

# DRIVING CHANGE

2018 Sustainability Report

Think Green,  
Think Clean.

We run on clean burning natural gas.

wm.com



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WM  
WASTE MANAGEMENT  
THINK GREEN

NOT GLY  
BROWARD



CHANGE IS INEVITABLE.  
MANAGED WELL, IT RESULTS IN PROGRESS.  
BY CHOOSING TO DRIVE THIS PROCESS, WE HELP ENSURE

# CHANGE FOR THE BETTER



## BETTER COMPANY

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# BETTER COMPANY

THOUGHTFUL, FOCUSED AND RESILIENT  
AMID A CHANGING INDUSTRY.



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# CEO MESSAGE

**Jim Fish**

President and Chief Executive Officer

**The world is changing more rapidly than ever. To sustain and succeed in the face of this change requires agility, adaptability and, above all, a resilient spirit. We see these qualities tested *and* proven countless times daily by our employees who manage the environmental needs of our customers.**

And in 2017, we found these qualities tested as our organization managed — and prevailed over — challenges, including a series of natural disasters and a seismic change in the recycling industry. Waste Management's resilience has enabled us to adapt and propel our business forward.

## Uniting in the Face of Natural Disaster

In the summer of 2017, we were humbled by nature's wrath in Texas and Florida where we have thousands of employees, millions of customers, and extensive operations. Then, fires and floods in the Western U.S. and Canada further tested the relationship between our communities and Mother Nature. As these disasters disrupted lives and businesses, resiliency, community and mutual support were headlines as our company and our neighbors came together.

**Waste Management's resilience has enabled us to adapt and propel our business forward.**

Fortunately, no Waste Management employees were injured in hurricanes Harvey and Irma, but many were affected by damage. Our strategy was simple: take care of employees first and then help customers. In Texas, and in particular Houston where our corporate offices are located, the storm impacted every employee

in some way and displaced 135 of them with their families. Yet, within a week, we were back on the streets of Houston providing vital environmental services.

The story was similar in Florida, where hurricane Irma destroyed several of our facilities in Key West, but we were back on the streets in most parts of the state within 48 hours of the storm. Again, we were grateful that all employees were safe, though 260 of them needed assistance from our Employees Care Fund.

I could not have been prouder of our employees' response to each other and to the needs of their communities and customers. Our agility and adaptability in these difficult situations reflected not only the commitment of our employees, but also years of careful planning. That planning includes resiliency plans for each of our facilities that are customized for each region.



## Driving Change in an Evolving Recycling Industry

Also in the summer of 2017, our recycling world began to turn upside down. For many years, China borrowed from the environment to fuel their economic growth. Once again, we were reminded of the connection between environment and economics, and how important it is to not take advantage of one at the expense of the other. China simply could not ignore its environment any longer and began to implement a series of policies that ultimately impacted the global recycling industry.

As the largest residential recycler in the U.S., and the seventh largest exporter of any commodity, Waste Management was impacted significantly by these import limitations. For perspective, in 2017, we exported 27 percent of our recycling tons to China and by the end of 2018, we were not sending any residential recyclables to China. Once again, planning and foresight helped us adapt quickly. Waste Management has in recent years begun to develop new markets for mixed paper and plastics, both domestically and around the globe. This advance planning helped insulate the company from the most severe impacts of China's import restrictions.

We are mindful, however, that we are not alone — we need a vibrant and sustainable global market. We are doing our part to drive needed change in recycling by encouraging all stakeholders to rethink recycling. This starts by remembering that recycling is not simply about landfill diversion. It is about product transformation and reuse, and it's about real environmental and resource conservation benefits. Today, recycling must be part of a sustainable materials management model — one that carries a cost of service and serves as feedstock to the manufacturing sector.

With this perspective, Waste Management, and the entire industry, can shift our focus from recycling everything just for the sake of "recycling," to recycling the right things well to ensure optimal environmental and economic outcomes. It's a big change in mindset, but a necessary one to ensure continued resilience and success in a dynamic and evolving marketplace.

## Investing in the Future Now

Disruption also can be a powerful positive force. Today, we're seeing how the disruptive power of technology can test our adaptability while enhancing customer centricity, operational efficiency and carbon reduction. Waste Management has long been an industry leader in technology investments, and the past year was no exception. Our investments included:

- Placing our first robot in a recycling facility located in Houston. Robotics at recycling facilities can help with quality control, and also enhances worker safety.
- Purchasing a new generation of natural gas collections trucks with engines that reduce emissions to "near zero." These new engines improve air quality in the communities in which we operate.
- Producing and using more of our own low-carbon fuels in our natural gas trucks. An early leader in the production of renewable natural gas from landfill biogas, we now have four facilities producing renewable transportation fuel at our landfills. This means 6,500 route trucks are running on natural gas, 32 percent of which run on renewable natural gas, which reduces the emissions from these trucks by over 90 percent.

- Testing the use of on-board cameras and computer technology to provide customers with immediate recycling quality feedback through photos, emails and even phone calls — all with the hope of improving the quality of recyclables collected and reducing contamination.
- Deploying CORE® technology to reduce the environmental impacts of urban food waste. Waste Management's CORE® technology increases the renewable energy output of wastewater treatment facilities by 50 to more than 100 percent.

We provide a service that is as old as the planet, but we rely more and more on technology. These and other technology investments are critical to ensuring that our strategy is always future focused, making us better at what we do and equipping us to adapt in a changing world.

In 2017, our GHG-reducing  
services saved over  
**3X**  
the total GHG emissions Waste  
Management's operations  
generated all year.

### Aiming Higher with New Goals

As we have publicly advocated in recent years, it's time for the recycling industry to focus on GHG emissions reduction as the life cycle goal of waste and materials management programs. Matching words to action, we have set ambitious new goals for our business. Over the next 20 years, we intend for our waste solutions and services to result in an overall reduction of GHG emissions four times greater than generated by our own operations. In 2017, that ratio was three. Our journey to four will be supported by two additional goals: reducing fleet emissions by 40 percent through renewable fuel use in our growing fleet of natural gas vehicles; and collecting two million more tons of recycled materials to offset emissions associated with raw material use by 20 percent.

Just as we have revisited our sustainability goals in 2018, we expect that many of our customers will do the same — and we are prepared to support them however they need, whether by devising processes to generate less waste or implementing more community recycling services.

Although our business is shaped by global economics, we never forget that the services that we provide are local. Our communities have their own definitions of sustainability, and our goal is to provide them the information they need to make smart choices. From recycling education programs and organics handling services, to preserving what can be reused, we will provide services that reflect customer needs — and empower them to steer their choices toward environmental and community stewardship.

Not only managing change, but driving it remains our focus for ourselves and those we serve.

Respectfully,

**Jim Fish**

President and Chief Executive Officer



# Waste Management

## AT-A-GLANCE

(as of and for the year ended December 31, 2017)

Waste Management, Inc. (NYSE: WM), based in Houston, Texas, is the leading provider of comprehensive waste management environmental services in North America.

### \$17.2M

total donated in charitable giving



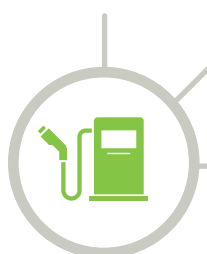
**GIVING**

### \$1.9M

in-kind services

### 6,536

alternative fuel vehicles



**ENERGY**

### 107

natural gas fueling stations

### 127

landfill gas-to-electricity facilities

### 42.3K

employees

### 305

transfer facilities



**OPERATIONS\***

### 20M

entities served

### 90

wildlife habitat programs

### 38

pollinator programs

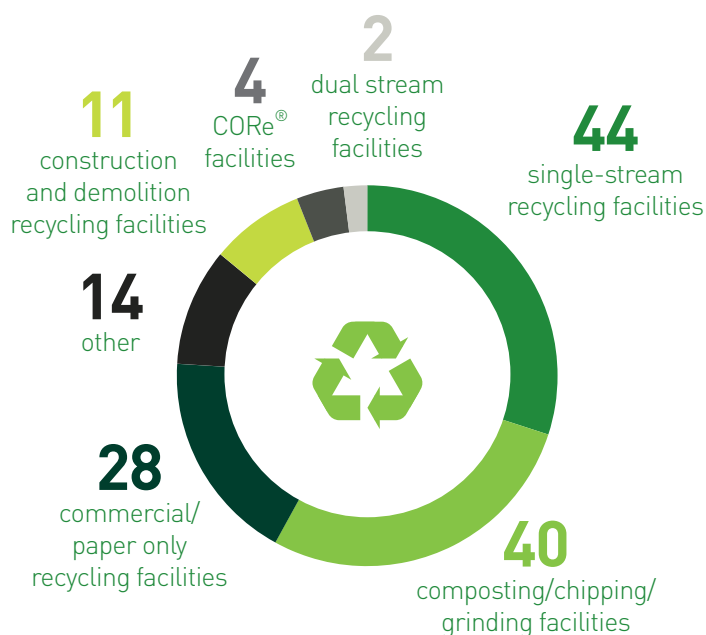
### 20K

acres of certified habitats



**CONSERVATION**

### RECYCLING



### FINANCIALS



## \$14.5B Total Revenue

### LANDFILLS



# MIX OF SERVICE

**Disclosure and reporting can lead to consensus across our industry about how to better inform the public of the kinds of services provided by waste and recycling companies.**

Over the past several years, Waste Management has engaged with the Sustainability Accounting Standards Board (SASB) on consensus means to inform the public of the kinds of service provided by the waste and recycling segment of the Infrastructure Sector. Waste Management supports this effort to improve the transparency and utility of sustainability reporting. In this vein, we have replaced our previous “Mix of Business” reporting distinguishing forms of “green” service and instead provide the breakdown of services provided and materials handled per customer type that SASB recommends.

Waste Management serves 20 million customers each year. For obvious reasons, our curbside recycling and disposal services have the largest number of individual customers, 18.3 million. We also serve 1.2 million commercial and industrial customers ranging from small businesses to global enterprises. We serviced 2,645 municipal contracts in 2017.

## Mix of Service by Customer Category

(number of customers)

■ Residential:	18,300,000
■ Commercial:	1,005,671
■ Industrial:	199,988
■ Other:	174,050
■ Municipal:	2,645





# GOALS & PROGRESS

**Since 2007, we have been working toward a set of goals to achieve by 2020, all designed to position Waste Management as the leader in environmental services, reduce our overall impact on the environment and differentiate us from competitors. Since then, we're proud to say significant progress has been made.**

On our journey toward those 2020 goals, the recycling market has changed around us, as has our business strategy. We've taken a hard look at recalibrating our goals based on environmental burden-reduction attributes such as energy or emissions reductions, in particular greenhouse gas (GHG) reductions. We want to clearly communicate the environmental benefits our services provide.

## Waste Management Sustainability Goals 2010-2038

### 1. ENVIRONMENTAL GOAL

Waste Management will offset four times the GHG emissions we generate through our operations by 2038.

In 2017, the services that Waste Management provided offset the emissions of our own operations by three times. Waste Management's new goal, a jump from three times to four, will require us to decrease the emissions from our operations while increasing the emissions-reduction services we provide for ourselves and our customers.



### Emissions Reduced

- › **Fleet and fuel:** Waste Management will emit fewer emissions through our operations by transitioning from diesel to alternative fuel vehicles in 90 percent of our entire fleet. We will use renewable fuel in over 90 percent of our vehicles. Our goal of emitting fewer emissions requires an investment in a Near Zero fleet. Over 90 percent of our fleet purchases are “NZVs” (Near Zero Vehicles), which will allow us to reduce emissions associated with our fleet 45 percent by 2038, against a 2010 baseline.
- › **Facilities:** Waste Management will continue to improve energy efficiency at our facilities, reducing our own emissions throughout our systems.

### Emissions Avoided

- › **Production of renewable energy:** Waste Management will avoid emissions by capturing methane at our landfills for use by third parties as renewable electricity and renewable fuel.
- › **Recycling:** Waste Management will increase avoided emissions by recycling materials for the greatest environmental benefits.

## 2. COMMUNITY GOAL

Waste Management will help make communities in which we live and work safe, resilient and sustainable.

Though our operations span 20 million customers in the U.S. and Canada, we are very much a local business that is an integral part of the communities we serve. We want to help make our communities, cities, towns and counties better places to work and live — today and for the future. To do so, we support events, programs and organizations that are as varied as the thousands of communities and individuals we serve.

We concentrate on initiatives that enhance our environment, promote education and improve the livability of our communities. Focus areas include:

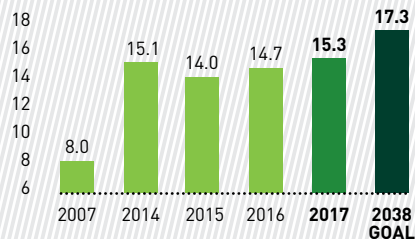
- › Projects that reduce environmental impacts, including beautification and litter control efforts
- › Providing environmental education and outreach
- › Support of wildlife preservation efforts
- › Support of safe neighborhood programs
- › Support of a variety of charitable giving projects



## Waste Management Sustainability Goals — 2010-2038 (cont.)

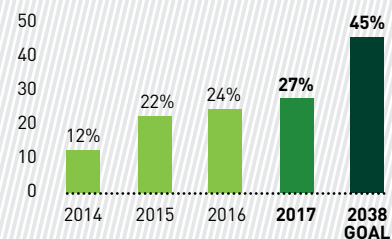
### Recyclables Managed

(MTCO<sub>2</sub>e avoided)



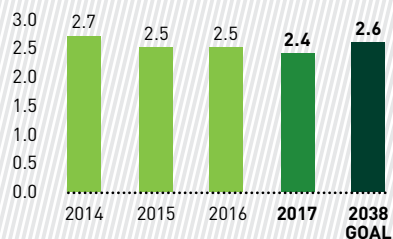
### On-Road Fleet Emissions Reductions

(percent reduction in MTCO<sub>2</sub>e emissions)

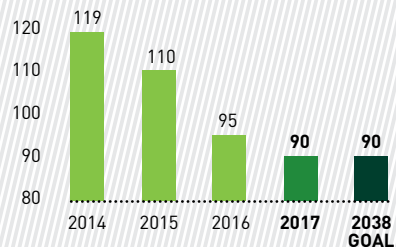


### Waste-Based Energy Production

(MTCO<sub>2</sub>e)

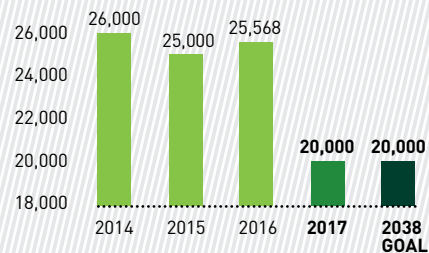


### Number of Wildlife Habitat Programs



Numbers reflect both "Lands for Learning" projects and specific habitat sites. Note that in 2017, the WHC program was revised to emphasize site quality and impact rather than quantity. Our program has taken that approach as well.

### Number of Acres Protected

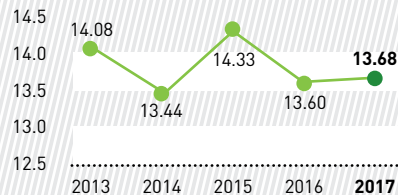


Our WHC partner has changed its emphasis from acreage to site quality and impact of project, and we are shifting our goal accordingly.

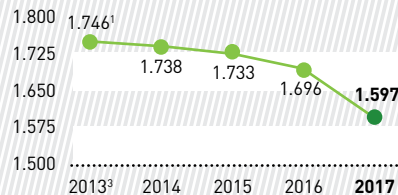
## 2017 Sustainability Key Performance Indicators

### GHG EMISSIONS ASSOCIATED WITH OPERATIONS (MMTCO<sub>2</sub>e)<sup>1</sup>

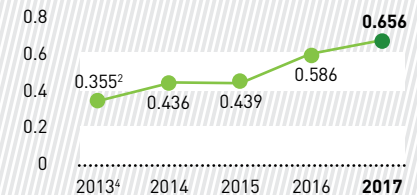
#### Process<sup>2</sup>



#### Transportation<sup>3</sup>

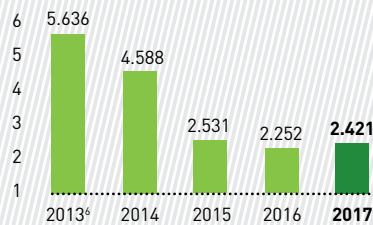


#### Energy Use

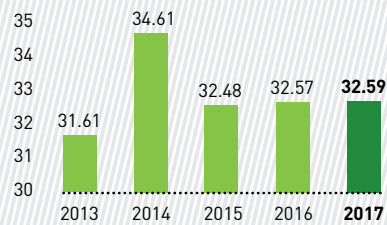


### AVOIDED GHG EMISSIONS (MMTCO<sub>2</sub>e)<sup>4</sup>

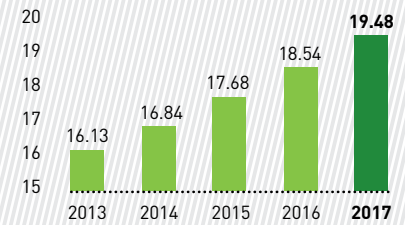
#### Renewable Energy Generation



#### Recycling of Materials<sup>5</sup>



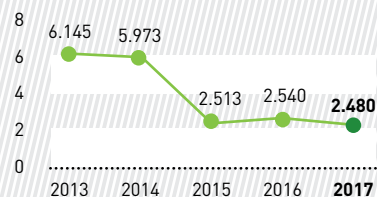
#### Carbon Permanently Sequestered<sup>6</sup>



Reflects the impact of our 2014 divestiture of the Wheelabrator waste-to-energy business.

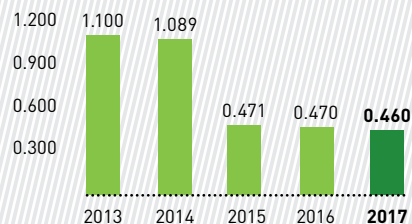
### WASTE-BASED ENERGY BENEFITS (EQUIVALENTS)<sup>7</sup>

#### Tons of Coal Equivalent



#### Waste-Based Energy Production

(million households)



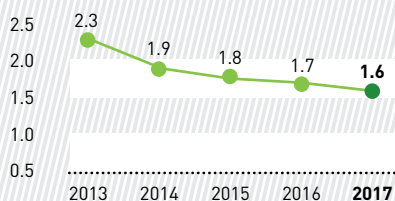


## Sustainability Key Performance Indicators (cont.)

### RESOURCE SAVINGS ACHIEVED THROUGH RECYCLING

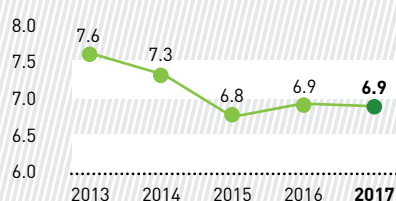
#### Household Energy Equivalent

(in millions)



#### Cars Off Road

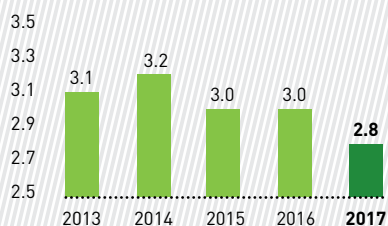
(in millions)



### SAFETY PERFORMANCE

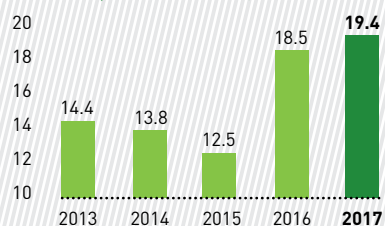
#### Total Recordable Injury Rate

(incidents per 100 employees)



#### Vehicle Accident Recordable Rate

(driver hours without a vehicle accident, in thousands)

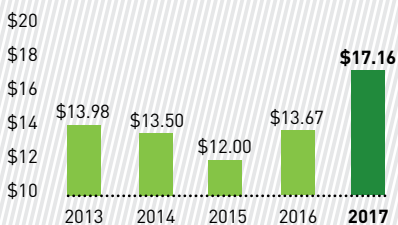


2016 and 2017 adjusted to exclude "Other Vehicle Initiated Impact" incidents.

### PHILANTHROPY

#### Charitable Giving

(in millions)



## Key Performance Indicator Footnotes

- 1 Since 2013, we have used the modified 100-year global warming potentials (GWPs) promulgated by the U.S. EPA. Pertinent to our carbon footprint, our Scope 1 and 3 emissions calculations use the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (FAR) GWP, and our Scope 2 emissions from purchased electricity use the IPCC Second Assessment Report (SAR) GWP.
- 2 Process emissions come from our landfills. The amount of landfill gas that is collected can be measured, the amount of landfill gas generated, and the amount emitted to the atmosphere as fugitive emissions must be estimated using prescribed calculation methodologies. The applicable methodologies are the Solid Waste Industry for Climate Solutions (SWICS) Protocol and the U.S. EPA Greenhouse Gas Reporting Program (GHGRP) rules. Our landfill footprint includes estimated emissions from both active and closed facilities.
- 3 Our methodology for calculating fleet efficiency conform to U.S. EPA's SmartWay Truck Tool. SmartWay calculations use records compiled for tax credit and fee purposes. The tax documentation reflects fuel purchased in a year, including some insignificant amounts of fuel stored rather than used in a given year.  
  
Note that our transportation emissions reported here include those from both our collection fleet and our noncollection "yellow iron" (i.e., off-road equipment such as forklifts and excavators) used on site. A small amount of fuel in this category is used for nontransportation purposes (e.g., running emergency generators or barbeque grills on site), but we do not subtract these from our transportation totals.
- 4 We are reporting these data to inform our customers and the public about the potential GHG reduction benefits associated with carbon storage in landfills, our renewable energy production and the value of the recyclable materials we collect and process. We are not presuming to characterize how emerging regulatory programs will allocate credit for these avoided emissions, so we do not claim these GHG reduction benefits as our own nor attempt to deduct these reductions from our carbon footprint.
- 5 In our calculations, we assume that, by recycling and composting, we divert materials from our modern WM landfills with landfill gas-to-energy capacity. If instead our recycling and composting were to divert materials from the "national average landfill" from the EPA WARM model, the emissions reductions achieved by recycling and composting would 36,091,771 MTCO<sub>2</sub>e in 2017. Note also that the increase in emissions reductions realized by recycling does not correspond arithmetically to the increase in total tons recycled. That is because, for example, paper recycling (80% of all recyclables) achieves very high emissions reductions, while the emissions reduction potential associated with glass recycling (20% of recyclables) is nominal on a per ton basis. For a discussion of the protocols that govern this calculation of carbon storage or sequestration, see [page 160](#) of the Appendix.
- 6 For a discussion of the protocols that govern this calculation of carbon storage or sequestration, see [page 160](#) of the appendix.
- 7 Tons of coal equivalent is calculated based on the equivalent number of households that could be powered by waste-based energy production. Note that standard industry assumptions about household energy use differ for the waste-to-energy and landfill gas-to-energy sectors: Standard waste-to-energy reporting is 1,000 households per installed megawatt, while the household conversion for landfill gas-to-energy is based upon U.S. Energy Information Administration data that is updated yearly. Our calculation does not include wind or solar energy because we don't own the energy.

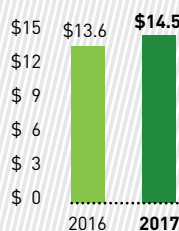
# ECONOMIC IMPACT

2017 was in many ways the best year ever for Waste Management, returning \$1.5 billion to shareholders. This performance is a strong platform from which to spend resources to make long-term advancement on recycling technology and equipment, fleet efficiency and emissions reduction, and investment in our employees.

“Looking at the full year, 2017 was exceptional for Waste Management as our continued focus on improving core price, adding profitable volume in a disciplined manner and controlling costs led to arguably the best year in the company’s history.”

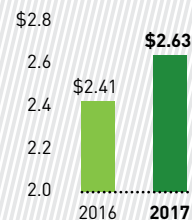
Jim Fish, President and CEO

## Revenue (in billions)



Revenues grew 6.4 percent, our largest increase in revenue dollars since 1998

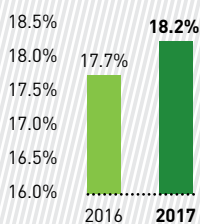
## Adjusted Income from Operations<sup>1</sup> (in billions)



Adjusted income from operations grew more than 9 percent

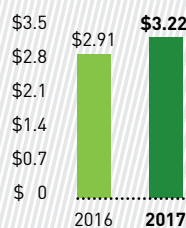


### Adjusted Operating Margin<sup>1</sup>



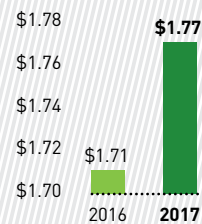
Adjusted operating margin increased 50 basis points.<sup>2</sup>

### Adjusted EPS<sup>1</sup>



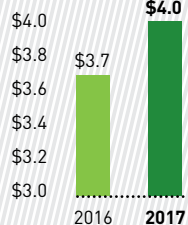
Diluted earnings per share increased more than 10 percent.

### Free Cash Flow<sup>1</sup> (in billions)



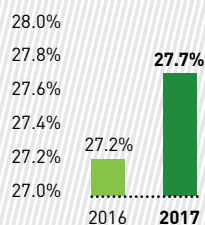
Free cash flow increased \$60 million year-over-year.

### Adjusted Operating EBITDA<sup>1,3</sup> (in billions)<sup>1</sup>



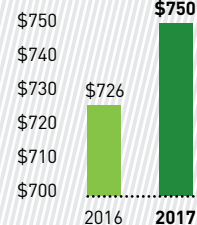
Operating EBITDA exceeded \$4 billion.

### Adjusted Operating EBITDA Margin<sup>1,3</sup>



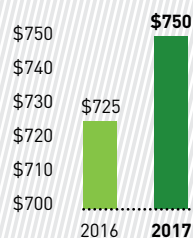
Adjusted operating EBITDA margin increased 50 basis points.<sup>2</sup>

### Cash Dividends (in millions)



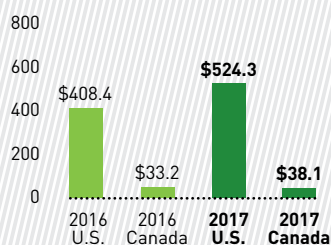
Cash dividends paid to shareholders were up 3.3 percent.

### Share Repurchases (in millions)



In 2017, we returned approximately \$1.5 billion to shareholders through dividends and share repurchases.

### Income Taxes Paid (in millions)

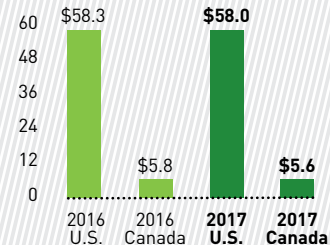


<sup>1</sup>Non-GAAP measures. Please see [pg. 137](#) in the Appendix to this report for additional information and a link to reconciliations of these measures.

<sup>2</sup>A basis point is one-hundredth of 1 percent.

<sup>3</sup>Operating EBITDA is defined as income from operations before depreciation and amortization.

### Real Estate Taxes Paid (in millions)



# AWARDS & RECOGNITION



## CORPORATE AWARDS



**World's Most Ethical Companies:**  
The Ethisphere Institute 11 of the past 12 years



**CDP (formerly Carbon Disclosure Project):** Reporting since 2004



**DJSI North American and/or World Indices:** 13 of the past 16 years



**Climate Disclosure Leadership Index:** 11 consecutive years



**CDP A-List:** 2016 and 2017



**Dow Jones Sustainability Index S&P 500 Commercial Services & Supplies Sector Leader:** 2018



## CORPORATE SUSTAINABILITY

- › **100 Best Corporate Citizens:**  
Corporate Social Responsibility Magazine 2015-2018
- › **Change the World:**  
Fortune Magazine 2015
- › **FTSE4 Good Index Series:** 2011-2018

- › **Euronext Vigeo World 120 Index:**  
2012-2015
- › **Ecovadis:**  
Silver (2017), Bronze (2016, 2018)



## ENVIRONMENTAL

- › **Green Fleet Leadership Award:**  
Chicago Area Clean Cities Coalition, 2017
- › **Education Excellence Award:**  
Youth Education Program, Washington, Solid Waste Association of North America (SWANA), 2017
- › **Governor's Environmental and Economic Leadership Award:**  
Davis Street Transfer Station, California EPA, 2017
- › **Environmental Gold Leader:**  
Awarded to the Denver Arapahoe Disposal Site, Denver; Colorado Department of Public Health and Environment's Environmental Leadership Program, 2017
- › **Frank Condon Award:**  
Environmental Federation of Oklahoma, 2017



## WORKPLACE

- › **"Best for Vets" Employer:**  
Military Times 2010-2018
- › **"Best Place to Work," Corporate Equality Index Score 90+:**  
Human Rights Campaign 2011-2017; Corporate Equality Index Score 80, Human Rights Campaign, 2018
- › **Best Companies to Work for Millennials (Top 100):** Women's Choice 2018
- › **America's Best Places for Latinos to Work:** Hispanic/Latinos Professional Association (HLPAA) 2017
- › **Top Military Friendly® Employer:**  
GI Jobs 2010-2018
- › **Military Friendly Diversity Program:**  
GI Jobs, 2018
- › **Top Military Friendly:**  
Canada Company's Military Employment Transition (MET) 2017
- › **Top Military Spouse Employer:**  
Canada Company's Military Employment Transition (MET) 2017
- › **50 Best Companies to Sell For:**  
Selling Power Magazine



## COMMUNITY

- › **Corporate Conservation Leadership Award:** Wildlife Habitat Council, 2017
- › **Carolyn Crayton Award:** Keep America Beautiful, 2017 — Awarded to employee Buford Clark
- › **Community Partner of the Year:** Wildlife Habitat Council 2015
- › **Corporate Lands for Learning of the Year:** Wildlife Habitat Council 2015
- › **Community Partner Award:** Grass Valley Chamber of Commerce 2017
- › **Simi Valley Education Foundation Legacy Award:** Simi Valley Education Foundation 2017



## BUSINESS RECOGNITION

- › **Supplier of the Year Services Award:**  
BASF 2015
- › **Excellence in Job Creation and Major Investments:** Le Conseil des entreprises en technologies environnementales du Québec (CETEQ) 2017
- › **Business of the Year:** Chamber of Commerce, Okeechobee County, 2017
- › **Award of Appreciation:** Nevada City Chamber of Commerce, 2017



# REPORTING & MATERIALITY



**As North America's leading provider of comprehensive waste management services, our mission is to maximize resource value while minimizing impact to further both economic and environmental sustainability for all our stakeholders.**

Transparency is an important part of this mission. Accordingly, we are committed to consistent public disclosure and discussion of our own progress through the publication of a sustainability report every two years. In off years, we update key data and content to the most recent full year.

Our last comprehensive report was published in 2016 with available data and key discussion items updated in 2017. Generally, this report covers subject matter for 2017 and early 2018 for Waste Management's wholly owned operations, all of which are located in North America. All data is for the year ended December 31, 2017, except where noted. Notes on the scope of the data, including changes to methodology from the prior reporting period, are included either with charts or in footnotes. This report has been prepared in accordance with Global Reporting Initiative (GRI) Standards: Core Option.

In addition, this year we are piloting the use of the 2017 draft Sustainability Accounting Standards Board (SASB) metrics for the waste and recycling component of the Infrastructure sector. We provide an index cross-referencing those indicators. We also provide an index cross-referencing the United Nations Sustainable Development Goals (UNSDG) in support of these global reporting systems attempting to increase focus on sustainable practices.

## Assurance

We currently do not seek external assurance for all elements of this report. Our 2017 GHG emissions inventory has been assured by Lloyd's Register Quality Assurance Ltd. The inventory includes direct (Scope 1 and 2) emissions and indirect (Scope 3) GHG emissions from the following sources:

- › Purchased goods and services
- › Capital goods
- › Fuel- and energy-related activities (not included in Scope 1 or Scope 2)
- › Business travel
- › Employee commuting
- › Downstream leased assets

The complete assurance statement is available as part of our [CDP filing](#).

## Materiality

The content of this report has been compiled and organized based upon insights from a materiality assessment conducted by an internal team. This team is charged with ongoing stakeholder engagement, including participation in key business and multistakeholder organizations listed in the [Appendix](#) of this report, media relations, disclosure of sustainability information for sales and marketing purposes, and completion of sustainability survey requests. The materiality process involved four steps:

- › Identification of potential material topics by reviewing GRI aspects, benchmarking against key corporate peers and analyzing past Waste Management reports, which themselves have been amended over time to reflect feedback from customers, community representatives, employees and nongovernmental organizations (NGOs).
- › Inventory of aspects and topics most important to external stakeholders, primarily NGOs and customers and their supply chain vendors, based upon requests, surveys and ongoing engagement since the last reporting period.
- › Survey of internal stakeholders, which included more than 40 cross-functional directors and subject matter experts, to determine which topics impact our business most. Participants were queried about topics most likely to trigger impacts over the next five years and over which Waste Management is able to exercise control.
- › Normalization and ranking of results from internal and external stakeholders determined by breaking scores into quintiles for scoring purposes by an independent statistician.

In 2017, we supplemented our earlier materiality review and annual review of topics covered by customers and investors by surveying the sustainability goals and metrics of our top 60 customers to determine any data needs that were unaddressed. In addition, we engaged significantly with the Sustainability Accounting Standards Board (SASB) as it developed consensus reporting standards for the infrastructure sector. We believe this effort to enhance the transparency and utility of our sector's reporting was productive and have appended to this report an index cross-referencing our pilot effort incorporating the SASB metrics.

This alignment with SASB has resulted in some modification to our reporting (e.g., changing our characterization of mix of services to customers) and some supplementation of reporting (e.g., adding a characterization of our operations by location in dense populations). We find that data requests from customers and the investment community are increasing in type and scope. In an effort to balance the providing of the detail requested with the public interest in clear reporting on our business strategy and its key impacts, we are making more extensive use of our GRI Content Index for specialized audiences. In addition, we are aligning with many of our customers by including an index cross-referencing the United Nations Sustainable Development Goals (UNSDGs) to increase the utility of our reporting for researchers.

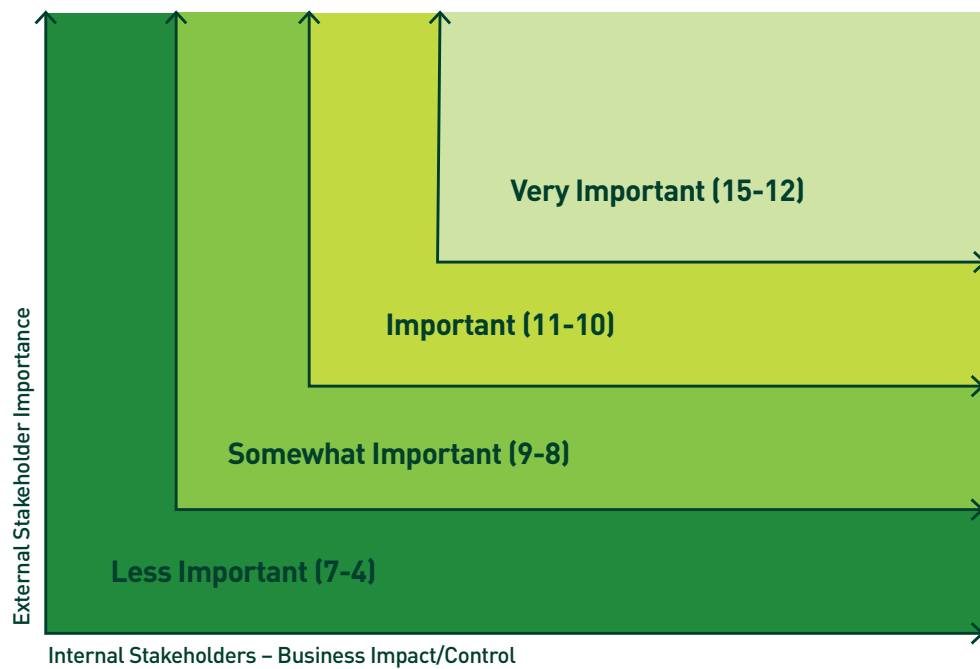
## Forward-Looking Information

This report contains forward-looking statements, including statements concerning the company's outlook, performance or results in the future, as well as statements of beliefs about the future, plans and strategies or anticipated events. You should view these statements with caution. They are based on the facts and circumstances known to the company as of the date the statements are made and are subject to risks and uncertainties that could cause actual results to be materially different. Such risks include, but not limited to, increased competition; pricing actions; failure to implement our optimization, growth, and cost savings initiatives and overall business strategy; failure to identify acquisition targets and negotiate attractive terms; failure to consummate or integrate such acquisitions; failure to obtain the results anticipated from acquisitions; environmental and other regulations; commodity price fluctuations; international trade restrictions; disposal alternatives and waste diversion; declining waste volumes; failure to develop and protect new technology; significant environmental or other incidents resulting in liabilities and brand damage; weakness in economic conditions; failure to obtain and maintain necessary permits; labor disruptions; impairment charges; and negative outcomes of litigation or governmental proceedings. Please also see Part I, Item 1A of the company's most recent Annual Report on Form 10-K filed with the SEC for additional information regarding these and other risks and uncertainties applicable to our business. The company assumes no obligation to update any forward-looking statement, including financial estimates and forecasts, whether as a result of future events, circumstances or developments or otherwise.



The matrix below summarizes the results of the assessment:

## Materiality Assessment



### Very Important (15-12)

Data Reporting and Verification (15)  
 Compliance (14)  
 External Recycling Rate (14)  
 Local Engagement Plans & Programs (14)  
 Local Environmental Impact (14)  
 Public Policy Engagement (14)  
 Safety Record (14)  
 Anti-Corruption (13)  
 Green Service Sales (13)  
 Renewable Energy Generation (13)  
 Innovation (12)  
 Impact on Local Environment (12)  
 Local Impact Assessment & Improvement (12)

### Important (11-10)

Business Ethics/Code (11)  
 Business Mix (11)  
 Energy Consumption (11)  
 Labor Practices & Human Rights (11)  
 Supplier Screening — Environment (11)  
 Climate Change — Financial Impact (10)  
 Diversity (10)  
 GHG Emissions — Scope 1-3 (10)  
 Risk Management (10)  
 Transportation Impacts (10)

### Somewhat Important (9-8)

Corporate Governance (9)  
 Customer Satisfaction (9)  
 Customer Privacy (9)  
 Economic & Local Economic Impact (9)  
 Internal Recycling Rate (9)  
 Life Cycle Analysis (9)  
 Recycling Service Sales (9)  
 Disaster Relief (8)  
 Employee Demographics (8)  
 Water Consumption (8)

### Less Important (7-4)

Alignment with International Frameworks (7)  
 Contributions (7)  
 Emissions of Ozone, NOx, SOx (7)  
 Biodiversity Impact (6)  
 Freedom of Association (6)  
 Layoffs & Turnover (6)  
 Social Media (6)  
 Supplier Screening — Labor Practices (6)  
 Supplier Screening — Social (6)  
 Local Procurement (5)  
 Political Contributions & Involvement (5)  
 Benefits (4)  
 Conflict Minerals (4)  
 Executive Compensation (4)  
 Government Financial Assistance (4)



# BETTER SOLUTIONS

CAPITALIZING ON CHANGE THROUGH NEW  
TECHNOLOGIES AND NEW THINKING.

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# OVERVIEW

**As the leading environmental service and solutions company in North America, Waste Management works with our customers to meet their unique service needs. From residential customers, to small businesses, large corporations, manufacturing and even large public venues — we are tasked with providing comprehensive waste solutions to our varied customer base.**

**We leverage this expertise in a variety of ways:**

- › **Public Sector Solutions:** A team of 215 professionals is dedicated to our work with municipalities across the country. With over 5,000 municipal contracts, Waste Management provides a comprehensive suite of environmental solutions. Our services range from waste collection and disposal, recycling and organics collection, processing market and providing necessary infrastructure to manage waste collection and disposal; recycling and organics collection, processing and marketing; and providing necessary infrastructure to manage waste systems effectively and efficiently. We take our responsibility seriously, engaging as partners with our municipal customers to innovate, protect the environment, and leverage data and technology to drive lasting change. We pride ourselves on being involved in the fabric of the community, ensuring that we understand the unique values of local government.
- › **Direct Support of Our Commercial Customers:** Our commercial customers have unique service support needs depending on state and local requirements, cost or a desire for programs designed around specific type of customer base. Waste Management understands that our customers' sustainability needs are varied, and we work with them to meet service needs — whether it involves managing a range of materials for recycling, or providing specially designed containers or staff education.



- › **Sustainability Solutions:** Waste Management's Sustainability Services (WMSS) experts provide creative and comprehensive waste solutions across a wide range of industries, events and customer types. We leverage this expertise by dedicating nearly 400 trained consultants and service professionals who evaluate service options and manage customers' programs on site. [WMSS](#) ensures efficient operations, minimizes environmental impact and instills a culture of safety, while accelerating performance. In the process, customers gain access to Waste Management's resources, technologies and innovations, which comprise the leading portfolio of environmental solutions in North America.

The complexity of our services is seen in the breadth of the waste solutions that we provide. This includes our policy work to identify the areas of greatest environmental impact associated with our industry. An example is our focus on using life cycle assessment to prioritize areas of focus for the greatest environmental impacts.

## Life Cycle Assessment Approach to Recycling

The idea of what successful recycling means has evolved significantly in recent years as the waste stream has shifted. Where goals were once focused on weight and volume, Waste Management — along with many other companies, cities, states and even academic institutions — has turned to goals based on environmental attributes, most notably reductions in greenhouse gas (GHG) emissions through a life cycle approach to assessing recycling.



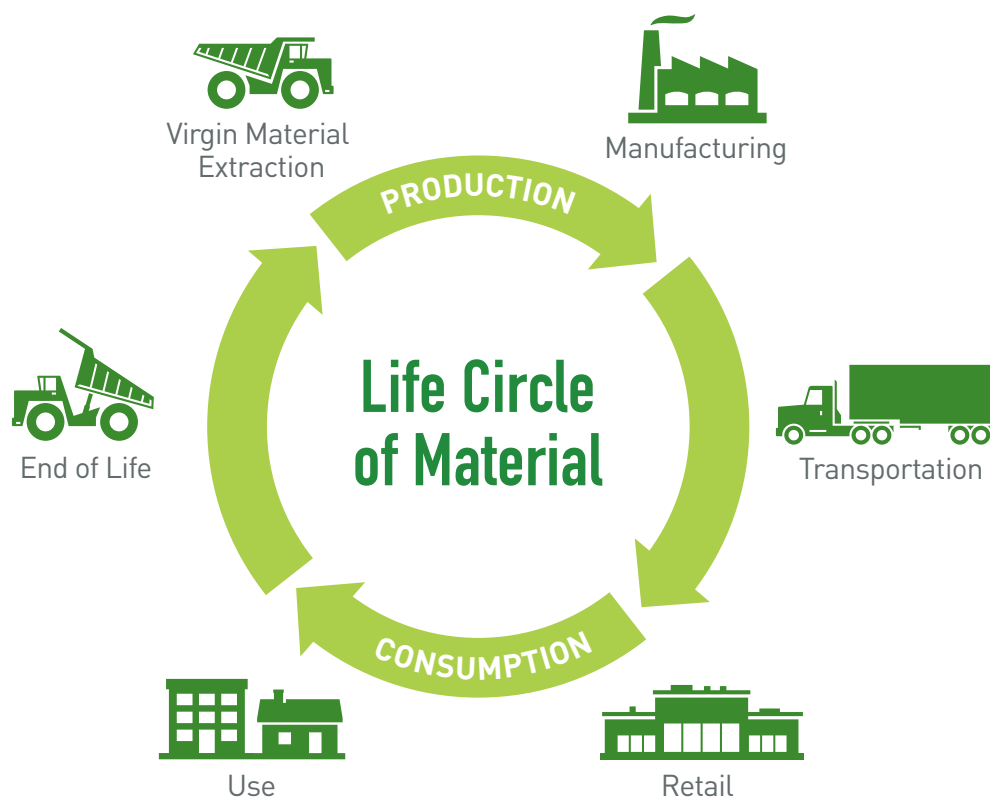
In recent years, Waste Management has aligned with the concept of [sustainable materials management](#) (SMM), a framework that encourages everyone in the recycling value chain to explore the impact of materials across their life cycle. This helps us understand that impacts can occur at all stages — from design and manufacturing, to inputs and outputs of the product, to how people will use and dispose of the product.

The life cycle approach considers the entire life of products from mineral extraction through end of life, and the impacts at each point along the way.

Life cycle thinking quantifies materials, energy consumption and emissions associated with those processes. Evaluating GHG emissions with a goal of reducing them can provide insight into trouble spots or changes that may need to occur to ensure resources are optimized across a product's life cycle.



For our part, we have been closely studying the waste stream to improve our environmental impact, while using more data and marrying the U.S. Environmental Protection Agency's SMM model with Waste Management's cost model to determine cost per ton of GHG emissions reduction in our industry. In doing so, we can prioritize waste management strategies to optimize the environmental benefits from materials across the waste stream.



**In 2017, we avoided 32,586,647 MTCO<sub>2</sub>e of life cycle emissions through recycling, renewable energy generation and organic material composting.**

While we constantly seek to make a positive impact on the environment through a variety of measures, our greatest contribution undoubtedly comes from waste reduction services and recycling. Fully 60 percent of our emissions reduction contribution is tied to our recycling activities alone. And by recycling the right things well, we have the opportunity to reduce GHG emissions by over 80 percent. Significantly reducing GHG emissions is both achievable and essential to ensure our operations have a positive and lasting impact on the environment and the communities we serve.

## Establishing New Goals

With this in mind, we've taken a close look at our goals over the past two years. In recent years, the GHG reduction services we offer our customers — recycling, landfill gas-to-energy projects, renewable natural gas projects and carbon sequestration in landfill — helped them avoid over three times the GHG emissions generated by Waste Management's own operations. Recently, we announced our goal to increase those avoided emissions to four times the GHG emissions generated by our operations. Additionally, we've set a science-based goal to increase avoided emissions from recycling by 38 percent by 2028 against a 2010 baseline. This goal aligns with our campaign to improve the quality and quantity of recycling, while reducing its volatility.

# WASTE REDUCTION

Through our work on life cycle thinking we have gained renewed appreciation for the first “R” in the waste hierarchy: “Reduction.” While recycling plays an important role in how we manage material, reducing waste offers the greatest environmental benefit of all.



Federal Way Mayor Jim Ferrell (left) with Waste Management driver.

Waste Management has partnered with the City of Federal Way in Washington state for years, to help feed those in need. In 2017, Waste Management drivers collected 12,300 pounds of food — a new record and a shining testament to the giving spirit that makes Federal Way so great.

We work with customers to look beyond diverting waste from landfill to actually eliminating waste to begin with. We analyze choices in procurement, deliveries and packaging and make supply chain recommendations to improve their overall environmental impact and reduce on-site waste. And we implement the recommendations as well. For example, in 2017 our [Sustainability Services \(WMSS\) team](#) worked within customers’ supply chains to implement and expand a returnable parts program that eliminates or vastly reduces single-use parts, along with a launderable wipes program that meets hazardous waste exclusions and reduces waste.

## Food Waste Reduction

U.S. EPA, states, local governments and the environmental service sector have increasingly focused on how to avoid food waste and properly manage the food that is ultimately wasted, particularly in terms of capturing its energy resource and avoiding generation of GHGs when disposed. With increased attention to the large quantities and various ways of managing food waste, customers have asked for additional ways to handle source-separated food at its end of life, through composting or anaerobic digestion. The company has responded through its compost and mulching facility network of 40 facilities, 13 of which can accept food waste, and our growing CORE® network — four facilities, with more under development.

Preventing food waste upstream, before it becomes waste, benefits both the environment in terms of emissions reduction and communities in need. We are working with U.S. EPA and stakeholders on new ways to avoid emissions from discarded food by reducing the amount discarded.

## CUSTOMER SUCCESS STORIES

### Reducing Manufacturing Waste

#### SUCCESS STORY #1

As part of a recent California state grant award, Waste Management of Alameda County, Inc. (WMAC) received funding to purchase equipment for organics processing and to support Alameda County Community Food Bank's (ACCFB) food rescue efforts.

Designed to capture organic wastes not already diverted from landfills through existing Source Separated Organics (SSO) collection programs — and conceived through a meticulous multiyear due diligence process — the facility will dramatically improve organics diversion.

The new processing facility complements the existing three-bin SSO program and is designed to capture organics that remain in the MSW stream. The project is expected to improve Oakland's total waste diversion from 8 percent to 52 percent by diverting 41,540 additional tons per year (TPY) of organics and 26,208 TPY of recycling. The organics diversion alone will avoid 14,459 MT CO<sub>2</sub>e per year. And, by 2027, the project will have diverted 305,434 tons of organic waste from the landfill and reduced GHG emissions by 106,495 MT CO<sub>2</sub>e.

As part of its overall commitment to the City of Oakland, Waste Management has partnered with Alameda County, the City of Oakland, ACCFB and Stop Waste for food recovery in the county. Founded in 1985, ACCFB has become the hub of a vast collection and distribution network that provides food for 240 nonprofit agencies in Alameda County — distributing more than 25 million meals last year. The funding will support the Food Bank in bringing five additional stores into its network and will match these stores with local ACCFB network agencies. Collection of food from the five additional stores will result in approximately 175,000 meals per year for local populations in need, while diverting 50 TPY in 2018 and 100 TPY from 2019 onward.

#### SUCCESS STORY #2

WMSS identified alternative processes so that one customer could eliminate a specific type of plastic bag from their manufacturing process. The result of removing this one item from their waste stream was savings in labor, \$214,000 per year for both materials and disposal, and avoiding the life cycle GHGs associated with the product.

#### SUCCESS STORY #3

A few years ago, we assumed waste/recycling operations for a new customer in the U.S. They had relocated their engine manufacturing operations from the Midwest to the South. During our review of facility operations and waste and recycling practices, we discovered that significant quantities of plastic contaminated with oil were being discarded. The WMSS team discovered that the engine blocks were shipped from the foundry wrapped in plastic and, once received, were submersed in rust preventative and preservative oils. We learned this practice was in effect from when the manufacturing plant was located in the Midwest and the engine blocks were shipped long distances to a high-moisture climate with exposure to both rain and snow. In effect, it was a case of "we've always done it this way."

After the relocation, the engine blocks were shipped only a few miles and within a dry climate. We engaged multiple stakeholders, including the facility engineering team and convinced them that there was no need to use rust preventatives or preservative oils. This resulted in substantial savings to the facility by eliminating the use of the expensive oils and their subsequent disposal. Since the plastic wrap was no longer contaminated with oil, it could now be recycled instead of disposed.



## CASE STUDY

## Waste Management Earns “Hunger Hero” Status in Oregon

Waste Management has partnered with the Oregon Food Bank to fight hunger, advance zero waste and strengthen emergency preparedness since 2014. That’s why the food bank honored Waste Management with its prestigious “Hunger Hero of the Year” award.

Oregon Food Bank is the hub for a statewide network of 21 regional food banks and more than 950 hunger-relief agencies. The food bank is based in Portland, Oregon, which is also a world-class sustainability leader and among Waste Management’s most progressive city partners when it comes to innovative approaches to waste reduction.

“At both the City of Portland and the Oregon Food Bank, bold leadership is resulting in important initiatives that synch up with community values,” said Mary Evans, director of Public Sector Solutions for WM-PNW/BC. “For Waste Management, our partnership with the city has helped us see the value of investing in the Oregon Food Bank — to help those in need, bolster emergency preparedness and advance zero waste across the food bank’s statewide network.”

Waste Management first launched its relationship with the Oregon Food Bank in 2014 with a \$200,000 donation, funding an emergency generator for the central warehouse and a back-up fueling system. Together, the emergency generator and the back-up fuel system provide critical emergency support when storms hit and the power fails. The generator keeps food cold and fresh; the fuel system ensures trucks can deliver critical food supplies even when the power fails.

### FAST FACT

Portland became the largest U.S. city to initiate every-other-week garbage collection as it added weekly pickup for compost and yard debris in 2011. The city’s goal was to incentivize curbside composting while keeping overall rates the same. And the city achieved this goal, with Waste Management as a partner. [Read more here.](#)



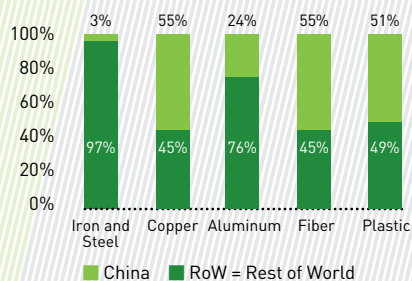
Oregon Food Bank CEO Susannah Morgan (third from left) with members of the WMSS Public Sector Solutions team.

# RECYCLING

**As North America's leading post-consumer recycler, Waste Management has been leading change in the ever-growing and dynamic recycling industry for more than three decades. During this period, we've also invested more than \$1 billion in processing infrastructure alone, including almost \$22 million in 2017, up more than \$13 million year-over-year. This leadership resulted in 15.3 million tons of recycled goods in 2017, a 91.25 percent increase in recycling tons since 2007.**

Our industry and the materials recycled have evolved significantly over the years — from small collection bins full of newspapers and glass bottles in the 1980s to today's large wheeled carts full of plastic water bottles and cardboard boxes used for home delivery of online orders. What amazing changes in just a few decades!

## 2016 Recycling Imports Into China



Courtesy: Institute of Scrap Recycling Industries (ISRI)

We were presented with a new set of challenges in 2017. In July, China notified the World Trade Organization of its intent to ban the import of 24 materials, including mixed waste paper and mixed plastics. While the news was met with skepticism at the time, China has indeed followed through with the ban, resulting in 13.2 million tons of material looking for alternative markets across the globe.

Then, in March 2018, the Chinese government implemented a 0.5 percent contamination limit, which has elevated quality expectations for all buyers across the globe. The new contamination limit also increased recycling processing costs in material recovery facilities (MRFs) as recyclers work to remove unacceptable items. With the Chinese government's subsequent announcement of a ban on all imports of recyclables by 2020, the global recycling community began to scramble to adjust to this new market reality.

## Changing Market Dynamics

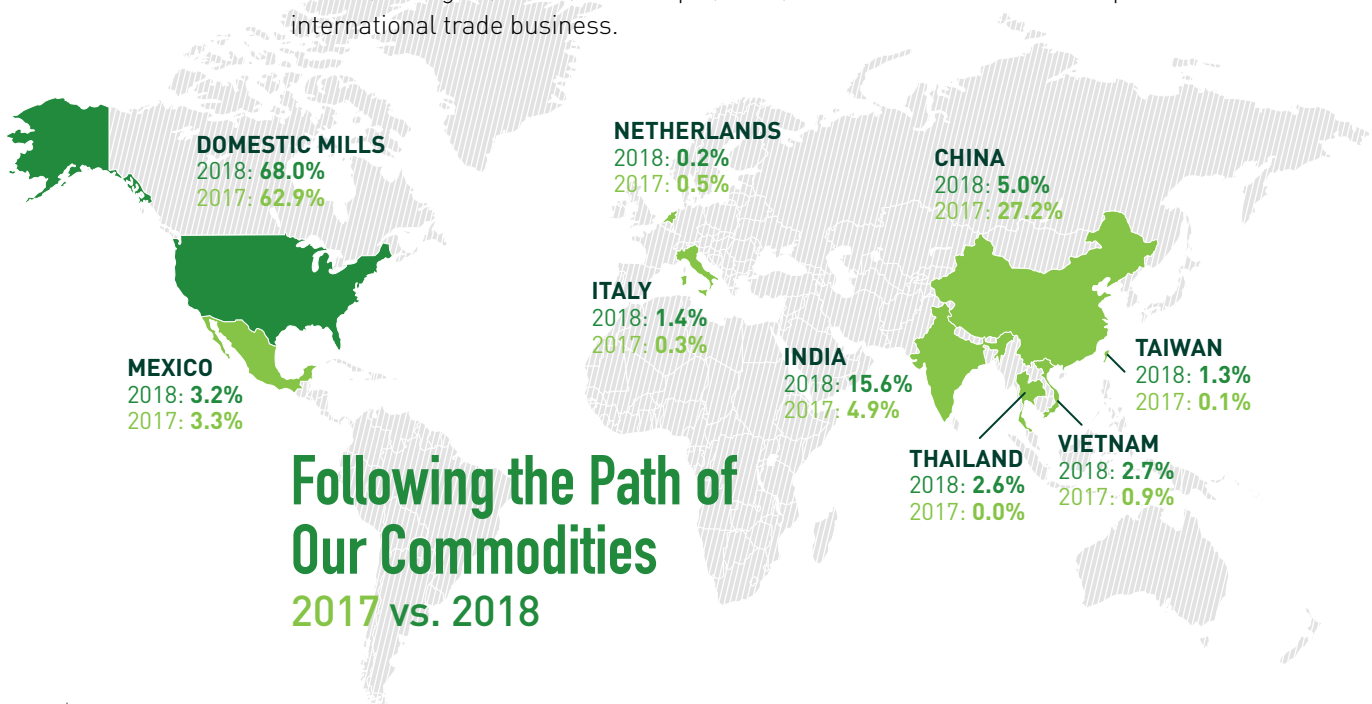
In an already dynamic recycling market, China's policy created perhaps the greatest change the recycling industry has experienced to date. The Chinese government's decision serves as a stark reminder of the global nature of our business. According to the U.S. Census Bureau and U.S. International Trade Commission, China imported over 13.2 million tons of paper and approximately 776,000 tons of plastic from the U.S. in 2017. Prior to late 2017, a third of the world's recyclables had been imported by China, including more than 50 percent of the paper and plastics recycled across the globe.

China's policies have had a far-reaching effect, creating an excess global supply of recyclables. Costs are up for customers due to increased processing and sorting of materials required to meet China's new stringent quality requirements, while commodity values are down.

## Developing Alternative Commodities Markets

With China taking bold steps to rebalance its economic needs with quality of life — clean air, water and a safe climate, the U.S. recycling industry has been forced to recalibrate its thinking and focus on what it can control. Developing diverse domestic and global end markets is the best way to ensure long-term successful, sustainable and economically viable recycling programs.

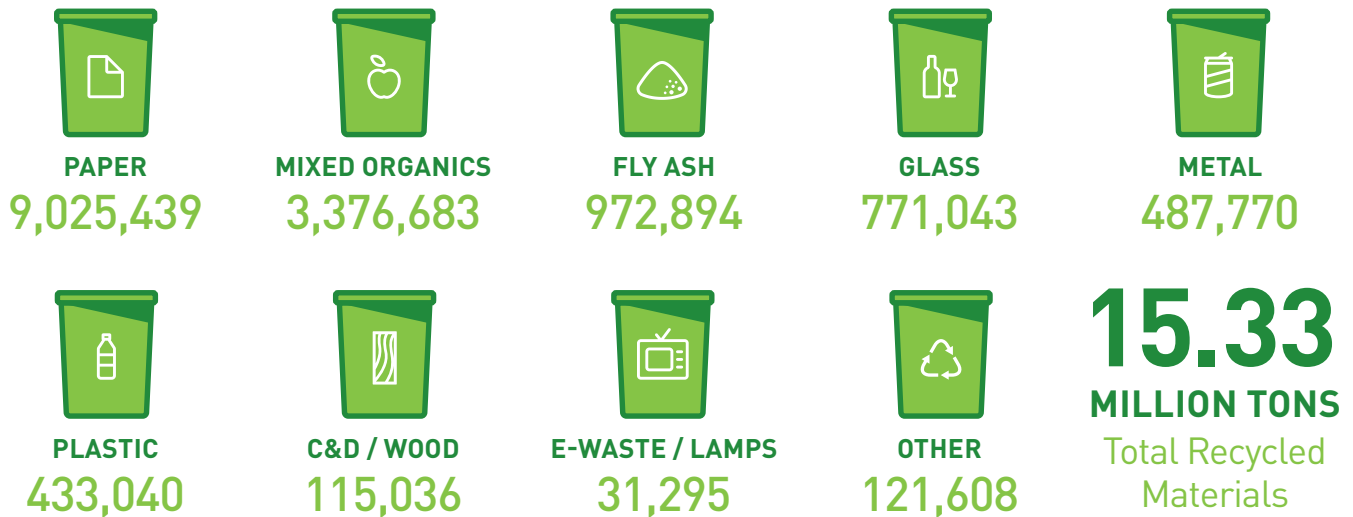
Beginning in 2013, with China's first import restrictions on plastics, Waste Management began to diversify our markets, sending more plastics to domestic markets and more paper to India, Mexico, South America and other countries. In the five years since, we have grown our markets and strengthened our international commodities team. With more than 50 contractors in four offices around the world, including Mexico City, Mexico, Shanghai, China, and Bhopal, India, we have been able to develop a robust international trade business.



# 2017 Recycling Performance

Waste Management managed over 15 million tons of material for beneficial use in 2017, broken down as follows:

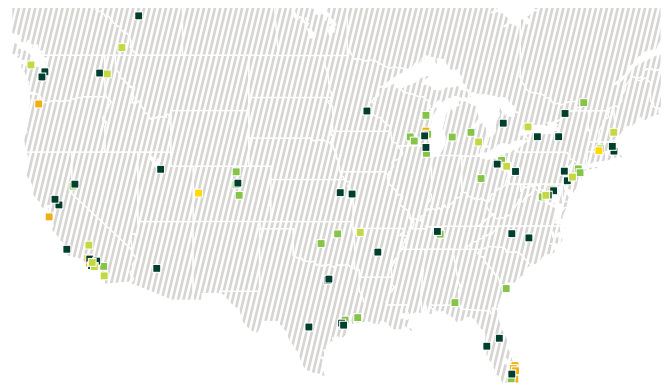
## WHAT WE RECYCLED (in tons)



## WHY WE RECYCLED

- › To save **117.8 million** mature trees
- › To fulfill the annual power needs of **1.59 million** homes
- › To avoid **32.5 million** metric tons of GHG emissions
- › To supply enough fresh water for **28.1 million** people for a month
- › To meet the annual municipal waste needs of **27.9 million** people
- › To save **63.2 billion** gallons of water
- › To conserve **17.4 billion** kWh of electricity
- › To preserve enough timber resources to produce **2 trillion** sheets of printing and copy paper
- › To save **24.5 million** cubic yards of landfill space

## WHERE WE RECYCLED



### Material Recovery Facilities

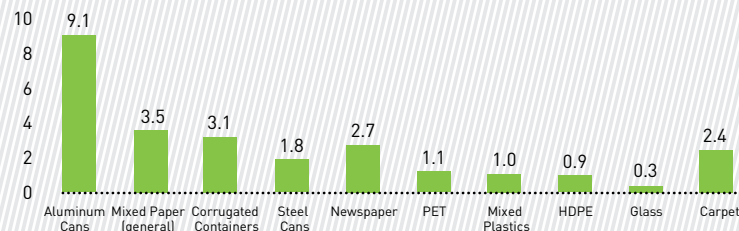
- 44 Single Stream
- 28 Paper Only or Other Commercial Materials
- 14 Other
- 11 Construction and Demolition Debris
- 2 Dual Stream



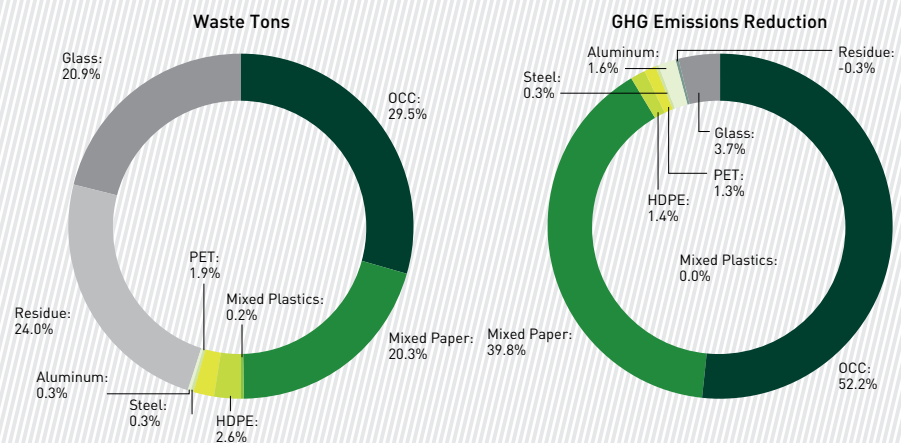
## Using Life Cycle Thinking to Prioritize Recycling Efforts

With constrained resources and weakened market demand, evaluating recycling through the lens of life cycle thinking helps our customers grapple with a changing commodities market for recycling, helping to prioritize their efforts. It's imperative that we remain focused on the materials that provide the most environmental benefit from recycling. As an example, the reduction in GHG emissions from recycling an aluminum can is exponentially more than recycling a glass bottle.

### What Reduces the Most GHGs When You Recycle?



### THE GREATER ENVIRONMENTAL IMPACT Waste Tons vs. GHG Emissions Reduction



Focusing only on commodity tonnage misses the bigger picture — how much emissions reduction benefit has been achieved regardless of the tons processed. For example, GHG emissions achieved by recycling Old Corrugated Cardboard is far greater than its weight would suggest. Our data makes it abundantly clear that we should be focusing our efforts on recycling cardboard and paper first, then, metal, PET and HDPE bottles to maximize the environmental benefits of the materials that we manage.

## Consumer Awareness

Among the most pressing priorities in recycling today is the need to reduce the amount of contamination — or the unacceptable items mixed with recyclables — in the stream that we collect for processing at our recycling facilities. Reducing contamination means reducing unacceptable materials in the inbound stream, which directly impacts the quality of what can ultimately be sold and recycled. It's a difficult challenge, and we all play a significant role when it comes to recycling well — starting with consumers. That's why we're so committed to consumer education and awareness in the communities we serve.



### Recycling Needs Your Help

Over the years, the changing mix of materials in the waste stream combined with a shift to cart-based, single-stream recycling has contributed to an increase in the average contamination rate for materials Waste Management collects in curbside programs to 25 percent. That means 500 pounds of every 2,000 pounds collected is ultimately discarded as nonrecyclable. This increases the cost of recycling because we must sort more material as well as transport and dispose of more material as trash. The lost value of good recyclables that are ruined due to contamination also must be considered.

## Technology to Combat Contamination

Contamination in the recycling stream not only hinders our efforts to recycle well and efficiently for customers, but it also presents safety concerns. In addition to working with heavy machinery, workers in recycling facilities sort through chemical waste, batteries, scrap metal and organic materials. To provide a safer solution, Waste Management introduced one of the industry's first recycling robots in North America in 2017.

Using sophisticated cameras to identify specific objects such as cans, plastic containers, glass or other recyclable materials within seconds, robots can remove them using suction cups or large tongs. In addition to helping keep human workers out of harm's way, the robots are highly efficient, with a current performance of 55 picks per minute; slightly more efficient than 1.5 humans on a per minute basis.

# Recycling the Right Way

We work with recycling community stakeholders to reach as many audiences as possible, using all available communication channels, as this article by Susan Robinson, Director of Public Affairs for Waste Management, demonstrates.

As the impacts of China's new import policies to reduce trash in recyclables begin to affect our collection programs, you may be seeing a lot more articles about the health of recycling, both locally and across the globe. In many cases, these articles are communicating the same basic information:

- › Recycling contamination — or the percentage of trash or unacceptable items mixed with recyclables — has increased, and it's jeopardizing the global recycling industry
- › Going forward, China will not purchase recyclables if there is even a fraction of trash mixed with the items
- › As a result, we all must focus our efforts on recycling the right items the right way



**Susan Robinson**  
Director of Public Affairs  
Waste Management

## COLLECTION IS NOT THE SAME AS RECYCLING

Simply put, we must reduce the amount of contamination in the recycling stream, and this can only happen if the materials we collect are the right materials. Note the use of the word “collect” above. It's important to highlight “collection,” since the quality of the material we collect directly impacts the quality of what can ultimately be sold and recycled.

To that end, the following quote is from a recent article by Nina Butler of More Recycling, who describes the need to focus on collection:

“Many recycling entities...are facing severe financial challenges right now despite the environmental benefits that come when recovered materials are used to make new products. In short, the market for recycled materials is broken. We have equated collection with recycling when, in reality, that is just the first of many steps to ensure complete reabsorption of resources.” — Nina Butler, More Recycling, Plastics Recycling Update, February 2018

Ms. Butler drives to the heart of one of the key challenges we are up against as we struggle to reduce contamination in recycling programs. Messaging has historically emphasized the importance of placing recyclables in recycling carts. As a result, consumers now equate the

placement of materials in their recycling cart with recycling. From there, it is out-of-sight-out-of-mind, and it is up to recyclers to ensure that discarded materials are recycled into new products.

This poses a difficult education challenge, since it's hard to teach consumers that their materials are only recycled when they replace virgin materials — not when they're collected. It's only when this substitution happens that we realize the environmental and economic benefits of recycling. And, in fact, placing unacceptable materials into the cart leads to additional economic and environmental costs, with no benefits and (ironically) less recycling. We call this wishful recycling "wishcycling," and it is lethal to our nation's recycling programs.

### WHY IT'S IMPORTANT TO RECYCLE ONLY THE RIGHT ITEMS

So, why is "wishcycling" such a problem? There are multiple reasons, but what it all boils down to is that unacceptable materials in the recycling carts ultimately get sorted out at the recycling facility and disposed of as trash. In other words, "wishcycling" does no one any favors, except adding costs and reducing the amount of material that can ultimately be recycled.

For example, the average contamination rate for materials that we collect in curbside recycling programs has grown to about 25 percent. That means that 500 pounds of every 2,000 pounds that we collect at the curb is ultimately discarded. This increases the cost of recycling by increasing the cost of sorting materials, transporting and disposing of trash, and also includes the lost value of good recyclables that are ruined due to contamination.

At a global level, years of "wishcycling" across the world have contributed to end markets like China becoming stricter on what they'll ultimately purchase and recycle into new materials.

Toward the end of 2017, China began instituting a new contamination limit that requires processors like Waste Management to shrink that 500 pounds of contamination to 10 pounds (0.5 percent). That's like shrinking something the size of a grizzly bear down to a puppy. And with these new guidelines come even higher processing costs, while at the same time commodity prices are at long-time lows. Mix all this together and the economics of recycling are certainly under pressure.

### IT'S TIME TO RIGHT THE SHIP

Focusing on recycling the right things correctly has never been more important. At Waste Management, we are focusing on quality, increasing demand, and reducing the economic and environmental impact of the materials we manage for our customers. However, for recycling to be successful and sustainable for years to come, we must all commit to recycling only the right things the right way.

Collecting materials is not the same as recycling them. It's only when a material is recycled into something else that we realize the economic and environmental benefits. Anything short of this, and we're simply creating a problem that results in a negative environmental impact.



## Educating Our Communities

Consumers want to recycle. But recycling can be confusing. It's hard to keep up with what should and should not go in the bin while leading a fast-paced daily life. Plastic bags might seem like obvious items for the curbside collection bin, but they are a huge problem for recycling facilities.

That's why we continue to invest in public education programs to help consumers better understand smart recycling practices. It's hard to imagine that one wrong item in a recycling bin can spoil an entire batch of otherwise good materials, but it's true, which is why we've created our Recycle Often. Recycle Right.® (RORR) program.

Waste Management's dedicated website details myths, resources, and the do's and don'ts of recycling, as well as providing tools tailored for various entities that might be seeking recycling know-how — including residents, businesses, educators, property managers and government institutions. Our most visited page on the RORR website busts myths and provides accurate information about the most frequently asked recycling questions. For the past three years, we have updated this site with relevant questions on how to recycle the right things correctly.



### Keep Plastic Bags Out of Your Recycling

We're also putting information where consumers are most likely to find it — 45 percent of individuals look to municipalities for recycling information, and they primarily seek it out on the municipalities' websites. As part of our RORR program, we developed a widget for municipal customers to put on their websites that provides targeted recycling education. The widget is user-friendly, hosted by the municipality and comes at no cost.

While we do our absolute best to educate consumers through the RORR program, we find that "tagging efforts" is the most effective way to teach customers how to recycle right. Tags placed on bins along our routes that use both positive and negative reinforcement have proven effective because of the immediate feedback to consumers on how to recycle correctly.

Finally, as a last resort, we find that charging for contamination serves as a strong deterrent. Using this "tough love" tactic, we're taking a two-pronged approach to contract enforcement: we are reviewing contracts and seeking cost recovery or price adjustments as allowed for contamination; and, moving forward, fully enforcing contracts when it comes to charging for contamination.

### WASTE MANAGEMENT DRIVERS ON THE FRONT LINE OF CONSUMER EDUCATION

Just as consumer awareness on the dos and don'ts of recycling is critical, so too is ensuring that our drivers are consistently trained across the company to help solve the problem of contamination in the waste stream. Drivers can enhance consumer awareness through Waste Management's tagging campaigns and help educate consumers on the best ways to decrease contamination.

We've found that Driver Recycling Surveys are a useful way to engage our drivers, and administering the survey is vital before kicking off any education or tagging and enforcement campaign. The surveys help us assess the current recycling knowledge of drivers, uncover common contaminants on their routes, identify Waste Management's tagging practices and help drivers better understand any barriers that prevent tagging. Waste Management also issues a Facilitator Guide with directions for site leaders to administer the survey, with talking points to introduce the contamination issue, and explanation of the driver's role in prevention. Evaluating results of the driver surveys helps target our campaign materials around a problem contaminant or address barriers that are preventing drivers from identifying and tagging contamination.

For new driver training, and for use when rolling out a tagging and enforcement campaign, training videos available on our company intranet university, "Talent Central," show drivers how to identify and report contamination through the use of enforcement tags and onboard computing. These videos, in both English and Spanish, are provided to each driver internally or can be found on Waste Management's [YouTube](#) channel.

We also offer a Guide to Contamination & Recycling Frequently Asked Questions (FAQs) for employees. The Guide to Contamination introduces drivers to the basic RORR rules. The Recycling FAQ is a quick reference guide to help drivers identify problem materials and to help accurately answer any customer questions on their route.

To incentivize drivers to stay engaged and actively serve as RORR ambassadors, we publicly recognize drivers who are most actively involved in tagging and enforcement. We all play a role in helping reduce contamination. And when our drivers are properly informed, their efforts to enforce proper recycling during their routes, as well as educating customers along the way, serve as a dual positive.



# ORGANICS

**One-third of food goes uneaten across the globe. Wasted food can add billions of tons of GHG emissions to the atmosphere. In the U.S. alone, more than 60 million tons of food is wasted each year, and displaced food carries a price tag of well over \$160 million. The EPA estimates more food reaches landfills and incinerators than any other single material in our everyday trash, making up 22 percent of the disposed stream. Organic materials — primarily discarded food and yard trimmings — comprise approximately 30 percent of the waste stream — and Waste Management continues to utilize new technologies to extract economic and environmental value from these materials.**

In 2017 Waste Management processed 3.38 million tons of source-separated organic materials, including yard trimmings, food waste and biosolids — sludge sourced from wastewater treatment facilities. Most of the organic waste collected goes to facilities that create marketable compost and soil amendment products.



# Organic Waste At-A-Glance

**3.38 Million Tons of Organic Material Recycled**

**15.4**

**MILLION  
GALLONS**

of EBS produced

Food converted to biogas produced enough renewable energy to power over 1,350 homes

\*Total gallons of the EBS® (organic slurry) produced as of 8/2018

**44**

**ORGANICS  
RECYCLING  
FACILITIES**

The largest organics recycling infrastructure

- 40 Waste Management managed composting and mulching facilities, 13 of which can accept food waste
- 4 CORE® facilities

**19**

**BULKBIN™  
PROGRAMS**

Utilizing 2,500+ Bins

Serving customers across various industries, including manufacturing, distribution and retail

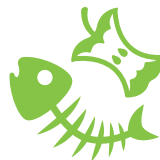
## FAST FACTS Co-Digestion



**50-100%+**

**BIOGAS  
PRODUCTION**

Increase in renewable **biogas** production with as little as 10 percent **EBS®** **volume addition**



**>99%**

**CONTAMINATION  
REMOVAL**

**CORE®** produces a clean EBS® product by **removing packaging** and other non-degradable material



**~0%**

**BIOSOLIDS  
GENERATION**

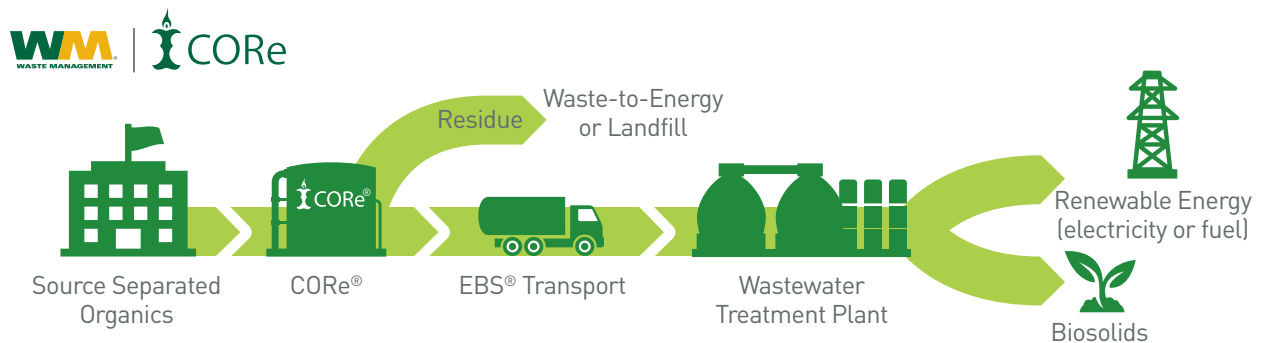
**Little to no** additional generation of biosolids with **EBS®** according to **independent, peer-reviewed** research



# CORe®: Turning Food Into Energy

CORe® is Waste Management's organic recycling process that converts food waste into EBS®, an organic slurry product used to generate green energy. With CORe®, we collect commercial food waste from restaurants, schools, food processing plants and grocery stores, screen it to remove contaminants such as plastic, packaging and bones, and blend the waste into an engineered slurry that has a consistency like cooked oatmeal. The slurry dramatically increases the production of biogas in anaerobic digesters, which is used to create renewable energy.

## Waste Management's CORe® Process



Waste Management's **CORe®** process is a **local, urban solution** that converts food material into our **EBS® product** through our proprietary process.

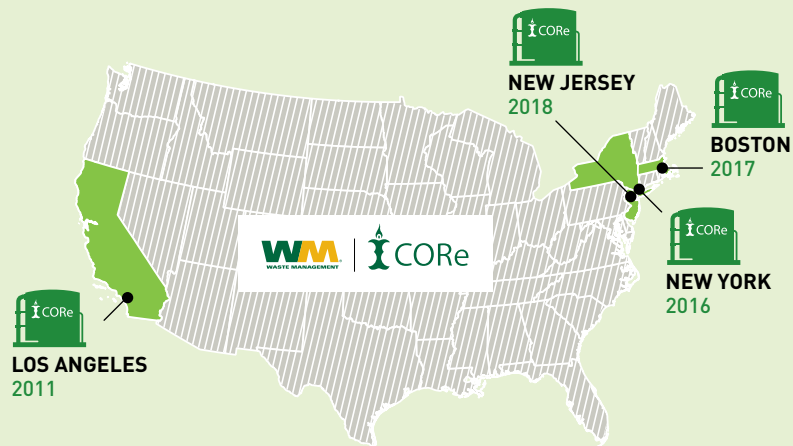
**EBS®** is a high-quality, consistent product produced with **more than 99%** of the **physical contaminants** found in urban waste.

The **EBS®** product is used to create **renewable, sustainable energy** in partnership with **long-term** local partnerships, helping them approach **zero waste**.

Adding additional organic material in the form of engineered slurry to a water treatment plant's anaerobic digesters typically increases energy output from 50 percent to 100 percent or more. We use simple figures to communicate to the public the environmental benefits realized from their cities' use of CORe® organics recycling.

## CORe® Facilities

Waste Management's CORe® facilities in Southern California, New York, Boston and New Jersey deliver EBS® to municipal wastewater facilities, which increases their energy output. Waste Management has made over 40 million gallons of EBS® from our facilities to date. Each ton of processed food waste can power between eight and 10 homes.



## Food is Energy; let's not waste it.



Co-Digestion is a **proven solution** for large scale, urban food waste



Helping solve climate change with the **lowest GHG footprint** of food waste processing options



Through co-digestion, food waste can be **recycled** as both **fertilizer** and a **renewable energy** source

### CASE STUDY

#### Waste Management Boston CORe®

- Progressive Waste Water Treatment Plant in New England
- Recognized by MassDEP and EPA for innovation
- Investing over \$24 million in the “Organics Energy Project”
- Over \$7 million provided by Massachusetts agencies
- Renewable energy produced will be used for facility heat and electricity
- Energy savings of \$2.5 million per year, with potential to export to grid
- Longstanding, successful program creating fertilizer from biosolids
- 100 percent of the fertilizer product sold to local agriculture and landscape businesses



Greater Lawrence Sanitary District

### CASE STUDY

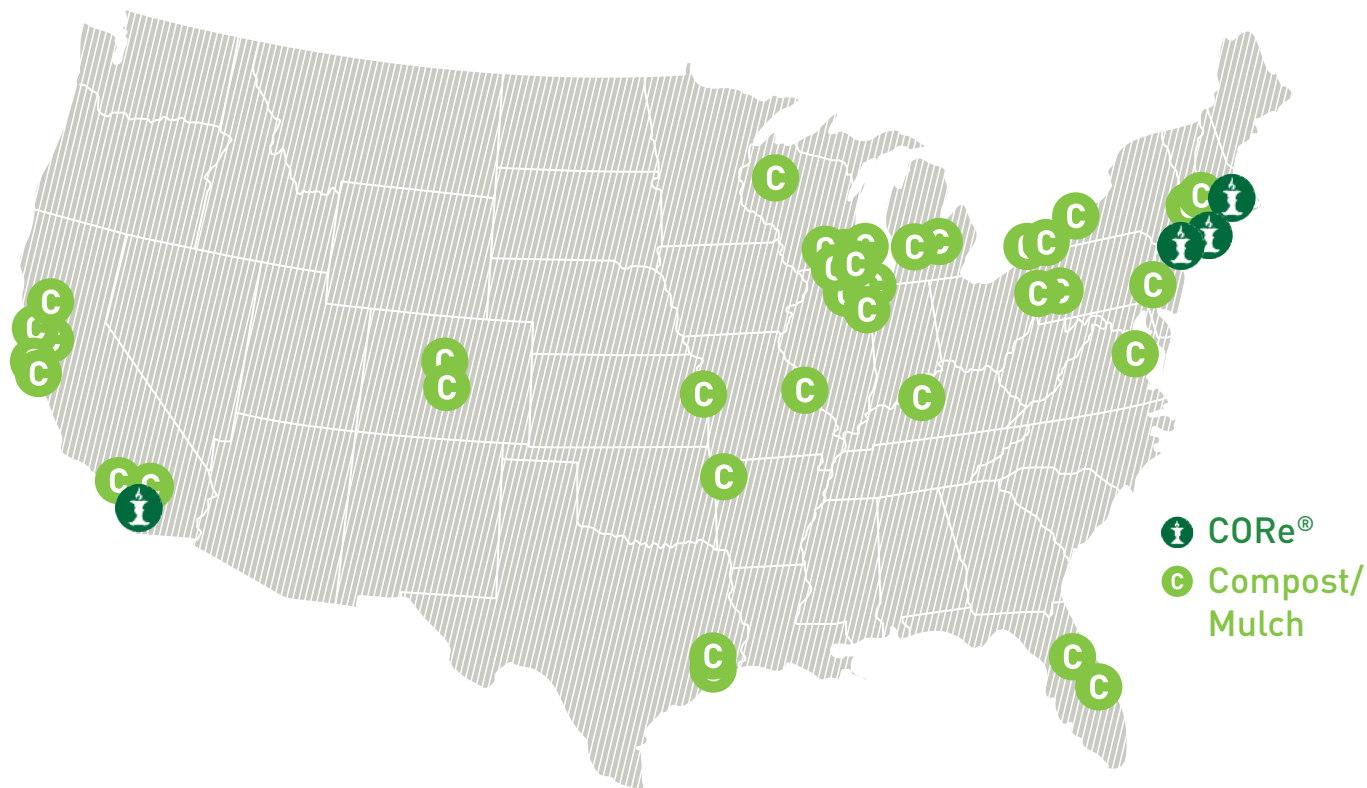
#### CORe® in Los Angeles County

What began as a demonstration project is now an award-winning, proven technology that is creating renewable energy. Waste Management and the Sanitation Districts of Los Angeles County (LACSD) received the Municipal Project of the Year Award for their Food Scrap-Wastewater Biogas System at the American Biogas Industry Awards. The partnership demonstrates the full-scale co-digestion of urban residential and commercial source separated organics (SSO) at an existing community wastewater treatment facility in a way that can be replicated at other water utilities.

The process involves food waste being pre-processed at the Waste Management facility in Orange, California, through Waste Management's CORe® process — removing physical contaminants and de-casing plastic and metal containers — to ultimately provide EBS® for energy generation at the Joint Water Pollution Control Plant in Carson, California.

## Waste Management Organics Processing Sites

Composting and mulching are proven, low-cost solutions for managing large volumes of organic materials. Waste Management's portfolio includes 40 facilities that produce compost and mulch products. We also work with customers to innovate new composting solutions.



### CORE®

Boston CORE®  
NNJ CORE®  
Orange Transfer  
and MRF Recycling  
Varick I Transfer



### Compost/Mulch

Altamont Landfill  
Autumn Hills Landfill  
Coastal Plains Landfill  
Countryside Landfill  
CT Valley Landfill  
DADS Landfill  
Deer Track Park RDF  
DeKalb County RDF  
Eco-Vista LLC  
Fitchburg (RCI) Landfill  
Glanbrook LF  
Green Shadows LF  
GROWS Landfill  
Guadalupe Rubbish  
Disposal Co

High Acres Landfill  
Johnson County Landfill  
Kirby Canyon Landfill  
Lake View Landfill  
Lancaster Landfill  
Laraway RDF  
Metro RDF  
Middle Peninsula Landfill  
Midway Landfill  
Milam RDF  
North Valley MRF  
Okeechobee Landfill  
Orchard Ridge RDF  
Outer Loop RDF  
Palmdale Landfill

Pheasant Run RDF  
Prairie View Landfill  
Redwood Landfill  
South Hills Landfill  
Timberline Trail RDF  
Valley Landfill

Venice Park Landfill  
Vista Landfill  
Willow Ranch  
Compost Facility



An Insightful Look at the  
CORE® Process

## Waste Management Bulkbins™ Used for Organics Waste

We continue to innovate to make it easier to capture the value of organics in an efficient, and environmentally protective manner. Over the past several years, Waste Management worked with container manufacturers to create a new bin, Bulkbin™, uniquely designed for commercial generators of organic material. In Denver, Colorado, our Bulkbin™ concept was put to good use with a Waste Management client who was struggling to move its facility to zero-waste status. We utilized our Bulkbin™ containers to divert the heaviest material in their waste stream — animal feed products that did not meet their product sales specifications — from landfill. Today, 100 percent of this material is diverted to a compost facility, with the program filling over 200 Bulkbin™ containers — 20 to 30 tons — daily.

In addition, we worked with a large retailer to provide organics recycling services utilizing the Bulkbin™ as part of a reverse logistics approach to economically transport unusable food wastes. That program has been rolled out to over 170 stores utilizing over 1,300 Bulkbins™.





# WASTE-BASED ENERGY

Americans produce about 4.4 pounds of waste per capita every day, according to the EPA, and not all of that waste can be successfully processed. After recycling, composting and other beneficial use efforts, about 65 percent of that waste — a total of about 164 million tons each year — is disposed in landfills. Yet even as waste reaches the landfill, there remains a meaningful opportunity to recapture value. There, as organic material decomposes in an anaerobic environment, it naturally produces landfill gas, a mixture of carbon dioxide and methane, a major component in natural gas fuel and a potent GHG. Waste Management is finding opportunities to create economic and environmental value by turning landfill gas into energy — in effect, making sure that trash doesn't go to waste.

## From Trash to Power

As trash decomposes it produces gas, which is roughly half carbon dioxide and half methane. At our landfill gas-to-energy (LFGTE) facilities, we capture this methane and use it beneficially as an alternative to fossil fuel to power homes and provide fuel for industrial uses and commercial vehicles, including our own. The U.S. EPA endorses landfill gas as a renewable energy resource, putting it in the same category as wind, solar and geothermal resources.



New Redwood LFGTE Plant

Today, Waste Management is the largest LFGTE developer and operator in North America, with projects generating the equivalent of nearly 4.5 million megawatt-hours per year, enough energy to power 460,000 homes, or the equivalent of replacing nearly 2.5 million tons of coal annually. In 2017, approximately 55 percent of landfill gas collected at Waste Management-owned and -operated facilities was used for beneficial use projects, and we did not directly incinerate waste for energy recovery.

Waste Management has continued to invest in technologies to maximize the capture of energy from our landfills. In 2017, we commissioned new LFGTE facilities at the Redwood Landfill and Recycling Center in Novato, California, to produce renewable electricity, while we are producing renewable natural gas at our Outer Loop Recycling and Disposal Facility in Louisville, Kentucky.

## Waste Management Landfill Gas Beneficial Use Projects

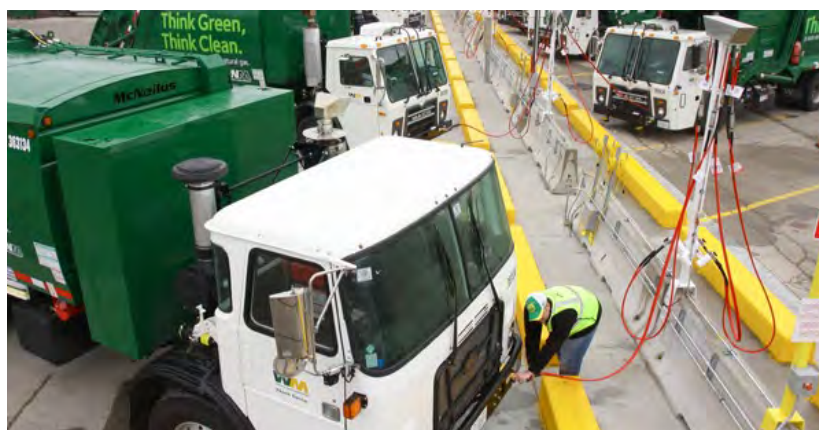
Type of Project	Projects	MW
Power	97	528
Off-Site Power	5	56
Medium BTU Fuel	9	25
Liquid Waste Disposal	4	3
Renewable Natural Gas	4	36
<b>Total Projects</b>	<b>119</b>	<b>648</b>

Totals and Conversions	
Total LFG Utilized (mmbtu)	56,960,000
Equivalent Megawatt-Hours/Year	4,480,000
Equivalent No. of Households	460,000
Equivalent Tons of Coal/Year	2,480,000
Indirect CO <sub>2</sub> e Offset (tons/year)	2,400,000

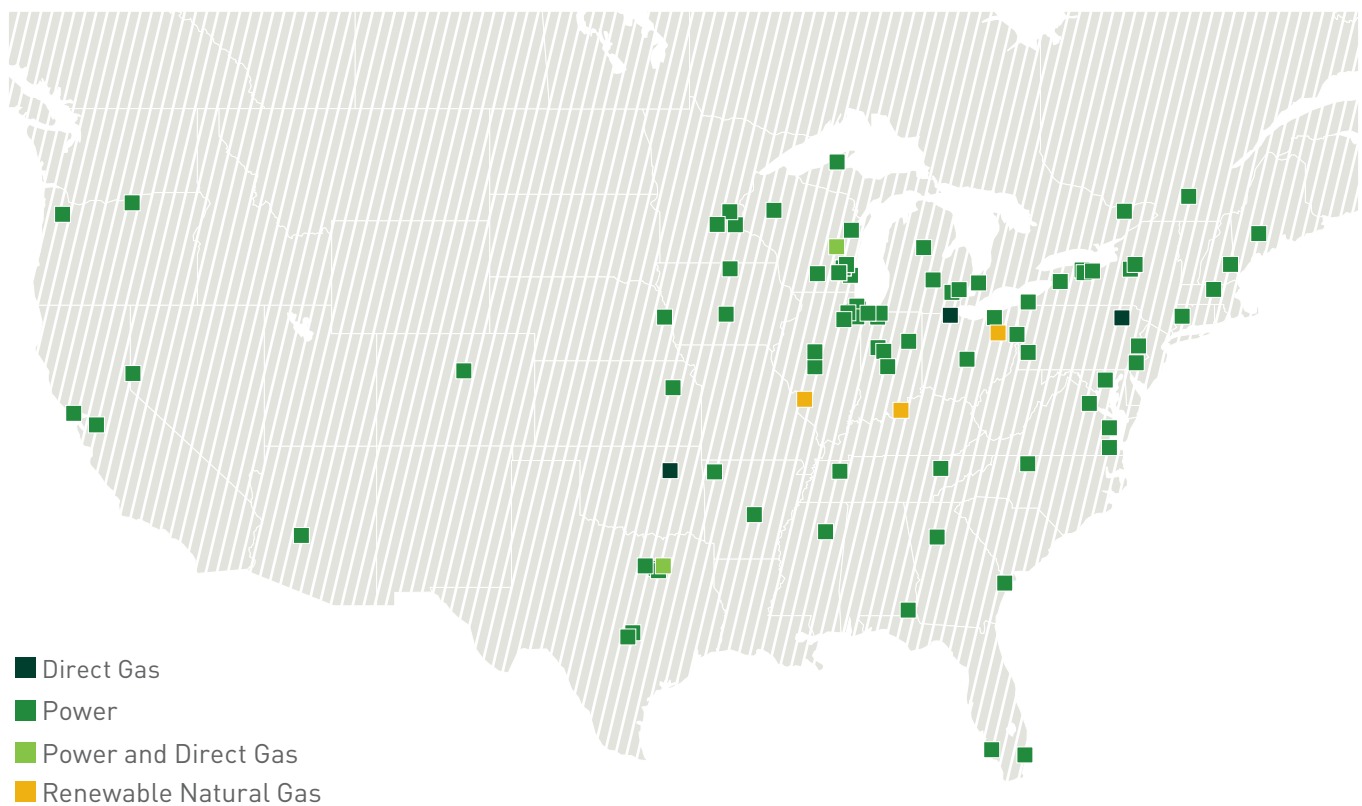
## Renewable Natural Gas Power

Our most frequent application for collected landfill gas is to use the processed methane to generate electricity that is sold to public utilities, municipal utilities and power cooperatives. Beyond electricity generation, we are also a leader in converting landfill gas into natural gas fuels that are distributed for use in residences, businesses and transportation. Renewable natural gas (RNG) produced from processed landfill gas now fuels over 33 percent of our natural gas trucks.

With RNG infrastructure at Waste Management's Altamont, California, Milam, Illinois, American Landfill in Ohio and now our Outer Loop landfill in Kentucky, over 33 percent of our natural gas fleet was fueled by RNG by the end of 2017.



## Waste-Based Energy Facilities



# Innovation That Closes the Circle

## THE LOUISVILLE STORY

### 1 Compressed Natural Gas (CNG)

collection trucks pick up waste at homes and businesses. The waste is transported to landfills for permanent disposal.

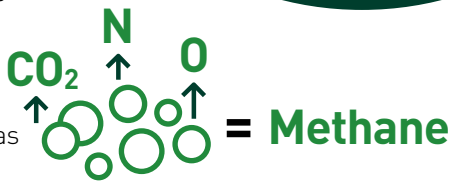


3 Methane is recovered by a series of wells drilled into the landfill. The wells are interconnected to form a collection system.

2 Much of landfill waste is organic, including food and cardboard. Bacteria digest this material, producing methane and carbon dioxide as natural byproducts.



4 The gas is routed to the RNG facility for advanced processing. Carbon dioxide, nitrogen and oxygen are removed from the gas to produce high-purity methane that meets natural gas pipeline specifications.



The large geographic footprint of landfills and their proximity to existing infrastructure can make them ideal locations for large-scale solar installations. Read more about how we contribute to solar energy generation [here](#).



5 The facility can process up to 5,000 standard cubic feet per minute (SCFM) of incoming landfill gas, producing high-purity methane that is injected into a natural gas pipeline.

6 The Outer Loop RNG facility in Louisville, Kentucky, produces enough RNG to fuel up to 800 Waste Management CNG collection trucks each day, reducing GHG emissions by more than 80 percent compared to those powered by diesel fuel.



# INVESTMENTS & INNOVATION

**It's often said that waste is simply a resource out of place. That's the idea behind investments we have made in the last decade in companies focused on transforming certain materials in the waste stream into materials of higher value. As these relationships have matured, we have already begun to see opportunities to increase our environmental impact through expanding into broader markets.**

## Enerkem

Enerkem converts nonrecyclable municipal solid waste (MSW) into biofuels for transportation and renewable chemicals used in everyday products. Enerkem Alberta Biofuels is the world's first commercial biorefinery to use MSW to produce methanol and ethanol. This facility in Edmonton, Canada, began producing methanol from waste in 2015 and has now initiated ethanol production. The potential annual output of the facility is 10 million gallons.

In 2017, Enerkem received EPA registration for the Edmonton facility to sell ethanol under the U.S. Renewable Fuel Standard, becoming the first MSW-to-ethanol facility to do so. Additionally, the facility received the lowest carbon intensity value issued to date by the British Columbia Ministry of Energy and Mines under the Renewable and Low Carbon Fuel Requirements Regulation.

Enerkem also recently signed an agreement with Air Liquide, AkzoNobel Specialty Chemicals and the Port of Rotterdam to create an advanced waste-to-chemistry facility in Rotterdam. The facility will be the first of its kind in Europe to provide a sustainable alternative solution for nonrecyclable wastes, converting waste plastics and other mixed wastes into methanol for transportation and chemical uses. The company is developing additional projects in Canada, the United States, Europe and China.





## Fulcrum Bioenergy

Fulcrum processes MSW into an engineered feedstock, which is gasified and converted into renewable crude. This renewable crude can then be further refined into low-carbon, drop-in jet and diesel fuels. A part of our portfolio since 2011, Fulcrum is constructing its first commercial plant near Reno, Nevada, which will be operational in 2020. When completed, the facility will convert 175,000 tons of MSW to 10.5 million gallons of transportation fuel per year. Fulcrum is planning additional projects across North America, each of which will be able to produce 30 million gallons of fuel per year.

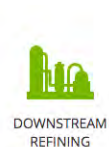


Fulcrum Corporate Video

## Dolphin Services

Another source of innovation today is Waste Management Dolphin Services, a leader in dewatering solutions across numerous industries. The Waste Management division has introduced modern, skid-mounted, high-g decanter centrifuge technology for processing industrial sludges and recovering oils from refineries, chemical complexes and food processing operations. This process significantly reduces solids going to landfills, returns water for reuse and recovers oil for recycling. In addition, Waste Management Dolphin Services is piloting autonomous centrifuge dewatering and oil recovery technology for waste streams such as biological sludge and oily tank bottoms to reduce on-site safety risks and exposure.

## Industries





## Bigbelly

Since 2009, Waste Management has been an investor in Bigbelly — the world’s leading smart waste and recycling system. Deployed in communities, campuses and organizations in over 50 countries and all 50 U.S. states, Bigbelly transforms waste operations and drives efficiencies with a smart, connected system. Solar panels on high-capacity cans harvest energy for compaction and communication. Each can holds 150 gallons, five times that of the average receptacle, because waste contents are compressed as the container fills. Bigbelly enables visibly sustainable operations, measurable recycling and contained waste for cleaner public spaces.

Bigbelly helps cities enhance their public spaces by extending their smart bins into multipurpose platforms capable of hosting telecom equipment. Communities and solution providers share the challenge of how and where to deploy wireless equipment in the public right-of-way without additional clutter or negative aesthetic impact. Bigbelly enables communities to transform multiple core city services with a single infrastructure — waste management and wireless connectivity — during the pivotal 5G network roll out. The platform hides small cell equipment in plain sight, in an aesthetically accepted form, and exactly where the people are.

## Fund Investments

An important element of innovation is research — who’s developing what, what’s working and what isn’t, and where’s the next innovation with potential for commercial success. Waste Management is a Limited Partner (LP) investor in three funds: [EnerTech Capital Partners](#) (“EnerTech Capital Partners IV”), [Emerald Technology Ventures](#) (“Emerald Industrial Innovation Fund”) and [Zouk Capital](#) (“Zouk Renewable Energy and Environmental Infrastructure Fund II”).

# HARD-TO-HANDLE MATERIALS

Homes and businesses are filled with ordinary items and materials that require extraordinary disposal handling and recycling methods, due largely to their chemical composition. Think paint, automotive products, swimming pool chemicals, household cleaners, flammable and combustible items, garden chemicals, batteries, consumer electronics and items containing mercury, such as fluorescent lamps, to name a few — all items that should not be placed into regular solid waste bins. We've developed several programs to help our residential and business customers dispose of these materials properly.

## At Your Door Special Collection<sup>SM</sup> Service

At Your Door Special Collection<sup>SM</sup> service provides easy and convenient collection of home-generated special materials for single and multiunit homes in several states where logistics and customer preference support the service. As part of our home collection service, each participating household with qualifying materials receives a collection kit with a containment bag and instruction sheet. In 2017, Waste Management collected 3,590,733 pounds of materials through the At Your Door Collection service. Materials collected include consumer electronics, latex paint, hazardous materials and universal waste items, such as batteries.

In addition to at-home collection services, we also collect fluorescent lamps, batteries, sharps and noncontrolled pharmaceuticals through containers placed at public locations, such as libraries, municipal buildings, pharmacies and community centers. Residents can simply place items in the collection containers, which are managed by a special collections team.



For commercial customers, we offer our Tracker service, which enables businesses to dispose of universal and special wastes through a simple, safe and compliant mail-back method. This comprehensive program includes recycling kits for fluorescent lamps and bulbs, lighting ballasts, batteries, electronics, aerosol cans, thermometers, thermostats and dental amalgam, as well as safe disposal kits for sharps, medical waste and prescription and over-the-counter drugs. Containers, such as the patented Mercury VaporLok® packaging for fluorescent lamps, are specifically designed for safe storage and shipping via national carriers. Customers can obtain kits through our website and receive certificates that provide proof of recycling compliance via email.



## E-Waste

Electronic waste material (e-waste) — such as old or broken computers, printers, copiers, etc. — is a topic of significant environmental concern and remains the fastest-growing waste segment in North America, with more than 3 million tons\* generated annually in the U.S. alone. Waste Management delivers electronic recycling solutions that are convenient to use, cost-effective and environmentally responsible. Supported by a comprehensive network of third-party processing centers certified and independently audited to the highest standards across the U.S. and Canada, our eCycling services can meet an organization's specific needs, with secure transport options from any point in the U.S. or Canada.

All processing partner locations are audited to meet e-Steward®, R2®/RIOS certification standards and are obliged to:

- › Prevent hazardous e-waste from entering municipal incinerators or landfills.
- › Prevent the exportation of e-waste to developing countries.
- › Provide for visible tracking of e-waste throughout the product recycling chain.

Products can be refurbished and resold for value or managed at the end of their useful life for commodity recovery. Commodities such as gold, silver, copper, plastics and more are recovered, while byproducts such as mercury, lead, barium and cadmium, the inherently hazardous byproducts of electronics, are carefully managed. Waste Management satisfies customer compliance with consumer take-back programs in the 25 states mandating these eCycling programs and provides the same comprehensive management in nonlegislated states as well.

## Coal Ash Recycling

Air pollution regulations require particulates such as fly ash, a byproduct that can be used as a cement replacement in concrete production, to be captured rather than emitted. However, the methods used to capture fly ash lead to increased carbon levels in the fly ash. Power plants use activated carbon injection (ACI) systems to remove mercury from flue gases, which is then recaptured in the electrostatic precipitators or bag houses.

\*U.S. EPA Facts and Figures, 2015

This process prevents mercury from escaping the smokestack into the atmosphere, but the resulting fly ash contains elevated carbon levels that negatively affect the durability of concrete. Our patented Carbon Blocker fly ash treatment system is widely used by utilities to improve the quality of fly ash, making it suitable for recycling in concrete product applications.

With more ACI systems in use today, fly ash recycling is a growing business for us. Since we acquired this proprietary technology in 2012, revenues have quadrupled, and in 2017 we beneficially utilized 972,894 tons of fly ash, with 863,763 metric tons of carbon dioxide (MTCO<sub>2</sub>e) avoided.



## Healthcare Industry Waste

Two divisions of Waste Management work with the healthcare industry to reduce infectious medical waste and to provide facility-specific advice on means to reduce waste, recycle and assure protective disposal of the diverse streams of waste coming from hospitals and other healthcare providers. Waste Management Healthcare Solutions (WMHS) focuses on protecting the environment from potential impacts of infectious medical waste. In 2017, WMHS treated over 12.8 million pounds of infectious medical waste, then sent the noninfectious residue for secure disposal at secure landfill facilities. Healthcare Integrated Customer Solutions (ICS) works with healthcare customers, including 80 hospitals and more than 500 smaller locations, to manage their entire waste generation. In 2017, WMHS — ICS hospitals collectively achieved a total waste-to-recycling diversion rate of 20.4 percent and regulated medical waste generation rate of 7.7 percent. Our PharmEcology business unit works with over 300 healthcare customers and has implemented pharmaceutical waste programs at these institutions that have diverted over 2,500 tons of pharmaceuticals from entering our national waters through proper disposal management.

## Case Study: Progress Adds Up

Simi Valley Hospital in Southern California serves the surrounding communities with a full range of medical services. Following a large-scale renovation nearly 10 years ago, the hospital found that it was producing more solid, liquid and biomedical waste. The medical center's leadership partnered with Waste Management Sustainability Services (WMSS) to both divert waste from landfill and strengthen their relationship with the community through environmental stewardship. Since then, the WMSS team has developed recycling, safety and analysis programs that have delivered strong results:

- **RECYCLING:** Successfully planned and implemented a hospital-wide, single-stream recycling program that resulted in a 63 percent increase in recycling in one year
- **CONSTRUCTION & DEMOLITION RECYCLING:** Identified 80 percent of material as recyclable and diverted from landfill
- **COMPLIANCE:** Designed a universal waste program for regulatory compliance and safety
- **DIVERSION:** Increased waste diversion rate from 21 percent to 47 percent in six years
- **DATA TRACKING:** Collected and monitored various waste stream data for document diversion programs

# CONSULTATIVE AND CUSTOMIZED APPROACH

Waste Management  
Sustainability Services  
(WMSS)

**Every organization, no matter the size or type of business or service, is in a different place on their sustainability journey. For this reason, a consultative and customized approach is often necessary.**

As one of the leading environmental service and solutions companies in the world, we are experts at optimizing efficient operations, minimizing environmental impact, instilling a culture of safety and accelerating performance. We leverage this expertise to customers across a wide range of industries through Waste Management Sustainability Services (WMSS). In the process, customers gain access to Waste Management's resources, technologies and innovations, which comprise the leading portfolio of environmental solutions in North America.

Our certified team of experts — executives, engineers, scientists, analysts and innovators — work in collaboration with customers to design, develop and implement a wide range of solutions to meet sustainability, regulatory and cost-saving goals that adapt to a company's evolving needs. We work closely with each customer to offer customized, comprehensive solutions, whether the customer is starting out on the path toward sustainability or has already begun their journey.

WMSS engages around the concepts of sustainability with 100 percent of its customers. Understanding how a customer defines sustainability within their own organization is considered a critical first step in discussing their overall business goals and strategy. Every initial conversation requires five questions related to sustainability:

1. Where are you on your sustainability journey?
2. Where do you want to be?
3. When do you want to arrive?
4. What resources (financial, expertise, relationships, upper-level support) do you have to get there in that time frame?
5. What is your company's footprint and what kind of impact do you want to have?

## Waste Management Sustainability Services

### AT-A-GLANCE

**FOUNDED IN**  
**1997**

**\$200M+**  
**CUSTOMER**  
**COST SAVINGS**  
Since 2003

**\$14.8M**  
**SAVED IN 2017**

**>400**  
**PROFESSIONALS**

Each customer is assigned their own personalized team of materials management experts who embed themselves in the organization, on site or remotely, to ensure that the programs they construct are executed to drive environmental, social and economic value. Our implementation and management services seamlessly bridge the gap between conception and actualization. We also help track and measure results, amplify progress toward sustainability goals, and promote and celebrate accomplishments.

Industries served include:

- › Petrochemical
- › Commercial Properties
- › Construction
- › Automotive
- › Manufacturing & Industrial
- › Healthcare
- › Transportation & Logistics
- › Retail
- › Public Sector
- › Events & Venues



For some customers, the best options for sustainable materials management involve leveraging both Waste Management's local assets and a broader network of third-party specialized providers. Customer solutions can span on-site support with local services and remotely managed specialized service providers. In this regard, we can serve as both broker and asset provider to increase efficiencies and meet customer goals for maximum reuse and recycling.

Our remote and on-site resources programs place one or more Waste Management staff members on site at a single customer location or cluster of proximal customer locations. Designed for large, complex facilities, these centralized, customized and proactive industrial waste management strategies offset the expense of the dedicated resource. Our on-site, single-point-of-contact experts work upstream into each of the customers' processes that generate waste, seeking ways to eliminate cost and capture byproducts at their highest point of value.

WMSS's centralized solutions use experienced people, a nationwide network of vendor-partners and an innovative IT software platform to manage environmental programs that achieve business improvement targets, corporate environmental goals and ISO 9001 and 14001 objectives. A materials management expert serves on site, off site, or a combination thereof as a single point of contact to develop and drive all elements of a customer's program or project.

## Helping Our Customers Meet Their Sustainability Goals

### PRODUCT SOLUTIONS

Product innovation is a critical part of today's business landscape. Consumers are increasingly pressuring manufacturers to innovate products in a manner that provides greater value and minimizes environmental impact. Our team of experts collaborate with our customers during the design phase to minimize the impact of their products on the environment and return valuable materials to the production stream through informed design choices.

A key element of that partnership is helping customers [Design With Intent](#), taking a systems-thinking approach that considers the true recyclability of products early in the design phase. This process takes a systems approach to product design that considers three factors: material selection, ease of disassembly and recycling infrastructure capabilities. Additionally, our Sustainable Innovation Workshop is designed to train customers on how to develop the insight necessary to make sustainability-driven, value-minded business decisions.

## SUSTAINABLE INNOVATION WORKSHOPS

A Sustainable Innovation Workshop is a facilitated session between Waste Management and our customer that focuses on gaining a deeper understanding of business objectives and challenges, culminating in a collaborative roadmap to achieve goals. Waste Management engages multiple stakeholders to facilitate the process of sustainability strategy development. The process includes data gathering, interviews and bringing stakeholders from various parts of the company together for a guided workshop.

## Technology, Innovation and Strategic Alliances

Realizing the potential for innovation to meet customer challenges, in 2016 WMSS formed our Technology, Innovation and Strategic Alliances (TISA) Group to specifically focus on the landscape of emerging solutions. The group has been tasked with working alongside customers to vet, incubate and operationalize emerging opportunities that Waste Management can uniquely leverage to solve customer challenges.

The TISA team held their first Innovation Lab the week of the 2018 Waste Management Phoenix Open. The goal was to have an intentional dialogue with customers to better understand the innovations they most wanted to see Waste Management develop and offer to solve their biggest challenges. [See an overview of the event, and the response from customers.](#)

We facilitate this by providing an overview of industry trends and shared insights based on our experience in the marketplace to determine where our customer would like to be and how best to get them there. Having conducted a gap analysis of the customer's data and current programs, Waste Management is able to provide specific recommendations and probe for feedback on future sustainability initiatives from the group. By using an interactive, dialogue-based approach, both parties are able to understand challenges and discuss specific opportunities where collaboration can help drive value in the organization.

The benefits to customers participating in a Sustainable Innovation Workshop include the ability to benchmark against other leaders in their industry and discover new ideas and strategies to transform their business. In addition, participating in a workshop takes advantage of having a cross-functional team in one place to identify solutions to multiple issues in one day, thus helping to achieve goals in an expedited fashion and sustain project momentum while saving time and money.

In addition to meeting with representatives of our customers' environmental teams in energy and operations, transportation, and waste and recycling, Waste Management includes representatives from other departments, including executive leaders, procurement, loss prevention, donations, vendor management, reverse logistics, human resources, marketing and employee education, to learn how various programs integrate with overall company policies and practices.

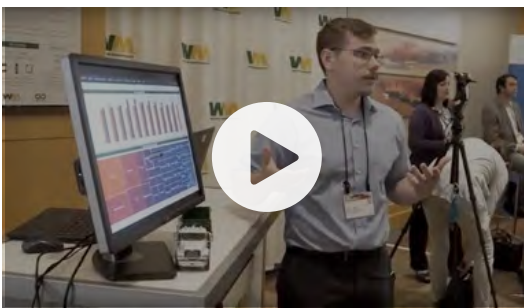
Working alongside one of our manufacturing customers, for example, we were able to help them create the first 100 percent fully recyclable product of its kind on the market by helping the customer analyze collection and processing influences, which validated the input materials for the product from the start.

## PROCESS SOLUTIONS

No matter the industry, we consult with customers on a systematic approach to build on existing processes, infuse best practices and cultural improvements, and enhance an organization's ability to implement healthier, more sustainable practices into its operations.

WMSS consulting teams conduct comprehensive audits of the social, environmental and economic impact of our customers' businesses. Audit findings generate recommendations for cost-effective ways to improve energy efficiency, resource management, waste diversion and alternate disposal opportunities. Then, we develop detailed roadmaps for eliminating waste and executing this strategy on site, often through reduced demand for source material and increased recycling.

Our on-site team is embedded with customers seeking sole-source suppliers with the infrastructure and expertise to execute national waste reduction programs. With their understanding of each customer's operations and unique challenges, our on-site employees can deliver low-risk, high-value solutions to complex environmental, business, safety and regulatory needs.



### How Data and Analytics Can Power Decision Making

#### ANALYTICAL SOLUTIONS

Measuring environmental, social and economic impacts helps customers assess progress and provides valuable data to use as a baseline in understanding the environmental impact of materials management decisions. WMSS offers customers a portfolio of tools to measure, manage and communicate sustainability progress and goals, with the knowledge that accurate and clearly communicated data analysis is imperative to making these strategic decisions.

This effort is led by our Nexus team — skilled developers, analysts and project managers who work to recognize, research, develop and implement technology and reporting solutions. The Nexus team provides solutions to customer challenges via services such as customized web-based business intelligence platforms, streamlined invoicing solutions, automated reporting, app and web development and comprehensive data analysis. For example, ENSPIRE® is an online business intelligence platform created by our Nexus team that aggregates and repackages raw sustainability data into one interactive dashboard. Waste Management customers use ENSPIRE® as a platform to consolidate all their waste data from the U.S., Canada and Europe for full transparency and ease of reporting. It helps them understand how waste management choices impact their GHG emissions and allows them to set goals for GHG reduction, reuse and recycling. Providing ENSPIRE® is consistent with our overall approach of serving customers by reducing their carbon footprint — and doing so with clear tracking and ambitious metrics.

ENSPiRE® has managed more than 15 million tons of materials for customers at more than 60,000 locations. In 2017, material managed through ENSPIRE avoided nearly 7 million metric tons of GHG emissions, thereby meeting the need for an increased focus on corporate transparency.



### OTHER PLATFORMS THAT WE DEPLOY ARE:

- Sustainability Tracker:** A leaner version of ENSPIRE®, this tool is designed for smaller customers who want to focus on specific KPIs in a condensed format for quick data evaluation.
- INSIGHTS:** Launched in 2018, this technology generates and sends customized scorecards to customers on their schedule. Customers automatically have the information they need to make important operational decisions.
- DART®:** Our Construction group's Diversion and Recycling Tracking (DART) tool helps project planners, contractors, architects and building owners set "green" performance targets and measure their progress during construction, renovation and demolition projects.



## Case Study: Waste Doesn't Take Vacations

How do you create a luxurious hotel environment where guests can get away from it all while practicing responsible environmental stewardship? How do you position yourself as a sustainability leader within your industry while depending on your guests to make diversion goals a reality? And how do you do it on a global scale, with different infrastructural challenges, cultures and attitudes toward waste and diversion?

**CONSULTING GOAL:** Develop roadmap for client's waste reduction goal achievement through upstream and downstream mechanisms to prevent and divert landfilled waste while considering infrastructure limitations.

Developing robust diversion goals is not an easy task. Realizing those goals is even more difficult, especially when considering the need to align with industry best practices, guest expectations and the ability to replicate strong programs across the globe. Achieving a global diversion goal within the hospitality industry requires the participation of multiple stakeholders — guests, employees, management, vendor partners and beyond. The ability to design and implement an effective strategy to engage all stakeholders and achieve the goal requires solid data, innovation, a collaborative spirit, and deep-seated knowledge of the client's industry and operations.

### ADVISORY SERVICES

#### Waste Composition Studies

- › Completed waste assessments at full- and limited-service properties to benchmark composition and diversion rates across lines of business

#### Program Implementation and Optimization

- › Created customized educational tools, including multilingual pocket guides and training materials
- › Developed tailored signage and bin placement strategies
- › Recommended programs to reduce newspaper and single-use amenities consumption
- › Recommended additional investment in on-site food waste digestion technologies
- › Recommended optimizations to amenity donation, employee engagement and reporting programs to drive progress toward diversion goal

#### Life Cycle Analysis

- › Used results of waste composition studies and EPA WARM model to determine greatest opportunity for improvement
- › Layered life cycle thinking with economics of material management to identify the greatest opportunities for carbon and energy use reduction, as well as managing spend on environmental services

#### Strategy Development

- › Collaborated with customer to develop industry-specific goals with measurable, transparent key performance indicators
- › Analyzed waste composition, cost of ownership and life cycle data to determine primary drivers for goal achievement
- › Aggregated data from the entire portfolio regarding waste generation and supply chain impacts to support the hotels' existing efforts to minimize waste

- › Researched differences in operations and infrastructure for each global region through interviews and other resources
- › Based on data and global context, developed strategy to implement recommendations in order to reach goals

### Supply Chain Analysis

- › Requested data including quantities and types of materials purchased to drive recommendations for supply chain optimization
- › Developed alternate metrics and methods for obtaining data where it was not available

### Global Playbook Development

- › Completed global market analysis to understand regional infrastructure and growth potential, hospitality trends, and cultural and political drivers impacting waste diversion
- › Provided region-by-region descriptions of how to implement target diversion programs to achieve waste reduction goal
- › Utilized supply chain analysis to determine how programs should be weighted in order to achieve goal
- › Applied normalized metrics to the global portfolio to assign percentage diversion reductions per region, per program
- › Provided tactical guidance for program implementation
- › Formulated vendor questions to reduce primary and secondary packaging on purchased goods
- › Included case studies of the newspaper and amenity donation programs

For customers who want a comprehensive view of their product's environmental impacts, we offer [Life Cycle Assessments](#) that evaluate all stages of a product's life — raw material extraction, manufacture, distribution, use, repair and maintenance, and end-of-life disposal or recycling. WMSS applies carbon reduction factors to material disposition options to maximize the end-of-life solutions for materials a company generates. The analysis provides insights into which stages have the greatest potential to avoid GHG emissions or to conserve natural resources. Using this analysis, WMSS is able to make recommendations for how to manage discarded materials in a way that maximizes the carbon reduction performance of a waste management program.

Our [vendor scorecards](#) are a supply chain management tool that helps customers assess whether their vendors meet sustainability goals, including compliance with sustainable purchasing policies and packaging requirements.

### Certifications & Standards

Many of our customers seek external verification of their sustainability efforts to underscore the credibility of their efforts and avoid greenwash claims. WMSS serves as a guide through this process, including advising on these third-party rating and certification systems.

- |                                                        |                                                |
|--------------------------------------------------------|------------------------------------------------|
| › Leadership in Energy and Environmental Design (LEED) | › BOMA 360                                     |
| › The WELL Building Standard                           | › Council for Responsible Sport Certifications |
| › TRUE Zero Waste Certification                        | › ENERGY STAR Certifications                   |
| › UL Zero Waste Validations                            | › Green Globes Certifications                  |

## Measuring Customer Success

Delivering cost savings to customers through our WMSS operations is a primary objective and the key metric by which we measure success. One of our ISO goals is to provide ten percent of annual revenues back to customers as cost savings for contracts of less than five years and six percent for contracts of more than five years.

In 2017, of 97 customer facilities under WMSS service engagements, we delivered savings of at least eight percent of revenues, and 23 percent of those facilities delivered savings of greater than ten percent of revenues. That translated into \$14.8 million in cost savings on \$181.7 million in revenue. 2017 marked the 14th consecutive year that WMSS has delivered more than \$10 million per year in savings. Since 2003, the team has delivered more than \$200 million in cost savings to customers.

### 2017 Customer Cost Savings by Industry Sector

Industry Sector	2017 Revenues	2017 Cost Savings	Savings as % of Revenue	% of 2017 WMSS Cost Savings
Automotive	\$ 22,781,383	\$ 4,013,576	17.6%	27.3%
Chemical	\$ 23,793,391	\$ 1,312,923	5.5%	8.9%
Metals / Manufacturing	\$ 18,635,614	\$ 2,869,124	15.4%	19.5%
Petrochemical	\$ 65,880,445	\$ 3,933,757	6.0%	26.8%
Remote	\$ 19,584,530	\$ 410,403	2.1%	2.8%
Other	\$ 38,691,805	\$ 2,161,808	5.6%	14.7%
<b>Totals</b>	<b>\$189,367,168</b>	<b>\$14,701,591</b>	<b>7.8%</b>	<b>100.0%</b>

### CUSTOMER SATISFACTION RESULTS

Customer satisfaction is another way we measure our performance. Every year we ask our customers how satisfied they are with our results and request their response through our Customer Engagement Index, then we measure the results against WMSS's ISO goals. In 2017, 57 percent of WMSS customers participated in the survey. Of those, 98 percent completely agreed that WMSS met their needs and provided valuable service.

### Cost Savings by Solutions Type

- Strategic Sourcing: 22%
- Process Improvement: 47%
- Optimized Logistics: 9%
- Recycle/Reuse: 22%



# Measuring Customer Success

Our customized, integrated approach is designed to ultimately take our customers' sustainability initiatives to the next level — regardless of where they might be on their sustainability journey. We look at customer success through three different lenses: diversion, safety, and efficiencies and cost savings. Here are some recent examples of customer success.



## Auto Manufacturer

RECYCLED NEARLY  
**90,000 Tons**  
of materials  
in 2017



## Petrochemical Facilities

CUSTOMERS ACHIEVED  
NEARLY  
**\$4 Million**  
in cost savings



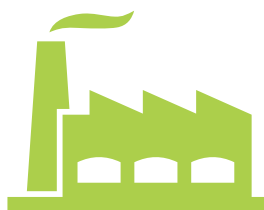
## Retail Food Customer

DIVERTED  
**2,240 Tons**  
of food scraps, increasing  
diversion from 10 percent to  
80 percent in 7 months



## Commercial Property

ACHIEVED  
**77% Diversion**  
up from 20 percent, in less than  
a year, resulting in a 30 percent  
increase in cost savings



## Metals Manufacturer

Through a comprehensive  
resource recovery plan,  
customer recovered  
**20-25 Tons**  
**OF BYPRODUCT PER WEEK**  
reaching its landfill reduction  
goal and generating **\$500,000**  
annually in discovered value



## Construction and Mining Manufacturer

Saved  
**\$145,000**  
**IN ONE YEAR OF  
WMSS PROGRAM**



# WASTE MANAGEMENT PHOENIX OPEN

**Waste Management has been the title sponsor of the Greenest Show on Grass since 2010. Coming up on our 10th anniversary, the Waste Management Phoenix Open remains the most attended PGA TOUR tournament and largest third-party certified zero waste event in the world. We have consistently used this spotlight to engage with stakeholders on environmental issues, as a platform to show the varied and valuable services we provide, and to raise the bar for sustainable sports globally.**

The Waste Management Phoenix Open tracks its carbon and water footprints, in addition to being zero waste. Use of water, energy and materials all contribute to the GHG emissions that are warming our planet, and the event commits to balancing all environmental impacts from tournament activities.

As the title sponsor of the Waste Management Phoenix Open, Waste Management works tirelessly to create a unique PGA TOUR tournament with a widespread and lasting positive impact. We challenged our commitment to the fans, local communities, and environment, as well as to hosting Thunderbirds, the PGA TOUR and to our own brand by achieving zero waste for the fifth year in a row with another on the way. It's the ultimate model of what is possible in terms of environmental leadership and vision.

- ▶ Every choice made during the planning process was thoughtfully worked through to ensure that the event lived up to the title of "The Greenest Show on Grass." Year after year, Waste Management is the backbone of this zero waste achievement, making sure all tournament material finds new value — through reuse, recycling, composting, donating or turning it into energy. These efforts are meant to inspire partners, fans and viewers at home to experience and witness what's possible.
- ▶ Waste Management also looks beyond diversion, prioritizing a reduction of waste in the larger sense and establishing programs for water conservation and restoration, renewable energy, GHG monitoring and carbon offsets.
- ▶ The Waste Management Phoenix Open is not only a chance to showcase our services and capabilities — it's a platform through which Waste Management strives to drive environmental responsibility.



## Waste Management Phoenix Open AT-A-GLANCE



### NATURAL RESOURCE MANAGEMENT

- › 75 million gallons of water restored
- › 100 percent renewable electricity
- › All operations and player travel emissions offset



### MANAGING MATERIALS

- › 100 percent landfill diversion
- › Food and material donation



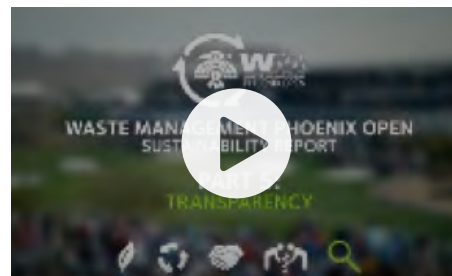
### FAN & STAKEHOLDER ENGAGEMENT

- › Zero Waste Station engagement
- › 100 percent vendor compliance with material requirements



### COMMUNITY IMPACTS

- › Over \$10 million to charity from Thunderbirds Charities
- › \$105,000 to environmental organizations



### TRANSPARENCY & ENVIRONMENTAL IMPACTS

- › Council for Responsible Sport — Evergreen Inspire
- › Golf Environment Organization — GEO Certified®
- › UL — Zero Waste to Landfill Operations with 13.9 percent Incineration with Energy Recovery

# Waste Management Sustainability Forum

The Waste Management Sustainability Forum is an opportunity to convene a wide variety of thought leaders, policymakers, business people, experts, entrepreneurs and entertainers on the subject of sustainability. From its early, modest beginning eight years ago in a conference room at Arizona State University to its 2018 event with wall-to-wall screen and a livestream audience watching from home, the Forum has evolved to inform and inspire. It encourages participants to exchange ideas and learn to transform big thinking into bold actions to create a better world.

This year, introductory remarks by The Gates Foundation's President, Bill Gates, and Waste Management's CEO Jim Fish reminded us that sustainability is about more than just environmental goals and measurements. Mike Rowe, Executive Producer and Show Host and Keller Rinaudo, Founder and CEO of Zipline, talked about the amazing power of people, and Chicago Mayor Rahm Emmanuel spoke to resiliency. A recording of the day can be found [here](#).

As in previous years, the Waste Management Sustainability Forum shifted gears in the afternoon, taking a deeper dive into key issues in our industry. The afternoon panels this year covered international recycling trends associated with China's changing import policies and a high-level analysis of the role of life cycle thinking in the recycling industry. With record attendance for the entire day — right up to the last speaker — attendees heard thoughtful presentations on leading efforts in our industry, and where they are heading. These panels included:

## ALL ABOUT CHINA

Our recycling panel offered a rare opportunity to hear from the largest domestic mill buyer of mixed paper, Pratt Industries, and from one of China's largest mill groups, Lee & Mann. Ross Lee from Lee & Mann provided a unique insight into his company's approach for managing through changing policies that result from the Chinese government's commitments to a cleaner China. Clearly, material quality takes center stage for mills in China.

And Myles Cohen, President of Pratt Recycling, explained how his company recycles New York City's mixed paper into pizza boxes, and mixed paper from Waste Management into the recycling containers used throughout the Waste Management Phoenix Open course. These efforts exemplify one of the key messages from this panel, which is the need for sufficient



demand for recyclable materials if we are to successfully maneuver through the current global oversupply caused by China's import restrictions.

A critical topic covered by the panelists was the overwhelming need to focus on quality. Both domestic and international mills reminded us that China's quality requirements have generated much stricter quality requirements across the globe.

## IT'S ABOUT THE ENVIRONMENT

Linking global markets to state and local policies, the rest of the afternoon dug deeply into the trends, facts and projects associated with life cycle thinking, as well as looking more broadly at our environmental goals and how we can think differently about our materials management programs to maximize our environmental benefit. We were reminded of why we recycle, and the importance of focusing on those actions which offer the greatest environmental benefits versus simply counting tons recycled.

Cheryl Coleman, Director for the Resource Conservation and Sustainability Division within the Office of Resource Conservation and Recovery at the U.S. EPA, described EPA's framework policy, called Sustainable Materials Management, which focuses on using life cycle thinking to evaluate products along their entire life cycle, creating goals and programs that focus on achieving the greatest overall environmental impact — not focusing only on end-of-life programs and goals.

This approach has been embraced by the State of Oregon, with senior policy analyst David Allaway, from the Oregon Department of Environmental Quality's (ODEQ) Materials Management Program, presenting on his state's programs. Allaway's national leadership on this topic centers on the rationale for considering the environmental impact of materials, versus end-of-life, weight-based recycling goals. Evaluating their own waste stream and the environmental impacts of various materials within it, Oregon has come to focus their efforts on reducing food waste by 25 percent by 2025 and recovering 25 percent of their plastic and carpet by 2025.

Mayor Denny Doyle from Beaverton, Oregon, next outlined the efforts that the City of Beaverton is making to reduce food waste, in support of his state's reduction goals.

## FROM THE AREA OF ACADEMICS

Dr. Tim Townsend, Jones Edmunds Professor of Environmental Engineering Sciences in the Engineering School of Sustainable Infrastructure and the Environment at the University of Florida, talked about the work he and his graduate students are doing to reevaluate Florida's recycling goals — reshaping their goals away from simple end-of-life, weight-based recycling goals to energy reduction goals. Similar to Oregon's efforts, Dr. Townsend has reviewed waste characterization data for the state through the prism of GHG emissions and energy. From this, Dr. Townsend described how new goals could reflect a realistic 75 percent energy reduction goal from a 2005 base year, with specific programs geared toward recycling the right things.



This panel brought the national discussion around goals and measurements to a new level by clearly describing the case for change and the concept of creating new and different goals that reflect environmental benefits along the entire life cycle of products and packaging.

### MODERATED DEBATE OF LIFE CYCLE PRINCIPLES

One of the concerns with a shift to Sustainable Materials Management or Life Cycle Thinking has been the debate over whether it is a distraction from important recycling efforts.

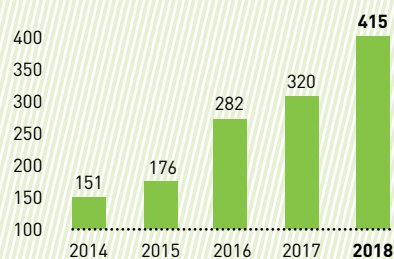
Perhaps one of the best ways to engage in such meaningful discussions is to bring together thought leaders who do not necessarily agree. One of the highlights of the afternoon was a discussion between senior policy analyst David Allaway and Steve Alexander, President and CEO of the Association of Plastics Recyclers. Through a moderated question and answer session, Allaway and Alexander discussed topics such as whether or not life cycle thinking gives packaging producers license to skip the “design for recycling” component of their obligation for packaging improvement. Policies that drive the greatest environmental benefits simply must be incorporated into programs to ensure a long-term and ongoing effort for continuous improvement.

### LIFE CYCLE ANALYSIS

U.S. EPA’s Jarrod Bridge, an environmental physical scientist in the Sustainable Materials Management Program, wrapped up the day with a short workshop on EPA’s WARM (Waste and Reduction Model) tool, that calculates carbon and energy

emissions for various materials in the waste stream. This popular workshop was included specifically in response to previous attendee requests and has since been recreated at other venues.

### Record In-Person Attendance



An additional 442 people participated in the Sustainability Forum online, bringing the total number of participants to well over 800 individuals.

More information on past and future Sustainability Forums can be found on our [website](#).

# RECYCLING PARTNERSHIPS

**Recycling operations involve a complex flow of materials. We collect, and our facilities receive, recyclables from a variety of sources: our own trucks, city collection crews, customers and competitors. Because of the complexity of this network, we realize that it makes more sense to work with partners across the industry than to try to identify and solve business challenges on our own.**

Waste Management has several key partnerships, including The Recycling Partnership, a nonprofit organization that works closely with cities, counties and states to implement effective programs; Keep America Beautiful, which works with local communities to help teach the fundamentals of recycling to a broad consumer base; and Industry Associations that include the National Waste and Recycling Association (NW&RA), the Solid Waste Association of North America (SWANA) and the Institute for Scrap Recycling Industries (ISRI). Our national partnerships on recycling are important means to educate legislators, regulators and the public about ways public policy can maximize the environmental benefits latent in recycling, or impede progress in this area. They are important means to advance the sustainability of recycling over the long term by serving as resources on recycling technology, end markets, and life cycle analyses. Local partnerships are equally important, and we participate actively with groups around the country. Read more in our [Communities](#) section.



# BETTER OPERATIONS

A CHANGING FOOTPRINT THAT IS  
LIGHTER, CLEANER AND SAFER.

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# SAFE LANDFILLS

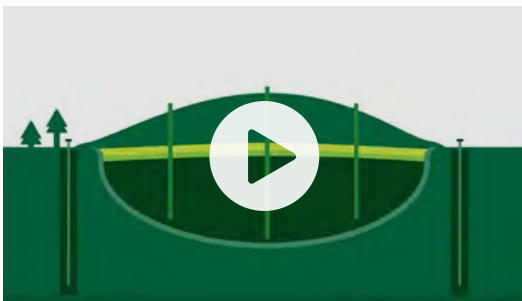


**Waste Management provides solid waste collection services to nearly 20 million customers in North America — from households to public venues to large companies. All told, after recycling or diverting various materials for reuse, we safely manage the disposal of nearly 100 million tons of waste annually, including common municipal trash and highly specialized materials such as medical and industrial waste. To handle this volume, Waste Management operates the largest network of landfills in our industry and works hard to minimize the impact of those facilities on neighbors and the environment.**

Modern landfills are the products of sophisticated engineering, providing both secure containment systems for the disposal of waste and the opportunity to capture value through the conversion of waste to energy. Waste Management's modern landfills in the United States were developed under the federal Resource Conservation and Recovery Act (RCRA), which requires rigorous siting evaluation, site characterization and scientific

engineering design, as well as a comprehensive permitting and regulatory approval process that includes public notification and comment. RCRA standards also require a range of measures to prevent environmental contamination, including the use of engineered liners and covers, collection and control systems for landfill gas, and collection and treatment systems for leachate (water that accumulates in and filters through waste).

Our modern sites are designed and operated to go beyond regulatory requirements. We continually monitor and work to improve the safety and environmental security of our disposal facilities and are committed to reporting the results of these efforts. We strive to avoid



**Watch How a Modern Landfill  
Is Constructed**





conditions that cause concern for neighbors and communities, including odors and noise, regardless of whether those conditions are covered in our regulatory obligations. We also work with waste sector experts to understand what happens within landfills after they are closed. Studies have shown that modern municipal solid waste landfills tend to improve predictably over time, steadily producing less gas and less (and cleaner) leachate. Many of our landfills are designed and managed to ensure they can be used after closure for commerce, industry or even conversion into wildlife habitat or public parks.

## Surface and Groundwater

Waste Management's landfills are living laboratories for testing new technologies to help us improve how we manage stormwater and leachate, and how we design and maintain landfill cover and gas collection systems. We test the effectiveness of new technologies at select sites before broadly employing them at all sites to enhance environmental performance and reduce operational costs. Waste Management utilizes extensive engineering controls and practices to protect surface water and groundwater. We maintain a comprehensive network of more than 6,000 groundwater-monitoring wells around our facilities, and every landfill uses monitoring strategies — many involving sophisticated statistical evaluations — to ensure that water quality in adjacent surface water and groundwater bodies is not impacted.

Our modern municipal solid waste landfill liners contain all liquids, which are then managed according to applicable regulations and design standards. We employ a staff of nearly 200 professional engineers, environmental scientists, regulatory experts and technicians who ensure that every facility works to protect surface water, stormwater and groundwater from any potential operational impacts.

We use managed basins, tanks, containment structures and separators to redirect liquids for proper disposal and treatment. We also monitor on-site wastewater treatment plants to optimize efficiency and utilize a toolkit of best management practices for our field operations.

### Percent of Waste Management Modern Landfills' Liners Preventing Off-site Groundwater Contamination

# 100%

2013-2017

Waste Management's modern RCRA Subtitle C and D-regulated landfill liners continue to perform as designed, not allowing leakage through the liner requiring cleanup of groundwater under neighboring priorities.



## Stormwater Filtration

Waste Management landfills collect and discharge millions of gallons of stormwater each year. The water must be managed to ensure it is clean enough to meet strict state requirements before being released to water bodies or public treatment plants. One new technology, called Terra-Tubes, has been successfully deployed at several landfills to reduce suspended solids in the stormwater. Terra-Tubes are made of engineered wood and man-made fibers encased in a heavy-duty, knitted cylindrical tube. The tubes are installed at stormwater outfalls and have been successful in slowing water flow to allow for settling and enhanced filtration of the water prior to discharging it off site.



## Natural & Enhanced Leachate Evaporation

Landfills naturally produce leachate from a combination of the breakdown of waste materials and precipitation falling on the landfill. Leachate is typically stored on site in lined impoundments or tanks before it is treated and eventually discharged. Waste Management has been developing and testing technologies to reduce both the volume

of water and disposal costs. One technology harnesses nature. By constructing wetlands and planting grasslands and poplar groves to naturally filter and clean leachate, Waste Management has made use of natural ecological systems to treat water, while also increasing natural habitat for native plants.

We have also used a simple technology that recirculates and evaporates leachate using the side slopes of leachate ponds. An electric pump pulls water from the pond and circulates it through lateral pipes that are equipped with sprinkler heads. Water that is not evaporated filters through gravel placed on the side slopes to return to the pond. The system can evaporate as much as 20,000 gallons of liquid per day, reducing the volume of water that must be handled at publicly owned wastewater treatment plants by as much as 30 percent.



Another new technology deployed at several western Waste Management landfills uses a solar-powered floating recirculation device that draws leachate from deep within the pond and disperses it at the surface to help maintain warmer surface temperatures that enhance evaporation. Called the SolarBee, the device also eliminates pond scum on the surface that can interfere with evaporation.

Waste Management engineers have developed a pilot evaporation system that uses waste heat from the landfill's engine plant that is used to produce renewable electricity. The waste heat warms the leachate to facilitate evaporation and enhance treatment. Data from the pilot will be used to evaluate other locations where the technology can be deployed.

## Innovation in Landfill Cover

A closed landfill's final cap or cover is one of its most important environmental protection features. It must be constructed in accordance with federal and state requirements and properly maintained for years into the future. A typical final cap comprises several layers of plastic membrane, a drainage system and a covering of soil. These covers are engineered to prevent precipitation from percolating through the landfilled waste.

With approval from U.S. EPA, Waste Management has permitted over 40 sites for the design and construction of innovative final covers known as evapotranspiration covers. These covers are constructed of soil and selected vegetation and are specifically designed to store water and release it to plants through evaporation. By working with nature rather than resisting it, evapotranspiration covers provide long-term, sustainable protection, are easy to maintain and provide a natural habitat of native plants and grasses.



Credit: McMahon & Mann Consulting Engineers, P.C.

### Remediating Cortese Landfill

The responsible parties at this Superfund site are finding opportunities for “green remediation” consistent with EPA Region 2’s Clean and Green Policy. The group will purchase renewable energy credits equivalent to the electrical power usage at the site in lieu of on-site renewable energy generation inconsistent with local conditions. 100 percent of electricity used at the site comes from renewable sources. Where consistent with regulations, material at the site, for example, construction material for wells and piping, is reused or recycled. Also, equipment used at the site is evaluated for incorporation of energy efficiency and recycled material.

## Long-Term Stewardship

Just as we strive for safety and environmental quality at all our operating landfills, we want to be stewards of the environment when these facilities come to the end of their useful lives. Since 1991, Waste Management has had an independent, formally designated Waste Management department to manage the company’s legacy sites — closed landfills linked with companies Waste Management acquired over the years and facilities closing at end of permit life. The department is separate from ongoing operations, with specialists experienced in the science and engineering of site closure and long-term management of these properties. These experts bring a fresh eye to sites ending their useful lives, and they are attentive to opportunities for secure maintenance of the sites for the long term. The Environmental Legacy Management Group also looks for opportunities for these sites to provide new benefits to the community.

These efforts are supported by innovative, peer-reviewed science from Waste Management employees working with leading experts in their fields.

# Landfills With a Lasting Legacy

Currently, Waste Management has six closed landfills that provide areas for community parks and recreation opportunities.

## COUNTY LINE

Denver, CO

- > soccer fields
- > BMX track

## OYSTER BAY

Oakland, CA

- > hiking trails
- > picnic areas
- > dog walking
- > frisbee golf

## BLACKWELL

Ontario, Canada

- > walking trails
- > dog park
- > playground

## MIDWAY AND SETTLER'S HILL

Contiguous sites in  
west metro Chicago, IL

- > golf courses
- > cross-country course  
that is currently in  
development by the county

## GREENE VALLEY

West metro Chicago, IL

viewing area open to the  
public at certain times but  
controlled by the Forest  
Preserve

## PJP LANDFILL

Jersey City, NJ

transferred to the City  
and NJDEP which allowed  
for use as a public park





## Solar Energy Applications at Closed Landfills

Our large geographic footprint of landfills and their proximity to existing infrastructure can make them ideal locations for large-scale solar installations. We continue to increase our commitment to solar generation, a strategy that is aligned with U.S. EPA's RE-Powering America's Land initiative. First launched in 2008, this innovative federal program has resulted in nearly 253 installations on contaminated lands, landfills and mine sites, with a cumulative installed capacity of just over 1,397 megawatts nationwide.

Site	Size	Lease Holder
Parklands (NJ)	10.1 MW (dc)	PSE&G
L&D (NJ)	12.9 MW (dc)	PSE&G
Hunt Road (MA)	6.0 MW (dc)	Citizens Energy
Berkley (MA)	3.612 MW (dc)	Captona Energy Partners
MT Sullivan (MA)	2.54 MW (dc)	Captona Energy Partners
Hudson Stow (MA)	5.83 MW (dc)	Captona Energy Partners
Cinnaminson (NJ)	13 MW (dc)	PSE&G

Currently, we lease seven closed landfills for solar development, working collaboratively with the Waste Management Renewable Energy group. A summary of the portfolio follows:

In New Jersey, we have partnered with Public Service Electric and Gas Company (PSE&G), which, in 2018, constructed a third solar project on the

closed Cinnaminson landfill in Cinnaminson, New Jersey. The project is planned to be 13 megawatts and is anticipated to be commissioned by the end of the year. We plan to generate 54 megawatts of power from the solar fleet on closed facilities before 2019.

## Expertise & Research

As the largest operator of landfill networks in the industry, we provide extensive staff training to assure continuing education and dissemination of current best practices. This training includes classes in landfill design, construction and management; landfill gas systems management; and advanced instruction in air permitting and compliance. These courses are complemented by a range of eLearning modules in the management of greenhouse and other gases. Other learning opportunities enhance expertise in almost every phase of safe landfill operation.

In 2018, Waste Management opened its first landfill gas technician training center at the former ELDA Landfill in Cincinnati, Ohio. As recognized leaders in landfill gas management, the intent and purpose of the training center is to use internal expertise to train entry-level technicians to provide continuity and consistency across the enterprise. The training center allows for both classroom instruction on the technical aspects of landfill gas and field proficiency assessment.

We also contribute to new bodies of knowledge through research collaborations with expert stakeholders. For example, Waste Management engineers working with an academic research team evaluated and estimated the capacity of an evapotranspiration cover at a subject landfill to oxidize landfill gas emissions by modeling the methane flux from the waste mass to the base of the cover system. The study provides a method for estimating when methane oxidation in a landfill's cover may represent the best available control technology for residual landfill gas emissions. Published in 2018 (Journal of the Air & Waste Management Association, DOI:10.1080/10962247.2018.1500403) the study should help landfill operators and regulators agree upon the process for determining when to cease active landfill gas system controls.

Additionally, in 2017, Waste Management and a research team completed a case study on optimal approaches to long-term landfill management by assessing threat potential from closed landfill assets to eliminate that threat. The research project evaluated the two industry standards for performance-based outcomes (functional stability and organic stability) using actual data from a closed Waste Management MSW landfill. The results were published in 2018 (Waste Management 75 (2018) 415-426), providing the industry its first implementation of performance-based analysis using real-world data to assess threat potential across media. This foundational research is key to identifying long-term stewardship options that are reliable, science-based, and designed to assure safety throughout the transition of closed landfill properties to beneficial re-use after closure. See Appendix to review a [list](#) of peer-reviewed technical articles and conference papers published by Waste Management experts in the past several years.

# ENERGY CONSERVATION

**Ensuring energy efficiency and conservation throughout our operations is important, as it impacts both our greenhouse gas (GHG) footprint and our cost structure. Energy use costs represent approximately 5 percent of total annual revenues. In 2017, we consumed 7.6 million MWh of total electricity across our over 1,300 Waste Management sites.**

We aggressively seek solutions to improve energy efficiency in every facility we operate by implementing a range of technologies and best practices that reduce environmental impacts, improve operational efficiencies and achieve cost savings. These efforts often start with the construction of our facilities, which usually are built to the U.S. Green Building Council's LEED standards, regardless of whether we seek certification.

Waste Management is both a supplier and a user of renewable energy, increasingly utilizing sources such as wind, solar, waste heat and landfill gas to power and heat our facilities. We focus our efforts on generation of renewable energy rather than internal use of renewables, since our overall use of electricity is comparatively small.

We look for capacity to generate renewable energy throughout the organization. For example, in 2017, we hosted the generation of 100 MWh of energy from wind, and we will host up to 54 megawatts of landfill-based solar farms by the end of 2018. We continue to look for opportunities to use solar electricity in support of U.S. EPA's RE-Powering America's Land initiative, which encourages renewable energy development on current and formerly contaminated lands, landfills and mine sites when it is aligned with the community's vision for the site.



Additional innovations and investments to enhance renewable energy production at our landfills include:

- › Technologies to convert materials into ultra-low-sulfur diesel and other transportation fuels and petroleum products
- › Small-scale gasification to convert solid biomass feedstock, as well as other combustible feedstocks into a high hydrogen and carbon monoxide-rich synthetic gas
- › Thermal chemical conversion of waste materials into advanced biofuels such as ethanol, as well as renewable chemicals
- › Accelerated high solids aerobic and anaerobic digestion to produce renewable energy from organics
- › Conversion of landfill gas into renewable natural gas used to power vehicles, generate electricity at our landfill gas-to-energy (LFGTE) facilities, generate power off-site, or use as a heating fuel; and
- › Conversion of biomass into organic salts that can be converted into a high-octane gasoline that can then be blended directly into a refiner's fuel pool, avoiding many of the blending and logistics challenges presented by ethanol.





# CARBON FOOTPRINT & STRATEGY

**We are transforming our business model to seize opportunities to compete in tomorrow's climate-constrained world. Each day, our customers look for our help to reduce their GHG emissions, and this is also a strategic imperative for our business.**

We continue to expand the productivity of our recycling operations and explore the many options to reduce our footprint. This includes:

- › Producing low-carbon fuels from waste.
- › Transitioning our fleet to renewable natural gas vehicles.
- › Improving the energy efficiency of our facilities.
- › Increasing our use of renewable energy.
- › Expanding the productivity of our recycling operations, with an emphasis on increasing the recycling of those materials that provide the greatest GHG reduction benefit.
- › Providing climate-related sustainability consulting services to customers who want to improve tracking, reduce their carbon footprints, and/or prepare for potential carbon cap-and-trade or carbon tax scenarios.

We have a long track record of leadership in climate-related disclosure, having participated in the CDP (formerly the Climate Disclosure Program) climate reporting for more than a decade. For the past two years, we have been named to the CDP Climate A list, considered the world's most comprehensive rating of companies leading on environmental action. See [Appendix](#) for more detail on the CDP and methodology.

## Our GHG Footprint

### 2017 Emissions (metric tons CO<sub>2</sub>e)

	CANADA	U.S.	TOTAL
Scope 1	776,646	14,913,347	15,689,993
Scope 2	12,119	232,709	244,828
Scope 3	725,693	7,939,892	8,665,585

Scope 1 includes emissions from Waste Management-owned and -operated facilities and vehicles, Scope 2 includes indirect emissions from purchased electricity, and Scope 3 includes purchased goods and services; capital goods; fuel- and energy-related activities; business travel; employee commuting; downstream leased assets.

### GHG Emissions Impact

	2016	2017
<b>GHG Footprint (Metric Tons CO<sub>2</sub>e)</b>		
Process	13,603,232	<b>13,681,187</b>
Transportation	1,696,067	<b>1,597,312</b>
Energy Use	585,822	<b>656,322</b>
<b>Potential Avoided GHG Emissions (Metric Tons CO<sub>2</sub>e)</b>		
Renewable Energy Generation	2,252,035	<b>2,420,864</b>
Reuse and Recycling of Materials	32,571,862	<b>32,588,647</b>
Carbon Permanently Sequestered	18,536,528	<b>19,481,205</b>
<b>Waste-Based Energy Benefits</b>		
Tons of Coal Equivalent	2,540,000	<b>2,480,000</b>
Waste-Based Energy Production (million households)	470,000	<b>460,000</b>
<b>Resource Savings Achieved through Recycling*</b>		
Households Powered Equivalent	1.7 million	<b>1.6 million</b>
Cars Taken Off Road Equivalent	6.9 million	<b>6.9 million</b>

\*Based on EPA WARM model using defaults

## Climate Strategy

We incorporate climate change considerations into all aspects of our business strategy. Among the climate change considerations influencing strategy are:



### EMERGENCY PREPAREDNESS

Weather events can threaten business continuity. We have refined our disaster response plans for disposal facilities, using FEMA flood maps to expand the list of locations with supplemental electrical generating capacity. We also have re-evaluated where emergency equipment should be placed and where we should pre-position fuel and disaster supplies.



### REGULATORY CHANGES

We monitor developments that may affect our operations or our customers' and engage with a broad array of stakeholders, including federal, state and provincial governments, to recommend approaches that produce meaningful GHG reductions at reasonable cost.



### GREEN BUSINESS OPPORTUNITIES

[WMSS](#), recycling, renewable energy production and carbon sequestration in landfills are all carbon-reducing services that we provide to customers. We monitor customer advocacy and goals based upon the Paris Agreement for market trends affecting our renewable energy portfolio, recognizing that our multinational customers are shaping their procurement strategies on factors beyond U.S.-driven climate policy.

Cross-disciplinary teams continuously monitor our customers' needs to reduce carbon, as well as regulatory development and lower-carbon financial incentives. The latter are analyzed by Senior Leadership as part of our market business strategy annual assessment and used in capital allocation. Ongoing capital allocation for natural gas trucks, as an example, supports our forward-looking, science-based goal to reduce emissions associated with our fleet by 45 percent by 2038, against a 2010 baseline.

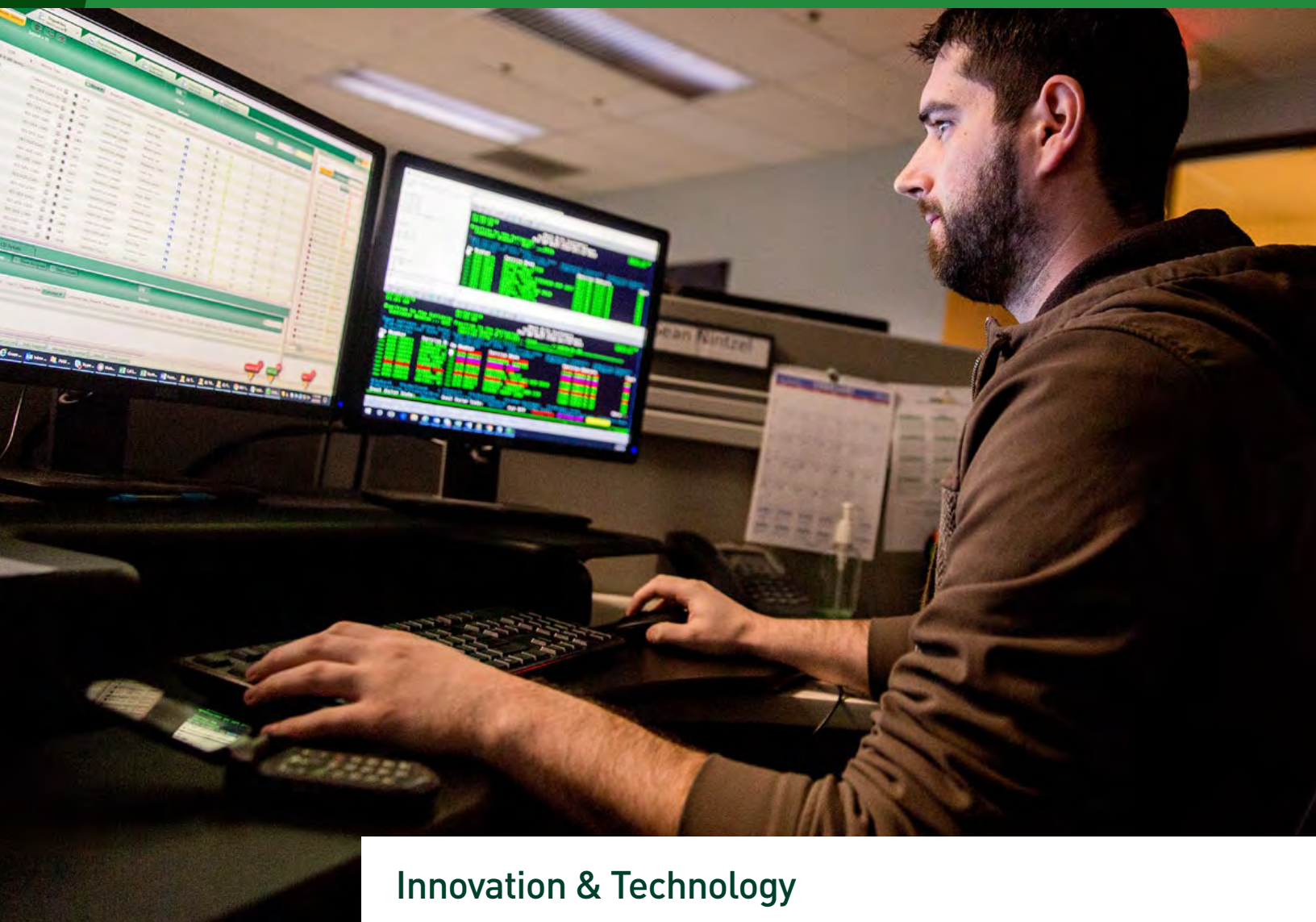


## Recycling and GHG Reduction Tools

Our priority is to improve the sustainability of recycling economics by providing tools for our customers to understand the GHG reductions achieved through recycling, thus motivating them to procure services needed to improve recycling quality. Efforts to improve the quality and quantity of recycling are aligned with our science-based goal to increase avoided emissions by 38 percent by 2028, against a 2010 baseline. Recycling will play a critical role in helping to achieve that goal.

The method by which customers choose to manage waste materials has a direct impact on the amount of GHG emissions generated. According to the EPA's Waste Reduction Model (WARM), for example, three times the life cycle emissions are generated when mixed recyclable material is disposed rather than recycled. Consider that in 2017, Waste Management avoided the generation of 32,588,647 MTCO<sub>2</sub>e life cycle emissions by recycling materials or repurposing them to generate renewable energy and create compost rather than disposing them.





## Innovation & Technology

Climate change also influences our long-term strategy, including the development and incorporation of new technologies. We are focused on deployment of lower-carbon technologies that are already commercialized and identifying geographic-area targets for our commercial recycling and green fuel projects over a five-year time frame; for projects seeking to create products from renewable feed stock, our time frame extends to 15 years. Examples of development priorities include:

- › Expanding existing and identifying new beneficial use projects to manage methane at our landfills.
- › Developing high-BTU projects that convert landfill gas to renewable transportation fuels for use in our heavy-duty trucks and for sale to third parties.
- › Investing in innovations to convert waste materials into energy and other low-carbon products while perfecting the technical processes, logistics and match of products to market demand. Read more about our waste-based energy generation on [page 43](#).
- › Furthering our renewable energy production through investment in companies that are developing sustainable energy technologies. Learn more about waste-based energy production on [page 47](#).



## CEO-Level Stakeholder Engagement

Our strategy to enable four times as many GHG emissions reductions as we generate is led from the top. Waste Management's CEO maintains a public dialogue on GHG emissions reduction as recycling's key benefit and advocates maximizing recovery of targeted commodities, such as cardboard or aluminum cans, that provide the most GHG benefit. Our public-sector team is closely engrained in our local communities, helping implement programs that support local community sustainability priorities. Our consulting arm, Waste Management Sustainability Services, also furthers this effort by helping customers achieve sustainability and climate change goals through "zero waste" services for large events, plus a full range of recycling, waste reduction, renewable energy, water conservation and environmental education services for large corporate customers.

## Sustainable Materials Management Engagement

For the past three years, we have advocated across stakeholder groups for GHG emissions reduction to be the focus of federal, state and local government and private sector recycling goals rather than focusing merely on the weight of materials

recycled. We are especially engaged with stakeholders on ways to increase the productivity and economic sustainability of recycling. That's why we helped form the Sustainable Materials Management Coalition on recycling, headed by a former U.S. EPA assistant administrator for solid waste and emergency response. We also dedicated the entire afternoon of our 2018 Waste Management Sustainability Forum to a workshop on Sustainable Materials Management. At the Forum, we engaged over 100 stakeholders in a dialogue around using life cycle thinking to prioritize materials management programs in communities and at businesses across North America.

Educating our customers — as well as communities, schools, nonprofit organizations, other businesses and their leaders — about recycling benefits and best practices has been critical to effecting transformational change. Learn more about our education efforts on [page 122](#).



We also work with designers and the manufacturing industry to avoid or reduce raw material processing, and to include recycled materials in their products. We utilize our materials recovery facility infrastructure, as well as our consulting group, to teach designers and manufacturers about the recycling process. Waste Management's recycling activities result in a wide variety of GHG reductions that otherwise very likely would not occur.

# FLEET



**We charge our fleet of more than 32,000 vehicles with providing reliable everyday waste collection for our customers while minimizing its environmental impact. We've set bold goals, utilized smart solutions and leveraged innovative technology to realize progress. Sixty-six percent of our residential routes run with automated or semiautomated equipment, which reduces the number of times our employees must exit the truck while collecting trash and recyclables, which in turn reduces accidents.**

That effort started in 2007 when we set our first goal to reduce CO<sub>2</sub> fleet emissions by 15 percent, which we achieved in 2011 primarily by transitioning our fleet of collection vehicles from diesel to cleaner-burning natural gas. With a vision to create a near-zero emissions collection fleet, we're now working toward a science-based target to reduce emissions associated with our fleet 45 percent by 2038, against a 2010 baseline, and from 2010 through 2017 we have reduced fleet emissions 28 percent.

Key to achieving this ambitious goal is a commitment to invest approximately \$400 million annually in the cleanest near-zero-emissions trucks available. At the end of 2017, our natural gas fleet counts 6,536 trucks, which comprise the largest heavy-duty natural gas truck fleet of its kind in North America. Our vehicles powered by compressed natural gas (CNG) emit nearly zero particulate emissions, cut GHG emissions by 15 percent and are quieter than diesel trucks. For every diesel truck we replace with natural gas, we reduce our use of diesel fuel by an average of 8,000 gallons per year along with a reduction of 14 metric tons of GHG emissions annually.

# Natural Gas Vehicles (NGVs)

BY-THE-NUMBERS 12/13/17



**6,536**

NGVs IN OPERATION

**38%**

ROUTED  
COLLECTION  
TRUCKS ARE NGVs

**80%**

NEW PURCHASES  
ARE NGVs

**107**

NATURAL GAS  
STATIONS

**195,000**  
METRIC TONS

GHGs Reduced  
Annually Using Fossil  
and Renewable Natural  
Gas Fuel

**>60**  
MILLION

Gallons of Natural Gas  
Supplied at 107 Natural  
Gas Stations Each Year

**855**  
MILLION

Diesel Gallons  
Displaced Over  
the Useful Life of  
Existing NGVs

**>16**  
MILLION

RNG Gallons Produced  
by Harnessing Methane  
in Landfills



## Fueling Our Fleet

Critical to our natural gas strategy is an infrastructure of Waste Management-owned and -operated fueling stations. As of the end of 2017, we operated 107 natural gas fueling stations across North America, with 29 of these also open to the public. Waste Management finances and constructs the stations, as well as purchasing the fuel.

Our landfill-gas-to-fuel plants convert landfill gas into renewable natural gas (RNG), a pipeline-quality gas that is fully interchangeable with conventional natural gas and thus can be used in our vehicles in the form of CNG or liquefied natural gas (LNG). This lowers fuel costs and reduces GHG emissions more than 80 percent compared to vehicles powered by diesel.



## Offsetting Fossil Fuel With RNG

RNG is biogas, the gaseous product of the decomposition of organic matter, that has been processed to purity standards. Like conventional natural gas, RNG can be used as a transportation fuel in the form of CNG. Biogas is produced from various biomass sources through a biochemical process, such as anaerobic digestion. With minor cleanup, biogas can be used to generate electricity and heat. To fuel vehicles, biogas must be processed to a higher purity standard. This process is called conditioning or upgrading, and involves the removal of water, carbon dioxide, hydrogen sulfide and other trace elements. The resulting RNG, or biomethane, has a higher content of methane than raw biogas, which makes it comparable to conventional natural gas and thus a suitable energy source in applications that require pipeline-quality gas.

Offsetting natural gas is comparable to the process of yielding renewable electricity from our landfills. In the case of renewable electricity, energy is added to the electrical grid at one of our landfills, and that same amount of energy is “credited” as renewable electricity by a user at another site within the same electric grid. Key to this process is that the amount of electricity delivered into the grid equals the amount of electricity taken off the same grid. Waste Management has been offsetting electricity with renewable energy for decades using this process.

Renewable fuel works in exactly the same way. Biogas is processed and cleaned before the clean biomethane is put into the pipeline at our (or another company’s) landfill — and an equal amount is used as fuel within the same pipeline system. As with electricity, the gas input and outflow must be on the same gas pipeline system and must be carefully recorded to ensure that they are the same. The process is carefully



tracked and verified as renewable fuel by the U.S. EPA when the cycle is complete and only qualifies as RNG after the gas has been used in natural gas vehicles. This certification system is in place at each of our qualified landfills and fueling facilities. Each gas project is reviewed and qualified by the U.S. EPA using engineers who verify that the RNG entering the gas pipeline equals the volume of gas extracted from that same pipeline, and is actually used for vehicle fuel.

## Closing the Loop: Converting Landfill Gas to RNG

Waste Management has the largest fleet of natural gas vehicles in our industry, with 6,536 natural gas collection trucks operating in North America. We support this fleet with our 107 natural gas fueling facilities. Waste Management is unique in that we are both a source of, and an end user of, renewable fuel. We currently fuel over a third of our natural gas fleet with RNG produced from landfill biogas at three of our own facilities plus third-party producers. Our long-term and ongoing investments in RNG production facilities, coupled with a natural gas fleet that can operate on RNG, are moving us closer to a near-zero emissions collection fleet.

### Using Every Tool to Reduce Emissions in Seattle

Waste Management began using compressed natural gas (CNG) collection vehicles for all of its collection services in the City of Seattle in 2009. Further, all 144 trucks are fueled by renewable natural gas (RNG). By using RNG, Waste Management has reduced our Seattle fleet's GHG emissions by 70 percent compared to diesel. By comparison, trucks fueled with traditional fossil CNG only reduce GHG emissions by about 15 percent compared to diesel. In Seattle, Waste Management also relies on other fleet investments to reduce emissions in the City, including the use of electric and hybrid vehicles for specific tasks and eRoute Logistics™ mapping software to streamline routes for our fleet, thereby cutting the amount of fuel we need and lowering our carbon footprint.

In 2017, Waste Management's fleet consumed 6,670,000 MMBtu of natural gas in 6,536 natural gas vehicles (NGVs). Of that total usage, we are managing approximately 2,010,000 MMBtu/year, or 30 percent, of biogas that offsets our total fleet needs. This includes internal and external biogas sources. 100 percent of our natural gas fleet in California, Oregon and Washington runs on RNG, which reduces GHG emissions by 70 percent compared to diesel.

Currently, Waste Management has four facilities that produce RNG:

1. **Altamont Landfill** (Livermore, CA) — In 2009, this facility began producing enough RNG to fuel 300 trucks.
2. **Milam Landfill** (St. Louis, Illinois) — This site, which debuted in 2014, processes and purifies gas from the landfill and injects it into the Ameren Illinois pipeline. The facility produces about 12,000 diesel gallon equivalents (DGE) per day of RNG, enough to fuel approximately 500 of our natural gas collection trucks.
3. **American Landfill** (Waynesburg, Ohio) — This facility processes and purifies gas from the landfill and injects it into the Dominion East Ohio pipeline. It produces 6,000 DGEs per day of RNG, enough to fuel about 250 of our natural gas trucks.
4. **Outer Loop Landfill** (Louisville, Kentucky) — Brought on-line in June of 2018, this facility produces 2,500 MMBtu per day of RNG — enough to fuel about 800 natural gas collection trucks.

Our Midwest facilities pump RNG directly into the pipeline, displacing reliance on fossil natural gas.

## Equipment Efficiencies

While our “last generation” natural gas engine cuts smog-producing nitrogen oxide (NOx) emissions by up to 50 percent compared to the cleanest diesels, our 2017 near-zero-emission natural gas engine (ISL-G “NZ”) is the cleanest heavy-duty machine ever certified by the California Air Resources Board (CARB). Waste Management helped pioneer this engine with Cummins, and it now provides a 95 percent reduction in NOx emissions compared to the current NOx standard and a 93 percent reduction in NOx compared to the latest diesel engine technology. Additionally, the new engine is already certified at 16 percent below the current GHG emission standard and is 12 percent below the 2027 standard.

We also have the largest fleet of hybrid bulldozers in the industry, operating 42 Caterpillar D7E's at 39 different landfill locations across the country. The D7E's rate of hourly fuel consumption is on average six gallons less than the D8 tractors it replaces, translating into annual savings of nearly one half million gallons of diesel fuel.



Our collection of Caterpillar D7Es is the largest fleet of hybrid bulldozers in the industry.



Volvo LX1 Electric Hybrid Wheel Loader

Wheel loaders are another electric hybrid machine we are exploring. In conjunction with Volvo Construction Equipment, we hosted two field tests for Volvo's prototype LX1 electric hybrid wheel loader at our Redwood Landfill and Moreno Valley Transfer Station, both in California. Data was collected on the wheel loader's fuel efficiency and GHG reduction against a conventional machine. The LX1 achieved approximately a 50 percent and 45 percent fuel efficiency improvement on average, at the Redwood and Moreno Valley sites respectively.

## Driving Fewer Miles

Efficient logistics are an effective way to reduce fleet emissions. The logic is simple: a more efficient route means fewer miles traveled, and that translates into reduced fuel consumption and associated emissions. Since 2017, Waste Management's fleet has reduced miles driven by 2 percent, which equates to an approximate 8.9 million fewer miles a year. Optimizing routes not only reduces our environmental impact, but also increases the quality of service. As we've driven fewer miles, we've improved the number of stops missed for both commercial and residential customers.

Credit for much of this progress goes to our Service Delivery Optimization (SDO) initiative, which helps us streamline routes. Under a “Safety, Service, Savings” motto, 95 percent of collection vehicles are SDO certified. SDO technology includes DriveCam®, a video



## Optimizing Logistics

Waste Management's Routing & Logistics organization was established to create route optimization and logistics capabilities within the Collection Operations. We recognize that to be a world class leader in the industry, it is very important to have a centralized organization where route optimization techniques and processes are standardized, refined and deployed. It's proven to be a valuable and consistent method for managing the safety, efficiency and overall quality of our routes across the enterprise.

The Routing & Logistics team is made up of 12 Corporate engineers and 40 local area logistics resources. Together, the team partners to create comprehensive logistics plans that identify routing opportunities and key operational metrics. Logistics plans are reviewed regularly with the local area leadership to ensure routing efforts are addressing priority opportunities.

In 2017, we did 150 reroutes in 80 locations. Our plan is to continue to route the top 20 percent of our commercial and residential routes each year.

Overall mile reduction reduces the exposure to risk for drivers. A well-planned route reduces potentially dangerous driving behavior by elimination of U-turns and backing and reduced left turns. A well-planned route executed consistently each day provides the driver with a steady routine that keeps safety in the forefront.

Reroutes provide the opportunity to make changes to service days, allowing Waste Management to service customers on the requested service days and times. Servicing customers on the correct day at the correct time provides an improved customer experience.

recorder mounted on the windshield of collection vehicles that is automatically activated by sudden movements. This helps us to coach drivers on fuel-saving driving techniques, such as proper acceleration, deceleration and efficient speeds. Similarly, an on-board computing system enables drivers to use a tablet for logistics support and route optimization. This is one of several types of software that we utilize to enhance driver safety, communication and route optimization.

Our fleet organization has also taken the next step in mobile technology by launching its first mobile app in 2017. The app provides a number of benefits that include allowing fleet managers who are responsible for multiple districts to get a real-time view of shop operations when they are not physically present; a "current labor" tab that provides a communications link to shop technicians and updates on standard repair times; a "unit availability" tab that lets users know at a glance if the district has enough assets to serve customers; and a "customer service interruption events" tab that reveals downtime opportunities.

We've also instituted an anti-idling program to reduce fuel consumption. Through this program we are ensuring that all collection vehicles made since 1998 can verify that idle shutdown timers are programmed to five minutes, in accordance with the American Transportation Research Institute's Compendium of Idling Regulations.

Our Bagster® service continues to eliminate the need to send a truck to deliver an empty container to customers by offering compact containers for sale at more than 4,000 retail locations across the United States and Canada. Bagster is strong enough to hold up to 3,300 pounds of debris or waste, making it suitable for anything from home renovations to disaster cleanup. When customers are finished with their projects, Waste Management can collect up to 15 full Bagsters on a single, efficient collection route.





# WATER CONSERVATION

**Though our operations are not relatively water intensive, as global water consumption increases at a historic pace we work to use water sparingly and responsibly in our operations. Primary water uses include vehicle washing, dust suppression, sanitation and employee consumption.**

Waste Management operates facilities ranging from landfills and hauling facilities to transfer stations and recycling facilities, dispersed across 17 market areas in the U.S. and Canada. We also own or lease office space throughout North America. Due to the geographic and operational variations in the facilities we operate — as well as the numerous utility providers — obtaining complete operational water consumption data can be a challenge.

## Enhanced Water Tracking

We estimate that our current annual operations use approximately 627.5 million gallons of water. After accounting for the water consumed by our employees and operations, we estimate that approximately 490.8 million gallons of water is returned to either the municipal sewer system or groundwater aquifers, depending on the site's location.

In 2016, we began employing a third-party utility bill management (UBM) service to assist in gathering water and energy usage data across our sites. Through the UBM system, Waste Management can now retrieve water withdrawal data by market area, which offers a baseline understanding of consumption patterns on a regional level. Our goal is to complete the enablement of all sites into the UBM system. Utilizing the information gathered from this process, we will be developing more meaningful quantitative goals around water usage.





## Water Risk Assessment

The ability to pull consumption data by site also enables us to complete water risk mapping. By overlaying our regional water use with geographic information regarding water stress, we can both focus conservation efforts to minimize Waste Management's impacts where they are potentially most detrimental and develop effective risk mitigation and action plans to minimize disruptions to our business that may occur due to inadequate water quantity or quality.



Currently, 20 percent of our water consumption occurs at sites located in water-stressed regions. We continually strive to reduce the amount of water consumed in these regions through innovative programs such as using recycled graywater for truck washing to reduce dependence on the municipal water supply.

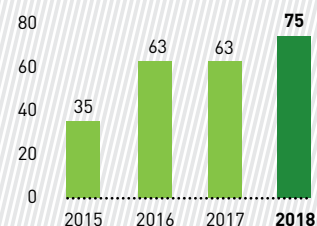
While we are still in the process of applying a standardized process to capture quantitative data on water recycling and reuse initiatives, we are moving forward with implementation of the initiatives themselves. We continually look for ways to reduce water consumption across our operations, whether through implementation of graywater initiatives, fixture replacement or other conservation methods. In addition, we engage with other

stakeholders by working with policymakers and trade associations on water policy through our work with the RCRA Corrective Action Project (RCAP) and the Sediment Management Work Group on sediment sites. Waste Management reports on our operations and supply chain impacts on water and responds to our customers' and investors' requests for this information through CDP (formerly Carbon Disclosure Project).

Finally, we utilize the Waste Management Phoenix Open to highlight water concerns and coordinate restoration efforts. We have reported our water consumption since baselining the tournament's operations, and we implement a graywater capture program that reduces freshwater consumption by 5,000 to 6,000 gallons each year. In 2018, we worked with The Thunderbirds as well as Kohler and M Culinary to restore 75 million gallons, or 283.91 megaliters, to Northern Arizona rivers and streams. Since initiating this effort with Change the Course in 2015, the Waste Management Phoenix Open has been responsible for the restoration of 236 million gallons of water to the Verde River and other freshwater ecosystems in Arizona.

### Waste Management Phoenix Open Water Restoration Project

(in gallons)



# BETTER WORKFORCE

OPPORTUNITIES FOR CHANGE THAT  
RESULT IN ENGAGEMENT AND  
PROFESSIONAL GROWTH.

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# OUR WORKFORCE

Waste Management provides services to nearly 20 million customers — a big job. But we do it one city, one neighborhood, one business and one home at a time. This makes us an integral part of every community where we operate. We have a stake in helping to make our cities, towns and counties better places in which to work and live — not just for today, but for the future. We can't play this important role in the community without the daily contributions of our over 42,000 employees. The success of each employee is what enables Waste Management to succeed, and we strive to give our employees the tools they need to develop and excel in their careers.

**THINK GREEN** is more than a motto at Waste Management. It's what we stand for, who we are and what we do. It is how we demonstrate our fundamental commitments and core values and the basis for our culture.

## COMMITMENTS

- › **Our People First:** The proud, engaged and resilient members of the Waste Management family are the foundation for our success. It all starts with us taking care of each other, our customers, communities and the environment.
- › **Success with Integrity:** Our success is based not only on the results we achieve, but how we achieve them. We hold ourselves and each other accountable for being honest, trustworthy, ethical and compliant.

## VALUES

- › **Inclusion & Diversity:** We embrace and cultivate respect, trust, open communications and diversity of thought and people.
- › **Customers:** We place our customers at the center of what we do and aspire to delight them every day.
- › **Safety:** We have zero tolerance for unsafe actions and conditions and make safety a core value without compromise.
- › **Environment:** We are responsible stewards of the environment and champions for sustainability.



# DIVERSITY & INCLUSION



**Fostering mutual trust and respect for one another is a cornerstone of being an inclusive and welcoming workplace — one that is well-positioned to serve our customers and communities. It's also important that our workforce reflect the diverse customers and neighbors that make up these communities.**

As an equal opportunity employer, we are committed to maintaining a workplace environment free from discrimination. Employment decisions are made by placing the most qualified person in each job without regard to race, color, sex, pregnancy, sexual orientation, gender identity, religion, marital status, age, national origin, disability, genetic information, veteran status, citizen status or other protected group status as defined by federal, state or local laws. In Canada, we comply with the Employment Equity Program laid out by the Canadian Federal Contractors Compliance Criteria. Diversity and inclusion are fundamental values in our [Code of Conduct](#).



## 29%

of Waste Management's  
executive officers are female,

**UP 10%  
YEAR-OVER-YEAR**

## Expanding the Presence of Women in our Ranks

The waste industry traditionally has been male-dominated, and even today, a job in environmental services may not be on a woman's radar. Another industry challenge is a serious shortage of drivers and technicians. We're taking steps to address both of these challenges by actively seeking women as a group to recruit, hire and develop. For example, in 2015, we joined the Women in Trucking Association (WIT), which works to support women in the industry. Waste Management is serving on WIT's advisory committee and working closely with the organization and other trucking industry participants to address recruitment.



As we've sharpened our focus on hiring both more women and millennials across our workforce, we were encouraged to receive recognition in 2017 as a "Best Companies for Millennials" by Women's Choice Award. This is the only recognition that reflects the needs and preferences of women based on publicly available data, which aligns with employee and consumer appreciation for corporate transparency. Criteria to earn a place on the list include female representation in the workforce, management and board, and are based on work-life balance benefits; paid time off and vacation days; professional development and support activities; and wellness benefits.

## Supporting Veterans

The recruitment of veterans is another ongoing focus for Waste Management, and one that we place special emphasis on each year. Military is the single largest pool of transportation, logistics and maintenance professionals. In 2017, 8.6 percent (over 1,000) of all our U.S. hires were veterans. Our best year on record was 2015, with 14 percent of all our U.S. hires being military veterans. Through August 2018, 8.7 percent of U.S. hires were military veterans. The retention of military veterans is comparable to the rest of Waste Management's workforce. Waste Management receives between \$250,000 and \$500,000 annually in veteran hiring tax credits.

Waste Management veteran hiring has consistently grown in the past five years due largely to strategic partnerships and marketing efforts with the Department of Labor Career One-Stop centers, Hire Purpose, Corporate Gray, U.S. Veterans Magazine, and active participation in 100+ military-focused job fairs. We are frequently lauded for our veteran outreach, including being named for nine consecutive years as a Top Military Friendly® employer by G.I. Jobs and "Best for Vets" employer by Military Times.

## Working to Meet the Needs of Individuals With Disabilities

We continue efforts to better understand how to accommodate the needs of individuals with disabilities within our workforce. One way to do so is through surveying our employees every five years using a Department of Labor self-identification form CC-305. Because responses are voluntary, we have been challenged to obtain a meaningful response rate beyond 10 percent, a common problem among companies. Based on data collected from this small sampling, employees with disabilities would be projected at less than 2 percent of our workforce, a number that we consider unrepresentative. We continuously benchmark against companies with higher response rates to implement best practices around communication and education on the function of the survey and to enhance our own efforts around our recruitment of and accommodations for people with disabilities.

Waste Management has been proactive in assisting people with disabilities through our [Transition to Recovery Program](#) and by working with the Department of Labor on regulatory proposals to support employment of people with disabilities by participating in various professional and industry groups, including National Industry Liaison Group (NILG) and local chapters such as the Greater Houston Industry Liaison Group (GHILG). NILG is the largest consortium of private-industry federal contractors working directly with the Department of Labor in shaping equal employment regulations and understanding their impact on the workforce.



A Strong and Diverse Workforce

## Measuring Progress

Diversity and inclusion are an inherent part of our culture, and we work hard to ensure that our workforce reflects the communities we serve. Employing people with different backgrounds, experiences and perspectives creates strength throughout our business, enabling us to foster a more collaborative working environment.

Third-party recognition of our commitment to our workforce is a valuable benchmark, and we believe that our focus on inclusion is an essential element in earning these honors. For the past four years, Waste Management has been named one of Corporate Social Responsibility Magazine's "100 Best Corporate Citizens." We have been included on Ethisphere Institute's [World's Most Ethical Companies](#)® list in 10 of the past 11 years. Recognition as a "best place to work" is particularly important, and we are proud of our track record as a best place for veterans and our [recent recognitions](#) as a best place to work for millennials, Latinos and military spouses, as well as a best company to sell for.

# Diversity at Waste Management

## BOARD OF DIRECTORS

**20%**  
Ethnic Minorities  
**20%**  
Women

## EXECUTIVE OFFICERS

**33%**  
Ethnic Minorities  
**29%**  
Women

## COMPANY OFFICIALS & MANAGERS

**21%**  
Ethnic Minorities  
**18%**  
Women

## WORKFORCE

**43%**  
Ethnic Minorities  
**17%**  
Women

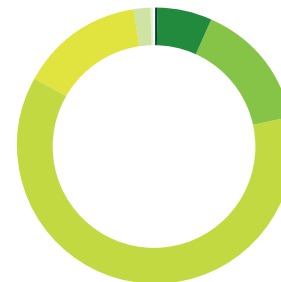
### Waste Management Workforce

- American Indian or Alaskan Native: 0.68%
- Asian: 1.56%
- African-American: 17.37%
- Caucasian: 56.60%
- Hispanic: 22.57%
- Multiracial: 0.82%
- Native Hawaiian or Pacific Islander: 0.40%



### All Private Industry Workforce\*

- American Indian or Alaskan Native: 0.55%
- Asian: 6.33%
- African-American: 15.02%
- Caucasian: 61.38%
- Hispanic: 14.45%
- Multiracial: 1.81%
- Native Hawaiian or Pacific Islander: 0.47%



\*Total does not equal 100 percent due to rounding.

### Employees by Age Group

(generational breakdown, in U.S. and Canada)

- Veterans (born 1922–1943): 0.28%
- Baby Boomers (born 1944–1960): 16.14%
- GenXers (born 1961–1980): 57.28%
- Millennials (born 1981–2000): 26.30%



### Employees by Age Group

- Under 30 (born after 1986): 14.76%
- 31–50 (1966–1985): 53.90%
- Over 50 (before 1965): 31.34%



### Employees by Region

- Canada: 2,057
- India: 490
- U.S.: 39,625



### Employees by Payment Type

- Hourly: 81%
- Salaried: 19%



# ENGAGEMENT & RETENTION

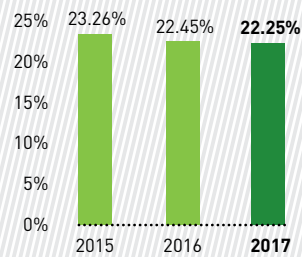
**Our employees are the lifeblood of the work we do every day. That's why we focus on developing talent at every level of the organization through career path planning and best-in-class training that is specifically designed for success in the service industry. At the heart of our engagement and retention strategy is a steadfast commitment to Waste Management's values of people first and success with integrity.**

Employee turnover continues to be a concern in the environmental services industry due to high demand in a strong economy for our skilled workers — especially truck drivers, route managers and maintenance technicians. The American Trucking Association estimates a shortfall of 48,000 drivers in 2018, with projections that the shortage could increase to 175,000 by 2025. To combat this growing issue, we strive to be a workplace of choice through competitive pay, solid benefits for long-term financial and personal health, and opportunities for growth across our ranks. We believe strongly in promoting from within and offer a wide array of training opportunities designed to help employees maximize their effectiveness at their jobs and gain new skills so they can take the next step in their careers.

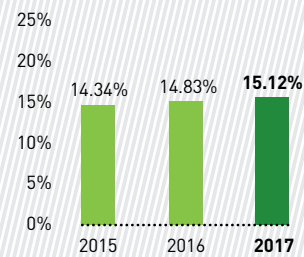
We noted in our 2016 report that our goal is to reduce driver and fleet technician new-hire turnover by 50 percent. As the tracking of turnover on the following page indicates, our voluntary employee turnover remains a real challenge, clearly impacted by low employment rates and stiff competition for drivers and technicians expert at handling the sophisticated equipment and systems we use in the recycling and environmental services industry.



### Employee Turnover Rates



### Voluntary Employee Turnover Rates



Being an employer of choice will be critical to our efforts to reverse the trend on employee turnover, and it motivates us to sharpen our focus on our values that help us retain and empower good employees. We also understand that competitive compensation is important. Earlier this year, we distributed savings from the new U.S. corporate tax restructure to every North American employee who does not participate in a company bonus or sales incentive plan. Approximately 34,000 Waste Management employees received a \$2,000 reward in appreciation of their hard work.



## Engagement Through Communication

Employee compensation only goes so far, however, in engaging our workers. Creating a sense of teamwork and shared purposes is vital. Communication among company leaders and employees at all levels fosters honesty, accountability and respect — all critical to retention. Our senior leaders operate with an open door — and open email — policy. Each quarter, this team hosts a Town Hall-style meeting at our Houston headquarters. We have begun expanding participation throughout our operations through live streaming technology. Employees unable to attend also are invited to submit questions by email, and they receive direct responses. Responses to common questions are often included in our company's weekly internal newsletter. In addition, a replay of the meeting is posted on the company's intranet.

Our **Waste Management Monday** newsletter serves as a powerful tool to project company values as it arrives in inboxes and is posted in lunchrooms weekly. The newsletter includes stories on employee safety, leader communications, potential job hazards and — most importantly — employee success stories. We also update our workforce on key aspects of employee welfare, including benefits, career opportunities, and useful tools and tips for employees at work and elsewhere.

We emphasize engagement as a way to empower employees. We stress our commitment to fair treatment of all employees and strive to apply company policies consistently throughout the organization. For our union employees, this goal must be handled according to the practices and expectations agreed to within the collective bargaining unit. For non-union employees, we look for ways to reinforce our fair treatment and continuous-learning culture. Our Waste Management Drivers Council, for example, captures the wisdom of our front-line employees, who are represented by 17 drivers, one from each market area in the organization. In addition to providing us with feedback on removing barriers that prevent drivers from delivering exceptional customer service, we also have engaged the Council for ideas to help reduce voluntary turnover and promote the retention of drivers and technicians. Constant and collaborative engagement is also the foundation of our [Service Delivery Optimization](#) program; our Mechanic Service Delivery Optimization; our [Peer Review](#) safety program; our [Sales Delivery Optimization](#) program; and the fair treatment and respect that comes from the adherence to our [Code of Conduct](#).

## Gauging Our Progress

To make sure our engagement and retention efforts are meeting the needs of our workers, we ask for their feedback. In 2017, we completed a workplace study for our corporate headquarters. The study allowed us to evaluate our current work environment and better understand how we interact and engage to support field operations. This involved measuring space utilization, conducting visioning and focus group sessions with corporate employees and conducting an employee survey.

### Houston Employee Survey Highlights (66% RESPONSE RATE)

**91%**

**FEEL TRUSTED**  
to make good  
decisions about where  
and when to work

**93%**

**HAVE EASY ACCESS**  
to resource/technology  
in the office

**63%**

feel that Waste  
Management is an  
**INSPIRING PLACE**  
to work that invests  
in its people

**76%**

**FEEL EASILY  
RECOGNIZED**  
by colleagues when  
passing them in  
the hallway

**Word to describe Waste Management:**  
**#1 FAMILY #2 FRIENDLY**

We surveyed all Waste Management Market Areas to gauge the effectiveness of our community support programs, with a response rate validating the information as representative of all areas of our operations. 82 percent of employees rated Waste Management's overall community support as good or very good. The rating for specific programs (charitable donations, Wildlife Habitat Council and Keep America Beautiful) scored even higher at 89 percent positive. In a striking finding, only 2 percent of those surveyed believed company efforts to benefit the communities where they do business were "unimportant." We also solicited input on the kind of activities the company supports (e.g., environmental, safety, youth programs) to align our community engagement to employee priorities.



In addition, we issued a talent retention survey earlier this year to nonexempt front-line employees via text message. The survey was sent to drivers, technicians, dispatch and equipment operators. For employees who opted out of receiving text messages or did not have a cellphone number on file, the survey was also delivered via paper format. Hourly employees with a Waste Management e-mail address received the survey electronically.

We conduct department-specific engagement surveys as well as the broader, cross-functional surveys. One business segment conducts an annual electronic survey to find the locations with lower expressed employee satisfaction in order to devote resources to improve training and communications. Another segment conducts in-person "Stay Interviews" to elicit insight into employee concerns, satisfactions and perspectives on what makes Waste Management a good place to work, as well as why an employee might choose to leave.

Looking ahead, we are researching ways to further enhance employee engagement, including continually improving our culture as well as our use of technology and our physical work environment. Each of these affect social collaboration and networking across functions and geography and will have a long-term impact on our ability to retain employees and attract the next generation of Waste Management workers. The results will inform our engagement framework for 2019.



# TALENT MANAGEMENT



**The importance of our people and the skill sets they bring to work each day cannot be overstated. Education and training are part of talent development — but proactive management to recognize good work and support opportunities for growth and improvement are also important. We are cultivating this through our talent management program to reach managers and employees at all levels. Hiring, selecting and developing future leaders, as well as evaluating our employees in alignment with our values, is standard across the enterprise.**

Waste Management's talent management program provides continual learning opportunities in areas such as professional development, sales, leadership, technical training and compliance training. We take a "learner-centric" approach with a mix of options, including face-to-face training and conversation, as well as mobile and online communications. Our talent management program consists of three major components:

- › Performance management core areas: goal setting, check-in conversations and annual performance evaluations. The program sets accountability expectations for employees with the understanding that progress is monitored throughout the year.
- › Talent reviews and succession planning are designed to recognize and reward high-performing and hard-working employees. Waste Management has identified definitions for "high potentials" and "high performers," which are used throughout the company to ensure we set high standards — and equal standards — for our leaders of today and tomorrow.
- › Training and development is provided to all employees who participate in both traditional formal training programs and real-time training utilizing technology. Read more on our Training and Development programs in our [Training](#) section and in the [Workforce Appendix](#).



# SAFETY

**Safety is our top priority, and every Waste Management employee has a critical role in understanding potential safety risks — most notably those associated with transportation incidents and unique workplace hazards.**

## Safety on the Road

Waste Management Safety Services' behavior-based safety culture is focused on teaching and building knowledge while coaching every Waste Management employee on addressing unsafe conditions. Our [Mission-to-Zero](#) program was created in 2002 and is driven by the pursuit of having zero unsafe actions, behaviors or conditions. The program is designed to engage employees around prevention rather than simply tracking outcomes.

Driving safety risks are inherent to our industry. Collection drivers not only have to be well-trained when it comes to operating vehicles, but they have to constantly be on the lookout for other drivers on the road, mainly those in a hurry to pass our collectors during stops. The National Waste and Recycling Association has made significant progress in getting "Slow Down to Get Around" (SDTGA) legislation passed in 21 states thus far. The legislation requires drivers to slow down when passing refuse trucks.

As part of our shared responsibility to safety by employees and leadership alike, we created our Peer Review safety program, a process in which drivers and technicians may voluntarily choose to appeal safety-related rule violations to field-based "Peer Review Boards" comprised of fellow employees chosen at random. Since 2011, Peer Review has expanded to 70 sites, covering over 5,600 employees.

During a [Peer Review](#) hearing, both the affected employee and management present evidence, with the scope of review limited to whether the rule at issue was violated. At the conclusion of the hearing, the Board votes anonymously whether to sustain or overturn management's decision.

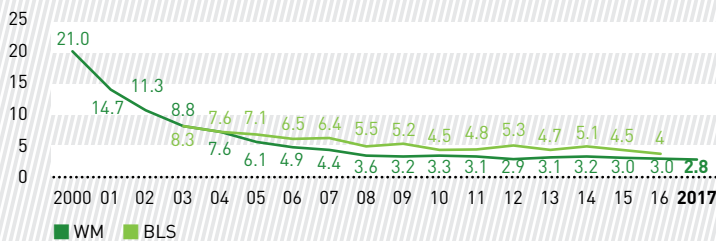


## Safety Progress

**Total Recordable Incident Rate (TRIR)** is the rate used by the Occupational Safety and Health Administration (OSHA) to track and report work-related injuries and illnesses. When comparing Waste Management to the published Bureau of Labor Statistics (BLS) Total Recordable Incident Rate (TRIR) data for the waste management and remediation

services industry, Waste Management has consistently outperformed the industry since 2005. Waste Management is taking active steps to prevent injuries through programs such as its Injury and Illness Management program, Hazardous Energy Control Program and other initiatives timed with seasonal risks such as heat illnesses in the summer and slips, trips and falls in the fall and winter.

### Waste Management vs. BLS Industry Average TRIR

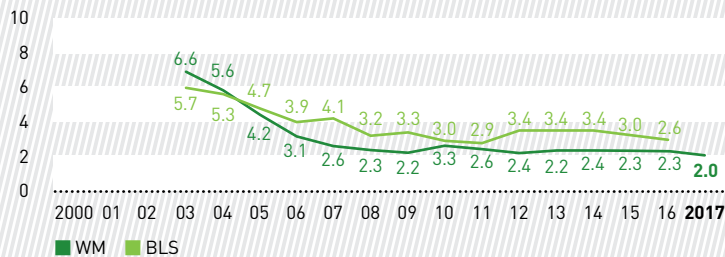


Total Recordable Incidence Rate (TRIR) has decreased nearly 90 percent from 2000, when Mission-to-Zero was launched, to 2017, and continues to beat the industry average.

**Days Away/Restricted or Transfer (DART)** rate is the rate used by the Occupational Safety and Health Administration (OSHA) to track and report work-related injuries and illnesses that result in lost time, restricted duty or transfer to another work function. When comparing Waste Management to the published Bureau of Labor Statistics (BLS) DART data for the Waste Management and Remediation Services industry, Waste Management has consistently outperformed the industry since 2005. In addition to

the programs and awareness campaigns undertaken to prevent all injuries and illnesses, Waste Management has also taken a structured approach to reducing the severity of incidents through safety processes that limit risk to employees wherever possible. Waste Management also works to provide prompt and complete medical care to employees who have suffered a work-related injury or illness to support their return to full duty as quickly as possible.

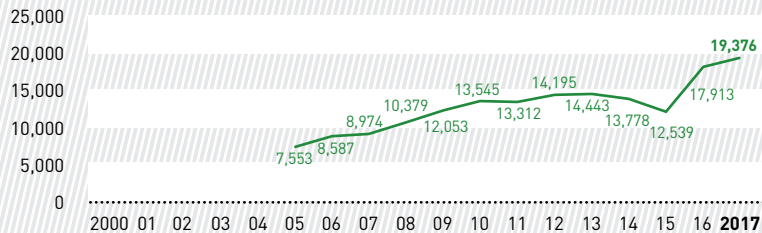
### Waste Management vs. BLS Industry Average DART



We continue to have fewer days away than industry standard and are pleased that our 2017 Days Away/Restricted or Transfer Rate (DART) marked a significant improvement.

**Vehicle Accident Recordable Rate (VARR)** is the rate used by Waste Management to track vehicle-on-vehicle accidents. In 2016, Waste Management chose to exclude specific incidents where Other Vehicles Initiated Impact (OVII), resulting in a significant

### Waste Management VARR

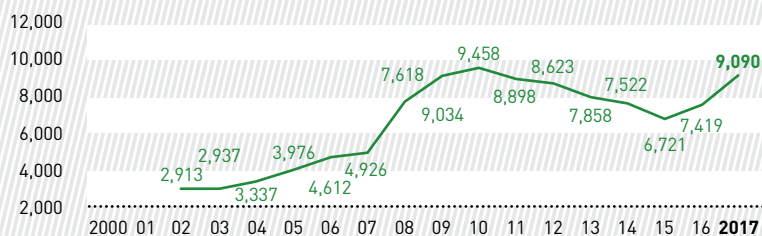


This chart reflects our 12-year history tracking Vehicle Accident Recordable Rate (VARR), showing an over 250 percent increase in accident avoidance since 2005. In recent years, we have determined that our improvement in VARR as tracked from 2005 to 2016 was increasingly affected by collisions where our vehicle was struck by a third-party vehicle, due to a noted increase in distracted driving. VARR reporting was increasingly reflective of other parties' rather than our own drivers' performance. In this report, Waste Management has adjusted the 2016 and 2017 metrics to exclude this third-party type of incident and thus more accurately represent our safety program and improvement in our drivers' performance.

improvement in the overall metric performance between 2015 and 2016. Note the 2016 and 2017 VARR excludes OVII incidents. Beginning in 2018, Waste Management is switching from the VARR to the Hourly Accident Recordable Rate (HARR) metric to encourage a focus on behaviors rather than on outcome of vehicle accidents.

**Hourly Accident Recordable Rate (HARR)** is the rate used by Waste Management to track vehicle accidents, including vehicle-to-vehicle and vehicle-to-property type accidents. In 2016, Waste Management chose to exclude specific incidents where Other Vehicles

### Waste Management HARR



We are including Hourly Accident Recordable Rate (HARR) in this report to expand our public safety reporting, showing an over threefold improvement since 2001. As is the case with VARR, we adjusted our metric in 2016 to exclude collisions where our vehicle was struck by a third-party vehicle. This revision more accurately represents our safety program and improvement in our drivers' performance.

Initiated Impact (OVII), resulting in a significant increase in the overall metric performance between 2015 and 2016. Note the 2016 and 2017 HARR excludes OVII incidents. The HARR metric encourages completing a root cause investigation on all incidents involving a Waste Management vehicle to help identify interventions to prevent future accidents.



A full-page background image showing a worker in an orange safety shirt and a headlamp, focused on working with a large, dark, industrial machine. The worker is wearing black gloves and is using a tool on a component of the machinery. The scene is dimly lit, with the worker's headlamp providing a focused light on the work area. The overall tone is industrial and professional.

## Safety Programs

We track safety monthly performance by area, service function and even equipment use, monitoring accident trends such as slips, trips, falls, sprains, lost wheels and more. The Waste Management Safety Services team leads regular performance reviews for our fleet operations, focusing on leading indicators and any areas needing attention.

As an industry safety leader, Waste Management strives for continuous improvements as our commitment to the employees, shareholders and communities we serve. As a result, Waste Management engages other transportation and service sector leaders to share best practices and exchange in dialogue over trends, issues and opportunities. Examples include training, recruiting, retention and technology.



# Safety Programs



**Standardized Training:** Waste Management offers standardized training to ensure understanding of our operating policies and procedures. Standardized training delivers a consistent message to all new hires going through the program and identifies opportunities for [continuous improvement](#).



**Driver Science Series:** Each month, drivers and managers view a defensive driving awareness video, typically 8-12 minutes in length, that reinforces safer driving behaviors. Sample topics include managing intersections, pedestrians, bicyclists, rollover prevention, following distance and braking. These awareness videos align nicely with discussions, observations and coaching.



**Employee Observation Program:** Waste Management has a structured observation program for all front-line employees to bring safety into employee behavior at all times. The practice of structured observation covers all aspects of our operations, from driving, loading, unloading, lifting and lowering, and arriving prepared for work. At disposal operations, significant accidents are subject to root-cause briefings, with company standard rules updated to eliminate recurrence as part of our continuous improvement programs.



**Injury and Illness Prevention Program:** The Waste Management Injury and Illness Prevention Program is a data-based approach to identifying injury and illness causes and testing the success of interventions on prevention. The program examines equipment, processes, policies and other potential causes of injury and illness for employees and will evaluate possible interventions for these potential causes.



**Performance Management:** The Waste Management Safety Services team leads regular performance reviews, focusing on leading indicators and lagging results. Each month, a Monthly Safety Call is broadcast via video webcast that offers a suite of key metrics, opportunities for Waste Management, industry issues and special guests, including Senior Leadership. These performance reviews and routine report distribution drive accountability and recognition, while encouraging healthy competition among field managers to outperform one another.

## Safety at Facilities

Just as we work with the industry trade association to encourage legislation to improve the safety of our fleet personnel, we also work with our trade associations, customers and the communities in which we operate to identify how they can do their part to enhance facility safety. A priority for 2017 has been increasing safety in recycling facilities. Discovering the wrong thing in the recycling bins we pick up can have serious consequences for recycling processing. “Tanglers” like garden hoses and Christmas lights thrown into the recycling bin create hazards for employees, as do banned materials like propane tanks and batteries. Lithium batteries have become a significant safety hazard at Material Recycling Facilities (MRFs). They are used in numerous appliances and cause fires when their casing is compromised. Waste Management is working with other industry stakeholders to educate the public on the hazards associated with these batteries. We work with our communities to emphasize the safety benefits of [recycling right](#) in order to reduce safety hazards at our recycling facilities.

Our internal safety manuals and training for our landfills and processing facilities are extensive, focusing on full compliance with safety standards and policies, use of required protective equipment, preventive maintenance, good practice guidance and mandatory monthly training.

We have a tailored program for the protection of facilities with limited personnel demands. At some closed landfills, renewable energy plants and recycling drop-off facilities, staffing may be limited to a single person. What if a lone worker needs emergency assistance while on the job? Our Call for Safety program offers a tool that can provide protection.

The Lone Safe Monitoring Device is about the size of a cell phone and attaches to a belt. Its motion sensors detect if an employee has been motionless for a period of time, which triggers an alert. Unless the alert is deactivated, a signal is sent to our Security Operations Center in Houston, Texas, which contacts the employee or emergency responders. The device also features a silent panic button and GPS tracking in case a worker falls or an impact occurs.



# SECURITY

**For more than a decade, Waste Management Security Services, Inc. (WMSSI) has provided overall protection of our more than 2,000 facilities and \$25 billion-plus in assets. Today, WMSSI not only serves Waste Management, but we have expanded it as a service offering to customers. WMSSI monitors alarms and provides innovative programs that can enhance business operations by minimizing risk of loss.**

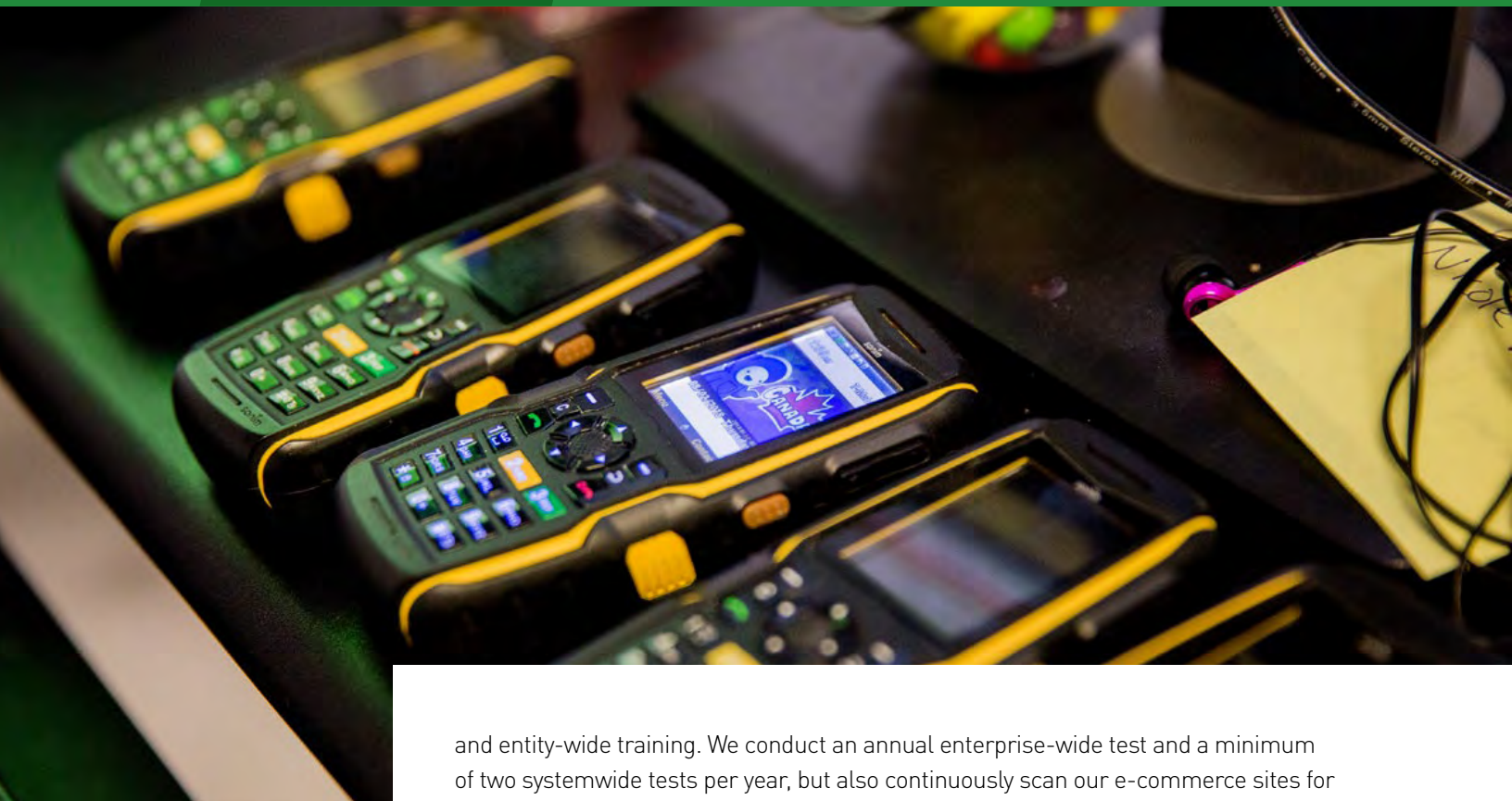
Our security services team uses intelligent video monitoring and a state-of-the-art Master Control Center to alert both internal and external clients instantly when a covered situation arises. Services provided by WMSSI include video monitoring, mobile surveillance systems, fire and intrusion alarm monitoring, access control, intelligent operations (software application), systems administration, fleet GPS tracking, lone worker safety, executive home protection and security systems integration.

## Cybersecurity

As the Waste Management customer experience increasingly moves online, we recognize the need to enhance our internal training and protect IT resources from cyberthreats. Waste Management's Digital department is constantly reviewing information on emerging threats and manages security systems that include SPAM management, a simple-to-access phishing alert and management tool, real-time response to potential threats







and entity-wide training. We conduct an annual enterprise-wide test and a minimum of two systemwide tests per year, but also continuously scan our e-commerce sites for vulnerabilities and engage an external party to validate them quarterly.

Employee education, training and coaching is an important element of data security. Our intranet provides a full-service resource for information on how to identify and resist social engineering attempts; tips on the latest phishing techniques and how to spot them; company policies and support on encryption; computer and data security internal procedures and authorizations; and policies on use of mobile devices. In mid-2017 as part of an enhanced risk identification and management process, we began to include scenario planning for minor to severe cyberthreats with an eye to improving system resilience.



# TRAINING



**Providing the opportunity for every employee to reach their full potential is perhaps the most important way that we can maximize workforce engagement and retention. This is why we offer expansive learning and development solutions to meet the needs of our business and our people, as well as providing coaching, feedback and annual performance reviews on a consistent basis.**

We believe environmental excellence and compliance are the hallmarks of sustainability and reflect Waste Management's core values. As such, compliance with applicable regulatory standards and internal policies and procedures is part of the performance review structure for employees. To foster a culture of collaboration, we use daily huddles and regular check-ins to solicit feedback and share information.

Our goal is to provide continual learning opportunities in areas like professional development, sales, leadership, technical training and compliance training.

We take a "learner-centric" approach to provide employees with a mix of options. All employees participate in annual training that includes job-specific programs as well as a variety of general professional development trainings. We offer training programs delivered face-to-face, as well as virtually, through mobile and online communications. The latter is facilitated through technology that delivers "just-in-time" learning, streamlines the learner's experience, creates online communities to build collaboration and provides individualized development plans. The company partners with colleges and credit-granting organizations to provide employees, and, in some cases, their families, with tuition discounts, scholarships, grants and waived fees. Our focus is to create a continuous learning culture that drives performance, improves our talent and supports a superior customer experience. Overall, our intranet university, the Waste Management talent central system, has nearly 3,000 training modules available to all employees, with course plans that cover all aspects of the company's operation and key aspects of career advancement.

## Senior Management Leadership Program

As part of our succession planning process and continued commitment to developing talent, we created a leadership program in 2015 to build bench strength at the senior management level. The program includes a series of business-related modules that incorporate classroom instruction, practical projects, leadership assessments with executive coaching, and exposure to the senior leadership team in both formal and informal settings. Components of this program are integrated with leadership programs that support development and retention of our midlevel leaders. We continue to refine our succession planning processes to anticipate how to best support millennials advancing within the organization and to anticipate the need for successors for our retiring leaders.

Each major Waste Management department conducts job-specific training and development. Some of the most critical positions in the company are drivers, fleet technicians and post collections workers, such as heavy equipment operators. One of the methods we use to train these employees on health, safety risks and good working practices is a Safety Awareness Training Calendar. Site managers use the calendar to schedule training for employees throughout the year on required training topics, including emergency response, heat injury and illness, asbestos OSHA training for landfill and maintenance, personal protective equipment, hazard communication and procedures for handling of chemicals and hazardous substances, just to name a few.

With a vast and decentralized workforce, we are also utilizing training videos specific to four key areas of Waste Management's operations: hauling teams, post collection employees, maintenance teams and our Energy Services division. The videos detail topics related to each worker's role, such as specific threats that must be managed throughout the workday.

## Driver Training

As a key component of our Mission-to-Zero program, Waste Management's Training Center in Fort Myers, Florida, seeks to standardize driver training and help us work to reduce driver and fleet technician new-hire turnover, as well as the number of vehicle accidents. The center includes classroom work, interactive computer lab learning, hands-on learning stations, actual and simulated driving, and immediate coaching from our skilled driver trainers. Since 2012, more than 8,000 drivers have trained at the center in intensive, two-week sessions.

In 2016, we began training fleet technicians at our center. Since then, we have trained over 500 and are looking to increase capacity for more in the years to come. We believe that the Training Center is a key element in our continuous improvement in safety metrics, such as [Total Recordable Injury Rate](#) and [Vehicle Accident Recordable Rate](#).

Additionally, drivers are now certified in the SAFETY system, an advanced training program that teaches the critical skills of safe driving. The principles learned through SAFETY are revisited monthly through an ongoing video series focused on drivers' daily operating environments. Topics can include managing intersections, pedestrians, bicyclists, rollover prevention, following distance and braking. These awareness videos align well with discussions, observations and coaching.



# Training

## BY-THE-NUMBERS

**42,000**

EMPLOYEES TRAINED  
ANNUALLY

**100%**

EMPLOYEES OFFERED  
TRAINING

**29**

AVERAGE HOURS  
OF TRAINING

Per Employee

**\$500**

AVERAGE SPENT  
ON TRAINING

Per Full-time Employee

**>275,000**

ANNUAL TRAINING HOURS

Per Full-time Employee

**100%**

DRIVERS RECEIVE  
SAFETY TRAINING  
ANNUALLY

**100%**

ENVIRONMENTAL  
PROFESSIONALS  
RECEIVE SAFETY  
TRAINING ANNUALLY

**100%**

CURRENT EMPLOYEES  
TRAINED ON CODE OF  
CONDUCT

**100%**

WASTE MANAGEMENT  
OPERATIONAL  
DIVISIONS RECEIVE  
TRAINING ANNUALLY







## Injury and Illness Prevention Training

Our Injury and Illness Prevention program is focused on preventing injuries among our post collection employees. The program examines equipment, processes, policies and other potential causes of injury and illness for employees across our facilities and properties and evaluates possible interventions and the success of these interventions on prevention. Data gathered may be used to formulate or refine monthly training topics under our Safety Awareness Training Calendar.

Other ongoing initiatives include our Hazardous Energy Control Program, as well as programs timed with seasonal risks such as heat illnesses in the summer and slips, trips and falls in the fall and winter. To read more on our full list of employee training programs, including the Hazardous Energy Control Program, see the [Training](#) section of the Workforce appendix.

## Sales Force Training

Our Sales Department has a Learning & Development division dedicated to developing sales professionals from on-boarding coaching to on-the-job skills development to mentoring for career advancement. Our 10+ years tenure with our top sales employees reflects internal opportunities to expand and grow in the job. From 2015 through 2018, we have been named one of Selling Power's "50 Best Companies to Sell For."

## Contractor Training

To educate all subcontractors working on our sites about potential risks or hazards, we have developed a Contractor Safety Orientation program. In 2016, we updated the program to include a revised Basic Safety Program module, Landfill Safety module, Landfill Gas module, Electrical Safety module and a Renewable Energy module. Presently, 235 Waste Management landfills are active on the program, with 2,000 contractor companies and 12,000 contractor employees registered. We also have a toll-free helpline available to contractors 24/7.

For more detail on Waste Management training, see the [Training](#) section of the Workforce Appendix.



# BETTER COMMUNITIES

CONTRIBUTIONS THAT BRING  
POSITIVE CHANGE TO WHERE  
WE LIVE AND WORK.

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# LOCAL COMMUNITIES

**Though our operations span nearly 20 million customers in the U.S. and Canada, we are very much a local business that is an integral part of the communities we serve. We want to help make our communities, cities, towns and counties better places to work and live — today and for the future. To do so, we support events, programs and organizations that are as varied as the thousands of communities and individuals we serve.**

In 2017, we sought feedback on the responsiveness to our community engagement among the people we serve.

We found that

**25%  
OF CUSTOMERS**

**are aware that we are engaged  
in the community.**

.....

**In contrast,**

**82%  
OF OUR EMPLOYEES**

**rate the company's community  
support as good or very good.**

Our goal will be to reduce the gap between employee and community awareness of what we do to improve the areas in which we work.

We concentrate on initiatives that enhance our environment, promote education and improve the livability and resiliency of our communities, all of which ties to our sustainability goals to increase and improve recycling, produce renewable energy, reduce emissions and preserve wildlife habitat.

We have long been involved in environmental projects that preserve and protect healthy ecosystems, and we optimize our work with national organizations such as Keep America Beautiful (KAB) and the Wildlife Habitat Council (WHC). Their respective national programs allow us to have local impact at hundreds of sites across our operating areas. Our employees also work in partnership with community-based groups, as well as conservationists, universities and environmental organizations, to support healthy ecosystems.

2017 was an especially tough year with respect to natural disasters, as some of the worst hurricanes on record — Harvey, Irma and Maria — rocked communities across the U.S., including Hurricane Harvey's devastation in Houston, Waste Management's headquarters. As a company, we directed \$4 million toward relief efforts in the U.S., and through the Waste Management Cares Fund, our people stepped up to help 550 impacted fellow employees during their time of need.

## How We Give Back

**20,000**

**PROTECTED ACRES OF  
WILDLIFE HABITAT**

**90**

**WILDLIFE HABITAT  
PROGRAMS**

**>4,000**

**COMMUNITY EVENTS**  
Hosted and/or Participated in  
by Waste Management

**\$17 Million**

**PROGRAM TOTAL CHARITABLE  
CONTRIBUTIONS**

(cash and in-kind donations)

**300,000**

**PEOPLE**

Participating in Environmental  
Stewardship and Community  
Betterment Activities  
Including K-12 Youth and College Students



# ENVIRONMENTAL PRESERVATION

**Waste Management owns a wide range of properties — large and small, urban and rural. At our larger properties, in the substantial areas that we set aside as buffer zones, we make a concerted effort to enhance the natural value of the land by providing habitat for wildlife and offering educational opportunities and natural beauty to the surrounding community.**

One of our key partners in protecting and enhancing wildlife habitat is the Wildlife Habitat Council (WHC), a nonprofit organization recognized as the authoritative conservation program for businesses. Our long-standing partnership with WHC has resulted in the creation of 90 WHC-certified projects at Waste Management sites. Through project certification, the WHC recognizes commendable wildlife habitat management and community environmental education programs. Together, these properties encompass nearly 20,000 acres created, enhanced or protected for wildlife across North America. The projects often feature a community environmental education component.

Our projects are included in the WHC's Conservation Registry, an interactive database that maps conservation, restoration and wildlife habitat-enhancement projects worldwide, allowing us to better understand the impact of our conservation programs. We continue to expand certified sites to include small urban habitats at transfer stations, recycling facilities and other smaller Waste Management facilities. Beyond the wildlife habitats certified at our active and closed facilities, we lease our unused property for productive use by farmers and ranchers. As of 2017, more than 22,300 acres in the United States and Canada were used for this purpose.







In addition to our work with WHC in certifying wildlife habitat and environmental education at our sites, Waste Management works with WHC on collaborative efforts among nonprofits, government agencies and companies to create conservation strategies. For example, the Corporate Pollinator Ecosystem Project (C-PEP) brings together companies with the United States Business Council for Sustainable Development to identify pollinator habitats on corporate land and ultimately help revive declining pollinator populations. Upon project culmination, the C-PEP Survey will be presented to the federal government as a response to President Obama's 2014 goal to restore or enhance 7 million acres of land for pollinators.



Today, Waste Management has more than 50 programs dedicated to protecting pollinators throughout North America. We also support the Highways Bettering the Economy and Environment Pollinator Protection Act (Highways BEE Act). If passed, the law would facilitate efforts by states to use more pollinator-friendly highway landscaping practices, including reducing mowing and planting native plants and grasses that provide habitats and foliage for bees and monarch butterflies and bees.

Another dimension of our commitment to environmental preservation is demonstrating the value of biodiversity to children to instill the importance of being good environmental stewards. We incorporate STEM (science, technology, engineering and math) education into most of our wildlife habitat programs. For example, our Springhill Landfill in Campbellton, Florida, hosted its 50th environmental education tour with local elementary students in November 2017. During the guided tour, students learned how a landfill operates, created edible landfills, observed stormwater ponds and visited natural forested wetlands, among other activities.



## WILDLIFE HABITAT 2017 HIGHLIGHTS



### BUCKS COUNTY, PENNSYLVANIA

Habitat conservation at our Bucks County Landfills received Gold Certification from WHC and dual honors in 2017, capturing the Pollinators Project Award and the Landscaping Project Award. Our Bucks County team actively manages 6,000 acres for wildlife habitat, including transforming a previously open field into a sustainable pollinator habitat for bees, cabbage moths, beetles and monarch butterflies. This multigenerational project brings employees, families, seniors, students and other members of the community together to learn how to manage and promote protection of pollinators species and habitats.



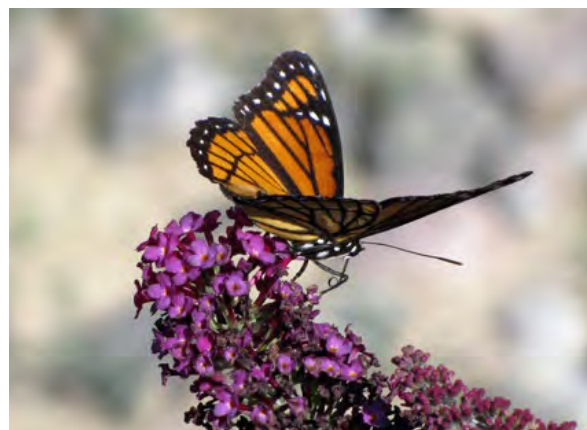
### LOUISVILLE, KENTUCKY

Our Campground Natural Area, a retired facility managed in partnership with Michelin, garnered a WHC Grasslands Project Award nomination in 2017. Cub Scouts earn conservation patches here by participating in educational activities on the site's pollinator, forest, grassland and wetland habitats.



### SANTA CLARA COUNTY, CALIFORNIA

Corporate Wildlife Habitat of the Year 2013 winner, and nominated for the WHC's 2017 Reptiles and Amphibians Project Award and Species of Concern Project Award, our Kirby Canyon Recycling and Disposal Facility devotes 600 acres solely to habitat enhancement projects and scientific study. Projects include developing a suitable wetlands habitat for the threatened California red-legged frog.



### HAMILTON, ONTARIO

We actively manage more than half of the City of Hamilton-Glanbrook Landfill site for wildlife habitat, including grasslands, wetlands, forests and riparian areas. Working with community partners, our teams have installed and monitored songbird and wood duck nest boxes and installed pollinator gardens designed to attract species like the monarch butterfly.



## WILDLIFE HABITAT 2017 HIGHLIGHTS



### MENOMONEE FALLS, WISCONSIN

Partnered with local community conservation groups to restore and maintain wildlife habitat at the Orchard Ridge Recycling and Disposal Facility site. The site has a very successful bluebird and wood duck nest box program, including 28 bluebird boxes and 12 wood duck boxes. In just one nesting season, they had 17 bluebirds fledge, 34 hooded merganser hatchlings and 32 wood duck hatchlings.



### BALLGROUND, GEORGIA

At Pine Bluff Landfill, high school seniors worked to fulfill their graduation duties for a senior project. The students started with building a modest butterfly and pollinator garden. Since the partnership started, the garden has grown to over two acres that now house a pavilion and hundreds of pollinating plants and species. Guided tours and educational presentations are given to local school students, boy and girl scout troops and home-school groups, as well as area garden clubs.

# PUBLIC EDUCATION



Recycling is an essential part of reducing the impact we have on our environment. Forty years ago, the recycling challenge was about getting people and businesses to embrace a new way of discarding waste: bundling newspapers, sorting plastics and glass, and resisting the old habit of throwing all our waste in the garbage. Today, with evolving waste streams, single-stream collection methods and advanced processing systems, recycling has become more complex. Recycling the right materials in the right way really does matter, but it doesn't always happen: it's estimated that 25 percent of materials put in recycling bins are not actually recyclable.

As the recycling landscape has evolved in recent years and become more challenging for consumers, we are working to educate people about the benefits not only of recycling, but also recycling properly. Our [Recycle Often. Recycle Right.](#)® campaign helps consumers understand what can and cannot be recycled.



A key feature of the Recycle Often. Recycle Right. campaign is a [toolkit](#) that includes brochures, posters, ads, radio clips, blog posts, videos and more, used to spread the message. In addition, the toolkit provides K-12 curricula with supporting national science standards and is available to visitors to the campaign's microsite. We launched a new version of the campaign website in 2017 to provide customers with more updates and more engaging, interactive and motivational resources to help them make the right recycling choices.





Our Recycle Often. Recycle Right.® campaign is national in scope and joins partners for recycling education such as The Recycling Partnership, of which we're a funding partner, AMERIPEN, the National Waste & Recycling Association and others. We work hard to make these education programs come alive locally. Many of our sites across North America host educational activities, programs, community events and facility open houses to inform and educate people about better managing waste. For example, our team in Kansas City partnered with Bridging the Gap (a local nonprofit) and a Keep America Beautiful chapter to put together a Facebook Live broadcast on America Recycles Day that offered viewers practical recycling tips plus a behind-the-scenes look at the Kansas City recycling facility.

We also use our social media channels to educate people about recycling through our #Recycling101 campaign, in addition to other sustainability information. In 2017, we posted more than 270 messages about sustainability and recycling education on social media, reaching approximately 8.5 million people.

## Growing Recycling Through Multicultural Outreach

Our own workforce speaks multiple languages (our employee newsletter goes out in English, Spanish and French), so it's no surprise that the diverse communities we serve would benefit from receiving information in their own language, too. We offer Spanish-language resources on our Recycle Often. Recycle Right.® website, and our municipal partners often provide translated versions of local recycling guidelines on their websites as well.

Here are some other ways we engage with multicultural communities about recycling:

- › One of our recent Think Green Grants went to the Vietnamese American Community Center of the East Bay in Oakland, California. The center wanted to help Vietnamese restaurants and grocery stores incorporate compost collection services to avoid fees and penalties regarding new and unfamiliar composting rules and regulations. The grant went toward translating an English ad about composting requirements into Vietnamese and training staff and volunteers about the recycling ordinance so they could help over 30 local businesses make informed decisions about compliance.
- › In Southern California, our team employs integrated outreach efforts to make recycling messages relatable to Spanish speaking communities. One emphasis of our recent engagement includes the development of localized videos and social media content inviting Latino communities to join our efforts to further sustainability through reducing and reusing and recycling right.
- › In Washington state, our Recycling Corps interns often speak more than one language and use those skills to broaden our engagement with the public and businesses about reducing waste and changing recycling behavior. One of our 2017 interns, Xiao Dong Liu, used his Cantonese and Mandarin fluency to share recycling education with businesses in Seattle's Chinese community. Learn more about his experience in [this video](#).
- › In 2017, our Washington state team also implemented a recycling education pilot and campaign aimed at Spanish-speakers in Snohomish County. The campaign educated residents about recycling and tested the effectiveness of texting, TV and radio ads, direct mail and door-to-door outreach. Using the information learned from this pilot, Waste Management developed a new education campaign geared toward the Spanish-speaking community. The "Odes to Recycling" campaign is inspired by the work of Pablo Neruda and his odes to everyday elements, paying homage to recyclable plastics, paper and cans that can be reborn for the benefit of the planet and future generations. Based on the importance the community places on recycling and the environment, odes are a culturally significant way to share recycling best practices for priority materials. In addition, we launched a new bilingual English/Spanish storytelling program that targets multicultural communities within schools. The hands-on, visual and interactive nature of the program made it accessible for all students, regardless of native language. These efforts would go on to win our team a 2018 Recycler of the Year award for Multicultural Engagement from the Washington State Recycling Association.



# COMMUNITY VITALITY

**Through our partnership with Keep America Beautiful (KAB) and other environmental organizations, Waste Management supports thousands of community environmental education and beautification initiatives that highlight our desire to help create and maintain vibrant communities.**

We have supported KAB's annual America Recycles Day for 28 years. In 2017, we were a national sponsor of this initiative, which drew 1.9 million attendees to more than 1,200 events dedicated to promoting, encouraging and celebrating recycling.

Our Think Green® Grants are part of an initiative through which we provided 55 grants totaling \$170,000 in 2017. Grants went to nonprofit organizations and KAB affiliates for programs focused on community beautification and recycling education such as:

- ▶ Improving public education on what can be recycled to reduce contamination in the curbside collection program in Akron, Ohio.
- ▶ Helping students at a school for the blind in Philadelphia, Pennsylvania, develop job skills as they deliver recycling bins to classrooms, maintain the bins and collect and sort recycled materials.
- ▶ Supporting the development of a new community park in Norwood, Massachusetts. Before the new park, the area was an unused, overgrown eyesore in the middle of town. Now there are trees and benches for use of town residents.
- ▶ Planting 50 trees along a city parkway in Berwyn, Illinois, to replace trees damaged by an insect infestation.
- ▶ Protecting waterways in Tampa, Florida, by educating the public about recovery and recycling options for monofilament fishing line and installing collection tubes in targeted areas.
- ▶ Supporting scholarships that give low-income students free field trips to Hershey Gardens to learn about sustainable gardening.
- ▶ Creating an educational recycling decal for the inside lid of recycling bins in Sandy, Utah, to reduce contamination.
- ▶ Providing a park bench for a newly developed butterfly garden planted by community volunteers in the Village of Chicago Ridge in Illinois.





Waste Management also sponsors environmental education and beautification initiatives run by community-based organizations. For example, our Hoot Landfill, a closed site in Fouke, Arkansas, welcomes about 100 sixth-graders each year to an outdoor school led by the Sulphur River Waterfowl Association. The three-day event teaches students about the natural environment as they rotate through stations on topics that correlate with their classroom curriculum, such as plant and wildlife identification, nature sounds and a creek study.

We also lend our expertise in recycling education to special events, such as our ongoing partnership with the Houston Marathon Committee to reduce waste at its annual marathon and half-marathon. This event received gold certification from the Council for Responsible Sport for the fifth consecutive year in 2017 after achieving a waste diversion rate of 77, aided by our focus on educating volunteers and vendors about recycling. Prior to the race weekend, marathon staff toured our Gasmer Road material recovery facility, where we also spent time training lead volunteers on the proper use of different types of recyclable boxes. At our booth promoting recycling at the marathon EXPO, members of our team collected 543 pairs of tennis shoes from runners, then donated them to SEARCH Homeless Services in Houston, Texas.

## Keeping Neighbors Safe

When Waste Management drivers are working their routes in the wee hours of the morning, they have a unique opportunity to be the eyes and ears of the neighborhoods they serve. For more than a decade, our Waste Watch® community program has leveraged this advantage by training our drivers to recognize and handle situations that just don't seem right. The program teaches drivers how to observe and report suspicious activities and emergencies to local public safety and law enforcement agencies. Introduced in Forest Grove, Oregon, Waste Watch has trained thousands of employees to keep an eye out in more than half the U.S. communities we serve.

To become recognized as a Waste Watch Certified Driver, an employee participates in a formal training program, which includes instruction from Waste Management corporate security and local law enforcement personnel, and then passes a written examination.

We also partner with other safety-related organizations and programs, including AMBER Alert, the National Center for Missing & Exploited Children, Community Crime Stoppers and the U.S. Department of Homeland Security.

Over the years, the Waste Watch program has received widespread national acclaim, earning recognition from local municipalities and the National Sheriffs' Association's Award of Excellence in Neighborhood Watch. Our drivers have been lauded for reporting suspicious activity ranging from thefts to vandalism. Drivers have also helped save lives by calling in emergency medical assistance for individuals in physical distress.





Here are a few examples of helpful or just plain heroic actions by our Waste Watch Certified Drivers:

- › At our Atlantic Waste Disposal Landfill in Sussex County, Virginia, Waste Management employees James Clary and Nelson Laine worked with the Sussex County of Public Works to design and install a helipad at the landfill. The helipad provides aviation crews a dedicated site to land unaided and the rescue squad to deliver the patient during an emergency in a rural part of the county.
- › Driver Juan Aguilar ran to the rescue of a customer in Denver, Colorado, who had fallen and hit his head on a curb. He followed emergency dispatch instructions until paramedics arrived, then stayed on to place the customer's lawnmower and shovels safely in the garage.
- › When a boy and girl flagged down his truck and told him a 14-year-old girl had fallen into a frigid river in Timmins, Ontario, Armand (Sam) L'heureux helped her from the water, then called 911 and his local office. His district operations manager turned up with blankets and a jacket to help the girl avoid hypothermia.



### Resaving Pets

Waste Management worker William Gambrell in Sacramento, California, found six kittens in a dumpster and turned them over to the SPCA.



### Sharing Kindness

Ryan Murray, a driver in Sudbury, Ontario, took the time to show a child on his route how his recycling truck worked. The family was so impressed with Murray's compassion that they nominated him for a local media organization's [12 Days of Kindness](#) award.

- › In Lewisville, Texas, driver Larry Bowery saw a car get rear-ended by a gravel truck and pushed over a bridge into a lake. Bowery used a crowbar to smash a window so he could pull the injured driver free and stayed with him until emergency crews arrived.

- › Driver James Thomas received thanks from the fire department in Seattle, Washington, for helping to save the life of a customer on his route who was experiencing a medical emergency.

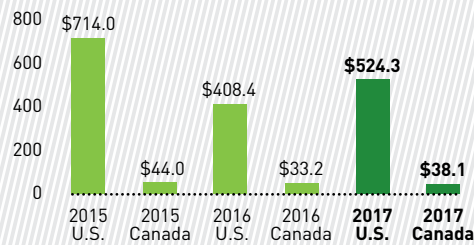
In addition to Waste Watch, our drivers and helpers are always on the lookout for ways to connect with their communities and our customers. Here just a few of our "fan favorites":

- › Driver Bryan Deets has a special bond with a 6-year-old customer with multiple sclerosis in Calgary, Alberta. Whenever Deets empties the bin under the boy's window, he gives the bin a couple of extra dumps to brighten the boy's day. He also gave his super fan a toy Waste Management truck to enjoy even when it's not trash day.
- › A Montgomery, Minnesota, high school student with autism who is fascinated by Waste Management trucks received a thrill when driver Jim Hahn presented him with a miniature Waste Management truck, official hat and water bottle.
- › A heartfelt card along with a bag of holiday goodies was sent to our Eastern Canada team in Mount Forest, Ontario, from a neighbor who lives near the site. The neighbor's children walk to school down Sligo Road each day where there are no sidewalks and find that they often have to run into the ditch to avoid trucks that haven't slowed down or given them enough space. The children noticed that this is never the case when it comes to Waste Management trucks and that our drivers always take the time to slow way down or come to a complete stop if there is traffic, to allow space for the children to walk. When the Mount Forest team discussed this at a meeting, one of the drivers came up with a slogan that they continue to use at meetings and huddles — We Are Guardians of the Road.

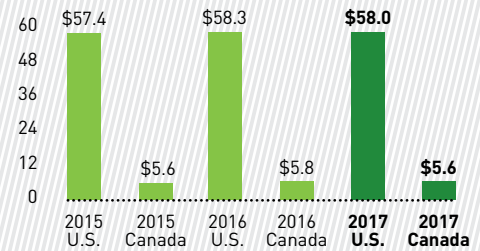
## Local Economic Impact

Our day-to-day operations — from \$3.5 billion in wages and benefits to the \$562.4 million in income taxes paid in the U.S. and Canada — boost economic growth in the communities in which we live and work. In 2015, we spent \$6.5 billion on supplies, one-third of which involved purchase of collection and operating fleet. Supporting small businesses through the materials and supplies we purchase also contributes to local and national economic growth. In 2017, we spent \$191 million with diverse suppliers as part of our commitment to diversity and inclusion.

### Income Taxes Paid (in millions)



### Real Estate Taxes Paid (in millions)



# CHARITABLE DONATIONS

**Waste Management gives back to communities throughout the U.S. and Canada through financial contributions, in-kind giving, participation on an organization's board or the sharing of our expertise. Whenever possible, we engage with local stakeholders to understand specific community needs.**

## Volunteering in Our Communities

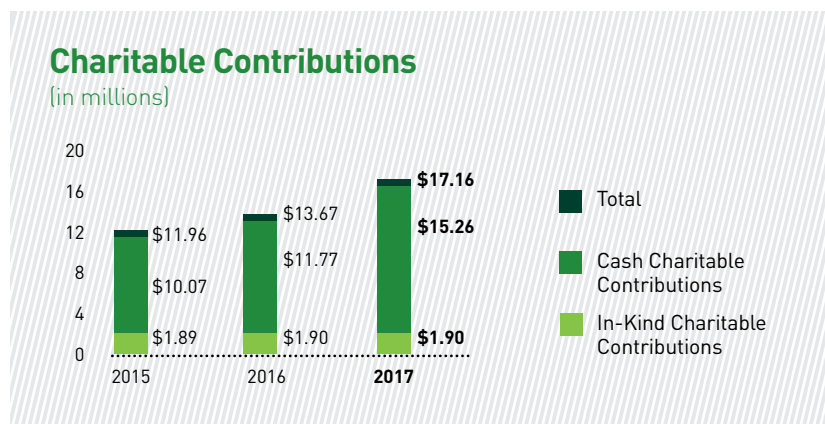
We pride ourselves on having an employee base dedicated to revitalizing our local communities through kind acts of volunteerism. In 2017, volunteers reported contributing nearly 781 hours during paid working hours. This total does not reflect the thousands of hours we know our employees volunteer on their own time. As part of our work with Keep America Beautiful and the Wildlife Habitat Council, we encourage our employees to volunteer in their local areas on projects we sponsor throughout the year. Here are a few examples of how Waste Management employees supported their communities in 2017:



**Collecting Food in Canada**

- › After weeks of campaigning, collecting goods, planning logistics and devising participation incentives, our Eastern Canada Leadership Forum — a group of 12 future leaders — collected 2,230 pounds of food and \$2,333 in cash donations for The Mississauga Food Bank in Ontario.
- › Fourteen volunteers from our corporate IT team spent eight hours painting, cleaning and doing minor repairs to the home of a senior citizen in Houston, Texas, as part of the team's "Impact Day" initiative, which aims to give back to the community and build stronger relationships among employees.

- › With more than 25 participating sites, our Southern California employees came together to collect more than 1,900 toys for their annual holiday toy drive benefiting the California Highway Patrol's Chips For Kids and the LAPD Devonshire PALS program.
- › Our team in West Valley City, Utah, partnered with Make-a-Wish Utah to give a 15-year-old boy with cystic fibrosis — who happens to love garbage trucks — a ride in a Waste Management truck. The truck delivered him to a reveal party where he found out that his wish to visit Walt Disney World was coming true.
- › The Mount Forest, Ontario, team in Eastern Canada once again created a float masterpiece, with the theme this year being "Canadian Christmas." The majority of the float was comprised of recycled materials, with about 20 employees contributing their free time to create this award-winning float that was featured in three local parades.





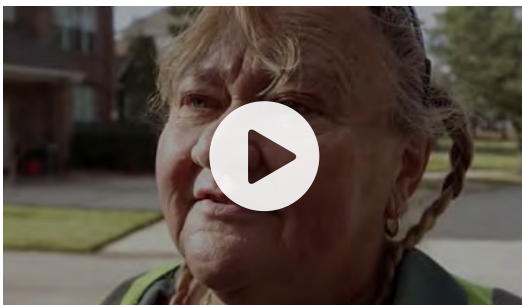
# DISASTER RELIEF

**The extraordinary devastation caused by hurricanes Harvey, Irma and Maria in the fall of 2017 only strengthened our resolve to provide safety, support and services to our employees, customers and communities. We are proud of how our employees responded to the 2017 hurricanes: with professionalism, compassion and a deep commitment to safe operations.**

We work to prepare our teams for disasters as part of our culture of safety and resiliency. Prior to Hurricane Irma making landfall, for example, our Florida and Mid-Atlantic teams prepared for the emergency by updating online service alerts, ensuring site managers

had complete lists of employee contact information, distributing pre-storm preparation information to customers and emergency operating centers, planning social media content to communicate with customers, securing water for sites, keeping tanks full of fuel and moving vehicles to higher ground if needed.

We donated \$3 million to Harvey aid relief and an additional \$1 million in support of Hurricane Irma recovery efforts. Our team members also stepped up to help one another through the Waste Management Employees Care Fund, which provided financial assistance to nearly 550 employees impacted by Harvey or Irma.



## Taking Care of Our Waste Management Family

In the wake of Hurricane Irma, all 67 Waste Management business units within the Florida Area were closed due to the scope, path and severity of the storm. Within 48 hours, however, Waste Management drivers were back on the job servicing customers statewide. And in the Florida Keys, service resumed on the fifth day after the storm, with drivers taking their time, navigating trouble spots and dealing with the excessive amounts of storm debris and garbage curbside.

While no Waste Management employees were injured in the storm, many did suffer extensive property damage and needed to relocate. The Waste Management Employees Care Fund quickly provided more than 260 Waste Management employees in Florida with company assistance totaling nearly \$20,000.



### How We Responded to Hurricane Irma

Post-storm, 38 Waste Management “Green Team” members from around the country arrived to assist with hauling and post-collection operations, staying on the job for several months. The Florida team worked diligently to meet customers’ needs. Sales, Dispatch and Operations coordinated seamlessly to deliver nearly 2,500 containers the week after the storm to priority customers, including the 16 Florida Power & Light staging areas for first responders.

Waste Management volunteers took care of our communities as well, by delivering bags of ice to Everglades City and the South Winds Trailer Park in Sarasota; 500 hot meals to the Gifford Youth Achievement Center in Indian River County; and lunch to the Florida Power & Light linemen restoring power in Okeechobee.

Although we no longer have operations in Puerto Rico, we could not ignore the terrible devastation of Hurricane Maria. In response, we donated the use of a Waste Management corporate aircraft to help transport medicine and other supplies coordinated by an aviation services company that had run out of room on its own planes.





# STAKEHOLDER ENGAGEMENT ON NATIONAL ISSUES

**Waste Management actively works with stakeholders that operate within our value chain, such as customers, employees and suppliers, as well as stakeholders outside our value chain, including industry peers and multistakeholder groups. We have regular open discussions about topics that are relevant to our operations and impact our society. These conversations play a key role in shaping how we execute our strategy, materiality and business strategy, as well as how we work to help improve our communities.**

## Our Approach

We take a systematic approach to stakeholder engagement, starting with public accountability. Every two years we identify the key stakeholders with whom we engage — from environmental and community groups to business and manufacturing leaders, from government associations to scientific academies. These stakeholders can be found across multiple sectors and within our communities. All are essential in helping us stay abreast of current trends, perspectives and policy matters that affect our industry, our customers and our communities.

Our engagement takes many forms. When working on facility upgrades and new construction, we map our community footprint and seek to engage groups and individuals in open dialogue through Community Advisory Councils or more informal routine interactions, open house events, public meetings, tours and more. With our larger customers, we host innovation labs and sustainability forums that focus on ways to reduce costs, lessen environmental footprints and increase the reuse of resources. Each year we complete dozens of surveys on economic sustainability and governance (ESG) to keep investors and customers informed and help customers with their own sustainability reporting. The feedback loop is



continuous. As we receive questions about our ESG practices, we benchmark opportunities to improve and then communicate that progress in future responses.

Participation in policy discussions supplements our dialogue at the local level and ensures that we are working with stakeholders from many perspectives. We give dozens of presentations each year on topics involving recycling, renewable energy and fuel and civic engagement. Since 2011, we have sponsored three terms of multistakeholder dialogues on the core issues affecting our industry and those impacted by it: the road to more sustainable materials management; the way life cycle thinking can pave the way to better characterization of environmental impact over time; and ways stakeholders can achieve more recycling productivity. We believe there is enormous value in bringing together diverse viewpoints in a sustained effort to find common ground and mutual understanding of difficult [environmental challenges](#).

Waste Management believes that disclosing our networks of memberships and associations working on policy issues is important. Our employees are enriched by broad interaction with stakeholders and informed dialogue on key issues like materials management, renewable energy, climate change and adaptation, responsible governance, conservation — and a host of other topics. For a full listing of associations and memberships, see stakeholder engagement in the [Communities Appendix](#).







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# BETTER COMPANY

## Economic Impact

### NON-GAAP MEASURES

The “Economic Impact” section of our Sustainability Report presents Adjusted Income from Operations, Adjusted Operating Margin, Adjusted Operating EBITDA, Adjusted Operating EBITDA Margin, and Adjusted Earnings Per Diluted Share (Adjusted EPS), each of which exclude certain items affecting comparability of our results and are not defined by generally accepted accounting principles (GAAP). We believe that non-GAAP measures provide useful information to investors by excluding items that the company does not believe reflect its fundamental business performance and/or are not representative or indicative of our results of operations. The company defines Operating EBITDA as income from operations before depreciation and amortization.

The “Economic Impact” section of our Sustainability Report also presents Free Cash Flow, which is a non-GAAP measure. The company discusses Free Cash Flow because we believe that it is indicative of the company’s ability to pay its quarterly dividends, repurchase common stock, fund acquisitions and other investments and, in the absence of refinancing, to repay its debt obligations; however, the use of Free Cash Flow as a liquidity measure has material limitations because it excludes certain expenditures that are required or that the company has committed to, such as declared dividend payments and debt service requirements. The company defines Free Cash Flow as net cash provided by operating activities, less capital expenditures, plus proceeds from divestitures of businesses and other assets (net of cash divested).

Non-GAAP measures should not be considered a substitute for financial measures presented in accordance with GAAP. Operating EBITDA and Free Cash Flow may not be comparable to similarly titled measures reported by other companies. For quantitative reconciliations of non-GAAP measures to the most comparable measure calculated in accordance with GAAP, please see the financial tables accompanying Waste Management’s [press release](#) dated February 15, 2018, announcing full-year 2017 earnings and comparisons to 2016.

## Governance

How we govern and manage our own company and footprint raises issues vital to the communities in which we operate, the people we employ and the customers we serve. How we address these issues is also vital to demonstrating the sincerity of our commitment to sustainability. While many companies work hard to protect the environment from their business, at Waste Management, protecting the environment **is** our business. That’s why our sustainability strategy is fully integrated into our governance and management systems and reflected in a set of ambitious sustainability goals.



Following is a discussion of the governance and environmental management systems that help us both to deliver services with the highest environmental standards and identify emerging opportunities to capture additional value from waste streams. Additional information on our governance strategies is posted on our [website](#).

Eight members serve on the Waste Management Board of Directors, seven of whom, including the Chairman of our Board, are independent as defined by the New York Stock Exchange. The Board Chairman has been non-executive and independent for 14 years. Waste Management's President & CEO is the eighth director. Board members are each elected annually. There are three standing committees: The Audit Committee, the Management Development and Compensation Committee, and the Nominating and Governance Committee. Our Board of Directors does not delegate responsibility for sustainability and corporate responsibility to a committee; rather, such issues, including recycling, fleet optimization and energy are integral to our business, and aspects of these issues are discussed by the full Board of Directors at every meeting. Our Board of Directors' biographies, committee charters, and our governance guidelines are posted on our [website](#).

## BOARD OF DIRECTORS DIVERSITY

The Nominating and Governance Committee seeks Board candidates who bring a variety of perspectives and industry knowledge relevant to Waste Management's business. Candidates are evaluated for personal and professional integrity and sound judgment, business and professional skills and experience, independence, potential conflicts of interest, diversity and potential for effectiveness in serving the long-term interests of shareholders. While there is no formal policy with regard to weighing diversity in identifying director nominees, the Nominating and Governance Committee considers diversity in business and professional expertise, as well as gender and ethnic background, when evaluating director nominees. The Committee considers a matrix of experience, skills and expertise when identifying candidates.

Before being nominated, director candidates are interviewed by a minimum of two members of the Nominating and Governance Committee, including the Non-Executive Chairman of the Board. Of the current directors, two are female, one is Hispanic and one is African-American.

## Strategy and Management Processes

Environmental excellence and compliance are hallmarks of sustainability and core elements of our management framework. An important tool for integrating sustainability into our business has been our strategic business framework, which includes "scorecard" tracking of key metrics to reinforce alignment with key objectives. (See figure on [page 139](#).) Using this performance framework, we align stakeholder perspectives and market opportunities that will guide the entire organization for the year and beyond. Compensation is affected by alignment with company goals (including, as applicable to a business unit, sustainability goals), and compliance and sustainability are part of our performance review structure.

Our senior leadership uses this performance process to ensure that our entire organization (field operations and staff functions) focuses on strategic objectives. The measures also assist with legal and regulatory compliance and support environmental performance, stewardship goals and promotion of our values.



# Strategic Planning Process



## OUR PERFORMANCE EVALUATION PROCESS

1. When establishing our strategic objectives, we take into account the perspectives of our customers, shareholders, employees, community members, regulators and other stakeholders, as well as our performance against key internal metrics and our reputation as measured with key audiences. We often employ “heat maps” that identify the geographic scope and intensity of risks and opportunities.
2. and 3. We align our major financial, operational, environmental, community, people, safety, compliance and customer objectives with those specific companywide programs and initiatives that have been approved and funded as critical to achieving our strategic objectives. Performance expectations are communicated throughout the organization, and senior leadership assigns quarterly and annual targets to which our field operations are held accountable.

An ongoing initiative focuses all employees on knowing our customers better, optimizing assets, innovating in technologies, creating more efficient systems and extracting maximum value from the waste stream. Notably, this initiative closely aligns with our 2038 sustainability goals.

4. We set targets as part of our annual budgeting process. The targets represent commitments we have made to our stakeholders and include improvements and metrics that are factored into employee evaluations. For example, targets have been created on the following topics:
  - › **Financial:** Traditional financial measures that our investors have found to be important to our success.
  - › **Customer/Community:** Customer engagement, improving customer interactions and service, and our community relations programs. We seek to improve Waste Management’s reputation by developing and maintaining strong community partnerships and measuring our reputation among key stakeholders.

- › **Process:** Efficiency and cost-per-unit measures across our collection, disposal, recycling and waste-to-energy operations.
  - › **Compliance:** Our primary safety measures and overall environmental scores.
  - › **Learning and People:** Employee engagement, recruitment, development, retention and training.
5. Our operations at all levels report progress in reaching the targets. At the corporate level, monthly and quarterly reports are prepared and presented to the Board of Directors at each of its meetings. There are Monthly Business Review and Quarterly Business Review meetings to continually engage layers of management on progress toward company goals. This format and target-setting process (using specific key performance indicators) were integrated into our annual performance planning process to ensure consistency among strategy, performance planning, and performance measurement and accountability.

## SUSTAINABILITY OVERSIGHT

Waste Management's sustainability service offerings are discussed at most Board of Directors' meetings because these services are linked so closely with company strategy. Topics discussed include recycling goals; market conditions and operations; generation of renewable energy; and innovations in operations to increase efficiency and provide environmentally superior service. Customers' sustainability goals (e.g., waste reduction, recycling and materials reuse, expansion of renewable energy capacity) are discussed annually during Waste Management's Senior Leadership Team's strategic planning meeting.

The Audit Committee of our Board is responsible for assisting the Board in monitoring the company's compliance with legal and regulatory requirements. Accordingly, the Audit Committee and the Board regularly receive environmental, health and safety compliance reports from management. Our Compliance Audit Services department supports these efforts and oversees compliance audits at all company-owned, -operated and -controlled facilities and operations.

For more than nine years, Waste Management's annual strategic planning initiative has included benchmarking of national accounts and municipal customers to determine the scope and nature of our customers' sustainability goals. Our formal materiality review for this report has been incorporated into this benchmarking. The Senior Leadership Team reviews this data to ensure that new developments in sustainability are an integral part of our business strategies. This strategic planning process has proven valuable over time, helping to identify trends that were a key factor in our decision to acquire new recycling assets in 2011 and 2012, to shift our focus in 2014 and 2015 to the efficiency and productivity of our recycling network, and to concentrate in 2016-2018 on contamination in recycling — how to avoid it and how to accommodate contaminants within a sustainable recycling financial model. In early 2018, a multi-disciplinary task force of Waste Management executives reported to the Senior Leadership Team on opportunities to grow the sustainability-oriented aspects of our business, including not only our public and private sector customers, but ESG-focused investors as well. The task force's report reflected detailed interviews and documents reviews from employees, customers, NGOs focused on sustainability, and investors.

## Risk Management

Waste Management's executive officers have primary responsibility for risk management within the company. The Board of Directors oversees risk management to ensure that the processes designed, implemented and maintained by our executives are functioning as intended and adapted when necessary to respond to changes in the company's strategy as well as emerging risks. The primary means by which the Board oversees our risk management processes is through its regular communications with management and by regularly reviewing our enterprise risk management (ERM) framework. We believe that our leadership team's engagement and communication methods are supportive of comprehensive risk management practices and that the Board's involvement is appropriate to ensure effective oversight.

At the company level, Waste Management uses an ERM process involving senior leaders and subject matter experts from all major divisions to assess the materiality of all risks across the enterprise. Facilitated by our Treasury & Risk Management department, a standardized risk profile created for each headline risk is submitted to the Senior Leadership Team (SLT) and the Board of Directors. If a risk is identified as a Priority Risk, it receives a more granular assessment, including additional risk quantification and elevation for further discussion with the SLT and the Board of Directors.

Risks and opportunities are prioritized according to (financial) impact, likelihood (of event), outlook (of risk exposure) and confidence (in risk management). The executive team that manages our ERM reporting to the Board reviews all submissions for consistency in determining scope of impacts, as well as comprehensiveness in determining the adequacy of current support by internal staff, the sufficiency of financial support for contractors or mitigation measures needed to manage and reduce risk, sufficiency of legal support, and the extent and sufficiency of third-party consulting support. All headline risks have a standardized scorecard which includes individual ratings for sub-risks, identification of whether any sub-risk is a Priority Risk, forward-looking action plans with measurable indicators and progress updates on action plans from previous assessments.

The environmental impacts, risks and opportunities, including climate-related, that may be presented to our carbon reduction service lines are discussed each year. Waste Management's Digital organization briefs the Board twice a year on potentially disruptive technologies, sometimes related to customer expectations with regard to carbon reduction services. Moreover, the staff working on the ERM documentation coordinate with those drafting the risk factor description for the Annual Report on Form 10K to assure thoroughness in response.

The recycling industry provides a clear example of transitional risk. The potential adoption of extended producer responsibility legislation at the state level puts national curbside recycling at risk, and China's policy decision to halt imports of recyclables has an impact on commodity pricing. Both impact life cycle greenhouse gas (GHG) reduction benefits associated with recycling and meeting sustainability goals for Waste Management and our customers. This complex risk and opportunity was analyzed and discussed by the SLT and the Board, who determined Waste Management should be a sector leader, engage customers, and educate consumers and customers. Waste Management therefore created a focused campaign to engage our customers, both municipal customers and commercial and industrial customers, by providing information necessary to maximize GHG reductions to be achieved by effective (contamination-free) recycling of the commodities providing the greatest life cycle reductions.

at the lowest cost. Results are ongoing, but we estimate that our educational campaigns reach approximately 90 percent of our total customers. Our Recycle Often. Recycle Right.® campaign shows that our municipal customers with demonstrated long-term commitments to public recycling experience a 10 percent contamination rate versus the national average of 25 percent. In 2017 we reduced our contamination throughout our portfolio of recycling facilities. In addition, we are engaging with our customers during contract discussions to assure partnership to reduce contamination and increase quality.

The ERM process is supported by regular inquiries of the company's Senior Leadership Team and additional members of management, including operations leadership, as to the risks, including emerging risks, that may affect the execution of our strategic priorities or achievement of our long-term outlook. We identify a number of risks that we believe could affect our business and financial statements for 2018 and beyond in our [Annual Report](#).

Key areas of assessment include:

**Technology.** Waste Management's Digital and Corporate Venturing departments provide risk mitigation regarding new technologies that would affect the company's business model. The SLT is updated quarterly formally and on an ad hoc basis in between. The SLT sets priority areas. The Board of Directors is briefed at least once a year, with an emphasis on identification and strategic planning regarding technologies potentially disruptive to the company's business model.

Waste Management has direct investments in third-party companies that possess promising technologies and business models that could change the competitive landscape in the markets in which we compete. These investments match our current expertise, particularly in current sorting and waste conversion technologies as well as complex logistics and local market analysis, with the developers of new and potentially disruptive technologies.

Additionally, Waste Management is invested in three venture capital funds in North America and Europe that provide us with visibility into emerging "Cleantech" technologies.

Waste Management, through its Corporate Venturing department, reviews approximately 100-150 companies annually, looking for technologies and business models that could improve our cost competitiveness and help us and our customers/communities achieve sustainability goals regarding waste reduction/consulting, upcycling, recycling, waste conversion, fleet emissions reductions and green energy production.

As Waste Management seeks to expand its business and modify its traditional business model to address local, state or federal policies and requirements, the Corporate Venturing department maintains a large database, derived from global sources, that routinely provides information to key Waste Management line managers about the efficacies of an array of technologies offered by competitors. Subject to nondisclosure agreements, this information can be used by officials and regulators to help shape public policy on the environment by providing real-time data on testing, performance, verification and economics of environmental technologies.



**Legislative/regulatory risk and opportunity.** Corporate Public Affairs and Area Government Affairs report biweekly and confer monthly on key legislative and regulatory developments affecting Waste Management's business. In an annual strategic planning meeting, in-depth discussion of priority issues helps identify strategic legislative and regulatory risks and opportunities that we plan to address. A central Public Policy team is charged with managing risk on priority issues affecting the company entity-wide. Public Affairs and Area Government Affairs staff survey risks and opportunities in terms of likelihood, severity and financial impact, and specific risk-management goals are set and tracked through the company's formal performance management system. Key risks addressed in 2017 included the economics of recycling, potential emergence of disruptive technologies or materials management frameworks, federal and state climate change programs benefiting or challenging Waste Management service offerings, and barriers and incentives to Waste Management's attempts to transition its fleet from diesel fuel. In 2017, the Board of Directors was briefed on Waste Management's extended producer responsibility strategy along with the company's government affairs update.

**Operational risk.** Continual assessment of potential risk associated with current technologies and structures is provided by engineering and environmental management specialists. For a detailed account of this system, read a discussion of Environmental Management Processes and Systems in the Operations Appendix. Waste Management is a founder and current Research Council member of the Environmental Research and Education Foundation, which focuses on sustainability performance, environmental stewardship and higher-process knowledge within the environmental service industry. In 2017, we undertook best-practice, third-party benchmarking and have committed to communicating our resulting programmatic goals and progress to the Board periodically.

**Employee safety and health.** Our Safety personnel employ risk matrices to review and create mitigation plans for identified health and safety risks, continually updating based upon new information. Depending upon the severity of the consequence of the risk and its likelihood, the department manages according to a hierarchy of controls, eliminating the highest risk and utilizing interventions to limit exposure to risk where appropriate.

**Reputation and reporting accuracy.** As a service organization, Waste Management relies upon its reputation for reliable service, compliance, safety and sustainable innovation. Managers receive daily clips reporting the reputational footprint of Waste Management and our competitors. These insights are supplemented by field staff focused on gauging reputation and accurate representation of the company in all major markets. Communications on sustainability topics are coordinated centrally with a cross-functional team also charged with sustainability disclosure (including Communications, Public Affairs, National Accounts and Waste Management Sustainability Services), including response to RFPs and supply chain sustainability questionnaires with consistency and accuracy. Trends identified in customer and stakeholder questions and feedback are then inputted into the risk management process.

**New acquisitions evaluation for environment, health, safety and social indicators.** Waste Management's acquisitions are almost exclusively in North America, and our risk assessment procedures reflect our ability to rely upon the rigor of national environment, safety and human rights law. Most acquisitions are subsumed into existing Waste Management operations and management and become fully subject to Waste Management standards and policies, including our Code of Conduct and its monitoring. Employees of acquired companies are onboarded as new Waste Management employees, subject to our mandatory enforcement of immigration laws and company background checks and drug screening. In the less frequent event of a stock acquisition, we look closely at the seller's employment, labor, safety and working conditions (including working hours, overtime, benefits, compensation), both in terms of meeting Waste Management's standards and practices and in terms of potential liabilities for past practices. The Legal and Human Resources department are active members of the due diligence team. With regard to safety metrics, Waste Management senior staff are active in engaging with ANSI Z245 standards for our industry. ANSI Z245 standards are voluntary, but many — including those that are the basis for Waste Management policy and procedures — have been adopted into federal OSHA regulations.

**Recycling market risks.** Waste Management has invested in the assets to meet customer demand for recycling and waste reduction, with costs of processing and recovery through commodity sales as part of our economic model. As a result, our exposure to commodity prices has created a risk that can impact revenues by hundreds of millions of dollars. Waste Management Recycling is acting to mitigate the commodity risk through sales practices and contract terms. The recycling export team moves material to customers in China, India, Europe, North America and South America in an effort to diversify the price risk and ensure that markets remain in balance. During a period of low commodity prices in 2012, we began the multi-year process of changing contracts to prioritize increased transparency and cost sharing in our contract language to ensure movement of material, utilize market pricing on inbound material and mitigate our commodity risk. Customers are asked to pay processing fees for recycling their material with the remaining value split by both parties. These new terms may limit some upside benefits, but the risk mitigation protects Waste Management from the risk of volatile commodity prices. Moreover, this more transparent pricing policy strengthens our ability to withstand sustained down markets in commodities and retain core recycling capacity.

**Municipal contracts.** Waste Management's Finance department conducts ongoing, in-depth audits on large contracts annually. A separate audit team manages SOX Contract 7 compliance on all new or renewal contracts with over \$1 million in annual revenue. We have contract compliance teams in franchise markets who proactively audit all contractual requirements, reporting, fee payments, billing, etc. Our Public-Sector Services department employs a financial model going through multiple levels of approval up to the Senior Leadership Team. That model includes risk characterization factors such as market conditions, regulatory risks, etc.

## TRAINING EMPLOYEES ON RISK IDENTIFICATION

Our Safety, Internal Audit, Internal Controls, Compliance and Enterprise Risk Management departments perform tailored trainings and information sessions to employees with the focus on building a culture of risk awareness and response. Risk identification and reduction is considered a core element of every employee's responsibilities.

Our Safety and Operations departments have integrated tools to support a culture of zero tolerance for unsafe behaviors and conditions. The objective is to conduct operations in a manner that engages our employees to be safe, operate efficiently, protect the environment and respect our neighbors. There are specific meetings by discipline area (Safety, Internal Audit, Internal Controls, Compliance and Enterprise Risk Management) and reporting tools (such as Safety's Incident Reporting Tool) to identify and report risks throughout the organization, and employees are encouraged to do so.

## RISKS AND OPPORTUNITIES RELATED TO CLIMATE CHANGE

We report on the physical and financial risks and opportunities arising from climate change in our annual submission to CDP (formerly the Carbon Disclosure Project). Additionally, we discuss such risks and opportunities in our [Annual Report](#) on Form-K, filed with the Securities and Exchange Commission, under the headings “Regulations” and Risk Factors.” Our CDP disclosure can be found at [www.cdp.net](http://www.cdp.net), <https://sustainability.wm.com>, and in our Annual Report. The key risks and opportunities are summarized below. Periodically, the Board is briefed on potential regulatory and market responses to climate change that may have near- or longer-term impact on our finances or the value of services we provide.

- › **Regulatory risks.** Emerging greenhouse gas (GHG) policies at the state and federal levels will likely affect our operations, though the nature of the impacts is uncertain. Regulatory programs to address reductions of GHG emissions will present significant challenges and opportunities for the company since we have operations that emit GHGs but also employ innovative technologies that reduce and prevent GHG emissions. We have active and ongoing engagement with federal and state regulators to identify and address potential regulatory changes, including new federal air regulations for landfills. Carbon tax proposals are unlikely to see activity until at least 2020. Waste Management engaged with fossil fuel customers on a plan that does not impair economic growth.
- › **Disaster preparedness.** To prepare for the possibility of extreme weather emergencies that have the potential to disrupt our business, we have instituted emergency contingency plans and staged emergency equipment and fuel to ensure continuity of service or a return to service in the shortest time possible. These plans are based on an assessment of the types of disasters that could affect each business region and the ways in which each type of disaster would impact our employees, business operations and community needs. Experience with recent extreme weather events has confirmed the adequacy of the plans.
- › **Changing customer preference/behavior.** Customer preference for Waste Management “green” offerings are unabated by varying federal approaches to climate change. The desire to plan for climate change and reduce GHG emissions has proven stable over time for both our public and private sector customers.
- › **Opportunities.** Renewable energy and GHG cap-and-trade policies could provide opportunities for Waste Management to develop additional landfill methane offset projects and waste-based energy projects. Similarly, emerging low-carbon fuel standards and other incentives allow us to realize benefits from our continuing investment in innovative alternative fuel technologies, including converting landfill gas to renewable natural gas and biodiesel. Finally, our recycling division provides indirect benefits as manufacturers turn to the use of recycled feedstocks to reduce their GHG footprint, thereby increasing demand and potentially price for recycled commodities.

Waste Management has participated in CDP’s assessment of corporate emissions and policies since 2004, and we review questions asked by NGOs, rating agencies like DJSI and Sustainalytics, and customer supply chain sustainability surveys to continually improve our responsiveness. Some of our significant investors discuss with us the ways in which we are evaluating our carbon footprint and the market opportunities for our low-carbon products and services. Many institutional investors inquire about negative impacts from various forms of regulation and legislation addressing GHG emissions, and they are looking at potential impacts to earnings.

Two members of our senior management team — the Senior Vice President, Operations, Safety and Environmental Compliance and the Senior Vice President and Chief Legal Officer — oversee the work of our carbon footprint and climate risk analyses. These senior leadership members report on various issues relating to our service offerings that address customer goals relative to climate change to our Board of Directors at least twice a year. The Board, in turn, provides them with strategic advice for the business.

## Code of Conduct

Compliance with our Code of Conduct is central to our business success, and all employees of the company, as well as all officers and directors, are provided a copy or have access to it online. The Code provides standards for ethical behavior across the scope of our business, including providing equal employment opportunities, ensuring employee safety, maintaining quality in our services, honoring relationships with suppliers and vendors, preserving privacy and confidential information, controlling access to electronic information and equipment, and complying with all applicable rules and regulations, including those related to bribery and corruption (see our [Anti-Bribery Policy](#)). We also developed a specific [Human Rights Policy](#) which is aligned with and operationalized by our Code of Conduct.

Our goal is for all employees to receive training on the Code of Conduct within 60 days of joining the company and periodically thereafter. In 2017, 99 percent of employees completed Code of Conduct training. In addition to this training, the Integrity Helpline process and general investigations outcome statistics are shared with employees periodically, utilizing the company's internal newsletter and other internal communication methods. In 2017, Waste Management's Compliance and Ethics group increased its focus on enhanced compliance communications. Tone-from-the-top continues to be demonstrated through frequent messages from the Chief Legal Officer and the Chief Compliance and Ethics Officer to both the Senior Leadership Team specifically, as well as to all employees in general. Communication plans for 2017 and 2018 were developed and implemented. These plans include messages describing Waste Management's culture of compliance; its Compliance Strategy, Mission, Vision and Standards that relate to all areas of our business; our "Speak Up" culture; and topics targeted for managers — such as immigration compliance. In 2018, we also benchmarked best practices for Code of Conduct communications, and a cross-departmental team led by the Chief Compliance and Ethics Officer is refreshing our Code for readability and ease of use.

In 2018, Waste Management created several cross-departmental committees to promote a culture of compliance and ethics throughout the company. These committees include a Compliance Training Committee and Compliance and Ethics Steering Committees for Safety, Environmental and Employment Practices.

Videos that provided employees an opportunity to see and hear from the Chief Legal Officer and the Chief Compliance and Ethics Officer on the importance of compliance and integrity to the company's continued success were created and distributed. In addition to making the videos, both officers, along with other senior leaders from compliance-related areas, embarked on compliance field tours across the company, meeting with many field employees to understand their compliance concerns, to solicit their suggestions for improving Code of Conduct training and to further demonstrate the importance of compliance at Waste Management.

The Code applies to all employees, and signed acknowledgments are periodically required, attesting that each recipient understands the responsibilities outlined. We expect all employees to timely report any compliance or ethics questions, issues or concerns, as well as any possible violations of the Code of Conduct, Employee Handbook, internal policy or an external law, rule or regulation. Waste Management highlights a variety of internal reporting resources that employees can utilize when speaking up, which include their supervisor, human resources representative, any member of management, or a Waste Management employee in a different department such as Compliance and Ethics, Legal, Corporate Security, Safety, Internal Audit, or Environmental Protection. If an employee doesn't feel comfortable reporting an issue or concern to a Waste Management employee, or if they've previously raised an issue



and did not get a satisfactory response, they can contact the Integrity Helpline. It is maintained by a third-party where reports can be made anonymously, 24 hours a day, 7 days a week. Waste Management is committed to a Speak Up culture wherein when employees speak up, we will listen up and follow up. Any form of retaliation against any employee who speaks up in good faith is strictly prohibited. In addition, a Code of Conduct Questionnaire is sent to select employees, allowing them an opportunity to report any issues or concerns which may not have been previously reported or properly addressed.

## Clawback Policies

Our Executive Severance Protection Plan contains a clawback feature that allows for the suspension and refund of termination benefits for subsequently discovered cause. Our equity award agreements also include compensation clawback provisions that provide that the employee refund any amounts received under the equity award agreements if the Management Development & Compensation Committee of our Board of Directors determines that an employee either engaged in or benefited from misconduct. Misconduct generally includes any act or failure to act that caused or was intended to cause a violation of the company's policies, generally accepted accounting principles or applicable laws and that materially increased the value of the equity award. Further, our Management Development & Compensation Committee has adopted a clawback policy applicable to our annual cash incentive awards that is designed to recoup annual cash incentive payments during a specified time period when the recipient's personal misconduct affects the payout calculations for the awards.

## Supply Chain

Through our Procurement department, Waste Management has the opportunity to demonstrate our environmental and social commitments by making purchases with an awareness of our impact on the environment. We also have unique opportunities to work collaboratively with suppliers to help them cut waste, use recycled materials and leverage their expertise to help us reach our sustainability goals.

Our Procurement Policy defines value as "the best combination of quality, cost, delivery, service technology, sustainability and risk in equipment, materials, goods or services." For third-party waste service providers, we require environmental assessments that review compliance with all applicable environmental, health and safety requirements. (For a discussion of Waste Management's role in the global supply chain, visit [www.thinkgreen.com/ceo](http://www.thinkgreen.com/ceo).)

The Waste Management Supply Chain team receives training on the Procurement Policy and Procedures when the procedures are updated and new members join the team.

## SUPPLIER CODE OF CONDUCT

Our suppliers are expressly bound by the [Waste Management Code of Conduct for Consultants, Contractors and Suppliers](#), which is included in all contracts for all significant amounts. This Code of Conduct has been amended recently with a provision referencing the United Nations Global Compact (UNGC), and our expectation is that all suppliers will respect UNGC principles. The provision is included in our master template that is used for both new and renewal contracts. Our Supplier Code of Conduct also is posted on [wm.com](http://wm.com) to provide notice to all seeking to do business with Waste Management.

We conduct periodic business reviews with critical suppliers to ensure contract and Code of Conduct compliance. The Code includes these obligations:

- › Strict bans on offering or accepting bribes, kickbacks, payoffs or other unusual or improper payments;
- › A ban on making a political contribution on behalf of Waste Management;
- › An affirmative obligation to be a good corporate citizen and a trusted and valued community partner and to safeguard the environment and natural resources;
- › A guideline strictly limiting gifts and entertainment;
- › An expectation of accurate books and records;
- › A requirement to comply with all applicable laws and regulations; and
- › An obligation to report all work-related incidents relevant to the contract immediately.

The Supplier Code of Conduct also lists a domestic and international Waste Management Compliance and Ethics Helpline number. The Code is monitored through the Helpline, which is available to all consultants, contractors and suppliers as a resource in case of questions. All consultants, contractors and suppliers are obligated to report any known or perceived violation of laws, regulations, Waste Management policies or our Code of Conduct. We reserve the right to audit and inspect supplier operations during the term of the contract and for a limited time after termination.

## SUPPLIER SUSTAINABILITY RISKS

We work to minimize risks in our supply chain by analyzing our spending on all critical categories of materials, goods and services as part of our strategic sourcing and category management procedures. We manage critical categories within a documented process to ensure there are adequate numbers of suppliers in place for each critical category to guarantee supply. Critical suppliers are defined as those whose absence could jeopardize our business objectives. In 2017, we identified approximately 990 Tier 1 suppliers which, combined, account for 78 percent of our total procurement spend, and reviewed 100 percent of the suppliers for sustainability risk. We estimate that no more than 1 percent of Waste Management's supply chain expenditures involve purchases from companies located outside North America and Europe.

## IMPROVING SUPPLY CHAIN SUSTAINABILITY

We work with our suppliers to envision a closed-loop supply chain by purchasing recycled products and supplying our vendors with waste materials that can be recycled into new products. The following are some examples:

- › We have a policy of purchasing paper with a minimum of 30 percent recycled content.
- › Where the market is available, we recycle our equipment by grinding up plastic garbage cans to make new plastic containers, reclaiming steel from scrap containers, repurposing used tires into cutting edges for scrapers and dozers, and having used oil recycled for other purposes.
- › We use new products such as enhanced-longevity motor oil and new materials to reduce the weight of fleet trucks. We pay attention to the degree to which plastic containers can be recycled into other plastic containers and buy accordingly. All of our suppliers are working to increase the amount of recycled plastic in our products. Learn more about our fleet in the Operations section of this report.

- › Our Real Estate department oversees the deployment of recycled and energy-efficient materials in its Capital Projects and Construction Management Program, identifying vendors for controlled lighting and HVAC, occupancy sensors, recycled-content carpet and furniture, and low-emitting paints and adhesives.

The single-largest category in our supply chain spending in any given year is collection equipment and the fuel to run it (over 20 percent of total spending). We assess suppliers for safety standards related to compressed natural gas (CNG) and quality standards, such as ISO certifications. By mid-2018, Waste Management assessed all nine of our fleet partners for safety standards.

With our heavy equipment suppliers, we perform similar reviews, as well as supporting their development of product innovations such as alternative fuels in hybrid electric/diesel development. For nearly a decade, we have focused on equipment efficiency and innovations to reduce the GHGs associated with this aspect of our supply chain. Our truck fleet continues to transition from diesel to natural gas, cutting GHG emissions by 15 percent with each new truck. More than 80 percent of the trucks we purchased in 2017 had natural gas engines, and in 2017 we began a transition to trucks with the latest-technology “Near Zero” natural gas engines. We increased our use of renewable natural gas (RNG), created from landfill biogas, which further reduces our emissions by over 80 percent. Waste Management used RNG in 33 percent of our CNG trucks in 2017. In addition, we have worked for years with truck suppliers to develop ways to lightweight our vehicles, using new types of materials as technology develops and safety specifications allow. Waste Management has also been a leader in the use of hybrid vehicles, piloting them for use in our industry. We have the nation’s largest fleet of hybrid heavy-duty bulldozers operating at landfills.

## Suppliers Partnership: Helping Preserve the Environment

In 2018, we asked suppliers to join us in biodiversity efforts by signing a commitment to undergo one pollinator project during the year under the Suppliers Partnership for the Environment’s biodiversity work group project.

As industry leaders, each of the companies involved has a unique opportunity to promote environmental conservation and sustainability across the automotive supply chain by working together to collectively achieve positive impacts on biodiversity, employees, and communities.

Partners this year in the Supplier Partnership for the Environment — along with Waste Management — included ERA Environmental Management Solutions, Ford Motor Company, General Motors, Heritage Interactive Services, Lear Corporation, Mobile Fluid Recovery, MPS Group, Tetra Tech, and Toyota.

Waste Management is very active with its largest suppliers on sustainability initiatives. Nearly half of these suppliers join with us as mutual members of associations working on worker safety, energy efficiency and renewable fuel, employee engagement, diversity in the workforce, biodiversity, water conservation, and good governance projects.

## SUPPLY CHAIN STAKEHOLDER ENGAGEMENT

Waste Management believes that active engagement in business groups and broad-based stakeholder groups is one of the best ways to continually challenge ourselves to do better. Improving the sustainability of our fleet requires collaboration, such as membership in the National Clean Fleets Partnership. This partnership operates more than 1 million commercial vehicles nationwide, and it is committed to finding ways to improve the fuel efficiency of U.S. trucks. We are also members of the U.S. EPA's SmartWay Transport partnership and of the Energy Security Leadership Council of Securing America's Future Energy (SAFE), both of which are dedicated to improving heavy-duty vehicle efficiency and reducing emissions throughout the transport supply chain.

## SUPPLIER DIVERSITY

At Waste Management, we work to create an environment where everyone has an opportunity to succeed. As part of our commitment, we identify and reach out to underrepresented groups, such as minority-, women- and service-disabled-veteran-owned businesses, to work with us and add value to our supply chain.

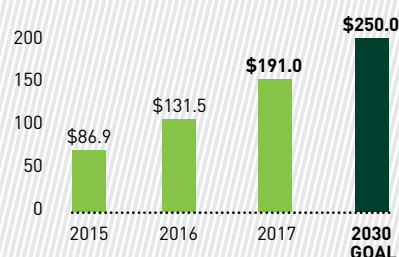
Our ongoing supplier diversity program focuses on maintaining a balance between high levels of service, quality and competitive pricing, while assisting businesses that have been historically overlooked in the procurement process. The program ensures that these businesses participate in each bid process where such a supply base exists. In 2017, we purchased nearly \$191 million in products and services from certified diverse suppliers. In 2018, we set a diversity spend goal for 2030. Our tracking system is in place to begin reporting our progress on this important goal to highlight our commitment to diversity and our focus on nurturing women participating in our industry sector.

Moreover, we endeavor to have our suppliers pay forward our commitment to diversity purchasing. All our Product and Service Agreements contain language that promotes our diversity program. The target is for our suppliers to have processes in place that encourage them to spend 10 percent of the total dollar amount of related purchases of services and materials with certified minority, women, veteran or other certified diverse suppliers.

Waste Management does not have an internal diversity certification program, but rather recognizes third-party public- and private-sector certifications, such as the National Minority Supplier Development Council (NMSDC) and the Women's Business Enterprise National Council (WBENC). In 2017, we conducted an audit of all registered minority-owned businesses for the purpose of:

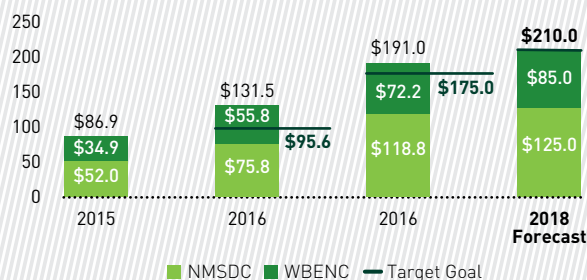
- ▶ Tracking and reporting our spend with diversity suppliers accurately;
- ▶ Ensuring that registered diversity suppliers have current certifications on file with the NMSDC or the WBENC and their Regional Partner Organizations;

### Total Diversity Spend (in millions)



We are on pace in 2018 to exceed our 2017 diversity spend.

### Diversity Spend (in millions)





- › Bringing high-potential diversity suppliers together with our category managers and area procurement managers; and
- › Identifying strong diversity suppliers who can potentially support us by leveraging other companies with well-developed programs that have identified their base of relevant diversity suppliers.

The audit allowed us to ensure our database is up to date, and that all registered minority-owned businesses have the proper certification on file. Additionally, a new process was introduced so that suppliers can update and upload diversity certifications. This process also sends an automated email reminder from our TSMS system prior to expiration of certificates.

## Public Policy

### STANCES ON KEY POLICY ISSUES

The environmental services industry is highly regulated and complex. And it's in flux. Increasingly, Waste Management is doing much more than managing waste. We are producing energy, restoring habitats and helping local governments and citizens to reduce, reuse and recycle materials. As we work with our customers and the communities we serve to create a more sustainable future, we believe we have an important voice to add to the discussion around several key policy debates, as noted below.

These issues represent significant challenges for our industry and are areas of special focus for Waste Management. We welcome engagement from stakeholders around these issues and strive to work with representatives from government, the business sector, community groups and environmental advocates to build consensus for positive change.

### RENEWABLE ENERGY

In the absence of federal clean-energy standards, state and provincial governments in the United States and Canada bear the burden of developing renewable energy requirements. This has resulted in widely divergent standards. Waste Management supports the development of a federal energy policy that would facilitate the widespread development of renewable energy sources, including municipal solid waste. Federal energy standards would also allow us to make significant strides in reducing GHG emissions associated with fossil fuel consumption.

### ENERGY SECURITY AND ALTERNATIVE FUEL PRODUCTION

Achieving energy security relies on lessening our dependence on foreign oil, and domestic production of fuel from renewable sources contributes to this goal. As a partner in energy security discussions, Waste Management supports policies, including existing federal renewable fuel standards, that encourage and facilitate the production of fuel from renewable sources such as municipal solid waste, as well as tax policy that encourages development of alternative fueling infrastructure, and the conversion of diesel vehicles to cleaner-burning natural gas and renewable natural gas from waste. Studies have shown that waste-derived fuels typically have the lowest carbon intensity of all biofuel sources.

### NATURAL GAS AND ALTERNATIVE FUEL VEHICLES

Waste Management's fleet policy calls for a transition to natural gas vehicles. Further, we are transitioning to renewable natural gas (RNG) fuel in our natural gas trucks. This transition is necessary to achieve our goal of offsetting the emissions of our own operations by four times while increasing the emission reductions that we provide for ourselves and our customers.

In 2011, we encouraged federal and state regulatory support for the transition of heavy-duty fleets to natural gas as the preferred fuel for our industry. The natural gas vehicle platform provides an opportunity to use RNG derived from waste materials, further improving air quality.

## SUSTAINABLE MATERIALS MANAGEMENT

As we have sought to maximize the value of the material we manage, we have reviewed U.S. EPA's waste hierarchy — reduce, reuse, recycle, recover and then dispose — as well as state-level solid waste and recycling priorities. Our review revealed that regulations regarding solid waste, recycling, energy policy and renewable fuels often compete and produce unintended results. Newer technologies designed to divert material from landfills also do not fit neatly into U.S. EPA's hierarchy. As U.S. EPA and state governments address the environmental impacts of waste disposal, recovery and recycling, we encourage them to consider life cycle approaches that view waste not merely as a problem to be solved, but as a resource. Moreover, life cycle thinking highlights the measurable benefits of material management in its opportunities to reduce GHGs and use of energy.

In 2011, Waste Management funded the Sustainable Materials Management Coalition to discuss these issues, and the Coalition issued its report in July 2012. The Coalition — composed of representatives of business and industry, academic institutions, environmental and community organizations, and state and local government organizations — came together to develop consensus recommendations on the path forward for sustainable materials management. In 2013, the Coalition developed a second report urging stakeholders to use life cycle thinking to reduce the environmental footprint of products and services. Continuing our policy collaboration, the Coalition turned to how to improve the productivity of recycling and how to better communicate progress. That report was released in Fall 2016, and the Coalition members continue to reach out to other stakeholders about the importance of seeking and measuring sustainable materials management. The reports are available [here](#).

In 2017, the entire afternoon of the Waste Management Sustainability Forum was dedicated to a Sustainable Materials Management Workshop, with presentations and discussion on life cycle thinking. At the Workshop, over 100 stakeholders from across the supply chain brainstormed solutions for moving toward life cycle thinking in our industry.

Also, in 2017, Waste Management enlisted external experts to validate our multiyear life cycle thinking "Spectrum" project, which is an intensive deep-dive effort into the environmental and economic impacts of all the materials managed in our industry across the U.S. according to the services that we provide. This validation effort involved a third-party consulting firm to review the assumptions used in its Spectrum project, an academic institution to evaluate the process that was developed, and the academic institution as well as a nonprofit research organization to analyze the outcomes of Spectrum. The result of the validation effort supported and improved upon our original Spectrum Life Cycle Thinking results, which prioritize the efforts around waste reduction and recycling programs in the U.S.

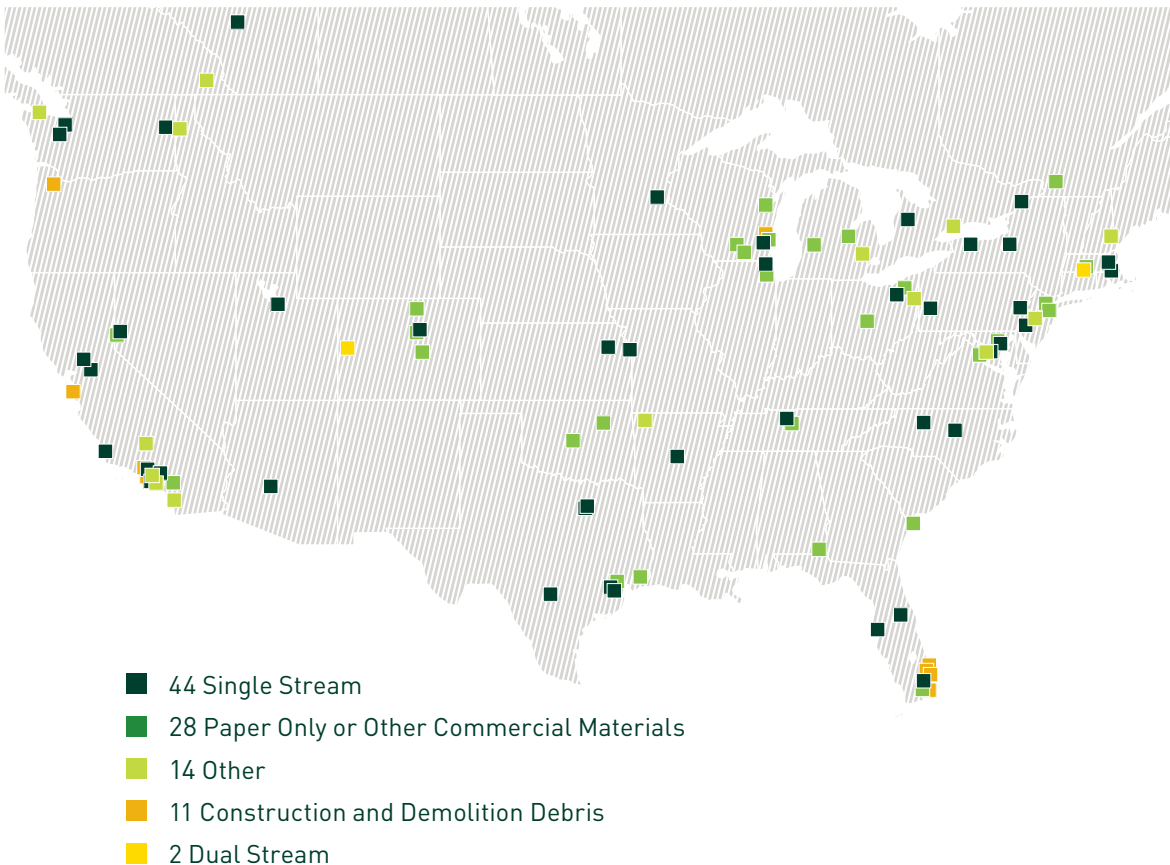
## MANDATORY RECYCLING PROGRAMS AND POLICIES

Governments at all levels are seeking ways to divert waste from landfills through increased recycling and recovery. Some jurisdictions have implemented mandatory recycling programs, and we support such programs when they make economic sense, have the support of customers and communities, and reflect the planning and preparation sufficient to ensure success.

## MANAGING STATE AND LOCAL POLICY DEVELOPMENTS

We have a broad recycling footprint across North America, with 102 total recycling facilities, 44 organics processing facilities, four CORE® facilities and 11 construction and demolition facilities at the end of 2017. Our Government Affairs department coordinates information on recycling, its benefits and challenges, and innovations in state and local regulatory standards, as well as policies in support of the company's overarching goal to make recycling as environmentally productive as possible. Recycling, organics and waste reduction policies are largely driven by local and state initiatives, and it is important to participate and share experience wherever these policy debates arise.

### Waste Management MRF Facilities by Location (12/2017)



## INTERNATIONAL TRADE

As China implemented new policies restricting imports of recyclables, Waste Management worked with stakeholders including the Institute of Scrap Recycling Industries, the office of the United States Trade Representative, the US-China Institute and others to understand the policies and to help states, cities and other customers adjust their programs according to China's new policies. China's policies have global economic implications but are considered necessary if the country is to achieve its own environmental goals. We have worked with a broad range of industry stakeholders to develop short- and longer-term plans for managing the recyclables that can no longer be shipped to China.

## CLIMATE CHANGE

Our CEO has set, and our Board has approved, aggressive sustainability goals with ambitious GHG emissions-reduction benefits from the time we formulated our sustainability goals in 2007. The scope of emissions-reduction activities available to a highly diversified company like Waste Management is vast.

Waste Management gives priority to implementing opportunities that have the best potential to deliver high degrees of emissions reduction at low cost or to deliver emissions reductions combined with a positive return. Our goal setting and disclosure of progress on production of renewable energy, recycling and fuel efficiency drive our investment strategy. This approach to addressing the challenges of climate change is integrated into the evaluation of all significant activities and potential investments — from collection fleet and logistics to administrative functions and operating facilities. For example, Waste Management has engaged collaboratively with U.S. EPA and state regulators, environmental organizations, and other public and private owners to develop technical information and recommendations on enhancing regulatory control of landfill gas emissions. Waste Management is working with U.S. EPA and the trade associations for public and private landfills on technical issues with current regulation of landfill gas controls that should facilitate the beneficial use of this renewable resource. Similarly, we continue to work with U.S. EPA, the U.S. Department of Transportation, engine and vehicle makers, fleet owners and environmental groups to provide recommendations on the next phase of fuel efficiency and GHG-reduction standards for heavy-duty trucks. We are hopeful that the new rules will provide a regulatory framework for our continued investment in clean-burning natural gas and potential electric and hydrogen powered trucks.

As evidenced by our participation in the CDP (formerly the Carbon Disclosure Project) since 2004 and disclosed publicly since 2008, Waste Management is committed to the annual disclosure of our carbon footprint and to reporting in our sustainability reports on the innovations we are pursuing to reduce GHG emissions in our operations and for our customers.

We are actively working with stakeholders from all perspectives to assess how GHG emissions can be accurately inventoried and disclosed, as well as how that information can be used in climate change initiatives that improve environmental quality and are consistent with a healthy economy. We participate not only with the CDP — and in 2017 were listed as a Climate Leader — but also with the Dow Jones Sustainability Index and numerous NGO and customer sustainability evaluation services. In 2018, we were honored to be named the Dow Jones Sustainability Index Sector Leader for Commercial Products and Services. We have also commented on federal, regional and state frameworks for addressing climate change. Extensive comments, all of which are a matter of public record, and recommended strategies have been discussed with the following:

- › U.S. House of Representatives, Committee on Energy and Commerce
- › U.S. House of Representatives, Committee on Science and Technology
- › U.S. House of Representatives, Committee on Ways and Means
- › U.S. Senate, Energy and Natural Resources Committee
- › U.S. Senate, Finance Committee
- › U.S. Environmental Protection Agency
- › U.S. Department of Transportation Environmental Council of the States
- › California Air Resources Board
- › Western Climate Initiative
- › Regional Greenhouse Gas Initiative
- › Climate Registry
- › Climate Action Reserve



In addition, in 2018 we were very active with all stakeholders and customers on the public dialogue surrounding recycling, its potential as a potent mechanism for GHG reduction, and the economic challenges facing the industry in 2017 and 2018.

## Stakeholder Engagement on Policy Issues

Waste Management actively works with stakeholders that operate within our value chain, such as customers, employees and suppliers, as well as stakeholders outside our value chain, including industry peers and multistakeholder groups. We have regular open discussions about topics that are relevant to our operations and impact our society. These conversations play a key role in shaping how we execute our strategy, materiality and business strategy, as well as how we work to help improve our communities.

We take a systematic approach to stakeholder engagement, starting with public accountability. Every two years we identify the key stakeholders with whom we engage — from environmental and community groups to business and manufacturing leaders, from government associations to scientific academies. These stakeholders can be found across multiple sectors and within our communities. All are essential in helping us stay abreast of current trends, perspectives and policy matters that affect our industry, our customers and our communities.

Our engagement takes many forms. When working on facility upgrades and new construction, we map our community footprint and seek to engage groups and individuals in open dialogue through Community Advisory Councils or more informal routine interactions, open house events, public meetings, tours and more. With our larger customers, we host sustainability forums that focus on ways to reduce costs, lessen environmental footprints and increase the reuse of resources.

Participation in policy discussions supplements our dialogue at the local level and ensures that we are working with stakeholders from many perspectives. We give dozens of presentations each year on topics involving recycling, renewable energy and fuel, and civic engagement. Since 2011, we have sponsored multiple multistakeholder dialogues on the core issues affecting our industry and those affected by it, the road to more sustainable materials management, the way life cycle thinking can pave the way to better characterization of environmental impact over time, and ways stakeholders can achieve more recycling productivity. We believe there is enormous value in bringing together diverse viewpoints in a sustained effort to find common ground and mutual understanding of difficult environmental challenges.

Waste Management believes that disclosing our networks of memberships and associations working on policy issues is important. Our employees are enriched by broad interaction with stakeholders and informed dialogue on key issues like materials management, renewable energy, climate change and adaptation, responsible governance, conservation — and a host of other topics. For a full listing of associations and memberships, see Stakeholder Engagement in the GRI Index.

## POLITICAL CONTRIBUTIONS

We periodically make financial contributions to candidates who we believe recognize the importance of the environmental services we provide and who support a fair, free-market approach as the best way to deliver cost-effective services. We do not expect the candidates to whom we contribute funds to agree with our positions on all issues at all times. Contributions made to political candidates must be authorized by our Government Affairs department and must comply with all applicable laws, including public disclosure of political contributions and lobbying expenses. Our contributions are reported under federal, state and local campaign finance laws and are available for review by the public. Following each two-year federal election cycle, our Board of Directors receives a detailed accounting of all contributions. Beginning in 2016, the company enhanced its disclosure related to political contributions, posting on its website an annual listing of contributions made to candidates for federal office and political organizations engaged in federal elections, as well as information on the portion of payments made by the company to trade associations and social welfare organizations that were used for political purposes, as identified by the trade association or organization. This information is available as Annex A to our Participation in the Political Process policy and is subject to certain dollar amount thresholds stated therein. The full policy and Annex A can be found on our [corporate website](#).

## PUBLIC POLICY OVERSEAS

To ensure compliance with domestic and international law, Waste Management has adopted an Anti-Bribery Policy and established an Anti-Bribery Committee. All employees involved in foreign business projects must receive FCPA training. In addition, the Waste Management [Code of Conduct](#) includes a section on doing business overseas to ensure our compliance with local laws as well as U.S. laws that govern our activities in international markets. Note that 99.99 percent of Waste Management workers are located in North America.

# BETTER OPERATIONS

## Emissions

Energy reduction and GHG sustainability initiatives are deeply ingrained in our business, addressing our customers' needs, as well as serving as an integral part of our own operations.

The need to address climate change and GHG regulations is a primary driver of our customers' goals to increase recycling and use lower-carbon fuels. Most of our current and planned capital projects will lower GHG emissions in both our own and our customers' supply chains. As global competition for raw materials and fuel increases, sustainable solutions for managing materials will become a necessity, and, by offering sustainable, lower-carbon management options, Waste Management is becoming competitive in new areas and insulating ourselves from long-term losses.

We work hard to continually innovate in landfill management technologies, generating energy and reducing methane emissions.

### Landfill Gas Emissions

CY2017	Million Standard Cubic Feet	
Landfill Gas Flared		45%
Landfill Gas Recovered		55%
Total Flow LFG (MSCF)	207,355,449.90	
Average CH <sub>4</sub> (%)		47%
Total CH <sub>4</sub> Flow (MSCF)	98,460,603.69	
Total Flared (LFG MSCF)	92,868,436.00	45%
Total Engine/Turbine (LFG MSCF)	95,202,075.60	46%
Total Other Beneficial Use (LFG MSCF)	19,284,938.70	9%

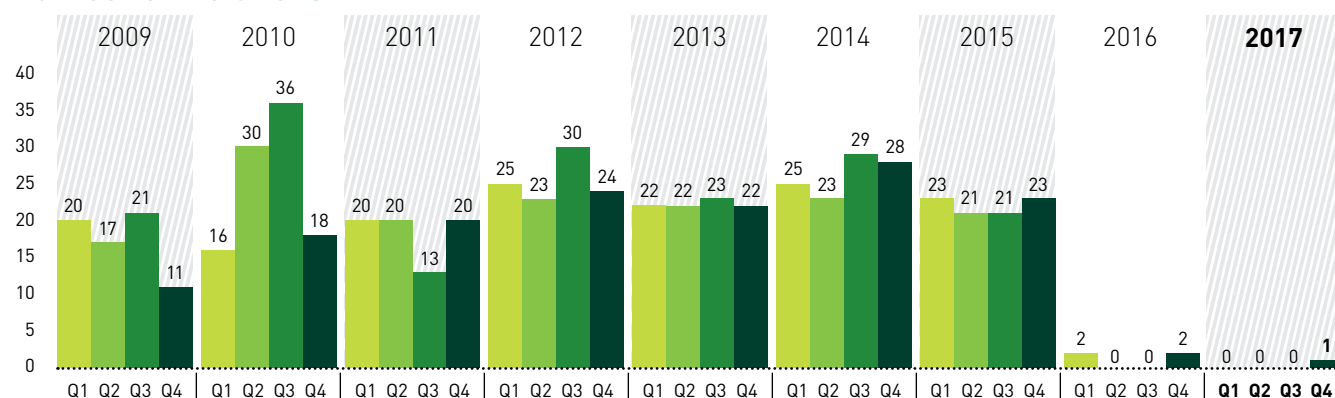
**Other emissions:** Based on the total amount of landfill gas recovered, Waste Management's operations generated 0.0000562 ton of NO<sub>x</sub>, 0.0000076 ton SO<sub>x</sub> and 0.000001 ton non-methane organic compounds (NMOC) per ton of solid waste handled at our facilities with gas collection in 2017.

## Environmental Compliance

Our goal for environmental compliance is simple: zero deviations from regulatory standards and sound environmental practice. The goal of our Environmental Management System is to correct conditions that could lead to a violation before the violation happens. We have not yet achieved our goal of zero violations, but we continue to take every departure from regulations, no matter how small, very seriously.

In 2016 and 2017, Waste Management was cited for five violations that constituted formal enforcement action. The figure below charts our year-over-year performance — from 2009 through 2017 — with respect to environmental notices of violation (NOVs) received. For 2016 and 2017 we are using the metric recommended by SASB, formal enforcement actions alleged to have environmental impacts.

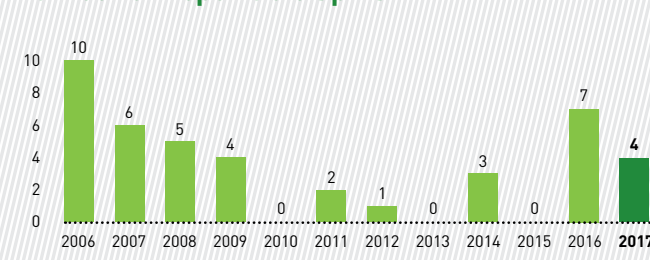
### Number of Violations



## Significant Spills

Waste Management is committed to reducing the number and volume of leaks and spills that occur as part of our operations. We track the volume of fluids our trucks use and train drivers to report any leaks or spills they observe; we also require all significant spills to be reported to the corporate office via the Environmental Incident Notification System. The chart at right summarizes all spills of a size significant enough that we were required to report them to the National Response Center.

### Number of Reportable Spills





## Environmental Expenditures

As an environmental service infrastructure provider, our environmental expenditures are necessarily interrelated with our operations. These expenditures include compliance, environmental protection, control and research costs, as well as the capital and operating costs for our waste-handling options — from waste reduction and reuse consultation to recycling, waste-to-energy and disposal facility construction and operation. Our environmental expenditures for the reporting period are shown below.

### Environmental Expenditures<sup>1</sup>

YEAR	ENVIRONMENTAL COSTS (Millions)	TOTAL ANNUAL EXPENSES (Millions)	% OF ENVIRONMENTAL COSTS TO TOTAL EXPENSES
2010	\$3,999	\$10,339	38.7%
2011	\$4,181	\$11,256	37.2%
2012	\$4,490	\$11,798	38.1%
2013	\$4,644	\$12,904	36.0%
2014	\$4,521	\$11,697	38.7%
2015	\$4,050	\$10,916	37.1%
2016	\$4,165	\$11,314	36.8%
<b>2017</b>	<b>\$4,399</b>	<b>\$11,848</b>	<b>37.1%</b>

<sup>1</sup> Includes costs associated with the environmentally responsible management of waste and the creation of renewable fuel. Excludes costs associated with sales, general collection operational and administrative cost, merger costs and unusual items.

## Carbon Footprint Calculation Methodology

Waste Management's carbon footprint comprises the anthropogenic Scope 1 (direct) and Scope 2 (indirect) GHG emissions from facilities and activities under Waste Management's operational control in the United States, the U.S. Territories and Canada, as well as Scope 3 (indirect) GHG emissions. Scope 1 emissions include direct emissions for process-based emissions from landfilling, power generation, fuel for support services and heating, fleet vehicles and refrigerants. Scope 2 emissions include indirect emissions from purchased electricity. Scope 3 emissions include purchased goods and services, capital goods, fuel- and energy-related activities (not included in Scope 1 or Scope 2), business travel, employee commuting and downstream leased assets. Our carbon footprint calculation relies on company operating data collected from auditable corporate business, legal and accounting records, which have undergone internal quality-assurance checks. Emission factors and methodologies are from the following sources:

1. U.S. Environmental Protection Agency (U.S. EPA), Mandatory Greenhouse Gas Reporting Rule (MRR), 40 CFR Part 98
2. EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks
3. EPA, eGRID Technical Support document, Chapter 3
4. ECCC, National Inventory Report 1990-2014: Greenhouse Gas Sources and Sinks in Canada [Part 3, Annex 13]
5. DOE, 1605(b) Voluntary Reporting of Greenhouse Gases Program, Technical Guidelines
6. DOE Energy Information Agency (EIA), Emissions of Greenhouse Gases in the United States, Documentation and Emission Factors
7. International Panel on Climate Change (IPCC), 2006 Guidelines for National Greenhouse Gas Inventories
8. International Panel on Climate Change (IPCC), Climate Change 2013: The Physical Science Basis. Fifth Assessment Report
9. International Panel on Climate Change (IPCC), Climate Change 2007: The Physical Science Basis. Fourth Assessment Report
10. Solid Waste Industry for Climate Solutions (SWICS) Protocol by SCS Engineers, version 2.2
11. EPA, Climate Leaders Program, Technical Guidance
12. World Resources Institute (WRI) and World Business Council on Sustainable Development (WBCSD), The Greenhouse Gas (GHG) Protocol
13. U.S. Community Protocol for Accounting and Reporting Greenhouse Gas Emissions, Method WW. 14

We participate in multiple forms of data verification. First, in conformance with applicable state or provincial GHG emissions-reporting programs, an independent third party is hired to review original data and provide a verification certificate. Accordingly, the emissions from the landfill subject to the Alberta Provincial Specified Gas Emitters Regulatory reporting program were third-party verified by RWDI AIR Inc. for 2014 and by GHD for 2015, 2016 and 2017. As for state reporting programs, Massachusetts modified its GHG inventory program to no longer require third-party verification of facility GHG reports effective as of third quarter 2015. Of the four landfills in California for which we are required to report GHG emissions, third-party verification is required for only one landfill. Analytical Environmental Service (AES) completed verification of the 2015 and 2016 mandatory GHG emissions report in July 2016 and 2017, respectively, as required by the State of California mandatory reporting program. All our facilities are subject to the federal Mandatory GHG Reporting Rule for 2017, which includes nearly 240 landfills that are subject to rigorous validation checks by U.S. EPA as part of its compliance assurance and enforcement program for the reporting rule.

In 2017, Waste Management again engaged Lloyd's Register (LRQA) to conduct a third-party verification of the company's 2016 carbon footprint. In 2018, Waste Management hired Environmental Services, Inc. (ESI) to conduct the third-party verification of the company's 2017 carbon footprint. Both verifications were conducted in accordance with ISO 14064-3:2006 specification with guidance for validation and verification of GHG assertions to provide limited assurance that the Scope 1, Scope 2 and Scope 3 GHG data was prepared in conformance with World Resource Institute/World Business Council for Sustainable Development GHG Protocol: A Corporate Accounting and Reporting Standard and the internal Waste Management Inventory Management Plan, First Edition. As a result, 100 percent of our carbon footprint is verified by a third party.

In a second form of verification, we report to a third party such as a government-affiliated data tracking program, which provides QA/QC to the data in some form but does not provide a verification certificate. Our transportation data is verified through the U.S. EPA SmartWay program; our GHG inventory from energy generation is verified by U.S. EPA; and our GHG inventory from California, reported to the California Air Resources Board, is verified by SCS.

Our GHG inventory reflects the most accurate means available to calculate GHG emissions within our industry sector. We worked with leaders in government, industry and academia — including staff of the multistate Climate Registry and the U.S. EPA — in developing our inventory processes and protocols.

Because a broadly accepted protocol for estimating the carbon mass balance of landfills does not yet exist, Waste Management, along with other public and private owners/operators of landfills, funded development of the Solid Waste Industry for Climate Solutions (SWICS) protocol by SCS Engineers. The protocol represents a first step in refining existing U.S. EPA models and protocols using peer-reviewed, published research to improve landfill GHG emission estimation. We employed the SWICS protocol in estimating the emissions associated with the landfill operations reported in our company-wide carbon footprint and the voluntary GHG reporting protocols in which we participate. (U.S. EPA's Science Advisory Board views some sources of biogenic carbon dioxide emissions — including landfill gas and biogenic materials in waste — as carbon neutral, so these are not included in our footprint.)

Beginning with 2013 emissions, we aligned our reporting with that of U.S. EPA, which continues to refine its default assumptions and scope of reporting under its mandatory reporting program. If we find that U.S. EPA's rule omits a facility previously included in our carbon footprint, we will calculate a default representing the proportion of emissions thereby omitted and increase the reported emissions included in our footprint to allow our emissions to be compared year over year. As part of this process of aligning our reporting with that of U.S. EPA, beginning with our 2013 emissions reporting, we are using the modified 100-year global warming potentials (GWPs) promulgated by U.S. EPA in its November 29, 2013, revisions to 40 CFR Part 98 (78 Fed. Reg. 71904). Pertinent to Waste Management's carbon footprint, U.S. EPA revised the GWP for methane from 21 to 25 and the GWP for nitrous oxide from 310 to 298.

Waste Management has contracted with Enel, a leader in energy intelligence software, to collect and pay utility invoices, as well as to track usage data as part of an enterprisewide utility bill management (UBM) program spearheaded by our supply chain procurement managers. The UBM system has the ability to track compressed natural gas, natural gas, propane, landfill gas, delivered heat and water service, and internally generated waste.

Information from the UBM program is audited prior to bill redirection by Waste Management to ensure correct processing of all future invoices. We review data through Enel's online dashboard and have the capability to run reports on consumption, cost and MTCO<sub>2</sub>e on a facility, region, division, country and enterprisewide basis. With this new approach, our data collection and reporting program is more robust and transparent than ever before.

Through the UBM system, Waste Management can pull data by market area, which offers a base understanding of energy and water consumption patterns on a regional level. Our goal is to complete the enablement of all sites into the UBM system to understand baseline water consumption levels across all areas of our operations.

Our calculation of the potential GHG reductions or “avoided emissions” that our operations enable includes the following:

- › Production of renewable waste-based energy that replaces electricity generated from fossil fuels.
- › Potential avoided GHG emissions associated with annual production and use of renewable natural gas (RNG).
- › Recycling of postconsumer materials (e.g., paper, aluminum and plastics) using U.S. EPA's [WARM](#) Model.
- › Permanent carbon storage in landfills of biogenic materials that do not decompose in an anaerobic landfill environment.

Carbon storage in landfills can significantly offset GHG emissions from landfills as recognized by the United Nations Intergovernmental Panel on Climate Change, U.S. EPA's U.S. Inventory of GHG Emissions and Sinks, the Oregon Climate Trust and the California Air Resources Board — all of which recognize carbon storage in landfilled material as a “sink” in calculating carbon emissions inventories. We have used the SWICS protocol to calculate the amount of carbon permanently stored in landfills from the annual disposal of organic waste — i.e., carbon that will not decompose in the landfill to produce methane.

In 2014, we first prepared for review by the Board of Directors a benchmarking of companies projecting a cost of carbon, and we continue to update the Board on changes in Waste Management's footprint, with the ongoing obligation to update the Board in the event of a major change in customers' disclosed carbon pricing strategies. We review how carbon pricing models or cap-and-trade programs are applied in North America. We have concluded that because of the complex nature of our business and high variability in state approaches, with carbon emissions offset by carbon-reducing services like Waste Management Sustainability Services consulting, recycling, renewable energy production and carbon sequestration in landfills, the absence of a clear regulatory framework for carbon pricing for our sector makes price projections unreliable. Our assessment has been further complicated by recent U.S. position changes on climate strategy, and we monitor state government and customer response strategies closely. Anticipating a price on carbon is part of our initiative to change reporting on recycling productivity from tonnage to GHG reductions gained. We believe our ability to provide verifiable metrics on carbon reduction to our customers will be a competitive advantage.



## Electricity Consumption Data by Region

MARKET AREA	ELECTRICITY kWh
Closed/Inactive Sites	9,042,736
Corporate Office	10,094,207
Waste Management of Ark Tenn Alabama Kentucky	17,058,050
Waste Management of Eastern Canada	27,690,110
Waste Management of Florida	38,427,979
Waste Management of Four Corners	24,727,360
Waste Management of Greater Mid Atlantic	63,698,537
Waste Management of Gulf Coast	27,494,075
Waste Management of Illinois Missouri Valley	40,680,897
Waste Management of Michigan Ohio Indiana	42,759,359
Waste Management of New England	25,208,012
Waste Management of Northern California	17,206,795
Waste Management of Pacific Northwest BC	28,016,007
Waste Management of South Atlantic	15,498,316
Waste Management of Southern California	27,495,319
Waste Management of Texas Oklahoma	32,436,817
Waste Management of Western Canada	4,356,018
Waste Management of Wisconsin Minnesota	31,839,040
Waste Management of WPA MD WV VA	45,659,236
Waste Management SBS	1,514,021
<b>Total</b>	<b>530,902,891</b>

## Energy Consumption

	MWH
<b>Total</b>	<b>7,628,999</b>
Fossil Fuels	7,573,374
Renewable Fuels	55,625
Percentage Renewable	0.73%

## Corporate Air Program

Waste Management established a Corporate Air Program function in the early 2000s. The Corporate Air Program is staffed by a Senior Director and two Directors who support the field operations with permitting and compliance obligations. The Senior Director reports to the Corporate Vice President of the Environmental Management Group. Waste Management also employs a field team dedicated to assist with California, Oregon, Washington, Hawaii and Alaska state-specific air permitting and compliance needs. This team consists of one field manager and several environmental specialists who assist field operations and coordinate with Corporate Air Programs to maintain consistency with federal rule implementation.

The Corporate Air Program creates, communicates and issues policies, procedures, best management practices, directives, guidance and strategies relating to the protection, control and management of air quality with field operations. The Corporate Air Program also creates and issues standard templates for recordkeeping and reporting GHG emissions pursuant to the USEPA and Canadian GHG reporting programs. Standard recordkeeping and reporting templates have also been developed and used by field operations to meet other applicable federal requirements such as New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP). The Corporate Air Program develops and delivers webinar and classroom training on air permitting requirements and recordkeeping and reporting templates to drive compliance with federal rules.

The Air Program's team develops short-term and long-term permitting and compliance strategies to accommodate existing site conditions and projected new or modified operations at our disposal operations. This includes assisting field operations with permitting beneficial use processes used to convert methane to electricity and renewable fuels.

The Corporate Air Program identifies local, state and federal regulatory impacts to Waste Management field operations. The Air directors interpret environmental data and provide guidance, direction and recommendations to field operations with preparing/reviewing compliance reports, permit applications and draft permits. The team interfaces with air regulators during the permit process and regulatory interpretative issues and supports field operations in responding to and resolving violations, warnings or other potential noncompliance issues.

Waste Management's Air Program also prepares/compiles and presents scientific data white papers and other technical support to facilitate changes to federal rules and guidance. Corporate Air Program directors coordinate with our field operations, as well as the legal and community affairs departments, to work directly with regulators at the federal and state level. Together, they facilitate changes to federal and state rules and permit conditions, as well as responding to proposed regulatory changes.

We also partner with industry stakeholders, academia and internal engineering to develop new and evaluate existing technology and processes to mitigate emissions from disposal operations such as combustion and conversion technologies, as well as leachate evaporation technologies. This includes supporting development and testing of emerging methane measurement techniques for landfill emissions.

## Number of air emissions noncompliance incidents (formal enforcement only)

Two alleged violations with formal proceedings during CY 2017 (Douglas County/Pheasant Point and Stony Hollow).

1. March 2017/May 2018 — Douglas County/Pheasant Point received the initial proposed settlement letter from EPA Region 7 in March 2017. Site is finalizing settlement agreement with EPA Region 7; county alleges site did not have adequate gas collection coverage in certain parts of site per the federal NSPS WWW requirements.
2. May 3, 2017 — Stony Hollow, Ohio received Director's Final Findings and Orders (DFFO) from Ohio EPA regarding alleged odors and well temperature exceedances per NSPS WWW requirements. Interim Orders were issued November 28, 2016.

## Containing Hazardous Substances

Waste Management owns six hazardous waste treatment and disposal facilities and one underground injection facility, subject to U.S. EPA's Toxics Release Inventory (TRI), a data repository compiled to inform the public about the presence of chemicals in their communities. In U.S. EPA's most recent inventory of TRI releases (2016), 3.44 billion pounds of chemicals were reported to have been released in the United States, 3 percent of which came from the hazardous waste management sector.

Even though TRI-reportable releases must be within levels authorized by permit or regulation, the TRI was initiated to provide a supplement to the permitting process that would provide communities with information about chemicals from all the facilities in their vicinity — those releasing emissions to air and water and those containing toxins within structures on their property. Disclosure of the total releases emitted in each community was intended as an indirect means of encouraging pollution prevention, and it has, in fact, served that purpose.

### Volume of Toxic Chemical Releases by Industry (percent)

■	Metal Mining: 44%
■	Chemicals: 14%
■	Electric Utilities: 10%
■	Primary Metals: 10%
■	All Others: 9%
■	Paper: 5%
■	Food: 4%
■	Hazardous Waste: 3%



U.S. EPA continues to reiterate its view that increased quantities of TRI materials in containment can represent “a generally positive environmental trend because these facilities are in the business of managing hazardous waste and do so under strict controls.” For example, in explaining what TRI data mean to a community, U.S. EPA, in its most recent commentary about the TRI inventory, prioritized sites by subtracting emissions to land reported by RCRA Subtitle C regulated units because those units were considered to be physically controlling toxic releases rather than emitting them. Moreover, releases are reported differently based on whether they involve placement in RCRA Subtitle C landfills versus other kinds of landfills, in recognition of the stringent regulation of Subtitle C landfills. This distinction is continued in EPA's most recent [update](#), p. 16. Waste Management's emissions under TRI are [reported](#) annually to the U.S. EPA.

Continuing delays in obtaining permits for new units at two hazardous waste landfills have had two impacts: (1) a sharp decline in containment in the RCRA Subtitle C units on-site and (2) a corresponding increase in transfers off-site as new arrangements needed to be made to accommodate customer needs.

U.S. EPA reports the actual releases and containment at the seven Waste Management hazardous waste facilities as follows:

### TRI Chemical Releases and Containment at Waste Management Hazardous Waste Facilities (in Pounds)

	2009	2010	2011	2012	2013	2014	2015	2016*
Air	19,047	62,128	19,838	2,246	8,258	15,017	13,300	15,401
Water	30	16	14	16	15.708	40.52	0	0
RCRA Subtitle C	34,040,988	24,479,007	26,143,719	24,214,088	21,930,366	19,280,924	23,822,274	32,276,337
Underground Injection	5,025,712	9,574,712	9,253,272	7,374,493	9,949,743	8,842,344	10,968,603	10,144,130
Transfer Off-Site to Treatment/Containment	71,948	171,240	111,704	124,394	580,720	523,149	296,284	160,623

\*Note that we use U.S. EPA's official reporting on TRI for consistency in numbers; EPA's 2017 report was not available at time of reporting.

Also integral to Waste Management's focus on eliminating exposure to hazardous substances is our work with customers, using our experience in safely containing hazardous waste in our permitted facilities to work in-plant, on-site with industrial customers to eliminate, reduce and avoid potential exposures from hazardous waste at their facilities. Our Waste Management Sustainability Services employees work with customers to reduce the generation of hazardous waste at the outset, in the design process.

## Commitment to the Built Environment

An ever-growing internal and customer focus on third-party authentications for health and wellness, green building and landfill diversion drives Waste Management to continually expand its commitment to LEED, WELL, TRUE and UL's zero-waste validation.

In 2017, Waste Management:

- ▶ Performed LEED 2009 Materials and Resources Credit 6 solid waste audits, LEED V4 Materials and Resources Prerequisite 1 evaluations, and other initiatives to help our customers achieve [LEED certification](#).
- ▶ Initiated offerings with a variety of certification tools and three WELL APs on our Sustainability Services consulting team to guide customers through the [WELL Building Certification](#) process, from registration and preliminary evaluations through feature support and recertification.
  - The WELL Building Standard is a rating system devised by the International WELL Building Institute (IWBI) that explores how design, operations and behaviors within the places where people work and live can be optimized to advance human health and well-being. Covering seven core concepts of health and hundreds of features, WELL is a flexible building standard and represents the future of modern design.



- › Developed service offerings centered around the new [TRUE Zero Waste certification](#), with TRUE Advisors on our Sustainability Services consulting team.
  - TRUE Zero Waste certification is a rating system devised by Green Business Certification Inc. (GBCI) that enables facilities to define, pursue and achieve their zero-waste goals, cutting their carbon footprint and supporting public health.
- › Maintained [UL Zero Waste validations](#) for the Waste Management Phoenix Open and GreenBiz.
  - The UL waste diversion validation program focuses on monitoring and measuring material flows that are not part of an organization's final product. UL offers four landfill waste diversion claim validations to recognize companies that handle waste in environmentally responsible and innovative ways — from energy production via incineration to reuse, recycling and composting.

These efforts demonstrate Waste Management's commitment to its internal transformation, as well as emerging trends in sustainability, while also helping reduce long-term negative environmental impacts.

## Environmental Management

Environmental stewardship is the core of our business — our promise to customers, our competitive advantage and our obligation to the communities in which we operate. How we manage potential environmental impacts and opportunities is a critical element of being a sustainable enterprise. In a business as highly regulated as ours, protecting the environment, maintaining compliance and innovating to improve operations requires unwavering focus, expertise, comprehensive systems and internal checks and balances. Our approach has evolved over decades, with a focus on integrating environmental functions into key management systems. Information on our environmental policies, as well as on our management team, practices and training, is available on our website.

### PROCESSES

We have a long track record of both supporting high regulatory standards and striving to go beyond them. Our environmental management approach has led us to undertake the following actions:

- › Urge the U.S. EPA in 1991 to revise regulations implementing the Resource Conservation and Recovery Act's Subtitle D and to establish strong and prescriptive federal standards for managing municipal solid waste (MSW). We supported specific, rigorous, government-sanctioned and publicly reviewed standards to ensure environmental protection at all MSW landfills.
- › Provide consistent encouragement to the U.S. EPA to consider revisions to the RCRA hazardous waste regulations with respect to the management of hazardous waste pharmaceuticals, including extensive feedback on the proposed "Management Standards for Hazardous Waste Pharmaceuticals Rule" published in the Federal Register September 25, 2015.
- › Innovate beyond compliance. As part of Waste Management's internal formal performance review, the results of regulatory inspections, internal audits, external audits, and regulatory compliance issues and their precursors are all tracked, managed and remedied as part of the company's continuous improvement process. Members of senior management, up to and including the Board of Directors, review performance.
- › Extend the company's commitment to environmental performance related to events that are not necessarily regulatory in nature but that, nonetheless, are public concerns, such as noise, litter and odors. Such events are tracked, managed and remedied in real time. We also employ best management practices and conduct routine training to eliminate the dissemination of dust from our facilities.

- › Test our internal systems to ensure their thoroughness and accuracy. We periodically conduct gap analyses of our Environmental Management System against the International Organization for Standardization (ISO) 14001 standards to ensure the sufficiency of our systems for landfills, transfer stations, hauling operations, waste-to-energy plants, hazardous waste treatment and disposal facilities and recycling facilities. These systems continue to be evaluated and supplemented as appropriate.
- › Certify all 1,387 facilities served by Waste Management Sustainability Services (WMSS) comport with the globally recognized ISO 14001 and ISO 9001 standards. WMSS's operations represent 67 percent of all the facilities either owned, operated or serviced by Waste Management\*.
- › Audit the rest of our operations through an independent environmental audit team that employs nationally recommended compliance audit practices approved by the American Standards for Testing and Materials (ASTM) and the Board of Environmental, Health and Safety certification standards for professional auditors. Nearly all of Waste Management revenues come from operations subject to environmental management systems that are audited.
- › Test our facilities to assure stakeholders that our operations protect human health and the environment. Our environmental experts hold a number of patents on innovative monitoring and analysis technologies, and we often provide monitoring data to outside parties to evaluate how our systems are performing.

\*Although 100 percent of Waste Management facilities are not ISO-certified, each is managed under an Environmental Management System, described below, that is benchmarked to ISO standards.

## ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

### 1. ENVIRONMENTAL POLICY

Our Corporate Environmental Policy establishes the vision for our EMS. The Policy states, in part:

Waste Management is committed to protecting human health and the environment. This commitment is a keystone of all that we do, reflected in the services we provide to customers, the design and operation of our facilities, the conditions under which employees work, and our interactions with the communities where we live and do business. We will be responsible stewards of the environment and protect the health and well-being of our employees and neighbors. We have policies and standards for specific environmental and related aspects of our operations.

The following principles are applicable to company operations worldwide:

- › **Protection:** Conduct all operations in a manner that protects the environment and our employees, neighbors and customers. Proactively work to implement procedures and programs to prevent pollution.
- › **Compliance:** Comply with all legal requirements and proactively implement programs and procedures to ensure compliance.
- › **Conservation:** Practice and promote the conservation of nature and the earth's energy resources.
- › **Communication:** All Waste Management employees are responsible for helping the company identify and remedy possible violations. Suspicion of violations of law or Waste Management's Core Values of Ethical Conduct and Practices shall be communicated in accordance with the company's Business Ethics and Compliance Policy and Environmental Reporting and Incident Notification Policy.

The company has developed processes, procedures and tools for use in achieving its high standards for environmental performance and compliance. They collectively form the Waste Management EMS. The company's operations, across all lines of business, are responsible for implementation and adherence to the Waste Management EMS at each operating location. This applies to all business endeavors in which Waste Management has a 50 percent or more ownership.

Management regularly monitors operations and makes recommendations to the Board of Directors on programs to continuously improve the environmental performance of the company.

When necessary, environmental goals and objectives are established, reviewed and approved during management review. The Waste Management Board of Directors and executive management regularly monitor environmental performance to ensure adherence to the principles of this policy across the company.

## 2. PLANNING

Our EMS focuses on preventing, correcting and ultimately reducing impacts associated with our operational activities. Specifically, we focus on the following:

- › Eliminating environmental impacts, including spills or leaks from vehicles, landfill gas impacts on the air or subsurface and releases to surface water or groundwater;
- › Eliminating community impacts, including odors, litter, noise, dust, and spills or leaks; and
- › Eliminating regulatory impacts, including regulatory inspection-alleged issues, warning letters, violations and enforcement actions.

We also use several databases, systems and processes designed to help facility managers plan, implement, check and respond to their site-specific environmental requirements.

### Legal and Other Requirements

Our EMS tools continually evaluate and determine what regulations, permit conditions and contract requirements apply to facilities. These tools include the following:

- › **CyberRegs.** An online source for all state and federal statutes and regulations
- › **Regulatory outreach.** Active involvement by our technical professionals in state and local activities associated with environmental regulation development and policymaking

Waste Management's environmental teams work closely with our Legal and Government Affairs departments, and they utilize the above resources to ensure that all facilities have access to relevant laws and regulations.

### Objectives and Targets

We use indicators to quantify environmental performance, including:

- › Environmental impacts to the environment
- › Community environmental concerns and impacts
- › Regulatory violations

Our Environmental Incident Rate (EIR) measures our performance and tracks progress toward these goals at the facility level. The EIR is used to drive continuous environmental improvement on a year-over-year basis.

### 3. IMPLEMENTATION

#### Roles and Responsibilities

Our EMS relies on our corporate, geographic area and facility-level personnel with job-specific functions, roles and responsibilities for planning, implementing and evaluating the EMS components. The specific departments and personnel involved include the following:

- › **Environmental Protection (EP).** Develops environmental policies, tools and training, and provides strategic or technical advice, with the goal of 100 percent compliance. Oversees environmental performance and ensures environmental impacts and issues are resolved, including correction and prevention.
- › **Corporate Engineering Science.** Manages research and engineering science to develop an understanding of the interrelationships between our disposal processes and the environment.
- › **Environmental Engineering (EE).** Provides expertise in the planning and design of our facilities to ensure that operational activities have limited environmental impact. Performs annual planning and forecasting of life-of-site costs for our landfills, including Financial Accounting Standard 143 retirement obligations. The engineering and accounting controls exercised during this process are extensive and are subject to SOX 404 controls (from section 404 of the Sarbanes-Oxley Act) that are reviewed annually by independent external auditors.
- › **Air/Landfill Gas Management (AGM).** Develops and implements the corporate GHG and carbon emissions tracking and reduction strategies. Sets policies and standards. Is responsible for the planning and development of air quality and landfill gas management tools.
- › **Groundwater Protection (GP).** Provides expertise and direction on groundwater protection programs and ensures that environmental monitoring networks are installed and operating to specifications. Provides laboratory services that ensure accuracy and quality control in the analytical testing of environmental samples.
- › **Laboratory Services (LS).** Provides oversight and guidance to the commercial laboratories that support Waste Management's monitoring programs in order to manage risk associated with the analytical testing of environmental samples. Provides support to all facilities that collect certain routine environmental data as detailed by the Groundwater Protection Program.
- › **Waste Approvals.** Ensures permit compliance and safe and environmentally sound waste acceptance procedures and controls.
- › **Government Affairs.** Monitors and engages with key federal, state and local governmental entities to ensure that we are at the forefront of developing trends and regulations.
- › **Legal.** Provides guidance, support, and advice to our sites and market areas. Monitors compliance trends. Manages the company's process of analyzing the root cause of any failures.
- › **Site Managers and Front-Line Employees.** Are responsible for all environmental aspects at the site level, with key environmental tasks assigned to appropriately trained local staff.



## Training

Waste Management recognizes that in order to achieve environmental performance goals, employees must possess the knowledge and skills to manage and conduct operations in environmentally responsible ways. Our environmental training targets a range of operational and functional levels within the company. All new employees participate in corporate ethics and compliance training, which includes our company's standards for environmental practices. Corporate and local staff with responsibility for environmental leadership are trained in the company's environmental practices.

Employees with environmental leadership responsibility are provided training through the following programs:

- › **Talent Central Learning Portal — Environmental Protection Learning Series (EPLS) online modules.** Monthly online site management trainings on a different environmental subject each month. Completion is mandatory, and knowledge is tested and tracked.
- › **In-person training sessions.** On-site trainings conducted by our field EP and/or operations professionals for facility management and technical staff on environmental and compliance subjects.

In addition, Waste Management has environmental training programs targeting operational and functional levels. Our Environmental Compliance Awareness Program (ECAP) provides mandatory monthly training for front-line employees and managers, covering a different environmental subject each month. Knowledge is tested and tracked at the site level. Monthly topics are aligned between these programs whenever possible.

Local training is also provided periodically via in-house classroom training, on-the-job training and outsourced training. In addition, staff with responsibilities related to specific environmental requirements for our operations sometimes need job-specific training, which is provided to employees and managers at all Waste Management operations. We have instituted Landfill GHG worksheets that must be completed by all on-site employees, and we offer a Gas Collection and Control System Design and Installation Guidance Manual to ensure landfill employees are utilizing best practices. For more on our employee training, see the Workplace Appendix. We also provide training to customers, for example on DOT hazardous waste handling requirements.

## Communications

Communicating environmental commitment and performance to our customers, communities, regulators and investors strengthens our ability to be an environmental leader in our industry. Internal communications regarding environmental commitment and performance help to create an atmosphere where all employees work toward the common goal of continuous improvement.

We communicate our environmental commitment within the company using the following methods:

- › Waste Management's Environmental Incident Alert Notification System gives immediate, companywide notification of significant environmental or regulatory events — including reportable quantity (RQ) spills, environmental impacts (e.g., stormwater, leachate), alleged violations and enforcement actions.
- › Waste Management's CASES Database and Public Commenter Systems provide real-time notification of any customer-related environmental issues to site managers for response and resolution.

- › Environmental performance results, including the following impacts, are tracked monthly and communicated companywide and to senior leadership via the EP Dashboard:
  - Environmental impacts such as spills, leaks, gas migration, groundwater contaminant exceedances, certain releases to ambient air and stormwater discharges in excess of applicable standards
  - Regulatory impacts such as alleged violations, inspections and enforcement actions
  - Community impacts such as off-site spills/leaks, odors, noise, pests, mud and litter
- › Waste Management Visor, our intranet system, updates reporting systems to help manage tracking of landfills, tanks, authorized vendors and environmental compliance.
- › Overall compliance performance is reported to management according to the EP reporting structure, via routine activity reports.

We also communicate our environment efforts with our communities, customers, regulators and investors through other methods, including the following:

- › Waste Management's corporate website highlights significant research, environmental awards and unique achievements in environmental management.
- › Community comments are centrally managed and tracked through response and, if necessary, correction.
- › Our environmental scientists and professionals present achievements and research at national and international environmental conferences.
- › Our Corporate Communications department is responsible for communication of environmental issues at the company.
- › Our local managers support community outreach programs.

### Documents and Operational Controls

Waste Management has several internal systems for maintaining documents and records related to the EMS. The location of any particular document or record depends on the specific application, since many of the EMS tools are multiple-purpose programs. The two main internal systems are the following:

- › **Waste Management Visor Environmental Protection Website.** Visor is the company's intranet, with links to all formal corporate environmental policies, standards, documentation and resources, including the EMS, training materials, web-based tracking systems and databases. Visor is available to all company employees and is reviewed and revised on a routine basis to ensure that it is up-to-date and includes the most recent documents.
- › **Waste Management Environmental Program SharePoint.** The EP SharePoint webpage is used to store and share environment-related documents, guidance, training materials and other electronic resources. All Environmental Program and Technical Managers have access to the EP SharePoint website. The SharePoint is available for interactive program tracking, e.g., site visits, order tracking, document development, idea development and sharing, and document sharing. The EP SharePoint page is regularly reviewed and updated.

We have a wide range of environmental databases including the following:

- › **Cycle.** The compliance assurance task calendar program for identifying and tracking completion of site environmental tasks regarding permits, regulations, site plans, policies, etc.
- › **Environmental Reporting System (incident alerts).** The repository for reported agency-identified violations (AIVs), environmental exceedances and public comments.
- › **Dakota Auditor and Tracer.** A third-party audit management system used to manage compliance representation letters. Also used to track environmental and safety audit findings and corrective actions.
- › **Environmental Enforcement Database (EED).** The Legal department's violation tracking database for tracking significant violations through completion and reporting the results to senior management and corporate governance.
- › **Storage Tank Database.** Used to manage aboveground and underground storage tanks, including registrations for insurance purposes.
- › **Applied Landfill Information Analysis System (ALIAS).** A relational database used to cross-reference landfill characteristics (e.g., cover, liner, waste type) to monitoring points and results.
- › **EQulS.** Contains our groundwater, surface water and other analytical data provided by contract laboratories. Used for reporting, data integrity and management purposes.
- › **Landfill Gas Management System (LGMS).** Houses operational and performance data relating to landfill gas collection and control systems.
- › **PharmE Waste Wizard.** Maintains hazardous waste categorization for over 220,000 pharmaceuticals on the market, updated weekly.

In addition to the above, each facility is responsible for maintaining its own operating record, including documents, inspections and reports required by regulation.

### Emergency Preparedness and Response

We're always working to refine and improve the disaster response and preparation plans for our facilities. We maintain an Emergency Situations and Evacuation Plan Policy, which communicates management objectives for addressing emergency situations. Facilities may also be required to maintain specific emergency response plans, including the following:

- › Hurricane Preparedness Plans and annual simulation exercises.
- › Disaster Preparedness and Management Plans in areas subject to natural disasters (e.g., tornados, fires, earthquakes), for safe handling of disaster-generated debris.
- › Spill Prevention Control and Countermeasures (SPCC) Plans for facilities that store certain volumes of petroleum products and are required to prevent, contain and control spills.

Our employees are trained and drilled to comply fully with Emergency Situations and Evacuation Plans, Local Preparedness Plans and Spill Plans.

## 4. ASSESSMENT AND CORRECTIVE ACTION

### Monitoring and Measurement

We use the following programs as a multipurpose, integrated system to monitor, measure, report and track environmental aspects and impacts through closure/completion:

- › **Environmental Protection (EP) Dashboard — Environmental Incident Rate (EIR).** This online system is used to measure, track and report performance across three areas: the environment, our communities and regulations. Our performance goal is continuous year-over-year improvement in EIR performance (Environment, Community and Regulatory).
  - **Environment.** Environmental incidents that occur at our operations are compiled, including the following:
    - Spills/leaks that hit the ground from vehicles
    - Groundwater impacts that exceed regulatory criteria or that show increasing trends
    - Stormwater impacts above benchmarks or reportable release levels
    - Leachate impacts
    - Air impacts that include surface emission overages or reportable air emissions
    - Landfill gas impacts registered by perimeter gas probes
  - **Community.** To underscore the company's commitment to the communities it serves, Waste Management developed and deploys a public comment management system. When a comment is received, the information necessary for a prompt response and remedy is routed to the closest responsible manager. The manager is empowered to take action appropriate to the circumstances and track remedies through to completion.
  - **Regulatory.** Regulatory incidents and, more important, their precursors are tracked, managed and recorded for each occurrence as part of the company's compliance program and continuous improvement process. Lessons learned are shared via the company's EP Dashboard and program of weekly and monthly reporting. Senior management, including the Board of Directors, is briefed on performance on a regular basis. The position of Chief Compliance Officer exists to elevate the issue of regulatory compliance.
- › **EP Dashboard — EP Toolkit.** The EP Toolkit is used to evaluate environmental performance system metrics for the company's business operations every month. EP Toolkit metrics help ensure that all cycle tasks, audit findings and environmental incidents are completed in a timely manner, and effective corrective actions and preventive measures are implemented.
- › **EP Dashboard — System Reports.** A System Report is a month-end environmental performance summary that is automatically sent to EP Dashboard users of record.
  - Dashboard reporting tool also provides users with the ability to review and report environmental performance results on a real-time or scheduled basis.



## Corrective Action and Preventive Measures

Local EP Managers are responsible for ensuring resolution and prevention of issues identified through the EP Dashboard, EP Toolkit and other environmental database reports. Facility and EP Managers are responsible for ensuring that all identified incidents are closed out completely and correctly. Measures or actions that are not effective are subject to reopening of the incident.

- › Environmental Incident Rate incidents are documented and tracked until all corrective actions and preventive measures are implemented. Performance related to completion of the corrective and preventive measures is tracked via the EP Toolkit.
- › Public Comment Management Program is the process for addressing environment-related calls from our customers and communities. Environmental comments received at Customer Service Centers are entered into a program called CASES, while calls received directly by the facility are entered into Public Commenter by the site staff. Any comment requiring corrective action is routed to the local entity for response and resolution. Environment-related comments uploaded into either system are centrally tracked through correction and preventive measure implementation.
- › The Waste Management Integrity Helpline is our portal to internally identify potential instances of noncompliance with company or regulatory procedures. We communicate to employees that it is available for their use and promote a Speak Up culture wherein when they speak up, we will listen up and follow up. Every inquiry is logged and tracked to ensure that the issue is resolved, up to and including any required corrective actions. The Legal department and EP work together to assess whether the incident has any national implications and to ensure that the corrective action is spread across the organization — so that a lesson learned in one location is rippled across the organization. The Helpline is maintained by a third party where reports can be made anonymously 24 hours a day, seven days a week.

Our facilities are expected to ensure that corrective actions and preventive measures are effective. Environmental issues are not closed out in any of these systems without the concurrence of the EP Manager.

## Compliance Audits

Waste Management's Corporate Compliance Audit Services (CAS) conducts independent environmental, health and safety (EHS) and transportation compliance audits. Each year the department conducts hundreds of audits at facilities owned, operated or controlled by the company. Audit planning and scope are based on risk assessment principles, including the nature of operations and consideration of emerging regulatory and EHS trends. CAS reports to the Vice President and Assistant General Counsel/Regulatory, Chief Compliance and Ethics Officer and Legal department. Audit practices are modeled on the nationally recommended compliance audit practices approved by the American Standards for Testing and Materials and the standards for professional auditors approved by the Board of Environmental Health and Safety Certifications.

CAS evaluates and supports improvement of the company's EHS performance through the following activities:

- › Conducting systematic, documented and objective evaluations to verify compliance with environmental regulatory requirements;
- › Assisting the company in evaluating and improving the effectiveness of existing EHS and transportation systems and policies; and
- › Assisting the company and its managers in preventing, detecting, correcting and proactively addressing compliance issues.

CAS processes and procedures include the following:

- › Assessing risk and selecting facilities to audit;
- › Training of staff conducting audits;
- › Developing audit protocol documents;
- › Planning and conducting audits;
- › Identifying noncompliant activities;
- › Resolving audit findings;
- › Documenting management and retention;
- › Reviewing and updating program directives and procedures;
- › Auditing quality control and assurance; and
- › Communicating of audit results.

Facility staff use designated programs (e.g., Dakota Tracer) to document resolution of all audit findings. CAS reviews all findings before they are closed and conducts verification audits to ensure that the finding resolution was effective. CAS communicates the audit results to relevant local and corporate management and follows up to ensure the timely resolution of issues identified through its compliance audits.

As part of our auditing and compliance process, we ensure we can monitor the final destination of our waste, measure to assure that no hazardous waste is transported from developed countries to developing countries, and ensure products sent from developed countries to developing countries for repair or resale are not waste. Waste Management's electronics recycling division is Responsible Recycling (R2):2013, ISO 9001:2015, ISO 14001:2015 and RIOS:2006 certified.

The Responsible Recycling (R2):2013 Standard requires certified organizations to comply with all applicable import and export laws covering shipments of Focus Materials generated from the processing of electronics in accordance with the Basel Convention and with Section 6 (1) of the Standard, for Reusable Equipment and Components, Tested and Full Function, R2/Ready for Reuse requirements.

Waste Management's electronics recycling division is audited regularly for compliance to the standards it subscribes, which includes monitoring of final destinations for destruction, recycling, refurbishment, reconditioning, and/or resale.

## Records

Certain data elements are reported with routine frequency, while others are reported on a nonspecified schedule.

Certain groundwater and surface water test data are collected on a routine basis and tied to sampling events specified in operating permits, licenses and applicable permits (usually quarterly or semiannually). These results are housed centrally through our laboratory management program and are reported as they are generated.

Incidents related to unanticipated releases to the environment (e.g., spills, environmental impacts) are required to be reported within 48 hours to the corporate office, on a real-time basis. Notification of these incidents ensures the appropriate resources are made available to address the particular situation and to minimize potential impact to the environment. Response actions are also monitored for effectiveness and timeliness.

Records relating to analytical results, environmental performance elements and compliance assurance tasks are all maintained online within our IT, Legal and/or Environmental Protection departments. Documents and technical resources are available and maintained on our Visor and SharePoint intranet sites, as are training, guidance and standards resources.

Key environmental metrics are reported and compiled on a weekly basis, monitored and reported to senior management monthly, managed and stored online. Environmental aspects of our business, including notices of violation, are reflected in senior management reporting and through an internal environmental metric system that is provided to senior management and housed in the Environmental Enforcement Database (EED). Landfill gas collection system performance is monitored monthly with metrics designed to detect and correct upsets.

All our facilities must certify annually their compliance with all applicable permits and regulatory requirements through our centralized Compliance Representation Letter process, which is reviewed by senior management yearly.

## 5. MANAGEMENT REVIEW

Our management teams participate in a management review process to determine the level of success in achieving environmental goals. In doing so, they complete the following tasks:

- › Review environmental policies
- › Review Waste Management's EMS
- › Review the EP Dashboard environmental performance, issues and incidents on a routine basis
- › Evaluate corporate and local environmental goals and objectives
- › Amend the EMS as needed, including policies, procedures, goals and objectives

Management review and response to environmental performance measures, incidents and issues are used to drive operational changes and ensure that continuous improvement goals are met. Our Internal Audit department performs compliance evaluations on an ongoing basis.

## Leadership in Environmental Science

Waste Management's professional staff are encouraged to participate in the public and scientific community dialogue on environmental science and the performance of the environmental service facilities and technologies the company employs. Described below are key contributions our experts have provided:

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## Patents

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# Continuous Improvement in Customer Service

## Customer Relationship Management

We think of ourselves as a "customer-centric" company and continually seek to improve the customer experience and our ability to manage reliable, excellent service.

1. A number of tools are essential to our CRM system:
  - a. **Salesforce.com** (our Customer Relationship Management /CRM tool): We deployed Salesforce.com (SFDC) in 2010 and have spent the last eight years enhancing, improving and expanding its reach throughout our sales organization. Our current CRM model helps us to be more customer-oriented when we manage data, develop performance plans and lead our sales teams. Key components of Salesforce.com are our **FOCUS 2.0** and **Relationship Health** sales programs. With these two programs, we are using predictive analytics and proactive outreach to serve our customers' needs more effectively.
  - b. Our **FOCUS 2.0** program uses advanced analytics to predict which customers may be likely to defect and/or be unhappy with their current service received/value exchanged. FOCUS allows us to concentrate our time and attention on potential "at risk" customers to ensure we remove roadblocks, solve any service issues, and overcome any perceived challenges the customer has in order to get their service/value exchange back in alignment.
  - c. Our **Relationship Health** dashboard is another program we use to track and manage the strength of the connections we have with our customers.



- For our call center sales team specifically, we deploy a tool called [InsideSales.com](https://www.insidesales.com). This platform uses a sophisticated sales prioritization algorithm to rank and route customer calls (and/or dial out to prospects) that have the greatest current need from us. This sales enablement tool, in conjunction with the analytics derived from FOCUS and our SFDC platform, positively impacts our ability to be more effective with our customers most in need of attention.

**Performance Management.** We firmly believe that better performance management leads to better overall performance, which ultimately leads to a more sustainable business model. Last year we deployed a sales performance methodology called **Sales SDO** that created a standardized approach to sales performance throughout our sales organization. Sales SDO was mirrored after a similar program created in our Operations department (SDO/Service Delivery Optimization) and further refined by Fleet and Maintenance teams (MSDO). This holistic approach to performance standards has given us a better approach by which to monitor our routines and build a sustainable business model connecting our Operations and Sales departments.

## Gauging Our Progress

### CUSTOMER SATISFACTION (CSAT)

Waste Management's customer service survey, called CSAT, began in 2012. CSAT tracks the average score of all customers on three key questions about Waste Management: overall experience, likelihood of continuing to do business, and likelihood of recommending Waste Management. We also track the percentage of our "loyal" customers (those that give us a 9 or 10 on key questions), and those that are "at risk" (1-5 on the key questions). Other areas of focus are operations, customer service/account management, communications, problem incidence and resolution, and our overall brand. The surveys are sent to active customers. 92 percent are sent by email, and the remainder of the surveys are completed over the phone. Waste Management receives 10,000-12,000 surveys each month, with a response rate of 9.0 percent, which is considered a high rate for a long-standing survey. The results are monitored monthly and coordinated between customer service and our operations teams.

### RESULTS

Survey results have remained consistent over the years, and Waste Management achieved its 47 percent loyalty goal in 2017. The average enterprise-wide CSAT score in 2017 was 8.27 on a 10-point scale. This is an improvement over time from our 2014 score, but slightly down from 2016 (0.02 points). Our goal is a 10, but we understand that many factors impact scores; in particular, severe weather events which have geographic impacts along all lines of business.



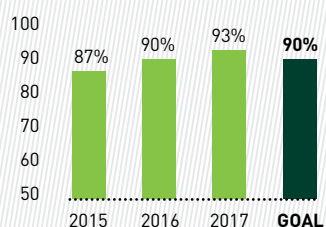
## Other Measures

### CUSTOMER CARE — PHONE QUALITY SURVEYS

Waste Management also monitors the quality of our calls, including use of third-party auditor BPA and post-call surveys for commercial customers. The results show consistent improvement in customer satisfaction for our National Account customers, an important part of our customer base and among our most sophisticated and demanding:

#### Third-Party Quality Audits

Goal 90% or greater

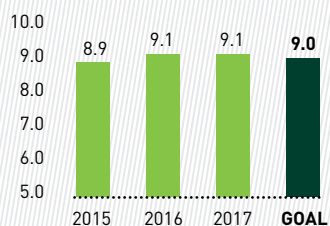


#### BPA phone quality

- › BPA is a third-party quality provider that provides services to all Waste Management service teams
- › Seven calls per agent monitored on a monthly basis

#### Post Call Survey

Goal score of 9.0 or greater



#### Customer satisfaction post call survey

- › Offered on 50% of all inbound calls received (~15K calls/month)
- › Historically 2.6% response rate (~400 calls/month)

These surveys provide immediate feedback, as well as valuable trend information over time.

### RELIABILITY SURVEYS

An important aspect of customer satisfaction is assurance that service will be reliable. In 2017, our “Customer Experience Quality of Service” scores for our collection services were:

- › Commercial = 98.24%
- › Roll-off = 96.76%
- › Residential = 98.93%

## Waste

Nearly all waste handled by Waste Management is generated by others rather than the company itself. Nevertheless, we are providing information on our internal waste production and the amount recycled. Note that because of the relatively minimal waste produced, it tends to be handled at the facility where generated for the sake of efficiencies and reduced transportation.

In the following, total waste generated in operations is calculated using an average waste and recycling generation tonnage per employee per day for each of our facility types (landfill, MRF, office or transfer station). The waste and recycling generation tonnage is based on audits conducted at each facility type.

TOTAL	WASTE (TONS)	RECYCLING (TONS)	TOTAL (TONS)
2011	2,746.88	571.14	3,318.02
2012	2,755.50	580.74	3,336.24
2013	2,734.81	582.06	3,316.87
2014	2,632.37	550.5	3,182.87
2015	2,651.49	452.33	3,103.82
2016	2,759.23	510.67	3,269.89
2017	3,185.13	658.92	3,488.25

# BETTER WORKFORCE

## Diversity and Recruitment

As part of our ongoing effort to discover and attract the most talented workforce, Waste Management has built outreach relationships with many national and community-based organizations to proactively share opportunities with diverse and versatile populations. The following are examples of our partners:

- › Ability Jobs (supporting individuals with disabilities)
- › Black Chamber (Greater Houston)
- › Campus Pride
- › Canadian Centre for Diversity and Inclusion (CCDI)
- › Disabled American Veterans (DAV)
- › Diversity
- › Goodwill Industries
- › Hispanic Latino Professional Association
- › Human Rights Campaign
- › Military Spouse Corporate Career Network
- › NAACP and its local chapters throughout the country
- › National Society of Professional Engineers and its local chapters
- › National Urban League, Houston chapter
- › Texas Diversity Council
- › Toronto Region Immigrant Employment Council (TRIEC)
- › Universal Technical Institute — Diesel Maintenance
- › Women in Trucking

Many of Waste Management's career opportunities are posted on specialized career sites designed to target a diverse range of qualified candidates. Examples include the following:

- › Athlete Network
- › Disability.gov
- › Extend-A-Family Toronto
- › GettingHired — Jobs for People with Disabilities
- › Hispanic-Today
- › IMDiversity
- › Military Spouse Corporate Career Network
- › National Labor Exchange (NLE)
- › Ready, Willing & Able
- › Senior Jobs Network
- › The Black Collegian Online
- › VetCentral
- › Women in Business and Industry

In addition to the above outreach partners, our talent advisors and hiring managers maintain an active presence at networking/recruitment events sponsored across North America.



Under the Americans with Disabilities Act (ADA), Waste Management will make reasonable accommodations for the known physical or mental limitations of an otherwise qualified individual with a disability. Employees and applicants of Waste Management who are covered under the ADA are eligible unless undue hardship would result to the company. In order to help our employees gain a better understanding of the ADA, the ADA Amendment Act and the process associated with it, we have distributed a frequently asked questions (FAQ) to front-line managers. We also provide training to managers on accommodation responsibilities.

## Snapshot of Waste Management Workforce

EEO Job Category	Total Population	Female Total		Male Total	
1.1-Exec/Sr	63	11	17.46%	52	82.54%
1.2-First/Mid	4,140	750	18.12%	3,390	81.88%
2-Professionals	1,439	654	45.45%	785	54.55%
3-Technicians	19	6	31.58%	13	68.42%
4-Sales Worker	2,428	1,235	50.86%	1,193	49.14%
5-Administration	4,300	3,244	75.44%	1,056	24.56%
6-Craft Worker	3,077	15	0.49%	3,062	99.51%
7-Operatives	2,0648	364	1.76%	20,284	98.24%
8-Laborers	2,280	303	13.29%	1,977	86.71%
9-Service Worker	23	2	8.70%	21	91.30%
<b>Grand Total</b>	<b>38,417</b>	<b>6,584</b>	<b>17.14%</b>	<b>31,833</b>	<b>82.86%</b>

## Human Rights

Waste Management has operations and relationships in the United States and Canada, as well as a service center in India (Waste Management Logistics). In January 2014, Waste Management divested its investment in China but continues to provide some technical services. This entity has an employee handbook in place that covers local compliance policies and practices.

The Waste Management [Code of Conduct](#) provides the protections afforded by international human rights frameworks and covers Waste Management employees who are located in North America and India. Employees are required to report any noncompliance with the Foreign Corrupt Practices Act (FCPA) to the Chief Compliance and Ethics Officer or to the Waste Management Ethics and Compliance Integrity Helpline at 1-800-265-9381 in North America and 0001-877-801-2359 in India.

Waste Management's Code of Conduct is in alignment with the [Ten Principles](#) of the United Nations Global Compact. Early in 2018, Waste Management developed, approved and put into place a written [Human Rights Policy](#) to underscore our commitment to human rights. The Waste Management Code of Conduct and [Supplier Code of Conduct](#) are currently being revised to include references to this policy. Suppliers are notified that we expect them to respect these principles as well. All employees are trained in the Waste Management Code of Conduct, and we expect all to comply. More information on our Code of Conduct can be found on our [website](#). We believe in networking with groups focused on ethics in corporate management to keep abreast of best practices. We are a member of the Ethics and Compliance Initiative (ECI), Society of Corporate Compliance and Ethics (SCCE), Greater Houston Business Ethics Roundtable (GHBRE) and the Manufacturers Alliance for Productivity and Innovation (MAPI) — Ethics & Compliance Council.

## Policy Against Trafficking of Humans and Modern Slavery

With increased concerns about human trafficking and modern slavery, in late 2017 Waste Management developed and put into place a written Policy Against the Trafficking of Humans and Modern Slavery to bring awareness of this important issue as our employees work and travel, both for business and otherwise. The Waste Management Code of Conduct and Supplier Code of Conduct include references to this policy.

We do not believe any of our operations are at risk of infringing on the right to freedom of association, nor do we believe our workforce is at risk for incidents of child or forced/compulsory labor. Finally, Waste Management complies with all applicable rules governing minimum wage in North America. For the fraction of a percent of our employees living abroad, we comply with all applicable rules and pay locally competitive compensation rates.

### CONTINGENT LABOR PROGRAM

Our Contingent Labor Policy is applicable to all contract workers, temporary workers or other nonemployee workers providing time- and expense-based work at Waste Management outside of a Statement of Work agreement with Waste Management National Services, Inc.

All contingent workers at Waste Management are managed through the Contingent Labor Program, the program approved by the Waste Management Senior Leadership Team for the management of contingent workers at Waste Management and residing inside of Corporate Human Resources, for which key conditions are outlined as follows:

- Contingent workers are sourced only through staffing suppliers that have an executed master services agreement (MSA) with Waste Management;
- Contingent workers are subject to background checks and drug testing as required;
- The life cycle of a contingent worker is managed in collaboration with the managed service provider (MSP), the internal or third-party administrator providing management and administration of the program, and includes:
  - Requisition through the vendor management system (VMS), the system of record utilized to manage contingent workers;
  - Onboarding contingent workers;
  - Ensuring that staffing suppliers and contingent workers are aware of and comply with applicable Waste Management policies and procedures;
  - Submitting and approving time worked through the VMS in accordance with Waste Management's Timekeeping Policy and Timekeeping Procedure;
  - Managing time charge and expense approvals and invoices through the VMS;
  - Managing staffing supplier payments in collaboration with the MSP; and
  - Offboarding contingent workers at the end of the work assignment.

Waste Management considers the use of contingent contract labor a matter of strategic business planning. Our Contingent Labor Program delivers top quality contract labor across Waste Management's operations, helping to fill jobs with skilled workers while judiciously managing

cost, quality of service and risk to the company. The Program enables us to use reliable preferred vendors to fill specialized positions quickly and deploy qualified talent to manage changes in service demand, temporary need for specialized expertise and/or short-term labor shortages.

We approach contingent workers with the same vision for teamwork, dignity and mutual respect with which we approach employees. Our safety vision fully extends to contingent workers. Contingent workers are evaluated for opportunities for direct employment with Waste Management and career development, with Waste Management managers encouraged to seek opportunities for new contract labor when full-time opportunities open.

Oversight of Waste Management's Contingent Labor Program is centralized in our Talent Acquisition Department with the Program Director monitoring service provision, policy compliance, and internal client satisfaction. Guidance and training are provided that cover timekeeping, onboarding procedures, use of temporary staffing suppliers, field management compliance obligations and corporate oversight. Onboarding training includes compliance with Waste Management policies on safety, security, the Waste Management Code of Conduct and Integrity Helpline and applicable regulations. Contractor personnel must sign certifications after having received the relevant safety training. Worker hours are monitored with the same centralized time-keeping system used throughout the organization to assure compliance with Department of Labor, OSHA and all other applicable regulations.

Waste Management uses the same prequalified security screening vendors for both employees and staffing suppliers/contingent workers. These vendors are specialists in background, compliance and safety screening. The vendors are evaluated quarterly for compliance with the terms of their contract and all applicable policies and regulations. Workers otherwise referred to the company ("self-sourced" contract associates) are managed by the MSP Waste Management Service Team to assure full compliance with all Waste Management hiring standards. No worker is ever asked to pay a fee for engagement at Waste Management. Local wage regulations are tracked centrally to assure compliance of contract terms with those regulations.

## Collective Bargaining

We continue to be fully supportive of our employees' right to self-organization; to form, join or assist labor organizations; and to bargain collectively through representatives of their own choosing. We also recognize that our employees have a statutory right to refrain from such activities. Our company policies and procedures adhere to all applicable domestic laws concerning freedom of association and collective bargaining, nondiscrimination, forced labor and underage workers in the workplace. Moreover, we have organized employee engagement councils aligned with the principles of collective bargaining to elevate the cooperative dialogue between employees and managers throughout Waste Management. Our Driver and Route Manager Councils capture the wisdom of representatives throughout the 17 Waste Management Market Areas, providing advice on best practices, means to reduce voluntary turnover, and means to retain drivers and technicians. Through our various subsidiaries, our company has successfully negotiated and now administers collective bargaining agreements that cover 7,948 employees — about 20 percent of our workforce — in approximately 266 facilities. In 2016 and 2017, Waste Management employees held zero strikes and/or lockouts.

## COLLABORATION THROUGH PEER REVIEW

Our Peer Review safety councils bring the spirit of collaboration to implementation of our fleet safety program. Peer Review is a process where drivers and technicians may voluntarily choose to appeal safety-related rule violations to a “Peer Review Board” comprised of fellow employees chosen at random for that particular case. Peer Review was initially conceived and created in 2011 as part of a joint effort between management and employees at a single hauling site to address safety-related issues and perceived inconsistent disciplinary practices. The program has since expanded to 70 sites, covering over 5,600 employees. Installation at additional sites is ongoing.

During a Peer Review hearing, both the affected employee and management present evidence, with the scope of review limited to whether the rule at issue was violated. At the conclusion of the hearing, the Board votes anonymously whether to sustain or overturn management’s decision. If management’s decision is sustained, the discipline administered under the site’s progressive disciplinary policy for safety violations remains. If overturned, any discipline administered under that policy is removed. The decision of the Board is final.

It is important to note that the Peer Review Board does not act in an advisory capacity. Instead, Peer Review is available to appeal management’s decisions. Similarly, Peer Review is voluntary — employees counseled or disciplined for safety rule violations are not required to utilize the process. Finally, Peer Review is limited in scope to whether the safety rule at issue was violated. Any discipline imposed depends upon where the employee resides under the site’s progressive disciplinary policy.

An important aspect of the Peer Review program is the emphasis on employee engagement. For example, most procedural aspects of the Peer Review program are determined locally during installation, requiring significant input and consensus from employees at each site. Each employee also undergoes critical analysis training, centered on both root cause analysis and deeper understanding of our safety policies. In many cases, many market areas have adopted the Peer Review focus group concept and engage employees directly on both the creation and subsequent modifications of safety disciplinary policies.

Similarly, Peer Review has proved to be a valuable management tool. For example, as each decision may be subject to review, managers are incentivized to engage in more thorough root cause investigations prior to issuing discipline. Adverse decisions often highlight a need for more effective management training, identify a potential “disconnect” between management and the employees’ understanding of a particular rule or signal employee “disengagement,” requiring immediate attention.



## Employee Benefits

We offer our employees competitive wages and benefits, including medical, dental and prescription drug coverage; short- and long-term disability; life insurance and accidental death benefits; retirement plans; and a stock purchase plan. The company also offers other important benefits such as legal services (e.g., wills, powers of attorney), flexible spending accounts, adoption assistance, paid vacation and holidays, employee discounts, education savings accounts and scholarship programs.

The Waste Management Health and Welfare Benefits Plan allows employees to choose from among different levels and types of coverage. This allows each employee to put together a mix of benefits that meets their needs while receiving significant tax advantages by paying for benefits on a pre-tax basis (as allowed by law). About 96 percent of our employees choose to participate in a Waste Management health and welfare plan.

Waste Management pays the full cost to provide its employees with short-term disability benefits, long-term disability benefits, basic life insurance for the employee and dependents, and employee and family assistance benefits. The costs for some coverage, such as medical and dental, are shared with employees, with Waste Management picking up a majority of the expense.

We are particularly proud of our wellness programs. We have a team of “Get Well Guides” — a group of nurses and coaches who help employees and their families get access to the help they may need for a variety of life challenges. Employees can dial a toll-free phone number for confidential support and assistance from reliable, compassionate professionals who are trained as nurses, coaches, dietitians, clinicians and financial counselors. Employees and their families also have access to 2nd.MD, a virtual service that provides real-time consultation with doctors specializing in a variety of practices.

Our Waste Management Wellness Champ initiative was launched in 2016. To recognize Waste Management sites for their wellness-focused efforts, we created the Well Worksite Recognition Program in conjunction with the initiative. Just two years later, more than 775 sites have a Wellness Champ and nearly 450 sites are participating in the Well Worksite Recognition Program. Across the company, the Wellness Champs have spearheaded several initiatives such as the Couch-to-5K, Jump Start Your Resolution, Fruit and Vegetable challenges, Tobacco Cessation programs, and Biggest Loser-style challenges at their sites, in addition to supporting other companywide initiatives through wellness promotion.

In 2017, the Well Worksite award was given to 373 sites. The award is broken into three categories :

- **Gold** recognizes a site’s comprehensive involvement and dedication to employee wellness.
- **Silver** recognizes a site’s expanding involvement and dedication to employee wellness.
- **Bronze** recognizes a site that is providing programs to support employee wellness.

For 2017, 177 sites earned gold, 103 silver and 93 bronze.

Our wellness programs also include on-site flu vaccination clinics and health fairs, where we provide blood pressure tests, blood lipid tests and other screenings that aid in the early detection of health risks. A health coach also meets individually with all participants to review their results and suggest action items to improve their health.

A Transition to Recovery program helps injured or ill employees return to work sooner in temporary assignments that are consistent with their medically documented capabilities. These assignments help the employees remain productive and speed their medical recovery. **See also Short-Term Disability benefits above.**

We also provide plans to help employees save for the future. The Waste Management Retirement Savings Plan provides employees with diversified fund options in which to invest for retirement. Employees can choose to make pre-tax and/or after-tax (Roth) contributions, with the company providing a market-competitive match with immediate vesting. Employees receive free investment advice through a call center staffed with licensed advisors, as well as through a suite of online tools. About 61 percent of employees participate in our savings plan.

Another valuable program is our Employee Stock Purchase Plan, which provides employees an opportunity to buy shares of Waste Management common stock at a discount of 15 percent or more. About one-third of eligible employees participate in this plan.

Additional benefits, such as the legal services plan, flexible spending accounts and education savings account, are voluntary, and employees participate only if they choose to do so by making the required contributions.

Benefits for Canadian employees, as well as for certain collectively bargained U.S. employees, may differ in some respects from those described above. For example, in Canada, the broader reach of standard health coverage makes Get Well Guides less useful, and our Return to Work program is not identical to Transition to Recovery.

## Tailored Training Programs

We continuously strive to empower our employees and managers to deliver excellent and safe service to our customers and the communities in which we work. We provide job-specific training in all applicable lines of business on how to safely operate and maintain our key equipment and the behaviors expected to increase overall performance as an employee and manager. We believe environmental excellence and compliance are the hallmarks of sustainability and reflect Waste Management's core values. As such, compliance with applicable regulatory standards and internal policies and procedures is also part of our training philosophy.

### COLLECTIONS AND FLEET

Employees in our collection and fleet operations are provided with opportunities to train on the following:

- › **Technician Air Brake:** an on-site field course designed to develop and standardize maintenance programs; a similar class is geared toward educating drivers on the functions and inspections of air brake systems.
- › **Basic Hydraulics for Refuse Bodies:** field course designed to teach participants about the design and maintenance of the hydraulics features of our fleet.
- › **Compass M5:** web-based modules housed in our Talent Central Learning Portal that focus on key shop processes.
- › **Lockout/Tagout (LOTO) Awareness:** course to enhance awareness of control of hazardous energy and work under the protection of a LOTO permit; another course is geared toward authorized persons who perform or supervise work requiring a LOTO permit.
- › **Hazard Energy Control Programs:** three courses offered in our Hazard Energy Control program to train different levels of employees on working around hazard energy controls.
- › **Fleet 101:** an entry-level workshop for new and developing fleet leaders learning the skills required to effectively execute the primary duties of a Fleet Manager and Shop Supervisor.

- › **Driver Air Brake:** an onsite field course designed to educate drivers on the functions and inspection of the Air Brake systems used on Waste Management assets.
- › **Allison Transmission:** an onsite field course designed to teach technicians how to troubleshoot Allison transmission complaints.
- › **Lockout/Tagout (LOTO) for Authorized Persons:** a course that provides information about control of hazardous energy and work under the protection of a Lockout/Tagout permit for persons performing or supervising work requiring a Lockout/Tagout permit.
- › **Fleet 201:** a career development workshop for Fleet Managers building upon competencies learned during the Fleet 101 workshop and expanding upon these skills; it's the next learning step in the career development of the Fleet Manager preparing for assuming higher roles in the organization.

## FIXED FACILITY TRAINING

Employees in our post collection operations are provided the following training opportunities:

- › **Disposal Operations Management Trainee Program:** builds a foundational understanding of the issues most important in day-to-day landfill operations.
- › **Environmental Protection Learning Series:** consists of key environmental training modules that focus on various topics regarding our environment, e.g., air regulations or customer-generated waste.
- › **Gas Collection and Control System Design and Construction:** provides standards for design strategy and design components to produce efficient and cost-effective landfill gas control systems.
- › **Introduction to Greenhouse Gas (GHG) Management:** teaches participants about GHGs, including what they are, how they originate, how emissions work and what Waste Management is doing to reduce our impact.
- › **Basics of Landfill Gas:** provides a basic knowledge surrounding landfill gas.
- › **Low Voltage Electrical Safety:** teaches employees safety procedures for working around electricity, including checking voltage, resetting breakers and more.
- › **Heavy Equipment Training Series:** training on key equipment at our landfills — including articulated dump truck, wheel loader, compactor and dozer.
- › **MRF Maintenance and Operations Programs:** designed for our recycling employees who manage and maintain our recycling operations.
- › **Personal Protective Equipment (PPE) Program:** covers all protective equipment including clothing, shields and barriers for eyes, face, head and extremities.

Each year monthly required and optional training sessions are mapped so employees can accommodate their work schedules to these opportunities.

## SYSTEMS TRAINING

We engage employees throughout the organization with what we call Service Delivery Optimization (SDO) programs. Our first application was in fleet, where SDO provided strong benefits in terms of team collaboration, coaching — and progress on fleet performance and safety. We took this template and moved to our maintenance technicians. Maintenance SDO — or MSDO — has been launched at 13 Waste Management locations for site, district and fleet managers, helping them engage with their technicians by asking open-ended questions and listening. The comprehensive MSDO program is a 16-week process involving eight weeks with corporate coaches and another eight weeks in a second location, using a “train the trainer” model. And to bridge the gap for those awaiting full MSDO implementations, Waste Management has introduced “MSDO Lite,” which allows new sites to start working right away to improve their maintenance process and prepare for MSDO implementation.

Next we addressed our sales team. Our “Sales Service Delivery Optimization program, “SSDO,” begins with Individual Development Plans (IDP) tailored to every sales employee. The plans are tailored to each individual’s growth needs and identifies areas of strengths and skill gaps. IDPs facilitate the kinds of interactive and positive coaching sessions that are the backbone of the SDO platform. Every sales representative is given a “peer mentor” to help them acclimate into their roles. There are weekly role-play sessions, and each month the teams compete using video technology to help them hone their skills.

We work hard to build understanding of field operations among those in the corporate office who support them. Driver ride-alongs and visits to recycling facilities, landfills and other Waste Management area assets are common, ranging from new hire orientation to refresher experiences for our most senior management. Employees have access to both instructor-led and self-study courses from our online library, and frequently in-person training at Corporate offices for a broader understanding of Waste Management’s scope of services, sales process, pipeline management, negotiation, time management and more.

Ongoing training is tailored based on the employee’s individual development program and future growth plan. The Sales Department has found that this intense training effort pays off in retention when other Fortune 500 companies target our sales employees for recruitment. We try to tie our internal development program to broader engagement with the academic community, taking on projects such as volunteering time to build sales curriculum at Arizona State University (ASU) in Tempe, Arizona, offering ASU business students real-world leadership development programs and mentorships, and participating in sales forums at National Collegiate Sales Competitions.

Managers and corporate staff can sometimes have their own challenges finding time to hone their skills and work toward new opportunities in the company. We offer consistent training for our leaders and managers that supports the skills and behaviors we expect, as well as accelerated learning programs designed for high potentials moving to front-line, mid-level and executive leadership roles. A new “Business and Professional Training Library” was launched in early 2018 that includes 800 online courses. As part of our “I Learn” campaign that focuses on individual growth, employees can access these modules when they want, as often as they want. Even a 10-minute video learning session can break the usual routine and enhance knowledge. Particular focuses are business analysis, project management, communication skills, software skills and customer service.



## Training Specifics

COURSE	AUDIENCE	TOTAL TRAINED
Safety Training — Driver and Technician Huddles (Daily)	All Drivers and Technicians	20,500
2016-2017 Code of Conduct Training	All Waste Management Employees U.S. & CAN	42,768
2016-2017 Break Time Is Your Time for Hourly Employees	Waste Management Hourly Employees in U.S.	31,676
2016-2017 Managing the Hourly Employee Meal Break Policy	Managers in U.S.	3,650
Security Awareness Training 2017	All personnel who use company and computer network	18,917
Preventing Harassment/Discrimination Training Sexual Harassment — For Salaried Employees (U.S.) Preventing Discrimination, Harassment and Retaliation — For California Salaried Employees Preventing Discrimination, Harassment and Retaliation — For Canada Salaried Employees Preventing Discrimination, Harassment and Retaliation — For Connecticut Salaried Employees Preventing Discrimination, Harassment and Retaliation — For Maine Salaried Employees	Waste Management Employees with EEOC: A-Executive/Sr Level Officials B-First/Mid-Level Officials	4,478
Professional Training	All employees	12,968

We continually look for ways to provide fresh, profession-specific training. For example, to address workforce shortages in technical fields, our Technician Apprentice Program (TAP) provides us — and its participants — a way to match up talented technicians with long-term careers that can include web-based and augmented reality applications. The TAP program offers part-time apprenticeship opportunities to students enrolled in approved technical training schools. As the program grows across North America, we hope that apprentices will seek long-term careers with Waste Management in essential technical positions.

## Transition Assistance

Reorganization is a fact of life in a rapidly changing, dynamic business sector. Waste Management provides transition assistance, including severance benefits and outplacement services, to eligible employees whose employment is terminated in connection with a reorganization event.

## Partnership Engages Young Adults

Disadvantaged young adults who had previously dropped out of school are creating paths to secure futures through a unique collaboration between Waste Management of Alameda County, Inc. (WMAC) and Civicorps, an Oakland, California-based education and job training nonprofit organization.

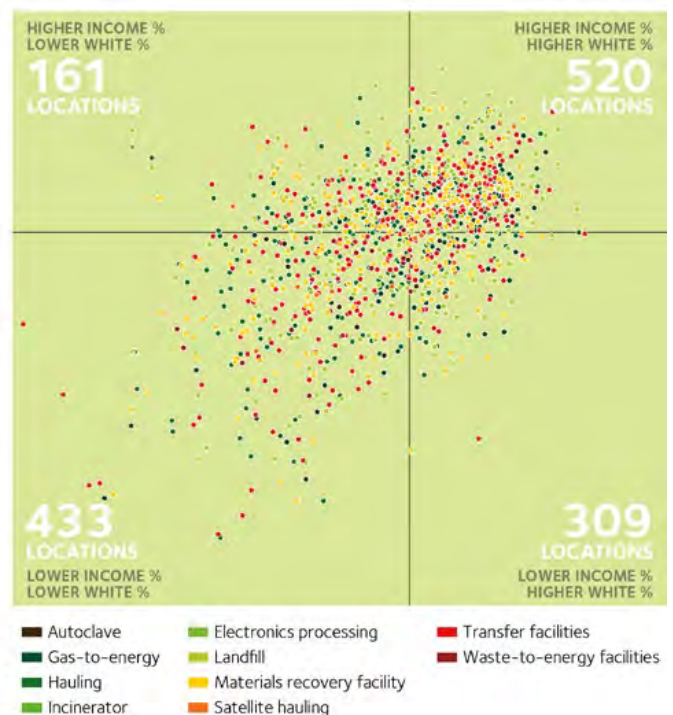
This collaboration provides Civicorps graduates a fast-track to careers as drivers, mechanics and administrative assistants at WMAC's Oakland facility. These positions provide stability and good benefits, helping foster promising livelihoods for vulnerable young adults, ages 18 to 26, in the community. At any given time, WMAC employs at least four Civicorps graduate students under the partnership.

# BETTER COMMUNITIES

## Environmental Justice

Waste Management continues to engage actively on the important issue of environmental justice.

The scatter graph to the right shows the distribution of all of Waste Management's operations. In the upper quadrants are our facilities that are located in communities with income above the state average (measured at the 5-kilometer radius); in the lower quadrants are facilities found in communities with lower-than-average income in that state. In the right-hand quadrants are sites located in areas above the state average income in non-Hispanic white representation; the left-hand quadrants show facilities in communities under the state average income. Our methodology is that employed by noted environmental justice academic experts and by U.S. EPA in its regulatory programs. For more information on the methodology used to formulate this graph, please see p. 35 of the Appendix to our 2010 report.



When we first released this type of demographic footprint for our landfills and waste-to-energy facilities in 2010, we reached out to environmental justice experts to determine whether this was useful and whether our disclosure could be improved. The response was a request to expand our reporting to include all of our facilities, and we provide this here. The following table includes the breakdown of the types of waste and recyclables management facilities we operate and their demographics. The entire picture for Waste Management depicted in the scatter chart is generated automatically from a Microsoft Excel chart of our locations, U.S. census data, and state average race and income data.

Facility Type	% of Facilities Above Average Income	% of Facilities Above Average White Representation
Autoclave	64%	45%
Landfill gas-to-energy	35%	72%
Hauling companies	58%	56%
Medical waste incinerator	0%	100%
Electronics processing	50%	100%
Landfill	41%	68%
Materials recovery facilities	59%	47%
Satellite hauling	48%	66%
Transfer stations	54%	55%
Waste-to-energy	76%	41%
Total	48%	58%

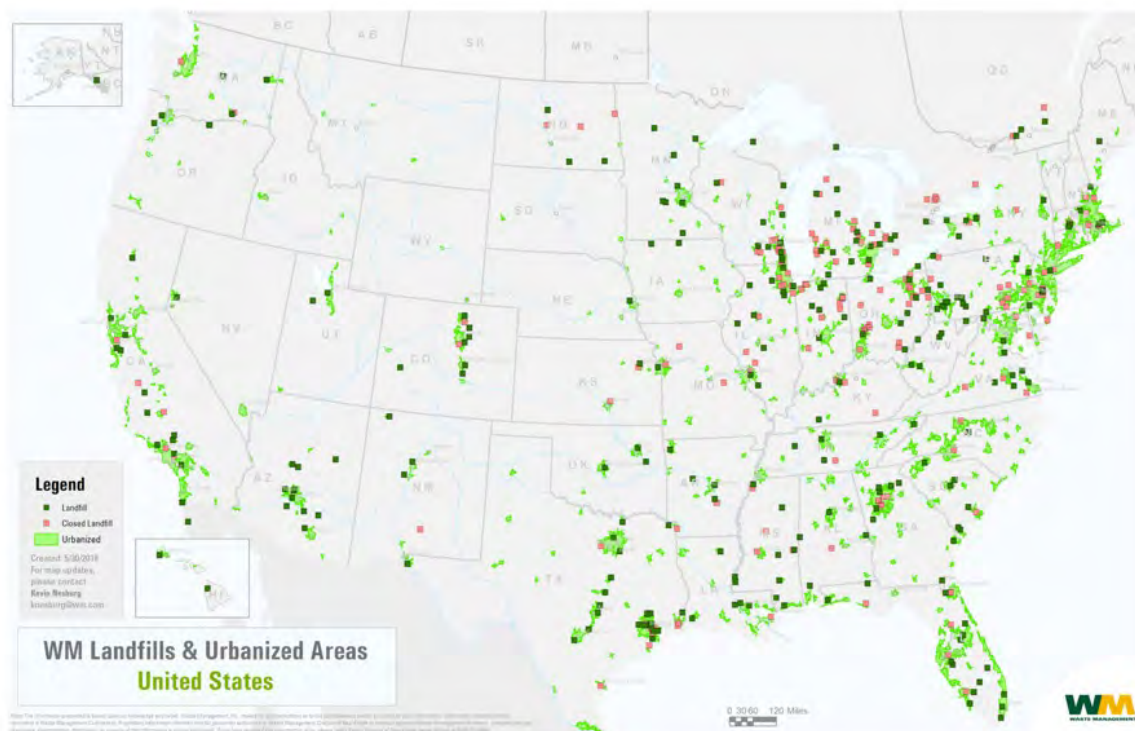
In 2015, our demographic footprint was modified by under five percent due to divestitures and acquisitions, and yearly changes have been smaller since that time. We did not undertake a comprehensive revision of our mapping in 2017 but did review the demographics of both divestitures and acquisitions and found their pattern would be somewhat higher in income and lower in non-white representation than our current footprint. We will update this information when a new census is conducted or when Waste Management undergoes an acquisition or divestiture sufficient to change our demographic footprint (whichever comes earlier).

## AREAS OF DENSE POPULATION

Waste Management engaged with the Sustainability Accounting Standards Board (SASB) on consensus reporting standards for waste facilities. There was robust dialogue about means to use GIS-based systems to understand community concerns and potential impacts. SASB determined that the most useful measure across sectors would be mapping of potential air impacts from facilities in urban areas. We have provided the mapping they request. Waste Management has retained the demographic information requested by communities and regulators in prior years, but we also have mapped our landfills for location in areas of dense population. The following map provides the locations of closed and operating landfills Waste Management owns or operates.

## Landfills in Urbanized Areas

Urbanization	Status	Total
Within an urbanized area	49 active, 73 closed	122
Within 5 km of an urbanized area	76 active, 59 closed	135
Outside a 5 km perimeter of an urbanized area	133 active, 68 closed	201



## Stakeholder Engagement on a Daily Basis

Waste Management is one of hundreds of national, state and local organizations dedicated to solving environmental and social challenges. This diverse, extensive network helps us understand how we can provide value to the communities in which we operate through environmental stewardship and natural resource conservation.

All of our municipal solid waste and hazardous waste landfills and waste-to-energy facilities have some form of stakeholder engagement process — ranging from formal advisory groups to conservation projects, ongoing service to schools, engagement in local community groups, issuance of newsletters and creation of dedicated facility-specific web pages. Customer feedback is actively solicited at [www.wm.com/contact-us.jsp](http://www.wm.com/contact-us.jsp).



## National Partnerships

### BUSINESS ASSOCIATIONS

ALTe Powertrain Technologies (advisory board member)

American Bar Association, Waste and Resource Recovery Committee (vice chair)

American Biogas Council (board member)

American Chemistry Council (affiliate member)

American Diabetes Association (CA)

AMERIPEN (board member)

Association of General Contractors of America

Association of Lighting and Mercury Recyclers (board member)

Association of Plastics Recyclers (board member)

Biomass Power Association

Business Council for Sustainable Energy

Business for Social Responsibility

Business Network for Environmental Justice (chair)

Coalition for American Electronics Recycling

The Coalition for Renewable Natural Gas

Edison Electric Institute (affiliate member)

Energy Security Leadership Council (board member)

Environmental Technology Council

Food Industry Environmental Council

Geosynthetic Institute (board member)

GreenBiz

Green Sports Alliance

Healthcare Waste Institute

Institute of Scrap Recycling, Inc.

Manufacturers Alliance for Productivity and Innovation (MAPI) — Ethics and Compliance Council

National Association of Manufacturers (board member)

National Minority Supplier Development Council

National Waste & Recycling Association (board member)

Natural Gas Vehicles America Council for Responsible Sport (board member)

RCRA Corrective Action Project

The Recycling Partnership

Securing America's Future Energy (board member)

Security Industry Association

Society of Corporate Compliance and Ethics

Superfund Settlements Project

The Sustainability Consortium (CorpExec council member)

Sustainable Brands

Sustainable Packaging Coalition

Sustainable Purchasing Leadership Council

Women In Trucking Association (advisory committee)

Women's Business Enterprise National Council

U.S. DOE National Clean Fleets Partnership

## MULTISTAKEHOLDER GROUPS

Air & Waste Management Association

American Institute for Packaging and the Environment  
(AMERIPEN) (board member)

ASIS International

Association of Climate Change Officers

ASTM E50.04, Green and Sustainable Corrective  
Action Task Group

The Auditing Roundtable

Board of Environmental Health & Safety

California State University Fullerton, College of Natural  
Sciences and Mathematics —

Central Station Alarm Association

Chesapeake Bay Foundation

Climate Action Reserve

Conference Board, Council of Corporate Security  
Executives

Construction Materials Recycling Association  
(board member)

The Council of State Governments

Crime Stoppers (board member)

Democratic Attorneys General Association

Democratic Governors Association

Democratic Legislative Campaign Committee

Diversity Best Practices

Electronics Recycling Coordination Clearinghouse

Environmental Media Association  
(corporate board member)

Habitat for Humanity

Institute of Hazardous Materials Management

International City/County Management Association

International Security Management Association

Interstate Technology and Regulatory Council — Green  
and Sustainable Remediation team

Keep America Beautiful (national board member)

National Association of Counties — Resilient  
Counties Initiative

National Association of Latino Elected and  
Appointed Officials

National Association of Local Government  
Environmental Professionals

National Black Caucus of State Legislators,  
Corporate Roundtable

National Burglar and Fire Alarm Association

National Conference of State Legislators

National Environmental Conference Board  
(board member)

National Environmental Justice Conference and  
Training Program (board member)

National League of Cities

National Organization of Black Elected Legislative  
Women (NOBEL)

National Recycling Coalition (board member)

Northeast Recycling Council, Electronics Recycling  
Coordination Clearinghouse (founding member)

Product Stewardship Institute

Society of Former Special Agents of the FBI

Solid Waste Association of North America  
(three board members)

Sustainability Working Group  
(Dean's Advisory Council member)

Sustainable Materials Management Coalition

Sustainable Remediation Forum (SURF)

U.S. Composting Council

U.S. Conference of Mayors — Business Council  
Steering Committee

U.S. Conference of Mayors — Climate Protection Council

U.S. EPA Science Advisory Board Work Group on  
Environmental Justice in Rulemaking

U.S. Green Building Council

U.S. Zero Waste Business Council

Wildlife Habitat Council (chair and board member)

## State Partnerships

### BUSINESS ASSOCIATIONS

Arizona Chamber of Commerce (board member)	Indiana Manufacturers Association
Association of Commerce & Industry — Environment Committee	Iowa Recycling Association
Association of Oregon Recyclers	Iowa Society of Solid Waste Organizations
Association of Washington Businesses (board member)	James River Association (VA)
Business and Industry Association — New Hampshire	Latino Caucus of California Counties
California Chamber of Commerce	Leadership New Mexico
California Contract Cities Association	Louisiana Municipal Association
California Natural Gas Vehicle Coalition (board member)	Louisiana Solid Waste Association
California Refuse Recycling Council	Maine Chamber of Commerce
California Resource Recovery Association	Marcellus Shale Coalition (PA)
California Waste Association (board member)	Maryland-Delaware Solid Waste Association (NWRRA) — (Board Member)
Californians Against Waste	MASSRECYCLE
CALSTART	Michigan Chamber of Commerce
Chemical Industry Council of Illinois	Michigan Manufacturers Association
Clean Energy Coalition	Michigan Municipal League
Colorado Association of Commerce & Industry	Michigan Recycling Coalition
Colorado Motor Carriers Association (board member)	Michigan Township Association
Delaware Chamber of Commerce	Michigan Waste & Recycling Association (MWRA)
Environmental Business Council Massachusetts	Minnesota Chamber of Commerce
First Tee (local chapters; board member)	Minnesota Chamber of Commerce — Environment and Natural Resources Committee (vice chair)
Florida Chamber of Commerce (Board of Governors and Political Institute)	Minnesota Chamber of Commerce — Waste Subcommittee (chair)
Florida Recycling Partnership (chair)	Minnesota Clerks & Finance Officers Association
Florida TaxWatch	Minnesota Environmental Initiative
Georgia Chamber of Commerce	Mississippi Association of Supervisors
Illinois Food Scrap Coalition (IL Chapter of US Composting Council) (board member)	Mississippi Municipal League
Illinois Manufacturers Association	Municipal Solid Waste and Resource Advisory Council (chair)
Independent Energy Producers Association	National Waste & Recycling Association Chairman — Carolinas, Florida, Maryland, Ohio, Colorado Chapters)
Independent Oil and Gas Association (IW)	New Jersey Business and Industry
	New Jersey State Chamber of Commerce

New Mexico Recycling Association	Southeast Recycling Conference
New York State Business Council	Southern Waste Information eXchange
North Carolina Chamber of Commerce	Space Coast Field of Dreams — Brevard County
North Central Texas Council of Governments — Resources Conservation Council	State of Texas Alliance for Recycling (board member and officer)
North Dakota Chamber of Commerce	Sustainable Florida (board member)
North Dakota Solid Waste & Recycling Association	Take Care of Texas
Ohio Chamber of Commerce Environmental Initiative — Business & Environment Series	Texas Association of Business
Ohio Environmental Service Industries	Texas State Bar
Ohio Manufacturers' Association	Utah Trucking Association
Ontario Environment Industry Association	Utilities Telecommunications & Energy Coalition of West Virginia (board member)
Ontario Waste Management Association	VIRGINIAforever (board member)
Oregon Refuse & Recycling Association (board member)	Virginia Recycling Association
Pennsylvania Business Council	Virginia Waste Industries Association (NWRA) (Vice Chair)
Pennsylvania Chamber of Business and Industry	Washington Refuse & Recycling Association (board member)
Pennsylvania Resources Council	Washington State Recycling Association
Pennsylvania Waste Industries Association (NWRA)	Waste 2 Resources Advisory Committee
Police Jury Association of Louisiana	Waste Cap Resource Solutions
Professional Recyclers of Pennsylvania (board member, president)	West Virginia Haulers Association
Recycle Florida Today (legislative committee chair)	West Virginia Landfill Managers Association
Recycling Association of Minnesota	West Virginia Oil and Natural Gas Association
Rethink Recycling	Western Washington Clean Cities
Ronald McDonald House	Wisconsin Manufacturers & Commerce
South Carolina Business & Industry Political Education Committee (BIPEC)	Working Californians
South Carolina Chamber of Commerce	
South Carolina Manufacturers Alliance	



## MULTISTAKEHOLDER GROUPS

Alaska Native Village Corporation Association	Greater Oklahoma City Chamber of Commerce (advisory board of directors)
American Public Works Association (New York and Michigan)	Great Plains Institute
Apogee Retail/Lupus Foundation	Greens Bayou Corridor Coalition
Associated Recyclers of Wisconsin	Indiana Hunter Education
Association of Minnesota Counties	Iowa Governor's Anti-Litter Task Force
Association of New Jersey Recyclers	Iowa League of Cities
Association of Washington Cities	Ivy Tech College — Sustainable Energy Advisory Board (Indiana)
Association of Washington Counties	Kansas Energy and Environmental Policy (KEEP) Advisory Group
The California Climate Action Registry	Keep America Beautiful (gold sponsor)
California Cumulative Risk Advisory Committee	Keep America Beautiful — State Chapters (board members and officers)
California Product Stewardship Council	Keep Florida Beautiful
California Stormwater Quality Association	Keep Louisiana Beautiful (board member)
Carolina Recycling Association	Keep Michigan Beautiful
CASA (Court Appointed Special Advocates for Children (LA))	Keep Mississippi Beautiful (board member)
Children's Hospital of Wisconsin Foundation	Keep North Carolina Beautiful (board Member)
Clean Communities	Keep Texas Beautiful
Clean Energy Coalition, Michigan	Keep Virginia Beautiful (board member)
The Climate Registry	Las Virgenes Unified School District — Environmental Stewardship
Colorado Alliance for Environmental Education	Leadership Council of Southwestern Illinois
Colorado Association for Recycling (board member)	League of Arizona Cities and Towns
Colorado Counties Foundation (board member)	League of Minnesota Cities
Colorado Environmental Coalition	Louisiana Motor Transport Association (board member)
Colorado Municipal League	Maine Nature Conservancy
Corona Chamber of Commerce (board member)	Maryland Commission on Climate Change (commissioner)
Denton County Behavioral Health Leadership Team (Texas/Oklahoma)	Maryland Recycling Network (board member)
Environment Virginia	Michigan Association of Environmental Professionals (board member)
Epilepsy Foundation	Michigan Department of Natural Resources — Solid Waste Advisory Committee
Federation of New York Solid Waste Associations	Minnesota Energy Smart (board member)
Federation of Oklahoma Lewisville City Council	Minnesota Environmental Initiative (board member)
Florida Association of Counties	Minnesota Multi Housing Association
Goodwill Industries International	
Greater Gulf Coast Apartment Association	

Minnesota Pollution Control Agency — Construction, Demolition and Industrial Landfill Work Group	Regional Greenhouse Gas Initiative
Minnesota Waste Wise Foundation (board member)	Salvation Army
Mississippi American Public Works Association	SHINE Foundation — Board of Directors (Texas/Oklahoma)
Mississippi Economic Council	Solid Waste Association of North America, State Chapters (board members and officers)
Mississippi Hotel Restaurant Association	Solid Waste Management Districts — Citizens Advisory Boards (multiple — Indiana)
Mississippi Manufacturers Association	Solid Waste Steering Committee for Environment (Texas/Oklahoma)
Mississippi Recycling Coalition (board member)	State of Texas Alliance for Recycling (board member and legislative committee chair)
Muscular Dystrophy Association	Susan G. Komen for the Cure
National Audubon Society (state chapters)	Take Care of Texas (TX)
Natural Resources Foundation of Wisconsin	Texas Association of Environmental Professionals — Treasurer Society
New Mexico Association of Counties	Texas Audubon Society (board member)
New Mexico Environment Department — Working Groups on Environmental Justice and Recycling	Texas Commission on Environmental Quality — Pollution Prevention Advisory Committee
New Mexico Governor's Task Force on Greenhouse Gases	Texas Society for Ecological Restoration
New Mexico League of Cities and Towns	University of Wisconsin Madison Arboretum
New Mexico Recycling Coalition	U.S. Green Building Council — Los Angeles Chapter
New York League of Conservation Voters	Utah Association of Counties
North Dakota League of Cities	Utah League of Cities and Towns
Northwest Florida League of Cities	Utah Recycling Coalition
Ohio Materials Management Advisory Council	Virginia Association of Counties
Oregon Business & Industry	Washington Conservation Voters, Western Climate Initiative
Pennsylvania Department of Environmental Protection — Water Resources Advisory Committee's "Total Dissolved Solids" Stakeholder Group	
Pennsylvania Environmental Justice Advisory Committee (board member)	
Pheasants Forever	
Recycle Florida Today (board member)	

## Local Partnerships

### BUSINESS ASSOCIATIONS

Baton Rouge Chamber of Commerce (LA)	El Cajon Rotary Club (El Cajon, CA)
Battle Creek Chamber of Commerce (Michigan)	Evergreen Exchange (NY)
Boys & Girls Club of East County — El Cajon/Santee, CA (board member)	Ferris Main Streets Advisory Board
Brooklyn Chamber of Commerce (NY)	Festival International de Louisiana
Broussard Chamber of Commerce	Flowood Chamber of Commerce
Buffalo Niagara Partnership (New York)	Foothill Area Booster Association (Pacoima, CA)
Cajon Valley Union School District Board (El Cajon, CA)	Forest Area Chamber of Commerce
Canton Road Business Association (board member) (Georgia)	Friends of Los Angeles River (FoLAR) (CA)
Cardenas Family Foundation — local scholarships (CA)	Friends of Rouge (Michigan)
Carlsbad Chamber of Commerce (CA)	Gladstein, Neondross & Associates (Methane Symposium) (CA)
Carson Citizens Cultural Arts Foundation (CA)	Golden Chamber of Commerce (Colorado) (board member)
Cashmere Chamber of Commerce (Washington)	Greater Dallas-Fort Worth Recycling Alliance (secretary)
Catholic Big Brothers/Big Sisters (CA)	Greater Elizabeth Chamber of Commerce
Chamber of Commerce of the Mid-Ohio Valley	Greater Houston Business Ethics Roundtable
City of Destin Chamber of Commerce (FL)	Greater Houston Partnership
City of Madison Chamber of Commerce	Greater Jackson Partnership (FL)
City of Niceville-Valparaiso Chamber of Commerce (past chairman/current board of directors)	Greater Kirkland Chamber of Commerce (Washington)
Clean Pittsburgh Commission	Greater Spokane Incorporated (Washington)
Clinton River Watershed Council (Michigan)	Greater Spokane Valley Chamber of Commerce (Washington) (board member)
Detroit Regional Chamber of Commerce (Michigan)	Green Acres Interactive Therapy (GAIT) (CA)
Dothan Chamber of Commerce	Green Oceanside Business Network (CA)
Downtown El Cajon Business Partners (El Cajon, CA)	Harrison County Chamber of Commerce (Texas)
DSNY Columbia Society (NY)	Hispanic 100 (CA)
DSNY Emerald Society (NY)	Hollywood Beautification Team (CA)
Duluth Chamber of Commerce (Minnesota)	Houston Bar Association
Duvall Chamber of Commerce (Washington)	Huron River Watershed Council (Michigan)
East County Economic Development Council (El Cajon, CA)	Independent Cities Associations (ICA — Manhattan Beach) (CA)
East County Transitional Living Center (El Cajon, CA)	Irvine Chamber of Commerce (CA)
Eastpointe/Roseville Chamber of Commerce (Michigan)	Irvine Public Schools Foundation (CA)
Economic Alliance Snohomish County (Washington) (board member)	Jackson County Chamber of Commerce (FL)
	Kalamazoo County Council of Governments (Michigan)

King George Family YMCA (VA)	Rio Rancho Regional Chamber of Commerce (New Mexico)
Kittitas County Chamber of Commerce (Washington)	Saint Madeline's Sophie Center (El Cajon, California)
Lafayette Rotary (board member)	Salt Lake City Chamber of Commerce (Utah)
Lake Houston Area Chamber of Commerce	San Diego Downtown Partnership
Laguna Beach Chamber of Commerce (CA)	San Diego East County Chamber of Commerce Board Member (El Cajon, California)
League of California Cities — Latino Caucus (CA)	San Diego Regional Chamber of Commerce (CA)
Livingston Parish Chamber of Commerce (LA)	Santa Ana Chamber of Commerce (CA)
Local Chambers of Commerce (New Hampshire, Illinois and Indiana) (board members)	Santee Chamber of Commerce Board Member (Santee, California)
Long Beach Education Foundation (CA)	Santee Lakeside Rotary Club (Santee, California)
Los Angeles Alliance for a New Economy (LAANE) (CA)	Santee School District Board (Santee, California)
Los Angeles Police Dept (LAPD) Devonshire PALS (CA)	Seattle Metropolitan Chamber of Commerce (Washington)
Madison County Business League	Seattle Southside Chamber of Commerce (Washington)
Maspeth Chamber (NY)	Simi Valley Chamber of Commerce (board member)
Mid-Valley Family YMCA (CA)	Simi Valley Kiwanis Illegal Dumping Task Force Committee
Mission Viejo Chamber of Commerce (CA)	Southern California Sustainability Support Group
Mobile County Chamber of Commerce	Southwest Louisiana Chamber of Commerce
Newcastle Chamber of Commerce (Washington)	Spokane Chamber of Commerce
Niagara USA Chamber (New York)	Sterling Heights Regional Chamber of Commerce & Industry (Michigan)
North Texas Corporate Recycling Association	Sumter County Chamber of Commerce
North Valley Family YMCA (CA)	Tempe Chamber of Commerce (Arizona)
Oceanside Chamber of Commerce (CA)	Tree People (CA)
Okaloosa County Chamber of Commerce	Texas Society for Ecological Restoration (secretary)
One Acadiana Chamber of Commerce	Tri-City Regional Chamber of Commerce (Washington)
One Redmond (Washington)	United Way of Great L.A. (CA)
Orion Area Chamber of Commerce (Michigan)	USC — Sol Price of Public Policy (CA)
Pacoima Beautiful (CA)	Vicksburg-Warren County Chamber of Commerce
Pearl Chamber of Commerce	Wallington Chamber of Commerce Board Member (Washington)
Phoenix Chamber of Commerce	Walton County Chamber of Commerce
Pike Chamber of Commerce	Wenatchee Valley Chamber of Commerce (Washington)
Portland Business Alliance (Oregon)	West Seattle Chamber of Commerce (Washington)
Rainier Valley Chamber of Commerce (Washington)	Westside Economic Alliance (Oregon)
Rankin First Chamber of Commerce	Youngsville Chamber of Commerce
Reno/Sparks Chamber of Commerce (Nevada)	
Ridgeland Chamber of Commerce	



## MULTISTAKEHOLDER GROUPS

Air Alliance of Houston	Clare County, Michigan, Solid Waste & Recycling Committee (two board members)
Air & Waste Management Association — Alamo Chapter	CLEAN (Committing to Litter Enforcement and Adopting Neighborhoods) Initiative (Peekskill, New York)
Alaqua Animal Refuge (FL)	Clinton River Watershed Council
All-Earth Ecobots Challenge	Cobb County Neighborhood Safety Commission (board member)
American Cancer Society — Metro Golf Classic (board member)	Community Character Coalition — Elk Grove Village, Illinois
American Leadership Forum	County of Manitowoc — Clean Sweep Program (Wisconsin)
American Public Works Association — Monroe County	DeKalb County Economic Development Corporation (Illinois)
ARISE Detroit! — Neighborhoods Day	Detroit Green Task Force
Bayou Preservation Association (board member)	Detroit Motor City Makeover
Belleville Area Council for the Arts	Drexel University Office of Research — Biosafety Committee (board member)
Benedictine University — Business with Science Applications Program (board member)	EASE (Emergency Assistance Service Effort) Foundation (Davie, Florida) (board member)
Big Brothers/Big Sisters (board member)	Emerald Coast Apartment Association (FL) (board member)
Boy Scouts of America (multiple chapters in many states)	Fairmont Medical Center
Boys & Girls Clubs	Food for Thought Outreach (FL)
Bremen Food Pantry (Indiana)	Friends of the Rouge (current supporter, former board member)
The Brunswick Starr (NY)	Greater Houston Partnership (board member)
Bucks County Parks and Recreation Board (chair)	Green Houston (board member)
Buffalo Bayou Partnership (board member)	Hermann Park Conservancy (board member)
Cannon River Watershed Partnership	Hopelink (Washington)
Children in Crisis (FL)	Houston Arboretum & Nature Center (board member)
Chippewa/Luce/Mackinac Conservation District	Houston Food Bank
Christian County, Illinois — Economic Development Corp. (board member)	Houston Wilderness (board member)
Churchville-Riga Chamber of Commerce Executive Board (New York)	Humble ISD Education Foundation (Texas/Oklahoma)
City and County of Honolulu — Solid Waste Advisory Committee	Illinois Mathematics and Science Partnerships Program — Aurora University
City of Baltimore — Cleaner Greener Fund	Intertwine Alliance (Oregon)
City of Elgin, Illinois — Sustainability Task Force	Junior League of Houston
City of Oklahoma City — Office of Sustainability (steering committee member)	Keep America Beautiful Organization — Detroit Keep It Moving
City of Peoria, Illinois — Sustainability Commission	Keep Baton Rouge Beautiful (board president)
City of Simi Valley, California — Sustainability Committee	

Keep Brevard Beautiful (Florida)	New York League of Conservation Voters Education Fund (NYLCVEF)
Keep Collier Beautiful (Florida)	Niceville High School Youth Advisory Council
Keep Detroit Beautiful (Michigan)	NY Sun Works (NY)
Keep Houston Beautiful	Oregon Food Bank
Keep Jackson Beautiful (Mississippi)	Oregon Green Schools
Keep Omaha Beautiful	Orion Art Center
Keep Reservoir Beautiful (Mississippi) (board member)	PARA — Pace Athletic and Recreation Association of Santa Rose County (FL) (board member)
Keep Saginaw Beautiful	The Park People (board member)
Keep Shawnee County (KS) Beautiful	Partners for Environmental Progress (Mobile, AL)
Keep Truckee Meadows Beautiful (Reno, NV)	Partners in Education (Broward County, Florida)
King County Solid Waste Advisory Committee	Pheasants Forever Chapters (board member)
Kirkland Downtown Association (Washington)	Portland Metro Solid Waste Advisory Committee
Lake Orion Education Foundation	Recycling Task Force, Solid Waste Agency, Lake County, Illinois
Lake St. Clair South Channel Light Keepers	Relay for Life
Lake Washington School Foundation (Washington)	Richmond Regional Youth Facility
LaSalle County, Illinois — Citizens Advisory Board	Roundy's Foundation/Milwaukee Public Library
Leadership Broward (Broward County, Florida)	SEARCH (board member)
Leadership Houston (board member)	Seattle Solid Waste Advisory Committee
Life Time Fitness — Torchlight 5k	Simi Valley Boys & Girls Club (board member)
Macomb Conservation District (supporter)	Simi Valley Cultural Arts Association (board member)
Marquette Area Blues Society	Simi Valley Education Foundation (board member)
Merrimack Valley Economic Development Council, Inc. (Lawrence, Massachusetts)	Simi Valley Family YMCA (board member)
Michigan Alliance of Environment and Outdoor Education	Simi Valley Police Foundation (board member)
Michigan Association of Environmental Professionals (board member) and chair of environmental education grant committee)	Simi Valley Police Officers Association (board member)
Monroe County Recycling Advisory Committee	Six Rivers Land Conservancy
Montgomery County Keep America Beautiful (Ohio)	SoBro (NY)
Morrison, IL Rotary Club (member)	South Baltimore Learning Center (board member)
Mountains to Sound Greenway Trust (Washington) (board member)	Southside Manor Apartments, Peoria, Illinois
National Wild Turkey Federation (Tioga Chapter, Indiana)	St. James Farm Forest Preserve (volunteer)
Nat Moore Foundation	St. Nick's Alliance (NY)
The Nature Conservancy of Houston (board member)	Suburban Cities Association
Neighborhood House, Peoria, Illinois	Sun Valley Beautiful
New York City Center for the Urban Environment	Sustainable DC Working Group
	Swim Teal Lake — Diabetes Benefit

Taylorville, Illinois, Development Association (board member)	Development Authority
Taylorville, Illinois, Midland Community Bank (board member)	Washington DC Metropolitan Scholars ( board members)
Taylorville, Illinois, Vision Way Christian School Board (board member)	Waterfowl USA (supporter)
Three Rivers Festival Committee (Channahon, Illinois)	Whiteside County (IL) Fair (board member)
University of Southern California — Sustainable Enterprise	Whiteside County Sheriffs Merit Commission (IL) (board member)
Executive Roundtable (SEER) Project	Will County, Illinois, Center for Economic Development
Urban League (local board member)	Wisconsin Clean Cities, Southeast Area
U.S. Green Building Council — Inland Empire Chapter	Women in Distress, Inc.
Ventura County Economic Development Association	Women's Center (board member)
Village of Lake Orion Downtown	YMCA of Broward County
	YMCA of Miami-Dade County