018 to 2022, but 5% increase in disposal from 2013 to 2022.

2019 Goal:
Increase diversion from 35% to 50%.

Progress: No significant increase.

1.4 Challenges in Materials Management

1.4.1 Emerging Contaminants

PFAS: In recent years, increasing research and knowledge about per- and poly fluoroalkyl substances (PFAS), has resulted in challenges that intersect many aspects of materials management, such as the land application of biosolids, compost, and landfill leachate management. PFAS are a large family of fluorinated chemicals used for decades in industrial processes, firefighting foams, and consumer products, and are now found across the globe in water sources, landfill leachate, and residual materials like sludges and biosolids. PFAS are termed "forever chemicals" due to their resistance to degradation, persistence in the environment, and bioaccumulation in nature. Toxicological studies have indicated health concerns associated with exposures to PFAS. As a result, our understanding of PFAS and the risks they pose is rapidly evolving and ANR continues to assess and update rules and standards. In 2021, the Vermont legislature passed restrictions on PFAS in a variety of products (Act 36), including a ban on the manufacturing, sale, and distribution of food packages containing PFAS, which went into effect July 1, 2023. In 2022, DEC's Solid Waste Program issued a permit to Casella Waste Management to pilot an on-site PFAS pre-treatment system to reduce the amount of PFAS in leachate from the NEWSVT landfill. As of April 2024, permits for air emission and pre-treatment are being reviewed by DEC's Air Quality and Climate Control Division and the Watershed Management Division.

Microplastics: Microplastics are characterized as plastic particles less than 5mm in size. Microplastic contamination is becoming an increasing concern in drinking water, wastewater, soil, land, air, solid waste, recycling, and organic materials recycling processes, and technologies such as composting, anaerobic digestion, and, most recently, from depackaging machines. In 2019, the Universal Recycling Stakeholder Group expressed the need to more fully understand microplastic contamination in organics management. Act 170 of 2022 set a moratorium on new food waste depackaging facilities in Vermont until the Agency adopts rules. It also required the establishment of a depackaging stakeholder group, multiple reports on the transportation of food waste, and a study of microplastics and PFAS in food packaging. Also in 2022, an interdisciplinary team at the University of Vermont conducted a literature review entitled "Microplastics in Composts, Digestates & Food Wastes[8]," which highlighted the need for more research on the extent and impacts of microplastic contamination. This report acknowledged that there are no organics processing technologies that entirely eliminate the risk of plastic contamination in the finished compost or digestate and that there are methodological limitations to the measurement of microplastics in these substances.

1.4.2 Climate Resiliency and Natural Disasters

The historic floods of July and August 2023 underscored the role that waste management infrastructure plays during a natural disaster, both at the height of the disaster and during the long-term recovery process. After the July 2023 floods, the State's Disaster Debris

[8] Microplastics in Composts, Digestate and Food Wastes. A New Comprehensive Review of Scientific Literature Finds that Microplastics are a Systematic Challenge in Organics Recycling Porterfield, K.K.; Hobson, S.A.; Neher, D.A.; Niles, M.T.; Roy, E.D., Journal of Environmental Quality. 2022.

Management contractor was deployed in 17 municipalities that opted into a Memorandum of Understanding (MOU) with the State to assist with flood debris removal once local resources were unable to meet the demand. The U.S. EPA assisted with the collection and safe disposal of flood-related hazardous materials. ANR and SWMEs were involved, to various extents, with both of these processes and other types of assistance to flood-impacted communities. SWMEs with existing HHW collection vehicles and facilities were able to mobilize and help some of the worst-impacted communities, which is evidence of these SWME and state-supported investments paying off. In some instances, waste management facilities were directly impacted by the floods, showing the importance for siting transfer stations and other waste facilities outside of flood plains.

1.4.3 Black Bears

Conflicts between humans and black bears have increased in Vermont over the last several years. Development has led to habitat fragmentation bringing bears and humans into closer proximity. Common problem attractants that may draw bears into human-occupied spaces, include bird seed, chickens, and honeybees. However, improperly or insufficiently managed trash and food scraps have contributed significantly to this problem. Since 2020, bears accessing garbage and/or food scraps make up 50% of the bear incident reports submitted by the public to the Vermont Fish and Wildlife Department (FWD). Effective secure storage options for garbage and food scraps are a critical component of preventing conflicts between people and bears. DEC is working collaboratively with FWD to educate the public on how to manage trash and food scraps with bears in mind and what to do if a bear gets into trash or food scraps. DEC and FWD are also exploring how to increase the use of bear-resistant trash containers.

1.5 Climate Change

There are many connections between materials management and climate change, including direct and indirect greenhouse gas emissions (GHGs). Sources of direct emissions include trucks hauling waste, landfills releasing methane as organic materials decompose, and the release of hydrofluorocarbons (HFCs) when refrigerants from waste appliances and junk cars are not properly managed. There are also less obvious sources of GHG, such as those related to the electricity required for product manufacturing and ecosystem disruptions from resource extraction. Many opportunities exist within materials management for reducing GHG emissions, such as through: the use of efficient energy sources and equipment at waste, recycling, composting, and digestion facilities; electrification of vehicles or equipment; landfill gas collection; composting or anaerobically digesting organic material (rather than landfilling); manufacturing products with recycled materials rather than raw materials; supporting recycling markets; and by reducing resource consumption through a culture that promotes reuse, repair, and general waste prevention through producing, shipping, and using fewer consumer goods in the first place.

In 2020, the Vermont legislature passed the Global Warming Solutions Act (Act 153), which set legally-binding emission reduction requirements for 2025, 2030, and 2050 and created a Climate Council tasked with drafting the state's first Climate Action Plan (CAP). The Climate Action Plan outlines strategies for reductions in greenhouse gas emissions, long-term

opportunities for carbon sequestration, and other initiatives related to climate change mitigation and resilience in Vermont communities and natural systems.

In the initial 2021 CAP, one Action was assigned to the Solid Waste Program: "expand infrastructure and educational programs around community and backyard composting and recycling." The Program's work on implementing the Universal Recycling law's recycling and composting mandates addresses this Action through grants, education, outreach, complaint response, load spot checks, and direct site visits to large waste generators. Many past and ongoing reduction and recycling initiatives work toward climate goals as well, including: the funding of composting and recycling infrastructure; the funding of Master Composter trainings and the Vermont Organics Recycling Summit; and media campaigns, such as *Recycle Like You Live Here* and *Scrap Food Waste*.

Beyond the single Action assigned in the Vermont CAP, there are additional opportunities for reducing the impact and emissions of Vermont's waste management infrastructure, such as through transitioning to electric equipment. The NEWSVT landfill in Coventry and the closed Moretown landfill have landfill gas-to-energy systems that collect methane from the landfills and combust that landfill gas to produce energy. Reducing the amount of organic material in the landfill was a primary driver behind the landfill ban on food scraps and other organic material in the Universal Recycling law, and continued outreach and education efforts help Vermonters understand the importance of reducing food waste and keeping food scraps out of the trash. Opportunities also exist for increasing the resiliency of Vermont's waste management infrastructure, as was highlighted when the July 2023 floods directly impacted a few waste facilities (see Challenges in Waste Management section 1.4.2 above).

1.6 Equity, Accessibility, and Environmental Justice

All individuals produce waste, and waste reduction and sustainable waste or "materials" management have many benefits, such as conserved resources, improved air and water quality, reduced reliance on raw materials, and decreased greenhouse gas emissions. However, individual access to information and services for waste reduction, recycling, and safe management can be hindered by barriers such as geography, socio-economic restrictions, English language proficiency, physical disabilities, and situational disabilities. Consequently, some Vermonters may toss recyclables, food scraps, or even household hazardous waste into the trash due to lack of services or knowledge. Additionally, the burdens of waste disposal facilities may not impact all Vermonters equally. For example, in some parts of the United States, there are communities that have multiple disposal facilities or disposal facilities located in areas that already have other polluting industries that can present environmental burdens such as odors, truck traffic, and impacts to water quality.

Issues of equity (the consistent and systematic fair, just, and impartial treatment of all individuals as defined by Executive Order 13985: Executive Order On Advancing Racial Equity and Support for Underserved Communities Through the Federal Government) and accessibility related to environmental benefits, environmental burdens, and cumulative impacts are connected to both environmental justice and civil rights. The ANR Office of Civil Rights and Environmental Justice supports and advances ANR's commitment to "ensuring that everyone living in and visiting Vermont has meaningful access and equal opportunity to participate in

Agency programs, services, and activities." In 2022, the State of Vermont passed the Vermont Environmental Justice Law – Act 154 – to establish a State Environmental Justice Policy and implementation steps. The implementation of this policy requires: (1) creating and adopting community engagement plans, (2) directing investments with environmental benefits proportionately to environmental justice focus populations, and (3) considering cumulative environmental burdens when making decisions. In consultation with the Environmental Justice Advisory Council and Interagency Committee beginning in 2023, ANR is developing guidance to support environmental benefits accounting. ANR will also develop a community engagement plan, create a state environmental justice mapping tool, and engage in future rulemaking regarding cumulative burdens. The VT DEC Solid Waste Management Program will follow this process as it unfolds across ANR and DEC.

Environmental Justice is also a priority at the federal level through initiatives such as Justice40, which mandates that "at least 40% of benefits of certain federal programs must flow to disadvantaged communities," which are defined by the Federal Climate and Economic Justice Screening Tool as "those that are marginalized, underserved, and overburdened."

2 Markets and Facilities Assessment

Statute requires that the Materials Management Plan include the following:

a) an assessment of the feasibility and cost of diverting specific material categories defined as "**marketable recyclables**, **leaf and yard waste residuals**, **food residuals**, **construction and demolition residuals**, **household hazardous waste**, and other categories that the Secretary identifies that may be diverted to meet the waste reduction priorities of the Plan.";

b) a survey of existing and potential markets for the above materials;

c) methods to reduce and remove material from the waste stream including **organics**, **textiles**, and **construction and demolition debris**;

d) methods to separate, collect, recycle, treat or dispose of wastes that create environmental health, safety or management problems including **tires**, **batteries**, **obsolete electronic equipment**, and **unregulated hazardous waste**;

e) **assurance of recycling** and prevention of incineration or disposal of marketable recyclables;

f) an **assessment of facilities and programs** necessary at the State, regional, or local level to achieve the priorities identified in this Plan.

2.1 Recyclables

Background: In 2015, Vermont's Universal Recycling law banned landfill disposal of mandated recyclable(s) defined as "aluminum and steel cans; aluminum foil and aluminum pie plates; glass bottles and jars from foods and beverages; polyethylene terephthalate (PET) plastic bottles or jugs; high density polyethylene (HDPE) plastic bottles and jugs; corrugated

cardboard; white and colored paper; newspaper; magazines; catalogues; paper mail and envelopes; boxboard; and paper bags." Whether through single-stream "blue bin" recycling at curbside or drop-off, or through dual-stream and source-separated recycling drop-off programs in regions like the Northeast Kingdom and Northwestern Vermont, recycling haulers and facilities in Vermont must collect all the above-mentioned materials.

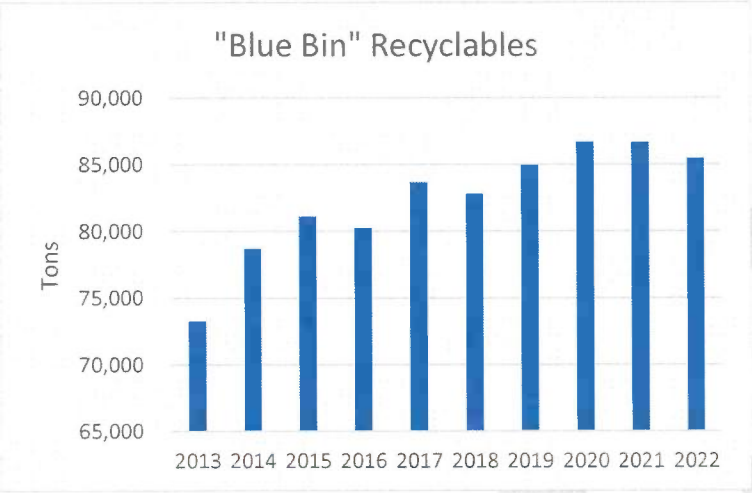

FIGURE 4: PAPER, CARDBOARD, PLASTIC CONTAINERS, GLASS BOTTLES AND JARS, AND ALUMINUM AND STEEL CANS RECYCLED BY VERMONT FACILITIES 2013-2022.

Vermonters regularly recycle, as evidenced by a strong statewide recovery rate of 71.1% from the 2023 Waste Composition Study. The amount of mandated recyclables in the Vermont municipal solid waste stream was 11.3% in the 2023 Study, which is an insignificant decrease from the 12.2% found in the 2018 study. The amount of recyclables has increased notably since transfer stations were required to accept recyclables in 2014 and recyclables were banned from the trash in 2015. Over the last several years, recycling by weight has largely remained stable. This is a positive trend, considering that packaging is now up to 20% lighter than in the past, which means that the overall quantity of recycled items has actually increased.

Collection Infrastructure: After decades of recycling investments by both the public and private sectors, Vermont—with a few exceptions—generally has the recycling collection and processing facilities needed to process its recyclables for end markets. The Northeast Kingdom (NEK) is one of these exceptions, as the region currently lacks a single-stream recycling tipping floor facility for commercial haulers. Haulers of trash are required by law to offer collection of mandated recyclables and most mandated recyclables that are picked up curbside are collected via single stream totes and dumpsters. The NEK region does have significant recycling centers for source-separated recycling and a source-separated recycling aggregation facility in Lyndonville.

Most recycling from Vermont is processed by two single-stream material recovery facilities (MRFs) in Williston and Rutland; the rest is processed at smaller facilities like those in Georgia, Brattleboro, Lyndonville, Middlebury, Stowe, and Bennington, or sent to recycling facilities out-of-State. Recent shifts in global market availability have necessitated improved processing of materials to produce higher-quality outputs for use in the manufacture of new products. In 2023, Casella added several robots to the Rutland MRF to improve material sorting. Also, the Chittenden Solid Waste District (CSWD) is planning to build a new MRF to replace its Williston MRF, built in the 1990s, that has outgrown its space. CSWD's new MRF would both increase its capacity and provide higher-quality sorted materials.

In addition to the recycling stream that goes through regulated facilities, there is some management of recyclables that occurs directly between business entities and brokers, thereby bypassing a reporting Vermont solid waste facility. In the 2018 and 2023 Waste Composition Studies, the contractors surveyed Vermont employers and manufacturing facilities to identify and estimate the among of recyclable materials that were either backhauled or sold directly to a broker by the business sector.

Recycling values, like those of other commodities, fluctuate with the market. China's 2017 National Sword policy effectively banned imports of recycling from the U.S. and other countries because of high contamination rates. This led to a global downturn in recycling commodity values, resulting in significant recycling costs that caused some communities around the U.S. to stop recycling. It also helped lead to new policies like Packaging and Printed Paper Extended Producer Responsibility (EPR) laws in four U.S. states (California, Colorado, Maine, and Oregon), as well as significant federal funding for recycling investments that have not received this level of attention since the 1990s. The COVID-19 pandemic in 2020 added new challenges as the global economy slowed, causing supply-chain issues. In 2021, most recycling markets started to come back, particularly paper markets fueled by the increase in cardboard needed to accommodate the surge in online shopping. However, in 2023, markets have declined again, and Vermont recycling costs remain relatively high for haulers, businesses, municipalities, and many residents.

It remains to be seen how recycling markets will change as the long-term effects of the pandemic unfold; demand for goods has lowered as consumers continue to spend more on services. Trucking distance can also play a big role in recycling cost-effectiveness, and national trucking costs have significantly increased due to firmer regulation and tracking of trucker hours and a lack of truck drivers entering this career field. A few bright spots related to recycling markets include: the states that are beginning to implement Packaging EPR; post-consumer recycled content legislation that can help improve demand for recycled commodities; some beverage companies using refill/reuse models; and brand commitments to use post-recycled content.

2.1.1 Paper (mixed paper, boxboard, cardboard)

Diversion Status: By weight, paper fibers are the largest single category in the recycling stream, with cardboard and mixed paper making up over 60% by weight of Vermont's recyclables. In 2022, cardboard made up 57% (46,898 tons) of the fibers recycled through facilities, newspaper was 23% (18,773 tons), and mixed paper was 20% (15,916 tons). The direct-to-broker survey in the 2023 Waste Composition Study estimated that an additional 14,608 tons of cardboard and other paper were recycled outside of regulated facilities in 2023 (9,447 tons verified from survey respondents and 6,451 tons estimated from entities that responded to the 2018 Waste Composition Study survey but not to the 2023 survey). The 2023 Waste Composition Study found 7.4% (28,224 tons) recyclable paper and cardboard in the Vermont municipal solid waste stream, by weight, which is a continued (if slight) decrease in recyclable paper from 16.7% of residential waste in 2002 to 8.6% in 2017.

Markets: Cardboard is frequently the most valuable recyclable paper from consumers, and mixed paper has struggled for years with low prices. Of the recyclables Vermonters produce,

mixed paper was one of the most-impacted by international markets and China's policies, in particular. Prior to 2018, China was importing about 50% of all U.S. recycled mixed paper[9]. Since China stopped accepting raw recycling commodities (commonly referred to as "China Sword"), much of that pre-processing has moved to domestic North American facilities that have either expanded or been built to use both cardboard ("old cardboard containers" or "OCC") and mixed paper.

In 2022, the majority of Vermont's recycled cardboard and mixed paper, including that collected and baled by the Williston and Rutland MRFs, Canusa Hershman (a recycling collector and processor in St. Albans), the Northeast Kingdom Waste Management District (NEKWMD), and the Northwest Vermont Solid Waste District (NWSWD), was sent to Kruger, which is based in Montreal, Canada or West Rock, which is based out of Georgia. WestRock has a mill in Sheldon Springs, Vermont, where recycled paper is made into food-grade box board.

2.1.2 Glass

Diversion Status: In 2022, nearly 12,000 tons of glass bottles and jars were reported as recycled by Vermont Facilities. Additional glass bottles were recycled through the Bottle Bill redemption system, however ANR does not regularly receive this data. The 2023 Waste Composition Study found 1% (3,777 tons) recyclable glass bottles and jars in the Vermont municipal solid waste stream, by weight, which is very similar to 2018 (1.4%).

Markets: Glass continues to struggle with low to no value in the recycling system. Bottle bill glass has slightly better values but both systems obtain more value from aluminum and plastic #1 PET containers. In 2022, food and beverage container glass collected at the Rutland and Williston MRFs and at smaller facilities such as the Northeast Kingdom Waste Management District were sent to facilities such as Whitcomb's quarry in Colchester, Patriot Recycling in Massachusetts, Strategic Materials in North Carolina, and 2M Resources in Canada to be used in aggregates, abrasives, and potentially fiberglass insulation. CSWD invested in glass processing equipment at their Williston MRF to meet DEC's processed glass aggregate (PGA) standard and construction specifications. ANR, VTrans, CSWD, and UVM continue to meet to review testing methods for PGA that are both simple and effective and to test PGA's engineering properties as "sand borrow" material for road construction projects. Other emerging markets for glass are:

A. Foam glass aggregate (FGA) – glass is ground into powder and heated and chemically treated to reform as pumice-like rock material that is lightweight, insulative, and has positive compressive strength for construction uses. Glavel is a Vermont company that creates a foam glass aggregate from recycled glass for use in building and construction projects. Their manufacturing facility in Essex uses recycled glass powder from Quebec as feedstock.
B. Pozzolan – glass is ground into a powder used in concrete that reduces the amount of cement needed and makes a stronger mix. This greatly reduces the greenhouse gas emissions from energy intensive concrete production.

[9] July 2018 Webinar by Waste Management Inc.

C. Mound sand – glass is ground into specific "mound sand" specifications for onsite wastewater septic systems. If this material can meet the specifications, it could offset the need for costly specialized sand imports.

2.1.3 Metal (Aluminum and Steel)

Diversion Status: Aluminum and steel tend to have more resilient values in the recycling system but are a small component of the overall "blue bin" recycling, at 2.5%. In 2022, just over 2,500 tons of steel and aluminum cans were sent for recycling from Vermont facilities. Additional aluminum beverage cans were collected through the Bottle Bill redemption system, however ANR does not regularly receive this data. The 2023 Waste Composition Study found 1.4% (5,026 tons) recyclable aluminum and steel containers in the Vermont municipal solid waste stream, by weight, which is very similar to 2018 (1.2%).

Markets: In 2022, Vermont's mandated aluminum and steel recyclables collected by the Williston and Rutland MRFS and numerous smaller facilities were primarily sent to Constellium Metal in Alabama, N.H Kelman in New York, and Triple M Metal in Canada. In addition, there are many locations throughout Vermont that accept scrap metal of all types.

2.1.4 Plastics

Diversion Status: In 2022, a little more than 6,000 tons of plastic containers and film were sent for recycling from Vermont facilities. Of these, 37% was #2 HDPE, 33% was #1 PET (the two plastics that are banned from disposal in Vermont), 8% was #4 LDPE (mostly film, like plastic bags, pallet wrap, etc.), 1% was #5 PP, and the remaining 20% was mixed plastics (primarily #3-7). Additional plastic beverage containers were collected through the Bottle Bill redemption system. The 2023 Waste Composition Study found 1.5% (5,695 tons) recyclable #1 and 2 plastic containers in the Vermont municipal solid waste stream, by weight, which is down slightly from 2018 (2.1%). Plastic retail bags were down from 0.5% (2,168 tons) in 2018 to 0.1% (299 tons) in 2023, which is notable given the Single Use Products law's plastic bag ban, which went into effect in 2020.

Markets: In 2022, Vermont's plastics were sent to many processing facilities in the U.S. and Canada. Plastics collected and processed by the Williston and Rutland MRFs, Canusa Hershman, and numerous smaller facilities were sent to processors including KW Plastics in Alabama, Tabb Packaging Solutions in Michigan, Envision Plastics in North Carolina, BACH Polymers in Maryland, and Haycore Canada, and Soleno Recycling in Canada.

From 2020 to 2022, representatives from DEC participated in a workgroup of state recycling officials that developed model legislation to establish minimum requirements for post-consumer recycled content in plastic products and packaging. This model bill would require producers of covered plastic products and packaging to use a specified amount of minimum post-consumer recycled content, phased in over time. The covered plastic packaging and products include film bags, single-use containers used for food, beverages, household cleaning, and personal care products, and rigid plastic containers. Although this legislation has yet to be introduced in Vermont, creating domestic markets for recycled materials will help sustain recycling and retain recycling jobs in the U.S. and Vermont.

2.2 Organics

Background: Vermont's Universal Recycling (UR) law banned disposal of food scraps, leaf and yard debris, and clean wood, often generalized with the term "organics." According to the U.S. EPA, food and food scraps are the second largest single component of waste that is landfilled, after paper and paperboard.[10] That is also true for Vermont, where food waste made up 18.8% of the Vermont municipal solid waste stream, by weight, according to the 2023 Vermont Waste Composition Study, and paper made up 19.2%.

Keeping organics out of the trash saves landfill space and significantly reduces the production of methane gas—a greenhouse gas that is 28 times more damaging than carbon dioxide.[11] Using EPA's Waste Reduction Model (WARM), DEC estimates that composting all of Vermont's food waste would reduce greenhouse gas emissions equal to taking over 7,000 vehicles off the road each year. Reducing food waste overall, however, is an even more impactful climate solution[12] and saves natural resources invested in growing, packaging, distributing, processing, storing, and selling food. Organic materials themselves are also valuable natural resources with uses such as food for people and animals, energy generation through anaerobic digesters, and the use of compost as a fertilizer, stormwater filtration mechanism, and erosion stabilizer.

In 2022, the Vermont Legislature required ANR to convene a stakeholder group to determine the proper management of packaged organic material in Vermont (Act 170). The stakeholder group was tasked with making recommendations on: (1) whether the organics management hierarchy should apply to each generator of organic waste, (2) whether ANR should modify its policy regarding the source separation of food waste, and (3) the proper use of depackaging facilities in the management of organic waste. The group's report of recommendations can be found on the DEC website.

Challenges related to organics collection and management in Vermont also include bears and emerging contaminants like PFAS and microplastics (see Challenges in Materials Management section 1.4).

Collection Infrastructure:

Food & Food Scraps: All facilities that collect trash are required to also collect food scraps. In 2022, 129 regulated facilities reported collection of food scraps, including transfer stations, recycling centers, and compost facilities. Since passage of the Universal Recycling law in 2012, the number of haulers offering food scrap collection services has more than tripled from approximately 12 to 38. This includes haulers that specialize in food scrap collection as well as haulers that offer trash, recycling and now food scrap collection. A depackaging facility started operating in Vermont in 2021, which is capable of separating heavily packaged food waste

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[10] US EPA, *Advancing Sustainable Materials Management: 2018 Fact Sheet,* (Dec. 2020), fig. 4, page 8, https://www.epa.gov/sites/default/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf

[11] US EPA, Overview of Greenhouse Gasses: https://www.epa.gov/ghgemissions/overview-greenhouse-gases#methane

from its packaging. The resulting food waste materials are mostly sent for anaerobic digestion and some is sent for composting in Vermont.

In 2023, Vermont has eleven (11) food scrap composting facilities that are certified by DEC, operate year-round, and process organics like food scraps and leaf and yard debris. Two (2) anaerobic digesters (in Salisbury, owned by Vanguard Renewables, and S. Burlington, owned by Purpose Energy) and are permitted by DEC to accept liquified food scraps, such as from the depackaging facility and food manufacturers. Two (2) additional anaerobic digesters are permitted but are not in operation yet (in Middlebury and St. Albans; both owned by Purpose Energy), As of new legislation in 2021 (10 V.S.A. § 6001(22)(H)), the Agency of Agriculture, Food, and Markets (AAFM) has regulatory oversight of on-farm composting operations that use most of the finished compost on their farm and/or raise chickens. In 2023, twelve (12) on-farm compost facilities collect and compost food scraps and are regulated by AAFM. Some of these facilities had previously been certified by DEC. Spent grain, whey and other food-manufacturing-byproducts are commonly fed to animals at farms throughout the state. Vermont also has numerous on-farm digesters, some of which accept food-processing byproducts from dairy, brewing, and other food manufacturing processes to produce electricity and heat.

The Vermont Foodbank has helped decrease the disposal of edible food through their Retail Store Program, which rescues food from stores and distributes to their network of over 200 Vermont food shelves and meal sites. The Foodbank reports that most major grocery stores are participating and regularly donating excess food.

Leaf and Yard Debris and Clean Wood: Every location that collects trash is also required to seasonally collect leaf and yard debris and each SWME must ensure that a clean wood collection location exists within their region, such as at a stump dump or transfer station. Most leaf and yard debris that is brought to Vermont facilities is used as mulch, animal bedding, composted, or left to decompose naturally onsite. Clean wood is either chipped into mulch or compost feedstock, left to decompose, openly burned (DEC Air Quality permits burn sites), used as fuel, such as in wood stoves, or chipped for heat/power at locations like the McNeil Power Plant in Burlington.

Diversion Status: Although the full food scrap ban went into effect for all Vermonters in 2020, the impacts of the ban are difficult to determine due to other coinciding factors, namely related to the COVID-19 pandemic. While many composting facilities noted an increase in food scraps after the ban, the amount of food scraps reported as passing through regulated facilities decreased due to the pandemic impacts on restaurants, schools, and other food establishments. The depackaging facility that began operating in 2021 also shifted material to anaerobic digestion; some food scraps had previously been going to compost facilities and some of the packaged food and food processing residuals had previously been landfilled.

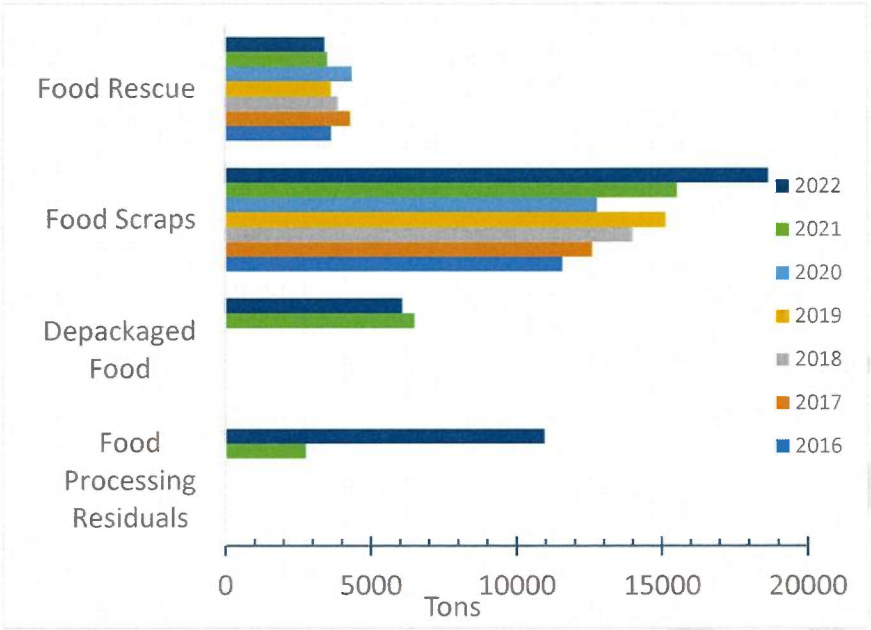

FIGURE 5: VERMONT FOOD WASTE FROM 2016-2022 INCLUDING FOOD RESCUE (VERMONT FOOD BANK), FOOD SCRAPS, DEPACKAGED FOOD, AND FOOD PROCESSING RESIDUALS.

In 2022, Vermont facilities processed 18,681 tons of food scraps, primarily through compost facilities (some went through the depackaging facility to an anaerobic digester). An additional 6,088 tons of packaged food went through the depackaging facility to an anaerobic digester. Vermont facilities also processed approximately 10,972 tons of food processing residuals; the majority of these were sent directly from food or beverage manufacturers to anaerobic digesters. Vermont facilities reported 4,695 tons of leaf and yard debris and 3,840 tons of clean wood. The 2023 Waste Composition Study found 18.8% food waste (71,112 tons), 1.2% (4,489 tons) leaf and yard debris, and 1.6% (6,235 tons) clean wood in the Vermont municipal solid waste stream, by weight. While this was not a significant change in percentage food waste from the 19.4% found in the 2018 study, the total estimated tonnage of food waste in the trash decreased by 13% from the 81,627 tons in 2018.

UVM's 2023 Impact of Vermont's Food Waste Ban on Residents and food Businesses Report found that, after the full food scrap ban, Vermonters increased the amount of food scraps they kept out of the trash and that 85% of Vermonters compost at least some of their food scraps. Similarly, the 2023 Waste Composition Study's residential food scrap questionnaire found that 64% of Vermont households say they separate some of or all of their food waste, such as with backyard composting, drop off, pick-up service, or feeding animals. UVM's study also found that 61% of Vermonters feel a "moral obligation" to keep food scraps out of the landfill.

The Vermont Foodbank helps retailers set up systems where staff set aside food for donation instead of putting it in the trash. From 2014 to 2017, food donation to the Foodbank almost tripled, in large part due to the Universal Recycling law. However, with the exception of 2020, which saw a rise in food donation due to the COVID19 pandemic, the amount of rescued food has declined since the peak in 2017 (Figure 4, above). According to the VT Foodbank, many factors may be contributing to this decrease in donated food including supply chain challenges, actual reductions in surplus food, and an increase in secondary markets like Aldi's or Ocean State Job Lot that sell overstock items or liquidation centers that sell past-date items or products with damaged packaging.

Markets: Composting and anaerobic digestion are the most common methods of diverting food scraps and other organics from the waste stream. However, food processing residuals registered with the Vermont Agency of Agriculture Food and Markets (VAAFM) as an animal feed, are also a common and cost competitive method of food waste recovery, especially for high fat/protein food manufacturing materials.

The anaerobic digestion of food scraps has grown in- and out-of-State. In addition to heat and power from biogas, anaerobic digestion creates liquid and solid digestate that can be used as fertilizer for farm fields.

Registration with the Vermont Agency of Agriculture, Food and Markets is required prior to marketing or distributing food residual material as a commercial animal feed, and before marketing compost derived from food scraps for sale as a fertilizer or soil amendment.

2.3 Construction and Demolition Debris (C&D)

Background: The Architectural Waste law (Act 175) was passed in 2014 with the goal of increasing diversion of C&D materials. The law requires the recycling or reuse of six C&D materials - metal, clean wood, asphalt shingles, drywall, oriented-strand board, and plywood - from building projects of two or more units that generate 40 cubic yards or more of architectural waste and are within 20 miles of a C&D recycling facility. Additionally, Act 250, Vermont's land use and development law, requires that applicants submit a Construction Waste Management Plan for projects involving more than 5,000 square feet of construction and/or demolition.

Collection Infrastructure: Although C&D materials make up a significant segment of the waste stream, reuse and recycling is often hindered by a lack of convenient and cost-effective C&D recycling facilities. Currently, two Vermont facilities accept loads of architectural waste, but both are in Chittenden County. Beyond the material that passes through certified solid waste facilities, C&D materials are diverted from disposal through a variety of building salvage, reuse, and antique stores that look for quality used building materials, fixtures, and appliances. The McNeil Generating Station in Burlington also diverts clean wood from disposal by burning it to produce electricity.

Diversion Status: In 2022, 85,234 tons of C&D waste materials were disposed in the NEWSVT landfill, and an additional estimated 1,311 tons were diverted for recycling. This continues a trend since 2016 of decreasing C&D material passing through Vermont facilities for recycling. The 2023 Waste Composition Study found 7.8% (29,646 tons) of C&D material in the Vermont municipal solid waste stream, by weight, which is down from 11.1% (46,823 tons) in 2018. The 2023 Waste Composition Study also conducted a visual composition analysis of the C&D stream, which found 1.1% (1,151 tons) cardboard, 25% (27,365 tons) asphalt shingles, 15% (17,116 tons) painted/treated wood, 6.1% (6,511 tons) clean drywall, 6.5% (6,940 tons) special waste like mattresses and appliances, and 4.5% (4,791 tons) clean wood. Overall, the 2023 Waste Composition study estimates that C&D makes up 23.7% of the aggregate (C&D plus MSW) disposed waste stream, by weight.

Markets: Construction & demolition materials frequently have a low recycling market value and require sorting, and often chipping or grinding, before being marketable. Deconstruction can yield the most salvageable, reusable, and recyclable materials but is costly in both labor and time compared to demolition. A 2016 Report on Architectural Waste Recycling[13] gives more detail on C&D collection infrastructure and markets.

PFAS used in building products continues to impact the recycling of those products when they become waste materials. Recycled asphalt shingles (RAS) have been tested and found to contain PFAS; this new data, plus the poor performance of RAS in hot mix asphalt roads (bituminous concrete) has led to limited markets for these materials. VTrans is exploring a project that could potentially utilize RAS as a binder material in road subbase. Myers C&D Recycling facility has ceased separating shingles for recycling and has also struggled to establish routine wood recycling markets for waste dimensional lumber, plywood, and oriented strand board (OSB). This has led to larger portions of this facility's materials being landfilled or, at best, used in landfill road base projects, which the state does not consider "recycling." As a result, the 2019 MMP requirement that each SWME have asphalt shingle collection options within their region was lifted by ANR and has not been brought back in this MMP.

Similarly, the market for recycled gypsum is currently limited; C&D waste recyclers do not want drywall in incoming mixed material loads as the drywall becomes pulverized and tends to devalue the quality of all recyclables. Landfills do not want drywall in the waste stream as the gypsum, when wetted in an anaerobic environment, creates toxic, odorous, and corrosive hydrogen sulfide gas. For these reasons, northeast States often want to expand and strengthen drywall recycling markets.

2.4 Household Hazardous Waste (HHW), Very Small Quantity Generator (VSQG) Hazardous Waste and Universal Waste

Background: The U.S. EPA describes household hazardous waste (HHW) as leftover household products that contain corrosive, toxic, ignitable, or reactive ingredients that pose a threat to the environment and public health. These chemicals are costly to collect and manage separately from municipal solid waste. Such products include automotive fluids, batteries, household chemicals, paint, and electronic products with hazardous components.

Vermont Solid Waste Rules define HHW as "waste that would be subject to regulation as hazardous waste if it were not from households" (6-201 Definitions). Although HHW is exempt from state and federal regulation as hazardous waste, Vermont statute requires ANR to address the volume and toxicity of the waste stream. Vermont municipalities with State funding support have worked to collect HHW and Very Small Quantity Generator (VSQG) waste for more than 30 years. Occasionally, legislation has been passed aimed at reducing the production of toxic products and materials, such as the bans on PFAS in products like food

[13] Report to the Vermont Legislature on 10 V.S.A. §6605m Architectural Waste Recycling. 2016.

packaging and banning the sale of four-foot fluorescent mercury-containing lamps (see Challenges in Materials Management section).

Very Small Quantity Generator (VSQG) hazardous waste is hazardous waste from a business, municipality, or other non-household entity that generates less than 220 pounds of hazardous waste per month. Hazardous waste collected from VSQGs must be managed under Vermont Hazardous Waste Management Regulations (VHWMR) and therefore should be segregated from HHW.[14] If VSQG waste is co-mingled with HHW, then all waste is managed as hazardous waste and the exemption for HHW management may not be used. Universal Waste refers to any of the following hazardous wastes that are handled under streamlined provisions to facilitate proper management: batteries, pesticides, thermostats, PCB-containing fluorescent light ballasts, fluorescent lamps, mercury-containing devices, cathode ray tubes (CRTs) and oil-based paint collected under the paint stewardship program.

Collection Infrastructure: Since 1992, SWMEs have been required to include provisions in their SWIPs for the collection and management of "unregulated hazardous waste," which includes both HHW and VSQG waste. The MMP requires SWMEs to hold a minimum number of HHW collection events per year or provide access to a permanent HHW collection facility. To help offset costs of HHW collections, ANR has provided annual grants based on population of the region served and the number of member towns in districts or alliances. SWMEs also regularly and historically obtain some reimbursement for the costs of managing pesticides (Class A, B, and C) registered with the Vermont Agency of Agriculture, Farms, and Markets.

A 2017 HHW stakeholder group composed of solid waste districts, towns and alliances, haulers, trade associations, state representatives, hazardous waste contractors, and environmental non-profits all agreed that a network of shared regional facilities coupled with possible rural collection events was the best option to serve Vermonters. As a result, in the 2019 and 2024 MMPs, ANR continues to allow SWMEs to avoid costly 1-day HHW collection events by operating seasonal permanent HHW collection facilities a minimum of 1-day per week May-October, which is a minimum of 26 days of operation over those 6 months. This not only allows SWMEs with HHW facilities to stop hosting costly collection events, but also provides residents and small businesses more convenient access to services. Additionally, ANR has supported regional facilities by providing two rounds of HHW infrastructure grants during the 2019 MMP period that helped establish or upgrade five (5) regional HHW facilities. As of 2023, there are now eight (8) permanent regional HHW facilities in: Addison County, Bennington County, Chittenden County, Northeast Kingdom (seasonal), Northwestern Vermont, Rutland County, Windham County, and Windsor County (seasonal), and one proposed in Washington County.

ANR is considering how best to ensure that every region of Vermont has equitable, convenient, and cost-effective HHW and VSQG waste services. The July 2023 flood demonstrated a need for facilities in regions that currently only offer one-day collection events.

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[14] Vermont Agency of Natural Resources, *Hazardous Waste Management Program: Regulations & Statues*, (2013), http://www.anr.state.vt.us/dec/wastediv/rcra/regs.htm, and Subchapter 9: Universal Waste Management Standards, http://www.anr.state.vt.us/dec/wastediv/rcra/hazregs/VHWMR_Sub9.pdf.

Convenience: Regional HHW facilities are currently more convenient than 2 days per year of HHW collection events. Roughly 70% of Vermont's population is currently served a minimum of 26 days per year by these permanent regional facilities, while the remainder of the State is served by 31 single-day collection events operated by a hazardous waste contractor hired by the SWMEs and two independent town HHW facilities that serve the towns' residents on two days per year.

Cost: Based on ANR's analysis (see figures below), HHW events cost, on average, almost twice as much per household served as HHW facilities. On the high side, events can cost over three (3) times more than regional facilities and, on the low side, one-and-a-half times more. (Note: these costs do not include facility construction).

I. Event SWMEs average cost is $197.81/household per year (2022 data).
   a. HIGH $509.32/household and LOW $71.48/household.
II. Facility SWMEs average cost is $107.22/household per year (2022 data)
   a. HIGH $147.30/household and LOW $45.72/household.

Participation: Based on ANR's analysis, HHW facilities have slightly higher participation rates than events, meaning slightly more people use them.

I. Event SWMEs have an annual average household participation rate of 7% (2022 data).
   a. HIGH 14% and LOW of 2%.
II. Facility SWMEs have an annual average household participation rate of 8% (2022 data).
   a. HIGH 20%* and LOW 2%. *CSWD and Addison HHW facilities are the exception, with high participation rates at these well-established facilities.

HHW EPR Law (Act 58 of 2023): Act 58 was signed by the Governor in June 2023 and will require manufacturers of some of the most toxic forms of solid waste to assist with covering the costs for managing those wastes at their end-of-life.

Implementation of the HHW Extended Producer Responsibility (EPR) Law will begin with a manufacturer stewardship organization registration in early 2025 and a collection plan to be implemented sometime in 2026. ANR's initial implementation includes developing guidance, a website, and hosting stakeholder meetings. ANR will be responsible for ensuring compliance of all covered manufacturers and their products under this new law.

Diversion Status: In 2022, 689.5 tons of HHW/VSQG hazardous waste were collected by SWMEs, which was down from 983.5 tons in 2021. By weight, oil and latex based paints are the most common products collected at HHW facilities and events. The 2023 Waste Composition Study estimated that 0.7% (2,469 tons), of the Vermont municipal solid waste stream, by weight, was HHW. While strong efforts have been made to keep HHW/VSQG hazardous waste out of the waste stream, the slight increase of HHW in the trash from the 0.4% HHW found in the 2018 study and the fact that there was three and a half times more HHW in the trash in 2023 than was collected in 2022, shows there is still room for improvement. Since this waste poses such serious risks to human health and the environment, it is imperative that the goal continue to be zero HHW disposal.

In 2022, the statewide participation rate at HHW facilities and events was 6%, with SWMEs serving between 0.5% to 20% of households in a region annually. SWMEs with permanent HHW facilities tend to have higher participation rates than those with only two yearly HHW collection events. Considering the frequency with which HHW needs to be disposed of and the accessibility of collection programs, 14% is generally considered a successful participation rate goal. Because of the hazardous characteristics of HHW/VSQG Hazardous Waste, there is a need to both reduce use of HHW and increase participation in order to prevent hazardous materials from being disposed of in the landfill or through other improper disposal methods, such as down the drain.

Markets: A shrinking pool of service providers (HW contractors) willing to operate one day collection events coupled with both labor and supply chain shortages has led to increased costs for SWMEs using one-day collection events. In addition, processing costs for all materials collected have increased since 2020.

Due to their hazardous characteristics, HHW waste materials have limited market demand. One success is the statewide collection of latex paint, where most of this paint is re-blended into new paint through the Vermont Paint Stewardship Program (discussed below in section 2.5.4). HHW markets are predominantly associated with material that has value as fuel, such as used oil or oil-based paint, but most HHW is costly to handle, transport, and process for recycling or safe disposal. Hazardous waste contractors and processors are paid for the removal and handling of HHW. Hazardous waste processing facilities charge the contractors a fee based upon the type of material and whether it can be processed for another use. In the case of used motor oil, there is a market to re-blend this fuel and reuse it for various applications. For other materials such as certain pesticides, the only option is for the waste to be disposed of in a hazardous waste landfill or hazardous waste incinerator.

The highest priority, as with most waste materials, is prevention and waste reduction. ANR is developing a statewide marketing campaign designed to both reduce purchase and use of toxic household hazardous products and encourage the safe drop-off management of HHW at HHW facilities and events. ANR is encouraged that the HHW EPR law includes provisions for waste reduction in the education and outreach requirements of the stewardship organization(s).

2.5 Product Stewardship and Extended Producer Responsibility

Background: Product Stewardship programs are designed to manage a product and/or its packaging throughout its entire life cycle, including at its end-of-life, to both minimize its health, safety, environmental, and social impacts, and maximize economic benefits. Product Stewardship programs share the cost of collection, recycling, and safe materials management of specific products between manufacturers and consumers, often alleviating financial burdens on municipalities and taxpayers.

Extended producer responsibility (EPR) is a mandatory type of product stewardship that requires manufacturers to be accountable for the end-of-life (post-consumer) management of their products. The intent of all EPR and product stewardship programs is to incentivize a shift in the waste management system from one subsidized by the taxpayer to one that places greater emphasis on producers and consumers to drive environmentally sound product design, waste reduction, and recycling.

Vermont has both voluntary product stewardship programs and mandatory EPR programs. EPR in Vermont has historically targeted products with hazardous components. Products with existing Vermont EPR laws include: mercury-containing (fluorescent) lamps and thermostats, mercury-containing automobile switches, electronics (TVs, computers, printers, and peripherals), primary batteries, paint, and now "covered household hazardous products." Vermont's beverage container redemption program is an example of product stewardship for a non-hazardous product—beverage containers—and it is the longest-running type of program in the state, at more than 50 years old. Vermont also has voluntary product stewardship programs led by manufacturers for some rechargeable batteries.

Vermont's product stewardship and EPR programs are effective largely due to numerous convenient collection locations throughout the State, the dedicated collection efforts by stewardship organizations, SWMEs, private facilities, and retailers, and direct outreach to consumers by the stewardship organizations, SWMEs, and DEC. ANR will continue to evaluate EPR and product stewardship programs that reduce costs for Vermonters and can help reduce both toxicity and volume of waste.

2.5.1 Batteries

Batteries contain valuable materials such as nickel, iron, lead, steel, zinc, and cadmium that can be reclaimed through recycling, thereby reducing the need to mine for raw materials. In landfills, batteries can potentially release harmful hazardous materials like mercury and lead, and lithium-ion batteries have caused dangerous fires when they are damaged.

In 2014, Vermont enacted the nation's first EPR law for single-use household batteries. The Primary Battery Stewardship Law (Act 139) requires that any battery producers selling primary batteries in Vermont must participate in an approved stewardship plan that provides free collection and recycling of primary batteries for consumers. Call2Recycle implements a collection and recycling stewardship plan on behalf of battery producers and is responsible for safety trainings for collection locations and education and outreach to promote household battery recycling awareness. While not included in the law, rechargeable batteries are currently collected and recycled through a voluntary product stewardship program also operated by Call2Recyle.

Collection Infrastructure: Call2Recycle offers over 150 safe and convenient battery recycling locations for single-use and rechargeable batteries throughout Vermont, mainly at retail locations and solid waste facilities. Call2Recycle supplies collection locations with bags for individual batteries and shipping boxes with fire retardant liners. In 2023, in response to increasing occurrences of fires at solid waste facilities across the U.S. caused by damaged and defective lithium-ion batteries, DEC purchased and distributed over 160 battery safety kits

to both public and private solid waste facilities. The kits included fire shield blankets, gloves, and packaging to handle and mail back damaged or defective batteries for recycling. DEC partnered with Call2Recycle to provide safety trainings on the battery collection safety kits.

Diversion Status: Vermonters buy over 10 million batteries a year and, in 2022, Vermonters recycled over 217,000 lbs. of primary and rechargeable batteries. Collection of both primary and rechargeable batteries has increased dramatically since the EPR program began, with a 4,374% increase in primary battery collection from 2015 to 2022. The collection increase has been less dramatic with rechargeable batteries, which represent less than half of the total collection each year and have had an 85% increase since 2015. The 2023 Waste Composition Study found 0.1% (251 tons) of primary batteries and less than 0.1% (1 ton) of rechargeable batteries in the Vermont municipal solid waste stream, by weight, which is similar to the 0.1% (246 tons) of primary batteries and less than 0.1% (6 tons) of rechargeable batteries found in 2018.

Markets: Batteries collected for recycling are first sorted by type and chemistry, then processed to reclaim valuable metals. Common examples of products made with materials from recycled batteries include new batteries, as well as rubber, paint, and cement additives.

Battery recycling markets are expected to grow rapidly within the next decade in response to the increasing use of lithium-ion batteries and increasing popularity of electric vehicles and renewable energy storage systems.

2.5.2 Electronics

Electronic waste is one of the fastest growing components of the waste stream worldwide. Electronic devices can contain toxic materials (including lead, mercury, and chromium) that should be managed responsibly as well as precious metals (such as gold) that should be recovered and recycled.

Starting in 2011, the Vermont E-Cycles statute established a manufacturer-funded electronic waste ("e-waste") collection and recycling program, which provides free collection and recycling of computers, monitors, televisions, printers and computer peripherals ("covered products") to households, charities, school districts, and businesses that employ 10 or fewer individuals (covered entities). In addition to E-cycles materials, Vermont's landfill disposal ban includes personal electronics such as digital assistants and music players; electronic game consoles; fax machines; telephones; answering machines; videocassette recorders; digital versatile disc players; digital converter boxes; stereo equipment; and power supply cords (as used to charge electronic devices).

Collection Infrastructure: Throughout Vermont, covered entities can drop off up to 7 covered products at one time free of charge at over 100 collection locations around the state. Collection locations are offered at municipal and private solid waste facilities and some electronics retailers. Vermont contracts with the National Center for Electronics Recycling (NCER) to implement the E-cycles program and bills electronics manufacturers for these costs. NCER's contracted recyclers provide collection and storage materials for collection locations. Recyclers must comply with U.S. EPA R2 or e-Stewards Standards.

Diversion Status: Collection of covered electronics by the E-Cycles program has been decreasing by weight since 2016. This is primarily due to the changes in technology leading to lighter devices, such as flat-screen televisions and computer monitors compared to older cathode-ray-tube televisions and monitors. In 2022, the E-Cycles program collected 1,254 tons of electronics. The 2023 Waste Composition Study found less than 1% (105 tons) of covered electronic devices in Vermont municipal solid waste stream, by weight, which is considerably less than 1,631 tons of covered electronics found in 2018.

Markets: At processing facilities, e-waste is first disassembled to collect bulk ferrous and non-ferrous metals, glass, plastic, and other raw materials. The remaining material is processed through shredders that use magnets to recover ferrous metals and eddy current systems to recover non-ferrous metals.

2.5.3 Mercury-Containing Products:

Mercury is a persistent and toxic pollutant that bioaccumulates in the environment and poses a serious threat to humans and wildlife. In 1998, Vermont's legislature passed a law regulating the sale and disposal of mercury-added products; the legislation was expanded in 2005 and 2008 to include requirements for labeling and restrictions on the sale of certain products (see a summary of Vermont's mercury statutes and regulations). Vermont's Mercury product EPR program requires manufactures to establish collection for mercury-added products including general purpose mercury-containing bulbs, contractor and consumer-generated mercury thermostats, mercury thermometers, and mercury-containing auto-switches.

As of January 1, 2024, Vermont bans the sale of general-purpose mercury-containing bulbs, including compact fluorescent lightbulbs, four-foot (4') linear lamps, and twist-lock base compact fluorescent bulbs. Light-emitting diode (LED) replacements for fluorescent lamps do not contain mercury and are more energy-efficient and cost competitive.

Collection Infrastructure: Vermont residents, small businesses, and institutions (such as schools) can recycle general purpose mercury-containing bulbs at no cost at over 140 retail locations and solid waste collection facilities across the state. Mercury thermostats are collected at over 130 collection sites around the state and come with a $5.00 rebate. Manufacturers provide collection containers and storage boxes that collection sites mail back to the contracted recycler. Other mercury-containing products do not have manufacturer-supported recycling but must still be disposed of properly through a municipal Household Hazardous Waste collection facility or event.

Diversion Status: Because many mercury-containing products have been replaced by non-toxic alternatives, the amount of mercury collected through the EPR program for auto switches and thermostats has generally been decreasing over the last 5 years. Collection of mercury-containing bulbs has been more consistent and is expected to remain high in 2023 and 2024 before decreasing due to the mercury-containing bulb sales ban. In 2022, the Vermont mercury program collected 200,002 lbs. of mercury-containing bulbs. The 2023 Waste Composition Study found less than 0.1% (7 tons) of mercury-containing bulbs in the Vermont municipal solid waste stream, by weight, which is less than the 21 tons of bulbs found in 2018.

Markets: Captured Mercury is refined and processed at recycling facilities for future suitable uses.

2.5.4 Paint

Paint is a mixture of resins, solvents, additives, and pigments. The two primary types of paint are latex (water-based) and oil. Oil paints are hazardous, flammable, and give off large amounts of volatile organic compounds (VOCs) that contribute to air pollution and can cause health problems after long-term exposure. Older paints may also contain harmful heavy metals, such as lead and mercury. Latex paint is not as harmful to human health and the environment, if handled properly.

In 2013, the Vermont Legislature passed the Paint Product Stewardship Act (Act 58 of 2013) to promote the proper management and recycling of paint. This legislation made manufacturers responsible for collecting and managing leftover architectural paint (both oil and latex) through a stewardship organization funded through advanced consumer fees (ACFs) paid on new paint at the point of purchase.

Collection Infrastructure: Since 2014, PaintCare is the stewardship organization for the American Coatings Association and has implemented the stewardship program for paint manufacturers in Vermont. PaintCare offers convenient oil and latex paint recycling at over 80 year-round and 50 seasonal/event locations throughout the state at participating paint retailers, recycling centers, and hazardous waste facilities and collection events.

Diversion Status: Collection of paint through PaintCare has remained fairly steady since 2015. The paint recovery rate, or the percent of recycled paint compared to paint sold during the same period, has reached a program high of 13% in 2022 and a low of 9% in 2020. The Vermont Paint Care program collected 120,388 gallons of paint in 2022. The 2023 Waste Composition Study found 0.2% (644 tons) of paint in the Vermont municipal solid waste stream, by weight, which is more than the 0.1% (389 tons) of paint found in 2018.

Markets: Latex paint that is collected for recycling is sorted by color, filtered, and re-blended into new paint such as with Chittenden Solid Waste District's Local Color paint recycling program. Oil-based paints can be processed for fuel blending. Of the paint collected in 2022, 79% of latex paint and 11% of oil-based paint was recycled into re-blended paint, 0% of latex paint and 89% of oil-based paint was sent for energy recovery (fuel blending), and 21% of latex paint and 0% of oil-based paint was disposed of as it was not sufficient-enough quality for recycling.

2.5.5 Beverage Containers ("Bottle Bill")

Originally passed by the Vermont legislature in 1972, Vermont's Beverage Container and Redemption Law ("the Bottle Bill") began as a litter law intended to clean up Vermont's roadsides and recreation areas. Over the years, the Bottle Bill evolved into a successful recycling program. Beverage containers covered by the Bottle Bill include beer, wine coolers, other malt beverages, pre-mixed spirits cocktails, carbonated non-alcoholic beverages, liquor, and spirits.

Collection Infrastructure: Retailers are required to take back and redeem any beverage container they sell unless they have received an exemption from ANR. Certified Redemption Centers are required to take back all clean, unbroken, empty containers marked with the Vermont 5¢ or 15¢ refund message from products sold in Vermont.

Diversion Status: There was a 71.6% redemption of all beverage containers covered under the Vermont Bottle Bill (liquor and non-liquor) in 2022, which was down from 76% in 2021. While DEC does not receive tonnage of all containers collected under the Bottle Bill, the collection company TOMRA, which processes around 95% of the total redeemed volume of Bottle Bill containers, processed 9,485 tons of containers in 2022. Overall tonnage of containers redeemed under the Bottle Bill has decreased compared to historic values, largely due to a shift in predominance from glass bottles to aluminum cans. Also, in 2022, 3.819 million dollars of unclaimed deposits went to Vermont's Clean Water Fund to assist with clean water projects across the state. The 2023 Waste Composition Study found that bottles and cans eligible for redemption under the current Bottle Bill made up 0.8% (3,058 tons) of the Vermont municipal solid waste stream, by weight, which is similar to the 0.7% (2,775 tons) of Bottle Bill containers found in 2018.

Markets: Beverage manufacturers (or their contractors) collect and recycle empty redeemable containers, primarily selling to processors. Because the aluminum, plastic, and glass bottles and cans collected through the redemption system are sorted by type from the start, the materials are often cleaner and less contaminated than the same materials that go through the mixed recycling system. In some cases, this means the material can have more value and, potentially, be put to higher uses.

2.6 Textiles (Used Clothing)

Background: From a materials management perspective, textiles are any clothing or household textile, like sheets, towels, or curtains. Historically, textiles have been a difficult to recycle material, due to lack of collection infrastructure and markets. However, this waste stream has grown significantly in recent years and will continue to remain significant as long as manufacturers produce "fast fashion" clothing (i.e., abundant low quality, cheap clothing).

Collection Infrastructure: In 2015, DEC organized a stakeholder group on textiles, which determined that Vermont had been losing some convenient and affordable textile reuse/recycling options, especially in rural areas. To increase convenient access to textile recycling in Vermont, SWMEs are required to ensure that there is, at minimum, one textile collection location within their region. This collection location can include local thrift stores or a clothing swap event, many of which also accept rag-quality textiles.

In addition to efforts put forth by SWMEs, community organizations, and thrift store donation programs, there has been a growing presence of for-profit clothing recycling companies offering clothing collection bins throughout the state. Many communities now partner with clothing recycling companies to host clothing collection bins at transfer stations, recycling centers, and other locations.

Diversion Status: In 2022, nearly 200 tons of textiles were reported as reused or recycled by Vermont facilities. However, this is only a subset of all textiles reused or recycled in Vermont, as many textiles go through large retailers, like GoodWill and Salvation Army, or are reused locally through second-hand stores, clothing swaps, and platforms like Front Porch Forum, local Buy Nothing groups, Facebook marketplace, and online resale sites like Depop and Poshmark. The 2023 Waste Composition Study found that textiles made up 6.5% (24,413 tons) of the Vermont municipal solid waste stream, by weight, which is an increase from the 4.2% (17,830 tons) of textiles found in 2018.

Markets: Textiles collected from clothing donation boxes and unsold items from Vermont thrift stores are often sent to textile grading facilities, where materials are sorted based on quality. As with any recycling process, some material that is not suitable for reuse or recycling is likely disposed. According to textile recyclers such as Goodwill and Apparel Impact, upwards of 85% of textile donations are reuse quality, and the remaining 15% are processed into rags.

While Vermont has seen some increase in convenient clothing recycling options in the past few years, domestic and global textile recycling options are limited, and reuse options are hampered by the lower quality of clothing and textiles being produced.

2.7 Tires

Background: Tires have been banned from landfill disposal since 1992 (10 V.S.A. § 6621a), primarily because waste tires create problems when landfilled. Tires do not compress and can trap methane gas, causing them to eventually "float" to the surface and disrupt the landfill as they move.

A 2016 report from the Tire Stakeholder Group[15] identified three primary areas of concern: legacy scrap tire piles, ongoing illegal dumping of scrap tires, and lack of tire recycling options. A 2012 statewide survey identified 62 scrap tire piles containing an estimated 417,000-458,000 problem tires. Illegal scrap tire piles trap water and become breeding grounds for mosquitos, which may carry diseases such as Eastern Equine Encephalitis and West Nile Virus. Large piles of tires can trap heat and become fire hazards; if tire piles catch fire, the melted rubber generates oil and other toxic run-off that can pollute surface and groundwater.

Collection Infrastructure: The vast majority of Vermont's scrap tires are managed through tire retailers and auto shops that accept scrap tires for a fee, typically when new tires are purchased. A smaller portion are accepted for a fee by solid waste facilities, both public and private. As part of the 2016 Tire Stakeholder Group Report, two large Vermont tire dealers anecdotally reported that 90-95% of customers purchasing replacement tires choose to leave their scrap tires and pay tire disposal fees. There are currently five (5) permitted and specialized tire collection facilities and three (3) haulers that are permitted specifically to transport scrap tires in Vermont.

[15] Report to the Vermont Legislature on Problem Scrap Tire Piles. Tire Stakeholder Group Report. 2016.

Diversion Status: An estimated 625,000 scrap tires are generated each year in Vermont. The 2023 Waste Composition Study found that tires made up 0.3% (1,171 tons) of the Vermont municipal solid waste stream, by weight, which is similar to the 0.2% (986 tons) of tires found in 2018. A small percentage of scrap tires are believed to be disposed of through illegal dumping. In 2022, over 4,500 tons of tires were collected by Vermont facilities; the largest amount in the last 5 years. ANR believes that most Vermont tires are legitimately managed, but the issues identified by the stakeholder group such as high costs of managing tires, lack of recycling markets, and ongoing legacy tire pile issues continue to be a concern.

Markets: The market for scrap tires is volatile and greatly influenced by economic factors, energy prices, and political circumstances outside of Vermont and, increasingly, outside of the U.S. Due to rubber chemistry, complex tire construction, and proprietary formulations, very little of a scrap tire can be recycled into a new tire. Instead, most of Vermont's tires are used to make tire-derived fuel, which is primarily used in cement kilns and pulp and paper manufacturing in Maine, New York, and Quebec. Some tires are also processed into tire derived aggregates or tire reclaimed products like gym floor/playground mats. Manufacturing both tire derived fuel and tire derived aggregates starts with shredding, chipping, or grinding the tires and steel is often reclaimed and recycled in this process. Establishing a producer responsibility program for tires—as discussed by the 2015 Tire Stakeholder Group—would likely help with increasing proper management, reducing legacy tire piles, and bolster effective tire recycling markets.

2.8 Residuals Management

Background: Wastewater sludges and biosolids, septage, short paper fiber, wood ash, and solids produced by drinking water treatment facilities are all categorized as residual materials. These residual materials are considered non-hazardous with the potential to be recycled, or beneficially reused, via land application as a soil amendment.

Wastewater sludge is the solid or semi-solid byproduct produced by a WWTF during treatment and septage is the liquid or solid materials pumped from onsite wastewater systems, or septic tanks. Both materials are regulated by the U.S. EPA's Code of Federal Regulations (40 CFR Part 503) and the Vermont Solid Waste Management Rules (Rules). Additional residual materials regulated in Vermont include short paper fiber, the byproduct of the paper making/recycling process, and wood ash, the byproduct of burning clean, untreated wood by large generator facilities.

Through a Solid Waste Management Facility Certification or ANR approval (See A-1 ANR Strategy – Rules, Procedures, Policy, and Guidance), residual materials may be beneficially reused after meeting treatment and/or pollutant standards. For example, prior to being recycled as biosolids, sludge must be treated in a process to reduce pathogenic content and vector attraction and meet pollutants standards for metals and other contaminants established in the Rules. All land application must be approved by ANR.

Residuals Management Infrastructure: Throughout Vermont, wastewater treatment facilities produce sludge as a byproduct of the wastewater treatment processes. Similarly, onsite wastewater systems utilized by over half of Vermont residents, should be maintained by routinely pumping out septage. Wastewater sludges and septage, after treatment to biosolids standards and meeting the requirements of 40 CFR Part 503 and the Rules, may be recycled as a soil amendment . ANR developed technical guidance and requires a solid waste certification for all facilities producing biosolids or operating land application sites of biosolids or stabilized septage. Land application sites must be certified as solid waste facilities and meet the siting and operating criteria established in the Rules. Certifications for land application sites also include specific operating conditions for reducing potential impacts to environmental and human health. Solid waste certifications are administered by the DEC Residuals Management and Emerging Contaminants Program. While all sludge generators must routinely collect and analyze samples of residual materials, facilities operating under a solid waste certification have more extensive monitoring requirements, including routine sampling and analysis of soil and groundwater at land application sites. Managers of land application facilities must also calculate appropriate application rates and follow nutrient management plans in accordance with required agricultural practices established by the Vermont Agency of Agriculture, Food & Markets (AAFM).

Diversion Status: The decision to recycle or dispose of residual materials is made by the municipalities, industrial facilities, or companies managing the materials, and is based on factors including economics, capacity, geography, type of facilities (storage and treatment), and the mission of waste managers and generators. Sludge and biosolids are not managed solely on the State level, but regionally based on available capacity and beneficial use markets. On average 11,000 to 12,000 dry tons of wastewater sludge is generated per year in Vermont and, over the last few years, approximately 65% of the sludge was beneficially reused as biosolids in Vermont or in neighboring states or provinces.

With nearly 55% of Vermont residences on septic systems, between 40 and 45 million gallons of septage is pumped from Vermont septic tanks each year. The vast majority of septage is hauled to WWTFs for disposal, but not all WWTFs have the necessary infrastructure to receive and treat septage and, those that do, have limited capacity. Furthermore, many rural Vermont communities are not served by a WWTF or a WWTF that accepts septage. Although the practice has dramatically declined in recent years, historically, land applying stabilized septage through a Solid Waste Management Facility Certification has relieved some of the capacity limitations at WWTFs for treating septage and provided a more local solution for septage management in rural areas of the State.

Markets: Markets for residual materials are primarily driven by regulations, economics, disposal capacities, and concerns relating to emerging contaminants. Residual materials typically contain PFAS (see section 1.4.1 Emerging Contaminants), which is not removed by current wastewater treatment processes. For this reason, ANR requires PFAS testing of beneficially reused residual materials, as well as soils and groundwater at certified land application sites via the Solid Waste Rules. In addition, ANR has developed an interim strategy to reduce risk associated with PFAS in land applied residuals. The strategy employs PFAS screening standards for biosolids and short paper fiber that are based on Vermont soil background levels. The Agency of Transportation has also adopted the same screening

standards for manufactured topsoil use in its Standards for Specifications for Construction. ANR continues to assess residuals management data while researching sludge and septage disposal capacities, contaminant presence, fate and transport, emerging technologies, and pollution prevention strategies to inform decisions and rulemaking processes.

3 ANR Strategies and Actions

ANR employs a variety of strategies to work toward the MMP goals.

During the five-year MMP term, ANR will complete actions within each of the seven strategies listed below. These actions were created to provide Vermonters with better information and convenience to reduce, reuse, recycle, compost, and safely dispose of as much of their materials as possible.

A-1 ANR Strategy – Rules, Procedures, Policies, and Guidance

A-1.1 – Solid Waste Management Rules:

To ensure that the Solid Waste Management Rules stay current ANR will:

A. Continually maintain and evaluate the need for rule revisions for changes such as waste management technologies, permitting/regulatory efficiencies and clarity, emerging contaminants, climate resiliency and disaster preparedness needs such as flooding, and environmental justice considerations in light of Act 154 implementation.

Annual Documentation:

1. Post any updated Solid Waste Management Rules on the Solid Waste Program web page.

A-1.2 – Solid-Waste Related Guidance, Policies, and Procedures:

To help regulated communities and all Vermonters understand Vermont's waste-related laws and regulations, and know what options exist and how to be compliant, ANR will:

A. Develop official procedures, policies, guidance, or best management practices on solid waste-related topics as needed, such as:
   i. New statutory requirements.
   ii. Emergent topics (e.g. flood debris management, PFAS, disposal capacity, etc.).
B. Include relevant groups of people in the process, such as by convening stakeholder groups or soliciting feedback.
C. As needed, provide plain language versions of guidance, policies, and procedures for regulated communities such as haulers, facilities, or other specific audiences.

Annual Documentation:

1. Post any final documents on Solid Waste Program website.

A-2 ANR Strategy – Permitting

A-2.1 – Solid Waste Facility Certifications

To ensure that solid waste facilities are sited and operated in accordance with the Solid Waste Management Rules, ANR will:

A. Issue or deny Solid Waste Facility applications for certifications, following Permit Expediting Program (PEP) standards.

Annual Documentation:

1. List number of facility permits issued.
2. Confirm that permitting process followed PEP standards.

A-2.2 – Solid Waste Hauler Permits

To ensure that solid waste haulers are permitted and operating in accordance with Solid Waste Management Rules, ANR will:

A. Issue permits to Solid Waste Haulers.

Annual Documentation:

1. List number of hauler permits issued.

A-3 ANR Strategy – Compliance

A-3.1 – Solid Waste Facility and Hauler Compliance

To ensure that solid waste facilities and haulers comply with State solid waste laws, the Solid Waste Management Rules, Universal Recycling law, landfill bans, and collection requirements for mandated recyclables, leaf and yard debris, and food scraps, ANR will:

A. Conduct routine inspections prioritizing facilities with certifications that are due for renewal, larger capacity facilities, and facilities that have not been inspected recently.
B. Respond to complaints of non-compliance.

Annual Documentation:

1. List number of facility inspections.
2. List number of resolved NOAVs and complaints.

A-3.2 – Waste Generator Compliance

To ensure that Vermont waste generators like businesses and institutions are in compliance with State solid waste laws and rules, including the Universal Recycling law, landfill bans, the Single-Use Products law, and other applicable laws, rules, and regulations, ANR will:

A. Respond to complaints and evidence of non-compliance such as those found during Business Outreach visits and facility spot checks.
B. Conduct periodic spot-checks (at least once per year) for disposal of banned items in solid waste brought in by generators and haulers at transfer stations and landfills.

Annual Documentation:

1. List number of resolved complaints or alleged violations.

2. List number of spot checks.

A-3.3 – Extended Producer Responsibility (EPR) Program Compliance

To ensure compliance with EPR programs, ANR will:

A. Ensure manufacturers participate in an approved stewardship plan for the EPR material and enforce stop sale requirements of covered products, as outlined in statute, for manufacturers that fail to participate in an approved plan.

Annual Documentation:

1. List number of resolved alleged violations.

A-3.4 – SWIP Compliance

To ensure that Solid Waste Management Entities have adopted and are fully implementing their Solid Waste Management Plans in conformance with this MMP (so that all Vermonters have access to the same minimum services and information), ANR will:

A. Review and approve Solid Waste Implementation Plans (SWIPs).
B. Complete annual review of SWIP Reports, notifying SWMEs of actions necessary to complete requirements when progress is insufficient.

Annual Documentation:

1. List number of resolved alleged violations.
2. Year 0: send SWIP approval letters.
3. Years 1-5: send SWIP Report completion letters.

A-4 ANR Strategy – Outreach

A-4.1 – MMP Publicity

To ensure Vermonters are aware of and have access to the Materials Management Plan, ANR will:

A. Post the MMP on the Solid Waste Program's website within a month of adoption.
B. Submit a press release announcing new MMP within two months of adoption.

Annual Documentation:

1. List date of press release and news outlets that published it.

A-4.2 – Waste Reduction

To publicly demonstrate ANR's commitment to waste reduction and to proactively work toward the MMP waste reduction goals, ANR will:

A. Dependent on available funding and internal approval, conduct two media campaigns on priority topics related to waste reduction (such as reuse, repair, food waste reduction, etc.)
B. Dependent on available funding and internal approval, conduct a community-based social marketing project on a specific waste reduction topic.

Annual Documentation:

1. Years 1 and 3; date and results of any waste reduction media campaigns.

2. Date and summary of any community-based social marketing project, as applicable.

A-4.3 – Equity and Accessibility

To ensure that all Vermonters have equal access to information and to minimize barriers to information access, ANR will evaluate its communications in light of best practices for equity and accessibility and:

A. Follow guidance from the Vermont Environmental Justice Law.
B. Follow the ANR Language Access Plan.
C. Follow the Chief Marketing Office Communications Best Practices.
D. Attend trainings on topics such as accessible web design, plain language, accessible graphic design, etc.

Annual Documentation:

1. List of trainings attended.

A-4.4 – Solid Waste Program Website

To share solid waste and recycling information and documents, ANR will:

A. Maintain up-to-date plain-language information on the Program's website related to:
   i. Solid waste laws
   ii. Solid waste facilities and haulers
   iii. Waste reduction, including waste reduction at events
   iv. Recycling
   v. Food scrap management
   vi. EPR programs
   vii. Management of landfill-banned and dangerous or otherwise difficult to manage materials.
   viii. Emergent topics of concern, such as PFAS and bears.
B. Create a searchable A-Z guide that lists statewide management options for various materials. The list will contain, at minimum, information on how to manage, recycle, or divert all state disposal banned items in addition to information on how to manage all of the categories and key words in the A-Z Waste and Recycling Guide Minimum Requirements document.
C. Maintain a webpage of resources for SWMEs including:
   i. SWIP-related guidance documents.
   ii. Accessible communications best practices.
D. At least once within the MMP term—ANR will review all Solid Waste Program web pages and revise them as needed.

Annual Documentation:

1. List website performance indicators for key pages, such as VTrecycles.com and the A-Z guide.

A-4.5 – Outreach Materials

To help Vermonters learn about solid waste related laws, initiatives, and other topics, ANR will:

A. Maintain plain language handouts and other outreach materials, including creating new materials, as needed, and updating existing materials, as needed.
B. Share outreach materials with SWMEs.

Annual Documentation:

1. Post new outreach materials on Solid Waste Program website.

A-4.6 – General Outreach

To spread the word about waste-related topics and initiatives, ANR will:

A. Dependent on funding and approval, conduct public media outreach, such as paid and unpaid advertisements, social media posts, press releases, and articles. Whenever possible, ANR will strive to develop consistent statewide messaging with stakeholders, including consistency with the Northeast and other U.S. states. Topics covered within the MMP term will be chosen based on Waste Composition study results, Diversion and Disposal Report results, recommendations from working groups, and other sources and may include:
   i. Waste reduction.
   ii. Recycling and organics diversion requirements.
   iii. Reduction in use of hazardous products and encouraging proper disposal.
   iv. Construction and demolition waste reduction, reuse, and proper disposal.
   v. Extended producer responsibility programs (EPR).
   vi. Best practices for preventing bear issues with solid waste.
   vii. Buying and producing products and packaging with post-consumer recycled content (PCR).
   viii. Other emerging topics.

B. ANR will provide SWMEs regular examples of digital outreach content that could be used to meet their digital outreach requirements.

Annual Documentation:

1. List date, topic, and number of campaigns.
2. List number of press releases and articles published.
3. Provide social media key performance indicators.

A-4.7 – Direct Business and Institution Outreach

To ensure businesses and institutions (hospitals, nursing homes, colleges, correctional facilities, and other large waste generators), and their industry groups and associations are aware of and in compliance with the Universal Recycling law and other applicable solid waste-related laws, and understand the importance of waste reduction and diversion, ANR will:

A. Conduct direct outreach in person or via phone or email on (as applicable):
   i. Waste reduction.
   ii. Disposal ban information.
   iii. How to recycle correctly.
   iv. How to separate food scraps for composting.
   v. Food donation.
   vi. How to reduce and responsibly manage hazardous waste.
   vii. Single-Use Products law.
   viii. Collection options available from Vermont's EPR Programs for electronics, paint, batteries, mercury containing bulbs and thermostats, and covered HHW.

B. ANR will conduct outreach (including following up on complaints) to at least 250 entities during the MMP term.

Annual Documentation:

1. List entities and dates contacted during the MMP term.

A-4.8 – School Outreach

To ensure all K-12 public and private schools are aware of and in compliance with the Universal Recycling law and other applicable waste-related laws; that schools understand state disposal bans and how to reduce waste, reuse, recycle, compost, donate, and safely manage materials responsibly, including hazardous materials; and that waste reduction and diversion programs are being implemented effectively, ANR will:

A. Annually contact the Agency of Education, Principals' Association, and Superintendents' Association to ensure schools have information on waste reduction, recycling, organics diversion, and landfill ban disposal requirements.
B. Give presentations at school-related conferences.

Annual Documentation:

1. List presentations given at school-related conferences or events.

A-4.9 – State Building Outreach

To ensure all State buildings are in compliance with the Universal Recycling law and other applicable solid waste-related laws, ANR will:

A. Annually, contact a minimum of two state Agencies and the corresponding Buildings and General Services regional contacts and provide guidance and training on:
   i. Waste reduction
   ii. How to recycle and manage food scraps more effectively in State owned and leased properties.
   iii. Proper management of special waste such as batteries, mercury-containing lamps, electronics, and paint.

Annual Documentation:

1. List Agencies and dates contacted.

A-5 ANR Strategy – Technical Assistance and Collaborations

A-5.1 – Markets, Policy, and Emerging Solutions to Waste Challenges

To improve markets for recyclables, organics, textiles, tires, construction and demolition waste, and other priority materials, and to ensure that ANR is aware of and considering new technology, policies, and other emerging solutions related to challenges in solid waste management, ANR will:

A. Explore supporting markets for specific materials based on their tonnage, toxicity, or difficulty managing at end-of-life (such as past and current work with processed glass aggregate, recycled asphalt shingles, and tires).
B. Participate in local, regional, and national discussions about materials management.

C. As time allows, participate in local, regional, and national discussions related to topics such as:
   i. Disposal technologies, waste treatment processes, and facility siting,
   ii. Recycling/diversion markets and emerging technologies/processes,
   iii. Extended producer responsibility and post-consumer recycled content policies,
   iv. Policies such as product bans, mandated collection programs, and disposal bans.
D. Share information with stakeholders when pertinent.

Annual Documentation:
1. Summarize current market trends, updates, policy, and emerging solutions related to priority materials and topics.

A-5.2 – Disaster Preparedness

To help to protect human health and the environment during a declared state of emergency from a disaster such as floods, fires, or storms and other emergencies, ANR will:

A. Appoint a Solid Waste Management Program staff person who will assist the State Emergency Operations Center, Department of Public Safety-Vermont Emergency Management Division, and the Department of Buildings and General Services with oversight of state disaster debris contractor, which can help municipalities manage debris from disasters.
B. Collaborate between the DEC Solid Waste Management Program, Hazardous Materials Program, and Spills Management Program to explore the need to utilize the U.S. EPA for temporary Hazardous Materials Collection Site and safe disposal services for municipalities impacted by disasters.
C. Help SWMEs prepare disaster debris plans, that could include FEMA disaster debris monitoring protocols, by providing a plan template and offering training in collaboration with Vermont Emergency Management and potentially FEMA.

Annual Documentation:
1. List disaster preparedness staff person on program website.
2. Notification to SWMEs of any Hazardous Materials Collection Site.
3. Notification to SWMEs of any disaster debris training.

A-5.3 – Infrastructure

To help support the infrastructure required for meeting waste reduction and recycling goals, and to help manage difficult to manage and hazardous materials, ANR will:

A. Conduct an annual Needs Assessment survey for SWMEs and municipalities to inform potential DEC grants and other priorities.

Annual Documentation:
1. Summarize results of Needs Assessment.

A-5.4 – Construction and Demolition Debris

To encourage the recycling of Construction and Demolition (C&D) Debris, ANR will:

A. Review Construction Site Waste Reduction Plans for Act 250 projects that involve the construction and/or demolition of buildings that are 5,000 square feet or more in size.
   i. Conduct site visits, when appropriate and staff have time available.

ii. Share reviewed plans with SWMES, as appropriate.
iii. Consider collaborative improvements with the Act 250 Program, such as conducting follow-up inspections to confirm plans are put into action or requirement documentation that plans were followed.

B. Evaluate Vermont's Architectural Waste law (Act 175) to determine areas where Agency staff time could improve diversion and recycling of discarded drywall, metal, asphalt shingles, clean wood, plywood, and oriented strand board derived from construction and demolition projects.

Annual Documentation:

1. Number of Act 250 plans reviewed.

A-5.5 – Networks and Collaborations

To support organizations and initiatives in Vermont that are working toward MMP goals, ANR will:

A. Coordinate or participate in networks and working groups:
   i. Reduce/Reuse network.
   ii. SWME School Outreach Group.
   iii. SWME Recycling Coordinators Group.
   iv. Vermont Hazardous Waste Network Group.

B. Host meetings:
   i. Once in the MMP term, ANR will host or participate in a statewide meeting or a series of regional meetings that connect SWMEs with organizations that work with food recovery / food donation to identify and address gaps in the top end of VT's food scrap hierarchy.
   ii. Approximately annually, work with SWMEs and other stakeholders to organize a meeting on residuals management and recycling in Vermont. The meetings will educate and promote the exchange of information to improve safe and effective management and reuse opportunities for residuals and to share information on emerging contaminants like PFAS.ANR may choose to not hold a residuals meeting in a given year if there is nothing of note to discuss.
   iii. Collaborate with SWMEs to hold a minimum of 8 regional meetings with haulers and stakeholders during the MMP term to discuss state solid waste requirements and MMP goals.

Annual Documentation:

1. Summarize key activities of network groups or task forces.
2. List topics, locations, and dates of meetings hosted.
3. List date, location, and number of participants events hosted.

A-5.6 – Technical Assistance and Trainings

To increase knowledge of topics related to the Solid Waste Management Rules, solid waste-related laws, and MMP goals, ANR will:

A. Organize trainings, such as:
   i. Webinars for SWMEs on topics such as SWIP reporting, outreach expectations and tips, social media strategies, website accessibility, etc.
   ii. Transfer station operator training video.

iii. Compost Operator Trainings.
iv. HHW Operator Trainings.

B. Organize technical assistance programs such as:
   i. Master Composter course.
   ii. Compost Technical Assistance.
   iii. Vermont Organics Recycling Summit.

Annual Documentation:

1. List trainings offered, including topic and date, and number of attendees if available.

A-6 ANR Strategy – Grant Funding

A-6.1 – Grants

Contingent upon availability of funds and internal approval, ANR may disburse from the Solid Waste Management Assistance Fund for grants and contracts for the purpose of enhancing solid waste management in the State in accordance with this Plan, such as:

A. Issue Solid Waste Implementation Plan funding to SWMEs.
B. Using data from annual SWME infrastructure needs assessments, issue grants that help meet MMP goals such as projects that:
   i. Improve sustainable materials management such as projects that can increase recycling, composting, and waste diversion through efficiency, capacity, safety, accessibility, convenience, cost-effectiveness, and climate mitigation and resiliency.
   ii. Improve access to Household Hazardous Waste facility services so services are available to more people, more frequently than 2 times per year.
C. Issue contracts in furtherance of the MMP goals and implementation of the Solid Waste Management Rules, such as education and trainings, studies, technical assistance services, testing, site management, and more.
D. Adjust grant RFP requirements and scoring in light of federal or state environmental justice policies or procedures that may be established.

Annual Documentation:

1. List grant recipients, contracts awarded, amounts awarded, and connections to Environmental Justice and climate mitigation and resiliency, if any.

A-7 ANR Strategy – Data and Reports

A-7.1 – Diversion and Disposal Reports

To track flow of materials through regulated solid waste facilities and participation in EPR programs, ANR will:

A. Compile annual Diversion and Disposal reports including:
   i. Number of tons of MSW, organics, recyclables, C&D, and other materials reported by regulated facilities, including Vermont materials disposed out-of-state and out-of-state materials disposed in Vermont.
   ii. Amount of HHW collected and participation rate for HHW facilities and events.
   iii. Annual collection amounts per EPR program.

Annual Documentation:
1. Post report on DEC web page.

A-7.2 – Legislative Reports

To provide summaries of solid-waste-related programs, initiatives, data, or other topics as requested by the Vermont Legislature, ANR will:

1. Complete reports to the Legislature including:
   a. Biennial Report
   b. Other reports, as required.

   Annual Documentation:
   1. Post reports on DEC web page.

A-7.3 – Disposal Capacity Stakeholder Process

To explore opportunities for ongoing in-state disposal capacity, ANR plans to initiate a stakeholder process for Vermont disposal capacity of the future. Whatever the path, the state must not waver in its efforts to reduce, repair, reuse, recycle, compost, and safely manage waste and materials for the benefit of human health and the environment.

1. Beginning in year 1 of the MMP term, ANR will organize a representative group of stakeholders from public and private solid waste managers and other interested parties to explore opportunities for ongoing in-state disposal capacity. This work will likely result in a report which could become part of a Biennial Report on Solid Waste to the Legislature.

   Annual Documentation:
   1. Post results of stakeholder process or report on DEC web page.

4 SWME Requirements

4.1 Solid Waste Implementation Plan and Approval Process

State law requires that municipalities manage solid waste within their jurisdiction in conformance with the State Solid Waste Management Plan (now referred to as the Materials Management Plan or "MMP"). Each municipality, either as part of Solid Waste District, part of an alliance or group of towns, or an individual town, must adopt a Solid Waste Implementation Plan (SWIP) that is in conformance with the MMP. All solid waste districts, alliances, and independent towns, are collectively referred to as Solid Waste Management Entities (SWMEs).

SWIPs must address all requirements outlined in 24 V.S.A. § 2202a, which are listed below. Existing SWIPs, adopted in conformance with the 2019 State Materials Management Plan, will have to be revised to conform to this 2024 MMP.

To make the SWIP drafting process as easy as possible, ANR created a **SWIP Template** that requires no specific expertise to fill out. ANR Solid Waste Program staff are available to guide and assist SWMEs with SWIP drafting.

4.1.1 Minimum SWIP requirements:

A. **SWME Strategies and Actions.** SWIPs must address how each required SWME action is/will be completed during the SWIP term. SWIPs that adequately address the SWME actions are considered to be implementing the priorities of this MMP, as further outlined by 10 V.S.A. § 6604(a)(1). SWME strategies and actions include all the requirements from 24 V.S.A. § 2202a.

B. **Solid Waste Facility Siting Criteria.** SWIPs must describe the siting criteria that will apply to solid waste facilities which may be proposed by any public or private entity in the SWME region. As required by 10 V.S.A. §6605(c), siting criteria shall not be less stringent than the criteria in Vermont Solid Waste Management Rules.

C. **Specify the Facilities that are Included in the SWIP and Describe How Proposed Facilities will be Reviewed for Inclusion.** Ensure all solid waste facilities operating in the SWME region, including wastewater treatment facilities, are listed in the SWIP. Explain the process and standards to be used to determine if newly proposed solid waste facilities would be included in the SWIP. The process may reference siting criteria and existing zoning ordinances, may require a host town agreement, or may defer to requirements in the Vermont Solid Waste Management Rules for some or all types of solid waste facilities. The standard(s) for being included in the SWIP should be clear.

D. **Public Participation in the SWIP Approval Process.** Describe the process to be used to ensure public participation in the development and implementation of the SWIP. The local community should be notified of opportunities to participate in the SWIP development and implementation. In accordance with state statute, SWMEs must hold at least two public meetings on the draft SWIP.

E. **Ordinances.** Include copies of any solid waste related ordinances with the SWIP.

F. **Conformance with Other Plans.** Demonstrate that the SWIP is in conformance with any regional plan adopted in accordance with 24 V.S.A Chapter 117. Demonstration may be in the form of a letter from the applicable regional planning commission regarding conformance of the solid waste implementation plan with the regional plan(s), copies of pertinent sections of the regional plan(s), or other documentation that proves conformance.

G. **SWIP Reports.** All SWMEs must submit an annual SWIP Report and demonstrate completion of all required actions via ReTRAC by April 1st. ANR will provide SWIP Reporting Guidance.

4.1.2 SWIP Approval Process:

A. SWMEs must submit a draft SWIP to ANR by July 1, 2025 that is in conformance with the 2024 MMP and follows the ANR SWIP template.

B. Solid Waste Program staff will review the SWIP and send a letter outlining any unmet requirements.

C. SWMEs are responsible for submitting revised SWIPs within 30 days to address unmet requirements.

D. If the revised SWIP completely addresses all comments in the letter, ANR will recommend it for pre-approval. If the revised SWIP does not address all the comments, a follow-up review letter will be sent and the SWME will have another 30 days to address all comments in a subsequent revision.

E. Once a draft SWIP is recommended by ANR for pre-approval, the SWME must hold two public hearings in its region on the draft SWIP.
F. Upon completion of two public hearings and provided that no changes were made to the pre-approved SWIP, the SWME Board of Supervisors, Select Board, or City Council may adopt the draft SWIP, which can then move toward full approval by ANR.
G. The following must be provided by the SWME as proof that public meetings were held in order to move toward final approval:
    a. dates of at least two public meetings that were held by the SWME on the draft SWIP, and
    b. a summary of the meetings.
H. If no changes were recommended on the draft SWIP at the public meetings, then it can move forward for final approval from ANR. The ANR, DEC, Waste Management and Prevention Division Director will provide final approval of SWIPs via an ANR approval letter. If the draft SWIP is revised in any way, ANR will need to review the changes before moving it forward for final approval.

Possible Enforcement Actions:
SWMEs that have not adopted or implemented a SWIP in conformance with the MMP face consequences that may include:
a) An enforcement action pursuant to 10 V.S.A. Chapter 201 or 211,
b) The loss of grant eligibility,
c) Preclusion to secure solid waste management facility certification, and
d) A requirement to manage all materials (MSW, recycling, etc.) out of State.

5 SWME Strategies and Actions

S-1 SWME Strategy: Data and Reporting

S-1.1 – Disposal and Diversion Reporting

A. **Disposal rate:** To track progress with state waste reduction goals, SWMEs must report their disposal rate in SWIP years one and five.
    i. SWMEs may use the method in the ANR Data Guidance to calculate their disposal rate or another method approved by ANR.
    ii. Disposal rate reports must be based on calendar year data.
B. **Diversion rate:** SWMEs are not required to report diversion rates to ANR; however, it is strongly recommended that SWMEs track their diversion efforts to determine the success of their programs and services.

Documentation in Annual SWIP Report:
1. First (1st) Year SWIP Report: report year 1 annual per person per year disposal rate.
2. Fifth (5th) Year SWIP Report: report year 5 annual per person per year disposal rate

S-2 SWME Strategy: Outreach

S-2.1 – Accessible Communications

To ensure that all Vermonters have equal access to information and to minimize barriers to information access, SWMEs must critically evaluate their communications in light of best practices for accessibility including:

A. Year one: attend ANR training OR another training (approved by ANR) on topics such as accessible web design, plain language, accessible graphic design, public outreach and/or engagement, etc.
B. Years 2-5: review ANR accessible communications best practices.

Documentation in Annual SWIP Report:

1. Year 1: List training taken by SWME staff.
2. Years 2-5: Confirm review of accessible communications best practices.

S-2.2 – SWME Materials Management Website

To ensure community members have access to local waste, recycling, and materials management information including state laws; disposal bans; how to reduce, reuse, recycle, donate, compost, and safely dispose of unwanted materials; and local hauler services; by the end of year 1, each SWME must develop and annually maintain a website with:

A. **SWIP:** to ensure community members are aware of and can access the SWIP, each SWME must—within one month of their SWIP approval—post their approved SWIP on their website.
B. **A-Z Waste and Recycling Guide:** maintain an A-Z guide that lists regional management options for various materials. The A-Z guide must remain accurate throughout the SWIP term.
    i. A-Z website link must be easily found from the SWME website within 2 clicks or fewer from the home page.
    ii. The A-Z Guide must contain, at a minimum, information on how to manage, recycle, or divert all regional recycling and safe disposal options for all of the categories and key words in the ANR A-Z Waste and Recycling Guide Minimum Requirements document.
    iii. Each entry must include contact information, as appropriate, such as address and telephone number for the collection location(s) OR a direct link to a webpage where the contact information can be found. Examples of options for providing contact information will be provided in the ANR A-Z Waste and Recycling Guide Minimum Requirements.
    iv. Entries for disposal-banned materials must indicate that the material is banned by state law from disposal in the trash.
    v. Entries for items that are accepted as part of an EPR program must link to information on the EPR program.
    vi. Entries for items that can be recycled only through special collection must clearly explain that the collection of these materials is separate from curbside, or blue-bin, recycling.
C. **Hauler Services List:** establish and maintain an up-to-date Hauler Services List with the contact information for trash, recycling, and food scrap pickup services offered by all known commercial solid waste haulers operating within the SWME region.

D. **Waste Reduction for Events Resources:** maintain a web page that encourages waste reduction at events such as bin signs, options for bin rental or loan, haulers for recycling and food scrap collection at events, and tips for successful diversion at events (can link to ANR web page for the tips).

Documentation in Annual SWIP Report:

1. Year 1, provide links to:
    a. SWIP;
    b. Updated A-Z Waste and Recycling guide;
    c. Hauler Services List.
    d. Waste Reduction for Event Resources.
2. Years 2-5: Describe any significant website updates or changes.

S-2.3 – Digital Outreach

To build awareness of waste management topics and services provided by SWMEs and those available within their region, each SWME must conduct annual outreach on at least two digital platforms such as Front Porch Forum, social media, electronic newsletters, etc. SWMEs may use existing ANR content or create their own. This requirement is separate from maintaining a materials management website.

A. Annual digital outreach must include at least two forms of outreach per year on each of the following topics:
    i. The A-Z Guide and disposal bans.
    ii. Waste reduction and diversion.
    iii. Household hazardous waste reduction and proper disposal.
    iv. Extended Producer Responsibility programs (i.e. batteries, E-cycles, mercury-containing products, paint, HHW EPR).

Documentation in Annual SWIP Report:

1. Describe the two digital outreach methods used per SWIP year, including platforms used for each topic covered.

S-2.4 – Print Outreach

To reach community members who do not use digital modes of communication, each SWME must conduct at least one annual outreach in printed documents, such as press releases, newsletters, post cards, letters to editor/articles/ads in local newspapers. SWMEs must:

A. Year 1: Issue one press release about their SWIP to local newspapers or other media outlets within two months of SWIP approval.
B. Years 2-5: Issue one printed outreach per year related to the main MMP goals and/or ANR or SWME initiatives related to materials management. Press releases could also be completed in partnership with ANR. Mailings can count but are not required. HHW event mailings or advertisements and press releases announcing grant receipt do not count toward this requirement.

Documentation in Annual SWIP Report:

1. Year 1: provide a copy of the SWIP press release along with the date released and list of newspapers where it was sent.

2. Years 2-5: provide copy of press release along with topic, date released, and list of newspapers where it was sent OR copy of print outreach along with topic, date of release, and number of recipients.

S-2.5 – Municipality and Facility Connections

To further develop relationships with their local municipalities and to better understand local challenges and opportunities related to the movement of waste, SWMEs must conduct outreach to solid waste facilities, town offices, and public libraries. SWMEs must:

A. Within the SWIP term: SWMEs must conduct an in-person visit to each solid waste facility included in the SWIP.
B. Each year: for each municipality within the SWME region, SWMEs must reach out to the town office and public library (as applicable). Outreach may be conducted in-person, via phone, or via email and must include:
   i. Introduction of the SWME and their role in the community.
   ii. Updates on any materials management-related laws, events, or initiatives.
   iii. For town offices: Discussion of collection plan for disaster debris and disaster-related Hazardous materials (see also C7 – Collection of Disaster Debris and Disaster-related HHW).

Documentation in Annual SWIP Report:

1. Provide a list of solid waste facilities, town offices, and libraries contacted.

S-2.6 – School Outreach

To ensure all K-12 public and private schools are aware of the Universal Recycling law, state disposal bans; and how to reduce waste, reuse, repurpose, recycle, compost, donate, and safely manage materials responsibly; and that waste reduction and diversion programs are being implemented effectively, SWMEs must:

A. Conduct **in-person outreach and assistance to K-12 public and private school administrators and/or facilities and food service staff at a minimum of 10% or 2 schools (whichever is greater)** within their jurisdiction each year. SWMEs should prioritize outreach to schools that have not yet been visited, but SWMEs may need to visit schools annually to meet the requirement.
B. The outreach to each school must focus on school-wide waste reduction and diversion programs covering, at minimum:
   i. Disposal ban information.
   ii. How to recycle correctly.
   iii. How to separate food scraps for composting or anaerobic digestion.
   iv. How to reduce wasted food and donate (such as through the use of share table) what is appropriate.
   v. How to responsibly manage hazardous waste.
   vi. Collection options available from Vermont's Extended Producer Responsibility Programs for HHW, electronics, paint, batteries, mercury-containing bulbs and thermostats.
c. If SWME is not able to reach school administrators or relevant staff in-person, phone calls, video calls, or emails may be conducted instead, with prior ANR approval.
D. To keep track of their school outreach, SWMEs may use the ANR tracking spreadsheet template or another system of their own that meets ANR approval.

E. Outreach to teachers and students is encouraged but is not required, although SWMEs may find it useful to talk to science, art, and shop teachers about proper management and disposal of hazardous materials.
F. One of the primary roles of a SWME is waste reduction, diversion, and hazardous waste reduction outreach and assistance. If a school is not in compliance with the Universal Recycling law or other waste-related laws, and assistance is not effective, or if a SWME is not able to obtain a response from a school at all, SWMEs are encouraged to request follow-up assistance from ANR.

Documentation in Annual SWIP Report:

1. Provide a spreadsheet or other document including:
    a. List of schools and person contacted;
    b. Dates visited/contacted;
    c. Status of recycling and food scrap diversion programs.
2. Describe outreach efforts, including notable successes or challenges.

S-2.7 – Business Outreach

To ensure businesses and institutions (hospitals, nursing homes, colleges, correctional facilities, and other large waste generators) understand the requirements of the Universal Recycling law, state disposal bans, how to reduce waste, reuse, recycle, compost, donate, and safely manage materials responsibly; and that waste reduction and diversion programs are being implemented effectively, SWMEs must:

A. SWMEs must conduct business outreach and education either **in person or via phone** to at **least 2% or 15 businesses/institutions (whichever is greater)** within their jurisdiction each year.
    i. The number of businesses in a SWME region may be estimated by the Department of Labor list (instructions provided by ANR in Year 1 of the MMP term), or a SWME may use a different method that meets ANR approval.
    ii.
    iii. SWMEs should prioritize outreach to businesses that have not yet been contacted or visited or those whose status is not yet known.
B. The business outreach and education to each entity must cover, at minimum:
    i. Disposal ban information.
    ii. How to recycle correctly.
    iii. How to separate food scraps for animal feed and/or composting or anaerobic digestion.
    iv. How to reduce wasted food and donate what is appropriate.
    v. Single-Use Products law.
    vi. Resources for safely managing hazardous waste.
    vii. Collection options available from Vermont's Extended Producer Responsibility Programs for HHW, electronics, paint, batteries, mercury containing bulbs and thermostats.
C. To keep track of their business outreach, SWMEs may use the ANR tracking spreadsheet template or another system of their own that meets ANR approval.
D. One of the primary roles of a SWME is outreach and assistance. If a business is not in compliance with the Universal Recycling law or other waste-related laws, and assistance is not effective, SWMEs are encouraged to request follow-up from ANR.

Documentation in Annual SWIP Report:

1. Provide a spreadsheet or other document including:
    a. List of businesses and person contacted;
    b. Dates visited/contacted;
    c. Status of recycling and food scrap diversion programs;
    d. Interaction type (in person or phone).
2. Describe outreach efforts, including notable successes or challenges.

S-3 SWME Strategy: Collection Infrastructure

S-3.1 – Variable Rate Pricing

To encourage waste reduction, SWMEs must:

A. Implement a variable rate pricing system that charges for the collection of municipal solid waste from a residential customer for disposal based on the volume or weight of the waste collected. SWMEs may elect to establish licensing or registration programs to accomplish this requirement and can refer to the Variable Rate Pricing Guide for more information.

Documentation in Annual SWIP Report:

1. Year 1: explain the method used to ensure haulers and facilities are charging residents for trash based on volume or weight.
2. Years 2-5: provide any updates and/or instances of hauler or facility non-compliance.

S-3.2 – HHW Collection Facilities and Events

To ensure community members have convenient access to safely dispose of Household Hazardous Waste (HHW) and Very Small Quantity Generator (VSQG) hazardous waste (previously defined as Conditionally Exempt Generator hazardous waste (CEG)), SWMEs must provide access to one of the following:

A. A permanent HHW/VSQG collection facility defined within this MMP as a facility that is open at least one day per week, at minimum from May through October (ANR may consider approving requests for alternative operating days and seasonal openings and closures of permanent facilities when necessary).
    i. Due to increased user convenience, lower costs per participant, and slightly higher participation rates for regional HHW facilities, SWMEs that provide access to a permanent HHW collection facility in their region are exempt from the requirement to offer all towns at least one annual collection event within 20 road-miles.

OR

B. A minimum of two (2) HHW/VSQG hazardous waste collection events per year. SWMEs utilizing collection events must at minimum offer at least one HHW and VSQG collection event scheduled in the spring and one in the fall and events must operate for a minimum of four (4) hours.
    i. SWMEs that only offer collection events or operate HHW facilities with operating hours similar to collection events must annually provide each of its towns with

access to at least one collection event (or to a facility) within 20 road-miles; meaning a maximum distance of 20 road-miles from any point in the town.

ii. If a SWME provides additional events above the minimum requirement, waivers to the minimum duration for each event may be considered by ANR.

iii. To meet this 20 road-mile convenience requirement, certain regions may need to hold more than two collection events each year.

Sharing Facilities or Events: SWMEs are encouraged to share access to events and facilities, provided a signed agreement confirming access by the SWME's community members is obtained; and provided that a facility or event is within 20 road-miles from any point in a town that would be using that facility or event.

Documentation in Annual SWIP Report:

1. Provide the HHW facility address and seasonal operating schedule, including days operating and hours of operation, **OR** the dates of the HHW events.
2. Provide the number of participants, the household participation rate, and the amount of HHW/VSQG hazardous waste collected in HHW ReTRAC report.

S-3.3 – Collection of Landfill/Disposal-Banned and Dangerous Materials

To ensure that all Vermonters have year-round collection options for landfill-banned and dangerous materials, SWMEs must:

A. Demonstrate that year-round collection options exist in their region (within SWME boundary OR within 20 miles of an Independent Town) for the following landfill/disposal banned materials: **batteries, mercury containing lamps, mercury thermostats, gas cylinders as defined in Vermont's HHW EPR law 10 V.S.A. §7181, electronics, paint, tires, used oil, and appliances (including discarded refrigerators, washing machines, clothes dryers, ranges, water heaters, dishwashers, freezers, air conditioners, and dehumidifiers)**.

B. Collection locations can be privately or publicly owned, such as auto parts stores collecting used oil, or hardware stores collecting paint and fluorescent lamps. However, if the only collection location for a required material closes or reaches maximum capacity for collection during the SWIP term, the SWME must provide a collection option for its region.

C. All collection locations must be open at least one weekday and one weekend day per week.

Documentation in Annual SWIP Report:

1. Confirm that this requirement is met.
2. Describe any changes in collection options from the previous year.

S-3.4 – Disaster Debris Plan

To ensure all Vermont towns are prepared to manage disaster-related debris, like HHW, hazardous waste, trash/MSW, construction and demolition (C&D) debris, and woody debris, during and after a disaster such as a flood, fire, storm, or other emergency, SWMEs must, by the end of Year 1 of the SWIP term:

A. **Submit a Disaster Debris Plan:** work with each municipality to create a Disaster Debris Plan ("Plan") for the management of disaster-related trash, C&D debris, and hazardous debris. The Plan must use the ANR Template, must cover all municipalities in the SWME region, and must include, at minimum:
    a. **Municipal Disaster Debris Contacts:** Contact each municipality and obtain contact information for the emergency personnel who would be the point-of-contact for coordinating temporary disaster-related hazardous materials storage in that municipality. Referring to your local emergency management director is recommended.
    b. **Disaster Hazardous Materials Staging Areas:** identify appropriate "Disaster Hazardous Material Staging Areas" (DHMSA) within the SWME region for the temporary storage of disaster-related hazardous materials and dangerous wastes. DHMSAs must be located:
        i. On publicly owned land.
        ii. Within either each municipality (which is recommended) or at minimum, one for the whole SWME region.
    c. **Trash and C&D Disaster Debris Management:** This may include the identity of certified public and/or private solid waste transfer facilities that could be used for disaster trash and C&D debris management.
    d. **Clean Wood/Vegetative/Inert Debris Management Sites:** list the locations of clean wood/vegetative/inert debris sites as required below in S-3.5.
        i. S-3.5 is not due until Year four of the SWIP term. Re-submit the Plan after year four, if necessary.

- NOTE: Attending training by ANR and/or Vermont Emergency Management (VEM) is recommended. See ANR Action A-5.2 above for more details.
- NOTE: For communities wishing to pursue FEMA reimbursement: trash/MSW/C&D disaster debris management destination locations (like transfer stations, landfills, categorical disposal/recycling facilities like stump dumps and wood waste management sites must be certified, be out of a flood zone, have controlled access, and follow other debris tracking methods to ensure FEMA reimbursement requirements can be met.
- NOTE: During the historic flooding of July, 2023 the State of Vermont Department of Public Safety, Vermont Emergency Management Division, the Department of Buildings and General Services, and the Department of Environmental Conservation, Solid Waste Management Program engaged a statewide debris contractor to assist towns with collection and disposal of disaster related debris when the capacity of local and regional resources were exceeded. Communities with a sound disaster debris plan may respond more quickly from a disaster, getting debris removed and properly managed or disposed of so that impacted residents and businesses have life return to normal in less time.

Documentation in Annual SWIP Report:

1. Year 1 only: provide Disaster Debris Plan with:
    a. List of emergency personnel in each municipality within SWME region
    b. Locations of temporary "Disaster Hazardous Materials Staging Areas."
    c. Trash and C&D Disaster Management.
    d. Locations of clean wood/vegetative/inert debris management sites.
2. Year 4 only: Re-submit Plan if there are updates to the clean wood/vegetative/inert debris management sites per S-3.5.

S-3.5 – Clean Wood and Inert Debris Management Sites

To ensure Vermonters have access to management sites for clean wood ("wood waste") and other inert debris during normal times and after a disaster, such as a flood, fire, storm, or other emergency, SWMEs must:

A. By the end of Year 4, identify at least one location within the SWME region to site and permit a categorical disposal or storage/transfer area ("stump dump") that can be used to manage both normal clean wood and disaster-related clean wood/vegetative debris and other inert debris including: clean silt, soils, and gravel, brick and concrete, branches, trees, stumps, and wood that is untreated and free from paint, staining, is not odorous or otherwise suspected of contamination.
   i. SWMEs may share access to categorical disposal areas. The municipalities sharing access must provide a signed letter or agreement that documents this shared access.
   ii. Clean Wood and Inert Debris Management Sites should be adequate in size and operate frequently enough to meet the needs of the municipality(ies) they serve.
   iii. Having a permitted categorical disposal area for disaster debris management in every municipality within a SWME is recommended, but not required.

Documentation in Annual SWIP Report:

1. Year 4: list location of the permitted categorical disposal facility or other facility in the SWME region where clean wood and inert debris can be managed.

S-3.6 – Collection of Textiles

To ensure community members have access to textile reuse and recycling centers where used clothing and textiles can be donated, SWMEs must:

A. Annually ensure that at least one collection location exists within their region (within SWME boundary OR within 20 miles of an Independent Town). Textile reuse/recycling locations can be either privately or publicly owned.
B. If the only collection location closes or ceases collection during the SWIP term, then the SWME is responsible for providing a collection option for its residents. Collection of rag-quality (unwearable) items is encouraged but not required.
C. Collection locations can also be shared amongst SWMEs so long as the facility is within the same county or SWME region. SWMEs must list where to donate and reuse/recycle "clothing/textiles" in their A-Z Guides.

Documentation in Annual SWIP Report:

1. Confirm that textile collection is available.
2. Describe any changes in collection options from the previous year.

S-4 SWME Strategy: Residuals Management

S-4.2 – Residuals Management Meetings

To reduce pollutants in wastewater and septic systems that can hinder the reuse and recycling of biosolids and to increase awareness of topics of concern, like PFAS and other emerging contaminants, each SWME must:

A. Attend the annual, virtual ANR meeting on residuals management each year during the SWIP term. ANR Residuals Program staff will organize the meetings and may choose to not hold a meeting in a given year.

Documentation in Annual SWIP Report:

1. Confirm meeting attendance, as applicable.

6 Glossary of Terms

DISCLAIMER - The Glossary of Terms does not provide legal definitions of all terms. Instead, the intent is to provide consistent definitions of key words used in this Plan so that all readers have the same understanding of these terms as used in the context of this Plan.

Anaerobic Digestion: means the controlled anaerobic decomposition of organic food residuals, manure, animal feed waste, other natural organic waste materials inside a containment structure or vessel, generally resulting in the production of methane-rich gas. The initials "AD" may refer to the process of anaerobic digestion or the built system where anaerobic digestion takes place, also known as a digester.

Biogas: gas produced by the breakdown of organic material in the absence of oxygen.

Biosolids: primarily organic materials recovered from the wastewater treatment process and sewage sludge, both of which have been treated and shown to meet the standards such that it can be managed through beneficial use. Beneficial use includes land application or further treatment to produce compost or similar products. Disposal includes dewatering followed by landfilling or incineration.

Clean Wood: has the same definition as "wood waste" in state statute and means trees, untreated wood, and other natural woody debris, including tree stumps, brush and limbs, root mats, and logs.

Composting: the controlled biological decomposition of organic matter through active management to produce a stable, humus-rich material.

Community-Based Social Marketing: a method for behavioral change that combines strategies from psychology and social marketing to strategically identify and remove barriers to desired behaviors.

Construction and Demolition (C&D) Debris: means waste derived from the construction or demolition of buildings, roadways or structures including but not limited to clean wood, treated or painted wood, plaster, sheetrock, roofing paper and shingles, insulation, glass, stone, soil, flooring materials, brick, masonry, mortar, incidental metal, furniture and mattresses. This waste does not include asbestos waste, regulated hazardous waste, hazardous waste

generated by households, hazardous waste from conditionally exempt generators, or any material banned from landfill disposal under 10 V.S.A. §6621a.

Disposal: the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or onto any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any ground or surface waters.

Diversion Rate: the measurement of the amount of waste diverted (by composting, reusing, and recycling materials), divided by the sum of waste diverted and waste disposed (at disposal facilities, landfills and incinerators). Materials used for alternative daily cover at landfills do not constitute materials diverted from the landfill.

That is calculated by using the following equation:

$$\text{Diversion Rate (\%)} = \frac{\text{tons diverted}}{\text{tons diverted + disposed}} \times 100 = \frac{\text{tons reused + composted + recycled}}{\text{tons reused + composted + recycled + landfilled + incinerated}} \times 100$$

Energy recovery (as it relates to the Food Recovery Hierarchy): Energy recovery as it relates to the food residual hierarchy does not include disposal by incineration, waste-to-energy incineration, or other such processes.

Extended Producer Responsibility (EPR): a mandatory type of product stewardship that includes, at a minimum, the requirement that the producer's responsibility for their product extends to post-consumer management of that product and its packaging. There are two related features of EPR policy: (1) shifting financial and management responsibility, with government oversight, upstream to the producer and away from the public sector; and (2) providing incentives to producers to incorporate environmental considerations in the design of their products and packaging.

Food Scraps/Residuals: source-separated and uncontaminated material that is derived from processing and discarding of food and that is recyclable; may include pre-consumer and post-consumer food scraps but does not necessarily include meat and meat-related products when the food residuals are composted by a resident on site.

Household Hazardous Waste (HHW): any waste from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day-use recreation areas) that would be subject to regulation as hazardous wastes if it were not from households. Examples of HHW include paint, cleaners, oils, batteries, and pesticides. Because they contain potentially hazardous ingredients, these wastes require special management.

Inert Disaster Debris: debris that is generated by a disaster and can be disposed of at a categorical disposal facility, including 1) stumps, root masses, decomposing wood or brush; 2) bituminous concrete; 3) brick, concrete, masonry, mortar, porcelain, pottery, tile and clay pile; 4) street sweepings, 5) car wash grit and municipal separated stormwater catch basin grit that

does not leach volatile organic compounds in excess of applicable groundwater enforcement standards.

Leaf and Yard Debris: source-separated compostable, untreated vegetative matter, including grass clippings, leaves, kraft paper bags, and brush, which is free from non-compostable materials. It does not include such materials as pre-consumer and post-consumer food residuals, food processing residuals, or soiled paper.

Mandated Recyclable: any of the following source separated materials: aluminum and steel cans; aluminum foil and aluminum pie plates; glass bottles and jars from foods and beverages; polyethylene terephthalate (PET) plastic bottles or jugs; high density polyethylene (HDPE) plastic bottles and jugs; corrugated cardboard; white and colored paper; newspaper; magazine; catalogues; paper mail and envelopes; boxboard; and paper bags.

Management Facilities: Facilities that are permitted by ANR to accept materials for recycling, processing, or disposal.

Materials Management: the lifecycle of materials as they trace their course through the economy, from raw material extraction to product manufacture, transport, use, source reduction, reuse, recycling, and disposal. (USEPA www.epa.gov/statelocalclimate/state/topics/waste-mgmt.html).

Municipal Solid Waste (MSW): combined household, commercial, and industrial waste materials generated in a given area.

Organic Materials: materials of a biological origin such as paper and cardboard, food, yard and garden waste, animal waste, biosolids and septage. For this MMP, biosolids and septage are discussed separately from other organic materials. Animal waste is not a subject addressed in this MMP.

Per Person Disposal Rate: the average amount of waste disposed (landfilled or incinerated) per person in a given year. Or, when expressed as an equation:
Per Person Disposal Rate = (total tons landfilled + total tons incinerated) per year by a given town or district or state / total population of that town or district or state (may be adjusted for seasonal population)

PFAS: per- and polyfluoroalkyl substances (PFAS) are a large family of fluorinated chemicals manufactured for decades and used in many industrial, commercial and consumer products. PFAS are termed "forever chemicals" due to their resistance to degradation, persistence in the environment, and potential to bioaccumulate. Because of their widespread use and their persistence in nature, PFAS are found across the globe in the blood of people and animals, in water, air and soil, and in many products and waste materials.

Plan Term: the period of time by which the Materials Management Plan designates the earliest and latest possible date at which a performance standard must be completed. This term is scheduled for a 5-year period beginning on the date of adoption.

Product Stewardship: the act of minimizing health, safety, environmental, and social impacts of a product and its packaging, and maximizing economic benefits of a product and its packaging throughout all lifecycle stages. The producer of the product has the greatest ability to minimize adverse impacts, but other stakeholders, such as suppliers, retailers, and consumers, also play a role. Product stewardship can be either voluntary or required by law.

Recyclable Materials: solid waste which may be reclaimed and/or processed so that they may be used in the production of materials or products.

Recycling: the process of utilizing product residuals, packaging, or food scraps for the production of materials or products but does not include processing solid waste to produce energy or fuel products.

Recycling Rate: the percentage of material recycled compared divided by the sum of recycled and disposed material, multiplied by 100. Or, when expressed as a formula:

$$\text{Recycling Rate (\%)} = \frac{\text{tons of materials recycled}}{\text{(tons of materials recycled + tons of waste disposed)}} \times 100$$

ReTRAC: a database used to manage all diversion and disposal reports for the State of Vermont. Data can be tracked and reports run based upon facility, material, or region.

Reuse: use of a material or product more than once before it is recycled or discarded as solid waste.

Septage: the liquid and solid materials pumped from a septic tank or cesspool during cleaning.

Sludge: any untreated solid, semisolid, or liquid generated from a municipal, commercial, or industrial wastewater treatment plant or process, water supply treatment plant, air pollution control facility, or any other such waste having similar characteristics and effects.

Solid Waste (SW): any discarded garbage, refuse, or septage, or sludge from a waste treatment plant, water supply plant, or pollution control facility and other discarded material including solid, liquid, semi-solid, or contained gaseous materials resulting from industrial, commercial, mining, or agricultural operations and from community activities but does not include animal manure and absorbent bedding used for soil enrichment; high carbon bulking agents used in composting; or solid or dissolved materials in industrial discharges which are point sources subject to permits under the Water Pollution Control Act. Solid waste that is also hazardous waste is subject to further regulation under the Vermont Hazardous Waste Management Regulations.

Solid Waste Implementation Plan (SWIP): that plan which is adopted to be consistent with the State Materials Management Plan (MMP). This plan must include all the elements required for consistency with the MMP and an applicable regional plan and shall be approved by the Secretary. This implementation plan is the basis for state certification of facilities.

Solid Waste Management: activities that result in the storage, transportation, transfer, treatment of solid waste or recyclable material, or disposal of solid waste.

Solid Waste Management Entity (SWME): a term used to reference a town or groups of towns that have unified as a district, group, or alliance in order to share financial and human resources dedicated to managing the solid waste generated by organizations and residents residing within the particular town or group of towns.

SWIP Term: the term in which a Solid Waste Implementation Plan (SWIP) is approved by ANR until the time a new SWIP is approved following the adoption of a new MMP (referred to as a "solid waste management plan" by statute) or a revised SWIP is approved by ANR.

Transfer Station: a solid waste management facility where solid waste is collected, aggregated, sorted, stored, and/or processed for the purpose of subsequent transfer to another solid waste management facility for further processing, treatment, transfer, or disposal.

Universal Waste: establishes alternative management standards for certain hazardous wastes in order to streamline the management process. Examples of Universal Wastes are batteries, pesticides, thermostats, PCB-containing fluorescent light ballasts, lamps, mercury-containing devices, paint, and cathode ray tubes.

Variable Rate Pricing (or Unit Based Pricing or Pay As You Throw): Charging a tiered or variable fee based on the volume or weight of the solid waste collected.

Very Small Quantity Generator (VSQG): (Previously referred to as Conditionally Exempt Generator (CEG)): a generator of hazardous waste that is conditionally exempted from certain provisions of the Vermont Hazardous Waste Management Regulations.

Waste: a material that is discarded or is being accumulated, stored, or physically, chemically, or biologically treated prior to being discarded, or has served its original intended use or is a manufacturing or mining by-product, and is normally discarded.

Waste Prevention: actions or choices that prevent the generation of waste. Waste prevention involves altering the design, manufacture, purchase, or use of products and materials to reduce the amount and toxicity of what gets thrown away.

Waste Reduction: waste reduction combines the efforts of waste prevention, reuse, composting, and recycling practices.

The Vermont Statutes Online

The Vermont Statutes Online does not include the actions of the 2024 session of the General Assembly. We expect them to be updated by November 1st.

NOTE: The Vermont Statutes Online is an unofficial copy of the Vermont Statutes Annotated that is provided as a convenience.

Title 10 : Conservation and Development

Chapter 159 : Waste Management

Subchapter 001 : General Provisions

(Cite as: 10 V.S.A. § 6604)

§ 6604. Solid waste management plan

(a) No later than November 1, 2013, the Secretary shall adopt, after notice and public hearing pursuant to 3 V.S.A. chapter 25, a solid waste management plan that sets forth a comprehensive statewide strategy for the management of waste.

(1) The plan shall promote the following priorities, as found appropriate for certain waste streams, based on data obtained by the Secretary as part of the analysis and assessment required under subdivision (2) of this subsection:

(A) the greatest feasible reduction in the amount of waste generated;

(B) materials management, which furthers the development of products that will generate less waste;

(C) the reuse and closed-loop recycling of waste to reduce to the greatest extent feasible the volume remaining for processing and disposal;

(D) the reduction of the State's reliance on waste disposal to the greatest extent feasible;

(E) the creation of an integrated waste management system that promotes energy conservation, reduces greenhouse gases, and limits adverse environmental impacts; and

(F) waste processing to reduce the volume or toxicity of the waste stream necessary for disposal.

(2) The plan shall be revised at least once every five years and shall include:

(A) An analysis of the volume and nature of wastes generated in the State, the source of the waste, and the current fate or disposition of the waste. Such an analysis

shall include a waste composition study conducted in accordance with generally accepted practices for such a study.

(B) An assessment of the feasibility and cost of diverting each waste category from disposal, including, to the extent the information is available to the Agency, the cost to stakeholders, such as municipalities, manufacturers, and customers. As used in this subdivision (a)(2), "waste category" means:

(i) marketable recyclables;

(ii) leaf and yard residuals;

(iii) food residuals;

(iv) construction and demolition residuals;

(v) household hazardous waste; and

(vi) additional categories or subcategories of waste that the Secretary identifies that may be diverted to meet the priorities set forth under subdivision (a)(1) of this section.

(C) A survey of existing and potential markets for each waste category that can be diverted from disposal.

(D) Measurable goals and targets for waste diversion for each waste category.

(E) Methods to reduce and remove material from the waste stream, including commercially generated and other organic wastes, used clothing, and construction and demolition debris, and to separate, collect, and recycle, treat, or dispose of specific waste materials that create environmental, health, safety, or management problems, including tires, batteries, obsolete electronic equipment, and unregulated hazardous wastes. These portions of the plans shall include strategies to ensure recycling in the State and to prevent the incineration or other disposal of marketable recyclables.

(F) A coordinated education and outreach component that advances the objectives of the plan, including the source separation requirements, generator requirements to remove food residuals, and the landfill disposal bans contained within this chapter.

(G) Performance and accountability measures to ensure that implementation plans are effective in meeting the requirements of this section.

(H) An assessment of facilities and programs necessary at the State, regional, or local level to achieve the priorities identified in subdivision (a)(1) of this section and the goals established in the plan. These portions of the plan shall be based, in part, on an assessment of the status, capacity, and life expectancy of existing solid waste facilities, and they shall include siting criteria for waste management facilities and shall establish requirements for full public involvement.

(b) The Secretary shall hold public hearings, conduct analyses, and make recommendations to the House Committee on Environment and Energy and the Senate Committee on Natural Resources and Energy regarding the volume, amount, and toxicity of the waste stream. In this process, the Secretary shall consult with manufacturers of commercial products and of packaging used with commercial products, retail sales enterprises, health and environmental advocates, waste management specialists, the general public, and State agencies. The goal of the process is to ensure that packaging used and products sold in the State are not an undue burden to the State's ability to manage its waste. The Secretary shall seek voluntary changes on the part of the industrial and commercial sector in both their practices and the products they sell, so as to serve the purposes of this section. In this process, the Secretary may obtain voluntary compliance schedules from the appropriate industry or commercial enterprise and shall entertain recommendations for alternative approaches. The Secretary shall report at the beginning of each biennium to the House Committee on Environment and Energy and the Senate Committee on Natural Resources and Energy with any recommendations or options for legislative consideration. At least 45 days prior to submitting the report, the Secretary shall post any recommendations within the report to the Agency's website for notice and comment.

(1) In carrying out the provisions of this subsection, the Secretary first shall consider ways to keep hazardous material; toxic substances, as that term is defined in subdivision 6624(7) of this title; and nonrecyclable, nonbiodegradable material out of the waste stream, as soon as possible. In this process, immediate consideration shall be given to the following:

(A) evaluation of products and packaging that contain large concentrations of chlorides, such as packaging made with polyvinyl chloride (PVC);

(B) evaluation of polystyrene packaging, particularly that used to package fast food on the premises where the food is sold;

(C) evaluation of products and packaging that bring heavy metals into the waste stream, such as disposable batteries, paint and paint products and containers, and newspaper supplements and similar paper products; and

(D) identification of unnecessary packaging, which is nonrecyclable and nonbiodegradable.

(2) With respect to the items listed in subdivision (1) of this subsection, the Secretary shall consider the following:

(A) product and packaging bans, products or packaging that ought to be exempt from such bans, the existence of less burdensome alternatives, and alternative ways that a ban may be imposed;

(B) tax incentives, including the following options:

(i) product taxes, based on a sliding scale, according to the degree of undue harm caused by the product, the existence of less harmful alternatives, and other relevant factors;

(ii) taxes on all nonrecyclable, nonbiodegradable products or packaging;

(C) deposit and return legislation for certain products.

(c) A portion of the State's Solid Waste Management Plan shall set forth a comprehensive statewide program for the collection, treatment, beneficial use, and disposal of septage and sludge. The Secretary shall work cooperatively with the Department of Health and the Agency of Agriculture, Food and Markets in developing this portion of the Plan and the rules to carry it out, both of which shall be consistent with or more stringent than that prescribed by section 405 of the Clean Water Act (33 U.S.C. § 1251 et seq.). In addition, the Secretary shall consult with local governmental units and the interested public in the development of the plans. The sludge management plan and the septage management plan shall be developed and adopted by January 15, 1987. In the development of these portions of the plan, consideration shall be given to, but shall not be limited to, the following:

(1) the varying characteristics of septage and sludge;

(2) its value as a soil amendment;

(3) the need for licensing or other regulation of septage and sludge handlers;

(4) the need for seasonal storage capability;

(5) the most appropriate burdens to be borne by individuals, municipalities, and industrial and commercial enterprises;

(6) disposal site permitting procedures;

(7) appropriate monitoring and reporting requirements;

(8) actions that can be taken through existing State programs to facilitate beneficial use of septage and sludge;

(9) the need for regional septage facilities;

(10) an appropriate public information program; and

(11) the need for and proposed nature and cost of appropriate pilot projects.

(d) Although the plan adopted under this section and any amendments to the plan shall be adopted by means of a public process that is similar to the process involved in the adoption of administrative rules, the plan, as initially adopted or as amended, shall not be a rule. (Added 1977, No. 106, § 1; amended 1985, No. 190 (Adj. Sess.), § 1, eff. May 14, 1986; 1987, No. 78, § 2; 1987, No. 246 (Adj. Sess.), § 3, eff. June 13, 1988; 1989, No. 218 (Adj. Sess.), § 7, eff. Oct. 1, 1990; 1989, No. 256 (Adj. Sess.), § 10(a), eff. Jan. 1, 1991, No.

282 (Adj. Sess.), § 11, eff. June 22, 1990; 2003, No. 42, § 2, eff. May 27, 2003; 2007, No. 209 (Adj. Sess.), § 6; 2011, No. 148 (Adj. Sess.), § 2; 2015, No. 97 (Adj. Sess.), § 33; 2017, No. 113 (Adj. Sess.), § 47.)

VERMONT

Proposed Rules Postings
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Search Rules

Deadline For Public Comment

Deadline: Jul 19, 2024

The deadline for public comment has expired. Contact the agency or primary contact person listed below for assistance.

Rule Details

Rule Number:	24P019
Title:	2024 Materials Management Plan
Type:	Standard
Status:	Final Proposed
Agency:	Agency of Natural Resources
Legal Authority:	10 V.S.A. § 6604
Summary:	The intended impact of the 2024 Materials Management Plan (MMP or Plan) is to reduce Vermont's waste generation and improve the state's waste management, including convenient options for recyclables, food scraps, and safe disposal of household hazardous waste, rather than being landfilled. This 2024 MMP amends the previous Plan, which was adopted in 2019. Sectionsinclude:

	Introduction; Market and Facilities Assessment, Agency of Natural Resources-Strategies and Actions; Solid Waste Implementation Plan Requirements and Approval Process; Solid Waste Management Entities-Strategies and Actions. Subsections within the Introduction include: Statutory Authority; Plan Priorities and Goals; Vermont's Waste; Challenges in Materials Management; Climate Change; Equity, Accessibility, and Environmental Justice. The Strategies and Actions replace the "Performance Standards" from the 2019 Plan and are requirements for the Agency and Municipal Solid Waste Management Entities (SWMEs) for the five-year Plan period.
Persons Affected:	The Plan mainly affects municipal Solid Waste Management Entities by requiring them to provide infrastructure related to the management of landfill-banned and/or dangerous materials like recyclables, food scraps, and household hazardous waste, and solid waste-related information, education, and services to their community members.
Economic Impact:	The 2024 Materials Management Plan, in general, requires a similar amount of work by municipal Solid Waste Management Entities (SWMEs) as the 2019 Plan. As in 2019, the most costly portion of the 2024 Plan is collection of household hazardous waste through either a facility or 2 events per year. The 2024 Plan also requires each SWME to submit a Disaster Debris Management Plan, the goal of which is to help municipalities be more prepared for managing disaster-related trash and other debris in a way that keeps hazardous materials out of the landfill and increases the liklihood of FEMA-reimbursement.
Posting date:	May 29,2024

Hearing Information

Information for Hearing # 1

Hearing date:	07-08-2024 2:30 PM ADD TO YOUR CALENDAR
Location:	Dill Building, Room 135
Address:	2178 Airport Rd. Unit B
City:	Barre
State:	VT
Zip:	05641
Hearing Notes:	

Information for Hearing # 2

Hearing date:	07-10-2024 7:00 PM ADD TO YOUR CALENDAR
Location:	Virtually via MS Teams
Address:	https://www.microsoft.com/en-us/microsoft-teams/join-a-meeting Meeting ID: 223 542 265 447 Passcode: DiypCD
City:	n/a
State:	VT
Zip:	n/a
Hearing Notes:	virtually via MS Teams at: https://www.microsoft.com/en-us/microsoft-teams/join-a-meeting Meeting ID: 223 542 265 447 Passcode: DiypCD

Information for Hearing # 3

Hearing date:	07-11-2024 6:00 PM ADD TO YOUR CALENDAR
Location:	Fairbanks Museum
Address:	1302 Main Street
City:	St. Johnsbury
State:	VT
Zip:	05819
Hearing Notes:	Rescheduled due to flooding.

Information for Hearing # 4

Hearing date:	07-16-2024 6:00 PM ADD TO YOUR CALENDAR
Location:	Fairbanks Museum
Address:	1302 Main Street
City:	St. Johnsbury
State:	VT
Zip:	05819
Hearing Notes:	

Contact Information

Information for Primary Contact

PRIMARY CONTACT PERSON - A PERSON WHO IS ABLE TO ANSWER QUESTIONS ABOUT THE CONTENT OF THE RULE.

Level:	Primary
Name:	Josh Kelly
Agency:	Agency of Natural Resources
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Fax:	802-828-1011
Email:	josh.kelly@vermont.gov SEND A COMMENT
Website Address:	https://dec.vermont.gov/waste-management/solid VIEW WEBSITE

Information for Secondary Contact

SECONDARY CONTACT PERSON - A SPECIFIC PERSON FROM WHOM COPIES OF FILINGS MAY BE REQUESTED OR WHO MAY ANSWER QUESTIONS ABOUT FORMS SUBMITTED FOR FILING IF DIFFERENT FROM THE PRIMARY CONTACT PERSON.

Level:	Secondary
Name:	Anne Bijur
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Address:	1 National Life Drive, Davis 1
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Keyword Information

Keywords:

Materials Management Plan
MMP
Solid Waste Plan
SWIP
Solid Waste Management Entity
SWME

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	The Islander (islander@vermontislander.com)	Tel: 802-372-5600 FAX: 802-372-3025
	Vermont Lawyer (hunter.press.vermont@gmail.com)	Attn: Will Hunter

FROM: APA Coordinator, VSARA **Date of Fax:** May 29, 2024

RE: The "Proposed State Rules " ad copy to run on **June 6, 2024**

PAGES INCLUDING THIS COVER MEMO: **2**

NOTE **8-pt font in body. 12-pt font max. for headings - single space body. Please include dashed lines where they appear in ad copy. Otherwise minimize the use of white space. Exceptions require written approval.**

If you have questions, or if the printing schedule of your paper is disrupted by holiday etc. please contact VSARA at 802-828-3700, or E-Mail sos.statutoryfilings@vermont.gov, Thanks.

PROPOSED STATE RULES

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By law, public notice of proposed rules must be given by publication in newspapers of record. The purpose of these notices is to give the public a chance to respond to the proposals. The public notices for administrative rules are now also available online at https://secure.vermont.gov/SOS/rules/ . The law requires an agency to hold a public hearing on a proposed rule, if requested to do so in writing by 25 persons or an association having at least 25 members.

To make special arrangements for individuals with disabilities or special needs please call or write the contact person listed below as soon as possible.

To obtain further information concerning any scheduled hearing(s), obtain copies of proposed rule(s) or submit comments regarding proposed rule(s), please call or write the contact person listed below. You may also submit comments in writing to the Legislative Committee on Administrative Rules, State House, Montpelier, Vermont 05602 (802-828-2231).

2024 Materials Management Plan.

Vermont Proposed Rule: 24P019

AGENCY: Agency of Natural Resources

CONCISE SUMMARY: The intended impact of the 2024 Materials Management Plan (MMP or Plan) is to reduce Vermont's waste generation and improve the state's waste management, including convenient options for recyclables, food scraps, and safe disposal of household hazardous waste, rather than being landfilled. This 2024 MMP amends the previous Plan, which was adopted in 2019. Sectionsinclude: Introduction; Market and Facilities Assessment, Agency of Natural Resources-Strategies and Actions; Solid Waste Implementation Plan Requirements and Approval Process; Solid Waste Management Entities-Strategies and Actions. Subsections within the Introduction include: Statutory Authority; Plan Priorities and Goals; Vermont's Waste; Challenges in Materials Management; Climate Change; Equity, Accessibility, and Environmental Justice. The Strategies and Actions replace the "Performance Standards" from the 2019 Plan and are requirements for the Agency and Municipal Solid Waste Management Entities (SWMEs) for the five-year Plan period.

FOR FURTHER INFORMATION, CONTACT: Josh Kelly, Agency of Natural Resources, 1 National Life Drive, Davis 1, Montpelier, VT 05620 Tel: 802-522-5897 Fax: 802-828-1011 E-Mail: josh.kelly@vermont.gov URL: https://dec.vermont.gov/waste-management/solid.
FOR COPIES: Anne Bijur, Agency of Natural Resources, 1 National Life Drive, Davis 1, Montpelier, VT 05620 Tel: 802-522-5783 Fax: 802-828-1011 E-Mail: anne.bijur@vermont.gov.
