

**APPENDIX J-3**

**PREVIOUS SWMP DOCUMENTATION**

**Virginia's Region 2000 Local Government Council**  
828 Main Street, 12<sup>th</sup> Floor  
Lynchburg, VA 24504  
Phone: 434-845-3491  
Fax: 434-845-3493  
Email: mail@region2000.org



January 23, 2008 (Original Issue Date)  
April 11, 2008 (Revision 1)

Daniel S. Gwinner  
Environmental Engineer Senior  
Department of Environmental Quality  
P.O. Box 1105  
Richmond, VA 23218

Dear Mr. Gwinner:

In your December 6, 2007 Review of the Region 2000 Services Authority – Petition to form a Planning Region, you asked the Authority to provide a methodology for resolving conflicts. The Authority will resolve conflicts through discussion and action at regularly scheduled Region 2000 Services Authority Board meetings. Meeting minutes document discussions, agreements and action items.

Relative to the SWMP amendment process, the Region 2000 Services Authority will determine when amendment is necessary, will proceed to revise the plan, will issue the revised plan to the member jurisdictions for review and approval, and hold public hearings as appropriate. The revised SWMP will be submitted to the DEQ for formal approval. Documentation, including amendments to the SWMP, will only be submitted to DEQ after all conflicts have been resolved between the members.

Please do not hesitate to contact me if you wish to discuss this matter.

Sincerely,

Clarke W. Gibson, P.E.  
Solid Waste Director  
Region 2000 Services Authority

Cc: Gary Christie, Executive Director, Region 2000 Local Government Council  
Lynn Klappich, Draper Aden Associates



B06209-03

LPK  
AA

# COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY  
Street address: 629 East Main Street, Richmond, Virginia 23219  
Mailing address: P.O. Box 1105, Richmond, Virginia 23218  
TDD: (804) 698-4021  
www.deq.virginia.gov

L. Preston Brant, Jr.  
Secretary of Natural Resources

David K. Parker  
Director

PHONE: 800-400-4000  
1-800-552-5482

June 17, 2008

Mr. Clarke Gibson, Director of Solid Waste  
Region 2000 Service Authority  
Virginia's Region 2000 Local Government Council  
828 Main Street, 12<sup>th</sup> Floor  
Lynchburg, VA 24504

**Re: Designation of the Region 2000 Services Authority as a Solid Waste Planning Unit**

Dear Mr. Gibson:

The Region 2000 Services Authority has filed a petition for designation as a Solid Waste Planning Unit. The Region 2000 Services Authority consists of: the Counties of Campbell and Nelson, the Cities of Lynchburg and Bedford plus the Towns of Altavista and Brookneal. In accordance with § 9 VAC 20-130-180 of the Solid Waste Planning and Recycling Regulations, Amendment 2 (regulations), the Region 2000 Services Authority is hereby designated as a Solid Waste Planning Unit.

The petition to form a Region was received by the Department on October 4, 2007. The Department received revisions on January 30, 2008 and April 25, 2008. The petition was accepted by the Department on May 5, 2008.

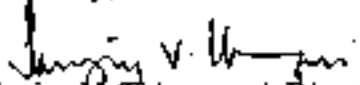
In accordance with § 9 VAC 20-130-190 of the regulations, a public notice concerning the Region 2000 Service Authority-Petition to form a Planning Region was published in the Virginia Register of Regulations as well as the Lynchburg News & Advance, The Bedford Bulletin and The Nelson County Times. The comment period for these notices ended on May 16, 2008 with no comments received. Again, in accordance with § 9 VAC 20-130-190 of the regulations, it was determined that there was not a need to hold a public hearing concerning this designation.

Mr. Clarke Gibson

Page 2

Thank you for your efforts and cooperation in this matter. If you have any questions about this letter, please contact Daniel S. Gwinner at (804) 698-4218.

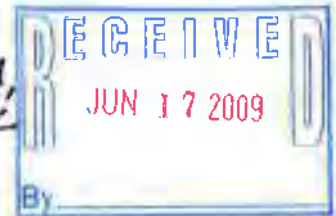
Sincerely,

  
Sanjay V. Thirunagari, Director  
Office of Waste Technical Support  
Waste Division

cc: Lynn Klappich, Project Manager, Draper Aden Associates  
Daniel S. Gwinner - VADEQ  
Stephen Coe - VADEQ  
Leslie Beckwith - VADEQ  
David Miles - VADEQ  
Robert Goode - VADEQ  
Matt Riesterveld - VADEQ



806209-03  
cc: Seth  
Cunningham,  
R. W. Beck



# COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY  
Street address: 629 East Main Street, Richmond, Virginia 23219  
Mailing address: P.O. Box 1105, Richmond, Virginia 23218  
TDD (804) 698-4021  
www.deq.virginia.gov

L. Preston Brown, Jr.  
Secretary of Natural Resources

David K. Payton  
Director

(804) 698-4000  
1-800-592-5482

June 15, 2009

Mr. Clarke W. Gibson, P.E.  
Solid Waste Director  
Region 2000 Services Authority  
2740 Concord Turnpike  
Lynchburg, VA 24504

**Subject: Approval of the Amended Regional Boundary for the Region 2000  
Solid Waste Planning Unit**

Dear Mr. Gibson:

I am pleased to inform you that the request to amend the Region 2000 planning unit boundary, received on June 9, 2009, is hereby approved. The Region 2000 solid waste planning unit will now consist of: the Counties of Appomattox, Campbell and Nelson, the Cities of Lynchburg and Bedford plus the Towns of Altavista and Brookneal.

Thank you again for your efforts and cooperation in this matter. If you have any questions about this letter, please contact Daniel S. Gwinner at (804) 698-4218.

Sincerely,

Sanjay V. Thirunagari, Director  
Office of Waste Technical Support  
Waste Division

cc: Aziz Farahmand - VADEQ  
Daniel S. Gwinner - VADEQ  
Ms. Lynn Klappich, Draper Aden Associates



# COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY  
Street address: 621 East Main Street, Richmond, Virginia 23219  
Mailing address: P.O. Box 1105, Richmond, Virginia 23218  
TEL: (804) 693-1021  
www.deq.virginia.gov

Douglas W. Brantner  
Secretary of Natural Resources

Division of  
Permits

ISSN 2396-8779  
1-800-276-8779

April 29, 2010

Mr. Clarke W. Gibson, P.E.  
Solid Waste Director  
Region 2000 Services Authority  
2740 Concord Turnpike  
Lynchburg, VA 24504

**Subject: Approval of the Solid Waste Management Plan for the Region 2000 Solid Waste Planning Unit**

Dear Mr. Gibson:

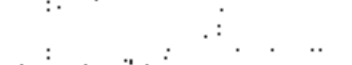
The Solid Waste Management Plan for the Region 2000 Solid Waste Planning Unit received in this office on January 8, 2009 with revisions dated April 25, 2009 (the Regional Boundary was amended on June 14, 2009), February 23, 2010 and April 23, 2010 is hereby approved.

The Region 2000 solid waste planning unit consists of the Counties of Appomattox, Campbell and Nelson; the Cities of Lynchburg and Bedford plus the Towns of Artaville and Drummond.

Solid waste management units are required to keep the plans up to date through the use of minor and major amendments and per 9 VAC 20-130-173.F of the Solid Waste Planning and Recycling Regulations, Amendment 2 the Region 2000 solid waste management planning unit is required to submit a 3-year plan update certification letter on or before April 29, 2013.

Thank you again for your efforts and cooperation in this matter. If you have any questions about this letter, please contact Daniel S. Gwinner at (804) 693-4213.

Sincerely,

  
Sanjay V. Dhironagari, Manager  
Waste Technical Support  
Waste Division

cc: Aziz Farahmand - VADECO  
Daniel S. Gwinner - VADECO  
Ms. Lynn Klappach, Draper Ader Associates

0687960-5

1407210022

COMMONWEALTH OF VIRGINIA  
STATE CORPORATION COMMISSION

July 11, 2014

The State Corporation Commission, having found the accompanying application for withdrawal submitted by the Town of Bedford, Virginia on behalf of

**The Region 2000 Services Authority**

to comply with the requirements of law and confirms payment of all related fees

Therefore, it is ORDERED that this

**CERTIFICATE OF WITHDRAWAL**

be issued and admitted to record with the application for withdrawal in the Office of the Clerk of the Commission, effective July 11, 2014.

STATE CORPORATION COMMISSION

By



Judith Williams Jagdmann  
Commissioner

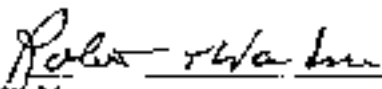
14-06-19-0005  
AMENACPT  
CIS0368

**APPLICATION OF THE TOWN OF BEDFORD, VIRGINIA  
TO WITHDRAW FROM THE REGION 2000 SERVICES AUTHORITY**

1. The Town of Bedford (the "Town") formerly the City of Bedford ("Bedford") seeks to withdraw from The Region 2000 Services Authority (the "Authority") pursuant to Sections 15.2-5112 A and B of the Code of Virginia, as amended (the "Code") and has obtained the unanimous consent of the remaining members of the Authority and the unanimous consent of all the holders of its outstanding bonds.
2. The governing bodies of all of the political subdivisions which are members of the Authority after advertisement of the resolution consenting to the withdrawal of Bedford and holding a public hearing, which consist of Bedford, the City of Lynchburg, the County of Appomattox, the County of Campbell and the County of Nelson agreed and consented to the withdrawal of Bedford from the Authority pursuant to Section 15.2-5112 D of the Code by resolutions after public hearings held in accordance with Section 15.2-5106 of the Code duly called and held on: July 23, 2013, September 10, 2013, September 3, 2013, October 1, 2013 and September 26, 2013, respectively.
3. The Authority agreed and consented to the withdrawal of Bedford from the Authority pursuant to Section 15.2-5112 D of the Code by resolution adopted on October 23, 2013.
4. The Authority has outstanding bonds, all of which are held by one bondholder which has consented to the withdrawal of Bedford from the Authority pursuant to Section 15.2-5112 A of the Code.

**IN WITNESS WHEREOF**, the undersigned parties have each caused this Application to Withdraw to be signed as of May 22, 2014.

**Town of Bedford, Virginia**

  
 Its Mayor  
 Name: Robert T. Wanders



*[Signature Page to Follow]*

City of Lynchburg, Virginia

By: L Kimball Payne  
Its: City Manager  
Name: L. Kimball Payne, III

(SEAL)

*[Signature Page to Follow]*

1407210022

County of Appomattox, Virginia

By: Aileen T. Ferguson  
Its: County Administrator  
Name: Aileen T. Ferguson

(SEAL)

*[Signature Page to Follow]*

County of Campbell, Virginia


By:   
Its: County Administrator  
Name: R. David Laurell

(SEAL)

*[Signature Page to Follow]*

1407210022

County of Nelson, Virginia

By:   
Its: County Administrator  
Name: Stephen A. Carter

(SEAL)

*[Signature Page to Follow]*

1407210022



The Region 2000 Services Authority

By: Gary Christie

Its: Executive Director

Name: Gary Christie

# COUNTY OF CAMPBELL



At the regular meeting of the Campbell County Board of Supervisors held on the 1<sup>st</sup> day of October, 2013 in the Board of Supervisors Meeting Room of the Haberer Building, Rustburg, Virginia:

On motion of Supervisor Pendleton, it was resolved the Board of Supervisors adopts the following resolution:

## **RESOLUTION AUTHORIZING THE TOWN OF BEDFORD TO WITHDRAW FROM MEMBERSHIP IN THE REGION 2000 SERVICES AUTHORITY**

**WHEREAS,** Campbell County is a member of the Region 2000 Services Authority (the "Authority"), which operates the regional landfill in Campbell County for Campbell County, Nelson County, Appomattox County, the City of Lynchburg and the City of Bedford; and

**WHEREAS,** the City of Bedford has agreed with Bedford County that the City of Bedford will revert to a town effective July 1, 2013, at which point Bedford County will allow the Town of Bedford to use the Bedford County landfill at no charge; and

**WHEREAS,** the City of Bedford has requested that the Region 2000 Services Authority and the other member jurisdictions allow the Town of Bedford to withdraw from the Authority effective July 1, 2013 or at such time as the last member jurisdiction and the State Corporation approve such withdrawal in return for the Town of Bedford making a payment of \$50,000 to the Authority in FY 14 and another payment of \$50,000 to the Authority in FY 15 to offset the costs to the remaining jurisdictions associated with the withdrawal.

**NOW THEREFORE, BE IT RESOLVED** by the Campbell County Board of Supervisors, following a public hearing as required by Sections 15.2-5104 and 5112 of the Code of Virginia, that the Board of Supervisors authorizes the withdrawal of the Town of Bedford from the Region 2000 Services Authority, and authorizes the County Administrator to execute an Agreement to that effect as presented with this Resolution, subject to approval of the Agreement as to form by the city/county attorney.

The vote was: Aye: Borland, Falwell, Goldsmith, Gunter, Pendleton, Puckett, Shockey  
Nay: None  
Absent: None

  
R. DAVID AURELI  
COUNTY ADMINISTRATOR

**RESOLUTION CONSENTING TO THE WITHDRAWAL OF THE CITY/TOWN OF BEDFORD FROM THE REGION 2000 SERVICES AUTHORITY**


**WHEREAS,** the City of Bedford, Virginia (which became the Town of Bedford as of July 1, 2013) adopted a resolution April 9, 2013 requesting that the City/Town be allowed to withdraw as a member of the Region 2000 Services Authority (the "Authority") due to the fact that the City was reverting to Town status effective July 1, 2013, and solid waste disposal for the Town following that date would be provided at the County of Bedford landfill; and

**WHEREAS,** the governing bodies of the remaining local governments that are members of the Authority have adopted resolutions, following public hearings, approving an Agreement consenting to the withdrawal of the City/Town of Bedford from the Authority, and

**WHEREAS,** the Authority members believe that it is in the best interests of the Authority to allow the City/Town of Bedford to withdraw as a member of the Authority

**NOW THEREFORE, BE IT RESOLVED** by the Board of the Region 2000 Services Authority that the Authority hereby consents to the withdrawal of the City/Town of Bedford from the Region 2000 Services Authority and authorizes the Chairman to execute, on behalf of the Authority, an agreement indicating the terms of the withdrawal.

Adopted this 23<sup>rd</sup> day of October, 2013.

  
Chairman

Votes:

L. David Laurrell

Stephen A. Carter

L. Kimball Payne

Aileen T. Ferguson

Charles P. Kolakowski



BOBBI  
CLERK, CLERK

FRANK W. WALKER  
Supervisor

LOBBY F. GARDNER  
Supervisor

C. BEN HALE  
Supervisor

THEODORE WALKER, JR.  
Supervisor

CONSTANCE BREWER  
County Clerk

SHARON A. CARTER  
Attorney

DAVID W. MURPHY  
Assistant County Clerk

OTIS W. LUCAS  
Director of Economic  
Development

**RESOLUTION R2013-64  
NELSON COUNTY BOARD OF SUPERVISORS  
AUTHORIZATION FOR TOWN OF BEDFORD WITHDRAWAL  
FROM REGION 2000 SERVICES AUTHORITY AND AUTHORITY TO  
EXECUTE MODIFIED AUTHORITY AGREEMENT**

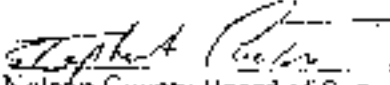
**WHEREAS,** Nelson County is a member of the Region 2000 Services Authority (the "Authority"), which operates the regional landfill in Campbell County for Campbell County, Nelson County, Appomattox County, the City of Lynchburg and the City of Bedford; and

**WHEREAS,** the City of Bedford has agreed with Bedford County that the City of Bedford will revert to a town effective July 1, 2013, at which point Bedford County will allow the Town of Bedford to use the Bedford County landfill at no charge, and

**WHEREAS,** the City of Bedford has requested that the Region 2000 Services Authority and the other member jurisdictions allow the Town of Bedford to withdraw from the Authority effective July 1, 2013 or at such time as the last member jurisdiction and the State Corporation approve such withdrawal in return for the Town of Bedford making a payment of \$50,000 to the Authority in FY 14 and another payment of \$50,000 to the Authority in FY 15 to offset the costs to the remaining jurisdictions associated with the withdrawal.

**NOW THEREFORE, BE IT RESOLVED** by the Nelson County Board of Supervisors, following a public hearing as required by Sections 15.2-5104 and 5112 of the Code of Virginia, that the Nelson County Board of Supervisors authorizes the withdrawal of the Town of Bedford from the Region 2000 Services Authority, and authorizes the County Administrator to execute an Agreement to that effect as presented with this Resolution, subject to approval of the Agreement as to form by the city/county attorney

Adopted: September 26, 2013

Attest: , Clerk  
Nelson County Board of Supervisors

**A RESOLUTION PROVIDING FOR WITHDRAWAL FROM  
THE REGION 2000 SERVICES AUTHORITY**

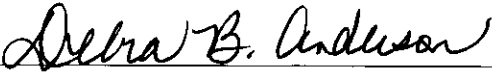
**WHEREAS,** the Town of Bedford (formerly City of Bedford), herein referred to as “Bedford,” is a member of the Region 2000 Services Authority (the “Authority”), which operates the regional landfill in Campbell County for Campbell County, Nelson County, Appomattox County, the City of Lynchburg and of Bedford; and

**WHEREAS,** Bedford entered into a Voluntary Settlement Agreement with Bedford County that Bedford would revert to a town effective July 1, 2013, at which point Bedford County would allow the Bedford to use the Bedford County landfill at no charge; and

**WHEREAS,** Bedford has requested that the Region 2000 Services Authority and the other member jurisdictions allow Bedford to withdraw from the Authority effective July 1, 2013 or at such time as the last member jurisdiction and the State Corporation approve such withdrawal in return for Bedford’s making a payment of \$50,000 to the Authority in FY 14 and another payment of \$50,000 to the Authority in FY 15 to offset the costs to the remaining jurisdictions associated with the withdrawal.

**NOW THEREFORE, BE IT RESOLVED** by the Town Council of the Town of Bedford, Virginia following a public hearing as required by Sections 15.2-5104 and 5112 of the Code of Virginia, that the Town Council authorizes the withdrawal of Bedford from the Region 2000 Services Authority, and authorizes the Town Mayor to execute an Agreement to that effect in substantially the same form as the Agreement presented to the Town Council with this Resolution, subject to approval of the Agreement as to form by the Town Attorney.

I hereby certify that the foregoing is a true and exact copy of a Resolution adopted at a regular meeting of the Council of the Town of Bedford, Virginia, held on July 23, 2013, at which said meeting a quorum was presented and voted.

  
\_\_\_\_\_  
Deputy Clerk of the Council

# APPOMATTOX COUNTY

COUNTY ADMINISTRATION OFFICE  
4040 352-7637  
FAX: 404 352-4914  
www.AppomattoxCountyVa.gov



## SUPERVISORS

APPOMATTOX RIVER DISTRICT  
WILLIAM T. CRAFF

COURTHOUSE DISTRICT  
SAMUEL F. CARTER

FALLING RIVER DISTRICT  
RONALD C. BRISBLE

PINEY MOUNTAIN DISTRICT  
JERRY N. SMALL

WAFFLE ISLAND DISTRICT  
GARY W. TANNER

## BOARD OF SUPERVISORS

P. O. Box 863  
Appomattox, Virginia 24522

## RESOLUTION

**WHEREAS**, Appomattox County is a member of the Region 2000 Services Authority (the "Authority"), which operates the regional landfill in Campbell County for Campbell County, Nelson County, Appomattox County, the City of Lynchburg and the City of Bedford; and

**WHEREAS**, the City of Bedford has agreed with Bedford County that the City of Bedford will revert to a town effective July 1, 2013, at which point Bedford County will allow the Town of Bedford to use the Bedford County landfill at no charge; and

**WHEREAS**, the City of Bedford has requested that the Region 2000 Services Authority and the other member jurisdictions allow the Town of Bedford to withdraw from the Authority effective July 1, 2013 or at such time as the last member jurisdiction and the State Corporation approve such withdrawal in return for the Town of Bedford making a payment of \$50,000 to the Authority in FY 14 and another payment of \$50,000 to the Authority in FY 15 to offset the costs to the remaining jurisdictions associated with the withdrawal.

**NOW THEREFORE, BE IT RESOLVED** by the Board of Supervisors of Appomattox County, following a public hearing as required by Sections 15.2-5104 and 5112 of the Code of Virginia, that the Board of Supervisors authorizes the withdrawal of the Town of Bedford from the Region 2000 Services Authority, and authorizes the County Administrator to execute an Agreement to that effect as presented with this Resolution, subject to approval of the Agreement as to form by the city/county attorney.

Adopted this 3<sup>rd</sup> day of September, 2013.

  
Aileen T. Ferguson, County Administrator



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 620 East Main Street, Richmond, Virginia 23219

Mailing address: P.O. Box 1103, Richmond, Virginia 23218

Fax: 804-698-4019 - TDD (804) 698-4021

[www.deq.virginia.gov](http://www.deq.virginia.gov)

Melby Joseph Ward  
Secretary of Natural Resources

David K. Taylor  
Director

(804) 698-4020  
1-800-492-5132

August 24, 2015

Mr. Clarke Gibson, P.E.  
Director  
Region 2000 Services Authority  
361 Livestock Road  
Rustburg, Virginia 24588

**Subject: Amendments (Major) and 5-Year Updates to the Solid Waste Management Plan (SWMP) for the Region 2000 Services Authority Solid Waste Planning Unit**

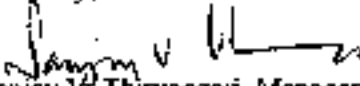
Dear Mr. Clarke:

The Virginia Department of Environmental Quality (the Department) has completed its review and processing of the submitted five-year update and Major Amendments to the Region 2000 Service Authority's Solid Waste Management Plan (SWMP) as required by the Solid Waste Planning and Recycling Regulation, 9 VAC 20-130-175.F. The Major Amendments to the SWMP include: a) the change of membership to the SWPU, and b) the increase in the disposal capacity of the Region 2000 Regional Landfill. All Solid Waste Planning Units are required to maintain current plans, including any updates submitted to the Department.

Based upon our review, the five-year update is accepted, and the Major Amendments are approved. This update should be considered as part of the Solid Waste Planning unit's approved plan. As a technical matter, per 9VAC 20-130-220., please submit a letter requesting an amendment to the planning unit boundary based on the documentation provided by Draper Aden Associates on behalf of the Region 2000 planning unit.

Thank you again for your efforts and cooperation in this matter. If you have any questions about this letter, please contact Steve Coe at (804) 698-4029 or [steve.coe@deq.virginia.gov](mailto:steve.coe@deq.virginia.gov).

Sincerely,

  
Sanjay V. Thirunagari, Manager  
Office of Financial Responsibility  
and Data Management  
Land Division

cc: Steve Coe – VADEQ; Aziz Farahmand – BRRO  
Lynn P. Klappich, CSI, CCCA – Draper Aden Associates



2206 South Main Street  
Blacksburg, Virginia 24060  
540.552.0444  
www.daa.com

January 2, 2020

Ms. Prina Chudasama  
Litter and Recycling Program Coordinator  
Virginia Department of Environmental Quality  
1111 East Main Street, Suite 1400  
Richmond VA 23219

**RE: Region 2000 Services Authority – Solid Waste Management Plan  
Minor Amendment – Appomattox County – Addition Private Facility  
Draper Aden Associates Project No. B09107-00/108B**

Dear Ms. Chudasama:

This letter is being written on behalf of the Region 2000 Services Authority who is the lead entity for the Region 2000 solid waste planning region (Region) which includes the City of Lynchburg and the Counties of Appomattox, Campbell, and Nelson. The region is requesting approval of a minor amendment to their solid waste management plan (SWMP) as discussed below.

Under 9 VAC 20-130-175.C.1 minor amendments to regional solid waste management plans are defined as follows:

- C. *Minor amendments.*
  - 1. *Minor amendments shall include:*
    - a. *Any addition, deletion, or cessation of operation of any facility that is not a solid waste disposal facility;*
    - b. *Any change that moves toward implementation of a waste management strategy that is higher in the waste management hierarchy; or*
    - c. *Any non-substantive administrative change such as a change in name.*
  - 2. *Minor amendments shall be submitted, by mail or electronic mail, directly to the department for notation. The planning units are the repository for the minor amendments to the plans.*

Based on previous discussions with VDEQ, it is our understanding that the addition of a transfer station is a minor amendment to the plan.

At this time Appomattox County has informed the Region in a letter dated November 25, 2019 (copy attached) that a private company (County Waste of Southwest Virginia) is planning on the construction of a permitted transfer station in the vicinity of Concord, Virginia. The letter outlines the actions taken to date by Appomattox County and their request that a minor amendment be filed by the Region relative to the SWMP so that they can grant the necessary local government certification relative to the SWMP and the inclusion of the new facility.

Attached is the minor amendment to be included in the plan. We don't believe that any further action is required by VDEQ or the Region.

If you have any questions, please do not hesitate to contact me.

Sincerely,  
**Draper Aden Associates**



Lynn P. Klappich  
Program Manager

Attachments: Attachment 1 – Appomattox County 11/25/19 letter to Region  
Attachment 2 – SWMP Section 4.5.6 (addition to plan by minor amendment)

cc: Mr. Clarke Gibson, P.E., Director, Region 2000  
Ms. Susan Adams, Appomattox County Administrator  
Mr. Robert Arthur, Safety and Compliance Manager, Region 2000

ATTACHMENT 1

11/25/19 Appomattox County Letter to Region 2000



**APPOMATTOX COUNTY  
BOARD OF SUPERVISORS**

P.O. Box 863, Appomattox, VA 24522 Phone: (434) 753-2637  
[www.AppomattoxCountyVA.gov](http://www.AppomattoxCountyVA.gov)

---

November 25, 2019

Mr. Clarke W. Gibson, P.E., Director  
Region 2000 Services Authority  
361 Livestock Road  
Rustburg, VA 24588

**RE: Region 2000 Solid Waste Management Plan  
Appomattox County Request for Minor Amendment and Update to Plan  
County Waste of Southwest Virginia – Proposed Transfer Station**

Dear Mr. Gibson:

The Region 2000 Solid Waste Management Plan administered by the Region 2000 Services Authority (latest amendment 2015) outlines solid waste disposal activities within the approved "solid waste management region", which includes the City of Lynchburg, and the Counties of Appomattox, Campbell and Nelson (the Region). As you know, regional plans are a regulatory requirement administered by the Virginia Department of Environmental Quality (VDEQ). Under 9 VAC 20-130-120(4), the regional plan **must** include "[a] listing of existing and planned solid waste collection, storage, treatment, transportation, disposal, and other management facilities, their projected capacities, expected life, and systems for their use." (emphasis added). The 2010 original plan and the 2015 update/major amendment outlines various solid waste facilities throughout the regional planning unit in accordance with the requirement. However, in both iterations, a planned BFI Solid Waste Transfer Station in the Concord area of Appomattox County was omitted from the Plan.

County Waste of Southwest Virginia, LLC (County Waste"), applied to Appomattox County for a conditional use permit to operate a transfer station for tax map parcel numbers 60 (A) 53 and 60 (i2) i2. The Appomattox Board of Supervisors approved the conditional use permit request on February 19, 2019. Enclosed is a plat of the properties. County Waste is now in the process of designing and permitting the solid waste transfer station on the properties located in Concord, Virginia. Because this new facility is not currently identified in the Region 2000 solid waste management plan, the plan needs to be modified/amended to reflect this approved future transfer station. As part of its DEQ permit by rule application, County Waste has requested that Appomattox County provide the requisite certification that County Waste's transfer station is consistent with the Regional 2000 Solid Waste Management Plan. Accordingly, please amend and update the Region 2000 plan to reflect the proposed transfer station and notify DEQ of the minor amendment. (Per discussions with the Virginia Department of

Environmental Quality, the addition of a facility that is not a "solid waste disposal facility" is considered only a minor amendment to the plan under 9 VAC 20-130-175.C) Respectively, "all known solid waste disposal sites, closed, inactive and active, within the area of the solid waste management plan shall be documented and recorded at a centralized archive authorized to receive and record information and a copy shall be sent to the department. All new sites shall be recorded at the same central data source, which in this case is the Region 2000 Services Authority.

I would note that under 9 VAC 20-130-175, the Authority must submit the minor amendment "*by mail or electronic mail, directly to the [DEQ] department for notation. The planning units are the repository for the minor amendments to the plans.*" For your convenience, I have enclosed a draft notification to be sent to DEQ. I would ask that you copy me on the DEQ notification that you submit, and please do not hesitate to contact me should you have any questions. Thank you for your assistance in this matter.

Sincerely,



Susan M. Adams, County Administrator  
Appomattox County Virginia

**FOR SUBMITTAL TO THE  
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY**

**REGION 2000 SERVICES AUTHORITY  
REGION 2000 SOLID WASTE MANAGEMENT PLAN  
MINOR AMENDMENT AND UPDATE**

The following section is hereby added to the Region 2000 Solid Waste Management Plan as a minor amendment under 9VAV20-130-175.C:

**4.5.6 County Waste of Southwest Virginia – Appomattox County Waste Transfer Station and Convenience Center (Permit by Rule – Pending)**

County Waste of Southwest Virginia, LLC ("County Waste") is constructing and will operate a private transfer station to be located at Concord, Virginia in Appomattox County. County Waste received the conditional use permit for the facility by Appomattox County on February 19, 2019 and entered into a Host Agreement with the County dated October 21, 2019. The facility will include a 12,800 sf transfer station and a citizen convenience center as well as ancillary operations as approved by the County. The facility is being designed to handle 400 tons per day. The service area is defined as a 60-mile radius of Lynchburg, Virginia. Waste from the transfer station will be hauled to a permitted solid waste disposal facility. All required permits have been obtained or are in progress at this time.

ATTACHMENT 2

Section 4.5.6

County Waste of Southwest Virginia

Appomattox County Waste Transfer Station and Convenience Center

**FOR SUBMITTAL TO THE  
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY**

**REGION 2000 SERVICES AUTHORITY  
REGION 2000 SOLID WASTE MANAGEMENT PLAN  
MINOR AMENDMENT AND UPDATE**

The following section is hereby added to the Region 2000 Solid Waste Management Plan as a minor amendment under 9VAV20-130-175.C:

**4.5.6 County Waste of Southwest Virginia – Appomattox County Waste Transfer Station and Convenience Center (Permit by Rule – Pending)**

County Waste of Southwest Virginia, LLC ("County Waste") is constructing and will operate a private transfer station to be located at Concord, Virginia in Appomattox County. County Waste received the conditional use permit for the facility by Appomattox County on February 19, 2019 and entered into a Host Agreement with the County dated October 21, 2019. The facility will include a 12,800 sf transfer station and a citizen convenience center as well as ancillary operations as approved by the County. The facility is being designed to handle 400 tons per day. The service area is defined as a 60-mile radius of Lynchburg, Virginia. Waste from the transfer station will be hauled to a permitted solid waste disposal facility. All required permits have been obtained or are in progress at this time.



Region 2000 Regional Landfill  
361 Livestock Road  
Rustburg, VA 24588  
Phone: (434) 455-6086  
Fax: (434) 847-1809

## MEMORANDUM

**To:** Virginia Department of Environmental Quality

**From:** Clarke W. Gibson, P.E. Director  
Region 2000 Services Authority

A handwritten signature in black ink, appearing to read "CW Gibson", is written over the name of the sender.

**Date:** June 12, 2020

The Region 2000 Services Authority held their bi-monthly Board meeting on May 27, 2020. The meeting was held via electronic communication. The agenda was posted to the Authority's website at the following link prior to the meeting.

[https://www.region2000servicesauthority.org/Images/agendas/20\\_05\\_AGE\\_services-authority\\_vfinal.pdf](https://www.region2000servicesauthority.org/Images/agendas/20_05_AGE_services-authority_vfinal.pdf)

The agenda is also widely distributed to the media. The agenda is provided as Attachment 1.

The agenda included a public comment period and discussion on the solid waste management plan. Links to the plan were provided with the agenda. The Region 2000 Services Authority also posted the plan to their website prior to the meeting at:

[https://www.region2000servicesauthority.org/Images/PDFs/6 - Abbreviated RPTDraft 1 - 20\\_0506 - Region 2000 - SWMP Update 2020 - LPK.pdf](https://www.region2000servicesauthority.org/Images/PDFs/6 - Abbreviated RPTDraft 1 - 20_0506 - Region 2000 - SWMP Update 2020 - LPK.pdf)

There were no public comments related to the plan given at the meeting and the Board approved the plan with a 4-0 vote. A copy of the meeting minutes is provided as Attachment 2.

As the plan was an update including a minor permit amendment already submitted to DEQ, a formal hearing was not required.

**Attachment:**

Attachment 1 – Agenda

Attachment 2 – Meeting minutes



Operated by Virginia's Region 2000 Local Government Council.



Date | Time  
May 27, 2020  
2:00 p.m.

**AGENDA**

1. Welcome..... Bonnie Svrcek, Chair
2. Resolution to Authorize Electronic Meetings.....Bonnie Svrcek, Chair  
([Attached](#))
3. Public Comment.....Bonnie Svrcek, Chair  
([Attached](#))  
*Individual citizens are requested to limit their remarks to three (3) minutes each and to those matters that are within the scope and authority of the Services Authority. The Authority may elect to extend this time period with approval of a majority of its members.*
4. Approval of January 22, 2020 Meeting Minutes ..... Bonnie Svrcek, Chair  
([Attached](#))
5. Financials Update.....Rosalie Majerus & Clarke Gibson
  - a) Year to date financial update  
([Attached](#))
  - b) Approval of 2020-2021 budget  
([Attached](#))
  - c) Waiving finance charges and other late fees for March/April invoices
  - d) Review of projected revenue/expenditures through 2031  
([Attached](#))
6. Consideration of a Renegotiated Rate for Balance of 2011 Bond.....Ted Cole, Davenport LLC  
([Attached](#)) ([Attached](#)) ([Attached](#)) ([Attached](#))
7. Installation of Phase IV Landfill Gas Collection System Project at the Livestock Road Landfill using 2015 Bond Funds ..... Clarke Gibson  
([Attached](#))
8. Review of Proposals for Sale/Use of Livestock Rd Landfill Gas ..... Clarke Gibson  
([Attached](#))
9. Consideration of Five Year Update/Minor Amendment to the Region’s Solid Waste Management Plan.. ..... Clarke Gibson  
([Attached](#))
10. Director’s Report..... Clarke Gibson
  - a) Odor Complaint Activity Report  
([Attached](#))
  - b) Tonnage Chart  
([Attached](#))
  - c) Hazardous Household Waste Collection Schedule

**11. Other Business from Staff or Authority Members .....** Bonnie Svrcek, Chair

**12. Election of Offices for 2020-2021.....** Bonnie Svrcek, Chair

*[Attached](#)*

**13. Next Meeting:** August 26, 2020, 2 p.m.

**14. Adjourn**



**Region 2000 Services Authority**

**Electronic Meeting: GoToMeeting**

**May 27, 2020 | 2:00 p.m.**

**Solid Waste Management Plan**

The Region 2000 Services Authority has prepared the Solid Waste Management Plan for distribution.

Review the entire document [here](#).

Review the abbreviated document [here](#).



**Region 2000 Services Authority**

**Location**

Electronic Meeting - GoToMeeting

**Date | Time**

May 27, 2020

2:00 p.m.

**Minutes**

**Board Members Present**

Susan Adams..... Appomattox County  
Steve Carter ..... Nelson County  
Frank Rogers..... Campbell County  
Bonnie Svrcek..... City of Lynchburg

**1. Welcome**

Bonnie Svrcek, Chair, welcomed everyone and opened the meeting via GoToMeeting at 2:00 p.m.

**2. Resolution to Authorize Electronic Meetings**

A motion was made by Susan Adams, seconded by Frank Rogers, to authorize electronic meetings for the Region 2000 Services Authority. The motion was unanimously approved.

**3. Public Comment**

Mr. Jon Hardie commented:

- Mr. Hardie thanked the Authority for allowing public comment during the electronic meeting
- Although the board had a split vote regarding the excess revenue, during these unprecedented times, it is important for the Authority to designate the excess revenue per the original agreement
- Encouraged the Authority to come to a resolution together so that the citizens of Campbell County and City of Lynchburg are able to receive the excess revenue payments

Mr. Chris Amos commented:

- Mr. Amos commended Clarke Gibson and the landfill staff for their work during the last Household Hazardous Waste collection day
- Mr. Amos asked the following questions, which the Authority acknowledged would be answered later during the meeting:
  - Who is covering the construction cost for the facilities?

- Where on the property will the facilities in question be located?
- RNGC Project: How will the waste water that is needed for this project be taken care of/where will it come from?
- LFG Proposal: Could you provide more insight into how the engines will operate/will there be additional noise for those machines when in operation?
- Mr. Amos encouraged the Authority to vote 'no' on any budget that does not include excess revenue payments

#### 4. Approval of January 22, 2020 Meeting Minutes

Frank Rogers made a motion, seconded by Steve Carter, to approve the minutes from the January 22 meeting. The vote was:

Susan Adams – Aye  
Steve Carter – Aye  
Frank Rogers – Aye  
Bonnie Svrcek - Abstain

The motion was approved.

#### 5. Financial Update

**a) Year to date financial update:** Rosalie Majerus reported that revenue generated is now slightly less than projected, however, operating costs have also gone down during this time which helps to equal out budget concerns. The budget is still in good standing and there were no other major issues reported.

**b) Approval of 2020-2021 Budget:** Clarke Gibson reviewed the proposed budget as discussed during the January meeting. Tonnage rates will remain the same in addition to revenue, with total expenses remaining the same. The budget includes a proposed 3% salary increase for employees to help maintain employee retention rates and acknowledge excellent service provided by staff.

Susan Adams noted that she would not be in support of a salary increase for staff as salary increases for locality staff have been removed for the FY21 due to the financial impact in the region. This concern was also repeated by the other members of the Authority.

Susan Adams made a motion to defer approval of the budget until an in-person meeting can be scheduled for June. The motion was seconded by Steve Carter and was unanimously approved.

**c) Waiving finance charges and other late fees for March/April Invoices:** Clarke Gibson reported that there were a few large customers whose invoices were not received properly due to address and delivery issues that appear to be no fault of the customers. Additionally, two other customers have service fees that have not been collected in several years due to business closures. It was recommended to waive all the service charges for March & April.

A motion was made by Susan Adams, seconded by Bonnie Svrcek to waive the late fees and service charges for March and April and was unanimously approved.

**d) Review of projected revenue/expenditures through 2031:** Clarke Gibson explained that cost of service for tipping fees will increase slightly over the next ten years. The projected revenues/expenditures do include fully funding the closure/post closure reserve for the Livestock Road landfill. Additionally, all capital equipment funding and debt service reserve is accounted for.

## **6. Consideration of a Renegotiated Rate for Balance of 2011 Bond**

Ted Cole of Davenport LLC reviewed the conditions of the 2011 bond and options for prepayment. After negotiating with BB&T about the conditions of repayment, BB&T proposed the following as of May 1, 2020:

- Willingness to waive the requirement of prepayment only on a payment date
- Reduction of the prepayment penalty from 1% to 0.5%
- A new interest rate of 2.44% effective on the closing date (assumed closing per Davenport: June 5)

Mr. Cole explained that the renegotiated rate proposed would save the Authority approximately \$80,000.

Bonnie Svrcek made a motion, seconded by Frank Rogers, to approve the resolution regarding the bond refinancing as stated.

Susan Adams made a substitute motion, seconded by Steve Carter, to defer this item until an in-person meeting in June. The motion was unanimously.

## **7. Installation of Phase IV Landfill Gas Collection System Project at the Livestock Road Landfill using 2015 Bond Funds**

Mr. Gibson reported that in the coming months, the next phase of the Landfill Gas Collection system will be ready to move forward. It was proposed that the balance total of \$125,392 of remaining 2015 bond funds to move forward with this project, in addition to funds available in several line items that currently have a surplus. Approval from the Authority is requested so that planning can begin for this project.

Frank Rogers made a motion, seconded by Bonnie Svrcek, to authorize staff to move forward on the next phase for the Landfill Gas Collection System Project, which was unanimously approved.

## **8. Review of Proposals for Sale/Use of Livestock Road Landfill Gas**

Mr. Gibson provided answers to the questions raised during the public comment period and by members of the Authority. The project will be funded by the developer fully, and the facility will be located between the flare station and shop building on Authority property. The equipment used are tractor trailer diesel engines that have been converted, which will generate power to create electricity and will be housed inside of a soundproof metal building.

Mr. Gibson explained that after speaking with Ingenco, whose proposal has been recommended by staff for this project, that this item be tabled and reassessed at a later date due to current concerns with COVID-19.

By consensus, the Authority was in agreement to table this item until a later date.

**9. Consideration of Five Year Update/Minor Amendment to Solid Waste Management Plan**

Every five years the DEQ requires regions and localities to update their Solid Waste Management Plan, which serves to explain the way solid waste is managed in the region. Lynn Klappich reviewed the history of the plan that began in 2010, and the minor amendment relates to the county waste transfer station in Appomattox County.

A motion was made by Steve Carter, seconded by Susan Adams to approve the minor amendment. The motion was unanimously approved.

**10. Director's Report**

**a) Odor Update:** Mr. Gibson reported that odor complaints have been reduced by 94% during this year compared to before the implementation of odor eliminating systems began being implemented.

**b) Tonnage Chart:** Tonnage is down slightly from last year; however it is not impacting cost of service.

**c) Hazardous Household Waste Collection Schedule:** The next scheduled event will take place on August 8.

**11. Other Business from Staff or Authority Members**

There was none.

**12. Election of Offices for 2020-2021**

Traditionally Lynchburg and Campbell have rotated the chair, and Nelson and Appomattox have rotated the treasurer's position. The following is recommended:

Chair: Frank Rogers

Vice Chair: Lynchburg City Representative

Treasurer: Susan Adams

A motion was made by Frank Rogers, seconded by Bonnie Svrcsek to approve the slate of offices as presented.

Susan Adams acknowledged Steve Carter's work as treasurer and recommended that he remain in the position for another term.

An amendment was made to elect Steve Carter as the Treasurer for an additional term.

The motion was unanimously approved.

**13. Adjourn** – There being no further business, the meeting adjourned at 3:52 p.m.

The next meeting will be on June 10, 2020 in the Campbell County Board of Supervisors meeting space of the Haberer Building in Rustburg at 2:00 p.m.

**RESOLUTION OF REGION 2000 SERVICES AUTHORITY**

**AUTHORIZING THE USE OF ELECTRONIC MEETINGS TO DISCUSS TIME SENSITIVE AND CRITICAL BUSINESS RELATED TO THE COVID-19 PANDEMIC DISASTER**

**WHEREAS**, on March 12, 2020, Governor Ralph S. Northam issued Executive Order Fifty-One declaring a state of emergency for the Commonwealth of Virginia arising from the novel Coronavirus (COVID-19) pandemic; and

**WHEREAS**, Executive Order Fifty-One acknowledged the existence of a public health emergency which constitutes a disaster as defined by Virginia Code § 44-146.16 arising from the public health threat presented by a communicable disease anticipated to spread; and

**WHEREAS**, Executive Order Fifty-One ordered implementation of the Commonwealth of Virginia Emergency Operations Plan, activation of the Virginia Emergency Operations Center to provide assistance to local governments, and authorization for executive branch agencies to waive “any state requirement or regulation” as appropriate; and

**WHEREAS**, on March 13, 2020, the President of the United States declared a national emergency, beginning March 1, 2020, in response to the spread of COVID-19; and

**WHEREAS**, on March 11, 2020, the World Health Organization declared the COVID-19 outbreak a pandemic; and

**WHEREAS**, the governing bodies of the members of the Region 2000 Services Authority, being the City of Lynchburg and the Counties of Appomattox, Campbell, and Nelson have made individual declarations of a local emergency, specifically finding that the COVID-19 Pandemic constitutes a “disaster” as defined in Virginia Code § 44-146.16, being a “communicable disease of public health threat”; and

**WHEREAS**, through their Emergency Ordinances, the member jurisdictions specifically found that COVID-19 constitutes a real and substantial threat to public health and safety and constitutes a “disaster” as defined by Virginia Code § 44-146.16 being a “communicable disease of public health threat” and

**WHEREAS**, through their Emergency Ordinances, the member jurisdictions further found that the COVID-19 pandemic makes it unsafe to assemble in one location a quorum for public bodies including the School Board, the Planning Commission and all local and regional boards, commissions, committees and authorities created by the member jurisdictions or to which the member jurisdictions appoint all or a portion of its members (collectively “Public Entities” and individually “Public Entity”), or for such Public Entities to conduct meetings in accordance with normal practices and procedures; and

**WHEREAS**, failure of the Region 2000 Services Authority to act in a timely manner would lead to significant harm to individuals and businesses who use our services and to the region’s response to the COVID-19 crisis, and

**WHEREAS**, in addition to the above actions, the Virginia General Assembly on April 22, 2020, on the Governor’s recommendation, adopted budget language stating that notwithstanding any other provision of law, any public body, including any state, local, regional or regulatory body may meet by electronic communication means without a quorum present or any member physically assembled when the Governor has declared a state of emergency, provided that the nature of the emergency makes it impracticable or unsafe for the governing body to assemble in a single location, the purpose of the meeting is to discuss or transact the business statutorily required or necessary to continue the operations of the public body, the

public body shall make available a recording or transcript of the meeting on its website (the “Budget Amendment).

**NOW, THEREFORE, BE IT RESOLVED** that the Region 2000 Services Authority hereby will conduct electronic meetings giving proper notice through e-mail, websites and other means practical.

**BE IT FURTHER RESOLVED** that the Region 2000 Services Authority hereby authorizes and directs its officers and staff to take all steps reasonably necessary or appropriate to develop any specific procedures as applicable and appropriate for the Region 2000 Services Authority, provided that such specific procedures are consistent with the terms and conditions of the Emergency Ordinances and Budget Amendment; and

**BE IT FURTHER RESOLVED** that this Resolution shall take effect immediately upon adoption and shall remain in effect during the pendency of the Emergency Ordinances including for any applicable period upon the re-adoption of the Emergency Ordinances by the members, or when the state of emergency has ended, whichever is later.

**ADOPTED** by the \_\_\_\_\_.

APPROVED

\_\_\_\_\_

ATTEST:

\_\_\_\_\_



Commonwealth of Virginia

**VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY**

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219

P.O. Box 1105, Richmond, Virginia 23218

(800) 592-5482

[www.deq.virginia.gov](http://www.deq.virginia.gov)

Travis A. Voyles  
Secretary of Natural and Historic Resources

Michael S. Rolland, PE, PWD, PWS Emeritus  
Director  
(804) 698-4020

February 15, 2024

Mr. Clarke W. Gibson  
Director, Region 2000  
361 Livestock Road  
Rustburg, VA 24588

**Re: Minor Amendment to the Region 2000 Solid Waste Management Plan**

Dear Mr. Gibson:

On January 2, 2020, the Department received a Minor Amendment reflecting a revision to the Solid Waste Management Plan for Region 2000. The Minor Amendment was to include a new transfer station, County Waste Transfer Station - Appomattox (PBR644) in the plan.

Per the Solid Waste Planning and Recycling Regulations, 9VAC20-130-175.C.2, "Minor amendments shall be submitted, by mail or electronic mail, directly to the department for notation. The planning units are the repository for the minor amendments to the plans." These amendments do not require prior approval, only notification.

This letter is to acknowledge the receipt of the Minor Amendment to the Solid Waste Management Plan for Region 2000 on January 2, 2020.

This letter should not be considered a legal opinion or case decision as defined by the Administrative Process Act, Virginia Code § 2.2-4400 et seq.

Thank you for your efforts and cooperation in this matter. If you have any questions, please contact Prina Chudasama at (804)659-1530 or via email at [prina.chudasama@deq.virginia.gov](mailto:prina.chudasama@deq.virginia.gov).

Sincerely,

Sanjay Thurunagari, Programs Manager  
Office of Financial Responsibility & Waste Programs  
Division of Land Protection and Revitalization

Cc: Prina Chudasama, DEQ, CO  
Nichole Herschler, DEQ, BRRO  
Susan Adams, Appomattox County Administrator  
Lynn Klappich, Draper Aden Associates



*Commonwealth of Virginia*

**VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY**

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219

P.O. Box 1105, Richmond, Virginia 23218

(800) 592-5482

[www.deq.virginia.gov](http://www.deq.virginia.gov)

Travis A. Voyles  
Secretary of Natural and Historic Resources

Michael S. Rolland, PE, PWD, PWS Engineer  
Director  
(804) 659-4020

February 15, 2024

Mr. Clarke W. Gibson  
Director, Region 2000  
361 Livestock Road  
Rustburg, VA 24588

**Re: Minor Amendment to the Region 2000 Solid Waste Management Plan**

Dear Mr. Gibson:

On January 23, 2023, the Department received a Minor Amendment reflecting a revision to the Solid Waste Management Plan for Region 2000. The Minor Amendment was to update the throughput rate for County Waste Transfer Station - Appomattox (PBR644) from 400 tons/day to 500 tons/day.

Per the Solid Waste Planning and Recycling Regulations, 9VAC20-130-175.C.2, "Minor amendments shall be submitted, by mail or electronic mail, directly to the department for notation. The planning units are the repository for the minor amendments to the plans." These amendments do not require prior approval, only notification.

This letter is to acknowledge the receipt of the Minor Amendment to the Solid Waste Management Plan for Region 2000 on January 23, 2023.

This letter should not be considered a legal opinion or case decision as defined by the Administrative Process Act, Virginia Code § 2.2-4400 et seq.

Thank you for your efforts and cooperation in this matter. If you have any questions, please contact Prina Chudasama at (804)659-1530 or via email at [prina.chudasama@deq.virginia.gov](mailto:prina.chudasama@deq.virginia.gov).

Sincerely,

Sanjay Thirunagari, Programs Manager  
Office of Financial Responsibility & Waste Programs  
Division of Land Protection and Revitalization

Cc: Prina Chudasama, DEQ, CO  
Nichole Herschler, DEQ, BRRO  
Susan Adams, Appomattox County Administrator  
Lynn Klappich, Draper Aden Associates



1030 Wilmer Avenue, Ste. 100  
Richmond, VA 23227

T 804.264.2228  
TRCcompanies.com

December 12, 2024

Submitted electronically to:  
Nikolas Churchill (nikolas.churchill@deq.virginia.gov)  
(A hard copy will not be submitted unless requested.)

Mr. Nikolas Churchill  
Environmental Specialist II  
Office of Financial Responsibility & Waste Programs  
Virginia Department of Environmental Quality  
1111 East Main Street, Suite 1400  
Richmond, Virginia 23219

**RE: Region 2000 Service Authority (Region 2000/Region)  
2020 - Five Year Update Certification Letter  
TRC Project No.: B09107-130 and B09107-00**

Dear Mr. Churchill:

On November 26, 2024, Region 2000 received an email from the Virginia Department of Environmental Quality (DEQ) requesting the 5-year Certification for the updated Solid Waste Management Plan (SWMP/Plan) submitted on June 12, 2020. In 2020, it had been assumed that submittal of an updated plan would suffice to meet the regulations. It is now understood that a specific certification letter is required.

By this letter, TRC on behalf of Region 2000 is certifying that key elements of the Region 2000 Solid Waste Management Plan (2020 SWMP), dated June 12, 2020 as submitted previously were current at the time of submittal and are in accordance with the *Virginia Solid Waste Planning and Recycling Regulations* (the Regulations). Section 9 VAC 20-130-173 of the Regulations requires that each planning unit submit a plan update certification letter on or before the five-year anniversary of the Department of Environmental Quality's plan-approval date.

The original plan was approved by DEQ on April 29, 2010. The Authority's five-year anniversary dates are thus April 29 on the following years 2015, 2020, 2025, etc. A major amendment to the Plan was approved by DEQ on August 24, 2015. The 2020 update was submitted on June 12, 2020. No comments had been received prior to the November 26, 2024 email from DEQ. In addition, two minor amendments to the Plan (dated 1/2/20 and 1/23/23) were acknowledged by DEQ on February 15, 2024.

Under Guidance 04 2009, DEQ outlined the information to be provided in the certification letter. Listed below are the items that must be addressed for the update as outlined in the regulations and in the guidance document.

1. **Waste generation estimates:** The waste generation estimate must be current, both in quantities generated and composition.
2. **Planning milestones:** The scheduled 20-year planning milestones and increments must be discussed, and indication provided on how the goals have been met or will be met in the future.
3. **Capacity:** The projected 20-year waste management capacity verified, indicating that the required capacity remains available or that the projects designed to meet the required capacity are on schedule.

The updated plan submitted on June 12, 2020 addressed the required information. Below reference is made to those sections of the updated 2020 SWMP that address the required information.

## 1. DEMOGRAPHICS AND POPULATION FOR REGION (Section 3.0)

**Section 3.0, Region 2000 Demographic Data**, provides updated information on the demographics of the Region.

**Section 3.2.1, Population**, includes **Table 1 – Summary of Population Projections**, based on information from the Weldon Cooper Center for Public Service for the period 2020 through 2040, and **Table 2 – Summary of Population Projections as Percentage of Total**, for 2020 and 2040. **Appendix C** includes a summary table projecting population by year and indicating the overall regional change.

Note that population information references the 2010 census and not the 2020 census data. 2020 census data was not available for preparation of the 2020 plan.

## 2. WASTE COMPOSITION AND GENERATION ESTIMATES (Section 4.0)

**Section 4.2, Historical Tonnage Amounts**, includes **Table 6 – Landfilled Tonnage – Summary of DEQ Annual Reports**, 2018 through 2019, **Table 7, Percent By Category – Material Type Landfilled – Average 2014 through 2018**, **Table 8 – Concord Turnpike Landfill at Closure – Tonnage Placed and Percent Obligation by Locality** (1993 through 2014), **Table 9 – Livestock Road Landfill – Tonnage Placed and Percent Obligation by Locality** (1995 through 2019). This section also references **Appendix D** which provides a summary of SWIA data from 2014 through 2018.

**Section 4.3, Projected Tonnage Amounts (2020 – 2040)**, forecasts tonnage amounts for the planning period referencing tables included in **Appendix E**. It also includes **Table 9 – Region 2000 – Waste Projections and Comparison with 2014 Plan – 2020 through 2040**.

**Section 4.4, Theoretical Waste Generation Projections by Category**, references tables contained in **Appendix F** which provide projections based on SWIA categories and generator type.

### 3. RECYCLING (Sections 5.3, 7.4, and 8.3)

**Section 5.3, Regional Recycling Rates**, includes Table 10 - *Summary of Regional Recycling Rates* indicating that as of 2018, the Region met and exceeded their required recycling rate. This section also references **Appendix G – Table G-1** which provides a summary by year of recyclable materials and calculations.

**Section 7.4, Recycling**, provides additional information on recycling as it pertains to the discussion on the hierarchy.

**Section 8.3, Recycling**, references **Appendix I (Table I-3)** which provides goals, specific action items and schedule over the planning period as they pertain to recycling.

### 4. PLANNING MILESTONES (Sections 8.0 and 9.0)

**Section 8.0, Goals and Objectives of Program**, indicates that Section 8.1 through 8.5 provide milestones for plan implementation for collection, disposal, recycling, public awareness, and litter control over the planning period. Tables summarizing details on the goals, action items, and milestones are included in **Appendix I. Section 9.0, Implementation Schedule**, references **Appendix I.**

### 5. DISPOSAL CAPACITY (Sections 4.5, 7.1, 7.6, and 8.2)

**Section 4.5, Remaining Capacity and Site Life**, references **Section 1.4** which provided significant detail on the operating Livestock Road Landfill (Permit 610) and includes **Section 4.5.3** which indicates that as of 2019, this facility had 10.5 years of life remaining in the facility.

**Section 7.1, Waste Management Hierarchy**, discusses the strategic planning process the Region has undertaken to consider its future options.

**Section 7.6, Landfilling**, discusses the remaining life of the landfill and the need for the Region to continue with its strategic planning process to assure sufficient capacity for the planning period.

**Section 8.0 – Goals and Objectives – Section 8.2, Disposal** references **Appendix I – Table I-2** relative to specific goals, action items, schedule and costs.

⊕ ⊕ ⊕

As indicated in the above discussion, Region 2000's 2020 updated Solid Waste Management Plan meets the requirements of the Virginia Department of Environmental Quality to describe the population, waste generation, disposal capacity, and implementation schedules for the planning period of 2020 through 2040. The Region recognizes that the remaining capacity in the Livestock Road landfill as currently

Mr. Nikolas Churchill

December 12, 2024

Page 4

permitted is insufficient to cover the planning period, recognizes its responsibilities to determine disposal capacity through 2040 and recognizes that the Plan will require amendment to address future activities. TRC is hereby certifying the compliance of the 2020 updated Plan with the regulations.

Please contact us if you have questions concerning this information.

Sincerely,

**TRC ENGINEERING, INC.**



Lynn P. Klappich  
Program Manager

cc: Sanjay Thirunagari, DEQ  
Prina Chudasama, DEQ  
Clarke Gibson, CGGSWA  
Tony Tomlin, TRC Engineering, Inc  
Wendy Karably, TRC Engineering, Inc.

**APPENDIX J-4**

**2018 EPA SUSTAINABILITY REPORT**



# Advancing Sustainable Materials Management: 2018 Fact Sheet

Assessing Trends in Materials Generation and  
Management in the United States

December 2020

# Introduction

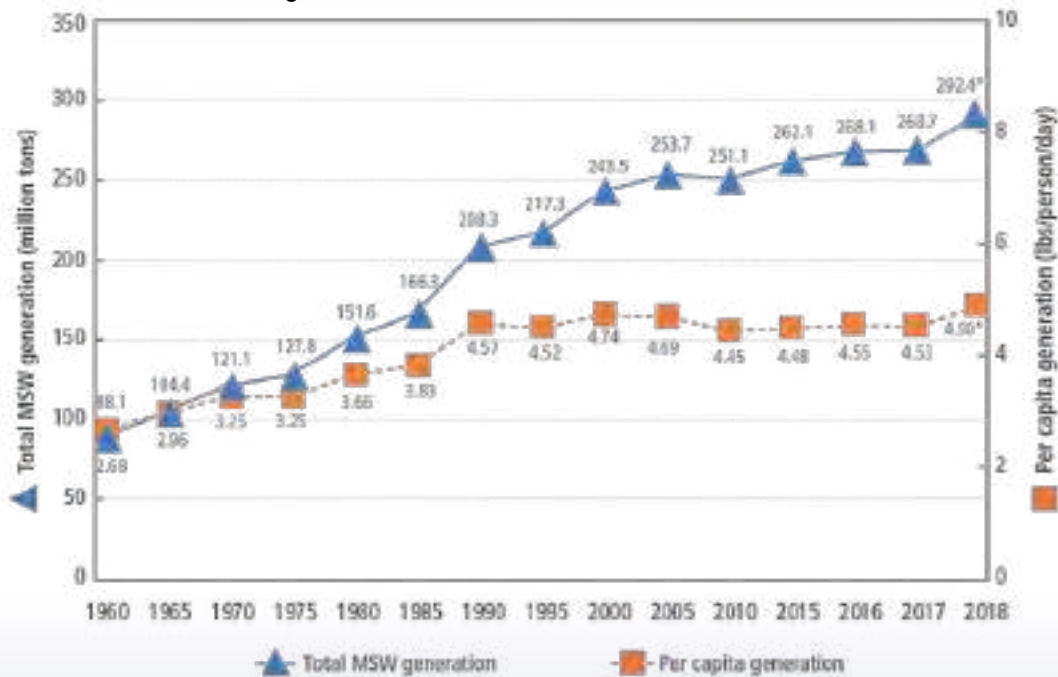
The U.S. Environmental Protection Agency (EPA) has collected and reported data on the generation and disposition of municipal solid waste (MSW) in the United States for more than 35 years. This information is used to measure the success of materials management programs across the country and to characterize the national waste stream. These facts and figures are based on the most recent information, which is from calendar year 2018.

In 2018, in the United States, approximately 292 million tons (U.S. short tons unless specified) of MSW were generated (See Figure 1). Of the MSW generated, approximately 69 million tons were recycled and 25 million tons were composted. Together, about 94 million tons were recycled or composted, equivalent to a 32.1 percent recycling and composting rate (See Figure 2). In addition, about 18 million tons of food (6.1 percent) were processed through other food management pathways (See Figure 3, Table 1 and text box page 5). More than 34 million tons of MSW (11.8 percent) were combusted with energy recovery. Finally, more than 146 million tons (50.0 percent) were landfilled (See Figure 3 and Table 1).

Information about waste generation and management is an important foundation for managing materials. EPA's Sustainable Materials Management (SMM) approach refers to the use and reuse of materials in the most productive and sustainable way across their entire lifecycle. Through SMM, EPA helps to meet the material needs of the future by providing methods to decrease environmental impacts of materials use while increasing economic competitiveness.

This report analyzes MSW trends in generation and management, materials and products, and economic indicators affecting MSW. It also includes a section on the generation and management of construction and demolition (C&D) debris, which is not a part of MSW, but comprises a significant portion of the non-hazardous solid waste stream.

Figure 1. MSW Generation Rates, 1960 to 2018\*



\*MSW generation rose considerably from 2017 to 2018 mainly because EPA enhanced its food measurement methodology to more fully account for all the ways wasted food is managed throughout the food system.

Figure 2. MSW Recycling and Composting Rate, 1960 to 2018

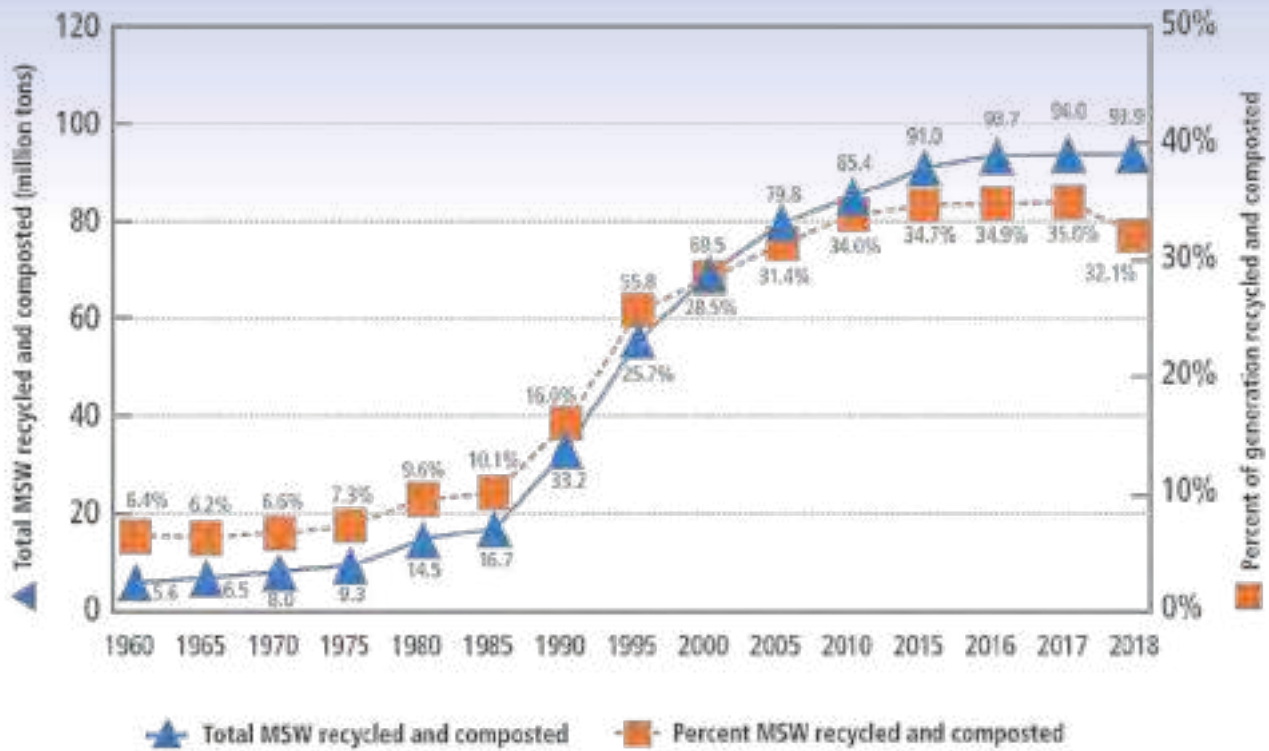


Figure 3. Management of MSW in the United States, 2018

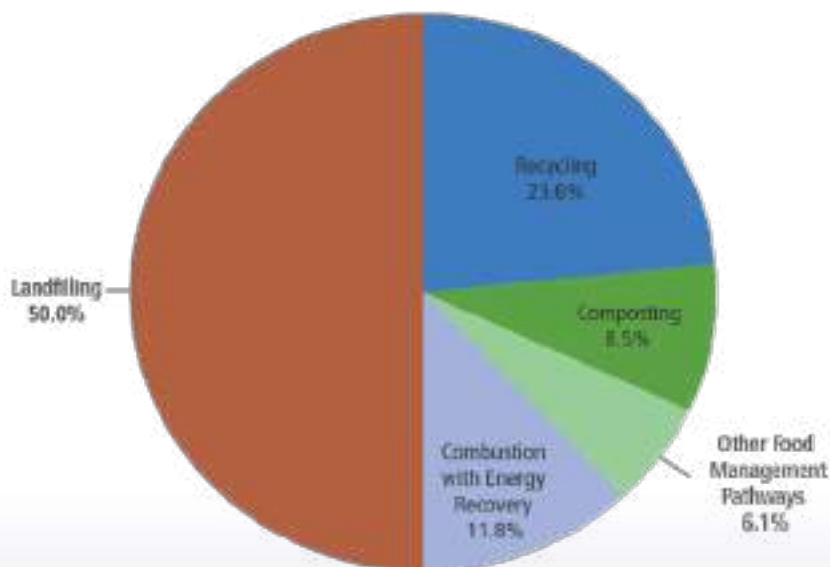


Table 1. Generation, Recycling, Composting, Other Food Management Pathways, Combustion with Energy Recovery and Landfilling of Materials in MSW, 2018\*  
(in millions of tons and percent of generation of each material)

Material	Weight Generated	Weight Recycled	Weight Composted	Weight Other Food Management Pathways‡	Weight Combusted with Energy Recovery	Weight Landfilled	Recycling as Percent of Generation	Composting as Percent of Generation	Other Food Management Pathways as Percent of Generation	Combustion as Percent of Generation	Landfilling as Percent of Generation
Paper and paperboard	67.39	45.97	-	-	4.20	17.22	68.2%	-	-	6.2%	25.6%
Glass	12.25	3.06	-	-	1.64	7.55	25.0%	-	-	13.4%	61.6%
<i>Metals</i>											
Steel	19.20	6.36	-	-	2.31	10.53	33.1%	-	-	12.0%	54.9%
Aluminum	3.89	0.67	-	-	0.56	2.66	17.2%	-	-	14.4%	68.4%
Other nonferrous metals†	2.51	1.69	-	-	0.08	0.74	67.3%	-	-	3.2%	29.5%
<b>Total metals</b>	<b>25.60</b>	<b>8.72</b>	-	-	<b>2.95</b>	<b>13.93</b>	<b>34.1%</b>	-	-	<b>11.5%</b>	<b>54.4%</b>
Plastics	35.68	3.09	-	-	5.62	26.97	8.7%	-	-	15.8%	75.5%
Rubber and leather	9.16	1.67	-	-	2.50	4.99	18.2%	-	-	27.3%	54.5%
Textiles	17.03	2.51	-	-	3.22	11.30	14.7%	-	-	18.9%	66.4%
Wood	18.09	3.10	-	-	2.84	12.15	17.1%	-	-	15.7%	67.2%
Other materials	4.56	0.97	-	-	0.66	2.93	21.3%	-	-	14.4%	64.3%
<b>Total materials in products</b>	<b>189.76</b>	<b>69.09</b>	-	-	<b>23.63</b>	<b>97.04</b>	<b>36.4%</b>	-	-	<b>12.5%</b>	<b>51.1%</b>
<i>Other wastes</i>											
Food, other‡	63.13	-	2.59	17.71	7.55	35.28	-	4.1%	28.1%	11.9%	55.9%
Yard trimmings	35.40	-	22.30	-	2.57	10.53	-	63.0%	-	7.3%	29.7%
Miscellaneous inorganic wastes	4.07	-	-	-	0.80	3.27	-	-	-	19.7%	80.3%
<b>Total other wastes</b>	<b>102.60</b>	-	<b>24.89</b>	<b>17.71</b>	<b>10.92</b>	<b>49.08</b>	-	<b>24.3%</b>	<b>17.3%</b>	<b>10.6%</b>	<b>47.8%</b>
<b>Total municipal solid waste</b>	<b>292.36</b>	<b>69.09</b>	<b>24.89</b>	<b>17.71</b>	<b>34.55</b>	<b>146.12</b>	<b>23.6%</b>	<b>8.5%</b>	<b>6.1%</b>	<b>11.8%</b>	<b>50.0%</b>

\* Includes waste from residential, commercial and institutional sources.

‡ Animal feed, bio-based materials/biochemical processing, codigestion/anaerobic digestion, donation, land application, sewer/wastewater treatment.

† Includes lead from lead-acid batteries.

‡ Includes collection of other MSW organics for composting.

Details might not add to totals due to rounding.

Negligible = Less than 5,000 tons or 0.05 percent.

A dash in the table means that data are not available.

## Trends in Municipal Solid Waste

Our MSW, or trash, is comprised of various items consumers throw away. These items include packaging, food, yard trimmings, furniture, electronics, tires and appliances. MSW does not include industrial, hazardous or C&D waste. Sources of MSW include residential waste, as well as waste from commercial and institutional locations, such as restaurants, grocery stores, other businesses, schools, hospitals and industrial facilities. Industrial facility waste includes waste from sources such as offices, cafeterias and packaging, but not process waste.

Over the last few decades, the generation, recycling, composting, combustion with energy recovery and landfilling of MSW has changed substantially. Solid waste generation peaked at 4.74 pounds per person per day in 2000 and 2005, falling to 4.51 pounds per person per day in 2017. The higher rate of 4.91 pounds per person per day in 2018 reflects the change in food waste measurement methodology (See Figure 1 and text box).

The combined recycling and composting rate increased from less than 10 percent of generated MSW in 1980 to 35.0 percent in 2017. In 2018, the recycling and composting rate was 32.1 percent (See Figure 2). Without including composting, recycling alone rose from 14.5 million tons (9.6 percent of MSW) in 1980 to 69 million tons (23.6 percent) in 2018. Although more tons were recycled in 2018 than ever before, the recycling rate decreased to the lowest levels since 2006. Composting was negligible in 1980, but it rose to 24.9 million tons in 2018 (8.5 percent).

In 2018, for the first time in this report series, EPA revised its food measurement methodology to more fully capture flows of excess food and food waste throughout the food system. The resulting category, other food management pathways, accounted for 17.7 million tons (6.1 percent) (See Figure 3, Table 2 and text box for details).

Combustion with energy recovery was less than 2 percent of generation in 1980 at 2.8 million tons. In 2018, 34.6 million tons (11.8 percent of MSW generated) were combusted with energy recovery (See Table 2).

Since 1990, the total amount of MSW going to landfills has increased by less than one million tons, from 145.3 million tons in 1990 to 146.1 million tons in 2018 (See Table 2). The net per capita 2018 landfilling rate was 2.4 pounds per day, which was lower than the 3.2 per capita rate in 1990 (See Table 3).

### New Enhanced Food Measurement Methodology

EPA enhanced its food measurement methodology to more fully estimate flows of food throughout the food system. Expanding beyond composting, combustion with energy recovery and landfilling, 2018 estimates include food flowing to a total of nine pathways. The food waste generation estimates for 2018 account for the additional food flowing to the six new pathways which are:

- animal feed
- land application
- codigestion/anaerobic digestion
- bio-based materials/biochemical processing
- donation
- sewer/wastewater treatment

Table 2. Generation, Recycling, Composting, Other Food Management Pathways, Combustion with Energy Recovery and Landfilling of MSW, 1960 to 2018 (in millions of tons)

Activity	1960	1970	1980	1990	2000	2005	2010	2015	2017	2018
Generation	88.1	121.1	151.6	208.3	243.5	253.7	251.1	262.1	268.7	292.4
Recycling	5.6	8.0	14.5	29.0	53.0	59.2	65.3	67.6	67.0	69.1
Composting*	neg.	neg.	neg.	4.2	16.5	20.6	20.2	23.4	27.0	24.9
Other Food Management**	-	-	-	-	-	-	-	-	-	17.7
Combustion with energy recovery†	0.0	0.5	2.8	29.8	33.7	31.7	29.3	33.5	34.2	34.6
Landfilling and other disposal‡	82.5	112.6	134.3	145.3	140.3	142.2	136.3	137.6	140.5	146.1

\* Composting of yard trimmings, food and other MSW organic material. Does not include backyard composting.

\*\* Other food management pathways include animal feed, bio-based materials/biochemical processing, codigestion/anaerobic digestion, donation, land application and sewer/wastewater treatment.

Details might not add to totals due to rounding.  
neg. (negligible) = less than 5,000 tons or 0.05 percent.  
A dash in the table means that data are not available.

† Includes combustion of MSW in mass burn or refuse-derived fuel form, and combustion with energy recovery of source separated materials in MSW (e.g., wood pallets, tire-derived fuel).

‡ Landfilling is what remains after recycling, composting, other food management and combustion with energy recovery are accounted for. Landfilling includes other disposal methods such as combustion without energy recovery.

Table 3. Generation, Recycling, Composting, Other Food Management Pathways, Combustion with Energy Recovery and Landfilling of MSW, 1960 to 2018 (in pounds per person per day)

Activity	1960	1970	1980	1990	2000	2005	2010	2015	2017	2018
Generation	2.7	3.3	3.7	4.6	4.7	4.7	4.4	4.5	4.5	4.9
Recycling	0.2	0.2	0.4	0.6	1.0	1.1	1.1	1.2	1.1	1.2
Composting*	neg.	neg.	neg.	0.1	0.3	0.4	0.4	0.4	0.5	0.4
Other Food Management**	-	-	-	-	-	-	-	-	-	0.3
Combustion with energy recovery†	0.0	neg.	0.1	0.7	0.7	0.6	0.5	0.6	0.6	0.6
Landfilling and other disposal‡	2.5	3.1	3.2	3.2	2.7	2.6	2.4	2.3	2.4	2.4
Population (In millions)	180.0	204.0	227.3	249.9	281.4	296.4	309.1	320.9	325.1	327.2

\* Composting of yard trimmings, food and other MSW organic material. Does not include backyard composting.

\*\* Other food management pathways include animal feed, bio-based materials/biochemical processing, codigestion/anaerobic digestion, donation, land application and sewer/wastewater treatment.

Details might not add to totals due to rounding.  
neg. (negligible) = less than 5,000 tons or 0.05 percent.  
A dash in the table means that data are not available.

† Includes combustion of MSW in mass burn or refuse-derived fuel form, and combustion with energy recovery of source separated materials in MSW (e.g., wood pallets, tire-derived fuel).

‡ Landfilling is what remains after recycling, composting, other food management and combustion with energy recovery are accounted for. Landfilling includes other disposal methods such as combustion without energy recovery.

## Analyzing MSW

EPA analyzes MSW by breaking down the data in two ways: by material and by product. Materials are made into products, which are ultimately reprocessed through recycling or composting or managed by combustion with energy recovery facilities or landfills. They may also be processed by other management methods for food. Examples of materials that EPA tracks include paper and paperboard, plastics, metals, glass, rubber, leather, textiles, wood, food and yard trimmings. For a full list of materials, see Table 1.

Products are what people buy and handle, and they are manufactured out of the types of materials listed above. Product categories include containers and packaging, nondurable goods, durable goods, food and yard trimmings. Containers and packaging, such as milk cartons and plastic wrap, are assumed to be in use for a year or less; nondurable goods like newspaper and clothing are assumed to be in use for less than three years; and durable goods, such as furniture, are assumed to be in use for three or more years. Some products, such as appliances, may be made of more than one material. Information about products shows how consumers are using and discarding materials and offers strategies on ways to maximize the source reduction, recycling and composting of materials.

## Materials in MSW

Table 1 and the following figures provide specific information about materials in MSW. Table 1 shows generation, recycling, composting, other food management pathways, combustion with energy recovery and landfilling by material, weight and percent of generation.

Figure 4, below, provides the breakdown of MSW generation by material. Paper and paperboard, along with food, continued to be the largest components of MSW generated. Paper and paperboard accounted for about 23 percent, while food accounted for over 21 percent. Yard trimmings and plastics comprised about 12 percent each. The remaining amount of MSW generated consisted of rubber, leather and textiles; metals; wood; glass; and other materials.

Figure 5 provides the breakdown of MSW recycling by material in 2018. Paper and paperboard comprised the largest component of MSW recycling, representing nearly 67 percent. Metals made up over 12 percent of MSW recycled. The remaining amount of MSW recycled consisted of rubber, leather and textiles; plastics; glass; wood; and other materials.

Figure 6 provides the breakdown of MSW composting and other food management pathways by material, Figure 7 provides the breakdown of MSW combustion with energy recovery and Figure 8 provides the breakdown of MSW landfilling.

Figure 4. Total MSW Generation (by material), 2018  
292.4 Million Tons

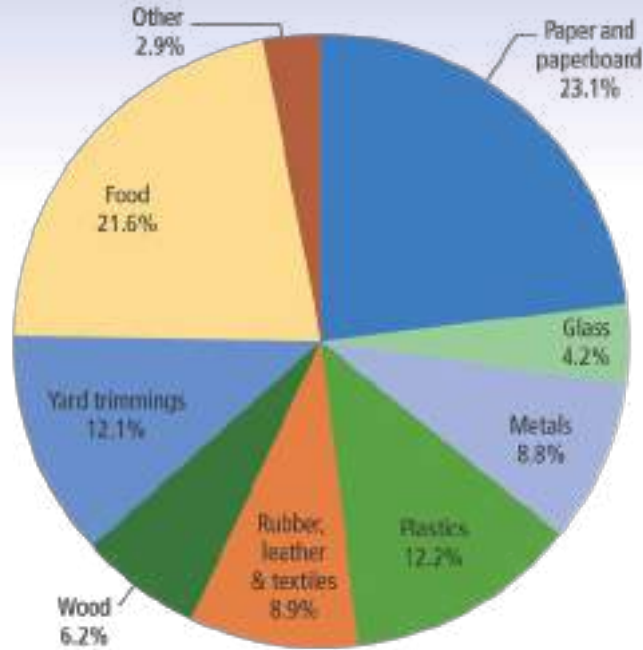


Figure 5. Total MSW Recycling (by material), 2018  
69.1 Million Tons

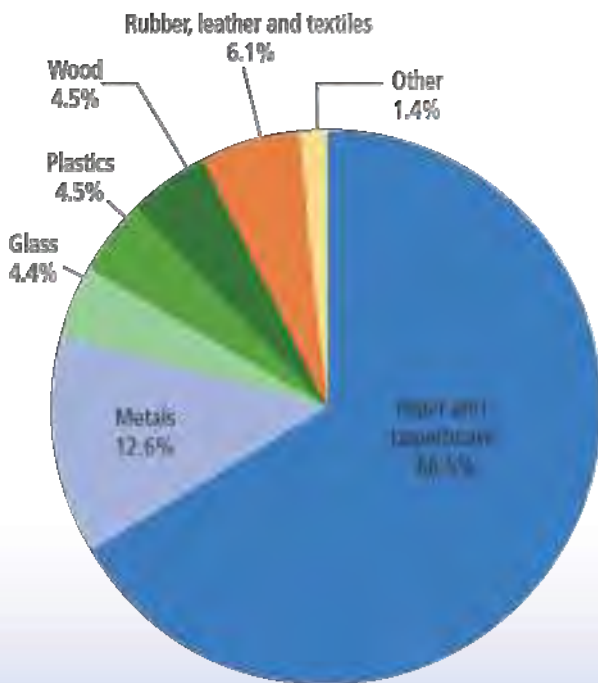


Figure 6. Total MSW Composting and Other Food Management Pathways (by material), 2018  
42.6 Million Tons

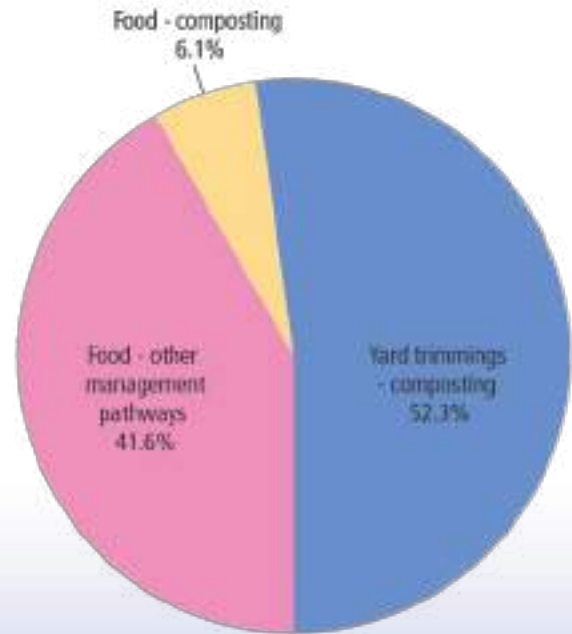


Figure 7. Total MSW Combusted with Energy Recovery (by material), 2018 34.6 Million Tons

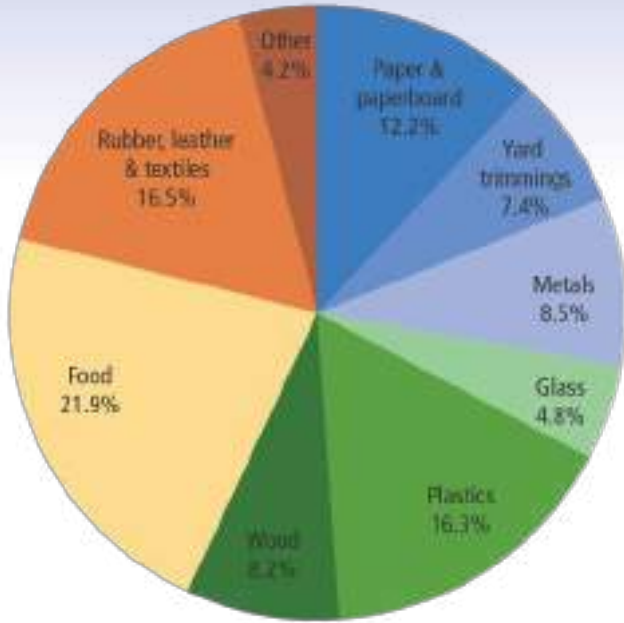
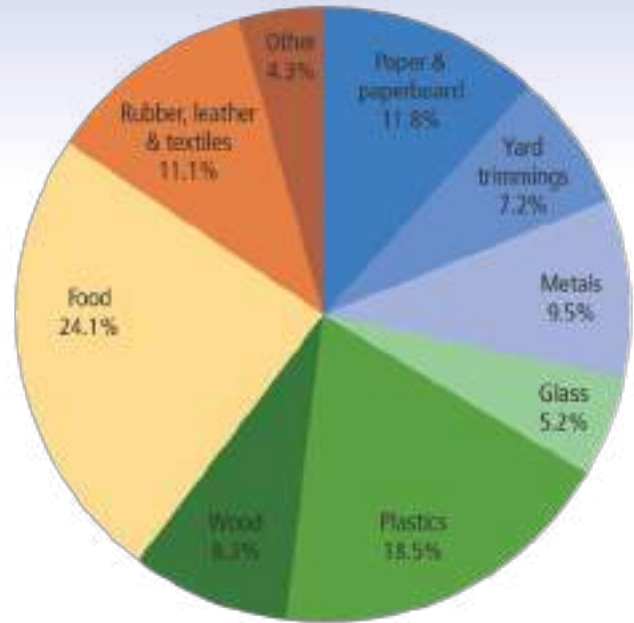


Figure 8. Total MSW Landfilled (by material), 2018 146.1 Million Tons



## Products in MSW

The following information provides the details of the products found in MSW, including generation, recycling, composting, other food management pathways, combustion with energy recovery and landfilling by product category, weight and percent of generation. The product categories include containers and packaging, durable goods, nondurable goods, and other wastes which include food, yard trimmings and miscellaneous inorganic wastes. See Table 4 for generation and management by product category.

These other wastes made up the largest portion of MSW generated at 102.6 million tons (35.1 percent) in 2018. More than 82 million tons of containers and packaging (28.1 percent), 57.1 million tons (19.5 percent of MSW generation) of durable goods and more than 50 million tons (17.3 percent of MSW generation) of nondurable goods were generated.

The containers and packaging product category had the highest recycling rate at 53.9 percent in 2018. Paper products, steel and aluminum were the most recycled materials by percentage in this category. The recycling of nondurable goods was 28.1 percent. Paper products such as newspapers/mechanical papers were the most recycled nondurable goods. Newspapers/mechanical papers include newspapers, directories, inserts, as well as some advertisement and direct mail printing. Overall, 18.5 percent of durable goods were recycled. With a 99 percent recycling rate in 2018, lead-acid batteries continued to be one of the most recycled products.

Yard trimmings had the highest composting rate of all product categories at 63 percent. Food was composted at a rate of 4.1 percent. Other food management pathways were estimated at 28.1 percent of food waste generation.

Durable goods were combusted at a rate of 16 percent and nondurables at a rate of 14.1 percent. Food and miscellaneous inorganic wastes were combusted with energy recovery with a rate of 11.9 percent and 19.7 percent, respectively. Containers and packaging, along with yard trimmings, were combusted at rates below 10 percent.

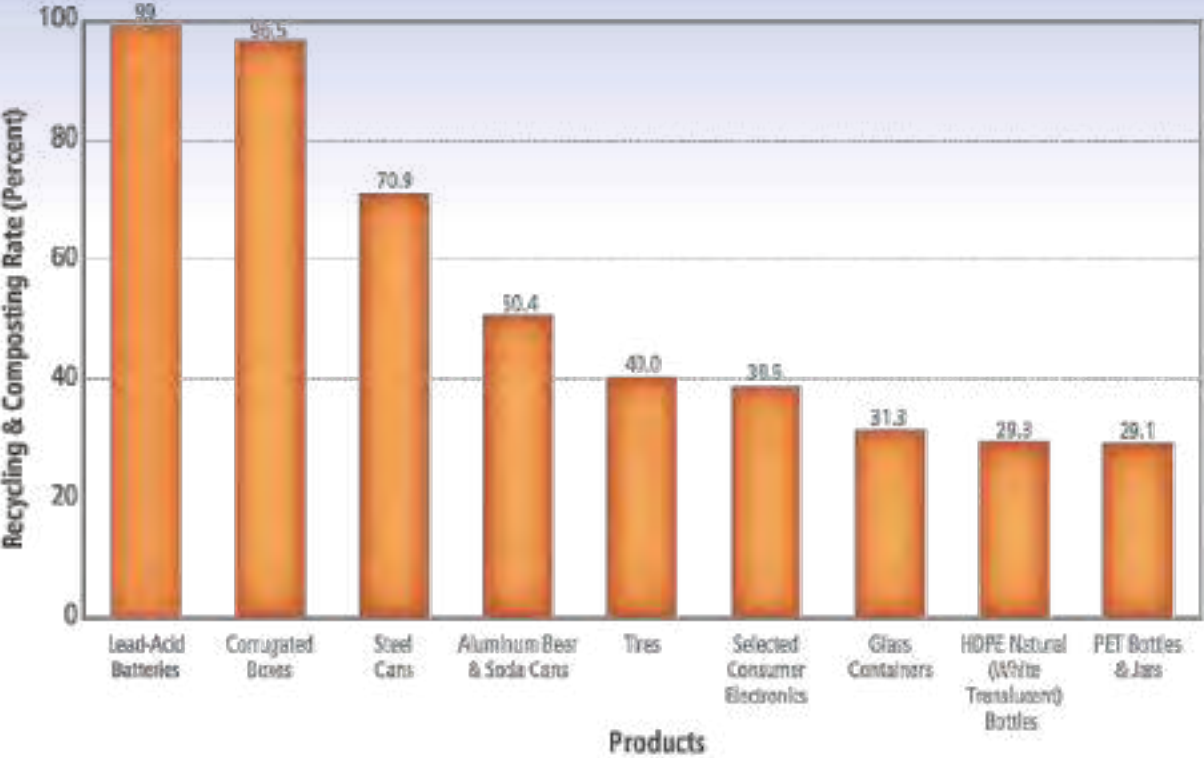
Durable goods had the highest landfill rate of 65.5 percent. Nondurable goods had the second highest landfill rate at 57.8 percent. Food had the third highest landfill rate of 55.9 percent. Containers and packaging, along with yard trimmings, were the product categories with the lowest landfill rates at 37.1 percent and 29.7 percent, respectively.

Figure 9 displays selected individual products with high recycling rates.

### Recycling Rates

Measured by percent of generation, individual products with the highest recycling rates in 2018 were lead-acid batteries (99 percent), corrugated boxes (96.5 percent), steel cans (70.9 percent), newspapers/mechanical papers (64.8 percent), major appliances (59.8 percent), aluminum cans (50.4 percent), mixed paper (43.1 percent), tires (40 percent) and selected consumer electronics (38.5 percent).

Figure 9. Selected Products with High Recycling Rates, 2018\*



\*Does not include combustion with energy recovery

Table 4. Generation, Recycling, Composting, Other Food Management Pathways, Combustion with Energy Recovery and Landfilling of Products in MSW, 2018\*  
(in millions of tons and percent of generation of each product)

Products	Weight Generated	Weight Recycled	Weight Composted	Weight Other Food Management Pathways‡	Weight Combusted with Energy Recovery	Weight Landfilled	Recycling as Percent of Generation	Composting as Percent of Generation	Other Food Management Pathways as Percent of Generation	Combustion as Percent of Generation	Landfilling as Percent of Generation
<b>Durable goods</b>											
Steel	16.99	4.73	-	-	2.20	10.06	27.8%	-	-	13.0%	59.2%
Aluminum	1.75	-	-	-	0.27	1.48	-	-	-	15.4%	84.6%
Other nonferrous metals†	2.51	1.69	-	-	0.08	0.74	67.3%	-	-	3.2%	29.5%
Glass	2.46	Negligible	-	-	0.33	2.13	Negligible	-	-	13.4%	86.6%
Plastics	13.69	0.93	-	-	1.74	11.02	6.8%	-	-	12.7%	80.5%
Rubber and leather	7.98	1.67	-	-	2.27	4.04	20.9%	-	-	28.5%	50.6%
Wood	6.51	Negligible	-	-	1.18	5.33	Negligible	-	-	18.1%	81.9%
Textiles	3.87	0.58	-	-	1.02	2.27	15.0%	-	-	26.3%	58.7%
Other materials	1.34	0.97	-	-	0.03	0.34	72.4%	-	-	2.2%	25.4%
<b>Total durable goods</b>	<b>57.10</b>	<b>10.57</b>	<b>-</b>	<b>-</b>	<b>9.12</b>	<b>37.41</b>	<b>18.5%</b>	<b>-</b>	<b>-</b>	<b>16.0%</b>	<b>65.5%</b>
<b>Nondurable goods</b>											
Paper and paperboard	25.49	12.08	-	-	2.63	10.78	47.4%	-	-	10.3%	42.3%
Plastics	7.46	0.18	-	-	1.42	5.86	2.4%	-	-	19.0%	78.6%
Rubber and leather	1.18	Negligible	-	-	0.23	0.95	Negligible	-	-	19.5%	80.5%
Textiles	12.87	1.93	-	-	2.14	8.80	15.0%	-	-	16.6%	68.4%
Other materials	3.44	Negligible	-	-	0.67	2.77	Negligible	-	-	19.5%	80.5%
<b>Total nondurable goods</b>	<b>50.44</b>	<b>14.19</b>	<b>-</b>	<b>-</b>	<b>7.09</b>	<b>29.16</b>	<b>28.1%</b>	<b>-</b>	<b>-</b>	<b>14.1%</b>	<b>57.8%</b>

Table 4 (continued). Generation, Recycling, Composting, Other Food Management Pathways, Combustion with Energy Recovery and Landfilling of Products in MSW, 2018\*  
(in millions of tons and percent of generation of each product)

Products	Weight Generated	Weight Recycled	Weight Composted	Weight Other Food Management Pathways‡	Weight Combusted with Energy Recovery	Weight Landfilled	Recycling as Percent of Generation	Composting as Percent of Generation	Other Food Management Pathways as Percent of Generation	Combustion as Percent of Generation	Landfilling as Percent of Generation
<b>Containers and packaging</b>											
Steel	2.21	1.63	-	-	0.11	0.47	73.8%	-	-	5.0%	21.2%
Aluminum	1.92	0.67	-	-	0.25	1.00	34.9%	-	-	13.0%	52.1%
Glass	9.79	3.06	-	-	1.31	5.42	31.3%	-	-	13.3%	55.4%
Paper and paperboard	41.90	33.89	-	-	1.57	6.44	80.9%	-	-	3.7%	15.4%
Plastics	14.53	1.98	-	-	2.46	10.09	13.6%	-	-	16.9%	69.5%
Wood	11.58	3.10	-	-	1.66	6.82	26.9%	-	-	14.3%	58.8%
Other materials	0.29	Negligible	-	-	0.06	0.23	Negligible	-	-	20.7%	79.3%
<b>Total containers and packaging</b>	<b>82.22</b>	<b>44.33</b>	<b>-</b>	<b>-</b>	<b>7.42</b>	<b>30.47</b>	<b>53.9%</b>	<b>-</b>	<b>-</b>	<b>9.0%</b>	<b>37.1%</b>
<b>Other wastes</b>											
Food, other‡	63.13	-	2.59	17.71	7.55	35.28	-	4.1%	28.1%	11.9%	55.9%
Yard trimmings	35.40	-	22.30	-	2.57	10.53	-	63.0%	-	7.3%	29.7%
Miscellaneous inorganic wastes	4.07	-	-	-	0.80	3.27	-	-	-	19.7%	80.3%
<b>Total other wastes</b>	<b>102.60</b>	<b>-</b>	<b>24.89</b>	<b>17.71</b>	<b>10.92</b>	<b>49.08</b>	<b>-</b>	<b>24.3%</b>	<b>17.3%</b>	<b>10.6%</b>	<b>47.8%</b>
<b>Total municipal solid waste</b>	<b>292.36</b>	<b>69.09</b>	<b>24.89</b>	<b>17.71</b>	<b>34.55</b>	<b>146.12</b>	<b>23.6%</b>	<b>8.5%</b>	<b>6.1%</b>	<b>11.8%</b>	<b>50.0%</b>

\* Includes waste from residential, commercial and institutional sources.

‡ Animal feed, bio-based materials/biochemical processing, codigestion/anaerobic digestion, donation, land application, sewer/wastewater treatment.

† Includes lead from lead-acid batteries.

‡ Includes collection of other MSW organics for composting.

Details might not add to totals due to rounding.

Negligible = less than 5,000 tons or 0.05 percent.

A dash in the table means that data are not available.

# Environmental and Economic Benefits

## Environmental Benefits of Recycling and Composting

The energy and greenhouse gas (GHG) benefits of recycling, composting and combustion with energy recovery that are shown in Table 5 are calculated using EPA's WARM (Waste Reduction Model) tool (See: <https://www.epa.gov/warm>). WARM calculates and totals the GHG emissions of baseline and alternative waste management practices, including source reduction, recycling, composting, combustion with energy recovery and landfilling. For example, paper and paperboard recycling, at about 46 million tons, resulted in a reduction of over 155 MMTCO<sub>2</sub>E in 2018. This reduction is equivalent to removing over 33 million cars from the road for one year.

In 2018, about 94 million tons of MSW in the U.S. were recycled and composted, saving over 193 MMTCO<sub>2</sub>E. This is comparable to the emissions that could be reduced from taking almost 42 million cars off the road in a year.

Table 5. 2018 Environmental Benefits

(The numbers in the Recycled, Composted, Combustion with Energy Recovery and Landfilled columns are listed by weight of material\* in millions of tons)

Material	Recycled	Composted	Combustion with Energy Recovery	Landfilled	GHG Benefits (MMTCO <sub>2</sub> E)	Number of Cars Taken Off the Road Per Year (millions of cars)
Paper and paperboard	45.97	-	4.20	17.22	(155.17)	(33.52)
Glass	3.06	-	1.64	7.55	(0.90)	(0.19)
Metals						
Steel	6.36	-	2.31	10.53	(15.50)	(3.35)
Aluminum	0.67	-	0.56	2.66	(6.12)	(1.32)
Other nonferrous metals**	1.69	-	0.08	0.74	(7.54)	(1.63)
<b>Total metals</b>	<b>8.72</b>	<b>-</b>	<b>2.95</b>	<b>13.93</b>	<b>(29.16)</b>	<b>(6.30)</b>
Plastics	3.09	-	5.62	26.97	4.13	0.89
Rubber and leather†	1.67	-	1.73	0.78	0.17	0.04
Textiles	2.51	-	3.22	11.30	(2.56)	(0.55)
Wood	3.10	-	2.84	12.15	(3.30)	(0.71)
Food, other‡	-	2.59	7.55	35.28	(6.97)	(1.51)
Yard trimmings	-	22.30	2.57	10.53	0.78	0.17
Miscellaneous inorganic wastes	-	-	0.80	3.27	(0.28)	(0.06)
<b>Totals</b>	<b>68.12</b>	<b>24.89</b>	<b>33.12</b>	<b>138.98</b>	<b>(193.26)</b>	<b>(41.74)</b>

\*Includes material from residential, commercial, institutional and industrial sources (except not industrial process waste).

\*\*Includes lead-acid batteries. Other nonferrous metals calculated in WARM as mixed metals.

†Only includes rubber from tires.

‡Includes collection of other MSW organics for composting.

These calculations do not include an additional 24.9 million tons of MSW that could not be addressed in the WARM model (including 17.7 million tons from food waste managed by means outside of the scope of the WARM model). MMTCO<sub>2</sub>E is million metric tons of carbon dioxide equivalent. Numbers in parentheses indicate a reduction in either greenhouse gases or vehicles, and therefore represent environmental benefits. Details might not add to totals due to rounding.

Source: WARM model Version 15 (<https://www.epa.gov/warm>). Number of cars taken off the road/year was calculated using the Greenhouse Gas Equivalency Calculator, updated March 2020.

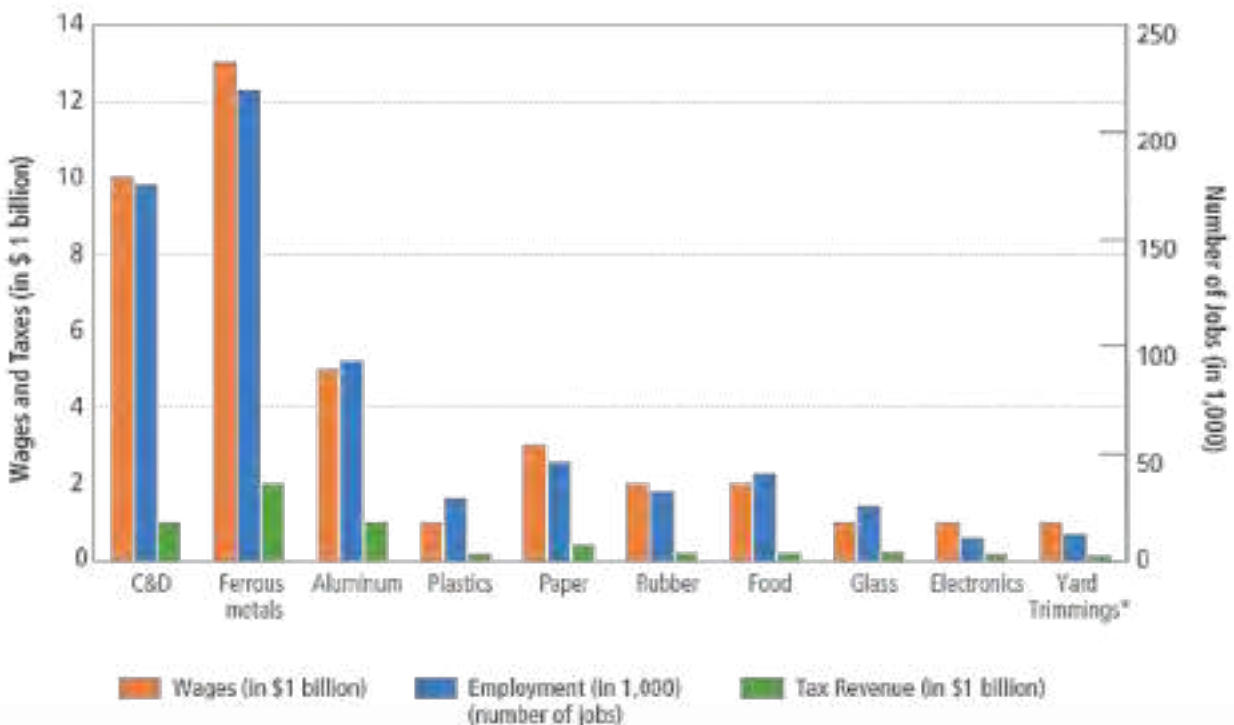
# Economic Indicators

## Economic Benefits of Recycling and Composting

How our nation uses materials is fundamental to our economic and environmental future. Economic and community benefits of recycling include increasing economic security by tapping a domestic source of materials; supporting American manufacturing; conserving valuable resources; and creating jobs in the recycling and manufacturing industries.

In 2020, EPA updated the Recycling Economic Information (REI) Report<sup>1</sup> to increase the understanding of the economic implications of material reuse and recycling. The 2020 REI Report included updated information about the number of recycling jobs, wages and tax revenue (See Figure 10). The report showed that the recycling and reuse of materials creates jobs and also generates local and state tax revenues. The data from the most recent year available showed that in 2021, recycling and reuse activities in the United States accounted for: 681,000 jobs; \$37.8 billion in wages; and \$5.5 billion in tax revenues. This calculation equates to 1.17 jobs for every 1,000 tons of materials recycled. Ferrous metal provided the largest contribution to all three categories (jobs, wages and tax revenue), followed by C&D and nonferrous metals, such as aluminum.

Figure 10. Wages, Taxes and Jobs Attributed to Recycling



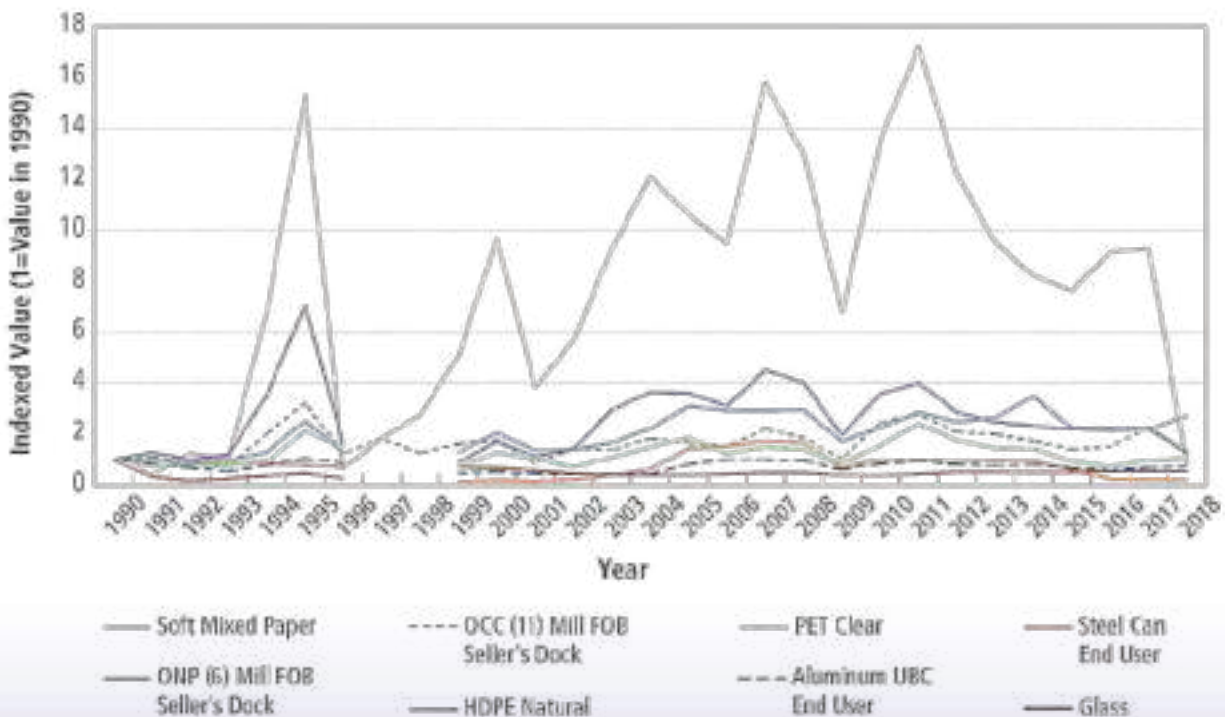
\* Yard Trimmings category includes kindlewood, biogas, compost, mulch and wood chips

## Recycled Commodity Values

Scrap<sup>2</sup> commodity markets set the price for materials that are being recycled, such as various types of paper or plastic. Manufacturers can realize cost, energy and environmental savings when scrap commodities are used as raw materials instead of virgin materials<sup>3</sup>. The prices for these markets are determined by the perceived value of the commodity and the relative supply and demand at any given point in time. This could provide insight on how municipalities or other organizations responsible for recycling may change their behavior to promote recycling practices and the resulting prices could be a driver toward the overall incentive to recycle across the country. This analysis focuses on the market set prices of a variety of postconsumer plastics, steel and aluminum cans, paper and glass, which represent a subset of all recycled commodity markets.

Figure 11 shows trends in commodity prices over time. It provides the indexed values by year for the following recycled commodities from 1990 to 2018: high-density polyethylene (HDPE) natural bottles; polyethylene terephthalate (PET) clear bottles; aluminum used beverage cans (UBC); steel cans; old newspaper (ONP) (grade 6 and 56); old corrugated containers (OCC) (grade 11); paper stock (PS) (grade 1 and 54) soft mixed paper; and glass containers. The values are normalized to 2018 using the Consumer Price Index (CPI) from the Bureau of Labor Statistics (BLS). They are indexed to allow commodity values with different metrics, such as dollars per ton, dollars per gross ton and dollars per short ton, to be shown on the same graph and to compare their relative rates of change. The indexed value indicates the change in value of the data since 1990, where one is equal to the value in 1990. For example, an indexed value of two would mean the commodity value for that year would be two times the 1990 value.

Figure 11. Indexed Recycled Commodity Values by Year



Source: Pulp & Paper Global Fact & Price Book, 2003-2004. Page 128. Paperloop, Inc. 2004. See endnotes for additional sources<sup>4</sup>

Figure 11 shows similar trends across all commodities for indexed values, where one is equal to the value in 1990. For example, all commodity values spiked in 1995, except steel cans, and dipped in 2009. Many commodities also experienced a price spike in 2000, 2007 and 2011. In contrast, the indexed lines for glass, aluminum and steel cans appear to fluctuate less frequently. Figure 11 also shows all paper grades (ONP, OCC and mixed paper) experienced a drop in 2018.

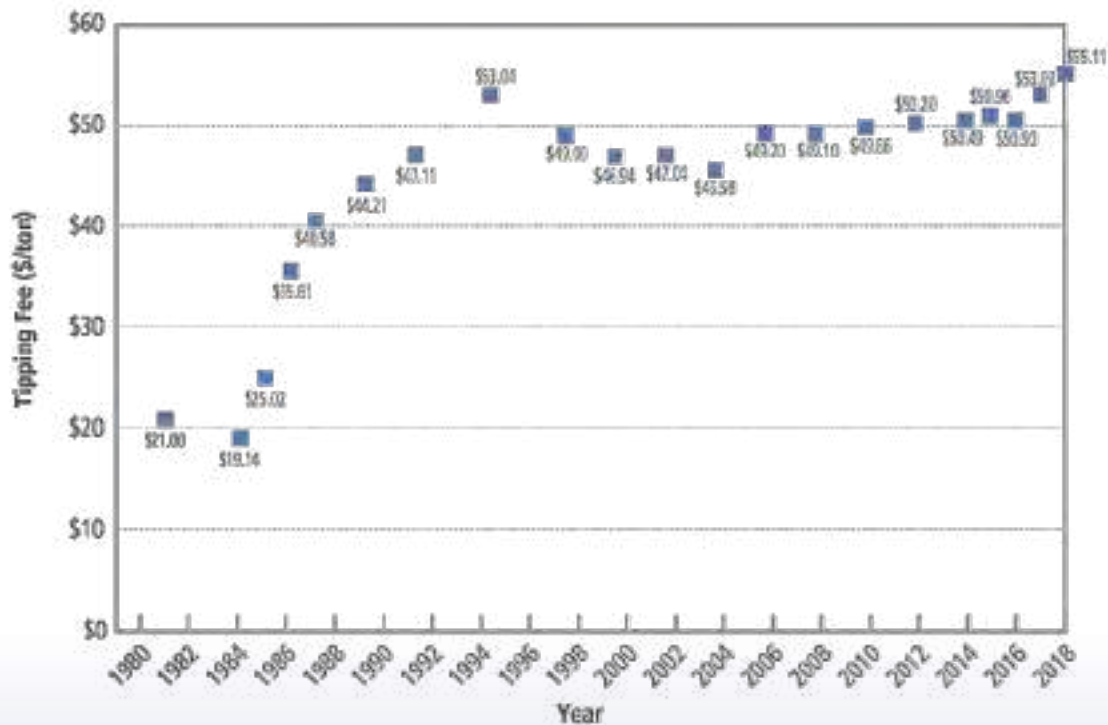
## Landfill Tipping Fees

Tipping fees are important to consider as they typically increase as landfill capacity decreases. For example, the average tipping fee in South Central states (\$34.80) with more available space for landfills (Arkansas, Louisiana, New Mexico, Oklahoma, Texas) is about half of the average in the Northeast (\$67.39).<sup>5</sup>

From 1985 to 1995, there was a rapid rise in national landfill tipping fees, followed by a steady decrease from 1995 to 2004. Since 2004, there has been a slow and steady average increase of about one percent per year in landfill tipping fees (See Figure 12). The tipping fees are expressed in constant 2018 dollars.

To allow for meaningful comparisons, national mean annual landfill tipping fees were normalized to the value of the dollar in 2018 using the Consumer Price Index (CPI) from the Bureau of Labor Statistics. This figure shows an average increase from 1985 to 1995 of \$3.39 per year, followed by a steady decrease of \$0.83 per year through 2004 and an average increase of \$0.68 per year from 2004 to 2018.

Figure 12. National Landfill Tipping Fees, 1982-2018 (\$2018 per ton)



Source: National Solid Wastes Management Association (NSWMA) Municipal Solid Waste Landfill Facts. See endnotes for additional sources<sup>6</sup>

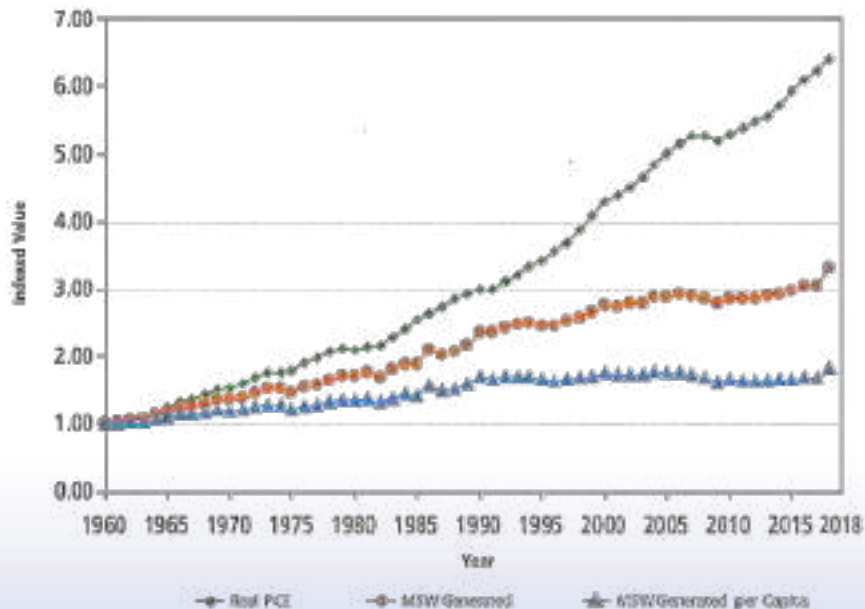
## MSW Generation and Household Spending

In the United States, the change in the amount of MSW generated typically mirrors trends in how much money households spent on goods and services. Personal Consumer Expenditures (PCE) measure household spending on goods and services such as food, clothing, vehicles and recreation services. PCE is one of the four components of economic growth, along with government spending, private investments and net exports. As PCE is an indicator of the household consumption of goods and services, which make up nearly 70 percent of the gross domestic product (GDP), PCE has a stronger conceptual tie to MSW generation than the other three GDP components. PCE adjusted for inflation is referred to as real PCE. This metric is more useful in making comparisons over time because it normalizes the value of a dollar by considering how much a dollar could purchase in the past versus today. Figure 13 explores the relationship between MSW generated and real PCE.

Figure 13 is an indexed graph, showing the relative changes in real PCE, MSW generated and MSW generated per capita over time. It is indexed to allow all three of these metrics to be shown on the same graph and to compare their relative rates of change since 1960. The indexed value indicates the change in the value of the data since 1960. For example, if, for a given year, the value was three, then the data value for that year would be three times the 1960 value. In this case, a 1960 value of 200 would mean the resulting year's value would be 600. The 2018 MSW per capita generation indexed value is 1.8, which means that MSW per capita generation has increased by 80 percent since 1960.

Figure 13 shows that real PCE has increased at a faster rate than MSW generation, and the disparity has become even more distinct since the mid-1990s. This index indicates that the amount of MSW generated per dollar spent is falling. In other words, the U.S. economy has been able to enjoy dramatic increases in household spending on consumer goods and services without the societal impact of similarly increasing MSW generation rates. This figure also shows that the MSW generated per capita leveled off in the early-to-mid 1990s.

**Figure 13. Indexed MSW Generated and Real PCE over Time (1960-2018)**



Source: See endnotes<sup>7</sup>

## MSW Methodology

The data summarized in this fact sheet characterizes the MSW stream as a whole by using a materials flow methodology that relies on a mass balance approach. EPA recognizes that there are several approaches to measuring material flows. To be consistent, EPA reports the quantities of materials in tons in the current fact sheet, but the Agency will continue to explore options for alternative measurement methodologies to describe materials management in the United States.

Using data gathered from industry associations, businesses and government sources, such as the U.S. Department of Commerce and the U.S. Census Bureau, EPA estimates the weight in tons of all MSW materials and products generated, recycled, composted, managed by other methods for food, combusted with energy recovery and landfilled. Other sources of data, such as waste characterizations and research reports performed by governments, industry or the press, supplement these data.

EPA has consistently used materials flow analysis to allow for the comparison of data over the last three decades. EPA recognizes that this methodology differs from other methodologies that also estimate the generation of MSW and other waste data. EPA will continue to work with stakeholders to identify methodologies and additional publicly available data to improve our national understanding of materials flow in the United States.

## Construction and Demolition (C&D) Debris Generation and Management Results

Construction and demolition (C&D) debris is a type of waste that is not included in MSW. Materials included in C&D debris are steel, wood products, drywall and plaster, brick and clay tile, asphalt shingles, concrete and asphalt concrete (asphalt pavement). These materials are used in buildings, roads and bridges, and other structures. The generation estimate represents C&D debris amounts from construction, renovation and demolition activities for buildings, roads and bridges, and other structures. C&D debris end-of-life (EOL) management includes quantities of materials going to next use or directed to landfills. "Next use" designates an intended next-use market which, depending on the material, may include fuel, manufactured products, aggregate, compost and mulch or soil amendment. The manufactured products next use encompasses estimates of C&D debris processed (e.g., ground, crushed or extracted and melted) for incorporation in the manufacture of new materials and products. For example, C&D asphalt is processed for use in the production of asphalt mixtures.

In 2018, 600 million tons of C&D debris were generated. Figure 14 shows the 2018 generation composition for C&D debris. C&D concrete was the largest portion at 67.5 percent, followed by asphalt concrete at 17.8 percent. C&D wood products made up 6.8 percent, and the other products accounted for 7.9 percent combined. The 2018 generation estimates are presented in more detail in Table 6. As shown in Figure 15, demolition represented over 90 percent of total C&D debris generation. Construction, on the other hand, represented under 10 percent.

Figure 14. C&D Debris Generation Composition by Material (before processing), 2018  
600 Million Tons

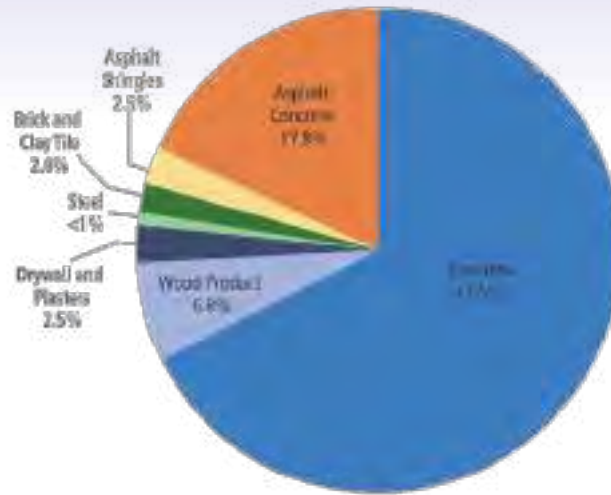


Table 6. C&D Debris Generation by Material and Activity, 2018 (in millions of tons)

	Waste During Construction	Demolition Debris	Total C&D Debris
Concrete	24.2	381.0	405.2
Wood Products <sup>7</sup>	3.4	37.4	40.8
Drywall and Plasters	3.9	11.3	15.2
Steel <sup>8</sup>	0	4.7	4.7
Brick and Clay Tile	0.3	12.0	12.3
Asphalt Shingles	1.2	13.9	15.1
Asphalt Concrete	0	107.0	107.0
<b>Total</b>	<b>33.0</b>	<b>567.3</b>	<b>600.3</b>

<sup>8,9</sup> See endnotes.

Figure 15. Contribution of Construction and Demolition Phases to Total 2018 C&D Debris Generation

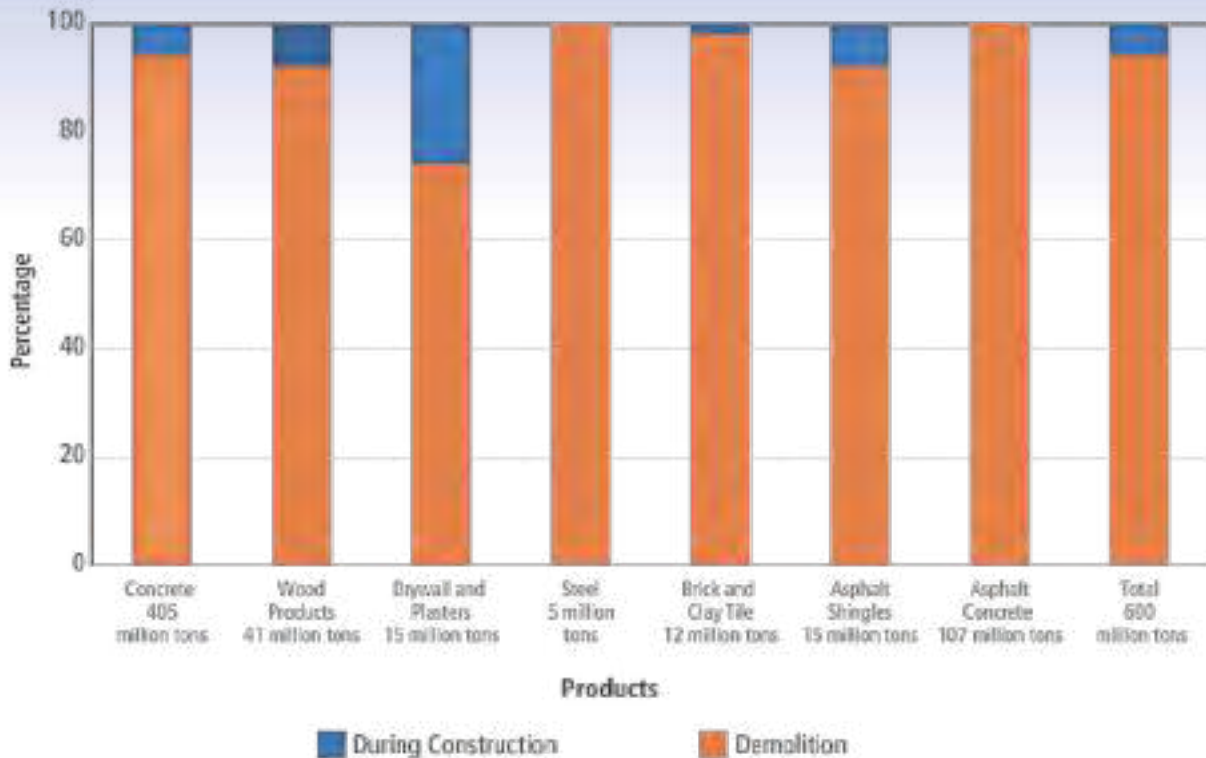


Table 7 displays the amount of C&D debris generation from buildings, roads and bridges, and other structures for each material. The “other structures” category includes C&D debris generation estimates from communication, power, transportation, sewer and waste disposal, water supply, conservation and development, and the manufacturing infrastructure. In 2018, roads and bridges contributed significantly more to C&D debris generation than buildings and other structures, and concrete made up the largest share of C&D debris generation for all three categories.

Table 7. C&D Debris Generation by Source, 2018 (in millions of tons)

	Buildings	Roads and Bridges	Other
Concrete	102.0	168.3	134.9
Wood Products <sup>7</sup>	39.5	0.0	1.3
Drywall and Plasters	15.2	0.0	0.0
Steel <sup>8</sup>	4.7	0.0	0.0
Brick and Clay Tile	12.3	0.0	0.0
Asphalt Shingles	15.1	0.0	0.0
Asphalt Concrete	0.0	107.0	0.0
<b>Total</b>	<b>188.8</b>	<b>275.3</b>	<b>136.2</b>

Figure 16 shows 2018 C&D debris managed through next use or sent to landfills. Aggregate was the main EOL next use for C&D debris at 52 percent. The total quantity of all C&D debris that was sent to aggregate was about 313 million tons. Concrete alone, was sent to aggregate at the quantity of about 301 million tons (see Table 8). The next largest end destination was landfill, at 24 percent of the total amount of C&D debris. The total quantity of all C&D debris that was sent to landfills was about 144 million tons. Over 71 million tons of concrete alone were sent to landfills (see Table 8).

**Figure 16. C&D Debris Management by Destination, 2018**  
600 million tons

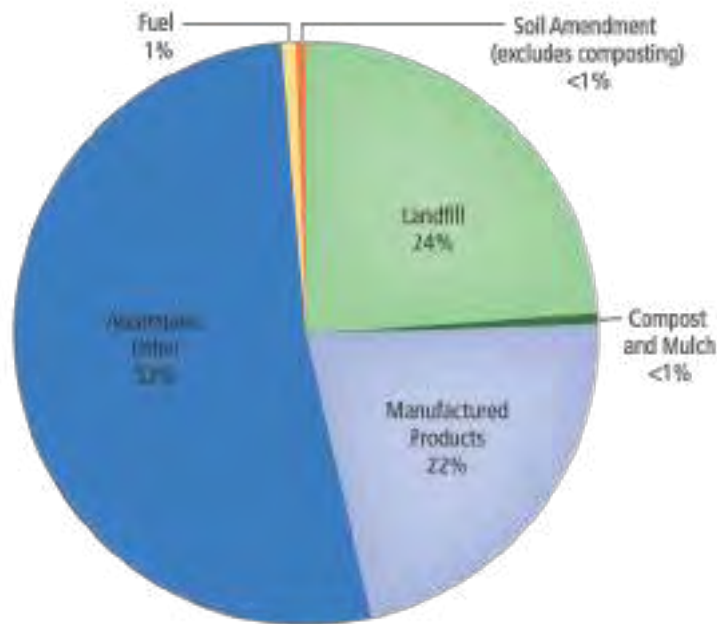


Figure 16 also shows that the “manufactured products” next use followed at 22 percent of the total generated C&D debris amount. The total quantity of all C&D debris that was sent to manufactured products was 132 million tons. About 92 million tons of C&D asphalt pavement alone, were incorporated in manufactured products (see Table 8). About 3 percent of the total C&D debris was directed to fuel, compost and mulch, and soil amendment (see Figure 16).

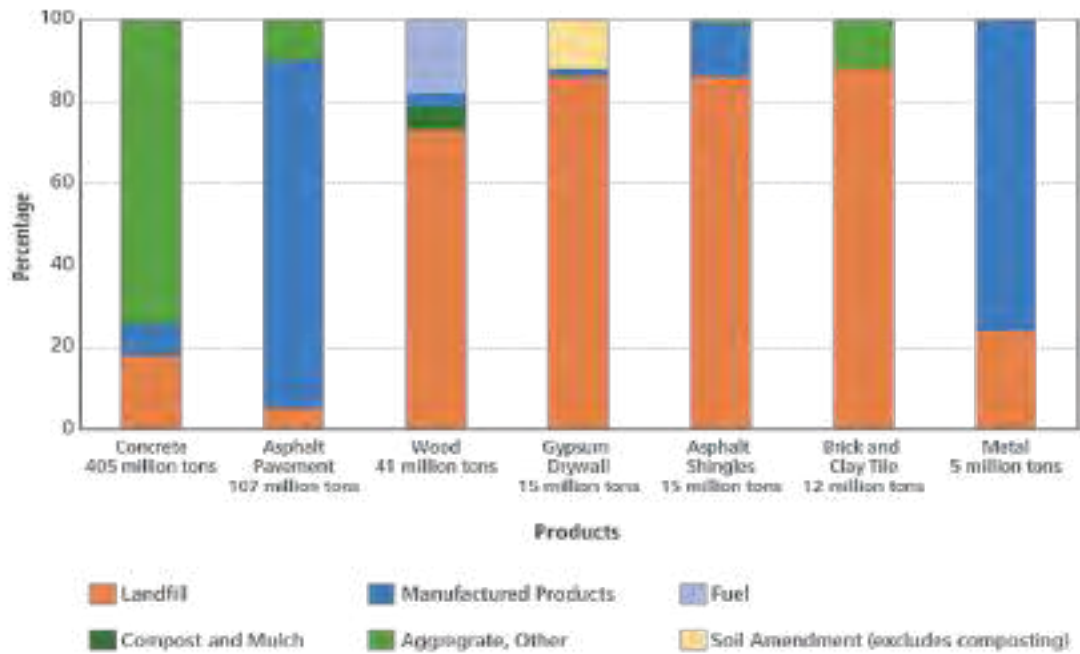
Table 8 is a summary of the total tonnages of each material type intended for next use destinations or sent to landfills. About 457 million tons were directed to next use and over 143 million tons of C&D debris were sent to landfills in 2018.

Figure 17 depicts quantities of a material in each destination as a fraction of the total generated amount for the material in 2018. The use in manufactured products was the dominant next use for asphalt concrete (asphalt pavement) and metals. Aggregate was the main destination for C&D concrete. Landfills were the primary destination for C&D debris wood, asphalt shingles, gypsum drywall<sup>10</sup> and brick and clay tile.

Table 8. C&D Debris Management by Material and Destination, 2018 (in millions of tons)

Material Type in C&D Debris	Landfill	Next Use					Total Next Use
		Compost and Mulch	Manufactured Products	Aggregate, Other	Fuel	Soil Amendment	
<b>Concrete</b>	71.2	0	32.8	301.2	0	0	334.0
<b>Wood</b>	29.6	2.5	1.2	0	7.5	0	11.2
<b>Gypsum Drywall</b>	13.2	0	.2	0	0	1.9	2.1
<b>Metal</b>	1.1	0	3.6	0	0	0	3.6
<b>Brick and Clay Tile</b>	10.8	0	0	1.5	0	0	1.5
<b>Asphalt Shingles</b>	13.0	0	2.0	.1	.02	0	2.1
<b>Asphalt Concrete</b>	4.9	0	91.8	10.3	0	0	102.1
<b>TOTAL</b>	<b>143.8</b>	<b>2.5</b>	<b>131.6</b>	<b>313.1</b>	<b>7.5</b>	<b>1.9</b>	<b>456.6</b>

Figure 17. C&D Debris Management by Destination, 2018 (percent of total generation amount for the material)



## Resources

The 2018 data tables and the summary of the MSW characterization methodology are available on the EPA website, along with information about waste reduction, recycling and sustainable materials management.

Please visit:

<https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling>

<https://www.epa.gov/warm>

## Endnotes

1. US EPA. 2020. "Recycling Economic Information Report" (2020). The 2020 REI report provided updated economic and recycling information to reflect the most recent available data for input-output modeling in the United States. The 2020 report built on the Waste Input-Output methodology by generating more current results based on transparent and publicly available data. This revised study provides greater clarity and transparency for assessing the economic impacts of recycling activities in the U.S.
2. Scrap can refer to both postconsumer as well as pre-consumer commodities; however, this analysis addresses postconsumer commodities only.
3. Institute of Scrap Recycling Industries (ISRI) 2020. 2019 Recycling Industry Yearbook. <https://www.isri.org/recycling-commodities/recycling-industry-yearbook>.
4. Recycled Commodity Values. Soft mixed paper consists of a clean, sorted mixture of various qualities of paper not limited as to type of fiber content. Prohibitive Materials may not exceed 1 percent. There are specific limits on the percent of contaminants allowed in soft mixed paper. Data were not available for ONP, metals, plastics and glass in 1997 and 1998. For plastics, glass and metals, there was a transition in data sources between 1996 and 1999 and between 2004 and 2005, so some of the change between years could be due to the methodology of the data source for capturing data.  
Additional sources include Secondary Materials Pricing and Secondary Fiber Pricing. 2003-2018. Accessed February 2020. Available at <http://www.recyclingmarkets.net/>. 1970 to 2004 historical data tabulated from weekly or monthly industry publications and averaged annually during the time periods shown. Publications included Waste Age Recycling Times, Waste News, Paper Recycler, Miller Freeman, Inc.
5. Waste 360. 2018. "EREF Study Shows Continued Increase in Average MSW Landfill Tip Fees". August 1. <https://www.waste360.com/landfill-operations/eref-study-shows-continued-increase-average-msw-landfill-tip-fees>
6. Sources include National Solid Wastes Management Association (NSWMA) Municipal Solid Waste Landfill Facts. October 2011 (Data from 1985 to 2008). Waste Business Journal. "The Cost to Landfill MSW Continues to Rise Despite Soft Demand." July 11, 2017 (Data for 2010 to 2015). Environmental Research & Education Foundation. "Analysis of MSW Landfill Tipping Fees" April 2018 (Data for 2016 and 2017). Waste 360. "EREF Study Shows Average MSW Landfill Tip Fee Continues to Rise". October 29, 2019. (Data from 2018).
7. MSW Generation: US EPA. 2020. Solid Waste in the United States: 2018 Facts and Figures working papers. Population: U.S. Census Bureau. Population Division. Annual Estimates of the Resident Population. PCE: Bureau of Economic Analysis (BEA). 2019. Tables 2.3.4 and 2.3.5.
8. Wood consumption in buildings also includes some lumber consumed for the construction of other structures. Data were not available to allocate lumber consumption for non-residential and unspecified uses between buildings and other structures except for railroad ties. Since non-residential buildings such as barns, warehouses and small commercial buildings are assumed to consume a greater amount of lumber than other structures, the amount of lumber for construction remaining after the amount for railroad ties is split out is included in the buildings source category.
9. Steel consumption in buildings also includes steel consumed for the construction of roads and bridges. Data were not available to allocate steel consumption across different sources, but buildings are assumed to consume the largest portion of steel for construction.
10. Names of the materials are slightly different in the generation versus management analyses, due to material categorizations across the various data sources and data availability. For example, in the generation analyses the term used is drywall and plasters, whereas in the management analysis the term used is gypsum drywall.



United States Environmental Protection Agency  
Office of Land and Emergency Management (5306P)  
Washington, DC 20460

Official Business

Penalty for Private Use \$300

EPA 530-F-20-009

December 2020