UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

(Mark One)

☑ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES AND EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2019

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES AND EXCHANGE ACT OF 1934**

For the transition period from to

Commission file number 1-12154

Waste Management, Inc.

(Exact name of registrant as specified in its charter)

Delaware *(State or other jurisdiction of incorporation or organization)*	**73-1309529** *(I.R.S. Employer Identification No.)*
1001 Fannin Street **Houston, Texas** *(Address of principal executive offices)*	**77002** *(Zip code)*

Registrant's telephone number, including area code:
(713) 512-6200

Securities registered pursuant to Section 12(b) of the Act:

Title of Each Class	Trading Symbol	Name of Each Exchange on Which Registered
Common Stock, $0.01 par value	WM	New York Stock Exchange

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined by Rule 405 of the Securities Act. Yes ☑ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☑

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☑ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulations S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☑ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☑	Accelerated filer ☐
Non-accelerated filer	☐	Smaller reporting company ☐
		Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☑

The aggregate market value of the voting stock held by non-affiliates of the registrant as of June 30, 2019 was approximately $48.8 billion. The aggregate market value was computed by using the closing price of the common stock as of that date on the New York Stock Exchange ("NYSE"). (For purposes of calculating this amount only, all directors and executive officers of the registrant have been treated as affiliates.)

The number of shares of Common Stock, $0.01 par value, of the registrant outstanding as of February 7, 2020 was 424,708,758 (excluding treasury shares of 205,573,703).

DOCUMENTS INCORPORATED BY REFERENCE

Document	Incorporated as to
Proxy Statement for the 2020 Annual Meeting of Stockholders	Part III

TABLE OF CONTENTS

PART I

Item 1. *Business.*

General

Waste Management, Inc. is a holding company and all operations are conducted by its subsidiaries. When the terms “the Company,” “we,” “us” or “our” are used in this document, those terms refer to Waste Management, Inc., its consolidated subsidiaries and consolidated variable interest entities. When we use the term “WM,” we are referring only to Waste Management, Inc., the parent holding company.

WM was incorporated in Oklahoma in 1987 under the name “USA Waste Services, Inc.” and was reincorporated as a Delaware company in 1995. In a 1998 merger, the Illinois-based waste services company formerly known as Waste Management, Inc. became a wholly-owned subsidiary of WM and changed its name to Waste Management Holdings, Inc. (“WM Holdings”). At the same time, our parent holding company changed its name from USA Waste Services to Waste Management, Inc. Like WM, WM Holdings is a holding company and all operations are conducted by subsidiaries. For details on the financial position, results of operations and cash flows of WM, WM Holdings and their subsidiaries, see Note 22 to the Consolidated Financial Statements.

Our principal executive offices are located at 1001 Fannin Street, Houston, Texas 77002. Our telephone number is (713) 512-6200. Our website address is www.wm.com. Our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K are all available, free of charge, on our website as soon as practicable after we file the reports with the SEC. Our stock is traded on the New York Stock Exchange under the symbol “WM.”

We are North America’s leading provider of comprehensive waste management environmental services. We partner with our residential, commercial, industrial and municipal customers and the communities we serve to manage and reduce waste at each stage from collection to disposal, while recovering valuable resources and creating clean, renewable energy. Our “Solid Waste” business is operated and managed locally by our subsidiaries that focus on distinct geographic areas and provide collection, transfer, disposal, and recycling and resource recovery services. Through our subsidiaries, we are also a leading developer, operator and owner of landfill gas-to-energy facilities in the United States (“U.S.”). During 2019, our largest customer represented less than 2% of annual revenues. We employed approximately 44,900 people as of December 31, 2019.

We own or operate 249 landfill sites, which is the largest network of landfills in North America. In order to make disposal more practical for larger urban markets, where the distance to landfills is typically farther, we manage 302 transfer stations that consolidate, compact and transport waste efficiently and economically. We also use waste to create energy, recovering the gas produced naturally as waste decomposes in landfills and using the gas in generators to make electricity. We are a leading recycler in North America, handling materials that include paper, cardboard, glass, plastic and metal. We provide cost-efficient, environmentally sound recycling programs for municipalities, businesses and households across the U.S. and Canada as well as other services that supplement our Solid Waste business.

Our Company’s goals are targeted at serving our customers, our employees, the environment, the communities in which we work and our stockholders. Increasingly, customers want more of their waste materials recovered while waste streams are becoming more complex, and our aim is to address the current needs, while anticipating the expanding and evolving needs of our customers.

We believe we are uniquely equipped to meet the challenges of the changing waste industry and our customers’ waste management needs, both today and as we work together to envision and create a more sustainable future. As the waste industry leader, we have the expertise necessary to collect and handle our customers’ waste efficiently and responsibly by delivering environmental performance — maximizing resource value, while minimizing environmental impact — so that both our economy and our environment can thrive.

Our fundamental strategy has not changed; we remain dedicated to providing long-term value to our stockholders by successfully executing our core strategy of focused differentiation and continuous improvement. We are enabling a people-first, technology-led focus, that leverages and sustains the strongest asset network in the industry to drive best-in-class customer experience and growth. Our strategic planning processes appropriately consider that the future of our business and the industry can be influenced by changes in economic conditions, the competitive landscape, the regulatory environment, asset and resource availability and technology. We believe that focused differentiation, which is driven by capitalizing on our unique and extensive network of assets, will deliver profitable growth and position us to leverage competitive advantages. Simultaneously, we believe the combination of cost control, process improvement and operational efficiency will deliver on the Company's strategy of continuous improvement and yield an attractive total cost structure and enhanced service quality. While we will continue to monitor emerging diversion technologies that may generate additional value and related market dynamics, our current attention will be on improving existing diversion technologies, such as our recycling operations.

We believe that execution of our strategy will deliver shareholder value and leadership in a dynamic industry. In addition, we intend to continue to return value to our stockholders through dividend payments and our common stock repurchase program. In December 2019, we announced that our Board of Directors expects to increase the quarterly dividend from $0.5125 to $0.545 per share for dividends declared in 2020, which is a 6.3% increase from the quarterly dividends we declared in 2019. This is an indication of our ability to generate strong and consistent cash flows and marks the 17th consecutive year of dividend increases. All quarterly dividends will be declared at the discretion of our Board of Directors and depend on various factors, including our net earnings, financial condition, cash required for future business plans, growth and acquisitions and other factors the Board of Directors may deem relevant.

Operations

General

We evaluate, oversee and manage the financial performance of our Solid Waste business subsidiaries through our 17 Areas. See Note 20 to the Consolidated Financial Statements for additional information about our reportable segments. We also provide additional services that are not managed through our Solid Waste business, as described below. These operations are presented in this report as "Other." The services we currently provide include collection, landfill (solid and hazardous waste landfills), transfer, recycling and resource recovery and other services, as described below.

Collection. Our commitment to customers begins with a vast waste collection network. Collection involves picking up and transporting waste and recyclable materials from where it was generated to a transfer station, material recovery facility ("MRF") or disposal site. We generally provide collection services under one of two types of arrangements:

- For commercial and industrial collection services, typically we have a three-year service agreement. The fees under the agreements are influenced by factors such as collection frequency, type of collection equipment we furnish, type and volume or weight of the waste collected, distance to the disposal facility, labor costs, cost of disposal and general market factors. As part of the service, we provide steel containers to most customers to store their solid waste between pick-up dates. Containers vary in size and type according to the needs of our customers and the restrictions of their communities. Many are designed to be lifted mechanically and either emptied into a truck's compaction hopper or directly into a disposal site. By using these containers, we can service most of our commercial and industrial customers with trucks operated by only one employee.
- For most residential collection services, we have a contract with, or a franchise granted by, a municipality, homeowners' association or some other regional authority that gives us the exclusive right to service all or a portion of the homes in an area. These contracts or franchises are typically for periods of three to 10 years. We also provide services under individual monthly subscriptions directly to households. The fees for residential collection are either paid by the municipality or authority from their tax revenues or service charges, or are paid directly by the residents receiving the service.

Landfill. Landfills are the main depositories for solid waste in North America. As of December 31, 2019, we owned or operated 244 solid waste landfills and five secure hazardous waste landfills, which represents the largest network of

landfills in North America. Solid waste landfills are constructed and operated on land with engineering safeguards that limit the possibility of water and air pollution, and are operated under procedures prescribed by regulation. A landfill must meet federal, state or provincial, and local regulations during its design, construction, operation and closure. The operation and closure activities of a solid waste landfill include excavation, construction of liners, continuous spreading and compacting of waste, covering of waste with earth or other acceptable material and constructing final capping of the landfill. These operations are carefully planned to maintain environmentally safe conditions and to maximize the use of the airspace.

All solid waste management companies must have access to a disposal facility, such as a solid waste landfill. The significant capital requirements of developing and operating a landfill serve as a barrier to landfill ownership and, thus, third-party haulers often dispose of waste at our landfills. It is usually preferable for our collection operations to use disposal facilities that we own or operate, a practice we refer to as internalization, rather than using third-party disposal facilities. Internalization generally allows us to realize higher consolidated margins and stronger operating cash flows. The fees charged at disposal facilities, which are referred to as tipping fees, are based on several factors, including competition and the type and weight or volume of solid waste deposited.

Under environmental laws, the federal government (or states with delegated authority) must issue permits for all hazardous waste landfills. All of our hazardous waste landfills have obtained the required permits, although some can accept only certain types of hazardous waste. These landfills must also comply with specialized operating standards. Only hazardous waste in a stable, solid form, which meets regulatory requirements, can be deposited in our secure disposal cells. In some cases, hazardous waste can be treated before disposal. Generally, these treatments involve the separation or removal of solid materials from liquids and chemical treatments that transform waste into inert materials that are no longer hazardous. Our hazardous waste landfills are sited, constructed and operated in a manner designed to provide long-term containment of waste. We also operate a hazardous waste facility at which we isolate treated hazardous waste in liquid form by injection into deep wells that have been drilled in certain acceptable geologic formations far below the base of fresh water to a point that is safely separated by other substantial geological confining layers.

Transfer. As of December 31, 2019, we owned or operated 302 transfer stations in North America. We deposit waste at these stations, as do other waste haulers. The solid waste is then consolidated and compacted to reduce the volume and increase the density of the waste and transported by transfer trucks or by rail to disposal sites.

Access to transfer stations is critical to haulers who collect waste in areas not in close proximity to disposal facilities. Fees charged to third parties at transfer stations are usually based on the type and volume or weight of the waste deposited at the transfer station, the distance to the disposal site, market rates for disposal costs and other general market factors.

The utilization of our transfer stations by our own collection operations improves internalization by allowing us to retain fees that we would otherwise pay to third parties for the disposal of the waste we collect. It enables us to manage costs associated with waste disposal because (i) transfer trucks, railcars or rail containers have larger capacities than collection trucks, allowing us to deliver more waste to the disposal facility in each trip; (ii) waste is accumulated and compacted at transfer stations that are strategically located to increase the efficiency of our network of operations and (iii) we can retain the volume by managing the transfer of the waste to one of our own disposal sites.

The transfer stations that we operate but do not own generally are operated through lease agreements under which we lease property from third parties. There are some instances where transfer stations are operated under contract, generally for municipalities. In most cases, we own the permits and will be responsible for any regulatory requirements relating to the operation and closure of the transfer station.

Recycling. Our recycling operations provide communities and businesses with an alternative to traditional landfill disposal and support our strategic goals to extract more value from the materials we manage. We were the first major solid waste company to focus on residential single-stream recycling, which allows customers to mix recyclable paper, plastic and glass in one bin. Residential single-stream programs have greatly increased the recycling volumes. Single-stream recycling is possible through the use of various mechanized screens and optical sorting technologies. We have also been advancing the single-stream recycling programs for commercial applications. Recycling involves the separation of

reusable materials from the waste stream for processing and resale or other disposition. Our recycling operations include the following:

Materials processing — Through our collection operations, we collect recyclable materials from residential, commercial and industrial customers and direct these materials to one of our MRFs for processing. As of December 31, 2019, we operated 103 MRFs where paper, cardboard, metals, plastics, glass, construction and demolition materials and other recycling commodities are recovered for resale or redirected for other purposes.

Recycling commodities — We market and resell recycling commodities globally. We manage the marketing of recycling commodities that are processed in our facilities by maintaining comprehensive service centers that continuously analyze market prices, logistics, market demands and product quality.

Recycling brokerage services — We also provide recycling brokerage services, which involve managing the marketing of recyclable materials for third parties. The experience of our recycling operations in managing recycling commodities for our own operations gives us the expertise needed to effectively manage volumes for third parties. Utilizing the resources and knowledge of our recycling operations' service centers, we can assist customers in marketing and selling their recycling commodities with minimal capital requirements.

Some of the recyclable materials processed in our MRFs are purchased from various sources, including third parties and our own operations. The price we pay for recyclable materials is often referred to as a "rebate." In some cases, rebates are based on fixed contractual rates or on defined minimum per-ton rates but are generally based upon the price we receive for sales of processed goods, market conditions and transportation costs. As a result, changes in commodity prices for recycled materials also significantly affect the rebates we pay to our suppliers and depending on the key terms of the agreement are recorded as either operating expenses or a reduction in operating revenues within our Consolidated Statements of Operations, subsequent to the adoption of Accounting Standards Update ("ASU") 2014-09 on January 1, 2018. In recent years, we have been focused on revising our rebate structures to ensure that we cover our cost of handling and processing the materials and generate an acceptable margin on the materials we process and sell.

Other. Other services we provide include the following:

Although many waste management services such as collection and disposal are local services, our strategic accounts organization, which is managed by our Strategic Business Solutions ("WMSBS") organization, works with customers whose locations span the U.S. and Canada. Our strategic accounts program provides centralized customer service, billing and management of accounts to streamline the administration of customers multiple locations' waste management needs.

Our Energy and Environmental Services ("EES") organization offers our customers in all Areas a variety of services in collaboration with our Area and strategic accounts programs, including (i) construction and remediation services; (ii) services associated with the disposal of fly ash, residue generated from the combustion of coal and other fuel stocks; (iii) in-plant services, where our employees work full-time inside our customers' facilities to provide full-service waste management solutions and consulting services; this service is managed through our EES organization but reflected principally in our collection line of business and (iv) specialized disposal services for oil and gas exploration and production operations; revenues for this service are also reflected principally in our collection line of business. Our vertically integrated waste management operations enable us to provide customers with full management of their waste. The breadth of our service offerings and the familiarity we have with waste management practices gives us the unique ability to assist customers in minimizing the amount of waste they generate, identifying recycling opportunities, determining the most efficient means available for waste collection and disposal and ensuring that disposal is achieved in a manner that is both reflective of the current regulatory environment and environmentally friendly.

We develop, operate and promote projects for the beneficial use of landfill gas through our WM Renewable Energy organization. Landfill gas is produced naturally as waste decomposes in a landfill. The methane component of the landfill gas is a readily available, renewable energy source that can be gathered and used beneficially as an alternative to fossil fuel. The U.S. Environmental Protection Agency ("EPA") endorses landfill gas as a renewable energy resource, in the same category as wind, solar and geothermal resources. As of December 31, 2019, we had 124 landfill gas beneficial use

projects producing commercial quantities of methane gas at owned or operated landfills. For 97 of these projects, the processed gas is used to fuel electricity generators. The electricity is then sold to public utilities, municipal utilities or power cooperatives. For 15 of these projects, the landfill gas is processed to pipeline-quality natural gas and then sold to natural gas suppliers. For 12 of these projects, the gas is used at the landfill or delivered by pipeline to industrial customers as a direct substitute for fossil fuels in industrial processes.

We continue to invest in businesses and technologies that are designed to offer services and solutions ancillary or supplementary to our current operations. These investments include joint ventures, acquisitions and partial ownership interests. The solutions and services include the collection of project waste, including construction debris and household or yard waste, through our Bagster® program; the development, operation and marketing of plasma gasification facilities; operation of a landfill gas-to-liquid natural gas plant; and organic waste-to-fuel conversion technology. We also have expanded service offerings and solutions including fluorescent bulb and universal waste mail-back through our LampTracker® program; portable restroom servicing under the name Port-o-Let®; and street and parking lot sweeping services.

Competition

We encounter intense competition from governmental, quasi-governmental and private sources in all aspects of our operations. We principally compete with large national waste management companies, counties and municipalities that maintain their own waste collection and disposal operations and regional and local companies of varying sizes and financial resources. The industry also includes companies that specialize in certain discrete areas of waste management, operators of alternative disposal facilities, companies that seek to use parts of the waste stream as feedstock for renewable energy and other by-products, and waste brokers that rely upon haulers in local markets to address customer needs. In recent years, the industry has seen some additional consolidation, though the industry remains intensely competitive.

Operating costs, disposal costs and collection fees vary widely throughout the areas in which we operate. The prices that we charge are determined locally, and typically vary by volume and weight, type of waste collected, treatment requirements, risk of handling or disposal, frequency of collections, distance to final disposal sites, the availability of airspace within the geographic region, labor costs and amount and type of equipment furnished to the customer. We face intense competition in our Solid Waste business based on pricing and quality of service. We have also begun competing for business based on breadth of service offerings. As companies, individuals and communities look for ways to be more sustainable, we are promoting our comprehensive services that go beyond our core business of collecting and disposing of waste in order to meet their needs.

Seasonal Trends

Our operating revenues tend to be somewhat higher in summer months, primarily due to higher construction and demolition waste volumes. The volumes of industrial and residential waste in certain regions where we operate also tend to increase during the summer months. Our second and third quarter revenues and results of operations typically reflect these seasonal trends.

Service disruptions caused by severe storms, extended periods of inclement weather or climate extremes resulting from climate change can significantly affect the operating results of the Areas impacted. On the other hand, certain destructive weather and climate conditions, such as wildfires in the Western U.S. and hurricanes that most often impact our operations in the Southern and Eastern U.S. during the second half of the year, can increase our revenues in the Areas affected as a result of the waste volumes generated by these events. While weather-related and other event driven special projects can boost revenues through additional work for a limited time, due to significant start-up costs and other factors, such revenue can generate earnings at comparatively lower margins.

Employees

As of December 31, 2019, we had approximately 44,900 full-time employees, of which approximately 8,600 were employed in administrative and sales positions and the balance in operations. Approximately 8,400 of our employees are covered by collective bargaining agreements.

Financial Assurance and Insurance Obligations

Financial Assurance

Municipal and governmental waste service contracts generally require contracting parties to demonstrate financial responsibility for their obligations under the contract. Financial assurance is also a requirement for (i) obtaining or retaining disposal site or transfer station operating permits; (ii) supporting certain variable-rate tax-exempt debt and (iii) estimated final capping, closure, post-closure and environmental remedial obligations at many of our landfills. We establish financial assurance using surety bonds, letters of credit, insurance policies, trust and escrow agreements and financial guarantees. The type of assurance used is based on several factors, most importantly: the jurisdiction, contractual requirements, market factors and availability of credit capacity.

Surety bonds and insurance policies are supported by (i) a diverse group of third-party surety and insurance companies; (ii) an entity in which we have a noncontrolling financial interest or (iii) a wholly-owned insurance captive, the sole business of which is to issue surety bonds and/or insurance policies on our behalf. Letters of credit generally are supported by our long-term U.S. and Canadian revolving credit facility ("$3.5 billion revolving credit facility") and other credit facilities established for that purpose.

Insurance

We carry a broad range of insurance coverages, including health and welfare, general liability, automobile liability, workers' compensation, real and personal property, directors' and officers' liability, pollution legal liability and other coverages we believe are customary to the industry. Our exposure to loss for insurance claims is generally limited to the per-incident deductible under the related insurance policy. We use a wholly-owned insurance captive to insure the deductibles for our general liability, automobile liability and workers' compensation claims programs. As of December 31, 2019, both our commercial General Liability Insurance Policy and our workers' compensation insurance program carried self-insurance exposures of up to $5 million per incident. As of December 31, 2019, our automobile liability insurance program included a per-incident deductible of up to $10 million. We do not expect the impact of any known casualty, property, environmental or other contingency to have a material impact on our financial condition, results of operations or cash flows. Our estimated insurance liabilities as of December 31, 2019 are summarized in Note 11 to the Consolidated Financial Statements.

Regulation

Our business is subject to extensive and evolving federal, state or provincial and local environmental, health, safety and transportation laws and regulations. These laws and regulations are administered by the EPA, Environment Canada, and various other federal, state, provincial and local environmental, zoning, transportation, land use, health and safety agencies in the U.S. and Canada. Many of these agencies regularly examine our operations to monitor compliance with these laws and regulations and have the power to enforce compliance, obtain injunctions or impose civil or criminal penalties in case of violations.

Because the primary mission of our business is to collect and manage solid waste in an environmentally sound manner, a significant amount of our capital expenditures is related, either directly or indirectly, to environmental protection measures, including compliance with federal, state, provincial and local rules. There are costs associated with siting, design, permitting, operations, monitoring, site maintenance, corrective actions, financial assurance, and facility closure and post-closure obligations. With acquisition, development or expansion of a waste management or disposal facility or transfer station, we must often spend considerable time, effort and money to obtain or maintain required permits and

approvals. There are no assurances that we will be able to obtain or maintain required governmental approvals. Once obtained, operating permits are subject to renewal, modification, suspension or revocation by the issuing agency. Compliance with current regulations and future requirements could require us to make significant capital and operating expenditures. However, most of these expenditures are made in the normal course of business and do not place us at any competitive disadvantage.

The regulatory environment in which we operate is influenced by changes in leadership at the federal, state, provincial and local levels. The policies set forth under the current U.S. administration, for example, have included substantial changes to foreign trade policy and generally have been in favor of reducing regulation, including environmental regulation. We cannot predict what impact the current or future administrations will have on future regulations impacting our industry, especially given the number of rules currently in litigation, nor can we predict the timing of any such changes. Reduction of regulation may have a favorable impact on our operating costs, but the extensive environmental regulation applicable to landfills is a barrier to rapid entry that benefits our Company. Moreover, the risk reduction provided by stringent regulation is valuable to our customers and the communities we serve.

The primary U.S. federal statutes affecting our business are summarized below:

- The Resource Conservation and Recovery Act of 1976 ("RCRA"), as amended, regulates handling, transporting and disposing of hazardous and non-hazardous waste and delegates authority to states to develop programs to ensure the safe disposal of solid waste. Landfills are regulated under Subtitle D of RCRA, which sets forth minimum federal performance and design criteria for solid waste landfills, and Subtitle C of RCRA, which establishes a federal program to manage hazardous wastes from cradle to grave. These regulations are typically implemented by the states, although states can impose requirements that are more stringent than the federal standards. We incur costs in complying with these standards in the ordinary course of our operations.
- The Comprehensive Environmental Response, Compensation and Liability Act of 1980 ("CERCLA"), as amended, which is also known as Superfund, provides for federal authority to respond directly to releases or threatened releases of hazardous substances into the environment that have created actual or potential environmental hazards. CERCLA's primary means for addressing such releases is to impose strict liability for cleanup of disposal sites upon current and former site owners and operators, generators of the hazardous substances at the site and transporters who selected the disposal site and transported substances thereto. Liability under CERCLA is not dependent on the intentional release of hazardous substances; it can be based upon the release or threatened release of hazardous substances, even resulting from lawful, unintentional and attentive action, as the term is defined by CERCLA and other applicable statutes and regulations. The EPA may issue orders requiring responsible parties to perform response actions at sites, or the EPA may seek recovery of funds expended or to be expended in the future at sites. Liability may include contribution for cleanup costs incurred by a defendant in a CERCLA civil action or by an entity that has previously resolved its liability to federal or state regulators in an administrative or judicially-approved settlement. Liability under CERCLA could also include obligations to a potentially responsible party ("PRP") that voluntarily expends site clean-up costs. Further, liability for damage to publicly-owned natural resources may also be imposed. We are subject to potential liability under CERCLA as an owner or operator of facilities at which hazardous substances have been disposed and as a generator or transporter of hazardous substances disposed of at other locations.
- The Federal Water Pollution Control Act of 1972, as amended, known as the Clean Water Act, regulates the discharge of pollutants into streams, rivers, groundwater, or other surface waters from a variety of sources, including solid and hazardous waste disposal sites. If our operations discharge any pollutants into surface waters, the Clean Water Act requires us to apply for and obtain discharge permits, conduct sampling and monitoring, and, under certain circumstances, reduce the quantity of pollutants in those discharges. In 1990, the EPA issued additional standards for management of storm water run-off that require landfills and other waste-handling facilities to obtain storm water discharge permits. Also, if a landfill or other facility discharges wastewater through a sewage system to a publicly-owned treatment works, the facility must comply with discharge limits imposed by the treatment works. Further, before the development or expansion of a landfill can alter or affect "wetlands," a permit may have to be obtained providing for mitigation or replacement wetlands. The Clean Water Act provides for civil, criminal and administrative penalties for violations of its provisions.

- The Clean Air Act of 1970, as amended, provides for federal, state and local regulation of the emission of air pollutants. Certain of our operations are subject to the requirements of the Clean Air Act, including large municipal solid waste landfills and landfill gas-to-energy facilities. In 1996, the EPA issued new source performance standards ("NSPS") and emission guidelines ("EG") controlling landfill gases from new and existing large landfills. In January 2003, the EPA issued Maximum Achievable Control Technology ("MACT") standards for municipal solid waste landfills subject to the NSPS and EG. In August 2016, the EPA issued two new rules that serve to update the 1996 NSPS and EG regulatory requirements. These NSPS, EG and MACT regulations impose performance standards to minimize air emissions from large municipal solid waste landfills, subject most of these landfills to certain operating permit requirements under Title V of the Clean Air Act and, in many instances, require installation of landfill gas collection and control systems to control emissions or to treat and utilize landfill gas on- or off-site.
- The Occupational Safety and Health Act of 1970 ("OSHA"), as amended, establishes certain employer responsibilities, including maintenance of a workplace free of recognized hazards likely to cause death or serious injury, compliance with standards promulgated by the Occupational Safety and Health Administration, and various reporting and record keeping obligations as well as disclosure and procedural requirements. Various standards for notices of hazards, safety in excavation and demolition work and the handling of asbestos, may apply to our operations. The Department of Transportation and OSHA, along with other federal agencies, have jurisdiction over certain aspects of hazardous materials and hazardous waste, including safety, movement and disposal. Various state and local agencies with jurisdiction over disposal of hazardous waste may seek to regulate movement of hazardous materials in areas not otherwise preempted by federal law.

We are also actively monitoring the following recent regulatory developments affecting our business:

- With regard to regulatory developments under RCRA, the EPA published an advance notice of proposed rulemaking in December 2018 to consider whether to propose revisions to the municipal solid waste landfill criteria to support advances in liquids management. Although the notice does not reopen any existing regulations, we have been working closely with the EPA to ensure that the agency is aware of how future regulation could impact our industry. In July 2019, the EPA announced increases in the user fees accompanying the system that the agency uses to track hazardous waste shipments electronically. Later in 2019, the U.S. Department of Energy finalized a rule setting forth the fee that the agency will charge for the long-term storage and management of elemental mercury. Neither announcement is anticipated to adversely impact the Company's hazardous business units, and we are working closely with both agencies to minimize risks more broadly to our industry.
- With regard to regulatory requirements pertaining to greenhouse gas emissions, since 2014, decisions from the U.S Supreme Court and U.S. Court of Appeals for the D.C Circuit, as well as EPA policy memoranda, have significantly narrowed the applicability and scope of EPA permitting requirements for GHGs from stationary sources, including with respect to biogenic carbon dioxide ("CO2") permitting. In 2016, the EPA proposed revisions to the Prevention of Significant Deterioration ("PSD") and Title V Greenhouse Gas ("GHG") permitting regulations establishing a significant emissions rate ("SER") threshold, below which sources would not be required to implement additional control technologies for their GHG emissions. This SER threshold should prevent most of our operational changes, such as landfill expansions and beneficial gas recovery projects, from being subject to PSD or Title V permit requirements due to our GHG emissions – assuming the EPA classifies biogenic CO2 emissions from municipal solid waste and landfill gas as carbon neutral. The EPA has not yet finalized this rulemaking. The EPA also has not yet finalized its policy for addressing biogenic CO2 emissions from waste management; however, the EPA's independent Science Advisory Board has recommended it treat waste-derived CO2 emissions as carbon neutral. These judicial and regulatory actions have reduced, and are expected to continue to reduce, the potential impact of the PSD and Title V GHG Tailoring Rule on our air permits, compliance and operating requirements.

  Potential climate change, GHG regulatory, and corporate sustainability initiatives have influenced our business strategy to provide low-carbon services to our customers, and we increasingly view our ability to offer lower carbon services as a key component of our business growth. We continue to anticipate the needs of our customers, which include investing in and developing ever-more-advanced recycling and reuse technologies. If the U.S. were

to impose a carbon tax or other form of GHG regulation increasing demand for low-carbon service offerings in the future, the services we are developing will be increasingly valuable.

- We continue to monitor periodic regulatory actions to increase the stringency of certain National Ambient Air Quality Standards ("NAAQS") which could affect the cost, timeliness and availability of air permits for new and modified large municipal solid waste landfills and landfill gas-to-energy facilities. While we cannot predict the ultimate outcome of potential revisions to NAAQS, we do not believe that the such requirements will have a material adverse impact on our business as a whole.

- In December 2014, the EPA issued a final rule regulating the disposal and beneficial use of coal combustion residuals ("CCR"). This codification of the CCR rule provides utilities with a stable regulatory regime and encourages beneficial use of CCR in encapsulated uses (e.g., used in cement or wallboard), and use according to established industry standards (e.g., application of sludge for agricultural enrichment). The EPA also deemed disposal and beneficial use of CCR at permitted municipal solid waste landfills exempt from the new regulations because the RCRA Subtitle D standards applicable at municipal solid waste landfills provide at least equivalent protection. These standards are consistent with our approach to handling CCR at our sites currently, and the new standards have provided a growth opportunity for the Company. States may impose standards more stringent than the federal program, and under the 2016 Water Infrastructure Improvements for the Nation Act, may receive approval to run permitting programs for CCR in their states. In 2018, the U.S. Court of Appeals for the D.C Circuit vacated significant portions of the 2014 final rule and remanded the rule to the EPA for further revision. Between August and December of 2019, the EPA published three proposed rules aimed at providing utilities with some flexibility in closing or retrofitting unlined storage ponds and in regulating onsite storage of CCR for beneficial reuse. The Company will continue to monitor these rules to evaluate opportunities to provide CCR disposal services.

- In May 2016, the EPA established lifetime health advisories for certain per- and polyfluoroalkyl substances ("PFAS"), a group of man-made chemicals that have been manufactured and used globally since the 1940s in products such as textiles, fire suppressants, cookware, packaging and plastics. PFAS are typically very persistent in the environment and can be found in water, soil and air. Citing concerns about potential adverse human health effects from exposure to PFAS, the EPA announced its "PFAS Action Plan" in February 2019 and has taken various actions to address PFAS contamination. Meanwhile, an increasing number of states have enacted new drinking water, surface water and/or groundwater limits for various PFAS, which has led to a patchwork of PFAS standards across the U.S. The EPA has stated that it will increase its regulatory oversight of PFAS in 2020, with proposals anticipated that would establish drinking water standards, expanded authority for PFAS remediation, chemical release reporting obligations, and guidance on PFAS disposal. Compliance with new and proposed PFAS standards is anticipated to result in additional expense to the Company, but such standards are also anticipated to present potential business opportunities in the area of PFAS management, treatment and disposal.

- In August 2016, the EPA published two rules to update the 1996 standards with new requirements for landfill gas control and monitoring at both new municipal solid waste landfills (constructed or modified after July 17, 2014) as well as existing landfills (operating after November 8, 1987, and not modified after July 17, 2014). Working with our trade associations and other landfill owners and operators, we identified significant legal, technical and implementation concerns with the rules and together filed a judicial appeal of the rules while also filing administrative petitions asking that the EPA stay the rules and initiate a rulemaking process. We also alerted the EPA that its August 2016 rulemakings led to an inconsistent regulatory structure in which six separate overlapping and inconsistent sets of work practices now govern the disposal industry. In May 2017, the EPA granted our industry's administrative petitions for reconsideration and rulemaking, signaling its intent to reconsider its 2016 rulemakings. However, the agency continues to move forward with two additional rulemaking packages (a federal plan to implement the 2016 rule for existing landfills and revisions to the existing MACT rule) that could lead to further regulatory confusion. We cannot predict the outcome of any of these ongoing rulemaking processes; however, we do not believe any such regulatory changes will have a material adverse impact on our business as a whole.

State, Provincial and Local Regulations

There are also various state or provincial and local regulations that affect our operations. Each state and province in which we operate has its own laws and regulations governing solid waste disposal, water and air pollution, and, in most cases, releases and cleanup of hazardous substances and liabilities for such matters. States and provinces have also adopted regulations governing the design, operation, maintenance and closure of landfills and transfer stations. Some counties, municipalities and other local governments have adopted similar laws and regulations. Our facilities and operations are likely to be subject to these types of requirements.

Our landfill operations are affected by the increasing preference for alternatives to landfill disposal. Many state and local governments mandate recycling and waste reduction at the source and prohibit the disposal of certain types of waste, such as yard waste, food waste and electronics at landfills. The number of state and local governments with recycling requirements and disposal bans continues to grow, while the logistics and economics of recycling the items remain challenging.

Various states have enacted, or are considering enacting, laws that restrict the disposal within the state of solid waste generated outside the state. While laws that overtly discriminate against out-of-state waste have been found to be unconstitutional, some laws that are less overtly discriminatory have been upheld in court. From time to time, the U.S. Congress has considered legislation authorizing states to adopt regulations, restrictions, or taxes on the importation of out-of-state or out-of-jurisdiction waste. Additionally, several state and local governments have enacted “flow control” regulations, which attempt to require that all waste generated within the state or local jurisdiction be deposited at specific sites. In 1994, the U.S. Supreme Court ruled that a flow control ordinance that gave preference to a local facility that was privately owned was unconstitutional, but in 2007, the Court ruled that an ordinance directing waste to a facility owned by the local government was constitutional. The U.S. Congress’ adoption of legislation allowing restrictions on interstate transportation of out-of-state or out-of-jurisdiction waste or certain types of flow control, or courts’ interpretations of interstate waste and flow control legislation, could adversely affect our solid and hazardous waste management services.

Additionally, regulations establishing extended producer responsibility (“EPR”) are being considered or implemented in many places around the world, including in the U.S. and Canada. EPR regulations are designed to place either partial or total responsibility on producers to fund the post-use life cycle of the products they create. Along with the funding responsibility, producers may be required to undertake additional responsibilities, such as taking over management of local recycling programs by taking back their products from end users or managing the collection operations and recycling processing infrastructure. There is no federal law establishing EPR in the U.S. or Canada; however, state, provincial and local governments could take, and in some cases have taken, steps to implement EPR regulations. If wide-ranging EPR regulations were adopted, they could have a fundamental impact on the waste, recycling and other streams we manage and how we operate our business, including contract terms and pricing.

Many states, provinces and local jurisdictions have enacted “fitness” laws that allow the agencies that have jurisdiction over waste services contracts or permits to deny or revoke these contracts or permits based on the applicant’s or permit holder’s compliance history. Some states, provinces and local jurisdictions go further and consider the compliance history of the parent, subsidiaries or affiliated companies, in addition to the applicant or permit holder. These laws authorize the agencies to make determinations of an applicant’s or permit holder’s fitness to be awarded a contract to operate, and to deny or revoke a contract or permit because of unfitness, unless there is a showing that the applicant or permit holder has been rehabilitated through the adoption of various operating policies and procedures put in place to assure future compliance with applicable laws and regulations. While fitness laws can present potential increased costs and barriers to entry into market areas, these laws have not, and are not expected to have a material adverse impact on our business as a whole.

Recycling; Foreign Import and Export Regulations and Material Restrictions

Enforcement or implementation of foreign and domestic regulations can affect our ability to export products. A significant portion of the fiber that we market has historically been shipped to export markets across the globe, particularly China. In recent years, the Chinese government has announced bans on certain materials and begun to enforce extremely

restrictive quality and other requirements that have significantly reduced China's import of recyclables. The Chinese government has also limited the flow of material into China by restricting the issuance of required import licenses, and the restriction on import licenses is expected to constrict further in 2020. In addition, changes to foreign trade policy and tariffs imposed by the current U.S. administration have resulted in China imposing new tariffs on the import of recyclables. It is currently anticipated that China will ban the import of recyclables completely in 2021. Many other markets, both domestic and foreign, have tightened their quality expectations and limited or restricted the import of certain recyclables as well.

Such trade restrictions and tariffs have disrupted the global trade of recyclables, particularly fiber, creating excess supply and decreasing recyclable commodity prices. The heightened quality requirements have been difficult for the industry to achieve and have driven up operating costs. In particular, single-stream MRFs process a wide range of commingled materials and tend to receive a higher percentage of non-recyclables, which results in increased processing and residual disposal costs to achieve quality standards. As recyclable commodity prices have fallen and operating costs have increased, recyclers are seeking to pass cost increases through to customers. The resulting price increase for recycling services in communities and at businesses in the U.S. has resulted in some customers reducing or eliminating their recycling service. Industry trade organizations and government agencies are engaged in discussions to mitigate long-term impacts to recycling programs and the industry as a whole.

For the past several years, we have been working with stakeholders to educate the public on the need to recycle properly. We are investing time and labor and working with customers to help improve quality and have seen improvement in the quality of material that we receive at our facilities. We have continued our focus on developing a sustainable recycling business model that meets customers' environmental needs by passing through the increasing cost of processing and higher contamination rates, and these efforts had a positive impact on the operating results for our recycling business in 2019.

With a heightened awareness of the global problems caused by plastic waste in the environment, an increasing number of cities across the country have passed ordinances banning certain types of plastics from sale or use. Over 800 pieces of legislation, approximately 50% of which are bans on plastic bags, have been introduced in the U.S. regulating plastics: 660 passed, including 585 city ordinances. Others include bans on the sale or use of plastic straws, polystyrene plastic and single use packaging. These bans have increased pressure by manufacturers on our recycling facilities to accept a broader array of materials in curbside recycling programs to alleviate public pressures to ban the sale of those materials. However, with no viable end markets for recycling these materials, we and other recyclers are working to educate and remind customers of the need for end market demand and economic viability to support sustainable recycling programs. With increased focus on responsible management of plastics, we have taken a proactive approach to collaborate with buyers to ensure environmental sustainability goals are prioritized in managing the product we sell.

Regulation of Oil and Gas Exploration, Production and Disposal

Our EES organization provides specialized environmental management and disposal services for fluids used and wastes generated by customers engaged in oil and gas exploration and production, and these disposal services include use of underground injection wells. There is heightened federal regulatory focus on emissions of methane that occur during drilling and transportation of natural gas, as well as state attention to protective disposal of drilling residuals. There also remains heightened attention from the public, some states and the EPA to the alleged potential for hydraulic fracturing that occurs during drilling to impact drinking water supplies. Increased regulation of oil and gas exploration and production, including GHG emissions or hydraulic fracturing, could make it more difficult or cost-prohibitive for our EES customers to continue operations, adversely affecting our business.

Additionally, any new regulations regarding the treatment and disposal of wastes associated with exploration and production operations, including through use of injection wells, could increase our costs to provide oilfield services and reduce our margins and revenue from such services. Conversely, any loosening of regulations regarding how such wastes are handled or disposed of could adversely affect our business, as we believe the size, capital structure, regulatory sophistication and established reliability of our Company provide us with an advantage in providing services that must comply with any complex regulatory regime that may govern providing oilfield waste services.

Investment in Natural Gas Vehicles and Infrastructure

We operate a large fleet of natural gas vehicles, and we plan to continue to invest in these assets for our collection fleet. As of December 31, 2019, we were operating 8,924 natural gas trucks and 145 natural gas fueling facilities; 25 of these fueling stations also serve the public, and in some cases our facilities serve the fleet of pre-approved third parties. Concerns have been raised about the potential for emissions from the fueling stations and infrastructure that serve natural gas-fueled vehicles. Additional regulation of, or restrictions on, natural gas fueling infrastructure or reductions in associated tax incentives could increase our operating costs. We are not yet able to evaluate potential operating changes or costs associated with such regulations, but we do not anticipate that such regulations would have a material adverse impact on our business.

There is increasing pressure to reduce the use of fossil fuel in the heavy-duty truck industry, and some cities and states are beginning to discuss requirements for using more advanced engine technology, such as electric powered vehicles, rather than natural gas or diesel vehicles. Although current options for heavy-duty electric vehicles lack sufficient range and proven experience for our operations, requirements to transition to electric powered vehicles could increase our cost of vehicles and impair our investment in our natural gas fleet and infrastructure.

Renewable Fuel Production

We have invested, and continue to invest, in facilities to capture and treat renewable natural gas (“RNG”) from the Company’s landfills, and RNG from landfill biogas is a significant source of fuel for our natural gas collection vehicles. The Energy Policy Act of 2005 and Energy Independence and Security Act of 2007 authorize the Renewable Fuels Standards (“RFS”) program that promotes the production and use of renewable transportation fuels. The Company is an EPA-registered producer of transportation fuel making compressed and liquefied RNG from landfill biogas, which qualifies as a cellulosic biofuel under the RFS program. Oil refiners and importers are required through the RFS program to blend specified volumes of various categories of renewable transportation fuels with gasoline or buy credits, referred to as renewable identification numbers (“RINs”), from renewable fuel producers. The market value for RINs is tied to renewable fuel volumes set by the EPA annually, and the final 2020 required volumes for cellulosic biofuel are 41% higher than in 2019. The EPA also is poised to initiate a rulemaking this year that would set required volume requirements for a three-year period from 2020 through 2022.

Federal, State and Local Climate Change Initiatives; Sustainability

In light of regulatory and business developments related to concerns about climate change, we have identified a strategic business opportunity to provide our public and private sector customers with sustainable solutions to reduce their GHG emissions. As part of our on-going marketing evaluations, we assess customer demand for and opportunities to develop waste services offering verifiable carbon reductions, such as waste reduction, increased recycling, and conversion of landfill gas and discarded materials into electricity and fuel. We use carbon life cycle tools in evaluating potential new services and in establishing the value proposition that makes us attractive as an environmental service provider. We are active in support of public policies that encourage development and use of lower carbon energy and waste services that lower users’ carbon footprints. We understand the importance of broad stakeholder engagement in these endeavors, and actively seek opportunities for public policy discussion on more sustainable materials management practices. In addition, we work with stakeholders at the federal and state level in support of legislation that encourages production and use of renewable, low-carbon fuels and electricity. Despite the announcement that the U.S. has begun its formal withdrawal from the Paris Climate Accords, we have seen no reduction in customer demand for services aligned with their GHG reduction goals and strategies.

We continue to assess the physical risks to company operations from the effects of severe weather events and use risk mitigation planning to increase our resiliency in the face of such events. We are investing in infrastructure to withstand more severe storm events, which may afford us a competitive advantage and reinforce our reputation as a reliable service provider through continued service in the aftermath of such events.

Consistent with our Company's long-standing commitment to corporate sustainability and environmental stewardship, we have published our 2019 Sustainability Report, which is an update to our full length 2018 Sustainability Report, "Driving Change," which details the GHG emissions reductions we have facilitated to date and our determination to expand these reductions in the future, as well as our commitment to help make the communities in which we live and work safe, resilient and sustainable. The information in this report can be found at our Company website but does not constitute a part of this Form 10-K. The Company actively participates in a number of sustainability reporting programs and frameworks, including the Dow Jones Sustainability Indices, where we are "Sector Leader" for Commercial Services, the CDP, where we are among "A List" companies, and the Sustainability Accounting Standards Board, on which we serve as a member of the Board's advisory group.

Item 1A. *Risk Factors.*

In an effort to keep our stockholders and the public informed about our business, we may make "forward-looking statements." Forward-looking statements are often identified by the words, "will," "may," "should," "continue," "anticipate," "believe," "expect," "plan," "forecast," "project," "estimate," "intend" and words of a similar nature and generally include statements regarding:

- future results of operations, including revenues, earnings or cash flows;
- plans and objectives for the future;
- projections, estimates or assumptions relating to our operational or financial performance; or
- our opinions, views or beliefs about the effects of current or future events, circumstances or performance.

You should view these statements with caution. These statements are not guarantees of future performance, circumstances or events. They are based on facts and circumstances known to us as of the date the statements are made. All aspects of our business are subject to uncertainties, risks and other influences, many of which we do not control. Any of these factors, either alone or taken together, could have a material adverse effect on us and could change whether any forward-looking statement ultimately turns out to be true. Additionally, we assume no obligation to update any forward-looking statement as a result of future events, circumstances or developments. The following discussion should be read together with the Consolidated Financial Statements and the notes thereto. Outlined below are some of the risks that we believe could affect our business and financial statements for 2020 and beyond and could cause actual results to be materially different from those that may be set forth in forward-looking statements made by the Company.

The waste industry is highly competitive, and if we cannot successfully compete in the marketplace, our business, financial condition and operating results may be materially adversely affected.

We encounter intense competition from governmental, quasi-governmental and private sources in all aspects of our operations. We principally compete with large national waste management companies, counties and municipalities that maintain their own waste collection and disposal operations and regional and local companies of varying sizes and financial resources. The industry also includes companies that specialize in certain discrete areas of waste management, operators of alternative disposal facilities, companies that seek to use parts of the waste stream as feedstock for renewable energy and other by-products, and waste brokers that rely upon haulers in local markets to address customer needs. In recent years, the industry has seen some additional consolidation, though the industry remains intensely competitive. Counties and municipalities may have financial competitive advantages because tax revenues are available to them and tax-exempt financing is more readily available to them. Also, such governmental units may attempt to impose flow control or other restrictions that would give them a competitive advantage. In addition, some of our competitors may have lower financial expectations, allowing them to reduce their prices to expand sales volume or to win competitively-bid contracts, including large national accounts and exclusive franchise arrangements with municipalities. When this happens, we may lose customers and be unable to execute our pricing strategy, resulting in a negative impact to our revenue growth from yield on base business.

If we fail to implement our business strategy, our financial performance and our growth could be materially and adversely affected.

Our future financial performance and success are dependent in large part upon our ability to implement our business strategy successfully. Implementation of our strategy will require effective management of our operational, financial and human resources and will place significant demands on those resources. See Item 1. *Business* for more information on our business strategy.

There are risks involved in pursuing our strategy, including the following:

- Our employees, customers or investors may not embrace and support our strategy.
- We may not be able to hire or retain the personnel necessary to manage our strategy effectively.
- A key element of our strategy is yield management through focus on price leadership, which has presented challenges to keep existing business and win new business at reasonable returns. We have also continued our environmental fee, fuel surcharge and regulatory recovery fee to offset costs. The loss of volumes as a result of price increases and our unwillingness to pursue lower margin volumes may negatively affect our cash flows or results of operations. Additionally, we have in the past and may in the future face purported class action lawsuits related to our customer service agreements, prices and fees.
- We may be unsuccessful in implementing improvements to operational efficiency and such efforts may not yield the intended result.
- We may not be able to maintain cost savings achieved through optimization efforts.
- Strategic decisions with respect to our asset portfolio may result in impairments to our assets. See Item 1A. *Risk Factors — We may record material charges against our earnings due to impairments to our assets*.
- Our ability to make strategic acquisitions depends on our ability to identify desirable acquisition targets, negotiate advantageous transactions despite competition for such opportunities, fund such acquisitions on favorable terms, obtain regulatory approvals and realize the benefits we expect from those transactions.
- Acquisitions, investments and/or new service offerings may not increase our earnings in the timeframe anticipated, or at all, due to difficulties operating in new markets or providing new service offerings, failure of emerging technologies to perform as expected, failure to operate within budget, integration issues, or regulatory issues, among others.
- Integration of acquisitions and/or new services offerings could increase our exposure to the risk of inadvertent noncompliance with applicable laws and regulations.
- Liabilities associated with acquisitions, including ones that may exist only because of past operations of an acquired business, may prove to be more difficult or costly to address than anticipated.
- Execution of our strategy, particularly growth through acquisitions, may cause us to incur substantial additional indebtedness, which may divert capital away from our traditional business operations and other financial plans.
- We continue to seek to divest underperforming and non-strategic assets if we cannot improve their profitability. We may not be able to successfully negotiate the divestiture of underperforming and non-strategic operations, which could result in asset impairments or the continued operation of low-margin businesses.

In addition to the risks set forth above, implementation of our business strategy could also be affected by other factors beyond our control, such as increased competition, legal developments, government regulation, general economic conditions, increased operating costs or expenses, subcontractor costs and availability and changes in industry trends. We may decide to alter or discontinue certain aspects of our business strategy at any time. If we are not able to implement our business strategy successfully, our long-term growth and profitability may be adversely affected. Even if we are able to implement some or all of the initiatives of our business strategy successfully, our operating results may not improve to the extent we anticipate, or at all.

Our planned acquisition of Advanced Disposal Services, Inc. ("Advanced Disposal") may not occur at all, may not occur in the expected time frame or may involve the divestiture of certain businesses and assets, which may negatively affect the trading price of our common stock and our future business and financial results.

On April 14, 2019, we entered into an Agreement and Plan of Merger pursuant to which, among other things and subject to the satisfaction or waiver of specified conditions, we agreed to acquire Advanced Disposal. If the acquisition is completed, Advanced Disposal will become an indirect wholly-owned subsidiary of WM. The consummation of the acquisition is not assured and is subject to certain conditions, including the expiration or termination of any waiting period under the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules and regulations promulgated thereunder and the absence of any law or order restraining, enjoining or otherwise prohibiting the acquisition, as well as other customary closing conditions.

The planned acquisition of Advanced Disposal is subject to a number of risks and uncertainties, including general economic and capital markets conditions; the effects that the pending merger may have on us, Advanced Disposal and our respective businesses; inability to obtain required regulatory or government approvals or to obtain such approvals on satisfactory conditions; inability of Advanced Disposal to satisfy other closing conditions; the occurrence of any event, change or other circumstance that could give rise to the termination of the Agreement and Plan of Merger, several of which could require us to pay a termination fee of $150 million to Advanced Disposal; legal proceedings that may be instituted related to the proposed acquisition and the legal expenses and diversion of management's attention that may be associated therewith; and unexpected costs, charges or expenses. If the planned acquisition of Advanced Disposal is not completed, if there are significant delays in completing the planned acquisition or if the planned acquisition involves an unexpected amount of required divestitures, it could negatively affect the trading price of our common stock and our future business and financial results.

Additionally, in May 2019, we issued senior notes with an aggregate principal amount of $3 billion that include a special mandatory redemption feature. This feature provides that if the acquisition of Advanced Disposal is not completed on or prior to July 14, 2020, or if, prior to such date, the Agreement and Plan of Merger is terminated for any reason, we will be required to redeem all of such outstanding notes equal to 101% of the aggregate principal amounts of such notes, plus accrued but unpaid interest. Our ability to pay the redemption price may be limited by our financial resources at the time and the terms of our debt instruments and other instruments and agreements. We may also be required to incur additional indebtedness and reduce availability under our $3.5 billion revolving credit facility to fund the redemption price. Any failure to pay the special mandatory redemption price of such notes when due would constitute an event of default with respect to the notes of such series and could have a material adverse effect on our business, results of operations and financial condition and the market prices of our securities. Further, if we redeem such series of notes pursuant to the special mandatory redemption feature, our investors may be dissatisfied that they did not obtain the return that they expected on their investment in those notes.

We may not realize the strategic benefits and cost synergies that are anticipated from the planned acquisition of Advanced Disposal.

The benefits that are expected to result from the planned acquisition of Advanced Disposal will depend, in part, on our ability to realize anticipated cost synergies. Our success in realizing these benefits and cost synergies, and the timing of this realization, depends on the successful integration of Advanced Disposal. There is a significant degree of difficulty and management distraction inherent in the process of integrating an acquisition of this size. The process of integrating operations could cause business interruption and distraction. Some members of our management may be required to devote considerable time to this integration process, which will decrease the time they will have to manage our Company, service existing customers, attract new customers and develop new products or strategies. If management is not able to effectively manage the integration process, or if any significant business activities are interrupted as a result of the integration process, our business, financial condition and results of operations could suffer.

The acquisition of Advanced Disposal may not result in realization of the benefits and cost synergies that we currently expect, and we cannot guarantee that these benefits and cost synergies will be achieved within anticipated time frames or at all. Additionally, we may incur substantial expenses in connection with the integration of Advanced Disposal, which may exceed expectations and offset certain benefits.

Compliance with existing or increased future regulations and/or enforcement of such regulations can restrict or change our operations, increase our operating costs or require us to make additional capital expenditures, and a decrease in regulation may lower barriers to entry for our competitors.

Stringent government regulations at the federal, state, provincial and local level in the U.S. and Canada have a substantial impact on our business, and compliance with such regulations is costly. Many complex laws, rules, orders and interpretations govern environmental protection, health, safety, land use, zoning, transportation and related matters. Among other things, governmental regulations and enforcement actions restrict our operations at times and may adversely affect our financial condition, results of operations and cash flows by imposing conditions such as:

- limitations on siting and constructing new waste disposal, transfer, recycling or processing facilities or on expanding existing facilities;
- limitations, regulations or levies on collection and disposal prices, rates and volumes;
- limitations or bans on disposal or transportation of out-of-state waste or certain categories of waste;
- mandates regarding the management of solid waste, including requirements to recycle, divert or otherwise process certain waste, recycling and other streams; or
- limitations or restrictions on the recycling, processing or transformation of waste, recycling and other streams.

Regulations affecting the siting, design and closure of landfills require us, at times, to undertake investigatory or remedial activities, curtail operations or close landfills temporarily or permanently. We have significant financial obligations relating to final capping, closure, post-closure and environmental remediation at our existing landfills and we establish accruals for these estimated costs. Expenditures could be accelerated or materially exceed our accruals due to the types of waste collected and manner in which it is transported and disposed of, including actions taken in the past by companies we have acquired or third-party landfill operators; environmental regulatory changes; new information about waste types previously collected, such as PFAS or other emerging contaminates, and other reasons.

In order to develop, expand or operate a landfill or other waste management facility, we must have various facility permits and other governmental approvals, including those relating to zoning, environmental protection and land use. The permits and approvals are often difficult, time consuming and costly to obtain and sometimes contain conditions that limit our operations.

Various states have enacted, or are considering enacting, laws that restrict the disposal within the state of solid waste generated outside the state. From time to time, the U.S. Congress has considered legislation authorizing states to adopt regulations, restrictions, or taxes on the importation of out-of-state or out-of-jurisdiction waste. Additionally, several state and local governments have enacted “flow control” regulations, which attempt to require that all waste generated within the state or local jurisdiction be deposited at specific sites. The U.S. Congress’ adoption of legislation allowing restrictions on interstate transportation of out-of-state or out-of-jurisdiction waste certain types of flow control, or courts’ interpretations of interstate waste and flow control legislation, could adversely affect our solid and hazardous waste management services.

Additionally, regulations establishing extended producer responsibility (“EPR”) are being considered or implemented in many places around the world, including in the U.S. and Canada. EPR regulations are designed to place either partial or total responsibility on producers to fund the post-use life cycle of the products they create. Along with the funding responsibility, producers may be required to undertake additional responsibilities, such as taking over management of local recycling programs by taking back their products from end users or managing the collection operations and recycling processing infrastructure. There is no federal law establishing EPR in the U.S. or Canada; however, state, provincial and local governments could, and in some cases have, taken steps to implement EPR regulations. If wide-ranging EPR regulations were adopted, they could have a fundamental impact on the waste streams we manage and how we operate our business, including contract terms and pricing. A significant reduction in the waste, recycling and other streams we manage could have a material adverse effect on our financial condition, results of operations and cash flows.

The regulatory environment in which we operate is influenced by changes in leadership at the federal, state, provincial and local levels. The policies set forth under the current U.S. administration, for example, have included substantial changes to foreign trade policy and generally have been in favor of reducing regulation, including environmental regulation. We cannot predict what impact the current administration will have on future regulations impacting our industry, especially given the number of rules currently in litigation, nor can we predict the timing of any such changes. Reduction of regulation may have a favorable impact on our operating costs, but the extensive environmental regulation governing landfills is a substantial barrier to entry that benefits our Company. Moreover, the risk reduction provided by stringent regulation is valuable to our customers and the communities we serve. It is likely that some policies adopted by the current administration will benefit us and others will negatively affect us.

Our revenues, earnings and cash flows will fluctuate based on changes in commodity prices, and commodity prices for recyclable materials are particularly susceptible to volatility based on regulations and tariffs that affect our ability to export products.

Enforcement or implementation of foreign and domestic regulations can affect our ability to export products. A significant portion of the fiber that we market has historically been shipped to export markets across the globe, particularly China. In recent years, the Chinese government announced bans on certain materials and begun to enforce extremely restrictive quality and other requirements that have significantly reduced China’s import of recyclables. The Chinese government has also limited the flow of material into China by restricting the issuance of required import licenses and the restriction on import licenses is expected to constrict further in 2020. In addition, changes to foreign trade policy and tariffs imposed by the current U.S. administration have resulted in China imposing new tariffs on the import of recyclables. We anticipate China will ban the import of recyclables completely in 2021. Many other markets, both domestic and foreign, have tightened their quality expectations and limited or restricted the import of certain recyclables as well.

Such trade restrictions and tariffs have disrupted the global trade of recyclables, particularly fiber, creating excess supply and decreasing recyclable commodity prices. We have been actively working to identify alternative markets for recycling commodities, but there may not be demand for all of the material we produce. The heightened quality requirements have been difficult for the industry to achieve and have driven up operating costs. In particular, single-stream MRFs process a wide range of commingled materials and tend to receive a higher percentage of non-recyclables, which results in increased processing and residual disposal costs to achieve quality standards. As recyclable commodity prices have fallen and operating costs have increased, we and other recyclers are seeking to pass cost increases through to customers. The resulting price increase for recycling services in communities and at businesses in the U.S. has resulted in some customers reducing or eliminating their recycling service.

Reductions in market prices for recycling commodities, and reduction in demand for recycling commodities and recycling services, have negatively impacted our operating income and cash flows in 2018 and 2019. The decline in market prices in 2019 and 2018 for recycling commodities resulted in a decrease in revenue of $248 million and $273 million, respectively. As we have increased the size of our recycling operations, we have also increased our exposure to commodity price fluctuations. Additionally, future regulation, tariffs or initiatives may result in further reduced demand or increased operating costs, which would cause the profitability of our recycling operations to decline.

Fluctuation in energy prices also affects our business, including recycling of plastics manufactured from petroleum products. Significant variations in the price of methane gas, electricity and other energy-related products that are marketed and sold by our landfill gas recovery operations can result in a corresponding significant impact to our revenue from yield from such operations. Additionally, we provide specialized disposal services for oil and gas exploration and production operations through our EES organization. Demand for these services decreases when drilling activity slows due to depressed oil and gas prices, such as the low prices throughout the last few years. Any of the commodity prices to which we are subject may fluctuate substantially and without notice in the future.

Changes in regulations applicable to oil and gas exploration, production and disposal could adversely affect our EES organization.

Our EES organization provides specialized environmental management and disposal services for fluids used and wastes generated by customers engaged in oil and gas exploration and production, and these disposal services include the use of underground injection wells. Demand for these services is adversely affected if drilling activity slows due to regulation and industry conditions beyond our control, in addition to changes in oil and gas prices. There is heightened federal regulatory focus on emissions of methane that occur during drilling and transportation, as well as state attention to protective disposal of drilling residuals. There also remains heightened attention from the public, some states and the EPA to the alleged potential for hydraulic fracturing that occurs during drilling to impact drinking water supplies. Increased regulation of oil and gas exploration and production, including GHG emissions or hydraulic fracturing, could make it more difficult or cost-prohibitive for our EES customers to continue operations, adversely affecting our business.

Additionally, any new regulations regarding the treatment and disposal of wastes associated with exploration and production operations, including through the use of injection wells, could increase our costs to provide oilfield services and reduce our margins and revenue from such services. Conversely, any loosening of regulations regarding how such wastes are handled or disposed of could adversely impact demand for our EES services.

Changes to the regulatory framework related to renewable fuel standards could affect our financial performance in that sector as a renewable fuel producer.

The Company acts as a renewable fuel producer in the RFS program enacted by Congress under the Energy Policy Act and Energy Independence and Security Act. Oil refiners and importers are required through the RFS program to blend specified volumes of renewable transportation fuels with gasoline or buy credits, referred to as RINs, from renewable fuel producers. The Company has invested, and continues to invest, in facilities that capture and convert landfill gas into renewable natural gas so that we can participate in the program. The value of the RINs associated with our landfill gas is set through a market established by the program. The EPA finalized a rule in December 2019 increasing refiners' obligations to purchase renewable natural gas and other cellulosic biofuels under the RFS program for compliance year 2020. Unlike in prior years, however, market uncertainty stemming from the EPA's administration of the RFS program led to a rapid decline in RIN values. We continue to advocate for the EPA to implement policies that ensure long-term stability for renewable transportation fuels as changes in the RFS market or the structure of the RFS program can and has reduced the value of renewable natural gas RINs and negatively impacted the financial performance of the facilities constructed to capture and treat the gas.

Increasing customer preference for alternatives to landfill disposal and bans on certain types of waste could reduce our landfill volumes and cause our revenues and operating results to decline.

Our customers are increasingly diverting waste to alternatives to landfill disposal, such as recycling and composting, while also working to reduce the amount of waste they generate. In addition, many state and local governments mandate diversion, recycling and waste reduction at the source and prohibit the disposal of certain types of waste, such as yard waste, food waste and electronics at landfills. Where such organic waste is not banned from the landfill, some large customers such as grocery stores and restaurants are choosing to divert their organic waste from landfills. Zero-waste goals (sending no waste to the landfill) have been set by many of North America's largest companies. Although such mandates and initiatives help to protect our environment, these developments reduce the volume of waste going to our landfills which may affect the prices that we can charge for landfill disposal. Our landfills currently provide our highest income from operations margins. If we are not successful in expanding our service offerings, growing lines of businesses to service waste streams that do not go to landfills providing services for customers that wish to reduce waste entirely, then our revenues and operating results may decline. Additionally, despite the development of new service offerings and lines of business, it is possible that our revenues and our income from operations margins could be negatively affected due to disposal alternatives.

With a heightened awareness of the global problems caused by plastic waste in the environment, an increasing number of cities across the country have passed ordinances banning certain types of plastics from sale or use. Over 800 pieces of

legislation, approximately 50% of which are bans on plastic bags, have been introduced in the U.S. regulating plastics; 660 passed, including 585 city ordinances. Others include bans on the sale or use of plastic straws, polystyrene plastic and single use packaging. These bans have increased pressure by manufacturers on our recycling facilities to accept a broader array of materials in curbside recycling programs to alleviate public pressures to ban the sale of those materials. However, there are currently no viable end markets for recycling these materials and inclusion of such materials in our recycling stream increases contamination and operating costs and can negatively affect the results of our recycling operations.

Developments in technology could trigger a fundamental change in the waste management industry, as waste streams are increasingly viewed as a resource, which may adversely impact volumes at our landfills and our profitability.

Our Company and others have recognized the value of the traditional waste stream as a potential resource. Research and development activities are on-going to provide disposal alternatives that maximize the value of waste, including using waste as a source for renewable energy and other valuable by-products. We and many other companies are investing in these technologies. It is possible that such investments and technological advancements may reduce the cost of waste disposal or the value of landfill gas recovery to a level below our costs and may reduce the demand for landfill space. As a result, our revenues and margins could be adversely affected due to advancements in disposal alternatives.

If we are not able to develop new service offerings and protect intellectual property or if a competitor develops or obtains exclusive rights to a breakthrough technology, our financial results may suffer.

Our existing and proposed service offerings to customers require that we invest in, develop or license, and protect new technologies. Research and development of new technologies and investment in emerging technologies often requires significant spending that may divert capital investment away from our traditional business operations. We may experience difficulties or delays in the research, development, production and/or marketing of new products and services or emerging technologies in which we have invested, which may negatively impact our operating results and prevent us from recouping or realizing a return on the investments required to bring new products and services to market. Further, protecting our intellectual property rights and combating unlicensed copying and use of intellectual property is difficult, and any inability to obtain or protect new technologies could impact our services to customers and development of new revenue sources. Our Company and others are increasingly focusing on new technologies that innovate our operations, improve the customer experience and provide alternatives to traditional disposal and maximize the resource value of waste. If a competitor develops or obtains exclusive rights to a “breakthrough technology” that provides a revolutionary change in traditional waste management, or if we have inferior intellectual property to our competitors, our financial results may suffer.

Our business depends on our reputation and the value of our brand.

We believe we have developed a reputation for high-quality service, reliability and social and environmental responsibility, and we believe our brand symbolizes these attributes. The Waste Management brand name, trademarks and logos and our reputation are powerful sales and marketing tools, and we devote significant resources to promoting and protecting them. Adverse publicity, whether or not justified, relating to activities by our operations, employees or agents could tarnish our reputation and reduce the value of our brand. Damage to our reputation and loss of brand equity could reduce demand for our services. This reduction in demand, together with the dedication of time and expense necessary to defend our reputation, could have an adverse effect on our financial condition, liquidity and results of operations, as well as require additional resources to rebuild our reputation and restore the value of our brand.

Our operations are subject to environmental, health and safety laws and regulations, as well as contractual obligations that may result in significant liabilities.

There is risk of incurring significant environmental liabilities in the use, treatment, storage, transfer and disposal of waste materials. Under applicable environmental laws and regulations, we could be liable if it is alleged that our operations cause environmental damage to our properties or to the property of other landowners, particularly as a result of the contamination of air, drinking water or soil. Under current law, we could also be held liable for damage caused by conditions that existed before we acquired the assets or operations involved and for conditions resulting from waste types or compounds previously considered non-hazardous but later determined to present possible threat to public health or the environment. The risks of successor liability and emerging contaminants are of particular concern as we execute our growth strategy, partially though acquisitions, because we may be unsuccessful in identifying and assessing potential liabilities during our due diligence investigations. Further, the counterparties in such transactions may be unable to perform their indemnification obligations owed to us. Any substantial liability for environmental damage could have a material adverse effect on our financial condition, results of operations and cash flows.

In the ordinary course of our business, we have in the past, we are currently, and we may in the future, become involved in legal and administrative proceedings relating to land use and environmental laws and regulations. These include proceedings in which:

- agencies of federal, state, local or foreign governments seek to impose liability on us under applicable statutes, sometimes involving civil or criminal penalties for violations, or to revoke or deny renewal of a permit we need; and
- local communities, citizen groups, landowners or governmental agencies oppose the issuance of a permit or approval we need, allege violations of the permits under which we operate or laws or regulations to which we are subject, or seek to impose liability on us for environmental damage.

We generally seek to work with the authorities or other persons involved in these proceedings to resolve any issues raised. If we are not successful, the adverse outcome of one or more of these proceedings could result in, among other things, material increases in our costs or liabilities as well as material charges for asset impairments.

Further, we often enter into agreements with landowners imposing obligations on us to meet certain regulatory or contractual conditions upon site closure or upon termination of the agreements. Compliance with these agreements inherently involves subjective determinations and may result in disputes, including litigation. Costs to remediate or restore the condition of closed sites may be significant.

General economic conditions can directly and adversely affect our revenues and our income from operations margins.

Our business is directly affected by changes in national and general economic factors that are outside of our control, including consumer confidence, interest rates and access to capital markets. A weak economy generally results in decreased consumer spending and decreases in volumes of waste generated, which negatively impacts the ability to grow through new business or service upgrades, and may result in customer turnover and reduction in customers' waste service needs. Consumer uncertainty and the loss of consumer confidence may also reduce the number and variety of services requested by customers. Additionally, a weak market for consumer goods can significantly decrease demand by paper mills for recycled corrugated cardboard used in packaging; such decrease in demand can negatively impact commodity prices and our operating income and cash flows.

A decrease in waste volumes generated results in an increase in competitive pricing pressure; such economic conditions may also interfere with our ability to implement our pricing strategy. Many of our contracts have price adjustment provisions that are tied to an index such as the Consumer Price Index, and our costs may increase more than the increase, if any, in the Consumer Price Index. This is partially due to our relatively high fixed-cost structure, which is difficult to quickly adjust to match shifting volume levels and vendor costs, and may not correlate with the Consumer Price Index or the waste industry.

Weakness in the economy may expose us to credit risk of governmental entities and municipalities and other major customers, which could negatively impact our operating results.

We provide service to a number of governmental entities, municipalities, and large national accounts. During periods of economic weakness, governmental entities and municipalities can suffer significant financial difficulties, due in part to reduced tax revenue and/or high cost structures. During these periods, such entities, and our non-governmental customers, could be unable to pay amounts owed to us or renew contracts with us at previous or increased rates.

Purchasers of our recycling commodities can be particularly vulnerable to financial difficulties in times of commodity price volatility. The inability of our customers to pay us in a timely manner or to pay increased rates, particularly large national accounts, could negatively affect our operating results.

In addition, the financial difficulties of municipalities could result in a decline in investors' demand for municipal bonds and a correlating increase in interest rates. As of December 31, 2019, we had $669 million of tax-exempt bonds with term interest rate periods that expire within the next 12 months and $355 million of variable-rate tax-exempt bonds with interest rates reset on either a daily or a weekly basis. If market dynamics resulted in repricing of our tax-exempt bonds at significantly higher interest rates, we would incur increased interest expenses that may negatively affect our operating results and cash flows.

We may be unable to obtain or maintain required permits or expand existing permitted capacity of our landfills, which could decrease our revenue and increase our costs.

Our ability to meet our financial and operating objectives depends in part on our ability to obtain and maintain the permits necessary to operate landfill sites. Permits to build, operate and expand solid waste management facilities, including landfills and transfer stations, have become more difficult and expensive to obtain and maintain. Permits often take years to obtain as a result of numerous hearings and compliance requirements with regard to zoning, environmental and other regulations. These permits are also often subject to resistance from citizen or other groups and other political pressures. Local communities and citizen groups, adjacent landowners or governmental agencies may oppose the issuance of a permit or approval we may need, allege violations of the permits under which we currently operate or laws or regulations to which we are subjected, or seek to impose liability on us for environmental damage. Responding to these challenges has, at times, increased our costs and extended the time associated with establishing new facilities and expanding existing facilities. In addition, failure to receive regulatory and zoning approval may prohibit us from establishing new facilities or expanding existing facilities. Our failure to obtain the required permits to operate our landfills could have a material adverse impact on our financial condition, results of operations and cash flows.

Significant shortages in diesel fuel supply or increases in diesel fuel prices will increase our operating expenses.

The price and supply of diesel fuel can fluctuate significantly based on international, political and economic circumstances, as well as other factors outside our control, such as actions by the Organization of the Petroleum Exporting Countries ("OPEC") and other oil and gas producers, regional production patterns, weather conditions and environmental concerns. We need diesel fuel to run a significant portion of our collection and transfer trucks and our equipment used in our landfill operations. Supply shortages could substantially increase our operating expenses. Additionally, if fuel prices increase, our direct operating expenses increase and many of our vendors raise their prices to offset their own rising costs. We have in place a fuel surcharge program, designed to offset increased fuel expenses; however, we may not be able to pass through all of our increased costs and some customers' contracts prohibit any pass-through of the increased costs. Additionally, lawsuits have challenged our fuel and environmental charges included on our invoices. Regardless of any offsetting surcharge programs, increased operating costs due to higher diesel fuel prices will decrease our income from operations margins.

We have made significant investments in an extensive natural gas truck fleet, which makes us partially dependent on the availability of natural gas and fueling infrastructure and vulnerable to natural gas prices, and requirements to transition to other vehicle types could impair these investments.

We operate a large fleet of natural gas vehicles, and we plan to continue to invest in these assets for our collection fleet. However, natural gas fueling infrastructure is not yet broadly available in North America; as a result, we have constructed and operate natural gas fueling stations, some of which also serve the public or pre-approved third parties. It will remain necessary for us to invest capital in fueling infrastructure in order to power our natural gas fleet. Concerns have been raised about the potential for emissions from fueling infrastructure that serve natural gas-fueled vehicles. New regulation of, or restrictions on, natural gas fueling infrastructure or reductions in associated tax incentives could increase our operating costs. Additionally, fluctuations in the price and supply of natural gas could substantially increase our operating expenses; a reduction in the existing cost differential between natural gas and diesel fuel could materially reduce

the benefits we anticipate from our investment in natural gas vehicles. Further, our fuel surcharge program is currently indexed to diesel fuel prices, and price fluctuations for natural gas may not effectively be recovered by this program.

There is increasing pressure to reduce the use of fossil fuel in the heavy-duty truck industry, and some cities and states are beginning to discuss requirements for using more advanced engine technology, such as electric powered vehicles, rather than natural gas or diesel vehicles. Although current options for heavy-duty electric vehicles lack sufficient range and proven experience for our operations, requirements to transition to electric powered vehicles could increase our cost of vehicles and impair our investment in our natural gas fleet and infrastructure

We are increasingly dependent on technology in our operations and if our technology fails, our business could be adversely affected.

We may experience problems with the operation of our current information technology systems or the technology systems of third parties on which we rely, as well as the development and deployment of new information technology systems, that could adversely affect, or even temporarily disrupt, all or a portion of our operations until resolved. Inabilities and delays in implementing new systems can also affect our ability to realize projected or expected cost savings. Additionally, any systems failures could impede our ability to timely collect and report financial results in accordance with applicable laws and regulations.

We are implementing a new enterprise resource planning system, and challenges with the implementation of the system may impact our business and operations.

We are in the process of a complex, multi-year implementation of a new enterprise resource planning ("ERP") system. The ERP system implementation requires the integration of the new ERP system with multiple new and existing information systems and business processes and is designed to accurately maintain our books and records and provide information to our management team important to the operation of the business. Such an implementation is a major undertaking from a financial, management, and personnel perspective. The implementation of the ERP system may prove to be more difficult, costly, or time consuming than expected, and it is possible that the system will not yield the benefits anticipated. Any disruptions, delays or deficiencies in the design and implementation of our new ERP system could adversely affect our ability to produce timely and accurate financial statements or comply with applicable regulations, resulting in negative impacts on our business and operations and subject us to potential liability. Additionally, our implementation of the ERP system involves greater utilization of third-party "cloud" computing services in connection with our business operations. Problems faced by us or our third-party providers, including technological or business-related disruptions, as well as cybersecurity threats, could adversely impact our business, results of operations and financial condition for future periods.

A cybersecurity incident could negatively impact our business and our relationships with customers and expose us to increased liability.

Substantially all aspects of our business operations rely on digital technology. We use computers, mobile devices, social networking and other online platforms to connect with our employees and our customers. These uses give rise to cybersecurity risks, including security breach, espionage, system disruption, theft and inadvertent release of information. Our business involves the storage and transmission of numerous classes of sensitive and/or confidential information and intellectual property, including customers' personal information, private information about employees, and financial and strategic information about the Company and its business partners. We also rely on a Payment Card Industry compliant third party to protect our customers' credit card information.

We are regularly the target of attempted cyber intrusions, and we must commit substantial resources to continuously monitor and further develop our networks and infrastructure to prevent, detect, and address the risk of unauthorized access, misuse, computer viruses and other events. Our preventative measures and incident response efforts may not be effective in all cases. The theft, destruction, loss, misappropriation, or release of sensitive and/or confidential information or intellectual property, or interference with our information technology systems or the technology systems of third parties on which we rely, could result in business disruption, direct financial loss, negative publicity, brand damage, alleged

violation of privacy laws, loss of customers, potential regulatory enforcement or private litigation liability and competitive disadvantage.

Further, as the Company pursues its strategy to grow through acquisitions and to pursue new initiatives that improve our operations and cost structure, the Company is also expanding and improving its information technologies, resulting in a larger technological presence and corresponding exposure to cybersecurity risk. Certain new technologies, such as use of autonomous vehicles, remote-controlled equipment and virtual reality, present new and significant cybersecurity safety risks that must be analyzed and addressed before implementation. If we fail to assess and identify cybersecurity risks associated with acquisitions and new initiatives, we may become increasingly vulnerable to such risks.

Increasing regulatory focus on privacy and data protection issues and expanding laws could negatively impact our business, subject us to criticism and expose us to increased liability.

The legislative and regulatory framework for privacy and data protection issues worldwide is rapidly evolving and is likely to remain uncertain for the foreseeable future. We collect certain personally identifiable information and other sensitive information as integral parts of our business and in connection with providing services to our customers. We are subject to a variety of laws and regulations that govern the collection and use of such information obtained from individuals and businesses. These laws and regulations are inconsistent across jurisdictions and are subject to evolving interpretations. Government officials, regulators, privacy advocates and class action attorneys are increasingly scrutinizing how companies collect, process, use, store, share and transmit personal data. We must continually monitor the development and adoption of new and emerging laws and regulations, such as the California Consumer Privacy Act ("CCPA") that took effect on January 1, 2020. The CCPA, among other things, contains new disclosure obligations for businesses that collect personal information about California residents and affords those individuals new rights relating to their personal information that can expand the scope of our potential liability. We must commit substantial time and resources toward compliance with the CCPA and similar laws and regulations, Any inability, or perceived inability, to adequately address privacy and data protection concerns, even if unfounded, or comply with applicable laws, regulations, policies, industry standards, contractual obligations, or other legal obligations, including at newly acquired companies, could subject us to regulatory enforcement, private litigation, public criticism, disrupt our operations, cause us to lose customers, result in additional costs and legal liability, damage our reputation, and otherwise harm our business.

Our operating expenses could increase as a result of labor unions organizing or changes in regulations related to labor unions.

Labor unions continually attempt to organize our employees, and these efforts will likely continue in the future. Certain groups of our employees are currently represented by unions, and we have negotiated collective bargaining agreements with these unions. Additional groups of employees may seek union representation in the future, and, if successful, would enhance organized labor's leverage to obtain higher than expected wage and benefits costs and resist the introduction of new technology and other initiatives, which can result in increased operating expenses and lower net income. If we are unable to negotiate acceptable collective bargaining agreements, our operating expenses could increase significantly as a result of work stoppages, including strikes. Any of these matters could adversely affect our financial condition, results of operations and cash flows.

We could face significant liabilities for withdrawal from Multiemployer Pension Plans.

We are a participating employer in a number of trustee-managed multiemployer defined benefit pension plans ("Multiemployer Pension Plans") for employees who are covered by collective bargaining agreements. In the event of our withdrawal from a Multiemployer Pension Plan, we may incur expenses associated with our obligations for unfunded vested benefits at the time of the withdrawal. Depending on various factors, future withdrawals could have a material adverse effect on results of operations or cash flows for a particular reporting period. See Notes 10 and 11 to the Consolidated Financial Statements for more information related to our participation in Multiemployer Pension Plans.

Our business is subject to operational and safety risks, including the risk of personal injury to employees and others.

Providing environmental and waste management services, including constructing and operating landfills, transfer stations, MRFs and other disposal facilities, involves risks such as truck accidents, equipment defects, malfunctions and failures. Additionally, we closely monitor and manage landfills to minimize the risk of waste mass instability, releases of hazardous materials, and odors that are sometimes triggered by weather or natural disasters. There are also risks presented by the potential for subsurface heat reactions causing elevated landfill temperatures and increased production of leachate, landfill gas and odors. We also build and operate natural gas fueling stations, some of which also serve the public or third parties. Operation of fueling stations and landfill gas collection and control systems involves additional risks of fire and explosion. Any of these risks could potentially result in injury or death of employees and others, a need to shut down or reduce operation of facilities, increased operating expense and exposure to liability for pollution and other environmental damage, and property damage or destruction.

While we seek to minimize our exposure to such risks through comprehensive training, compliance and response and recovery programs, as well as vehicle and equipment maintenance programs, if we were to incur substantial liabilities in excess of any applicable insurance, our business, results of operations and financial condition could be adversely affected. Any such incidents could also tarnish our reputation and reduce the value of our brand. Additionally, a major operational failure, even if suffered by a competitor, may bring enhanced scrutiny and regulation of our industry, with a corresponding increase in operating expense.

We have substantial financial assurance and insurance requirements, and increases in the costs of obtaining adequate financial assurance, or the inadequacy of our insurance coverages, could negatively impact our liquidity and increase our liabilities.

The amount of insurance we are required to maintain for environmental liability is governed by statutory requirements. We believe that the cost for such insurance is high relative to the coverage it would provide and, therefore, our coverages are generally maintained at the minimum statutorily-required levels. We face the risk of incurring additional costs for environmental damage if our insurance coverage is ultimately inadequate to cover those damages. We also carry a broad range of other insurance coverages that are customary for a company our size. We use these programs to mitigate risk of loss, thereby enabling us to manage our self-insurance exposure associated with claims. The inability of our insurers to meet their commitments in a timely manner and the effect of significant claims or litigation against insurance companies may subject us to additional risks. To the extent our insurers are unable to meet their obligations, or our own obligations for claims are more than we estimated, there could be a material adverse effect to our financial results.

In addition, to fulfill our financial assurance obligations with respect to variable-rate tax-exempt debt, final capping, closure, post-closure and environmental remediation obligations, we generally obtain letters of credit or surety bonds, rely on insurance, including captive insurance, fund trust and escrow accounts or rely upon WM financial guarantees. We currently have in place all financial assurance instruments necessary for our operations. Our financial position, which can be negatively affected by asset impairments, our credit profile and general economic factors, may adversely affect the cost of our current financial assurance instruments, and changes in regulations may impose stricter requirements on the types of financial assurance that will be accepted. Additionally, in the event we are unable to obtain sufficient surety bonding, letters of credit or third-party insurance coverage at reasonable cost, or one or more states cease to view captive insurance as adequate coverage, we would need to rely on other forms of financial assurance. It is possible that we could be forced to deposit cash to collateralize our obligations. Other forms of financial assurance could be more expensive to obtain, and any requirements to use cash to support our obligations would negatively impact our liquidity and capital resources and could affect our ability to meet our obligations as they become due.

We may record material charges against our earnings due to impairments to our assets.

In accordance with U.S. Generally Accepted Accounting Principles ("GAAP"), we capitalize certain expenditures and advances relating to disposal site development, expansion projects, acquisitions, software development costs and other projects. Events that have in the past and may in the future lead to an impairment include, but are not limited to, shutting down a facility or operation or abandoning a development project or the denial of an expansion permit. Additionally,

declining waste volumes and development of, and customer preference for, alternatives to traditional waste disposal could warrant asset impairments. If we determine an asset or expansion project is impaired, we will charge against earnings any unamortized capitalized expenditures and advances relating to such asset or project reduced by any portion of the capitalized costs that we estimate will be recoverable, through sale or otherwise. We also carry a significant amount of goodwill on our Consolidated Balance Sheets, which is required to be assessed for impairment annually, and more frequently in the case of certain triggering events. We have in the past and may in the future be required to incur charges against earnings if such impairment tests indicate that the fair value of a reporting unit is below its carrying amount. Any such charges could have a material adverse effect on our results of operations.

Our capital requirements and our business strategy could increase our expenses, cause us to change our growth and development plans, or result in an inability to maintain our desired credit profile.

If economic conditions or other risks and uncertainties cause a significant reduction in our cash flows from operations, we may reduce or suspend capital expenditures, growth and acquisition activity, implementation of our business strategy, dividend declarations or share repurchases. We may choose to incur indebtedness to pay for these activities, although our access to capital markets is not assured and we may not be able to incur indebtedness at a cost that is consistent with current borrowing rates. We also may need to incur indebtedness to refinance scheduled debt maturities, and it is possible that the cost of financing could increase significantly, thereby increasing our expenses and decreasing our net income. Further, our ability to execute our financial strategy and our ability to incur indebtedness is somewhat dependent upon our ability to maintain investment grade credit ratings on our senior debt. The credit rating process is contingent upon our credit profile and several other factors, many of which are beyond our control, including methodologies established and interpreted by third-party rating agencies. If we were unable to maintain our investment grade credit ratings in the future, our interest expense would increase and our ability to obtain financing on favorable terms could be adversely affected.

Additionally, we have $1.0 billion of debt as of December 31, 2019 that is exposed to changes in market interest rates within the next 12 months because of the impact of our tax-exempt bonds. If interest rates increase, our interest expense would also increase, lowering our net income and decreasing our cash flow.

We may use our $3.5 billion revolving credit facility to meet our cash needs, to the extent available, until maturity in November 2024. As of December 31, 2019, we had no outstanding borrowings and $412 million of letters of credit issued and supported by the facility, leaving unused and available credit capacity of $3.1 billion. In the event of a default under our credit facility, we could be required to immediately repay all outstanding borrowings and make cash deposits as collateral for all obligations the facility supports, which we may not be able to do. Additionally, any such default could cause a default under many of our other credit agreements and debt instruments. Without waivers from lenders party to those agreements, any such default would have a material adverse effect on our ability to continue to operate.

The impact of climate change, and the adoption of climate change legislation or regulations restricting emissions of "greenhouse gases," could increase our costs to operate.

We continue to assess the physical risks to our operations from the effects of climate change. Although we have made investments to mitigate risk associated with severe storm events, damage to our facilities or disruption of service caused by more frequent or more severe storms associated with climate extremes could negatively impact operating results. We have also identified risk to our assets and our employees associated with drought or water scarcity, flooding, extreme heat and rain events, and fire conditions associated with climate change. For example, wildfires influenced by climate change can damage landfill infrastructure such as gas collection systems, flooding in low-lying areas enhanced by sea level rise can result in greater maintenance expenses at our facilities and service disruption, and more frequent or extreme rain events can erode the protective vegetative caps on our landfills and generate increased volumes of leachate to manage. Those areas of the country most prone to these occurrences have protocols in place, or are developing protocols to address these conditions, including employee safety, driver training, and equipment and facility protection protocols. We have incurred and will incur costs to develop and implement these protocols, and these protocols may not be effective in offsetting these risks. Additionally, the actions of others in response to climate change effects, such as the rolling power blackouts implemented in California in 2019 due to wildfire risks, can result in service disruptions and increase our costs to operate.

Our landfill operations emit methane, identified as a GHG. There are a number of legislative and regulatory efforts at the state, provincial, regional and federal levels to cap and/or curtail the emission of GHGs to ameliorate the effect of climate change. We continue to monitor these efforts and the potential impacts to our operations. Should comprehensive federal climate change legislation be enacted, we expect it could impose costs on our operations that might not be offset by the revenue increases associated with our lower-carbon service options, the materiality of which we cannot predict. In 2010, the EPA published a Prevention of Significant Deterioration and Title V GHG Tailoring Rule, which expanded the EPA's federal air permitting authority to include the six GHGs. The rule sets new thresholds for GHG emissions that define when Clean Air Act permits are required. The current requirements of these rules have not significantly affected our operations or cash flows, due to the tailored thresholds and exclusions of certain emissions from regulation; however, if certain changes to these regulations were enacted, such as lowering the thresholds or the inclusion of biogenic emissions, then the amendments could have an adverse effect on our operating costs.

The seasonal nature of our business, severe weather events resulting from climate change and event driven special projects cause our results to fluctuate, and prior performance is not necessarily indicative of our future results.

Our operating revenues tend to be somewhat higher in summer months, primarily due to the higher construction and demolition waste volumes. The volumes of industrial and residential waste in certain regions where we operate also tend to increase during the summer months. Our second and third quarter revenues and results of operations typically reflect these seasonal trends.

Service disruptions caused by severe storms, extended periods of inclement weather or climate extremes resulting from climate change can significantly affect the operating results of the Areas affected. On the other hand, certain destructive weather and climate conditions, such as wildfires in the Western U.S. and hurricanes that most often impact our operations in the Southern and Eastern U.S. during the second half of the year, can increase our revenues in the Areas affected as a result of the waste volumes generated by these events. While weather-related and other event driven special projects can boost revenues through additional work for a limited time, due to significant start-up costs and other factors, such revenue can generate earnings at comparatively lower margins.

For these and other reasons, operating results in any interim period are not necessarily indicative of operating results for an entire year, and operating results for any historical period are not necessarily indicative of operating results for a future period. Our stock price may be negatively impacted by interim variations in our results.

We could be subject to significant fines and penalties, and our reputation could be adversely affected, if our businesses, or third parties with whom we have a relationship, were to fail to comply with U.S. or foreign laws or regulations.

Some of our projects and new business may be conducted in countries where corruption has historically been prevalent. It is our policy to comply with all applicable anti-bribery laws, such as the U.S. Foreign Corrupt Practices Act, and with applicable local laws of the foreign countries in which we operate, and we monitor our local partners' compliance with such laws as well. Our reputation may be adversely affected if we were reported to be associated with corrupt practices or if we or our local partners failed to comply with such laws. Such damage to our reputation could adversely affect our ability to grow our business. Additionally, violations of such laws could subject us to significant fines and penalties.

Currently pending or future litigation or governmental proceedings could result in material adverse consequences, including judgments or settlements.

From time to time we are involved in governmental proceedings relating to the conduct of our business. We are also party to civil litigation. As a large company with operations across the U.S. and Canada, we are subject to various proceedings, lawsuits, disputes and claims arising in the ordinary course of our business. Actions that have been filed against us, and that may be filed against us in the future, include personal injury, property damage, commercial, customer, and employment-related claims, including purported state and national class action lawsuits related to:

- alleged environmental contamination, including releases of hazardous materials and odors;
- sales and marketing practices, customer service agreements, prices and fees; and
- federal and state wage and hour and other laws.

The timing of the final resolutions to these types of matters is often uncertain. Additionally, the possible outcomes or resolutions to these matters could include adverse judgments or settlements, either of which could require substantial payments, adversely affecting our liquidity.

We may experience adverse impacts on our reported results of operations as a result of adopting new accounting standards or interpretations.

Our implementation of and compliance with changes in accounting rules, including new accounting rules and interpretations, could adversely affect our reported financial position or operating results or cause unanticipated fluctuations in our reported operating results in future periods.

Item 1B. *Unresolved Staff Comments.*

None.

Item 2. *Properties.*

Our principal executive offices are in Houston, Texas, where we occupy approximately 345,000 square feet under leases expiring through 2020. We plan to relocate our principal executive offices within Houston, Texas during 2020. We also have administrative offices in Arizona, Connecticut, Illinois and India. We own or lease real property in most locations where we have operations or administrative functions. We have operations in all 50 states except Montana, the District of Columbia and throughout Canada.

Our principal property and equipment consist of land (primarily landfills and other disposal facilities, transfer stations and bases for collection operations), buildings, vehicles and equipment. We believe that our operating properties, vehicles and equipment are adequately maintained and sufficient for our current operations. However, we expect to continue to make investments in additional property and equipment for expansion, for the replacement of aging assets and investment in assets that support our strategy of continuous improvement through efficiency and innovation. For more information, see Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations* included within this report.

The following table summarizes our various operations as of December 31:

	2019	2018
Landfills owned or operated (a)	249	252
Transfer stations	302	314
Material recovery facilities	103	102

(a) As of December 31, 2019 and 2018, our landfills owned or operated consisted of total acreage of 159,080 and 157,369; permitted acreage of 42,992 and 42,730; and expansion acreage of 795 and 944, respectively. Total acreage includes

permitted acreage, expansion acreage, other acreage available for future disposal that has not been permitted, buffer land and other land. Permitted acreage consists of all acreage at the landfill encompassed by an active permit to dispose of waste. Expansion acreage consists of unpermitted acreage where the related expansion efforts meet our criteria to be included as expansion airspace. A discussion of the related criteria is included within Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Estimates and Assumptions* included within this report.

Item 3. *Legal Proceedings.*

Information regarding our legal proceedings can be found under the *Environmental Matters* and *Litigation* sections of Note 11 to the Consolidated Financial Statements included within this report.

Item 4. *Mine Safety Disclosures.*

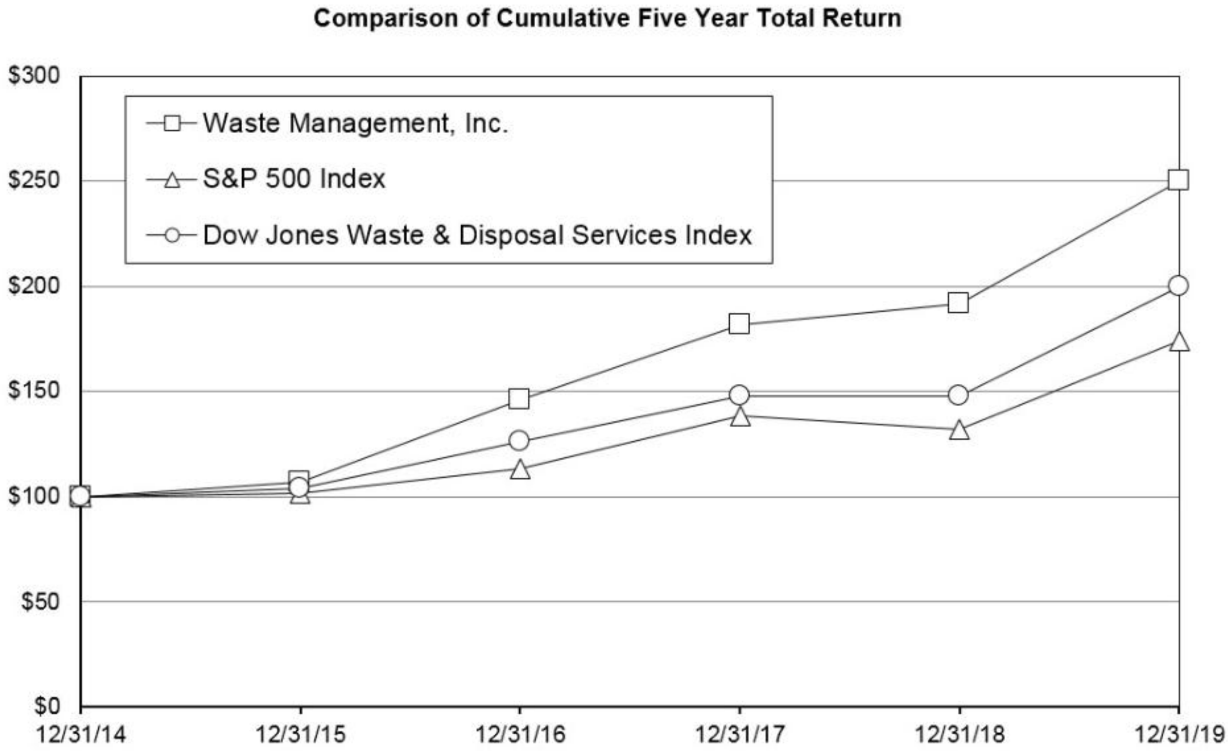
Information concerning mine safety and other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 104 of Regulation S-K is included in Exhibit 95 to this annual report.

PART II

Item 5. ***Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities.***

Our common stock is traded on the New York Stock Exchange ("NYSE") under the symbol "WM." The number of holders of record of our common stock on February 7, 2020 was 8,712.

The graph below shows the relative investment performance of Waste Management, Inc. common stock, the S&P 500 Index and the Dow Jones Waste & Disposal Services Index for the last five years, assuming reinvestment of dividends at date of payment into the common stock. The graph is presented pursuant to SEC rules and is not meant to be an indication of our future performance.



	12/31/14	12/31/15	12/31/16	12/31/17	12/31/18	12/31/19
Waste Management, Inc.	$ 100	$ 107	$ 146	$ 182	$ 192	$ 250
S&P 500 Index	$ 100	$ 101	$ 114	$ 138	$ 132	$ 174
Dow Jones Waste & Disposal Services Index	$ 100	$ 104	$ 126	$ 148	$ 148	$ 200

The Company repurchases shares of its common stock as part of capital allocation programs authorized by our Board of Directors. In December 2019, we publicly confirmed that the Company has $1.32 billion remaining on its existing Board of Directors' authorization for future share repurchases. During 2019, we repurchased an aggregate of $244 million of our common stock under accelerated share repurchase agreements and open market repurchases, which equated to 2.3 million shares with a weighted average price per share of $108.60. See Note 14 to the Consolidated Financial Statements for additional information.

Any future share repurchases will be made at the discretion of management and will depend on various factors including our net earnings, financial condition and cash required for future business plans, growth and acquisitions.

Item 6. ***Selected Financial Data.***

The information below was derived from the audited Consolidated Financial Statements included within this report and in previous annual reports we filed with the SEC. This information should be read together with those Consolidated Financial Statements and the notes thereto. These historical results are not necessarily indicative of the results to be expected in the future.

	Years Ended December 31,				
	2019(a)	2018(a)	2017(a)	2016	2015
	(In Millions, Except per Share Amounts)				
Statement of Operations Data:					
Operating revenues	$15,455	$14,914	$14,485	$13,609	$12,961
Consolidated net income	1,671	1,923	1,949	1,180	752
Net income attributable to Waste Management, Inc.	1,670	1,925	1,949	1,182	753
Basic earnings per common share	3.93	4.49	4.44	2.66	1.66
Diluted earnings per common share	3.91	4.45	4.41	2.65	1.65
Balance Sheet Data:					
Working capital (deficit) (b)	$ 3,065	$ (463)	$ (568)	$ (418)	$ (165)
Total assets (b)	27,743	22,650	21,829	20,859	20,367
Long-term debt, including current portion	13,498	10,026	9,491	9,310	8,929
Total Waste Management, Inc. stockholders' equity	7,068	6,275	6,019	5,297	5,345
Total equity	7,070	6,276	6,042	5,320	5,367

(a) For more information see Item 7. *Management's Discussion and Analysis of Financial Condition and Results of Operations*.

(b) For disclosures associated with the impact of the adoption of new accounting standards on the comparability of this information, see Note 2 to the Consolidated Financial Statements included in this report.

Item 7. ***Management's Discussion and Analysis of Financial Condition and Results of Operations.***

This section includes a discussion of our results of operations for the three years ended December 31, 2019. This discussion may contain forward-looking statements that anticipate results based on management's plans that are subject to uncertainty. We discuss in more detail various factors that could cause actual results to differ materially from expectations in Item 1A. *Risk Factors*. The following discussion should be read considering those disclosures and together with the Consolidated Financial Statements and the notes thereto.

Overview

We are North America's leading provider of comprehensive waste management environmental services. We partner with our residential, commercial, industrial and municipal customers and the communities we serve to manage and reduce waste at each stage from collection to disposal, while recovering valuable resources and creating clean, renewable energy. We own or operate the largest network of landfills in North America. In order to make disposal more practical for larger urban markets, where the distance to landfills is typically farther, we manage transfer stations that consolidate, compact and transport waste efficiently and economically. We also use waste to create energy, recovering the gas produced naturally as waste decomposes in landfills and using the gas in generators to make electricity. Additionally, we are a leading recycler in North America, handling materials that include paper, cardboard, glass, plastic and metal. Our "Solid Waste" business is operated and managed locally by our subsidiaries that focus on distinct geographic areas and provides collection, transfer, disposal, and recycling and resource recovery services. Through our subsidiaries, we are also a leading developer, operator and owner of landfill gas-to-energy facilities in the U.S.

Our Solid Waste operating revenues are primarily generated from fees charged for our collection, transfer, disposal, and recycling and resource recovery services, and from sales of commodities by our recycling and landfill gas-to-energy operations. Revenues from our collection operations are influenced by factors such as collection frequency, type of

collection equipment furnished, type and volume or weight of the waste collected, distance to the disposal facility or material recovery facility and our disposal costs. Revenues from our landfill operations consist of tipping fees, which are generally based on the type and weight or volume of waste being disposed of at our disposal facilities. Fees charged at transfer stations are generally based on the weight or volume of waste deposited, taking into account our cost of loading, transporting and disposing of the solid waste at a disposal site. Recycling revenues generally consist of tipping fees and the sale of recycling commodities to third parties. The fees we charge for our services generally include our environmental fee, fuel surcharge and regulatory recovery fee which are intended to pass through to customers direct and indirect costs incurred. We also provide additional services that are not managed through our Solid Waste business, described under *Results of Operations* below.

Business Environment

The waste industry is a comparatively mature and stable industry. However, customers increasingly expect more of their waste materials to be recovered and those waste streams are becoming more complex. In addition, many state and local governments mandate diversion, recycling and waste reduction at the source and prohibit the disposal of certain types of waste at landfills. We monitor these developments to adapt our services offerings. As companies, individuals and communities look for ways to be more sustainable, we promote our comprehensive services that go beyond our core business of collecting and disposing of waste in order to meet their needs.

Despite some industry consolidation in recent years, we encounter intense competition from governmental, quasi-governmental and private service providers based on pricing, service quality, customer experience and breadth of service offerings. Our industry is directly affected by changes in general economic factors, including increases and decreases in consumer spending, business expansions and construction starts. These factors generally correlate to volumes of waste generated and impact our revenue. Negative economic conditions, in addition to competitor actions, can make it more challenging to negotiate, renew or expand service contracts with acceptable margins and in addition, customers may reduce their service needs. We also encounter competition for acquisitions and growth opportunities. General economic factors and the market for consumer goods, in addition to regulatory developments, can also significantly impact commodity prices for the recyclable materials we sell. Our operating expenses are directly impacted by volume levels; as volume levels shift, due to economic and other factors, we must manage our network capacity and cost structure accordingly.

In 2019, we have benefited from a generally favorable macro-economic environment, including steady spending by consumers and businesses, which have led to volume and gross margin growth. We experienced growth in our collection and disposal lines of business, particularly in the segments of our business driven by the consumer portion of the economy. Volume growth is also the result of proactive efforts taken to work with our customers as their needs expand to identify service upgrade opportunities. Overall in 2019, our landfill volumes were favorably impacted by growth in our municipal solid waste business, clean-up efforts from natural disasters in California during 2019 and event-driven projects. The portion of our business driven by the industrial segment of the economy, such as special waste, continues to show growth, although the pace of growth is starting to moderate as large industrial customers take a more cautious approach to awarding work for special projects. Additionally, we continued our focus on developing a sustainable recycling business model that meets customers' environmental needs, but is also economically sustainable. Given pressures on the business from lower market values for recycled commodities and higher contamination fees, we have been working to improve its financial returns by driving a fee-based pricing model that addresses the cost of processing materials and the impact on our costs of contamination. These efforts provided significant value to our 2019 results, though that value was more than offset by continued declines in market prices for recycled commodities. We will continue to take steps necessary to improve long-term profitability of our recycling line of business.

Overall, the Company's operations performed well in 2019. We expect the Company's industry-leading asset network and strategic focuses on investing in people, technology and growth to drive continued growth in the year ahead.

Current Year Financial Results

During 2019, we continued to produce strong operating results from our collection and disposal business, driven by favorable market conditions and our focus on delivering an outstanding customer experience and continuous improvement. The Company continued its commitment to supporting both organic and inorganic growth during 2019, allocating $1,818 million of available cash to capital expenditures and $527 million to the acquisition of solid waste businesses, of which $6 million was recorded as cash flow from financing activities related to the timing of contingent consideration paid. We also allocated $1,124 million to our shareholders during 2019 through dividends and common stock repurchases.

Key items of our 2019 financial results include:

- Revenues of $15,455 million for 2019 compared with $14,914 million in 2018, an increase of $541 million, or 3.6%. The increase is primarily attributable to (i) higher yield and volumes in our collection and disposal business and (ii) acquisitions, net of divestitures, partially offset by lower market prices for recycling commodities;

- Operating expenses of $9,496 million in 2019, or 61.4% of revenues, compared with $9,249 million, or 62.0% of revenues, in 2018. The $247 million increase is primarily attributable to higher volumes and cost inflation in the current year period, partially offset by (i) decreased cost of goods sold primarily due to lower market prices for recycling commodities and (ii) the favorable impact of a year-over-year increase in federal natural gas fuel credits;

- Selling, general and administrative expenses of $1,631 million in 2019, or 10.6% of revenues, compared with $1,453 million, or 9.7% of revenues, in 2018. This increase of $178 million is primarily attributable to (i) higher costs associated with planned investments in our people and technology; (ii) increased acquisition-related costs and (iii) litigation reserves;

- Income from operations of $2,706 million, or 17.5% of revenues, in 2019 compared with $2,789 million, or 18.7% of revenues, in 2018. Although 2019 benefited from strong operating results, primarily in our collection and disposal business, and the favorable impact of a year-over-year increase in federal natural gas fuel credits, cost inflation across various cost categories, costs associated with investments in our people and technology, acquisition-related costs and goodwill impairments drove a reduction in income from operations as compared with 2018. Additionally, 2018 was favorably impacted by net gains associated with the sale of certain collection and disposal operations and certain ancillary operations, partially offset by the impairment of a landfill;

- Net income attributable to Waste Management, Inc. was $1,670 million, or $3.91 per diluted share, compared with $1,925 million, or $4.45 per diluted share, in the prior year period. In addition to the decrease in income from operations, the current year was impacted by (i) increased depreciation and amortization expense related to new collection fleet and increased landfill volume; (ii) an $85 million loss on early extinguishment of debt; (iii) a $52 million impairment charge related to our minority-owned investment in a waste conversion technology business that was not deductible for tax purposes and (iv) a $27 million impairment of goodwill. Additionally, the prior year period was favorably impacted by net gains associated with the sale of operations discussed above;

- Net cash provided by operating activities was $3,874 million compared with $3,570 million in the prior year period; and

- Free cash flow was $2,105 million compared with $2,084 million in the prior year period. The increase in cash flow provided by operating activities noted above was offset by an increase in capital expenditures resulting from our intentional focus on accelerating certain collection fleet and landfill spending to support the Company's strong collection and disposal growth and lower proceeds from divestitures, which resulted in free cash flow being $21 million higher on a year-over-year basis. Free cash flow is a non-GAAP measure of liquidity. Refer to *Free Cash Flow* within *Liquidity and Capital Resources* for our definition of free cash flow, additional information about our use of this measure, and a reconciliation to net cash provided by operating activities, which is the most comparable GAAP measure.

Results of Operations

Operating Revenues

Our operating revenues set forth below are primarily generated from fees charged for our collection, transfer, disposal, and recycling and resource recovery services, and from sales of commodities by our recycling and landfill gas-to-energy operations. We also provide additional services that are not managed through our Solid Waste business, including both our WMSBS and EES organizations, recycling brokerage services, landfill gas-to-energy services and certain other expanded service offerings and solutions.

The mix of operating revenues from our major lines of business is reflected in the table below for the years ended December 31 (in millions):

	2019	2018	2017
Commercial	$ 4,229	$ 3,972	$ 3,714
Residential	2,613	2,529	2,528
Industrial	2,916	2,773	2,583
Other collection	482	450	439
Total collection	10,240	9,724	9,264
Landfill	3,846	3,560	3,370
Transfer	1,820	1,711	1,591
Recycling	1,040	1,293	1,432
Other (a)	1,758	1,736	1,713
Intercompany (b)	(3,249)	(3,110)	(2,885)
Total	$15,455	$14,914	$14,485

(a) The “Other” line of business includes (i) our WMSBS organization; (ii) our landfill gas-to-energy operations; (iii) certain services within our EES organization, including our construction and remediation services and our services associated with the disposal of fly ash and (iv) certain other expanded service offerings and solutions. In addition, our “Other” line of business reflects the results of non-operating entities that provide financial assurance and self-insurance support, net of intercompany activity. Activity related to collection, landfill, transfer and recycling has been reclassified to the appropriate line of business for purposes of presentation.

(b) Intercompany revenues between lines of business are eliminated in the Consolidated Financial Statements included within this report.

The following table provides details associated with the period-to-period change in revenues and average yield for the years ended December 31 (dollars in millions):

	2019 vs. 2018				2018 vs. 2017			
	Amount	As a % of Related Business(a)	Amount	As a % of Total Company(b)	Amount	As a % of Related Business(a)	Amount	As a % of Total Company(b)
Collection and disposal	$ 364	2.8 %			$ 291	2.3 %		
Recycling commodities (c)	(248)	(20.0)			(273)	(19.1)		
Fuel surcharges and mandated fees	(22)	(3.5)			111	21.3		
Total average yield (d)			$ 94	0.6 %			$ 129	0.9 %
Volume			346	2.3			478	3.3
Internal revenue growth			440	2.9			607	4.2
Acquisitions			222	1.5			199	1.4
Divestitures			(104)	(0.7)			(133)	(0.9)
Foreign currency translation and other			(17)	(0.1)			(244)	(1.7)
Total			$ 541	3.6 %			$ 429	3.0 %

(a) Calculated by dividing the increase or decrease for the current year by the prior year's related business revenue adjusted to exclude the impacts of divestitures for the current year.

(b) Calculated by dividing the increase or decrease for the current year by the prior year's total Company revenue adjusted to exclude the impacts of divestitures for the current year.

(c) Includes net impact of commodity price variability and changes in fees.

(d) The amounts reported herein represent the changes in our revenue attributable to average yield for the total Company.

The following provides further details about our period-to-period change in revenues:

Average Yield

Collection and Disposal Average Yield — This measure reflects the effect on our revenue from the pricing activities of our collection, transfer and landfill operations, exclusive of volume changes. Revenue growth from collection and disposal average yield includes not only base rate changes and environmental and service fee increases, but also (i) certain average price changes related to the overall mix of services, which are due to the types of services provided; (ii) changes in average price from new and lost business and (iii) price decreases to retain customers.

The details of our revenue growth from collection and disposal average yield for the years ended December 31 are as follows (dollars in millions):

	2019 vs. 2018		2018 vs. 2017	
	Amount	As a % of Related Business	Amount	As a % of Related Business
Commercial	$ 109	3.0 %	$ 99	2.9 %
Industrial	103	4.0	107	4.4
Residential	81	3.3	47	1.9
Total collection	293	3.3	253	2.9

Landfill	44	2.0	22	1.1
Transfer	27	2.9	16	1.9
Total collection and disposal	$ 364	2.8 %	$ 291	2.3 %

Our strategic pricing efforts focus on ensuring we overcome inflationary cost pressures and grow margins. This strategy has been most successful in our collection line of business for both 2019 and 2018. We are also experiencing solid growth in our landfill and transfer businesses, with our municipal solid waste business experiencing 3.8% and 2.2% average yield growth for the years ended December 31, 2019 and 2018, respectively, as compared with the prior year periods.

Recycling Commodities — Decreases in the market prices for recycling commodities resulted in revenue declines of $248 million and $273 million for the years ended December 31, 2019 and 2018, respectively, as compared with the prior year periods. We partially offset our revenue decline by assessing fees to cover the higher costs of handling contaminated recycling materials. Average market prices for recycling commodities at the Company’s facilities were 35% lower in 2019 compared to 2018 and 40% lower in 2018 compared to 2017. We have seen a decreased demand from paper mills around the world which had driven prices to historical low averages. There are several domestic mill projects anticipated to start during 2020 that we expect will add additional capacity and more local demand for recycled materials. However, we do not expect material changes in market prices for recycling commodities as a result of this additional capacity. The cardboard packaging industry has been impacted by slower global demand, retail store closures and e-commerce packaging efficiency. We will continue to take steps necessary to improve long-term profitability of our recycling line of business.

Fuel Surcharges and Mandated Fees — These fees, which are predominantly generated by our fuel surcharge program, declined $22 million for 2019 and increased $111 million for 2018, as compared with the prior year periods. These revenues are based on and fluctuate in response to changes in the national average prices for diesel fuel. Market prices for diesel fuel decreased approximately 4% and increased 20% for the years ended December 31, 2019 and 2018, respectively, compared with the prior year periods. The decline in fuel surcharges for 2019 was partially offset by an increase in mandated fees. The mandated fees are primarily related to fees and taxes assessed by various state, county and municipal government agencies at our landfills and transfer stations.

Volume

Our revenues from volume increased $346 million, or 2.3%, and $478 million, or 3.3%, for the years ended December 31, 2019 and 2018, respectively, as compared with the prior year periods, excluding volumes from acquisitions and divestitures.

We experienced higher volumes throughout 2019 and 2018 due to our focus on customer service and disciplined growth, combined with favorable market conditions in our collection and disposal business. We have experienced significant volume growth with existing customers, particularly in our commercial collection business as a result of proactive efforts taken to work with our customers as their needs expand to identify service upgrade opportunities. Our event-driven projects in our special waste business and growth in our municipal solid waste business contributed to our landfill volume growth in both 2019 and 2018. Additionally, a large contract executed in the second half of 2017 increased volume at our transfer stations for 2018, with incremental volume additions during 2018 that favorably impacted our volumes in 2019. Furthermore, our WMSBS organization experienced favorable volume growth in both 2019 and 2018.

The clean-up efforts of natural disasters throughout the U.S. in the first half of 2019 also contributed to volume growth in 2019. However, volume decline from our recycling brokerage services negatively impacted our volume growth in 2019. Additionally, a volume increase from our recycling brokerage services affected the comparability of volumes for 2018 and 2017.

Foreign Currency Translation and Other

Fluctuations in foreign currency affect revenues from our Canadian operations. Additionally, 2018 was unfavorably impacted by a revenue decline associated with the adoption of ASU 2014-09.

Operating Expenses

Our operating expenses are comprised of (i) labor and related benefits costs (excluding labor costs associated with maintenance and repairs discussed below), which include salaries and wages, bonuses, related payroll taxes, insurance and benefits costs and the costs associated with contract labor; (ii) transfer and disposal costs, which include tipping fees paid to third-party disposal facilities and transfer stations; (iii) maintenance and repairs costs relating to equipment, vehicles and facilities and related labor costs; (iv) subcontractor costs, which include the costs of independent haulers who transport waste collected by us to disposal facilities and are affected by variables such as volumes, distance and fuel prices; (v) costs of goods sold, which includes the cost to purchase recycling materials for our recycling line of business, including certain rebates paid to suppliers; (vi) fuel costs, which represent the costs of fuel and oil to operate our truck fleet and landfill operating equipment; (vii) disposal and franchise fees and taxes, which include landfill taxes, municipal franchise fees, host community fees, contingent landfill lease payments and royalties; (viii) landfill operating costs, which include interest accretion on landfill liabilities, interest accretion on and discount rate adjustments to environmental remediation liabilities and recovery assets, leachate and methane collection and treatment, landfill remediation costs and other landfill site costs; (ix) risk management costs, which include general liability, automobile liability and workers' compensation claims programs costs and (x) other operating costs, which include gains and losses on sale of assets, telecommunications, equipment and facility lease expenses, property taxes, utilities and supplies. Variations in volumes year-over-year, as discussed above in *Operating Revenues*, in addition to cost inflation, affect the comparability of the components of our operating expenses.

The following table summarizes the major components of our operating expenses for the years ended December 31 (dollars in millions and as a percentage of revenues):

	2019		2018		2017	
Labor and related benefits	$2,791	18.0 %	$2,703	18.1 %	$2,500	17.2 %
Transfer and disposal costs	1,160	7.5	1,105	7.4	996	6.9
Maintenance and repairs	1,355	8.8	1,255	8.4	1,170	8.1
Subcontractor costs	1,532	9.9	1,375	9.2	1,236	8.5
Cost of goods sold	553	3.6	783	5.3	969	6.7
Fuel	336	2.2	409	2.7	375	2.6
Disposal and franchise fees and taxes	627	4.1	598	4.0	753	5.2
Landfill operating costs	379	2.4	331	2.2	328	2.3
Risk management	267	1.7	235	1.6	219	1.5
Other	496	3.2	455	3.1	475	3.3
	$9,496	61.4 %	$9,249	62.0 %	$9,021	62.3 %

Significant items affecting the comparison of operating expenses between reported periods include:

Labor and Related Benefits — The increase in labor and related benefits costs in 2019 as compared with 2018 was driven by (i) volume growth in our collection and disposal business; (ii) merit increases and (iii) cost inflation noted above. These cost increases were offset, in part, by lower bonus costs related to a one-time plan established in early 2018 targeted at improving employee retention. The increase in labor and related benefits costs in 2018 as compared with 2017 was driven by (i) volume growth in our collection line of business; (ii) the one-time bonus plan established in early 2018 and (iii) merit increases.

Transfer and Disposal Costs — The increase in transfer and disposal costs in 2019 as compared with 2018, and 2018 as compared with 2017, was driven by overall volume growth in our collection and disposal business and, to a lesser extent, cost inflation.

Maintenance and Repairs — The increase in maintenance and repairs costs in 2019 as compared with 2018 was largely driven by (i) cost inflation noted above which primarily impacted labor, parts, third-party services, tires and building costs and (ii) a $16 million non-cash charge to write off certain equipment costs related to our Other segment.

The increase in maintenance and repairs costs in 2018 as compared with 2017 was primarily driven by (i) higher labor costs from volume growth and cost inflation and (ii) higher third-party service and parts costs.

Subcontractor Costs — The increase in subcontractor costs in 2019 as compared to 2018 was primarily driven by (i) volume growth in our collection and disposal business, largely attributable to a significant contract executed in the second half of 2017 that generated incremental volumes in 2019; (ii) volume growth in our WMSBS and EES organizations and (iii) cost inflation related to capacity constraints of our subcontractors in certain markets. The increase in 2018 as compared to 2017 was driven primarily by volume growth in our collection and disposal business.

Cost of Goods Sold — The decrease in cost of goods sold in 2019 as compared with 2018 was primarily driven by lower market prices for recycling commodities and by lower costs due to the sale of certain ancillary operations in the second quarter of 2018. The decrease in cost of goods sold in 2018 as compared with 2017 was primarily driven by (i) lower market prices for recycling commodities and (ii) a change in accounting for certain customer rebates due to the adoption of ASU 2014-09 in 2018.

Fuel — The decrease in fuel costs in 2019 as compared with 2018 was due to (i) recognition of a $70 million benefit from the extension of federal natural gas fuel credits in 2019 compared to $28 million in 2018; (ii) lower costs resulting from the continued conversion of our fleet to natural gas vehicles and (iii) lower market prices for diesel fuel. The increase in fuel costs in 2018 as compared with 2017 was due to higher market prices for diesel fuel, partially offset by the recognition of a $28 million benefit from the extension of federal natural gas fuel credits.

Disposal and Franchise Fees and Taxes — The increase in disposal and franchise fees and taxes in 2019 as compared with 2018 was primarily related to higher volumes in our landfill line of business. The decrease in disposal and franchise fees and taxes in 2018 as compared with 2017 was driven by the adoption of ASU 2014-09 in 2018; specifically, certain franchise fees were treated as disposal fees and taxes in the prior year periods and beginning in 2018, were treated as a reduction in operating revenues in the current year period.

Landfill Operating Costs — The increase in landfill operating costs in 2019 as compared with 2018 was primarily due to higher leachate management costs driven largely by inclement weather in certain parts of North America and increased ongoing site maintenance costs. Additionally, 2019 was impacted by a decrease in the risk-free discount rate used in the measurement of our environmental remediation obligations and recovery assets due to a decrease in U.S. treasury rates. See Note 4 to the Consolidated Financial Statements for additional information.

Risk Management — The increase in risk management costs in 2019 as compared with 2018 was primarily due to an increase in claims expense as a result of growth in the business and cost inflation. The increase in risk management costs in 2018 as compared with 2017 was primarily due to an increase in claims expense.

Other — Net gains on sales of certain assets in 2018 impacted the comparability of the reported periods.

Selling, General and Administrative Expenses

Our selling, general and administrative expenses consist of (i) labor and related benefits costs, which include salaries, bonuses, related insurance and benefits, contract labor, payroll taxes and equity-based compensation; (ii) professional fees, which include fees for consulting, legal, audit and tax services; (iii) provision for bad debts, which includes allowances for uncollectible customer accounts and collection fees and (iv) other selling, general and administrative expenses, which include, among other costs, facility-related expenses, voice and data telecommunication, advertising, bank charges, computer costs, travel and entertainment, rentals, postage and printing. In addition, the financial impacts of litigation reserves generally are included in our "Other" selling, general and administrative expenses.

The following table summarizes the major components of our selling, general and administrative expenses for the years ended December 31 (dollars in millions and as a percentage of revenues):

	2019		2018		2017	
Labor and related benefits	$1,020	6.6 %	$ 957	6.4 %	$1,000	6.9 %
Professional fees	183	1.2	113	0.8	102	0.7
Provision for bad debts	38	0.3	53	0.3	42	0.3
Other	390	2.5	330	2.2	324	2.2
	$1,631	10.6 %	$1,453	9.7 %	$1,468	10.1 %

Significant items affecting the comparison of our selling, general and administrative expenses between reported periods include:

Labor and Related Benefits — The increase in labor and related benefits costs in 2019 compared with 2018 was primarily due to (i) an increase in headcount, merit increases and higher incentive compensation and (ii) increased contract labor costs driven by our planned investments in technology. The decrease in labor and related benefits costs in 2018 compared with 2017 was primarily due to (i) lower incentive compensation accruals in 2018 and (ii) severance costs for former executives incurred in 2017, which were partially offset by merit increases and a one-time bonus plan established in early 2018 targeted at improving employee retention.

Professional Fees — The increase in professional fees in 2019 compared with 2018 was primarily driven by higher consulting fees related to our strategic investments in operating, customer facing and back-office technologies, as well as costs incurred in preparation for our pending acquisition of Advanced Disposal Services, Inc. ("Advanced Disposal"). The increase in professional fees in 2018 compared with 2017 was primarily due to the investments we are making in technology and higher legal fees.

Provision for Bad Debts — The decrease in provision for bad debts in 2019 compared with 2018 was due to (i) collection of certain fully reserved receivables and (ii) higher prior year bad debt expense associated with the bankruptcy of a strategic customer. The increase in provision of bad debts in 2018 compared with 2017 was primarily due to increased revenues and the bankruptcy of a strategic customer.

Other — The increase in other expenses in 2019 compared with 2018 was principally driven by higher litigation reserves and increased infrastructure costs associated with our investments in technology. The increase in other expenses in 2018 compared with 2017 was primarily due to higher litigation reserves in 2018, which were partially offset by lower costs associated with advertising and travel and entertainment as we continued to focus on controlling costs.

Depreciation and Amortization Expenses

The following table summarizes the components of our depreciation and amortization expenses for the years ended December 31 (dollars in millions and as a percentage of revenues):

	2019		2018		2017	
Depreciation of tangible property and equipment	$ 893	5.8 %	$ 838	5.6 %	$ 783	5.4 %
Amortization of landfill airspace	575	3.7	538	3.6	497	3.4
Amortization of intangible assets	106	0.7	101	0.7	96	0.7
	$1,574	10.2 %	$1,477	9.9 %	$1,376	9.5 %

The increase in depreciation of tangible property and equipment during the reported periods was primarily related to higher capital expenditures due to an intentional focus on accelerating certain fleet and landfill spending to support the Company's strong collection and disposal growth. The increase in amortization of landfill airspace during the reported periods was driven by higher volumes at our landfills and changes in landfill estimates.

(Gain) Loss from Divestitures, Asset Impairments and Unusual Items, Net

The following table summarizes the major components of (gain) loss from divestitures, asset impairments and unusual items, net for the years ended December 31 (in millions):

	2019	2018	2017
(Gain) loss from divestitures	$ —	$ (96)	$ (38)
Asset impairments	42	38	41
Other	—	—	(19)
	$ 42	$ (58)	$ (16)

During the year ended December 31, 2019, we recognized asset impairments of $42 million, related to (i) $27 million of goodwill impairment charges, as discussed further in Note 6, of which $17 million related to our EES organization and $10 million related to our LampTracker® reporting unit and (ii) $15 million of asset impairment charges primarily related to certain solid waste operations.

During the year ended December 31, 2018, we recognized net gains of $58 million, primarily related to (i) a $52 million gain associated with the sale of certain collection and disposal operations in Tier 1 and (ii) net gains of $44 million substantially all from divestitures of certain ancillary operations. These gains were partially offset by (i) a $30 million charge to impair a landfill in Tier 3 based on an internally developed discounted projected cash flow analysis, taking into account continued volume decreases and revised capping cost estimates and (ii) $8 million of impairment charges primarily related to our LampTracker® reporting unit.

During the year ended December 31, 2017, we recognized net gains of $16 million, primarily related to (i) gains of $31 million from the sale of certain oil and gas producing properties and (ii) a $30 million reduction in post-closing, performance-based contingent consideration obligations associated with an acquired business in our EES organization. These gains were partially offset by (i) $34 million of goodwill impairment charges primarily related to our EES organization; (ii) $11 million of charges to adjust our subsidiary's estimated potential share of an environmental remediation liability and related costs for a closed site in Harris County, Texas, as discussed in Note 11 to the Consolidated Financial Statements and (iii) $7 million of charges to write down certain renewable energy assets.

See Note 3 to the Consolidated Financial Statements for additional information related to the accounting policy and analysis involved in identifying and calculating impairments.

Income from Operations

The following table summarizes income from operations for the years ended December 31 and has been updated to reflect our realigned segments which are discussed further in Note 20 to the Consolidated Financial Statements (dollars in millions):

	2019	Period-to-Period Change		2018	Period-to-Period Change		2017
Solid Waste:							
Tier 1	$ 1,682	$ 63	3.9 %	$1,619	$113	7.5 %	$1,506
Tier 2	854	70	8.9	784	7	0.9	777
Tier 3	1,136	144	14.5	992	(14)	(1.4)	1,006
Solid Waste	3,672	277	8.2	3,395	106	3.2	3,289
Other (a)	(203)	(137)	*	(66)	2	(2.9)	(68)
Corporate and Other (b)	(763)	(223)	41.3	(540)	45	(7.7)	(585)
Total	$ 2,706	$ (83)	(3.0)%	$2,789	$153	5.8 %	$2,636
Percentage of revenues	17.5 %			18.7 %			18.2 %

* Percentage change does not provide a meaningful comparison.

(a) “Other” includes (i) our WMSBS organization; (ii) those elements of our landfill gas-to-energy operations and third-party subcontract and administration revenues managed by our EES and WM Renewable Energy organizations that are not included in the operations of our reportable segments; (iii) our recycling brokerage services and (iv) certain other expanded service offerings and solutions. In addition, our “Other” segment reflects the results of non-operating entities that provide financial assurance and self-insurance support for our Solid Waste business, net of intercompany activity.

(b) Corporate operating results reflect certain costs incurred for various support services that are not allocated to our reportable segments. These support services include, among other things, treasury, legal, information technology, tax, insurance, centralized service center processes, other administrative functions and the maintenance of our closed landfills. “Corporate and Other” also includes costs associated with our long-term incentive program and any administrative expenses or revisions to our estimated obligations associated with divested operations.

Solid Waste — The most significant items affecting the results of operations of our Solid Waste business during the three years ended December 31, 2019 are summarized below:

The following items affected both comparable periods:

- Income from operations for our collection and disposal business continued to see strong operating results, primarily driven by (i) internal revenue growth; (ii) acquisitions and divestitures and (iii) decreased fuel costs due in part to a year-over-year increase in federal natural gas fuel credits.

  However, the following items negatively impacted our results from operations and resulted in lower income from operations in 2019 when compared with 2018:

- (i) higher operating costs, driven by increased volumes, higher depreciation related to new collection fleet and higher labor, maintenance and repair costs; (ii) lower recycling commodity prices and (iii) asset impairments. The 2018 period was favorably impacted by net gains associated with the sale of certain collection and disposal operations in our Tier 1 segment, partially offset by the impairment of a landfill in our Tier 3 segment.

In addition, the following items affected 2018 when compared with 2017:

- Our income from operations for our Solid Waste business benefited from certain federal natural gas fuel credits in the first quarter of 2018 and was negatively impacted by (i) lower market prices for recycling commodities; (ii) higher operating costs, including a one-time bonus plan established in early 2018 targeted at improving

employee retention and (iii) increased depreciation and amortization expenses to support growth of our business. During 2018, Tier 1 also benefited from net gains associated with the sale of certain collection and disposal operations and Tier 3 was negatively impacted by an impairment of a landfill.

Other — In 2019 compared with 2018, lower income from operations is a result of (i) net gains from divestitures of certain ancillary operations in the prior year period of $44 million; (ii) $27 million of goodwill impairment charges, of which $17 million related to our EES organization and $10 million related to our LampTracker® reporting unit; (iii) lower commodity prices in 2019 associated with our WM Renewable Energy organization; (iv) a $16 million non-cash charge to write off certain equipment costs in 2019 and (v) an increase in claims expense as a result of growth in the business and cost inflation. In 2018 compared with 2017, our Other segment benefited from net gains from divestitures of certain ancillary operations and improved results in our EES and WM Renewable Energy organizations, partially offset by higher risk management costs. Our 2017 results were also favorably affected by a reduction in contingent consideration obligations in our EES organization.

Corporate and Other — The most significant items affecting the results of operations for Corporate and Other during the three years ended December 31, 2019 are summarized below:

The following items affected 2019 when compared with 2018:

- The decrease in income from operations was driven by increased expenses as a result of (i) higher consulting fees, largely due to the investments we are making in operating, customer facing and back-office technologies; (ii) higher litigation reserves; (iii) preparation for our pending acquisition of Advanced Disposal and (iv) a decrease in the risk-free discount rate used in the measurement of our environmental remediation obligations and recovery assets in 2019. Additionally, we recognized higher incentive compensation costs during 2019.

In addition, the following items affected 2018 when compared with 2017:

- Decreased expenses in 2018 as a result of lower incentive compensation costs and severance costs for former executives incurred in 2017, and to a lesser extent, charges in 2017 to adjust our subsidiary's estimated potential share of an environmental remediation liability and related costs for a closed site in Harris County, Texas. These decreases were offset, in part, by higher professional fees primarily due to investments in technology.

Interest Expense, Net

Our interest expense, net was $411 million, $374 million and $363 million in 2019, 2018 and 2017, respectively. The increase in 2019 is primarily attributable to our May 2019 issuance of $4.0 billion senior notes, partially offset by related increases in interest income as a result of higher cash and cash equivalents balances. These items are discussed further below in *Liquidity and Capital Resources*.

Loss on Early Extinguishment of Debt

In May 2019, WM issued $4.0 billion of senior notes, which are discussed further below in *Summary of Cash and Cash Equivalents, Restricted Trust and Escrow Accounts and Debt Obligations*. Concurrently, we used $344 million of the net proceeds from the newly issued senior notes to retire $257 million of certain high-coupon senior notes. The cash paid includes the principal amount of the debt retired, $84 million of related premiums, which are classified as loss on early extinguishment of debt in our Consolidated Statement of Operations, and $3 million of accrued interest. The principal amount of senior notes redeemed within each series was as follows:

- $304 million of WM Holdings 7.10% senior notes due 2026, of which $56 million were tendered;
- $395 million of WM 7.00% senior notes due 2028, of which $64 million were tendered;
- $139 million of WM 7.375% senior notes due 2029, of which $58 million were tendered;
- $210 million of WM 7.75% senior notes due 2032, of which $57 million were tendered; and
- $274 million of WM 6.125% senior notes due 2039, of which $22 million were tendered.

In the third quarter of 2019, we elected to refund and reissue $99 million of tax-exempt bonds, which resulted in the recognition of a $1 million loss on early extinguishment of debt in our Consolidated Statement of Operations.

Equity in Net Losses of Unconsolidated Entities

We recognized equity in net losses of unconsolidated entities of $55 million, $41 million and $68 million in 2019, 2018 and 2017, respectively. The losses for each period are primarily related to our noncontrolling interests in entities established to invest in and manage low-income housing properties and a refined coal facility. We generate tax benefits, including tax credits, from the losses incurred from these investments, which are discussed further in Note 9 to the Consolidated Financial Statements. The amount in 2017 includes impairment charges of $29 million to write down equity method investments in waste diversion technology companies to their estimated fair values.

Other, Net

We recognized other, net expense of $50 million and $8 million in 2019 and 2017, respectively, compared to other, net income of $2 million in 2018. In 2019, we recognized a $52 million impairment charge related to our minority-owned investment in a waste conversion technology business. We wrote down our investment to its estimated fair value as the result of recent third-party investor's transactions in securities of this business. The fair value of our investment was not readily determinable; thus, we determined the fair value utilizing a combination of quoted price inputs for the equity in our investment (Level 2) and certain management assumptions pertaining to investment value (Level 3). The expense for 2017 was impacted by impairment charges of $11 million related to other-than-temporary declines in the value of minority-owned investments in waste diversion technology companies.

Income Tax Expense

We recorded income tax expense of $434 million, $453 million and $242 million in 2019, 2018 and 2017 respectively, resulting in effective income tax rates of 20.6%, 19.0% and 11.0% for the years ended December 31, 2019, 2018 and 2017, respectively. The comparability of our income tax expense for the reported periods has been primarily affected by the following:

- *Investments Qualifying for Federal Tax Credits* – Our low-income housing properties and refined coal facility investments reduced our income tax expense by $96 million, $57 million and $51 million, primarily due to tax credits realized from these investments for the years ended December 31, 2019, 2018 and 2017, respectively. See Note 19 for additional information related to these unconsolidated variable interest entities.
- *Equity-Based Compensation* — During 2019, 2018 and 2017, we recognized excess tax benefits related to the vesting or exercise of equity-based compensation awards resulting in a reduction in our income tax expense of $25 million, $17 million and $37 million, respectively.
- *Adjustments to Accruals and Deferred Taxes* — Adjustments to our accruals and deferred taxes due to the filing of our income tax returns, analysis of our deferred tax balances and changes in state and foreign laws resulted in a reduction in our income tax expense of $22 million, $52 million and $5 million for the years ended December 31, 2019, 2018 and 2017, respectively.
- *Tax Audit Settlements* — We file income tax returns in the U.S. and Canada, as well as other state and local jurisdictions. We are currently under audit by various taxing authorities and our audits are in various stages of completion. During the reported periods, we settled various tax audits, which resulted in a reduction in our income tax expense of $2 million, $40 million and $2 million for the years ended December 31, 2019, 2018 and 2017, respectively.
- *Enactment of Tax Reform* — In accordance with applicable accounting guidance, the Company recognized the provisional tax impacts and subsequent measurement period adjustments related to the remeasurement of our deferred income tax assets and liabilities and the one-time, mandatory transition tax on deemed repatriation of previously tax-deferred and unremitted foreign earnings, resulting in a reduction in our income tax expense of $12 million and $529 million for the years ended December 31, 2018 and 2017, respectively.

See Note 9 to the Consolidated Financial Statements for more information related to income taxes.

Landfill and Environmental Remediation Discussion and Analysis

We owned or operated 244 solid waste landfills and five secure hazardous waste landfills as of December 31, 2019 and 247 solid waste and five secure hazardous waste landfills as of December 31, 2018. For these landfills, the following table reflects changes in capacity, as measured in tons of waste, for the years ended December 31 and remaining airspace, measured in cubic yards of waste, as of December 31 (in millions):

	2019			2018		
	Remaining Permitted Capacity	Expansion Capacity	Total Capacity	Remaining Permitted Capacity	Expansion Capacity	Total Capacity
Balance as of beginning of year (in tons)	4,762	220	4,982	4,799	186	4,985
Acquisitions, divestitures, newly permitted landfills and closures	27	—	27	5	—	5
Changes in expansions pursued (a)	—	36	36	—	72	72
Expansion permits granted (b)	57	(57)	—	42	(42)	—
Tons received	(121)	—	(121)	(116)	—	(116)
Changes in engineering estimates and other (c)	29	1	30	32	4	36
Balance as of end of year (in tons)	4,754	200	4,954	4,762	220	4,982
Balance as of end of year (in cubic yards)	4,694	166	4,860	4,735	194	4,929

(a) Amounts reflected here relate to the combined impacts of (i) new expansions pursued; (ii) increases or decreases in the airspace being pursued for ongoing expansion efforts; (iii) adjustments for differences between the airspace being pursued and airspace granted and (iv) decreases due to decisions to no longer pursue expansion permits, if any.

(b) We received expansion permits at seven of our landfills during 2019 and six of our landfills during 2018, demonstrating our continued success in working with municipalities and regulatory agencies to expand the disposal airspace of our existing landfills.

(c) Changes in engineering estimates can result in changes to the estimated available remaining airspace of a landfill or changes in the utilization of such landfill airspace, affecting the number of tons that can be placed in the future. Estimates of the amount of waste that can be placed in the future are reviewed annually by our engineers and are based on a number of factors, including standard engineering techniques and site-specific factors such as current and projected mix of waste type; initial and projected waste density; estimated number of years of life remaining; depth of underlying waste; anticipated access to moisture through precipitation or recirculation of landfill leachate and operating practices. We continually focus on improving the utilization of airspace through efforts that may include recirculating landfill leachate where allowed by permit; optimizing the placement of daily cover materials and increasing initial compaction through improved landfill equipment, operations and training.

The tons received at our landfills for the years ended December 31 are shown below (tons in thousands):

	2019			2018		
	# of Sites	Total Tons	Tons per Day	# of Sites	Total Tons	Tons per Day
Solid waste landfills	244 (a)	120,556	443	247	115,972	426
Hazardous waste landfills	5	703	3	5	739	3
	249	121,259	446	252	116,711	429
Solid waste landfills closed, divested or contract expired during related year	8	692		1	424	
		121,951 (b)			117,135 (b)	

(a) In 2019, we acquired five landfills, we closed one landfill and seven landfills under contract either closed or the contract expired.

(b) These amounts include 1.3 million tons and 1.5 million tons as of December 31, 2019 and 2018, respectively, that were received at our landfills but were used for beneficial purposes and generally were redirected from the permitted airspace to other areas of the landfill. Waste types that are frequently identified for beneficial use include green waste for composting and clean dirt for on-site construction projects.

When a landfill we own or operate receives certification of closure from the applicable regulatory agency, we generally transfer the management of the site, including any remediation activities, to our environmental legacy management group. As of December 31, 2019, our environmental legacy management group managed 212 closed landfills.

Based on remaining permitted airspace as of December 31, 2019 and projected annual disposal volume, the weighted average remaining landfill life for all of our owned or operated landfills is approximately 39 years. Many of our landfills have the potential for expanded airspace beyond what is currently permitted. We monitor the availability of permitted airspace at each of our landfills and evaluate whether to pursue an expansion at a given landfill based on estimated future disposal volume, disposal prices, construction and operating costs, remaining airspace and likelihood of obtaining an expansion permit. We are seeking expansion permits at 15 of our landfills that meet the expansion criteria outlined in the *Critical Accounting Estimates and Assumptions — Landfills* section below. Although no assurances can be made that all future expansions will be permitted or permitted as designed, the weighted average remaining landfill life for all owned or operated landfills is approximately 41 years when considering remaining permitted airspace, expansion airspace and projected annual disposal volume.

The number of landfills owned or operated as of December 31, 2019, segregated by their estimated operating lives based on remaining permitted and expansion airspace and projected annual disposal volume, was as follows:

	# of Landfills
0 to 5 years	27
6 to 10 years	16
11 to 20 years	39
21 to 40 years	65
41+ years	102
Total	249 (a)

(a) Of the 249 landfills, 207 are owned, 32 are operated under lease agreements and 10 are operated under other contractual agreements. For the landfills not owned, we are usually responsible for final capping, closure and post-closure obligations.

As of December 31, 2019, we have 14 landfills which are not currently accepting waste. During the year ended December 31, 2019, we performed tests of recoverability for five of these landfills with an aggregate net recorded capitalized landfill asset cost of $272 million, for which the undiscounted expected future cash flows resulting from our probability-weighted estimation approach exceeded the carrying values. We did not perform recoverability tests for the remaining nine landfills as the net recorded capitalized landfill asset cost was not material.

Landfill Assets — We capitalize various costs that we incur to prepare a landfill to accept waste. These costs generally include expenditures for land (including the landfill footprint and required landfill buffer property), permitting, excavation, liner material and installation, landfill leachate collection systems, landfill gas collection systems, environmental monitoring equipment for groundwater and landfill gas, directly related engineering, capitalized interest, and on-site road construction and other capital infrastructure costs. The cost basis of our landfill assets also includes estimates of future costs associated with landfill final capping, closure and post-closure activities, which are discussed further below.

The changes to the cost basis of our landfill assets and accumulated landfill airspace amortization for the year ended December 31, 2019 are reflected in the table below (in millions):

	Cost Basis of Landfill Assets	Accumulated Landfill Airspace Amortization	Landfill Assets
December 31, 2018	$ 15,240	$ (9,157)	$ 6,083
Capital additions	656	—	656
Asset retirement obligations incurred and capitalized	72	—	72
Acquisitions	289	—	289
Amortization of landfill airspace	—	(575)	(575)
Foreign currency translation	52	(22)	30
Asset retirements and other adjustments	(399)	428	29
December 31, 2019	$ 15,910	$ (9,326)	$ 6,584

As of December 31, 2019, we estimate that we will spend approximately $600 million in 2020, and approximately $1.3 billion in 2021 and 2022 combined, for the construction and development of our landfill assets. The specific timing of landfill capital spending is dependent on future events and spending estimates are subject to change due to fluctuations in landfill waste volumes, changes in environmental requirements and other factors impacting landfill operations.

Landfill and Environmental Remediation Liabilities — As we accept waste at our landfills, we incur significant asset retirement obligations, which include liabilities associated with landfill final capping, closure and post-closure activities. These liabilities are accounted for in accordance with authoritative guidance on accounting for asset retirement obligations and are discussed in Note 3 to the Consolidated Financial Statements. We also have liabilities for the remediation of properties that have incurred environmental damage, which generally was caused by operations or for damage caused by conditions that existed before we acquired operations or a site. We recognize environmental remediation liabilities when we determine that the liability is probable and the estimated cost for the likely remedy can be reasonably estimated.

The changes to landfill and environmental remediation liabilities for the year ended December 31, 2019 are reflected in the table below (in millions):

	Landfill	Environmental Remediation
December 31, 2018	$ 1,760	$ 237
Obligations incurred and capitalized	72	—
Obligations settled	(113)	(22)
Interest accretion	98	4
Revisions in estimates and interest rate assumptions (a) (b)	33	21
Acquisitions, divestitures and other adjustments	5	—
December 31, 2019	$ 1,855	$ 240

(a) The amount reported for our landfill liabilities includes revisions in estimates resulting primarily from changes in the timing and amount of costs as well as changes in estimates of remaining airspace.

(b) The amount reported for our environmental remediation liabilities includes an increase of $11 million due to a decrease in the risk-free discount rate used to measure our liabilities from 2.75% at December 31, 2018 to 1.75% at December 31, 2019.

Landfill Operating Costs — The following table summarizes our landfill operating costs for the years ended December 31 (in millions):

	2019	2018	2017
Interest accretion on landfill liabilities	$ 98	$ 95	$ 92
Interest accretion on and discount rate adjustments to environmental remediation liabilities and recovery assets	13	(2)	3
Leachate and methane collection and treatment	173	150	143
Landfill remediation costs	4	13	14
Other landfill site costs	91	75	76
Total landfill operating costs	$ 379	$ 331	$ 328

Amortization of Landfill Airspace — Amortization of landfill airspace, which is included as a component of depreciation and amortization expenses, includes the following:

- the amortization of landfill capital costs, including (i) costs that have been incurred and capitalized and (ii) estimated future costs for landfill development and construction required to develop our landfills to their remaining permitted and expansion airspace; and
- the amortization of asset retirement costs arising from landfill final capping, closure and post-closure obligations, including (i) costs that have been incurred and capitalized and (ii) projected asset retirement costs.

Amortization expense is recorded on a units-of-consumption basis, applying cost as a rate per ton. The rate per ton is calculated by dividing each component of the amortizable basis of a landfill (net of accumulated amortization) by the number of tons needed to fill the corresponding asset's remaining permitted and expansion airspace. Landfill capital costs and closure and post-closure asset retirement costs are generally incurred to support the operation of the landfill over its entire operating life and are, therefore, amortized on a per-ton basis using a landfill's total permitted and expansion airspace. Final capping asset retirement costs are related to a specific final capping event and are, therefore, amortized on a per-ton basis using each discrete final capping event's estimated permitted and expansion airspace. Accordingly, each landfill has multiple per-ton amortization rates.

The following table presents our landfill airspace amortization expense on a per-ton basis for the years ended December 31:

	2019	2018	2017
Amortization of landfill airspace (in millions)	$ 575	$ 538	$ 497
Tons received, net of redirected waste (in millions)	121	116	112
Average landfill airspace amortization expense per ton	$ 4.75	$ 4.64	$ 4.44

Different per-ton amortization rates are applied at each of our 249 landfills, and per-ton amortization rates vary significantly from one landfill to another due to (i) inconsistencies that often exist in construction costs and provincial, state and local regulatory requirements for landfill development and landfill final capping, closure and post-closure activities and (ii) differences in the cost basis of landfills that we develop versus those that we acquire. Accordingly, our landfill airspace amortization expense measured on a per-ton basis can fluctuate due to changes in the mix of volumes we receive across the Company each year.

Liquidity and Capital Resources

The Company consistently generates cash flow from operations that meets and exceeds its working capital needs, the payments of its dividend and investment in the business through capital expenditures and acquisitions. We continually monitor our actual and forecasted cash flows, our liquidity and our capital resources, enabling us to plan for our present needs and fund unbudgeted business activities that may arise during the year as a result of changing business conditions or new opportunities. The Company believes that its investment grade credit ratings, large value of unencumbered assets and modest leverage enable it to obtain adequate financing to meet its ongoing capital, operating and other liquidity requirements.

Summary of Cash and Cash Equivalents, Restricted Trust and Escrow Accounts and Debt Obligations

The following is a summary of our cash and cash equivalents, restricted trust and escrow accounts and debt balances as of December 31 (in millions):

	2019	2018
Cash and cash equivalents	$ 3,561	$ 61
Restricted trust and escrow accounts:		
Insurance reserves (a)	$ 270	$ 252
Final capping, closure, post-closure and environmental remediation funds	109	103
Other	4	11
Total restricted trust and escrow accounts	$ 383	$ 366
Debt:		
Current portion	$ 218	$ 432
Long-term portion	13,280	9,594
Total debt	$ 13,498	$ 10,026

(a) Includes $70 million as of December 31, 2019 and 2018 in other current assets in our Consolidated Balance Sheets.

Cash and cash equivalents — Cash and cash equivalents at December 31, 2019 primarily include proceeds from the May 2019 issuance of senior notes and our September 2019 issuance of Canadian senior notes. These items are discussed further below and in Note 7 to the Consolidated Financial Statements.

Debt — We use long-term borrowings in addition to the cash we generate from operations as part of our overall financial strategy to support and grow our business. We primarily use senior notes and tax-exempt bonds to borrow on a long-term basis, but we also use other instruments and facilities, when appropriate. The components of our borrowings as of December 31, 2019 are described in Note 7 to the Consolidated Financial Statements.

As of December 31, 2019, we had $1.5 billion of debt maturing within the next 12 months, including (i) $600 million of 4.75% senior notes that mature in June 2020; (ii) $669 million of tax-exempt bonds with term interest rate periods that expire within the next 12 months, which is prior to their scheduled maturities, and (iii) $218 million of other debt with scheduled maturities within the next 12 months, including $112 million of tax-exempt bonds. As of December 31, 2019, we have classified $1.3 billion of debt maturing in the next 12 months as long-term because we have the intent and ability to refinance these borrowings on a long-term basis as supported by the forecasted available capacity under our $3.5 billion long-term U.S. and Canadian revolving credit facility (“$3.5 billion revolving credit facility”), as discussed below. The remaining $218 million of debt maturing in the next 12 months is classified as current obligations.

As of December 31, 2019, we also have $169 million of variable-rate tax-exempt bonds that are supported by letters of credit under our $3.5 billion revolving credit facility, of which $15 million mature within the next 12 months. The interest rates on our variable-rate tax-exempt bonds are generally reset on either a daily or weekly basis through a remarketing process. All recent tax-exempt bond remarketings have successfully placed Company bonds with investors at market-driven rates and we currently expect future remarketings to be successful. However, if the remarketing agent is unable to remarket our bonds, the remarketing agent can put the bonds to us. In the event of a failed remarketing, we have the availability under our $3.5 billion revolving credit facility to fund these bonds until they are remarketed successfully. Accordingly, we have classified $154 million of these borrowings as long-term in our Consolidated Balance Sheet as of December 31, 2019.

In May 2019, WM issued $4.0 billion of senior notes consisting of:

- $750 million of 2.95% senior notes due June 15, 2024;
- $750 million of 3.20% senior notes due June 15, 2026;
- $1.0 billion of 3.45% senior notes due June 15, 2029;
- $500 million of 4.00% senior notes due July 15, 2039; and
- $1.0 billion of 4.15% senior notes due July 15, 2049.

The net proceeds from these debt issuances were $3.97 billion. Concurrently, we used $344 million of the net proceeds from the newly issued senior notes to retire $257 million of certain high-coupon senior notes. The cash paid includes the principal amount of the debt retired, $84 million of related premiums and $3 million of accrued interest as discussed above in *Loss on Early Extinguishment of Debt*. We used a portion of the proceeds to repay our commercial paper borrowings. We intend to use the remaining net proceeds to pay a portion of the consideration related to our pending acquisition of Advanced Disposal, which is discussed in *Pending Acquisition* below, and for general corporate purposes. The newly-issued senior notes due 2024, 2026, 2029 and 2039 include a special mandatory redemption feature, which provides that if the acquisition of Advanced Disposal is not completed on or prior to July 14, 2020, or if, prior to such date, the Merger Agreement is terminated for any reason, we will be required to redeem all of such outstanding notes equal to 101% of the aggregate principal amounts of such notes, plus accrued but unpaid interest.

In September 2019, Waste Management of Canada Corporation, an indirect wholly-owned subsidiary of WM, issued C$500 million, or $377 million, of 2.6% senior notes due September 23, 2026, all of which are fully and unconditionally guaranteed on a senior unsecured basis by WM and WM Holdings. The net proceeds from the debt issuance were C$496 million, or $373 million, which we intend to use for general corporate purposes.

See Note 7 to the Consolidated Financial Statements for more information related to the debt transactions.

We have credit facilities in place to support our liquidity and financial assurance needs. The following table summarizes our outstanding letters of credit, categorized by type of facility as of December 31 (in millions):

	2019	2018
Revolving credit facility (a)	$ 412	$ 587
Other letter of credit facilities (b)	532	556
	$ 944	$ 1,143

(a) As of December 31, 2019, we had an unused and available credit capacity of $3.1 billion.

(b) As of December 31, 2019, these other letter of credit facilities are both committed and uncommitted with terms extending through April 2021.

Refinancing of Revolving Credit Facility

In November 2019, we entered into the $3.5 billion revolving credit facility, which amended and restated our prior long-term U.S. and Canadian revolving credit facility. Amendments to the credit agreement included (i) increasing total capacity under the facility from $2.75 billion to $3.5 billion; (ii) increasing the accordion feature that may be used to increase total capacity in future periods from $750 million to $1.0 billion and (iii) extending the term through November 2024. The agreement provides the Company with two one-year extension options. Waste Management of Canada Corporation and WM Quebec Inc., each an indirect wholly-owned subsidiary of WM, are borrowers under the $3.5 billion revolving credit facility, and the agreement permits borrowing in Canadian dollars up to the U.S. dollar equivalent of $375 million, with such borrowings to be repaid in Canadian dollars. WM Holdings, a wholly-owned subsidiary of WM, guarantees all the obligations under the $3.5 billion revolving credit facility.

Table of Contents

Summary of Cash Flow Activity

The following is a summary of our cash flows for the years ended December 31 (in millions):

	2019	2018	2017
Net cash provided by operating activities	$ 3,874	$ 3,570	$ 3,180
Net cash used in investing activities	$ (2,376)	$ (2,169)	$ (1,620)
Net cash provided by (used in) financing activities	$ 1,964	$ (1,508)	$ (1,361)

Net Cash Provided by Operating Activities — Our operating cash flows increased by $304 million for the year ended December 31, 2019, as compared with the prior year period, as a result of (i) higher cash-based earnings in the current year period primarily associated with our collection and disposal business; (ii) lower bonus payments in the current year; (iii) lower income tax payments of $57 million in the current year and (iv) net favorable changes in our operating assets and liabilities, net of effects of acquisitions and divestitures, offset slightly by higher interest payments in the current year period primarily due to our May 2019 issuance of senior notes.

Our operating cash flows increased by $390 million for the year ended December 31, 2018, as compared with the prior year period, as a result of (i) higher earnings primarily associated with our collection and disposal business and (ii) lower income tax payments of $213 million, driven by enactment of tax reform and timing of income tax payments partially offset by lower earnings from our recycling line of business.

Net Cash Used in Investing Activities — The most significant items affecting the comparison of our investing cash flows for the periods presented are summarized below:

- *Acquisitions* — Our spending on acquisitions was $527 million, $466 million and $200 million in 2019, 2018 and 2017, respectively, of which $521 million, $460 million and $198 million, respectively, are considered cash used in investing activities. The remaining spend is either cash used in a financing or an operating activity related to the timing of contingent consideration paid. Substantially all of these acquisitions are related to our Solid Waste business. Our acquisition spending in 2019 is primarily attributable to Petro Waste Environmental LP. See Note 18 to the Consolidated Financial Statements for additional information. We continue to focus on accretive acquisitions and growth opportunities that will enhance and expand our existing service offerings.

- *Capital Expenditures* — We used $1,818 million, $1,694 million and $1,509 million for capital expenditures in 2019, 2018 and 2017, respectively. The increase is primarily due to an intentional focus on accelerating certain collection fleet and landfill spending to support the Company’s strong collection and disposal growth.

- *Proceeds from Divestitures* — Proceeds from divestitures of businesses and other assets (net of cash divested) were $49 million, $208 million and $99 million in 2019, 2018 and 2017, respectively. In 2019, 2018 and 2017, $8 million, $153 million and $62 million of these divestitures, respectively, were made as part of our continuous focus on improving or divesting certain non-strategic or underperforming operations, with the remaining amounts generally related to the sale of fixed assets.

- *Other, Net* — Our spending within other, net was $86 million, $223 million, and $12 million in 2019, 2018 and 2017, respectively. Cash used for other investing activities for the year ended December 31, 2019 was primarily related to (i) changes in our investments portfolio associated with a wholly-owned insurance captive from restricted cash and cash equivalents to available-for-sale securities and (ii) an initial cash payment for low-income housing investments, which is discussed further in Note 9 to the Consolidated Financial Statements. These items were partially offset by cash proceeds from the redemption of our preferred stock received in conjunction with the 2014 sale of our Puerto Rico operations, which is discussed in Note 17 to the Consolidated Financial Statements. The increase in 2018 was primarily due to changes in our investments portfolio associated with our wholly-owned insurance captive from restricted cash and cash equivalents to available-for-sale securities. See Note 17 to the Consolidated Financial Statements for additional information.

Net Cash Provided by (Used in) Financing Activities — The most significant items affecting the comparison of our financing cash flows for the periods presented are summarized below:

- *Debt Borrowings (Repayments)* — The following summarizes our cash borrowings and repayments of debt (excluding our commercial paper program discussed below) for the years ended December 31 (in millions):

	2019	2018	2017
Borrowings:			
Revolving credit facility (a)	$ —	$ 119	$ 302
Canadian term loan and revolving credit facility	—	8	9
Senior notes	3,971	—	745
Canadian senior notes	373	—	—
Tax-exempt bonds	339	185	299
Other debt	—	47	124
	$4,683	$ 359	$ 1,479
Repayments:			
Revolving credit facility (a)	$ (11)	$ (108)	$ (728)
Canadian term loan and revolving credit facility	—	(117)	(146)
Senior notes	(257)	—	(590)
Tax-exempt bonds	(204)	(167)	(251)
Other debt	(61)	(107)	(192)
	$ (533)	$ (499)	$(1,907)
Net cash borrowings (repayments)	$4,150	$ (140)	$ (428)

(a) Our revolving credit facility was amended and restated in November 2019.

Refer to Note 7 to the Consolidated Financial Statements for additional information related to our debt borrowings and repayments.

- *Premiums Paid on Early Extinguishment of Debt* — During the year ended December 31, 2019, we paid premiums of $84 million to retire certain high-coupon senior notes. See Note 7 to the Consolidated Financial Statements for further discussion of this debt transaction.

- *Commercial Paper Program* — During 2019, we had net cash repayments of $1,001 million compared to net cash borrowings of $453 million and $513 million (net of the related discounts on issuance) during 2018 and 2017, respectively, under our commercial paper program. We repaid the outstanding balance with proceeds from the May 2019 issuance of senior notes discussed above. Borrowings were primarily to support acquisitions, new business opportunities and for general corporate purposes.

- *Common Stock Repurchase Program* — For the periods presented, all share repurchases have been made in accordance with financial plans approved by our Board of Directors. We repurchased $244 million, $1,008 million (including $4 million paid in January 2019) and $750 million of our common stock during 2019, 2018 and 2017, respectively. As a result of the pending acquisition of Advanced Disposal discussed in *Pending Acquisition* below, we limited our 2019 share repurchases to an amount sufficient to offset dilution impacts from our stock-based compensation plans. See Note 14 to the Consolidated Financial Statements for additional information.

  In December 2019, we publicly confirmed that the Company has $1.32 billion remaining on its existing Board of Directors' authorization to repurchase shares of the Company's common stock. Any future share repurchases will be made at the discretion of management and will depend on factors similar to those considered by the Board of Directors in making dividend declarations.

- *Cash Dividends* — For the periods presented, all dividends have been declared by our Board of Directors.

  We paid aggregate cash dividends of $876 million, $802 million and $750 million during 2019, 2018 and 2017, respectively. The increase in dividend payments is due to our quarterly per share dividend increasing from $0.425

in 2017 to $0.465 in 2018 and to $0.5125 in 2019 and has been offset, in part, by a reduction in our common stock outstanding as a result of our common stock repurchase program.

In December 2019, we announced that our Board of Directors expects to increase the quarterly dividend from $0.5125 to $0.545 per share for dividends declared in 2020. However, all future dividend declarations are at the discretion of the Board of Directors and depend on various factors, including our net earnings, financial condition, cash required for future business plans, growth and acquisitions and other factors the Board of Directors may deem relevant.

- *Proceeds from the Exercise of Common Stock Options* — The exercise of common stock options generated financing cash inflows of $67 million, $52 million and $95 million during 2019, 2018 and 2017, respectively. The year-over-year changes are generally due to the number of stock options exercised and the exercise price of those options.

Free Cash Flow

We are presenting free cash flow, which is a non-GAAP measure of liquidity, in our disclosures because we use this measure in the evaluation and management of our business. We define 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). We believe it is indicative of our ability to pay our quarterly dividends, repurchase common stock, fund acquisitions and other investments and, in the absence of refinancings, to repay our debt obligations. Free cash flow is not intended to replace net cash provided by operating activities, which is the most comparable GAAP measure. We believe free cash flow gives investors useful insight into how we view our liquidity, but the use of free cash flow as a liquidity measure has material limitations because it excludes certain expenditures that are required or that we have committed to, such as declared dividend payments and debt service requirements.

Our calculation of free cash flow and reconciliation to net cash provided by operating activities is shown in the table below for the years ended December 31 (in millions), and may not be calculated the same as similarly-titled measures presented by other companies:

	2019	2018	2017
Net cash provided by operating activities	$ 3,874	$ 3,570	$ 3,180
Capital expenditures	(1,818)	(1,694)	(1,509)
Proceeds from divestitures of businesses and other assets (net of cash divested)	49	208	99
Free cash flow	$ 2,105	$ 2,084	$ 1,770

Summary of Contractual Obligations

The following table summarizes our contractual obligations as of December 31, 2019 and the anticipated effect of these obligations on our liquidity in future years (in millions):

	2020	2021	2022	2023	2024	Thereafter	Total
Recorded Obligations:							
Expected environmental liabilities: (a)							
Final capping, closure and post-closure	$ 138	$ 161	$ 114	$ 96	$ 133	$ 2,587	$ 3,229
Environmental remediation	27	33	44	34	22	72	232
Non-cancelable operating lease obligations	63	58	57	51	40	359	628
	228	252	215	181	195	3,018	4,089
Debt payments (b) (c) (d)	823	629	660	646	1,220	9,701	13,679
Unrecorded Obligations: (e)							
Interest on debt (f)	472	439	425	399	371	3,446	5,552
Estimated unconditional purchase obligations (g)	156	143	65	57	47	379	847
Anticipated liquidity impact as of December 31, 2019	$1,679	$1,463	$1,365	$1,283	$1,833	$16,544	$24,167

(a) Environmental liabilities include final capping, closure, post-closure and environmental remediation costs recorded in our Consolidated Balance Sheet as of December 31, 2019, without the impact of discounting and inflation. Our recorded environmental liabilities for final capping, closure and post-closure will increase as we continue to place additional tons within the permitted airspace at our landfills.

(b) These amounts represent the scheduled principal payments related to our long-term debt and financing leases, excluding interest.

(c) Our debt obligations as of December 31, 2019 include $669 million of tax-exempt bonds with term interest rate periods that expire within the next 12 months. If the remarketings of our bonds are unsuccessful, then the bonds can be put to us, requiring immediate repayment. We have classified the anticipated cash flows for these contractual obligations based on the scheduled maturity of the borrowings for purposes of this disclosure. For additional information regarding the classification of these borrowings in our Consolidated Balance Sheet as of December 31, 2019, refer to Note 7 to the Consolidated Financial Statements.

(d) Our recorded debt obligations include non-cash adjustments associated with debt issuance costs, discounts, premiums and fair value adjustments attributable to terminated interest rate derivatives. These amounts have been excluded as they will not impact our liquidity in future periods.

(e) Our unrecorded obligations represent operating lease obligations and purchase commitments from which we expect to realize an economic benefit in future periods and interest payable on our debt. We have also made certain guarantees, as discussed in Note 11 to the Consolidated Financial Statements, that we do not expect to materially affect our current or future financial position, results of operations or liquidity.

(f) Interest on our fixed-rate debt was calculated based on contractual rates and interest on our variable-rate debt was calculated based on interest rates as of December 31, 2019. As of December 31, 2019, we had $122 million of accrued interest related to our debt obligations.

(g) Our unconditional purchase obligations are for various contractual obligations that we generally incur in the ordinary course of our business. Certain of our obligations are quantity driven. For contracts that require us to purchase minimum quantities of goods or services, we have estimated our future minimum obligations based on the current market values of the underlying products or services or contractually stated amounts. Accordingly, the amounts reported in the table are subject to change and actual cash flow obligations in the near future may be different. See Note 11 to the Consolidated Financial Statements for discussion of the nature and terms of our unconditional purchase obligations.

Pending Acquisition

On April 14, 2019, we entered into an Agreement and Plan of Merger (the "Merger Agreement") to acquire all outstanding shares of Advanced Disposal for $33.15 per share in cash, representing a total enterprise value of $4.9 billion when including approximately $1.9 billion of Advanced Disposal's net debt. Advanced Disposal's solid waste network includes 95 collection operations, 73 transfer stations, 41 owned or operated landfills and 22 owned or operated recycling facilities. On June 28, 2019, Advanced Disposal announced that 85.9% of the outstanding shares of its common stock entitled to vote were voted in favor of the proposal to adopt the Merger Agreement at a special meeting of stockholders held that day. We anticipate that we will obtain antitrust regulatory approval by the end of March 2020 and close the Advanced Disposal transaction soon thereafter.

Critical Accounting Estimates and Assumptions

In preparing our financial statements, we make numerous estimates and assumptions that affect the accounting for and recognition and disclosure of assets, liabilities, equity, revenues and expenses. We must make these estimates and assumptions because certain information that we use is dependent on future events, cannot be calculated with precision from available data or simply cannot be calculated. In some cases, these estimates are difficult to determine, and we must exercise significant judgment. In preparing our financial statements, the most difficult, subjective and complex estimates and the assumptions that present the greatest amount of uncertainty relate to our accounting for landfills, environmental remediation liabilities, long-lived asset impairments and reserves associated with our insured and self-insured claims. Each of these items is discussed in additional detail below and in Note 3 to the Consolidated Financial Statements. Actual results could differ materially from the estimates and assumptions that we use in the preparation of our financial statements.

Landfills

Accounting for landfills requires that significant estimates and assumptions be made regarding (i) the cost to construct and develop each landfill asset; (ii) the estimated fair value of final capping, closure and post-closure asset retirement obligations, which must consider both the expected cost and timing of these activities; (iii) the determination of each landfill's remaining permitted and expansion airspace and (iv) the airspace associated with each final capping event.

Landfill Costs — We estimate the total cost to develop each of our landfill sites to its remaining permitted and expansion airspace. This estimate includes such costs as landfill liner material and installation, excavation for airspace, landfill leachate collection systems, landfill gas collection systems, environmental monitoring equipment for groundwater and landfill gas, directly related engineering, capitalized interest, on-site road construction and other capital infrastructure costs. Additionally, landfill development includes all land purchases for the landfill footprint and required landfill buffer property. The projection of these landfill costs is dependent, in part, on future events. The remaining amortizable basis of each landfill includes costs to develop a site to its remaining permitted and expansion airspace and includes amounts previously expended and capitalized, net of accumulated airspace amortization, and projections of future purchase and development costs.

Final Capping Costs — We estimate the cost for each final capping event based on the area to be capped and the capping materials and activities required. The estimates also consider when these costs are anticipated to be paid and factor in inflation and discount rates. Our engineering personnel allocate landfill final capping costs to specific final capping events. The landfill airspace associated with each final capping event is then quantified and the final capping costs for each event are amortized over the related airspace associated with the event as waste is disposed of at the landfill. We review these costs annually, or more often if significant facts change. Changes in estimates, such as timing or cost of construction, for final capping events immediately impact the required liability and the corresponding asset. When the change in estimate relates to a fully consumed asset, the adjustment to the asset must be amortized immediately through expense. When the change in estimate relates to a final capping event that has not been fully consumed, the adjustment to the asset is recognized in income prospectively as a component of landfill airspace amortization.

Closure and Post-Closure Costs — We base our estimates for closure and post-closure costs on our interpretations of permit and regulatory requirements for closure and post-closure monitoring and maintenance. The estimates for landfill

closure and post-closure costs also consider when the costs are anticipated to be paid and factor in inflation and discount rates. The possibility of changing legal and regulatory requirements and the forward-looking nature of these types of costs make any estimation or assumption less certain. Changes in estimates for closure and post-closure events immediately impact the required liability and the corresponding asset. When the change in estimate relates to a fully consumed asset, the adjustment to the asset must be amortized immediately through expense. When the change in estimate relates to a landfill asset that has not been fully consumed, the adjustment to the asset is recognized in income prospectively as a component of landfill airspace amortization.

Remaining Permitted Airspace — Our engineers, in consultation with third-party engineering consultants and surveyors, are responsible for determining remaining permitted airspace at our landfills. The remaining permitted airspace is determined by an annual survey, which is used to compare the existing landfill topography to the expected final landfill topography.

Expansion Airspace — We also include currently unpermitted expansion airspace in our estimate of remaining permitted and expansion airspace in certain circumstances. First, to include airspace associated with an expansion effort, we must generally expect the initial expansion permit application to be submitted within one year and the final expansion permit to be received within five years. Second, we must believe that obtaining the expansion permit is likely, considering the following criteria:

- Personnel are actively working on the expansion of an existing landfill, including efforts to obtain land use and local, state or provincial approvals;
- We have a legal right to use or obtain land to be included in the expansion plan;
- There are no significant known technical, legal, community, business, or political restrictions or similar issues that could negatively affect the success of such expansion; and
- Financial analysis has been completed based on conceptual design, and the results demonstrate that the expansion meets Company criteria for investment.

For unpermitted airspace to be initially included in our estimate of remaining permitted and expansion airspace, the expansion effort must meet all the criteria listed above. These criteria are evaluated by our field-based engineers, accountants, managers and others to identify potential obstacles to obtaining the permits. Once the unpermitted airspace is included, our policy provides that airspace may continue to be included in remaining permitted and expansion airspace even if certain of these criteria are no longer met as long as we continue to believe we will ultimately obtain the permit, based on the facts and circumstances of a specific landfill. In these circumstances, continued inclusion must be approved through a landfill-specific review process that includes approval by our Chief Financial Officer on a quarterly basis.

When we include the expansion airspace in our calculations of remaining permitted and expansion airspace, we also include the projected costs for development, as well as the projected asset retirement costs related to final capping, closure and post-closure of the expansion in the amortization basis of the landfill.

Once the remaining permitted and expansion airspace is determined in cubic yards, an airspace utilization factor ("AUF") is established to calculate the remaining permitted and expansion capacity in tons. The AUF is established using the measured density obtained from previous annual surveys and is then adjusted to account for future settlement. The amount of settlement that is forecasted will take into account several site-specific factors including current and projected mix of waste type, initial and projected waste density, estimated number of years of life remaining, depth of underlying waste, anticipated access to moisture through precipitation or recirculation of landfill leachate and operating practices. In addition, the initial selection of the AUF is subject to a subsequent multi-level review by our engineering group and the AUF used is reviewed on a periodic basis and revised as necessary. Our historical experience generally indicates that the impact of settlement at a landfill is greater later in the life of the landfill when the waste placed at the landfill approaches its highest point under the permit requirements.

After determining the costs and remaining permitted and expansion capacity at each of our landfills, we determine the per ton rates that will be expensed as waste is received and deposited at the landfill by dividing the costs by the

corresponding number of tons. We calculate per ton amortization rates for each landfill for assets associated with each final capping event, for assets related to closure and post-closure activities and for all other costs capitalized or to be capitalized in the future. These rates per ton are updated annually, or more often, as significant facts change.

It is possible that actual results, including the amount of costs incurred, the timing of final capping, closure and post-closure activities, our airspace utilization or the success of our expansion efforts could ultimately turn out to be significantly different from our estimates and assumptions. To the extent that such estimates, or related assumptions, prove to be significantly different than actual results, lower profitability may be experienced due to higher amortization rates or higher expenses; or higher profitability may result if the opposite occurs. Most significantly, if it is determined that expansion capacity should no longer be considered in calculating the recoverability of a landfill asset, we may be required to recognize an asset impairment or incur significantly higher amortization expense. If at any time management makes the decision to abandon the expansion effort, the capitalized costs related to the expansion effort are expensed immediately.

Environmental Remediation Liabilities

A significant portion of our operating costs and capital expenditures could be characterized as costs of environmental protection. The nature of our operations, particularly with respect to the construction, operation and maintenance of our landfills subjects us to an array of laws and regulations relating to the protection of the environment. Under current laws and regulations, we may have liabilities for environmental damage caused by operations, or for damage caused by conditions that existed before we acquired a site. These liabilities include PRP investigations, settlements, and certain legal and consultant fees, as well as costs directly associated with site investigation and clean up, such as materials, external contractor costs and incremental internal costs directly related to the remedy. We provide for expenses associated with environmental remediation obligations when such amounts are probable and can be reasonably estimated. We routinely review and evaluate sites that require remediation and determine our estimated cost for the likely remedy based on a number of estimates and assumptions.

Where it is probable that a liability has been incurred, we estimate costs required to remediate sites based on site-specific facts and circumstances. We routinely review and evaluate sites that require remediation, considering whether we were an owner, operator, transporter, or generator at the site, the amount and type of waste hauled to the site and the number of years we were associated with the site. Next, we review the same type of information with respect to other named and unnamed PRPs. Estimates of the costs for the likely remedy are then either developed using our internal resources or by third-party environmental engineers or other service providers. Internally developed estimates are based on:

- Management’s judgment and experience in remediating our own and unrelated parties’ sites;
- Information available from regulatory agencies as to costs of remediation;
- The number, financial resources and relative degree of responsibility of other PRPs who may be liable for remediation of a specific site; and
- The typical allocation of costs among PRPs, unless the actual allocation has been determined.

Long-Lived Asset Impairments

We assess our long-lived assets for impairment as required under the applicable accounting standards. If necessary, impairments are recorded in (gain) loss from divestitures, asset impairments and unusual items, net in our Consolidated Statement of Operations.

Property and Equipment, Including Landfills and Definite-Lived Intangible Assets — We monitor the carrying value of our long-lived assets for potential impairment on an ongoing basis and test the recoverability of such assets generally using significant unobservable (“Level 3”) inputs whenever events or changes in circumstances indicate that their carrying amounts may not be recoverable. These events or changes in circumstances, including management decisions pertaining to such assets, are referred to as impairment indicators. If an impairment indicator occurs, we perform a test of recoverability by comparing the carrying value of the asset or asset group to its undiscounted expected future cash flows.

If cash flows cannot be separately and independently identified for a single asset, we will determine whether an impairment has occurred for the group of assets for which we can identify the projected cash flows. If the carrying values are in excess of undiscounted expected future cash flows, we measure any impairment by comparing the fair value of the asset or asset group to its carrying value and the difference is recorded in the period that the impairment indicator occurs. Fair value is generally determined by considering (i) internally developed discounted projected cash flow analysis of the asset or asset group; (ii) actual third-party valuations and/or (iii) information available regarding the current market for similar assets. Estimating future cash flows requires significant judgment and projections may vary from the cash flows eventually realized, which could impact our ability to accurately assess whether an asset has been impaired.

The assessment of impairment indicators and the recoverability of our capitalized costs associated with landfills and related expansion projects require significant judgment due to the unique nature of the waste industry, the highly regulated permitting process and the sensitive estimates involved. During the review of a landfill expansion application, a regulator may initially deny the expansion application although the expansion permit is ultimately granted. In addition, management may periodically divert waste from one landfill to another to conserve remaining permitted landfill airspace, or a landfill may be required to cease accepting waste, prior to receipt of the expansion permit. However, such events occur in the ordinary course of business in the waste industry and do not necessarily result in impairment of our landfill assets because, after consideration of all facts, such events may not affect our belief that we will ultimately obtain the expansion permit. As a result, our tests of recoverability, which generally make use of a probability-weighted cash flow estimation approach, may indicate that no impairment loss should be recorded.

Indefinite-Lived Intangible Assets, Including Goodwill — At least annually, and more frequently if warranted, we assess the indefinite-lived intangible assets including the goodwill of our reporting units for impairment using Level 3 inputs.

We first performed a qualitative assessment to determine if it was more likely than not that the fair value of a reporting unit was less than its carrying value. If the assessment indicated a possible impairment, we completed a quantitative review, comparing the estimated fair value of a reporting unit to its carrying amount, including goodwill. An impairment charge was recognized if the asset’s estimated fair value was less than its carrying amount. Fair value is typically estimated using an income approach. However, when appropriate, we may also use a market approach. The income approach is based on the long-term projected future cash flows of the reporting units. We discount the estimated cash flows to present value using a weighted average cost of capital that considers factors such as market assumptions, the timing of the cash flows and the risks inherent in those cash flows. We believe that this approach is appropriate because it provides a fair value estimate based upon the reporting units’ expected long-term performance considering the economic and market conditions that generally affect our business. The market approach estimates fair value by measuring the aggregate market value of publicly-traded companies with similar characteristics to our business as a multiple of their reported earnings. We then apply that multiple to the reporting units’ earnings to estimate their fair values. We believe that this approach may also be appropriate in certain circumstances because it provides a fair value estimate using valuation inputs from entities with operations and economic characteristics comparable to our reporting units.

Fair value is computed using several factors, including projected future operating results, economic projections, anticipated future cash flows, comparable marketplace data and the cost of capital. There are inherent uncertainties related to these factors and to our judgment in applying them in our analysis. However, we believe our methodology for estimating the fair value of our reporting units is reasonable.

See Item 7. *Management’s Discussion and Analysis of Financial Condition and Results of Operations — (Gain) Loss from Divestitures, Asset Impairments and Unusual Items, Net* and Note 6 to the Consolidated Financial Statements for information related to goodwill impairments recognized during the reported periods.

Insured and Self-Insured Claims

We have retained a significant portion of the risks related to our health and welfare, general liability, automobile liability and workers’ compensation claims programs. The exposure for unpaid claims and associated expenses, including incurred but not reported losses, are based on an actuarial valuations and internal estimates. The accruals for these liabilities

could be revised if future occurrences or loss developments significantly differ from our assumptions used. Estimated recoveries associated with our insured claims are recorded as assets when we believe that the receipt of such amounts is probable.

We use a wholly-owned insurance captive to insure the deductibles for our general liability, automobile liability and workers' compensation claims programs. We continue to maintain conventional insurance policies with third-party insurers. In addition to certain business and operating benefits of having a wholly-owned insurance captive, we expect to receive certain cash flow benefits related to the timing of tax deductions related to these claims. WM will pay an annual premium to the insurance captive, typically in the first quarter of the year, for the estimated losses based on the external actuarial analysis. These premiums are held in a restricted escrow account to be used solely for paying insurance claims, resulting in a transfer of risk from WM to the insurance captive and are allocated between current and long-term assets in our Consolidated Balance Sheets depending on timing on the use of funds.

Off-Balance Sheet Arrangements

We have financial interests in unconsolidated variable interest entities as discussed in Note 19 to the Consolidated Financial Statements. Additionally, we are party to guarantee arrangements with unconsolidated entities as discussed in the *Guarantees* section of Note 11 to the Consolidated Financial Statements. These arrangements have not materially affected our financial position, results of operations or liquidity during the year ended December 31, 2019, nor are they expected to have a material impact on our future financial position, results of operations or liquidity.

Inflation

While inflationary increases in costs can affect our income from operations margins, we believe that inflation generally has not had, and in the near future is not expected to have, any material adverse effect on our results of operations. However, as of December 31, 2019, approximately 30% of our collection revenues are generated under long-term agreements with price adjustments based on various indices intended to measure inflation. Additionally, management's estimates associated with inflation have had, and will continue to have, an impact on our accounting for landfill and environmental remediation liabilities.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk.

In the normal course of business, we are exposed to market risks, including changes in interest rates, certain commodity prices and Canadian currency rates. From time to time, we use derivatives to manage some portion of these risks. The Company had no derivatives outstanding as of December 31, 2019.

Interest Rate Exposure — Our exposure to market risk for changes in interest rates relates primarily to our financing activities. As of December 31, 2019, we had $13.6 billion of long-term debt, excluding the impacts of accounting for debt issuance costs, discounts, premiums and fair value adjustments attributable to terminated interest rate derivatives. We have $1.0 billion of debt that is exposed to changes in market interest rates within the next 12 months comprised of (i) $669 million of tax-exempt bonds with term interest rate periods that expire within the next 12 months and (ii) $355 million of variable-rate tax-exempt bonds that are subject to repricing on either a daily or weekly basis. We currently estimate that a 100-basis point increase in the interest rates of our outstanding variable-rate debt obligations would increase our 2020 interest expense by $7 million.

Our remaining outstanding debt obligations have fixed interest rates through either the scheduled maturity of the debt or, for certain of our fixed-rate tax-exempt bonds, through the end of a term interest rate period that exceeds 12 months. The fair value of our fixed-rate debt obligations can increase or decrease significantly if market interest rates change.

We performed a sensitivity analysis to determine how market rate changes might affect the fair value of our market risk-sensitive debt instruments. This analysis is inherently limited because it reflects a singular, hypothetical set of assumptions. Actual market movements may vary significantly from our assumptions. An instantaneous, 100-basis point

increase in interest rates across all maturities attributable to these instruments would have decreased the fair value of our debt by approximately $1.0 billion as of December 31, 2019.

We are also exposed to interest rate market risk from our cash and cash equivalent balances, as well as assets held in restricted trust funds and escrow accounts. These assets are generally invested in high quality, liquid instruments including money market funds that invest in U.S. government obligations with original maturities of three months or less. We believe that our exposure to changes in fair value of these assets due to interest rate fluctuations is insignificant as the fair value generally approximates our cost basis. We also invest a portion of our restricted trust and escrow account balances in available-for-sale securities, including U.S. Treasury securities, U.S. agency securities, municipal securities, mortgage- and asset-backed securities and equity securities, which generally mature over the next 10 years.

Commodity Price Exposure — In the normal course of our business, we are subject to operating agreements that expose us to market risks arising from changes in the prices for commodities such as diesel fuel; recyclable materials, including old corrugated cardboard, old newsprint and plastics; and electricity, which generally correlates with natural gas prices in many of the markets in which we operate. We attempt to manage these risks through operational strategies that focus on capturing our costs in the prices we charge our customers for the services provided. Accordingly, as the market prices for these commodities increase or decrease, our revenues may also increase or decrease.

Currency Rate Exposure — We have operations in Canada as well as certain support functions in India. Where significant, we have quantified and described the impact of foreign currency translation on components of income, including operating revenue and operating expenses. However, the impact of foreign currency has not materially affected our results of operations.

Item 8. ***Financial Statements and Supplementary Data.***

INDEX TO

CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of Waste Management, Inc.

Opinion on Internal Control over Financial Reporting

We have audited Waste Management, Inc.'s internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, Waste Management, Inc. (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2019, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the 2019 consolidated financial statements of the Company, and our report dated February 13, 2020 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ ERNST & YOUNG LLP

Houston, Texas
February 13, 2020

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors and Stockholders of Waste Management, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Waste Management, Inc. (the Company) as of December 31, 2019 and 2018, the related consolidated statements of operations, comprehensive income, cash flows, and changes in equity for each of the three years in the period ended December 31, 2019, and the related notes (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company’s internal control over financial reporting as of December 31, 2019, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated February 13, 2020 expressed an unqualified opinion thereon.

Adoption of ASU No. 2016-02 (Topic 842)

As discussed in Note 2 to the consolidated financial statements, the Company changed its method of accounting for leases in the 2019 financial statements to reflect the accounting method change due to the adoption of ASU No. 2016-02, *Leases (Topic 842)*, and the related amendments.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company’s financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Landfill Amortization

Description of the Matter	At December 31, 2019, the Company's landfill assets totaled \$6.6 billion and the associated amortization expense for 2019 was \$575 million. As discussed in Note 3 of the financial statements, the Company updates the estimates used to calculate individual landfill amortization rates at least annually, or more often if significant facts change. Landfill amortization rates are used in the computation of landfill amortization expense. Auditing landfill amortization rates and related amortization expense is complex due to the highly judgmental nature of assumptions used in estimating the rates. Significant assumptions used in the calculation of the rates include: estimated future development costs associated with the construction and retirement of the landfill, estimated remaining permitted airspace and unpermitted expansion airspace, airspace utilization factors, projected annual tonnage intakes, and projected timing of retirement activities.
How We Addressed the Matter in Our Audit	We obtained an understanding, evaluated the design, and tested the operating effectiveness of the Company's controls over determining landfill amortization rates and calculating amortization expense. Our audit procedures included, among others, testing controls over: the Company's process for evaluating and updating the significant assumptions used in the development of the landfill amortization rates, management's review of those significant assumptions, and the mathematical accuracy of the calculation and recording of amortization expense. To test the landfill asset amortization rates, our audit procedures included, among others, assessing methodologies used by the Company and testing the significant assumptions discussed above, inclusive of the underlying data used by the Company in its development of these assumptions. We compared the significant assumptions used by management to historical trends and, when available, to comparable size landfills accepting a similar type of waste. Regarding unpermitted expansion airspace, we evaluated the Company's criteria for inclusion in remaining airspace. In addition, we considered the professional qualifications and objectivity of management's internal engineers responsible for developing the assumptions. We involved EY's engineering specialists to assist with the application of these procedures. We also tested the completeness and accuracy of the historical data utilized in the development of the landfill amortization rates.

Landfill – Final Capping, Closure and Post-Closure Costs

Description of the Matter	At December 31, 2019, the carrying value of the Company's landfill asset retirement obligations related to final capping, closure and post-closure costs totaled \$1.9 billion. As discussed in Note 3 of the financial statements, the Company updates the estimates used to measure the asset retirement obligations annually, or more often if significant facts change. Auditing the landfill asset retirement obligation is complex due to the highly judgmental nature of the assumptions used in the measurement process. These assumptions include: estimated future costs associated with the capping, closure and post closure activities at each specific landfill; airspace consumed to date in relation to total estimated permitted airspace; the projected annual tonnage intake; and the projected timing of retirement activities.
How We Addressed the Matter in Our Audit	We obtained an understanding, evaluated the design, and tested the operating effectiveness of the Company's controls over the calculation of asset retirement obligations. Our audit procedures included, among others, testing the Company's controls over the landfill asset retirement obligation estimation process and management's review of the significant

assumptions used in the estimation of the liability, including the amount and timing of retirement costs.

To test the landfill asset retirement obligation valuation, we performed audit procedures that included, among others, assessing methodologies used by the Company, testing the completeness of activities included in the estimate (e.g., gas monitoring and extraction), and testing the significant assumptions discussed above, inclusive of the underlying data used by the Company in its development of these assumptions. We compared the significant assumptions used by management to historical trends and, when available, to comparable size landfills accepting the same type of waste. In addition, we considered the professional qualifications and objectivity of management's internal engineers responsible for developing the assumptions. We involved EY and external engineering specialists to assist us with these procedures. Specifically, we utilized the EY engineering specialists to evaluate the reasons for significant changes in assumptions from the historical trend, and to determine whether the change from the historical trend was appropriate and identified timely. We utilized the external engineers to evaluate the estimates of remaining landfill airspace. We also tested the completeness and accuracy of the historical data utilized in preparing the estimate.

Environmental Remediation Liabilities

Description of the Matter	At December 31, 2019, environmental remediation liabilities totaled $240 million. As discussed in Note 3 of the financial statements, the Company performs a review of sites that require remediation and prepares cost estimates for the anticipated remedy using internal resources and, as needed, external resources (e.g., environmental engineers). The Company estimates the costs required to remediate sites based on: site-specific facts and circumstances; input from third party engineers or management's judgment and experience in remediating their own and unrelated parties' sites; and information available from regulatory agencies as to costs of remediation. The liability recorded by the Company represents its estimated share of the total obligation to remediate the site. The number of other potentially responsible parties (PRP's) who may be liable for remediation of a specific site, their financial resources, and their relative degree of responsibility are used to determine the Company's estimated share of the total obligation. Where the amount of an environmental remediation liability and the timing of the payments are fixed or reliably determinable, the forecasted cost is inflated until the expected time of payment and then discounted back to the present value. Auditing environmental remediation liabilities is complex due to the highly judgmental nature of the assumptions used in the estimate. Significant judgment can be involved in determining whether the environmental liability is reasonably estimable. If the liability is determined to be reasonably estimable, significant assumptions used in the accounting for environmental remediation liabilities include: estimating the internal and external costs directly associated with site investigation and clean up, potential settlements with regulatory bodies or other affected parties, and legal and consultant fees; as well as determining the degree to which the remediation obligation is shared with other parties.

How We Addressed the Matter in Our Audit	We obtained an understanding, evaluated the design and tested the operating effectiveness of the Company's controls over the calculation of environmental remediation liabilities. Our audit procedures included, among others, testing controls over management's review of: the estimated costs to perform the remedial obligation, as provided by a regulatory agency or determined by a PRP group or internal engineers; the identification of PRPs and the Company's assumptions regarding the degree of responsibility for the action; and management's controls over the completeness and accuracy of the calculated remediation liability. To test the environmental liabilities, we performed audit procedures that included, among others, assessing methodologies used by the Company and testing the significant assumptions discussed above, as well as the underlying costs and other estimates used by the Company in its development of these assumptions. We compared the significant assumptions used by management to historical data and trends, or to notifications or decisions from regulatory agencies or the PRP group specifying remedial plans of action required, as available. When appropriate to discount the liability, we evaluate the appropriateness of the discount rate and inflation rate utilized and the accuracy of the computation. We also involve EY engineering specialists to assist us with evaluating the completeness of the Company's environmental liabilities.

/s/ ERNST & YOUNG LLP

We have served as the Company's auditor since 2002.

Houston, Texas
February 13, 2020

WASTE MANAGEMENT, INC.

CONSOLIDATED BALANCE SHEETS
(In Millions, Except Share and Par Value Amounts)

	December 31, 2019	December 31, 2018
ASSETS		
Current assets:		
Cash and cash equivalents	$ 3,561	$ 61
Accounts receivable, net of allowance for doubtful accounts of $28 and $29, respectively	1,949	1,931
Other receivables	370	344
Parts and supplies	106	102
Other assets	223	207
Total current assets	6,209	2,645
Property and equipment, net of accumulated depreciation and amortization of $18,657 and $18,264, respectively	12,893	11,942
Goodwill	6,532	6,430
Other intangible assets, net	521	572
Restricted trust and escrow accounts	313	296
Investments in unconsolidated entities	483	406
Other assets	792	359
Total assets	$27,743	$22,650
LIABILITIES AND EQUITY		
Current liabilities:		
Accounts payable	$ 1,065	$ 1,037
Accrued liabilities	1,327	1,117
Deferred revenues	534	522
Current portion of long-term debt	218	432
Total current liabilities	3,144	3,108
Long-term debt, less current portion	13,280	9,594
Deferred income taxes	1,407	1,291
Landfill and environmental remediation liabilities	1,930	1,828
Other liabilities	912	553
Total liabilities	20,673	16,374
Commitments and contingencies		
Equity:		
Waste Management, Inc. stockholders' equity:		
Common stock, $0.01 par value; 1,500,000,000 shares authorized; 630,282,461 shares issued	6	6
Additional paid-in capital	5,049	4,993
Retained earnings	10,592	9,797
Accumulated other comprehensive income (loss)	(8)	(87)
Treasury stock at cost, 205,956,366 and 206,299,352 shares, respectively	(8,571)	(8,434)
Total Waste Management, Inc. stockholders' equity	7,068	6,275
Noncontrolling interests	2	1
Total equity	7,070	6,276
Total liabilities and equity	$27,743	$22,650

See Notes to Consolidated Financial Statements.

WASTE MANAGEMENT, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS
(In Millions, Except per Share Amounts)

	Years Ended December 31,		
	2019	2018	2017
Operating revenues	$ 15,455	$ 14,914	$ 14,485
Costs and expenses:			
Operating	9,496	9,249	9,021
Selling, general and administrative	1,631	1,453	1,468
Depreciation and amortization	1,574	1,477	1,376
Restructuring	6	4	—
(Gain) loss from divestitures, asset impairments and unusual items, net	42	(58)	(16)
	12,749	12,125	11,849
Income from operations	2,706	2,789	2,636
Other income (expense):			
Interest expense, net	(411)	(374)	(363)
Loss on early extinguishment of debt	(85)	—	(6)
Equity in net losses of unconsolidated entities	(55)	(41)	(68)
Other, net	(50)	2	(8)
	(601)	(413)	(445)
Income before income taxes	2,105	2,376	2,191
Income tax expense	434	453	242
Consolidated net income	1,671	1,923	1,949
Less: Net income (loss) attributable to noncontrolling interests	1	(2)	—
Net income attributable to Waste Management, Inc.	$ 1,670	$ 1,925	$ 1,949
Basic earnings per common share	$ 3.93	$ 4.49	$ 4.44
Diluted earnings per common share	$ 3.91	$ 4.45	$ 4.41

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(In Millions)

	Years Ended December 31,		
	2019	2018	2017
Consolidated net income	$ 1,671	$ 1,923	$ 1,949
Other comprehensive income (loss), net of tax:			
Derivative instruments, net	8	8	7
Available-for-sale securities, net	15	5	2
Foreign currency translation adjustments	55	(105)	76
Post-retirement benefit obligation, net	1	2	3
Other comprehensive income (loss), net of tax	79	(90)	88
Comprehensive income	1,750	1,833	2,037
Less: Comprehensive income (loss) attributable to noncontrolling interests	1	(2)	—
Comprehensive income attributable to Waste Management, Inc.	$ 1,749	$ 1,835	$ 2,037

See Notes to Consolidated Financial Statements.

WASTE MANAGEMENT, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In Millions)

	Years Ended December 31,		
	2019	2018	2017
Cash flows from operating activities:			
Consolidated net income	$ 1,671	$ 1,923	$ 1,949
Adjustments to reconcile consolidated net income to net cash provided by operating activities:			
Depreciation and amortization	1,574	1,477	1,376
Deferred income tax expense (benefit)	100	25	(251)
Interest accretion on landfill liabilities	98	95	92
Provision for bad debts	39	54	43
Equity-based compensation expense	86	89	101
Net gain on disposal of assets	(27)	(47)	(20)
(Gain) loss from divestitures, asset impairments and other, net	113	(58)	43
Equity in net losses of unconsolidated entities, net of dividends	55	41	39
Loss on early extinguishment of debt	85	—	6
Change in operating assets and liabilities, net of effects of acquisitions and divestitures:			
Receivables	(53)	(16)	(271)
Other current assets	(23)	(16)	50
Other assets	10	(14)	(66)
Accounts payable and accrued liabilities	243	203	126
Deferred revenues and other liabilities	(97)	(186)	(37)
Net cash provided by operating activities	3,874	3,570	3,180
Cash flows from investing activities:			
Acquisitions of businesses, net of cash acquired	(521)	(460)	(198)
Capital expenditures	(1,818)	(1,694)	(1,509)
Proceeds from divestitures of businesses and other assets (net of cash divested)	49	208	99
Other, net	(86)	(223)	(12)
Net cash used in investing activities	(2,376)	(2,169)	(1,620)
Cash flows from financing activities:			
New borrowings	4,683	359	1,479
Debt repayments	(533)	(499)	(1,907)
Premiums paid on early extinguishment of debt	(84)	—	(8)
Net commercial paper borrowings	(1,001)	453	513
Common stock repurchase program	(248)	(1,004)	(750)
Cash dividends	(876)	(802)	(750)
Exercise of common stock options	67	52	95
Tax payments associated with equity-based compensation transactions	(33)	(29)	(47)
Other, net	(11)	(38)	14
Net cash provided by (used in) financing activities	1,964	(1,508)	(1,361)
Effect of exchange rate changes on cash, cash equivalents and restricted cash and cash equivalents	2	(3)	—
Increase (decrease) in cash, cash equivalents and restricted cash and cash equivalents	3,464	(110)	199
Cash, cash equivalents and restricted cash and cash equivalents at beginning of period	183	293	94
Cash, cash equivalents and restricted cash and cash equivalents at end of period	$ 3,647	$ 183	$ 293
Reconciliation of cash, cash equivalents and restricted cash and cash equivalents at end of period:			
Cash and cash equivalents	$ 3,561	$ 61	$ 22
Restricted cash and cash equivalents included in other current assets	15	49	70
Restricted cash and cash equivalents included in restricted trust and escrow accounts	71	73	201
Cash, cash equivalents and restricted cash and cash equivalents at end of period	$ 3,647	$ 183	$ 293

See Notes to Consolidated Financial Statements.

WASTE MANAGEMENT, INC.

CONSOLIDATED STATEMENTS OF CHANGES IN EQUITY
(In Millions, Except Shares in Thousands)

		Waste Management, Inc. Stockholders' Equity							
		Common Stock					Treasury Stock		
	Total	Shares	Amounts	Additional Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Shares	Amounts	Noncontrolling Interests
Balance, December 31, 2016	$ 5,320	630,282	$ 6	$ 4,850	$ 7,388	$ (80)	(190,967)	$ (6,867)	$ 23
Consolidated net income	1,949	—	—	—	1,949	—	—	—	—
Other comprehensive income (loss), net of tax	88	—	—	—	—	88	—	—	—
Cash dividends declared of $1.70 per common share	(750)	—	—	—	(750)	—	—	—	—
Equity-based compensation transactions, net of tax	185	—	—	38	1	—	4,064	146	—
Common stock repurchase program	(750)	—	—	45	—	—	(10,058)	(795)	—
Other, net	—	—	—	—	—	—	(3)	—	—
Balance, December 31, 2017	$ 6,042	630,282	$ 6	$ 4,933	$ 8,588	$ 8	(196,964)	$ (7,516)	$ 23
Adoption of new accounting standards	80	—	—	—	85	(5)	—	—	—
Consolidated net income	1,923	—	—	—	1,925	—	—	—	(2)
Other comprehensive income (loss), net of tax	(90)	—	—	—	—	(90)	—	—	—
Cash dividends declared of $1.86 per common share	(802)	—	—	—	(802)	—	—	—	—
Equity-based compensation transactions, net	151	—	—	60	1	—	2,345	90	—
Common stock repurchase program	(1,008)	—	—	—	—	—	(11,673)	(1,008)	—
Divestiture of noncontrolling interest	(19)	—	—	—	—	—	—	—	(19)
Other, net	(1)	—	—	—	—	—	(7)	—	(1)
Balance, December 31, 2018	$ 6,276	630,282	$ 6	$ 4,993	$ 9,797	$ (87)	(206,299)	$ (8,434)	$ 1
Consolidated net income	1,671	—	—	—	1,670	—	—	—	1
Other comprehensive income (loss), net of tax	79	—	—	—	—	79	—	—	—
Cash dividends declared of $2.05 per common share	(876)	—	—	—	(876)	—	—	—	—
Equity-based compensation transactions, net	164	—	—	56	1	—	2,585	107	—
Common stock repurchase program	(244)	—	—	—	—	—	(2,247)	(244)	—
Other, net	—	—	—	—	—	—	5	—	—
Balance, December 31, 2019	$ 7,070	630,282	$ 6	$ 5,049	$ 10,592	$ (8)	(205,956)	$ (8,571)	$ 2

See Notes to Consolidated Financial Statements.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS
Years Ended December 31, 2019, 2018 and 2017

1. Business

The financial statements presented in this report represent the consolidation of Waste Management, Inc., a Delaware corporation; its wholly-owned and majority-owned subsidiaries; and certain variable interest entities for which Waste Management, Inc. or its subsidiaries are the primary beneficiaries as described in Note 19. Waste Management, Inc. is a holding company and all operations are conducted by its subsidiaries. When the terms "the Company," "we," "us" or "our" are used in this document, those terms refer to Waste Management, Inc., its consolidated subsidiaries and consolidated variable interest entities. When we use the term "WM," we are referring only to Waste Management, Inc., the parent holding company.

We are North America's leading provider of comprehensive waste management environmental services. We partner with our residential, commercial, industrial and municipal customers and the communities we serve to manage and reduce waste at each stage from collection to disposal, while recovering valuable resources and creating clean, renewable energy. Our "Solid Waste" business is operated and managed locally by our subsidiaries that focus on distinct geographic areas and provide collection, transfer, disposal, and recycling and resource recovery services. Through our subsidiaries, we are also a leading developer, operator and owner of landfill gas-to-energy facilities in the United States ("U.S.").

We evaluate, oversee and manage the financial performance of our Solid Waste business subsidiaries through our 17 Areas. We also provide additional services that are not managed through our Solid Waste business, which are presented in this report as "Other." Additional information related to our segments is included in Note 20.

2. New Accounting Standards and Reclassifications

Adoption of New Accounting Standard

Leases — In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2016-02 associated with lease accounting. There were further amendments, including practical expedients, with the issuance of ASU 2018-01 in January 2018, ASU 2018-11 in July 2018 and ASU 2018-20 in December 2018. On January 1, 2019, we adopted these ASUs using the optional transition method which allows entities to continue to apply historical accounting guidance in the comparative periods presented in the year of adoption. Accordingly, our financial statements for the reported periods after January 1, 2019 are presented under this amended guidance, while prior period amounts are not adjusted and continue to be reported in accordance with historical accounting guidance.

We elected to apply the following package of practical expedients on a consistent basis permitting entities not to reassess: (i) whether any expired or existing contracts are or contain a lease; (ii) lease classification for any expired or existing leases and (iii) whether initial direct costs for any expired or existing leases qualify for capitalization under the amended guidance. In addition, we applied (i) the practical expedient for land easements, which allows the Company to not apply the lease standard to certain existing land easements at transition and (ii) the practical expedient to include both the lease and non-lease components as a single component and account for it as a lease.

The impact of adopting the amended guidance primarily relates to the recognition of lease assets and lease liabilities on the balance sheet for all leases previously classified as operating leases. We recognized $385 million of right-of-use assets and $385 million of related lease liabilities as of January 1, 2019 for our contracts that are classified as operating leases. Leases with an initial term of 12 months or less have not been recorded on the balance sheet. Our accounting for financing leases, which were formerly referred to as capital leases, remained substantially unchanged. There were no other material impacts on our consolidated financial statements. See Note 8 for additional information and disclosures related to our adoption of this amended guidance.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

New Accounting Standards Pending Adoption

Financial Instrument Credit Losses — In June 2016, the FASB issued ASU 2016-13 associated with the measurement of credit losses on financial instruments. The amended guidance replaces the current incurred loss impairment methodology of recognizing credit losses when a loss is probable, with a methodology that reflects expected credit losses and requires consideration of a broader range of reasonable and supportable information to assess credit loss estimates. This expected loss model will generally result in the earlier recognition of an allowance for losses.

For trade receivables, the Company will rely on, among other factors, historical loss trends and existing economic conditions. For other receivables as well as loans and other instruments, the Company will rely primarily on credit ratings. All receivables as well as other instruments may be adjusted for our expectation of future conditions and trends.

The amended guidance is effective for the Company on January 1, 2020 and will not have a material impact on our consolidated financial statements as current processes primarily align with the expected loss model. The cumulative effect will be recognized as an adjustment to retained earnings upon adoption. We are in the process of updating our business processes and related policies, systems and controls to support recognition and disclosure under the new standard.

Implementation Costs Incurred in a Cloud Computing Arrangement — In August 2018, the FASB issued ASU 2018-15 associated with customer's accounting for implementation costs incurred in a cloud computing arrangement that is a service contract. The amendments align the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software. Costs for implementation activities in the application development stage are capitalized depending on the nature of the costs, while costs incurred during the preliminary project and post implementation stages are expensed as the activities are performed. The amended guidance is effective for the Company on January 1, 2020 and will not have a material impact on our consolidated financial statements.

Reclassifications

When necessary, reclassifications have been made to our prior period financial information to conform to the current year presentation and are not material to our consolidated financial statements.

3. Summary of Significant Accounting Policies

Principles of Consolidation

The accompanying Consolidated Financial Statements include the accounts of WM, its wholly-owned and majority-owned subsidiaries and certain variable interest entities for which we have determined that we are the primary beneficiary. All material intercompany balances and transactions have been eliminated. Investments in unconsolidated entities are accounted for under the appropriate method of accounting.

Estimates and Assumptions

In preparing our financial statements, we make numerous estimates and assumptions that affect the accounting for and recognition and disclosure of assets, liabilities, equity, revenues and expenses. We must make these estimates and assumptions because certain information that we use is dependent on future events, cannot be calculated with precision from available data or simply cannot be calculated. In some cases, these estimates are difficult to determine, and we must exercise significant judgment. In preparing our financial statements, the most difficult, subjective and complex estimates and the assumptions that present the greatest amount of uncertainty relate to our accounting for landfills, environmental remediation liabilities, long-lived asset impairments and reserves associated with our insured and self-insured claims. Each

of these items is discussed in additional detail below. Actual results could differ materially from the estimates and assumptions that we use in the preparation of our financial statements.

Cash and Cash Equivalents

Cash in excess of current operating requirements is invested in short-term interest-bearing instruments with maturities of three months or less at the date of purchase and is stated at cost, which approximates market value.

Concentrations of Credit Risk

Financial instruments that potentially subject us to concentrations of credit risk consist primarily of cash and cash equivalents, investments held within our restricted trust and escrow accounts, and accounts receivable. We make efforts to control our exposure to credit risk associated with these instruments by (i) placing our assets and other financial interests with a diverse group of credit-worthy financial institutions; (ii) holding high-quality financial instruments while limiting investments in any one instrument and (iii) maintaining strict policies over credit extension that include credit evaluations, credit limits and monitoring procedures, although generally we do not have collateral requirements for credit extensions. We also control our exposure associated with trade receivables by discontinuing service, to the extent allowable, to non-paying customers. However, our overall credit risk associated with trade receivables is limited due to the large number and diversity of customers we serve. As of December 31, 2019 and 2018, no single customer represented greater than 5% of total accounts receivable.

Accounts and Other Receivables

Our receivables, which are recorded when billed, when services are performed or when cash is advanced, are claims against third parties that will generally be settled in cash. The carrying value of our receivables, net of the allowance for doubtful accounts, represents the estimated net realizable value. We estimate our allowance for doubtful accounts based on historical collection trends; type of customer, such as municipal or commercial; the age of outstanding receivables and existing economic conditions. If events or changes in circumstances indicate that specific receivable balances may be impaired, further consideration is given to the collectability of those balances and the allowance is adjusted accordingly. The activity within our allowance for doubtful accounts was not material for the reported periods. Past-due receivable balances are written off when our internal collection efforts have been unsuccessful. Also, we recognize interest income on long-term interest-bearing notes receivable as the interest accrues under the terms of the notes. We no longer accrue interest once the notes are deemed uncollectible.

Other receivables, as of December 31, 2019 and 2018, include receivables related to income tax payments in excess of our current income tax obligations of $231 million and $284 million, respectively. Other receivables as of December 31, 2019 also includes a receivable of $70 million related to federal natural gas fuel credits.

Parts and Supplies

Parts and supplies consist primarily of spare parts, fuel, tires, lubricants and processed recycling materials. Our parts and supplies are stated at the lower of cost, using the average cost method, or market.

Landfill Accounting

Cost Basis of Landfill Assets — We capitalize various costs that we incur to make a landfill ready to accept waste. These costs generally include expenditures for land (including the landfill footprint and required landfill buffer property); permitting; excavation; liner material and installation; landfill leachate collection systems; landfill gas collection systems; environmental monitoring equipment for groundwater and landfill gas; and directly related engineering, capitalized

interest, on-site road construction and other capital infrastructure costs. The cost basis of our landfill assets also includes asset retirement costs, which represent estimates of future costs associated with landfill final capping, closure and post-closure activities. These costs are discussed below.

Final Capping, Closure and Post-Closure Costs — Following is a description of our asset retirement activities and our related accounting:

- *Final Capping* — Involves the installation of flexible membrane liners and geosynthetic clay liners, drainage and compacted soil layers and topsoil over areas of a landfill where total airspace has been consumed. Final capping asset retirement obligations are recorded on a units-of-consumption basis as airspace is consumed related to the specific final capping event with a corresponding increase in the landfill asset. Each final capping event is accounted for as a discrete obligation and recorded as an asset and a liability based on estimates of the discounted cash flows and airspace associated with each final capping event.
- *Closure* — Includes the construction of the final portion of methane gas collection systems (when required), demobilization and routine maintenance costs. These are costs incurred after the site ceases to accept waste, but before the landfill is certified as closed by the applicable state regulatory agency. These costs are recorded as an asset retirement obligation as airspace is consumed over the life of the landfill with a corresponding increase in the landfill asset. Closure obligations are recorded over the life of the landfill based on estimates of the discounted cash flows associated with performing closure activities.
- *Post-Closure* — Involves the maintenance and monitoring of a landfill site that has been certified closed by the applicable regulatory agency. Generally, we are required to maintain and monitor landfill sites for a 30-year period. These maintenance and monitoring costs are recorded as an asset retirement obligation as airspace is consumed over the life of the landfill with a corresponding increase in the landfill asset. Post-closure obligations are recorded over the life of the landfill based on estimates of the discounted cash flows associated with performing post-closure activities.

We develop our estimates of these obligations using input from our operations personnel, engineers and accountants. Our estimates are based on our interpretation of current requirements and proposed regulatory changes and are intended to approximate fair value. Absent quoted market prices, the estimate of fair value is based on the best available information, including the results of present value techniques. In many cases, we contract with third parties to fulfill our obligations for final capping, closure and post-closure. We use historical experience, professional engineering judgment and quoted or actual prices paid for similar work to determine the fair value of these obligations. We are required to recognize these obligations at market prices whether we plan to contract with third parties or perform the work ourselves. In those instances where we perform the work with internal resources, the incremental profit margin realized is recognized as a component of operating income when the work is completed.

Once we have determined final capping, closure and post-closure costs, we inflate those costs to the expected time of payment and discount those expected future costs back to present value. During the years ended December 31, 2019, 2018 and 2017, we inflated these costs in current dollars to the expected time of payment using an inflation rate of 2.5%. We discounted these costs to present value using the credit-adjusted, risk-free rate effective at the time an obligation is incurred, consistent with the expected cash flow approach. Any changes in expectations that result in an upward revision to the estimated cash flows are treated as a new liability and discounted at the current rate while downward revisions are discounted at the historical weighted average rate of the recorded obligation. As a result, the credit-adjusted, risk-free discount rate used to calculate the present value of an obligation is specific to each individual asset retirement obligation. The weighted average rate applicable to our long-term asset retirement obligations as of December 31, 2019 was approximately 5.25%.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

We record the estimated fair value of final capping, closure and post-closure liabilities for our landfills based on the airspace consumed through the current period. The fair value of final capping obligations is developed based on our estimates of the airspace consumed to date for each final capping event and the expected timing of each final capping event. The fair value of closure and post-closure obligations is developed based on our estimates of the airspace consumed to date for the entire landfill and the expected timing of each closure and post-closure activity. Because these obligations are measured at estimated fair value using present value techniques, changes in the estimated cost or timing of future final capping, closure and post-closure activities could result in a material change in these liabilities, related assets and results of operations. We assess the appropriateness of the estimates used to develop our recorded balances annually, or more often if significant facts change.

Changes in inflation rates or the estimated costs, timing or extent of future final capping, closure and post-closure activities typically result in both (i) a current adjustment to the recorded liability and landfill asset and (ii) a change in liability and asset amounts to be recorded prospectively over either the remaining permitted and expansion airspace (as defined below) of the related discrete final capping event or the remaining permitted and expansion airspace of the landfill, as appropriate. Any changes related to the capitalized and future cost of the landfill assets are then recognized in accordance with our amortization policy, which would generally result in amortization expense being recognized prospectively over the remaining permitted and expansion airspace of the final capping event or the remaining permitted and expansion airspace of the landfill, as appropriate. Changes in such estimates associated with airspace that has been fully utilized result in an adjustment to the recorded liability and landfill assets with an immediate corresponding adjustment to landfill airspace amortization expense.

Interest accretion on final capping, closure and post-closure liabilities is recorded using the effective interest method and is recorded as final capping, closure and post-closure expense, which is included in operating expenses within our Consolidated Statements of Operations.

Amortization of Landfill Assets — The amortizable basis of a landfill includes (i) amounts previously expended and capitalized; (ii) capitalized landfill final capping, closure and post-closure costs; (iii) projections of future purchase and development costs required to develop the landfill site to its remaining permitted and expansion airspace and (iv) projected asset retirement costs related to landfill final capping, closure and post-closure activities.

Amortization is recorded on a units-of-consumption basis, applying expense as a rate per ton. The rate per ton is calculated by dividing each component of the amortizable basis of a landfill by the number of tons needed to fill the corresponding asset's airspace. For landfills that we do not own, but operate through lease or other contractual agreements, the rate per ton is calculated based on expected airspace to be utilized over the lesser of the contractual term of the underlying agreement or the life of the landfill.

We apply the following guidelines in determining a landfill's remaining permitted and expansion airspace:

- *Remaining Permitted Airspace* — Our engineers, in consultation with third-party engineering consultants and surveyors, are responsible for determining remaining permitted airspace at our landfills. The remaining permitted airspace is determined by an annual survey, which is used to compare the existing landfill topography to the expected final landfill topography.
- *Expansion Airspace* — We also include currently unpermitted expansion airspace in our estimate of remaining permitted and expansion airspace in certain circumstances. First, to include airspace associated with an expansion effort, we must generally expect the initial expansion permit application to be submitted within one year and the final expansion permit to be received within five years. Second, we must believe that obtaining the expansion permit is likely, considering the following criteria:
    - Personnel are actively working on the expansion of an existing landfill, including efforts to obtain land use and local, state or provincial approvals;

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

- We have a legal right to use or obtain land to be included in the expansion plan;
- There are no significant known technical, legal, community, business, or political restrictions or similar issues that could negatively affect the success of such expansion; and
- Financial analysis has been completed based on conceptual design, and the results demonstrate that the expansion meets Company criteria for investment.

For unpermitted airspace to be initially included in our estimate of remaining permitted and expansion airspace, the expansion effort must meet all the criteria listed above. These criteria are evaluated by our field-based engineers, accountants, managers and others to identify potential obstacles to obtaining the permits. Once the unpermitted airspace is included, our policy provides that airspace may continue to be included in remaining permitted and expansion airspace even if certain of these criteria are no longer met as long as we continue to believe we will ultimately obtain the permit, based on the facts and circumstances of a specific landfill. In these circumstances, continued inclusion must be approved through a landfill-specific review process that includes approval by our Chief Financial Officer on a quarterly basis. Of the 15 landfill sites with expansions included as of December 31, 2019, one landfill required the Chief Financial Officer to approve the inclusion of the unpermitted airspace because the permit application process did not meet the one- or five-year requirements.

When we include the expansion airspace in our calculations of remaining permitted and expansion airspace, we also include the projected costs for development, as well as the projected asset retirement costs related to final capping, closure and post-closure of the expansion in the amortization basis of the landfill.

Once the remaining permitted and expansion airspace is determined in cubic yards, an airspace utilization factor (“AUF”) is established to calculate the remaining permitted and expansion capacity in tons. The AUF is established using the measured density obtained from previous annual surveys and is then adjusted to account for future settlement. The amount of settlement that is forecasted will take into account several site-specific factors including current and projected mix of waste type, initial and projected waste density, estimated number of years of life remaining, depth of underlying waste, anticipated access to moisture through precipitation or recirculation of landfill leachate and operating practices. In addition, the initial selection of the AUF is subject to a subsequent multi-level review by our engineering group and the AUF used is reviewed on a periodic basis and revised as necessary. Our historical experience generally indicates that the impact of settlement at a landfill is greater later in the life of the landfill when the waste placed at the landfill approaches its highest point under the permit requirements.

After determining the costs and remaining permitted and expansion capacity at each of our landfills, we determine the per ton rates that will be expensed as waste is received and deposited at the landfill by dividing the costs by the corresponding number of tons. We calculate per ton amortization rates for each landfill for assets associated with each final capping event, for assets related to closure and post-closure activities and for all other costs capitalized or to be capitalized in the future. These rates per ton are updated annually, or more often, as significant facts change.

It is possible that actual results, including the amount of costs incurred, the timing of final capping, closure and post-closure activities, our airspace utilization or the success of our expansion efforts could ultimately turn out to be significantly different from our estimates and assumptions. To the extent that such estimates, or related assumptions, prove to be significantly different than actual results, lower profitability may be experienced due to higher amortization rates or higher expenses; or higher profitability may result if the opposite occurs. Most significantly, if it is determined that expansion capacity should no longer be considered in calculating the recoverability of a landfill asset, we may be required to recognize an asset impairment or incur significantly higher amortization expense. If at any time management makes the decision to abandon the expansion effort, the capitalized costs related to the expansion effort are expensed immediately.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Environmental Remediation Liabilities

A significant portion of our operating costs and capital expenditures could be characterized as costs of environmental protection. The nature of our operations, particularly with respect to the construction, operation and maintenance of our landfills, subjects us to an array of laws and regulations relating to the protection of the environment. Under current laws and regulations, we may have liabilities for environmental damage caused by our operations, or for damage caused by conditions that existed before we acquired a site. In addition to remediation activity required by state or local authorities, such liabilities include potentially responsible party ("PRP") investigations. The costs associated with these liabilities can include settlements, certain legal and consultant fees, as well as incremental internal and external costs directly associated with site investigation and clean up.

Where it is probable that a liability has been incurred, we estimate costs required to remediate sites based on site-specific facts and circumstances. We routinely review and evaluate sites that require remediation, considering whether we were an owner, operator, transporter, or generator at the site, the amount and type of waste hauled to the site and the number of years we were associated with the site. Next, we review the same type of information with respect to other named and unnamed PRPs. Estimates of the costs for the likely remedy are then either developed using our internal resources or by third-party environmental engineers or other service providers. Internally developed estimates are based on:

- Management's judgment and experience in remediating our own and unrelated parties' sites;
- Information available from regulatory agencies as to costs of remediation;
- The number, financial resources and relative degree of responsibility of other PRPs who may be liable for remediation of a specific site; and
- The typical allocation of costs among PRPs, unless the actual allocation has been determined.

Estimating our degree of responsibility for remediation is inherently difficult. We recognize and accrue for an estimated remediation liability when we determine that such liability is both probable and reasonably estimable. Determining the method and ultimate cost of remediation requires that a number of assumptions be made. There can sometimes be a range of reasonable estimates of the costs associated with the likely site remediation alternatives identified in the environmental impact investigation. In these cases, we use the amount within the range that is our best estimate. If no amount within a range appears to be a better estimate than any other, we use the amount that is the low end of such range. If we used the high ends of such ranges, our aggregate potential liability would be approximately $140 million higher than the $240 million recorded in the Consolidated Balance Sheet as of December 31, 2019. Our ultimate responsibility may differ materially from current estimates. It is possible that technological, regulatory or enforcement developments, the results of environmental studies, the inability to identify other PRPs, the inability of other PRPs to contribute to the settlements of such liabilities, or other factors could require us to record additional liabilities. Our ongoing review of our remediation liabilities, in light of relevant internal and external facts and circumstances, could result in revisions to our accruals that could cause upward or downward adjustments to our balance sheet and income from operations. These adjustments could be material in any given period.

Where we believe that both the amount of a particular environmental remediation liability and the timing of the payments are fixed or reliably determinable, we inflate the cost in current dollars (by 2.5%as of December 31, 2019 and 2018) until the expected time of payment and discount the cost to present value using a risk-free discount rate, which is based on the rate for U.S. Treasury bonds with a term approximating the weighted average period until settlement of the underlying obligation. We determine the risk-free discount rate and the inflation rate on an annual basis unless interim changes would materially impact our results of operations. For remedial liabilities that have been discounted, we include interest accretion, based on the effective interest method, in operating expenses in our Consolidated Statements of Operations. The following table summarizes the impacts of revisions in the risk-free discount rate applied to our

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

environmental remediation liabilities and recovery assets for the years ended December 31 (in millions) and the risk-free discount rate applied as of December 31:

	2019	2018	2017
Increase (decrease) in operating expenses	$ 9	$ (2)	$ —
Risk-free discount rate applied to environmental remediation liabilities and recovery assets	1.75 %	2.75 %	2.5 %

The portion of our recorded environmental remediation liabilities that were not subject to inflation or discounting, as the amounts and timing of payments are not fixed or reliably determinable, was $36 million and $35 million as of December 31, 2019 and 2018, respectively. Had we not inflated and discounted any portion of our environmental remediation liability, the amount recorded would have decreased by $8 million and increased by $3 million as of December 31, 2019 and 2018, respectively.

Property and Equipment (exclusive of landfills, discussed above)

We record property and equipment at cost. Expenditures for major additions and improvements are capitalized and maintenance activities are expensed as incurred. We depreciate property and equipment over the estimated useful life of the asset using the straight-line method. We assume no salvage value for our depreciable property and equipment. When property and equipment are retired, sold or otherwise disposed of, the cost and accumulated depreciation are removed from our accounts and any resulting gain or loss is included in results of operations as an offset or increase to operating expense for the period.

The estimated useful lives for significant property and equipment categories are as follows (in years):

	Useful Lives
Vehicles — excluding rail haul cars	3 to 10
Vehicles — rail haul cars	10 to 30
Machinery and equipment — including containers	3 to 30
Buildings and improvements	5 to 40
Furniture, fixtures and office equipment	3 to 10

We include capitalized costs associated with developing or obtaining internal-use software within furniture, fixtures and office equipment. These costs include direct external costs of materials and services used in developing or obtaining the software and internal costs for employees directly associated with the software development project.

Leases

We lease property and equipment in the ordinary course of our business. Our operating lease activities primarily consist of leases for real estate, landfills and operating equipment. Our financing lease activities primarily consist of leases for operating equipment, railcars and landfill assets. Our leases have varying terms. Some may include renewal or purchase options, escalation clauses, restrictions, penalties or other obligations that we consider in determining minimum lease payments. The leases are classified as either operating leases or financing leases, as appropriate. See Note 8 for additional information.

Operating Leases (excluding landfill leases discussed below) — The majority of our leases are operating leases. This classification generally can be attributed to either (i) relatively low fixed minimum lease payments as a result of real property lease obligations that vary based on the volume of waste we receive or process or (ii) minimum lease terms that are much shorter than the assets' economic useful lives. Management expects that in the normal course of business our

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

operating leases will be renewed, replaced by other leases, or replaced with fixed asset expenditures. Our rent expense during each of the last three years and our future minimum operating lease payments for each of the next five years for which we are contractually obligated as of December 31, 2019 are disclosed in Note 8.

Financing Leases (excluding landfill leases discussed below) — Assets under financing leases are capitalized using interest rates determined at the commencement of each lease and are amortized over either the useful life of the asset or the lease term, as appropriate, on a straight-line basis. The present value of the related lease payments is recorded as a debt obligation. Our future minimum annual financing lease payments are disclosed in Note 8.

Landfill Leases — From an operating perspective, landfills that we lease are similar to landfills we own because generally we will operate the landfill for the life of the operating permit. The most significant portion of our rental obligations for landfill leases is contingent upon operating factors such as disposal volume and often there are no contractual minimum rental obligations. Contingent rental obligations are expensed as incurred. For landfill financing leases that provide for minimum contractual rental obligations, we record the present value of the minimum obligation as part of the landfill asset, which is amortized on a units-of-consumption basis over the shorter of the lease term or the life of the landfill. Our future minimum annual lease payments for our landfill leases are disclosed in Note 8.

Acquisitions

We generally recognize assets acquired and liabilities assumed in business combinations, including contingent assets and liabilities, based on fair value estimates as of the date of acquisition.

Contingent Consideration — In certain acquisitions, we agree to pay additional amounts to sellers contingent upon achievement by the acquired businesses of certain negotiated goals, such as targeted revenue levels, targeted disposal volumes or the issuance of permits for expanded landfill airspace. We have recognized liabilities for these contingent obligations based on their estimated fair value as of the date of acquisition with any differences between the acquisition-date fair value and the ultimate settlement of the obligations being recognized as an adjustment to income from operations.

Acquired Assets and Assumed Liabilities — Assets and liabilities arising from contingencies such as pre-acquisition environmental matters and litigation are recognized at their acquisition-date fair value when their respective fair values can be determined. If the fair values of such contingencies cannot be determined, they are recognized as of the acquisition date if the contingencies are probable and an amount can be reasonably estimated.

Acquisition-date fair value estimates are revised as necessary if, and when, additional information regarding these contingencies becomes available to further define and quantify assets acquired and liabilities assumed. Subsequent to finalization of purchase accounting, these revisions are accounted for as adjustments to income from operations. All acquisition-related transaction costs are expensed as incurred.

Goodwill and Other Intangible Assets

Goodwill is the excess of our purchase cost over the fair value of the net assets of acquired businesses. We do not amortize goodwill, but as discussed in the *Long-Lived Asset Impairments* section below, we assess our goodwill for impairment at least annually.

Other intangible assets consist primarily of customer and supplier relationships, covenants not-to-compete, licenses, permits (other than landfill permits, as all landfill-related intangible assets are combined with landfill tangible assets and amortized using our landfill amortization policy), and other contracts. Other intangible assets are recorded at fair value on the acquisition date and are generally amortized using either a 150% declining balance approach or a straight-line basis as we determine appropriate. Customer and supplier relationships are typically amortized over a term of 10 years. Covenants

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

not-to-compete are amortized over the term of the non-compete covenant, which is generally five years. Licenses, permits and other contracts are amortized over the definitive terms of the related agreements. If the underlying agreement does not contain definitive terms and the useful life is determined to be indefinite, the asset is not amortized.

Long-Lived Asset Impairments

We assess our long-lived assets for impairment as required under the applicable accounting standards. If necessary, impairments are recorded in (gain) loss from divestitures, asset impairments and unusual items, net in our Consolidated Statement of Operations.

Property and Equipment, Including Landfills and Definite-Lived Intangible Assets — We monitor the carrying value of our long-lived assets for potential impairment on an ongoing basis and test the recoverability of such assets generally using significant unobservable ("Level 3") inputs whenever events or changes in circumstances indicate that their carrying amounts may not be recoverable. These events or changes in circumstances, including management decisions pertaining to such assets, are referred to as impairment indicators. If an impairment indicator occurs, we perform a test of recoverability by comparing the carrying value of the asset or asset group to its undiscounted expected future cash flows. If cash flows cannot be separately and independently identified for a single asset, we will determine whether an impairment has occurred for the group of assets for which we can identify the projected cash flows. If the carrying values are in excess of undiscounted expected future cash flows, we measure any impairment by comparing the fair value of the asset or asset group to its carrying value and the difference is recorded in the period that the impairment indicator occurs. Fair value is generally determined by considering (i) internally developed discounted projected cash flow analysis of the asset or asset group; (ii) actual third-party valuations and/or (iii) information available regarding the current market for similar assets. Estimating future cash flows requires significant judgment and projections may vary from the cash flows eventually realized, which could impact our ability to accurately assess whether an asset has been impaired.

The assessment of impairment indicators and the recoverability of our capitalized costs associated with landfills and related expansion projects require significant judgment due to the unique nature of the waste industry, the highly regulated permitting process and the sensitive estimates involved. During the review of a landfill expansion application, a regulator may initially deny the expansion application although the expansion permit is ultimately granted. In addition, management may periodically divert waste from one landfill to another to conserve remaining permitted landfill airspace, or a landfill may be required to cease accepting waste, prior to receipt of the expansion permit. However, such events occur in the ordinary course of business in the waste industry and do not necessarily result in impairment of our landfill assets because, after consideration of all facts, such events may not affect our belief that we will ultimately obtain the expansion permit. As a result, our tests of recoverability, which generally make use of a probability-weighted cash flow estimation approach, may indicate that no impairment loss should be recorded.

Indefinite-Lived Intangible Assets, Including Goodwill — At least annually using a measurement date of October 1, and more frequently if warranted, we assess the indefinite-lived intangible assets including the goodwill of our reporting units for impairment.

We first performed a qualitative assessment to determine if it was more likely than not that the fair value of a reporting unit was less than its carrying value. If the assessment indicated a possible impairment, we completed a quantitative review, comparing the estimated fair value of a reporting unit to its carrying amount, including goodwill. An impairment charge was recognized if the asset's estimated fair value was less than its carrying amount. Fair value is typically estimated using an income approach using Level 3 inputs. However, when appropriate, we may also use a market approach. The income approach is based on the long-term projected future cash flows of the reporting units. We discount the estimated cash flows to present value using a weighted average cost of capital that considers factors such as market assumptions, the timing of the cash flows and the risks inherent in those cash flows. We believe that this approach is appropriate because it provides a fair value estimate based upon the reporting units' expected long-term performance considering the economic and market

conditions that generally affect our business. The market approach estimates fair value by measuring the aggregate market value of publicly-traded companies with similar characteristics to our business as a multiple of their reported earnings. We then apply that multiple to the reporting units' earnings to estimate their fair values. We believe that this approach may also be appropriate in certain circumstances because it provides a fair value estimate using valuation inputs from entities with operations and economic characteristics comparable to our reporting units.

Fair value is computed using several factors, including projected future operating results, economic projections, anticipated future cash flows, comparable marketplace data and the cost of capital. There are inherent uncertainties related to these factors and to our judgment in applying them in our analysis. However, we believe our methodology for estimating the fair value of our reporting units is reasonable.

Refer to Notes 6 and 12 for information related to impairments recognized during the reported periods.

Insured and Self-Insured Claims

We have retained a significant portion of the risks related to our health and welfare, general liability, automobile liability and workers' compensation claims programs. The exposure for unpaid claims and associated expenses, including incurred but not reported losses, generally is estimated with the assistance of external actuaries and by factoring in pending claims and historical trends and data. The gross estimated liability associated with settling unpaid claims is included in accrued liabilities in our Consolidated Balance Sheets if expected to be settled within one year; otherwise, it is included in other long-term liabilities. Estimated insurance recoveries related to recorded liabilities are reflected as other current receivables or other long-term assets in our Consolidated Balance Sheets when we believe that the receipt of such amounts is probable.

We use a wholly-owned insurance captive to insure the deductibles for our general liability, automobile liability and workers' compensation claims programs. We continue to maintain conventional insurance policies with third-party insurers. In addition to certain business and operating benefits of having a wholly-owned insurance captive, we expect to receive certain cash flow benefits related to the timing of tax deductions related to these claims. WM will pay an annual premium to the insurance captive, typically in the first quarter of the year, for the estimated losses based on the external actuarial analysis. These premiums are held in a restricted escrow account to be used solely for paying insurance claims, resulting in a transfer of risk from WM to the insurance captive and are allocated between current and long-term assets depending on timing on the use of funds.

Restricted Trust and Escrow Accounts

Our restricted trust and escrow accounts consist principally of funds deposited for purposes of funding insurance claims and settling landfill final capping, closure, post-closure and environmental remediation obligations. These funds are allocated between cash, money market funds and available-for-sale securities depending on the estimated timing and purpose of the use of funds. We use a wholly-owned insurance captive to insure the deductibles for certain claims programs, as discussed above in *Insured and Self-Insured Claims*, and the premiums paid were directly deposited into a restricted escrow account to be used solely for paying insurance claims. At several of our landfills, we provide financial assurance by depositing cash into restricted trust or escrow accounts for purposes of settling final capping, closure, post-closure and environmental remediation obligations. Balances maintained in these restricted trust and escrow accounts will fluctuate based on (i) changes in statutory requirements; (ii) future deposits made to comply with contractual arrangements; (iii) the ongoing use of funds; (iv) acquisitions or divestitures and (v) changes in the fair value of the financial instruments held in the restricted trust or escrow accounts. The current portion of restricted trust and escrow accounts as of December 31, 2019 and 2018 of $70 million is included in other current assets in our Consolidated Balance Sheets.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

See Note 19 for additional discussion related to restricted trust and escrow accounts for final capping, closure, post-closure or environmental remediation obligations.

Investments in Unconsolidated Entities

Investments in unconsolidated entities over which the Company has significant influence are accounted for under the equity method of accounting. Equity investments in which the Company does not have the ability to exert significant influence over the investees' operating and financing activities are measured using a quantitative approach as these investments do not have readily determinable fair values. The quantitative approach, or measurement alternative, is equal to its cost minus impairment, if any, plus or minus changes resulting from observable price changes in orderly transactions for the identical or a similar investment of the same issuer. The fair value of our redeemable preferred stock has been measured based on third-party investors' recent or pending transactions in these securities, which are considered the best evidence of fair value. The following table summarizes our investments in unconsolidated entities as of December 31 (in millions):

	2019	2018
Equity method investments	$ 377	$ 257
Investments without readily determinable fair values	57	83
Redeemable preferred stock	49	66
Investments in unconsolidated entities	$ 483	$ 406

We monitor and assess the carrying value of our investments throughout the year for potential impairment and write them down to their fair value when other-than-temporary declines exist. Fair value is generally based on (i) other third-party investors' recent transactions in the securities; (ii) other information available regarding the current market for similar assets; (iii) a market or income approach, as deemed appropriate and/or (iv) a quantitative approach, or measurement alternative, as noted above. Impairments of our investments are recorded in equity in net losses of unconsolidated entities or other, net in the Consolidated Statements of Operations in accordance with appropriate accounting guidance.

Refer to Notes 12 and 17 for information related to impairments and other adjustments recognized during the reported periods.

Foreign Currency

We have operations in Canada, as well as certain support functions in India. Local currencies generally are considered the functional currencies of our operations and investments outside the U.S. The assets and liabilities of our foreign operations are translated to U.S. dollars using the exchange rate as of the balance sheet date. Revenues and expenses are translated to U.S. dollars using the average exchange rate during the period. The resulting translation difference is reflected as a component of other comprehensive income (loss).

Revenue Recognition

Our Solid Waste operating revenues are primarily generated from fees charged for our collection, transfer, disposal, and recycling and resource recovery services, and from sales of commodities by our recycling and landfill gas-to-energy operations. Revenues from our collection operations are influenced by factors such as collection frequency, type of collection equipment furnished, type and volume or weight of the waste collected, distance to the disposal facility or material recovery facility and our disposal costs. Revenues from our landfill operations consist of tipping fees, which are generally based on the type and weight or volume of waste being disposed of at our disposal facilities. Fees charged at transfer stations are generally based on the weight or volume of waste deposited, taking into account our cost of loading,

transporting and disposing of the solid waste at a disposal site. Recycling revenues generally consist of tipping fees and the sale of recycling commodities to third parties. The fees we charge for our services generally include our environmental, fuel surcharge and regulatory recovery fees, which are intended to pass through to customers direct and indirect costs incurred. We also provide additional services that are not managed through our Solid Waste business, including operations managed by both our Strategic Business Solutions (“WMSBS”) and Energy and Environmental Services (“EES”) organizations, recycling brokerage services, landfill gas-to-energy services and certain other expanded service offerings and solutions.

Our revenue from sources other than customer contracts primarily relates to lease revenue associated with compactors and balers. Revenue from our leasing arrangements was not material and represented approximately 1%of total revenue for each of the reported periods.

We generally recognize revenue as services are performed or products are delivered. For example, revenue typically is recognized as waste is collected, tons are received at our landfills or transfer stations, or recycling commodities are collected or delivered as product. We bill for certain services prior to performance. Such services include, among others, certain commercial and residential contracts and equipment rentals. These advance billings are included in deferred revenues and recognized as revenue in the period service is provided.

See Note 20 for additional information related to revenue by reportable segment and major lines of business.

Deferred Revenues

We record deferred revenues when cash payments are received or due in advance of our performance and classify them as current since they are earned within a year and there are no significant financing components. Substantially all our deferred revenues during the reported periods are realized as revenues within one to three months, when the related services are performed.

Contract Acquisition Costs

Our incremental direct costs of obtaining a contract, which consist primarily of sales incentives, are generally deferred and amortized to selling, general and administrative expense over the estimated life of the relevant customer relationship, ranging from 5 to 13 years. Contract acquisition costs that are paid to the customer are deferred and amortized as a reduction in revenue over the contract life. Our contract acquisition costs are classified as current or noncurrent based on the timing of when we expect to recognize amortization and are included in other assets in our Consolidated Balance Sheet.

As of December 31, 2019 and 2018, we had $153 million and $145 million of deferred contract costs, respectively, of which $117 million and $109 million was related to deferred sales incentives, respectively. During the years ended December 31, 2019 and 2018, we amortized $23 million and $22 million of sales incentives to selling, general and administrative expense, respectively, and $17 million and $35 million of other contract acquisition costs as a reduction in revenue, respectively.

Long-Term Contracts

Approximately 25% of our total revenue is derived from contracts with a remaining term greater than one year. The consideration for these contracts is primarily variable in nature. The variable elements of these contracts primarily include the number of homes and businesses served and annual rate changes based on consumer price index, fuel prices or other operating costs. Such contracts are generally within our collection, recycling and other lines of business and have a weighted average remaining contract life of approximately five years. We do not disclose the value of unsatisfied performance obligations for these contracts as our right to consideration corresponds directly to the value provided to the

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

customer for services completed to date and all future variable consideration is allocated to wholly unsatisfied performance obligations.

Capitalized Interest

We capitalize interest on certain projects under development, including landfill expansion projects, certain assets under construction, including operating landfills and landfill gas-to-energy projects and internal-use software. During 2019, 2018 and 2017, total interest costs were $485 million, $400 million and $383 million, respectively, of which $21 million, $16 million and $15 million was capitalized in 2019, 2018 and 2017, respectively.

Income Taxes

The Company is subject to income tax in the U.S. and Canada. Current tax obligations associated with our income tax expense are reflected in the accompanying Consolidated Balance Sheets as a component of accrued liabilities and our deferred tax obligations are reflected in deferred income taxes.

Deferred income taxes are based on the difference between the financial reporting and tax basis of assets and liabilities. Deferred income tax expense represents the change during the reporting period in the deferred tax assets and liabilities, net of the effect of acquisitions and dispositions. Deferred tax assets include tax loss and credit carry-forwards and are reduced by a valuation allowance if, based on available evidence, it is more likely than not that some portion or all of the deferred tax assets will not be realized. We establish reserves for uncertain tax positions when, despite our belief that our tax return positions are supportable, we believe that certain positions may be challenged and potentially disallowed. When facts and circumstances change, we adjust these reserves through our income tax expense.

Should interest and penalties be assessed by taxing authorities on any underpayment of income tax, such amounts would be accrued and classified as a component of our income tax expense in our Consolidated Statements of Operations.

See Note 9 for discussion of our income taxes.

Contingent Liabilities

We estimate the amount of potential exposure we may have with respect to claims, assessments and litigation in accordance with authoritative guidance on accounting for contingencies. We are party to pending or threatened legal proceedings covering a wide range of matters in various jurisdictions. It is difficult to predict the outcome of litigation, as it is subject to many uncertainties. Additionally, it is not always possible for management to make a meaningful estimate of the potential loss or range of loss associated with such contingencies. See Note 11 for discussion of our commitments and contingencies.

Supplemental Cash Flow Information

The following table shows supplemental cash flow information for the years ended December 31 (in millions):

	2019	2018	2017
Interest, net of capitalized interest	$ 397	$ 339	$ 380
Income taxes	292	349	562

During 2019, we had $299 million of non-cash financing activities from our recent federal low-income housing investment discussed in Note 9 and new financing leases. During 2018, we had $250 million of non-cash financing activities from a federal low-income housing investment and new financing leases. During 2017, we did not have any

significant non-cash investing and financing activities. Non-cash investing and financing activities are generally excluded from the Consolidated Statements of Cash Flows.

4. Landfill and Environmental Remediation Liabilities

Liabilities for landfill and environmental remediation costs as of December 31 are presented in the table below (in millions):

	2019			2018		
	Landfill	Environmental Remediation	Total	Landfill	Environmental Remediation	Total
Current (in accrued liabilities)	$ 138	$ 27	$ 165	$ 143	$ 26	$ 169
Long-term	1,717	213	1,930	1,617	211	1,828
	$ 1,855	$ 240	$ 2,095	$ 1,760	$ 237	$ 1,997

The changes to landfill and environmental remediation liabilities for the year ended December 31, 2019 are reflected in the table below (in millions):

	Landfill	Environmental Remediation
December 31, 2018	$ 1,760	$ 237
Obligations incurred and capitalized	72	—
Obligations settled	(113)	(22)
Interest accretion	98	4
Revisions in estimates and interest rate assumptions (a) (b)	33	21
Acquisitions, divestitures and other adjustments	5	—
December 31, 2019	$ 1,855	$ 240

(a) The amount reported for our landfill liabilities includes revisions in estimates resulting primarily from changes in the timing and amount of costs as well as changes in estimates of remaining airspace.

(b) The amount reported for our environmental remediation liabilities includes an increase of $11 million due to a decrease in the risk-free discount rate used to measure our liabilities from 2.75% at December 31, 2018 to 1.75% at December 31, 2019.

Our recorded liabilities as of December 31, 2019 include the impacts of inflating certain of these costs based on our expectations of the timing of cash settlement and of discounting certain of these costs to present value. Anticipated payments of currently identified environmental remediation liabilities, as measured in current dollars, are $27 million in 2020, $33 million in 2021, $44 million in 2022, $34 million in 2023, $22 million in 2024 and $72 million thereafter.

At several of our landfills, we provide financial assurance by depositing cash into restricted trust funds or escrow accounts for purposes of settling final capping, closure, post-closure and environmental remediation obligations. Generally, these trust funds are established to comply with statutory requirements and operating agreements. See Notes 17 and 19 for additional information related to these trusts.

5. Property and Equipment

Property and equipment as of December 31 consisted of the following (in millions):

	2019	2018
Land	$ 656	$ 656
Landfills	15,910	15,240
Vehicles	5,344	5,059
Machinery and equipment	3,140	2,988
Containers	2,616	2,588
Buildings and improvements	3,174	2,998
Furniture, fixtures and office equipment	710	677
	31,550	30,206
Less: Accumulated depreciation of tangible property and equipment	(9,331)	(9,107)
Less: Accumulated amortization of landfill airspace	(9,326)	(9,157)
Property and equipment, net	$ 12,893	$ 11,942

Depreciation and amortization expense, including amortization expense for assets recorded as financing leases, consisted of the following for the years ended December 31 (in millions):

	2019	2018	2017
Depreciation of tangible property and equipment	$ 893	$ 838	$ 783
Amortization of landfill airspace	575	538	497
Depreciation and amortization expense	$ 1,468	$ 1,376	$ 1,280

6. Goodwill and Other Intangible Assets

Goodwill was $6,532 million and $6,430 million as of December 31, 2019 and 2018, respectively. The $102 million increase in goodwill during 2019 is primarily related to acquisitions partially offset by impairment charges, which are discussed below, and translation adjustments related to our Canadian operations.

As discussed in Note 3, we perform our annual impairment test of goodwill balances for our reporting units using a measurement date of October 1. We will also perform interim tests if an impairment indicator exists. As a result of our annual impairment test performed in the fourth quarter of 2019, we recorded goodwill impairment charges of $27 million, of which $17 million related to our EES organization and $10 million related to our LampTracker® reporting unit, because the carrying value including goodwill exceeded the estimated fair value. Fair value was estimated using an income approach based on long-term projected discounted future cash flows of the reporting unit (Level 3).

See Notes 12, 18 and 20 for additional information related to goodwill.

Our other intangible assets consisted of the following as of December 31 (in millions):

	Customer and Supplier Relationships	Covenants Not-to-Compete	Licenses, Permits and Other	Total
2019				
Intangible assets	$ 906	$ 72	$ 110	$ 1,088
Less: Accumulated amortization	(469)	(36)	(62)	(567)
	$ 437	$ 36	$ 48	$ 521
2018				
Intangible assets	$ 949	$ 60	$ 109	$ 1,118
Less: Accumulated amortization	(461)	(24)	(61)	(546)
	$ 488	$ 36	$ 48	$ 572

Amortization expense for other intangible assets was $106 million, $101 million and $96 million for 2019, 2018 and 2017, respectively. As of December 31, 2019, we had $19 million of licenses, permits and other intangible assets that are not subject to amortization because they do not have stated expirations or have routine, administrative renewal processes. Additional information related to other intangible assets acquired through business combinations is included in Note 18. As of December 31, 2019, we expect annual amortization expense related to other intangible assets to be $99 million in 2020, $85 million in 2021, $70 million in 2022, $61 million in 2023 and $56 million in 2024.

7. Debt

The following table summarizes the major components of debt as of each balance sheet date (in millions) and provides the maturities and interest rate ranges of each major category as of December 31:

	2019	2018
Revolving credit facility (weighted average interest rate of 3.1% as of December 31, 2018)	$ —	$ 11
Commercial paper program (weighted average interest rate of 2.9% as of December 31, 2018)	—	990
Senior notes, maturing through 2049, interest rates ranging from 2.4% to 7.75% (weighted average interest rate of 3.9% as of December 31, 2019 and 4.3% as of December 31, 2018)	9,965	6,222
Canadian senior notes, maturing September 2026, interest rate of 2.6%	385	—
Tax-exempt bonds, maturing through 2048, fixed and variable interest rates ranging from 1.35% to 4.3% (weighted average interest rate of 2.3% as of December 31, 2019 and 2.35% as of December 31, 2018)	2,523	2,388
Financing leases and other, maturing through 2071, weighted average interest rate of 4.7%	710	467
Debt issuance costs, discounts and other	(85)	(52)
	13,498	10,026
Current portion of long-term debt	218	432
	$ 13,280	$ 9,594

Debt Classification

As of December 31, 2019, we had $1.5 billion of debt maturing within the next 12 months, including (i) $600 million of 4.75% senior notes that mature in June 2020; (ii) $669 million of tax-exempt bonds with term interest rate periods that expire within the next 12 months, which is prior to their scheduled maturities, and (iii) $218 million of other debt with scheduled maturities within the next 12 months, including $112 million of tax-exempt bonds. As of December 31, 2019,

we have classified $1.3 billion of debt maturing in the next 12 months as long-term because we have the intent and ability to refinance these borrowings on a long-term basis as supported by the forecasted available capacity under our $3.5 billion long-term U.S. and Canadian revolving credit facility ("$3.5 billion revolving credit facility"), as discussed below. The remaining $218 million of debt maturing in the next 12 months is classified as current obligations.

As of December 31, 2019, we also have $169 million of variable-rate tax-exempt bonds that are supported by letters of credit under our $3.5 billion revolving credit facility, of which $15 million mature within the next 12 months. The interest rates on our variable-rate tax-exempt bonds are generally reset on either a daily or weekly basis through a remarketing process. All recent tax-exempt bond remarketings have successfully placed Company bonds with investors at market-driven rates and we currently expect future remarketings to be successful. However, if the remarketing agent is unable to remarket our bonds, the remarketing agent can put the bonds to us. In the event of a failed remarketing, we have the availability under our $3.5 billion revolving credit facility to fund these bonds until they are remarketed successfully. Accordingly, we have classified $154 million of these borrowings as long-term in our Consolidated Balance Sheet as of December 31, 2019.

Access to and Utilization of Credit Facilities and Commercial Paper Program

$3.5 Billion Revolving Credit Facility — In November 2019, we entered into the $3.5 billion revolving credit facility, which amended and restated our prior long-term U.S. and Canadian revolving credit facility. Amendments to the credit agreement included (i) increasing total capacity under the facility from $2.75 billion to $3.5 billion; (ii) increasing the accordion feature that may be used to increase total capacity in future periods from $750 million to $1.0 billion and (iii) extending the term through November 2024. The agreement provides the Company with two one-year extension options. Waste Management of Canada Corporation and WM Quebec Inc., each an indirect wholly-owned subsidiary of WM, are borrowers under the $3.5 billion revolving credit facility, and the agreement permits borrowing in Canadian dollars up to the U.S. dollar equivalent of $375 million, with such borrowings to be repaid in Canadian dollars. WM Holdings, a wholly-owned subsidiary of WM, guarantees all the obligations under the $3.5 billion revolving credit facility.

The $3.5 billion revolving credit facility provides us with credit capacity to be used for cash borrowings, to support letters of credit or to support our commercial paper program. The rates we pay for outstanding U.S. or Canadian loans are generally based on LIBOR or CDOR, respectively, plus a spread depending on the Company's debt rating assigned by Moody's Investors Service and Standard and Poor's. The spread above LIBOR or CDOR ranges from 0.575% to 1.015%. Our $3.5 billion revolving credit facility was drafted in anticipation of the phaseout of LIBOR and contains provisions to replace LIBOR with an appropriate alternate benchmark rate as needed. As of December 31, 2019, we had no outstanding borrowings and $412 million of letters of credit issued and supported by the facility, leaving unused and available credit capacity of $3.1 billion.

Commercial Paper Program — We have a commercial paper program that enables us to borrow funds for up to 397 days at competitive interest rates. The rates we pay for outstanding borrowings are based on the term of the notes. The commercial paper program is fully supported by our $3.5 billion revolving credit facility. In November 2019, we amended our commercial paper program, increasing our ability to borrow funds from $2.75 billion to $3.5 billion, provided that the aggregate outstanding amount of commercial paper borrowings, together with borrowings and issued letters of credit under the $3.5 billion revolving credit facility, shall not at any time exceed the aggregate authorized borrowing capacity of such facility. As of December 31, 2019, we had no outstanding borrowings under our commercial paper program.

Other Letter of Credit Facilities — As of December 31, 2019, we had utilized $532 million of other letter of credit facilities, which are both committed and uncommitted, with terms maturing through April 2021.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Debt Borrowings and Repayments

Revolving Credit Facility — In 2019, we repaid C$15 million, or $11 million, of Canadian borrowings under our revolving credit facility with available cash.

Senior Notes — In May 2019, WM issued $4.0 billion of senior notes consisting of:

- $750 million of 2.95% senior notes due June 15, 2024;
- $750 million of 3.20% senior notes due June 15, 2026;
- $1.0 billion of 3.45% senior notes due June 15, 2029;
- $500 million of 4.00% senior notes due July 15, 2039; and
- $1.0 billion of 4.15% senior notes due July 15, 2049.

The net proceeds from these debt issuances were $3.97 billion. Concurrently, we used $344 million of the net proceeds from the newly issued senior notes to retire $257 million of certain high-coupon senior notes. The cash paid includes the principal amount of the debt retired, $84 million of related premiums, which are classified as loss on early extinguishment of debt in our Consolidated Statement of Operations, and $3 million of accrued interest. The principal amount of senior notes redeemed within each series was as follows:

- $304 million of WM Holdings 7.10% senior notes due 2026, of which $56 million were tendered;
- $395 million of WM 7.00% senior notes due 2028, of which $64 million were tendered;
- $139 million of WM 7.375% senior notes due 2029, of which $58 million were tendered;
- $210 million of WM 7.75% senior notes due 2032, of which $57 million were tendered; and
- $274 million of WM 6.125% senior notes due 2039, of which $22 million were tendered.

We used a portion of the proceeds to repay our commercial paper borrowings as discussed further below. We intend to use the remaining net proceeds to pay a portion of the consideration related to our pending acquisition of Advanced Disposal Services, Inc. (“Advanced Disposal”), pursuant to an Agreement and Plan of Merger (the “Merger Agreement”) which is discussed further in Note 18, and for general corporate purposes. The newly-issued senior notes due 2024, 2026, 2029 and 2039 include a special mandatory redemption feature, which provides that if the acquisition of Advanced Disposal is not completed on or prior to July 14, 2020, or if, prior to such date, the Merger Agreement is terminated for any reason, we will be required to redeem all of such outstanding notes equal to 101% of the aggregate principal amounts of such notes, plus accrued but unpaid interest.

Canadian Senior Notes — In September 2019, Waste Management of Canada Corporation, an indirect wholly-owned subsidiary of WM, issued C$500 million, or $377 million, of 2.6% senior notes due September 23, 2026, all of which are fully and unconditionally guaranteed on a senior unsecured basis by WM and WM Holdings. The net proceeds from the debt issuance were C$496 million, or $373 million, which we intend to use for general corporate purposes.

Commercial Paper Program — During the year ended December 31, 2019, we made net cash repayments of $1.0 billion (net of the related discount on issuance).

Tax-Exempt Bonds — We issued $240 million of new tax-exempt bonds in 2019. The proceeds from the issuance of these bonds were deposited directly into a restricted trust fund and may only be used for the specific purpose for which the money was raised, which is generally to finance expenditures for landfill and solid waste disposal facility construction and development. In the third quarter of 2019, we elected to refund and reissue $99 million of tax-exempt bonds which resulted in the recognition of a $1 million loss on early extinguishment of debt in our Consolidated Statement of Operations. Additionally, during the year ended December 31, 2019, we repaid $105 million of our tax-exempt bonds with available cash.

Financing Leases and Other — The increase in our financing leases and other debt obligations during 2019 is primarily related to (i) our new federal low-income housing investment discussed in Note 9, which increased our debt obligations by $140 million, and (ii) an increase of $159 million attributable to non-cash financing arrangements. These increases were offset by a net decrease of $56 million, primarily due net cash repayments of debt at maturity.

Scheduled Debt Payments

Principal payments of our debt for the next five years and thereafter, based on scheduled maturities are as follows: $823 million in 2020, $629 million in 2021, $660 million in 2022, $646 million in 2023, $1,220 million in 2024 and $9,701 million thereafter. Our recorded debt and financing lease obligations include non-cash adjustments associated with debt issuance costs, discounts, premiums and fair value adjustments attributable to terminated interest rate derivatives, which have been excluded from these amounts because they will not result in cash payments. See Note 8 below for further discussion of our financing lease arrangements.

Secured Debt

Our debt balances are generally unsecured, except for financing leases and the notes payable associated with our investments in low-income housing properties.

Debt Covenants

The terms of certain of our financing arrangements require that we comply with financial and other covenants. Our most restrictive financial covenant is the one contained in our $3.5 billion revolving credit facility, which sets forth a maximum total debt to consolidated earnings before interest, taxes, depreciation and amortization ratio (the “Leverage Ratio”). This covenant requires that the Leverage Ratio for the preceding four fiscal quarters will not be more than 3.75 to 1, provided that if an acquisition permitted under the $3.5 billion revolving credit facility involving aggregate consideration in excess of $200 million occurs during the fiscal quarter, the Company shall have the right to increase the Leverage Ratio to 4.25 to 1 during such fiscal quarter and for the following three fiscal quarters (the “Elevated Leverage Ratio Period”). There shall be no more than two Elevated Leverage Ratio Periods during the term of the $3.5 billion revolving credit facility, and the Leverage Ratio must return to 3.75 to 1 for at least one fiscal quarter between Elevated Leverage Ratio Periods. The calculation of all components used in the Leverage Ratio covenant are as defined in the $3.5 billion revolving credit facility.

Our $3.5 billion revolving credit facility, senior notes and other financing arrangements also contain certain restrictions on the ability of the Company’s subsidiaries to incur additional indebtedness as well as restrictions on the ability of the Company and its subsidiaries to, among other things, incur liens; engage in sale-leaseback transactions and engage in mergers and consolidations. We monitor our compliance with these restrictions, but do not believe that they significantly impact our ability to enter into investing or financing arrangements typical for our business. As of December 31, 2019 and 2018, we were in compliance with all covenants and restrictions under our financing arrangements that may have a material effect on our Consolidated Financial Statements.

8. Leases

Our operating lease activities primarily consist of leases for real estate, landfills and operating equipment. Our financing lease activities primarily consist of leases for operating equipment, railcars and landfill assets. Leases with an initial term of 12 months or less, which are not expected to be renewed beyond one year, are not recorded on the balance sheet and are recognized as lease expense on a straight-line basis over the lease term. Most leases include one or more options to renew, with renewal terms generally ranging from one to 10 years. The exercise of lease renewal options is at our sole discretion. We include the renewal term in the calculation of the right-of-use asset and related lease liability when

such renewals are reasonably certain of being exercised. Certain leases also include options to purchase the leased property. The depreciable life of assets and leasehold improvements is limited by the expected lease term, unless there is a transfer of title or purchase option reasonably certain of exercise. Certain of our lease agreements include rental payments based on usage and other lease agreements include rental payments adjusted periodically for inflation; these payments are treated as variable lease payments. Our lease agreements do not contain any material residual value guarantees or material restrictive covenants.

When the implicit interest rate is not readily available for our leases, we discount future cash flows of the remaining lease payments using the current interest rate that would be paid to borrow on collateralized debt over a similar term, or incremental borrowing rate, at the commencement date.

Supplemental balance sheet information for our leases is as follows (in millions):

Leases	Classification	December 31, 2019
Assets		
Long-term:		
Operating	Other assets	$ 424
Financing	Property and equipment, net of accumulated depreciation and amortization	374
Total lease assets		$ 798
Liabilities		
Current:		
Operating	Accrued liabilities	$ 79
Financing	Current portion of long-term debt	36
Long-term:		
Operating	Other liabilities	366
Financing	Long-term debt, less current portion	323
Total lease liabilities		$ 804

Operating lease expense was $132 million, $129 million and $134 million during 2019, 2018 and 2017, respectively, and is included in operating and selling, general and administrative expenses in our Consolidated Statement of Operations. Financing lease expense for 2019 was $48 million and is included in depreciation and amortization expense and interest expense, net in our Consolidated Statement of Operations.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Minimum contractual obligations for our leases (undiscounted) as of December 31, 2019 are as follows (in millions):

	Operating	Financing
2020	$ 63	$ 47
2021	58	45
2022	57	45
2023	51	44
2024	40	41
Thereafter	359	256
Total lease payments	$ 628	$ 478
Less: interest	(183)	(119)
Discounted lease liabilities	$ 445	$ 359

As of December 31, 2019, we entered into leases, primarily for real estate, that have not yet commenced with future lease payments of $26 million that are not reflected in the table above. These leases will commence through 2020 with non-cancelable lease terms up to 15 years.

Cash paid during 2019 for our operating and financing leases was $87 million and $40 million, respectively. During 2019, right-of-use assets obtained in exchange for lease obligations for our operating and financing leases were $149 million and $134 million, respectively.

As of December 31, 2019, the weighted average remaining lease terms of our operating and financing leases were approximately 16 years and 14 years, respectively. The weighted average discount rates used to determine the lease liabilities as of December 31, 2019 for our operating and financing leases were approximately 3.50% and 4.10%, respectively.

9. Income Taxes

Income Tax Expense

Our income tax expense consisted of the following for the years ended December 31 (in millions):

	2019	2018	2017
Current:			
Federal	$ 204	$ 256	$ 400
State	94	132	56
Foreign	36	40	37
	334	428	493
Deferred:			
Federal	94	59	(316)
State	8	(32)	62
Foreign	(2)	(2)	3
	100	25	(251)
Income tax expense	$ 434	$ 453	$ 242

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The U.S. federal statutory income tax rate is reconciled to the effective income tax rate for the years ended December 31 as follows:

	2019	2018	2017
Income tax expense at U.S. federal statutory rate	21.00 %	21.00 %	35.00 %
State and local income taxes, net of federal income tax benefit	4.39	4.41	3.25
Impacts of enactment of tax reform	—	(0.51)	(24.14)
Federal tax credits	(4.38)	(2.44)	(2.31)
Taxing authority audit settlements and other tax adjustments	(0.74)	(3.85)	0.03
Tax impact of equity-based compensation transactions	(0.91)	(0.54)	(1.45)
Tax impact of impairments	0.72	0.03	0.66
Tax rate differential on foreign income	0.40	0.43	(0.55)
Other	0.13	0.51	0.55
Effective income tax rate	20.61 %	19.04 %	11.04 %

The comparability of our income tax expense for the reported periods has been primarily affected by (i) variations in our income before income taxes; (ii) federal tax credits; (iii) excess tax benefits associated with equity-based compensation transactions (iv) adjustments to our accruals and deferred taxes; (v) the tax implications of impairments; (vi) the realization of state net operating losses and credits; (vii) tax audit settlements and (viii) the impacts of enactment of tax reform.

For financial reporting purposes, income before income taxes by source for the years ended December 31 was as follows (in millions):

	2019	2018	2017
Domestic	$ 2,025	$ 2,235	$ 2,040
Foreign (a)	80	141	151
Income before income taxes	$ 2,105	$ 2,376	$ 2,191

(a) Foreign income before income taxes for the year ended December 31, 2019 includes a $52 million impairment charge related to our minority-owned investment in a waste conversion technology business. See Note 12 for further discussion.

Investments Qualifying for Federal Tax Credits — We have significant financial interests in entities established to invest in and manage low-income housing properties and a refined coal facility. On August 28, 2019 we acquired an additional noncontrolling interest in a limited liability company established to invest in and manage low-income housing properties. Our consideration for this investment totaled $160 million, which was comprised of a $140 million note payable and an initial cash payment of $20 million. We support the operations of these entities in exchange for a pro-rata share of the tax credits they generate. The low-income housing investments and the coal facility's refinement processes qualify for federal tax credits that we expect to realize through 2030 under Section 42, through 2024 under Section 45D, and through 2019 under Section 45 of the Internal Revenue Code.

We account for our investments in these entities using the equity method of accounting, recognizing our share of each entity's pre-tax results of operations and other reductions in the value of our investments in equity in net losses of unconsolidated entities, within our Consolidated Statements of Operations. During the years ended December 31, 2019, 2018 and 2017, we recognized $46 million, $30 million and $30 million of net losses and a reduction in our income tax expense of $96 million, $57 million and $51 million, respectively, primarily due to tax credits realized from these investments. In addition, during the years ended December 31, 2019, 2018 and 2017, we recognized interest expense of $9 million, $3 million and $2 million, respectively, associated with our investments in low-income housing properties. See Note 19 for additional information related to these unconsolidated variable interest entities.

Other Federal Tax Credits — During 2019, 2018 and 2017, we recognized federal tax credits in addition to the tax credits realized from our investments in low-income housing properties and the refined coal facility, resulting in a reduction in our income tax expense of $11 million, $10 million and $13 million, respectively.

Equity-Based Compensation — During 2019, 2018 and 2017, we recognized excess tax benefits related to the vesting or exercise of equity-based compensation awards resulting in a reduction in our income tax expense of $25 million, $17 million and $37 million, respectively.

Adjustments to Accruals and Deferred Taxes — Adjustments to our accruals and deferred taxes due to the filing of our income tax returns, analysis of our deferred tax balances and changes in state and foreign laws resulted in a reduction in our income tax expense of $22 million, $52 million and $5 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Tax Implications of Impairments — Portions of the impairment charges recognized during the reported periods are not deductible for tax purposes resulting in an increase in income tax expense of $15 million, $1 million and $15 million for the years ended December 31, 2019, 2018 and 2017, respectively. See Note 12 for more information related to our impairment charges.

State Net Operating Losses and Credits — During 2019, 2018 and 2017, we recognized state net operating losses and credits resulting in a reduction in our income tax expense of $14 million, $22 million and $12 million, respectively.

Tax Audit Settlements — We file income tax returns in the U.S. and Canada, as well as other state and local jurisdictions. We are currently under audit by various taxing authorities, as discussed below, and our audits are in various stages of completion. During the reported periods, we settled various tax audits which resulted in a reduction in our income tax expense of $2 million, $40 million and $2 million for the years ended December 31, 2019, 2018 and 2017, respectively.

We participate in the IRS's Compliance Assurance Process, which means we work with the IRS throughout the year towards resolving any material issues prior to the filing of our annual tax return. Any unresolved issues as of the tax return filing date are subject to routine examination procedures. We are currently in the examination phase of IRS audits for the 2017 through 2019 tax years and expect these audits to be completed within the next 15 months. We are also currently undergoing audits by various state and local jurisdictions for tax years that date back to 2013.

Enactment of Tax Reform – In accordance with applicable accounting guidance, the Company recognized the provisional tax impacts and subsequent measurement period adjustments related to the remeasurement of our deferred income tax assets and liabilities and the one-time, mandatory transition tax on deemed repatriation of previously tax-deferred and unremitted foreign earnings, resulting in a reduction in our income tax expense of $12 million and $529 million for the years ended December 31, 2018 and 2017, respectively.

Unremitted Earnings in Foreign Subsidiaries — No additional income taxes have been provided for any remaining undistributed foreign earnings not subject to the one-time, mandatory transition tax, or any additional outside basis difference, as these amounts continue to be indefinitely reinvested in foreign operations.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Deferred Tax Assets (Liabilities)

The components of net deferred tax liabilities as of December 31 are as follows (in millions):

	2019	2018
Deferred tax assets:		
Net operating loss, capital loss and tax credit carry-forwards	$ 150	$ 258
Landfill and environmental remediation liabilities	156	143
Operating lease liabilities	114	—
Miscellaneous and other reserves, net	150	175
Subtotal	570	576
Valuation allowance	(162)	(261)
Deferred tax liabilities:		
Property and equipment	(842)	(752)
Goodwill and other intangibles	(865)	(854)
Operating lease right-of-use assets	(108)	—
Net deferred tax liabilities	$ (1,407)	$ (1,291)

The valuation allowance decreased by $99 million in 2019 primarily due to the utilization and expiration of federal capital loss carry-forwards.

As of December 31, 2019, we had $1.8 billion of state net operating loss carry-forwards with expiration dates through 2039. We also had $27 million of federal capital loss carry-forwards with expiration dates through 2024, $32 million of foreign tax credit carry-forwards with expiration dates through 2029 and $17 million of state tax credit carry-forwards with expiration dates through 2035.

We have established valuation allowances for uncertainties in realizing the benefit of certain tax loss and credit carry-forwards and other deferred tax assets. While we expect to realize the deferred tax assets, net of the valuation allowances, changes in estimates of future taxable income or in tax laws may alter this expectation.

Liabilities for Uncertain Tax Positions

A reconciliation of the beginning and ending amount of gross unrecognized tax benefits, including accrued interest, is as follows (in millions):

	2019	2018	2017
Balance as of January 1	$ 36	$ 109	$ 82
Additions based on tax positions related to the current year	5	6	19
Additions based on tax positions of prior years	—	12	11
Accrued interest	2	2	4
Settlements	—	(88)	(1)
Lapse of statute of limitations	(3)	(5)	(6)
Balance as of December 31	$ 40	$ 36	$ 109

These liabilities are included as a component of other long-term liabilities in our Consolidated Balance Sheets because the Company does not anticipate that settlement of the liabilities will require payment of cash within the next 12 months. As of December 31, 2019, we have $33 million of net unrecognized tax benefits that, if recognized in future periods, would impact our effective income tax rate.

We recognize interest expense related to unrecognized tax benefits in our income tax expense, which was not material for the reported periods. We did not have any accrued liabilities or expense for penalties related to unrecognized tax benefits for the reported periods.

10. Employee Benefit Plans

Defined Contribution Plans — Waste Management sponsors a 401(k) retirement savings plan that covers employees, except those working subject to collective bargaining agreements that do not provide for coverage under the plan. U.S. employees who are not subject to such collective bargaining agreements are generally eligible to participate in the plan following a 90-day waiting period after hire and may contribute as much as 50% of their eligible annual compensation and 80% of their annual incentive plan bonus, subject to annual contribution limitations established by the IRS. Under the retirement savings plan, for non-union employees, we match 100% of employee contributions on the first 3% of their eligible annual compensation and 50% of employee contributions on the next 3% of their eligible annual compensation, resulting in a maximum match of 4.5% of eligible annual compensation. Non-union employees hired on or after January 1, 2018 are automatically enrolled in the plan at a 3% contribution rate upon eligibility. Both employee and Company contributions are in cash and vest immediately. Certain U.S. employees who are subject to collective bargaining agreements may participate in the 401(k) retirement savings plan under terms specified in their collective bargaining agreement. Certain employees outside the U.S., including those in Canada, participate in defined contribution plans maintained by the Company in compliance with laws of the appropriate jurisdiction. Charges to operating and selling, general and administrative expenses for our defined contribution plans totaled $88 million, $80 million and $70 million for the years ended December 31, 2019, 2018 and 2017, respectively.

Defined Benefit Plans (other than multiemployer defined benefit pension plans discussed below) — WM Holdings sponsors a defined benefit plan for certain employees who are subject to collective bargaining agreements that provide for participation in this plan. Further, certain of our Canadian subsidiaries sponsor defined benefit plans that are frozen to new participants. As of December 31, 2019, the combined benefit obligation of these pension plans was $141 million supported by $136 million of combined plan assets, resulting in an aggregate unfunded benefit obligation for these plans of $5 million. As of December 31, 2018, the combined benefit obligation of these pension plans was $120 million supported by $117 million of combined plan assets, resulting in an aggregate unfunded benefit obligation for these plans of $3 million.

In addition, WM Holdings and certain of its subsidiaries provided post-retirement health care and other benefits to eligible retirees. In conjunction with our acquisition of WM Holdings in July 1998, we limited participation in these plans to participating retirees as of December 31, 1998. The unfunded benefit obligation for these plans was $14 million and $18 million as of December 31, 2019 and 2018, respectively.

Our accrued benefit liabilities for our defined benefit pension and other post-retirement plans were $19 million and $21 million as of December 31, 2019 and 2018, respectively, and are included as components of accrued liabilities and long-term other liabilities in our Consolidated Balance Sheets.

Multiemployer Defined Benefit Pension Plans — We are a participating employer in a number of trustee-managed multiemployer defined benefit pension plans ("Multiemployer Pension Plans") for employees who are covered by collective bargaining agreements. The risks of participating in these Multiemployer Pension Plans are different from single-employer plans in that (i) assets contributed to the Multiemployer Pension Plan by one employer may be used to provide benefits to employees or former employees of other participating employers; (ii) if a participating employer stops contributing to the plan, the unfunded obligations of the plan may be required to be assumed by the remaining participating employers and (iii) if we choose to stop participating in any of our Multiemployer Pension Plans, we may be required to

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

pay those plans a withdrawal amount based on the underfunded status of the plan. The following table outlines our participation in Multiemployer Pension Plans considered to be individually significant (dollars in millions):

Pension Fund	EIN/Pension Plan Number	Pension Protection Act Reported Status(a) 2019	2018	FIP/RP Status(b)(c)	Company Contributions(d) 2019	2018	2017	Expiration Date of Collective Bargaining Agreement(s)
Automotive Industries Pension Plan	EIN: 94-1133245; Plan Number: 001	Critical and Declining	Critical and Declining	Implemented	$ 1	$ 1	$ 1	9/30/2021
Suburban Teamsters of Northern Illinois Pension Plan	EIN: 36-6155778; Plan Number: 001	Endangered	Endangered	Implemented	3	3	3	Various dates through 3/31/2023
Western Conference of Teamsters Pension Plan	EIN: 91-6145047; Plan Number: 001	Not Endangered or Critical	Not Endangered or Critical	Not Applicable	32	29	27	Various dates through 12/31/2024
					$ 36	$ 33	$ 31	
Contributions to other Multiemployer Pension Plans					16	14	16	
Total contributions to Multiemployer Pension Plans (e)					$ 52	$ 47	$ 47	

(a) The most recent Pension Protection Act zone status available in 2019 and 2018 is for the plan's year-end as of December 31, 2018 and 2017, respectively. The zone status is based on information that we received from the plan and is certified by the plan's actuary. As defined in the Pension Protection Act of 2006, among other factors, plans reported as critical are generally less than 65% funded and plans reported as endangered are generally less than 80% funded. Under the Multiemployer Pension Reform Act of 2014, a plan is generally in critical and declining status if it (i) is certified to be in critical status pursuant to the Pension Protection Act of 2006 and (ii) is projected to be insolvent within the next 15 years or, in certain circumstances, 20 years.

As of the date the financial statements were issued, Forms 5500 were not available for the plan years ended in 2019.

(b) The "FIP/RP Status" column indicates plans for which a Funding Improvement Plan ("FIP") or a Rehabilitation Plan ("RP") has been implemented.

(c) A Multiemployer Pension Plan that has been certified as endangered, seriously endangered or critical may begin to levy a statutory surcharge on contribution rates. Once authorized, the surcharge is at the rate of 5% for the first 12 months and 10% for any periods thereafter. Contributing employers, however, may eliminate the surcharge by entering into a collective bargaining agreement that meets the requirements of the applicable FIP or RP.

(d) Of the Multiemployer Pension Plans considered to be individually significant, the Company was listed in the Form 5500 of the Suburban Teamsters of Northern Illinois Pension Plan as providing more than 5% of the total contributions for plan years ending December 31, 2018 and 2017.

(e) Total contributions to Multiemployer Pension Plans excludes contributions related to withdrawal liabilities discussed below.

Our portion of the projected benefit obligation, plan assets and unfunded liability for the Multiemployer Pension Plans is not material to our financial position. However, the failure of participating employers to remain solvent could affect our portion of the plans' unfunded liability. Specific benefit levels provided by union pension plans are not negotiated with or known by the employer contributors.

In connection with our ongoing renegotiations of various collective bargaining agreements, we may discuss and negotiate for the complete or partial withdrawal from one or more of these pension plans. Further, business events, such as the discontinuation or nonrenewal of a customer contract, the decertification of a union, or relocation, reduction or discontinuance of certain operations, which result in the decline of Company contributions to a Multiemployer Pension Plan could trigger a partial or complete withdrawal. In the event of a withdrawal, we may incur expenses associated with our obligations for unfunded vested benefits at the time of the withdrawal. In 2019, 2018 and 2017, we recognized charges

of less than $1 million, $3 million and $12 million, respectively, to operating expenses for the withdrawal from certain underfunded Multiemployer Pension Plans. Refer to Note 11 for additional information related to our obligations to Multiemployer Pension Plans for which we have withdrawn or partially withdrawn.

Multiemployer Plan Benefits Other Than Pensions — During the years ended December 31, 2019, 2018 and 2017, the Company made contributions of $45 million, $43 million and $42 million, respectively, to multiemployer health and welfare plans that also provide other post-retirement employee benefits. Funding of benefit payments for plan participants are made at negotiated rates in the respective collective bargaining agreements as costs are incurred.

11. Commitments and Contingencies

Financial Instruments — We have obtained letters of credit, surety bonds and insurance policies and have established trust funds and issued financial guarantees to support tax-exempt bonds, contracts, performance of landfill final capping, closure and post-closure requirements, environmental remediation and other obligations. Letters of credit generally are supported by our $3.5 billion revolving credit facility and other credit facilities established for that purpose. These facilities are discussed further in Note 7. Surety bonds and insurance policies are supported by (i) a diverse group of third-party surety and insurance companies; (ii) an entity in which we have a noncontrolling financial interest or (iii) a wholly-owned insurance captive, the sole business of which is to issue surety bonds and/or insurance policies on our behalf.

Management does not expect that any claims against or draws on these instruments would have a material adverse effect on our financial condition, results of operations or cash flows. We have not experienced any unmanageable difficulty in obtaining the required financial assurance instruments for our current operations. In an ongoing effort to mitigate risks of future cost increases and reductions in available capacity, we continue to evaluate various options to access cost-effective sources of financial assurance.

Insurance — We carry insurance coverage for protection of our assets and operations from certain risks including general liability, automobile liability, workers' compensation, real and personal property, directors' and officers' liability, pollution legal liability and other coverages we believe are customary to the industry. Our exposure to loss for insurance claims is generally limited to the per-incident deductible under the related insurance policy. Our exposure could increase if our insurers are unable to meet their commitments on a timely basis.

We have retained a significant portion of the risks related to our health and welfare, general liability, automobile liability and workers' compensation claims programs. "General liability" refers to the self-insured portion of specific third-party claims made against us that may be covered under our commercial General Liability Insurance Policy. For our self-insured portions, the exposure for unpaid claims and associated expenses, including incurred but not reported losses, is based on an actuarial valuation or internal estimates. The accruals for these liabilities could be revised if future occurrences or loss development significantly differ from such valuations and estimates. We use a wholly-owned insurance captive to insure the deductibles for our general liability, automobile liability and workers' compensation claims programs. As of December 31, 2019, both our commercial General Liability Insurance Policy and our workers' compensation insurance program carried self-insurance exposures of up to $5 million per incident. As of December 31, 2019, our automobile liability insurance program included a per-incident deductible of up to $10 million. Our receivable balance associated with

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

insurance claims was $126 million and $130 million as of December 31, 2019 and 2018, respectively. The changes to our insurance reserves for the years ended December 31 are summarized below (in millions):

	2019(a)	2018
Balance as of January 1	$ 567	$ 582
Self-insurance expense	171	142
Cash paid and other	(163)	(157)
Balance as of December 31	$ 575	$ 567
Current portion as of December 31	$ 145	$ 137
Long-term portion as of December 31	$ 430	$ 430

(a) Based on current estimates, we anticipate that most of our insurance reserves will be settled in cash over the next six years.

We do not expect the impact of any known casualty, property, environmental or other contingency to have a material impact on our financial condition, results of operations or cash flows.

Operating and Financing Leases — Our operating and financing leases are discussed in Note 8.

Other Commitments

- *Disposal* — We have several agreements expiring at various dates through 2052 that require us to dispose of a minimum number of tons at third-party disposal facilities. Under these put-or-pay agreements, we are required to pay for the agreed upon minimum volumes regardless of the actual number of tons placed at the facilities. Following the 2014 divestiture of our Wheelabrator business, which provides waste-to-energy services and manages waste-to-energy facilities and independent power production plants, we entered into several agreements to dispose of a minimum number of tons of waste at certain Wheelabrator facilities. These agreements generally provide for fixed volume commitments with certain market price resets through 2021. We generally fulfill our minimum contractual obligations by disposing of volumes collected in the ordinary course of business at these disposal facilities.
- *Waste Paper* — We are party to waste paper purchase agreements expiring at various dates through 2023 that require us to purchase a minimum number of tons of waste paper. The cost per ton we pay is based on market prices.
- *Royalties* — We have various arrangements that require us to make royalty payments to third parties including prior land owners, lessors or host communities where our operations are located. Our obligations generally are based on per ton rates for waste actually received at our transfer stations or landfills. Royalty agreements that are non-cancelable and require fixed or minimum payments are included in our financing leases and other debt obligations in our Consolidated Balance Sheets as disclosed in Note 7.

Our unconditional purchase obligations are generally established in the ordinary course of our business and are structured in a manner that provides us with access to important resources at competitive, market-driven rates. As of December 31, 2019, our estimated minimum obligations associated with unconditional purchase obligations, which are not recognized in our Consolidated Balance Sheets, were $156 million in 2020, $143 million in 2021, $65 million in 2022, $57 million in 2023, $47 million in 2024 and $379 million thereafter. We may also establish unconditional purchase obligations in conjunction with acquisitions or divestitures. Our actual future minimum obligations under these outstanding purchase agreements are generally quantity driven and, as a result, our associated financial obligations are not fixed as of December 31, 2019. For contracts that require us to purchase minimum quantities of goods or services, we have estimated our future minimum obligations based on the current market values of the underlying products or services or contractually stated amounts. We currently expect the products and services provided by these agreements to continue to meet the needs

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

of our ongoing operations. Therefore, we do not expect these established arrangements to materially impact our future financial position, results of operations or cash flows.

Guarantees — We have entered into the following guarantee agreements associated with our operations:

- As of December 31, 2019, WM Holdings has fully and unconditionally guaranteed all of WM's senior indebtedness, including its senior notes, $3.5 billion revolving credit facility and certain letter of credit facilities, which mature through 2049. WM has fully and unconditionally guaranteed the senior indebtedness of WM Holdings, which matures in 2026. Performance under these guarantee agreements would be required if either party defaulted on their respective obligations. No additional liabilities have been recorded for these intercompany guarantees because all of the underlying obligations are reflected in our Consolidated Balance Sheets. See Note 22 for further discussion.

- WM and WM Holdings have guaranteed subsidiary debt obligations, including tax-exempt bonds, financing leases and other indebtedness. If a subsidiary fails to meet its obligations associated with its debt agreements as they come due, WM or WM Holdings will be required to perform under the related guarantee agreement. No additional liabilities have been recorded for these intercompany guarantees because all of the underlying obligations are reflected in our Consolidated Balance Sheets. See Note 7 for information related to the balances and maturities of these debt obligations.

- Before the divestiture of our Wheelabrator business in 2014, WM had guaranteed certain operational and financial performance obligations of Wheelabrator and its subsidiaries in the ordinary course of business. In conjunction with the divestiture, certain WM guarantees of Wheelabrator obligations were terminated, but others continued and are now guarantees of third-party obligations. When possible, Wheelabrator seeks to have the applicable third-party beneficiaries release WM from these guarantees, but until such efforts are successful, or the underlying financial commitments are restructured, WM has agreed to retain the guarantees and, in exchange, receive a credit support fee or other financial assurances guaranteed by a third-party financial institution to protect WM in the event of non-compliance by Wheelabrator. The most significant of these guarantees specifically define WM's maximum financial obligation over the course of the relevant agreements. In February 2019, Wheelabrator was acquired by a third party, at which time we agreed to retain certain remaining guarantees. As of December 31, 2019, WM's maximum future payments under these guarantees were $45 million. WM's exposure under certain of the performance guarantees is variable and a maximum exposure is not defined. We have recorded the fair value of the operational and financial performance guarantees, some of which could extend through 2038 if not terminated, in our Consolidated Balance Sheets. We currently do not expect the financial impact of such operational and financial performance guarantees to materially exceed the recorded fair value.

- Certain of our subsidiaries have guaranteed the market or contractually-determined value of certain homeowners' properties that are adjacent to or near certain of our landfills. These guarantee agreements extend over the life of the respective landfill. Under these agreements, we would be responsible for the difference, if any, between the sale value and the guaranteed market or contractually-determined value of the homeowners' properties. As of December 31, 2019, we have agreements guaranteeing certain market value losses for certain properties adjacent to or near 18 of our landfills. We do not believe that these contingent obligations will have a material adverse effect on the Company's financial position, results of operations or cash flows.

- We have indemnified the purchasers of businesses or divested assets for the occurrence of specified events under certain of our divestiture agreements. Other than certain identified items that are currently recorded as obligations, we do not believe that it is possible to determine the contingent obligations associated with these indemnities. Additionally, under certain of our acquisition agreements, we have provided for additional consideration to be paid to the sellers if established financial targets or other market conditions are achieved post-closing and we have recognized liabilities for these contingent obligations based on an estimate of the fair value of these contingencies at the time of acquisition. We do not currently believe that contingent obligations to provide indemnification or pay additional post-closing consideration in connection with our divestitures or acquisitions

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

will have a material adverse effect on the Company's business, financial condition, results of operations or cash flows.

- WM and WM Holdings guarantee the service, lease, financial and general operating obligations of certain of their subsidiaries. If such a subsidiary fails to meet its contractual obligations as they come due, the guarantor has an unconditional obligation to perform on its behalf. No additional liability has been recorded for service, financial or general operating guarantees because the subsidiaries' obligations are properly accounted for as costs of operations as services are provided or general operating obligations as incurred. No additional liability has been recorded for the lease guarantees because the subsidiaries' obligations are properly accounted for as operating or financing leases, as appropriate.

Environmental Matters — A significant portion of our operating costs and capital expenditures could be characterized as costs of environmental protection. The nature of our operations, particularly with respect to the construction, operation and maintenance of our landfills, subjects us to an array of laws and regulations relating to the protection of the environment. Under current laws and regulations, we may have liabilities for environmental damage caused by our operations, or for damage caused by conditions that existed before we acquired a site. In addition to remediation activity required by state or local authorities, such liabilities include PRP investigations. The costs associated with these liabilities can include settlements, certain legal and consultant fees, as well as incremental internal and external costs directly associated with site investigation and clean-up.

As of December 31, 2019, we have been notified by the government that we are a PRP in connection with 75 locations listed on the Environmental Protection Agency's ("EPA's") Superfund National Priorities List ("NPL"). Of the 75 sites at which claims have been made against us, 15 are sites we own. Each of the NPL sites we own was initially developed by others as a landfill disposal facility. At each of these facilities, we are working in conjunction with the government to evaluate or remediate identified site problems, and we have either agreed with other legally liable parties on an arrangement for sharing the costs of remediation or are working toward a cost-sharing agreement. We generally expect to receive any amounts due from other participating parties at or near the time that we make the remedial expenditures. The other 60 NPL sites, which we do not own, are at various procedural stages under the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, known as CERCLA or Superfund.

The majority of proceedings involving NPL sites that we do not own are based on allegations that certain of our subsidiaries (or their predecessors) transported hazardous substances to the sites, often prior to our acquisition of these subsidiaries. CERCLA generally provides for liability for those parties owning, operating, transporting to or disposing at the sites. Proceedings arising under Superfund typically involve numerous waste generators and other waste transportation and disposal companies and seek to allocate or recover costs associated with site investigation and remediation, which costs could be substantial and could have a material adverse effect on our consolidated financial statements. At some of the sites at which we have been identified as a PRP, our liability is well defined as a consequence of a governmental decision and an agreement among liable parties as to the share each will pay for implementing that remedy. At other sites, where no remedy has been selected or the liable parties have been unable to agree on an appropriate allocation, our future costs are uncertain.

On October 11, 2017, the EPA issued its Record of Decision ("ROD") with respect to the previously proposed remediation plan for the San Jacinto waste pits in Harris County, Texas. McGinnes Industrial Maintenance Corporation ("MIMC"), an indirect wholly-owned subsidiary of WM, operated some of the waste pits from 1965 to 1966 and has been named as a site PRP. In 1998, WM acquired the stock of the parent entity of MIMC. MIMC has been working with the EPA and other named PRPs as the process of addressing the site proceeds. On April 9, 2018, MIMC and International Paper Company entered into an Administrative Order on Consent agreement with the EPA to develop a remedial design for the EPA's proposed remedy for the site. Allocation of responsibility among the PRPs for the proposed remedy has not been established. As of December 31, 2019 and 2018, the recorded liability for MIMC's estimated potential share of the

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

EPA's proposed remedy and related costs was $56 million and $55 million, respectively. MIMC's ultimate liability could be materially different from current estimates.

Item 103 of the SEC's Regulation S-K requires disclosure of certain environmental matters when a governmental authority is a party to the proceedings, or such proceedings are known to be contemplated, unless we reasonably believe that the matter will result in no monetary sanctions, or in monetary sanctions, exclusive of interest and costs, of less than $100,000. The following matter is disclosed in accordance with that requirement. We do not currently believe that the eventual outcome of such matter could have a material adverse effect on the Company's business, financial condition, results of operations or cash flows.

On July 10, 2013, the EPA issued a Notice of Violation ("NOV") to Waste Management of Wisconsin, Inc., an indirect wholly-owned subsidiary of WM, alleging violations of the Resource Conservation Recovery Act concerning acceptance of certain waste that was not permitted to be disposed of at the Metro Recycling & Disposal Facility in Franklin, Wisconsin. The parties are exchanging information and working to resolve the NOV.

From time to time, we are also named as defendants in personal injury and property damage lawsuits, including purported class actions, on the basis of having owned, operated or transported waste to a disposal facility that is alleged to have contaminated the environment or, in certain cases, on the basis of having conducted environmental remediation activities at sites. Some of the lawsuits may seek to have us pay the costs of monitoring of allegedly affected sites and health care examinations of allegedly affected persons for a substantial period of time even where no actual damage is proven. While we believe we have meritorious defenses to these lawsuits, the ultimate resolution is often substantially uncertain due to the difficulty of determining the cause, extent and impact of alleged contamination (which may have occurred over a long period of time), the potential for successive groups of complainants to emerge, the diversity of the individual plaintiffs' circumstances, and the potential contribution or indemnification obligations of co-defendants or other third parties, among other factors. Additionally, we often enter into agreements with landowners imposing obligations on us to meet certain regulatory or contractual conditions upon site closure or upon termination of the agreements. Compliance with these agreements inherently involves subjective determinations and may result in disputes, including litigation.

Litigation — As a large company with operations across the U.S. and Canada, we are subject to various proceedings, lawsuits, disputes and claims arising in the ordinary course of our business. Many of these actions raise complex factual and legal issues and are subject to uncertainties. Actions that have been filed against us, and that may be filed against us in the future, include personal injury, property damage, commercial, customer, and employment-related claims, including purported state and national class action lawsuits related to: alleged environmental contamination, including releases of hazardous material and odors; sales and marketing practices, customer service agreements and prices and fees; and federal and state wage and hour and other laws. The plaintiffs in some actions seek unspecified damages or injunctive relief, or both. These actions are in various procedural stages, and some are covered in part by insurance. We currently do not believe that the eventual outcome of any such actions will have a material adverse effect on the Company's business, financial condition, results of operations or cash flows.

WM's charter and bylaws provide that WM shall indemnify against all liabilities and expenses, and upon request shall advance expenses to any person, who is subject to a pending or threatened proceeding because such person is or was a director or officer of the Company. Such indemnification is required to the maximum extent permitted under Delaware law. Accordingly, the director or officer must execute an undertaking to reimburse the Company for any fees advanced if it is later determined that the director or officer was not permitted to have such fees advanced under Delaware law. Additionally, the Company has direct contractual obligations to provide indemnification to each of the members of WM's Board of Directors and each of WM's executive officers. The Company may incur substantial expenses in connection with the fulfillment of its advancement of costs and indemnification obligations in connection with actions or proceedings that may be brought against its former or current officers, directors and employees.

Multiemployer Defined Benefit Pension Plans — About 20% of our workforce is covered by collective bargaining agreements with various local unions across the U.S. and Canada. As a result of some of these agreements, certain of our subsidiaries are participating employers in a number of Multiemployer Pension Plans for the covered employees. Refer to Note 10 for additional information about our participation in Multiemployer Pension Plans considered individually significant. In connection with our ongoing renegotiation of various collective bargaining agreements, we may discuss and negotiate for the complete or partial withdrawal from one or more of these Multiemployer Pension Plans. A complete or partial withdrawal from a Multiemployer Pension Plan may also occur if employees covered by a collective bargaining agreement vote to decertify a union from continuing to represent them. Any other circumstance resulting in a decline in Company contributions to a Multiemployer Pension Plan through a reduction in the labor force, whether through attrition over time or through a business event (such as the discontinuation or nonrenewal of a customer contract, the decertification of a union, or relocation, reduction or discontinuance of certain operations) may also trigger a complete or partial withdrawal from one or more of these pension plans.

In 2019, 2018 and 2017, we recognized less than $1 million, $3 million and $12 million, respectively, of charges to operating expenses for the withdrawal from certain underfunded Multiemployer Pension Plans.

We do not believe that any future liability relating to our past or current participation in, or withdrawals from, the Multiemployer Pension Plans to which we contribute will have a material adverse effect on our business, financial condition or liquidity. However, liability for future withdrawals could have a material adverse effect on our results of operations or cash flows for a particular reporting period, depending on the number of employees withdrawn and the financial condition of the Multiemployer Pension Plan(s) at the time of such withdrawal(s).

Tax Matters — We maintain a liability for uncertain tax positions, the balance of which management believes is adequate. Results of audit assessments by taxing authorities are not currently expected to have a material adverse effect on our financial condition, results of operations or cash flows. See Note 9 for additional discussion regarding income taxes.

12. Asset Impairments and Unusual Items

(Gain) Loss from Divestitures, Asset Impairments and Unusual Items, Net

The following table summarizes the major components of (gain) loss from divestitures, asset impairments and unusual items, net for the years ended December 31 (in millions):

	2019	2018	2017
(Gain) loss from divestitures	$ —	$ (96)	$ (38)
Asset impairments	42	38	41
Other	—	—	(19)
	$ 42	$ (58)	$ (16)

During the year ended December 31, 2019, we recognized asset impairments of $42 million, related to (i) $27 million of goodwill impairment charges, as discussed further in Note 6, of which $17 million related to our EES organization and $10 million related to our LampTracker® reporting unit and (ii) $15 million of asset impairment charges primarily related to certain solid waste operations.

During the year ended December 31, 2018, we recognized net gains of $58 million, primarily related to (i) a $52 million gain associated with the sale of certain collection and disposal operations in our Tier 1 segment and (ii) net gains of $44 million primarily all from divestitures of certain ancillary operations. These gains were partially offset by (i) a $30 million charge to impair a landfill in our Tier 3 segment based on an internally developed discounted projected cash

flow analysis, taking into account continued volume decreases and revised capping cost estimates and (ii) $8 million of impairment charges primarily related to our LampTracker® reporting unit.

During the year ended December 31, 2017, we recognized net gains of $16 million, primarily related to (i) gains of $31 million from the sale of certain oil and gas producing properties and (ii) a $30 million reduction in post-closing, performance-based contingent consideration obligations associated with an acquired business in our EES organization. These gains were partially offset by (i) $34 million of goodwill impairment charges primarily related to our EES organization; (ii) $11 million of charges to adjust our subsidiary's estimated potential share of an environmental remediation liability and related costs for a closed site in Harris County, Texas, as discussed in Note 11 and (iii) $7 million of charges to write down certain renewable energy assets.

See Note 3 for additional information related to the accounting policy and analysis involved in identifying and calculating impairments and see Note 20 for additional information related to the impact of impairments on the results of operations of our reportable segments.

Equity in Net Losses of Unconsolidated Entities

During the year ended December 31, 2017, we recognized $29 million of impairment charges to write down equity method investments in waste diversion technology companies to their estimated fair values.

Other, Net

During the first quarter of 2019, we recognized a $52 million impairment charge related to our minority-owned investment in a waste conversion technology business. We wrote down our investment to its estimated fair value as the result of recent third-party investor's transactions in securities of this business. The fair value of our investment was not readily determinable; thus, we determined the fair value utilizing a combination of quoted price inputs for the equity in our investment (Level 2) and certain management assumptions pertaining to investment value (Level 3).

During the year ended December 31, 2017, we recognized impairment charges of $11 million related to other-than-temporary declines in the value of minority-owned investments in waste diversion technology companies. We wrote down our investments to their estimated fair values which was primarily determined using an income approach based on estimated future cash flow projections and, to a lesser extent, third-party investors' recent transactions in these securities.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

13. Accumulated Other Comprehensive Income (Loss)

The changes in the balances of each component of accumulated other comprehensive income (loss), net of tax, which is included as a component of WM stockholders' equity, are as follows (in millions, with amounts in parentheses representing decreases to accumulated other comprehensive income):

	Derivative Instruments	Available-for-Sale Securities	Foreign Currency Translation Adjustments	Post-Retirement Benefit Obligations	Total
Balance, December 31, 2016	$ (40)	$ 13	$ (47)	$ (6)	$(80)
Other comprehensive income (loss) before reclassifications, net of tax expense (benefit) of $0, $2, $0 and $1, respectively	—	3	76	3	82
Amounts reclassified from accumulated other comprehensive (income) loss, net of tax (expense) benefit of $5, $(1), $0 and $0, respectively	7	(1)	—	—	6
Net current period other comprehensive income (loss)	7	2	76	3	88
Balance, December 31, 2017	$ (33)	$ 15	$ 29	$ (3)	$ 8
Other comprehensive income (loss) before reclassifications, net of tax expense (benefit) of $0, $2, $0 and $1, respectively	—	5	(105)	2	(98)
Amounts reclassified from accumulated other comprehensive (income) loss, net of tax (expense) benefit of $3, $0, $0 and $0, respectively	8	—	—	—	8
Net current period other comprehensive income (loss)	8	5	(105)	2	(90)
Adoption of new accounting standard (a)	(7)	3	—	(1)	(5)
Balance, December 31, 2018	$ (32)	$ 23	$ (76)	$ (2)	$(87)
Other comprehensive income (loss) before reclassifications, net of tax expense (benefit) of $0, $5, $0 and $1, respectively	—	15	55	2	72
Amounts reclassified from accumulated other comprehensive (income) loss, net of tax (expense) benefit of $3, $0, $0 and $0, respectively	8	—	—	(1)	7
Net current period other comprehensive income (loss)	8	15	55	1	79
Balance, December 31, 2019	$ (24)	$ 38	$ (21)	$ (1)	$ (8)

(a) As of January 1, 2018, we adopted ASU 2018-02 and reclassified stranded tax effects to retained earnings.

We had no derivatives outstanding during the reported periods. Amounts reclassified to interest expense associated with our previously terminated cash flow hedges were $11 million, or $8 million net of tax expense, for 2019, $11 million, or $8 million net of tax expense, for 2018 and $12 million, or $7 million net of tax expense, for 2017.

14. Capital Stock, Dividends and Common Stock Repurchase Program

Capital Stock

We have 1.5 billion shares of authorized common stock with a par value of $0.01 per common share. As of December 31, 2019, we had 424.3 million shares of common stock issued and outstanding. The

Board of Directors is authorized to issue preferred stock in series, and with respect to each series, to fix its designation, relative rights (including voting, dividend, conversion, sinking fund, and redemption rights), preferences (including dividends and liquidation) and limitations. We have 10 million shares of authorized preferred stock, $0.01 par value, none of which is currently outstanding.

Dividends

Our quarterly dividends have been declared by our Board of Directors. Cash dividends declared and paid were $876 million in 2019, or $2.05 per common share, $802 million in 2018, or $1.86 per common share, and $750 million in 2017, or $1.70 per common share.

In December 2019, we announced that our Board of Directors expects to increase the quarterly dividend from $0.5125 to $0.545 per share for dividends declared in 2020. However, all future dividend declarations are at the discretion of the Board of Directors and depend on various factors, including our net earnings, financial condition, cash required for future business plans, growth and acquisitions and other factors the Board of Directors may deem relevant.

Common Stock Repurchase Program

The Company repurchases shares of its common stock as part of capital allocation programs authorized by our Board of Directors. Share repurchases during the reported periods were completed through accelerated share repurchase (“ASR”) agreements and, to a lesser extent, open market transactions. The terms of these ASR agreements required that we deliver cash at the beginning of each ASR repurchase period. In exchange, we received a portion of the total shares expected to be repurchased based on the then-current market price of our common stock. The remaining shares repurchased over the course of each repurchase period are delivered to us once the repurchase period is complete. Shares repurchased are reflected in the period the shares are delivered to us. The following is a summary of our share repurchases under our common stock repurchase program for the years ended December 31:

	2019(a)	2018(b)	2017(c)
Shares repurchased (in thousands)	2,247	11,673	10,058
Weighted average price per share	$ 108.60	$ 86.35	$ 77.67
Total repurchases (in millions)	$ 244	$ 1,008	$ 750

(a) During 2019, we executed and completed an ASR agreement to repurchase $180 million of our common stock and received 1.6 million shares in connection with this ASR agreement. We also repurchased an additional 0.7 million shares of our common stock in open market transactions in compliance with Rule 10b5-1 and Rule 10b-18 of the Exchange Act for $64 million, inclusive of per-share commissions. As a result of the pending acquisition of Advanced Disposal discussed in Note 18, we limited our 2019 share repurchases to an amount sufficient to offset dilution impacts from our stock-based compensation plans.

(b) During 2018, we executed and completed four ASR agreements to repurchase $850 million of our common stock and we received 9.8 million shares in connection with these ASR agreements. We also repurchased an additional 1.9 million shares of our common stock in open market transactions in compliance with Rule 10b5-1 and Rule 10b-18 of the Exchange Act for $158 million, inclusive of per-share commissions, which includes $4 million paid in 2019.

(c) During 2017, we executed and completed two ASR agreements to repurchase $750 million of our common stock. Our “Shares repurchased” includes the 0.4 million shares related to the ASR agreement executed in November 2016.

In December 2019, we publicly confirmed that the Company has $1.32 billion remaining on its existing Board of Directors’ authorization to repurchase shares of the Company’s common stock. Any future share repurchases will be made at the discretion of management and will depend on factors similar to those considered by the Board of Directors in making

dividend declarations, including our net earnings, financial condition and cash required for future business plans, growth and acquisitions.

15. Equity-Based Compensation

Employee Stock Purchase Plan

We have an Employee Stock Purchase Plan ("ESPP") under which employees that have been employed for at least 30 days may purchase shares of our common stock at a discount. The plan provides for two offering periods for purchases: January through June and July through December. At the end of each offering period, enrolled employees purchase shares of our common stock at a price equal to 85% of the lesser of the market value of the stock on the first and last day of such offering period. The purchases are made at the end of an offering period with funds accumulated through payroll deductions over the course of the offering period. Subject to limitations set forth in the plan and under IRS regulations, eligible employees may elect to have up to 10% of their base pay deducted during the offering period. The total number of shares issued under the plan for the offering periods in 2019, 2018 and 2017 was approximately 537,000, 582,000 and 594,000, respectively. After the January 2020 issuance of shares associated with the July to December 2019 offering period, 0.8 million shares remain available for issuance under the ESPP.

As a result of our ESPP, annual compensation expense increased by $10 million, or $7 million net of tax expense, for 2019, $9 million, or $7 million net of tax expense, for 2018 and $7 million, or $4 million net of tax expense, for 2017.

Employee Stock Incentive Plans

In May 2014, our stockholders approved our 2014 Stock Incentive Plan (the "2014 Plan") to replace our 2009 Stock Incentive Plan (the "2009 Plan"). The 2014 Plan authorized 23.8 million shares of our common stock for issuance pursuant to the 2014 Plan, plus the approximately 1.1 million shares that then remained available for issuance under the 2009 Plan, and any shares subject to outstanding awards under both incentive plans that are subsequently cancelled, forfeited, terminate, expire or lapse. As of December 31, 2019, approximately 20.0 million shares were available for future grants under the 2014 Plan. All of our equity-based compensation awards described herein have been made pursuant to either our 2009 Plan or our 2014 Plan, collectively referred to as the "Incentive Plans." We currently utilize treasury shares to meet the needs of our equity-based compensation programs.

Pursuant to the Incentive Plans, we have the ability to issue stock options, stock appreciation rights and stock awards, including restricted stock, restricted stock units ("RSUs") and performance share units ("PSUs"). The terms and conditions of equity awards granted under the Incentive Plans are determined by the Management Development and Compensation Committee of our Board of Directors.

The 2019 annual Incentive Plan awards granted to the Company's senior leadership team, which generally includes the Company's executive officers, included a combination of PSUs and stock options. The annual Incentive Plan awards granted to other eligible employees included a combination of PSUs, RSUs and stock options in 2019. The Company also periodically grants RSUs to employees working on key initiatives, in connection with new hires and promotions and to field-based managers.

Restricted Stock Units — A summary of our RSUs is presented in the table below (units in thousands):

	Units	Weighted Average Per Share Fair Value
Unvested as of January 1, 2019	392	$ 70.52
Granted	121	$ 99.91
Vested	(151)	$ 56.74
Forfeited	(14)	$ 86.11
Unvested as of December 31, 2019	348	$ 86.15

The total fair market value of RSUs that vested during the years ended December 31, 2019, 2018 and 2017 was $15 million, $13 million and $12 million, respectively. During the year ended December 31, 2019, we issued approximately 106,000 shares of common stock for these vested RSUs, net of approximately 45,000 units deferred or used for payment of associated taxes.

RSUs may not be voted or sold by award recipients until time-based vesting restrictions have lapsed. RSUs primarily provide for three-year cliff vesting and include dividend equivalents accumulated during the vesting period. Unvested units are subject to forfeiture in the event of voluntary or for-cause termination. RSUs are subject to pro-rata vesting upon an employee's retirement or involuntary termination other than for cause and generally payout at the end of the three-year vesting period and become immediately vested in the event of an employee's death or disability.

Compensation expense associated with RSUs is measured based on the grant-date fair value of our common stock and is recognized on a straight-line basis over the required employment period, which is generally the vesting period. Compensation expense is only recognized for those awards that we expect to vest, which we estimate based upon an assessment of expected forfeitures.

Performance Share Units — Two types of PSUs are currently outstanding: (i) PSUs for which payout is dependent on total shareholder return relative to the S&P 500 ("TSR PSUs") and (ii) PSUs for which payout is dependent on the Company's performance against pre-established adjusted cash flow metrics ("Cash Flow PSUs"). Both types of PSUs are payable in shares of common stock after the end of a three-year performance period, when the Company's financial performance for the entire performance period is reported, typically in mid- to late-February of the succeeding year. At the end of the performance period, the number of shares awarded can range from 0% to 200% of the targeted amount, depending on the performance against the pre-established targets. A summary of our PSUs, at 100% of the targeted amount, is presented in the table below (units in thousands):

	Units	Weighted Average Per Share Fair Value
Unvested as of January 1, 2019	1,164	$ 90.17
Granted	364	$ 116.26
Vested	(427)	$ 93.03
Forfeited	(24)	$ 98.33
Unvested as of December 31, 2019	1,077	$ 99.66

The determination of achievement of performance results and corresponding vesting of PSUs for the three-year performance period ended December 31, 2019 was performed by the Management Development and Compensation Committee in February 2020. Accordingly, vesting information for such awards is not included in the table above as of December 31, 2019. The "vested" PSUs are for the three-year performance period ended December 31, 2018, as achievement of performance results and corresponding vesting was determined in February 2019. The Company's

financial results, as measured for purposes of these awards, achieved the maximum performance criteria. Accordingly, recipients of these PSU awards were entitled to receive a payout of 200% of the vested TSR PSUs and Cash Flow PSUs. In February 2019, approximately 853,000 PSUs vested and we issued approximately 532,000 shares of common stock for these vested PSUs, net of units deferred or used for payment of associated taxes. The shares of common stock that were issued or deferred during the years ended December 31, 2019, 2018 and 2017 for prior PSU award grants had a fair market value of $84 million, $78 million and $80 million, respectively.

PSUs have no voting rights. PSUs receive dividend equivalents that are paid out in cash based on the number of shares that vest at the end of the awards' performance period. Subject to attainment of the performance metrics described above, PSUs are payable to an employee (or his beneficiary) upon death or disability as if that employee had remained employed until the end of the performance period. PSUs are generally subject to pro-rata vesting upon an employee's involuntary termination other than for cause and are subject to forfeiture in the event of voluntary or for-cause termination. The terms of the award agreements for outstanding PSUs provide for continued vesting following retirement as if the employee had remained employed until the end of the performance period, and compensation expense for PSUs granted to retirement-eligible employees is accelerated over the period that the recipient becomes retirement-eligible plus a defined service requirement.

Compensation expense associated with our Cash Flow PSUs is based on the grant-date fair value of our common stock. Compensation expense is recognized ratably over the performance period based on our estimated achievement of the established performance criteria. Compensation expense is only recognized for those awards that we expect to vest, which we estimate based upon an assessment of both the probability that the performance criteria will be achieved and expected forfeitures. The grant-date fair value of our TSR PSUs is based on a Monte Carlo valuation and compensation expense is recognized on a straight-line basis over the vesting period. Compensation expense is recognized for all TSR PSUs whether or not the market conditions are achieved less expected forfeitures.

Deferred Units — Certain employees can elect to defer some or all of the vested RSU or PSU awards until a specified date or dates they choose. Deferred units are not invested, nor do they earn interest, but deferred amounts do receive dividend equivalents paid in cash during deferral at the same time and at the same rate as dividends on the Company's common stock. Deferred amounts are paid out in shares of common stock at the end of the deferral period. As of December 31, 2019, we had approximately 225,000 vested deferred units outstanding.

Stock Options — Stock options granted vest primarily in 25% increments on the first two anniversaries of the date of grant with the remaining 50% vesting on the third anniversary. The exercise price of the options is the average of the high and low market value of our common stock on the date of grant, and the options have a term of 10 years. A summary of our stock options is presented in the table below (options in thousands):

	Options	Weighted Average Per Share Exercise Price
Outstanding as of January 1, 2019	4,441	$ 59.46
Granted	839	$ 98.90
Exercised	(1,278)	$ 107.96
Forfeited or expired	(64)	$ 83.20
Outstanding as of December 31, 2019 (a)	3,938	$ 69.66
Exercisable as of December 31, 2019 (b)	2,063	$ 52.90

(a) Stock options outstanding as of December 31, 2019 have a weighted average remaining contractual term of 6.5 years and an aggregate intrinsic value of $174 million based on the market value of our common stock on December 31, 2019.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

(b) Stock options exercisable as of December 31, 2019 have an aggregate intrinsic value of $126 million based on the market value of our common stock on December 31, 2019.

We received cash proceeds of $67 million, $52 million and $95 million during the years ended December 31, 2019, 2018 and 2017, respectively, from employee stock option exercises. The aggregate intrinsic value of stock options exercised during the years ended December 31, 2019, 2018 and 2017 was $71 million, $41 million and $71 million, respectively.

Stock options exercisable as of December 31, 2019 were as follows (options in thousands):

Range of Exercise Prices	Options	Weighted Average Per Share Exercise Price	Weighted Average Remaining Years
$33.49-$50.00	829	$ 37.94	2.6
$50.01-$70.00	809	$ 55.58	5.7
$70.01-$98.90	425	$ 76.98	7.5
$33.49-$98.90	2,063	$ 52.90	4.8

All unvested stock options shall become exercisable upon the award recipient’s death or disability. In the event of a recipient’s retirement, stock options shall continue to vest pursuant to the original schedule set forth in the award agreement. If the recipient is terminated by the Company without cause or voluntarily resigns, the recipient shall be entitled to exercise all stock options outstanding and exercisable within a specified time frame after such termination. All outstanding stock options, whether exercisable or not, are forfeited upon termination for cause.

We account for our employee stock options under the fair value method of accounting using a Black-Scholes valuation model to measure stock option expense at the date of grant. The weighted average grant-date fair value of stock options granted during the years ended December 31, 2019, 2018 and 2017 was $12.22, $12.16 and $11.71, respectively. The fair value of stock options at the date of grant is amortized to expense over the vesting period less expected forfeitures, except for stock options granted to retirement-eligible employees, for which expense is accelerated over the period that the recipient becomes retirement-eligible. The following table presents the weighted average assumptions used to value employee stock options granted during the years ended December 31 under the Black-Scholes valuation model:

	2019	2018	2017
Expected option life	4.2 years	4.3 years	3.5 years
Expected volatility	15.5 %	17.9 %	15.3 %
Expected dividend yield	2.1 %	2.2 %	2.3 %
Risk-free interest rate	2.5 %	2.6 %	1.7 %

The Company bases its expected option life on the expected exercise and termination behavior of its optionees and an appropriate model of the Company’s future stock price. The expected volatility assumption is derived from the historical volatility of the Company’s common stock over the most recent period commensurate with the estimated expected life of the Company’s stock options, combined with other relevant factors including implied volatility in market-traded options on the Company’s stock. The dividend yield is the annual rate of dividends per share over the exercise price of the option as of the grant date.

For the years ended December 31, 2019, 2018 and 2017, we recognized $75 million, $79 million and $92 million, respectively, of compensation expense associated with RSU, PSU and stock option awards as a component of selling, general and administrative expenses in our Consolidated Statements of Operations. Our income tax expense for the years ended December 31, 2019, 2018 and 2017 includes related income tax benefits of $17 million, $17 million and $36 million, respectively. We have not capitalized any equity-based compensation costs during the reported periods.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The higher compensation expense in 2017 was primarily due to charges related to the retirement treatment for unexercised stock options of certain former employees. As of December 31, 2019, we estimate that $40 million of currently unrecognized compensation expense will be recognized over a weighted average period of 1.5 years for our unvested RSU, PSU and stock option awards issued and outstanding.

Non-Employee Director Plan

Our non-employee directors currently receive annual grants of shares of our common stock, generally payable in two equal installments, under the 2014 Plan described above.

16. Earnings Per Share

Basic and diluted earnings per share were computed using the following common share data for the years ended December 31 (shares in millions):

	2019	2018	2017
Number of common shares outstanding at end of period	424.3	424.0	433.3
Effect of using weighted average common shares outstanding	0.3	5.1	5.5
Weighted average basic common shares outstanding	424.6	429.1	438.8
Dilutive effect of equity-based compensation awards and other contingently issuable shares	2.9	3.1	3.1
Weighted average diluted common shares outstanding	427.5	432.2	441.9
Potentially issuable shares	6.7	7.4	8.1
Number of anti-dilutive potentially issuable shares excluded from diluted common shares outstanding	0.7	1.5	1.9

17. Fair Value Measurements

Assets and Liabilities Accounted for at Fair Value

Fair value is defined as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When measuring assets and liabilities that are required to be recorded at fair value, the Company considers the principal or most advantageous market in which the Company would transact. Fair value is estimated by applying the following hierarchy, which prioritizes the inputs used to measure fair value into three levels and bases the categorization within the hierarchy upon the lowest level of input that is available and significant to the fair value measurement:

Level 1 — Quoted prices in active markets for identical assets or liabilities.

Level 2 — Observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 — Inputs that are generally unobservable and typically reflect management's estimate of assumptions that market participants would use in pricing the asset or liability.

We use valuation techniques that maximize the use of observable inputs and minimize the use of unobservable inputs. In measuring the fair value of our assets and liabilities, we use market data or assumptions that we believe market participants would use in pricing an asset or liability, including assumptions about risk when appropriate. Our assets and liabilities that are measured at fair value on a recurring basis include the following as of December 31 (in millions):

	2019	2018
Quoted prices in active markets (Level 1):		
Cash equivalents and money market funds	$ 3,527	$ 70
Significant other observable inputs (Level 2):		
Available-for-sale securities	350	288
Significant unobservable inputs (Level 3):		
Redeemable preferred stock	49	66
Total Assets	$ 3,926	$ 424

Cash Equivalents and Money Market Funds

Cash equivalents primarily include short-term interest-bearing instruments with maturities of three months or less. We invest portions of our restricted trust and escrow account balances in money market funds and we measure the fair value of these investments using quoted prices in active markets for identical assets. The fair value of our cash equivalents and money market funds approximates our cost basis in these instruments. The increase in 2019 is primarily due to proceeds from our May 2019 issuance of senior notes and our September 2019 issuance of Canadian senior notes. See Note 7 for additional information.

Available-for-Sale Securities

Our available-for-sale securities include restricted trust and escrow account balances and an investment in an unconsolidated entity, as discussed in Note 19. We invest primarily in debt securities, including U.S. Treasury securities, U.S. agency securities, municipal securities and mortgage- and asset-backed securities, which generally mature over the next 10 years. Additionally, some funds are invested in equity securities. We measure the fair value of these securities using quoted prices for identical or similar assets in inactive markets. Any changes in fair value of these trusts related to unrealized gains and losses have been appropriately reflected as a component of accumulated other comprehensive income (loss).

Redeemable Preferred Stock

Redeemable preferred stock is related to noncontrolling investments in unconsolidated entities and is included in investments in unconsolidated entities in our Consolidated Balance Sheets. The fair value of our investments have been measured based on third-party investors' recent or pending transactions in these securities, which are considered the best evidence of fair value. When this evidence is not available, we use other valuation techniques as appropriate and available. These valuation methodologies may include transactions in similar instruments, discounted cash flow techniques, third-party appraisals or industry multiples and public company comparable transactions. In the first quarter of 2019, we redeemed our preferred stock received in conjunction with the 2014 sale of our Puerto Rico operations for $17 million. At the time of redemption, the value of redeemable preferred stock was $20 million, resulting in a $3 million loss on investment.

Fair Value of Debt

As of December 31, 2019 and 2018, the carrying value of our debt was $13.5 billion and $10.0 billion, respectively. The estimated fair value of our debt was approximately $14.5 billion and $10.1 billion as of December 31, 2019 and 2018, respectively. The increase in the fair value of our debt in 2019 is primarily related to net borrowings of $3.1 billion

(inclusive of net commercial paper repayments), which are discussed further in Note 7, and decreases in current market rates for similar types of instruments.

Although we have determined the estimated fair value amounts using available market information and commonly accepted valuation methodologies, considerable judgment is required in interpreting market data to develop the estimates of fair value. Accordingly, our estimates are not necessarily indicative of the amounts that we, or holders of the instruments, could realize in a current market exchange. The use of different assumptions or estimation methodologies could have a material effect on the estimated fair values. The fair value estimates are based on Level 2 inputs of the fair value hierarchy available as of December 31, 2019 and 2018. These amounts have not been revalued since those dates, and current estimates of fair value could differ significantly from the amounts presented.

18. Acquisitions and Divestitures

Pending Acquisition

On April 14, 2019, we entered into an Agreement and Plan of Merger to acquire all outstanding shares of Advanced Disposal for $33.15 per share in cash, representing a total enterprise value of $4.9 billion when including approximately $1.9 billion of Advanced Disposal's net debt. Advanced Disposal's solid waste network includes 95 collection operations, 73 transfer stations, 41 owned or operated landfills and 22 owned or operated recycling facilities. On June 28, 2019, Advanced Disposal announced that 85.9% of the outstanding shares of its common stock entitled to vote were voted in favor of the proposal to adopt the Merger Agreement at a special meeting of stockholders held that day. We anticipate that we will obtain antitrust regulatory approval by the end of March 2020 and close the Advanced Disposal transaction soon thereafter.

Acquisitions

We continue to pursue the acquisition of businesses that are accretive to our Solid Waste business and enhance and expand our existing service offerings. During the year ended December 31, 2019, we acquired 18 businesses primarily related to our Solid Waste business. Total consideration, net of cash acquired, for all acquisitions was $515 million, which included $501 million in cash paid and other consideration of $14 million, primarily purchase price holdbacks. In 2019, we paid $6 million of contingent consideration, of which $4 million was related to acquisitions completed prior to 2019. In addition, we paid $20 million of holdbacks, of which $9 million related to current year acquisitions. Contingent consideration obligations are primarily based on achievement by the acquired businesses of certain negotiated goals, which generally include targeted financial metrics.

Total consideration for our 2019 acquisitions was primarily allocated to $350 million of property and equipment, $53 million of other intangible assets and $111 million of goodwill. Other intangible assets included $38 million of customer and supplier relationships and $15 million of covenants not-to-compete. The goodwill was primarily a result of expected synergies from combining the acquired businesses with our existing operations and was tax deductible.

Petro Waste Environmental LP ("Petro Waste") — On March 8, 2019, Waste Management Energy Services Holdings, LLC, an indirect wholly-owned subsidiary of WM, acquired Petro Waste. The acquired business provides comprehensive oilfield environmental services and solid waste disposal facilities in the Permian Basin and the Eagle Ford Shale. The acquisition has expanded our offerings and enhanced the quality of solid waste disposal services for oil and gas exploration and production operations in Texas. Our purchase price was primarily allocated to seven landfills, which are included in our property and equipment. The acquisition accounting for this transaction was finalized in 2019 and was funded with borrowings under our commercial paper program. For the year ended December 31, 2019, the impact of the acquisition was not material to our consolidated financial statements.

During the year ended December 31, 2018, we acquired 32 businesses primarily related to our Solid Waste business. Total consideration, net of cash acquired, for all acquisitions was $471 million, which included $440 million in cash paid and $31 million of other consideration, primarily purchase price holdbacks. In 2018, we paid $6 million of contingent consideration associated with acquisitions completed prior to 2018. In addition, we paid $20 million of holdbacks, of which $15 million related to current year acquisitions.

Total consideration for our 2018 acquisitions was primarily allocated to $115 million of property and equipment, $141 million of other intangible assets and $248 million of goodwill. Other intangible assets included $124 million of customer and supplier relationships, $16 million of covenants not-to-compete and $1 million of other intangible assets. The goodwill is primarily a result of expected synergies from combining the acquired businesses with our existing operations and substantially all is tax deductible.

During the year ended December 31, 2017, we acquired 24 businesses related to our Solid Waste business. Total consideration, net of cash acquired, for all acquisitions was $205 million, which included $183 million in cash paid and other consideration of $22 million, primarily purchase price holdbacks. In 2017, we paid $3 million of contingent consideration associated with acquisitions completed prior to 2017. In addition, we paid $14 million of holdbacks, of which $13 million related to 2017 acquisitions.

Total consideration for our 2017 acquisitions was primarily allocated to $127 million of property and equipment, $46 million of other intangible assets and $39 million of goodwill. Other intangible assets included $39 million of customer and supplier relationships and $7 million of covenants not-to-compete. The goodwill was primarily a result of expected synergies from combining the acquired businesses with our existing operations and was tax deductible.

Divestitures

In 2019, 2018 and 2017, the aggregate sales price for divestitures of certain hauling and ancillary operations was $8 million, $153 million and $62 million and we recognized net losses of less than $1 million, net gains of $96 million and net gains of $38 million, respectively. These divestitures were made as part of our continuous focus on improving or divesting certain non-strategic or underperforming operations. The remaining amounts reported in the Consolidated Statements of Cash Flows generally relate to the sale of fixed assets.

19. Variable Interest Entities

Following is a description of our financial interests in unconsolidated and consolidated variable interest entities that we consider significant:

Low-Income Housing Properties and Refined Coal Facility Investments

We do not consolidate our investments in entities established to manage low-income housing properties and a refined coal facility because we are not the primary beneficiary of these entities as we do not have the power to individually direct the activities of these entities. Accordingly, we account for these investments under the equity method of accounting. Our aggregate investment balance in these entities was $309 million and $189 million as of December 31, 2019 and 2018, respectively. The debt balance related to our investments in low-income housing properties was $269 million and $151 million as of December 31, 2019 and 2018, respectively. Additional information related to these investments is discussed in Note 9.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Trust Funds for Final Capping, Closure, Post-Closure or Environmental Remediation Obligations

Unconsolidated Variable Interest Entities — Trust funds that are established for both the benefit of the Company and the host community in which we operate are not consolidated because we are not the primary beneficiary of these entities as (i) we do not have the power to direct the significant activities of the trusts or (ii) power over the trusts' significant activities is shared. Our interests in these trusts are accounted for as investments in unconsolidated entities and receivables. These amounts are recorded in other receivables, investments in unconsolidated entities and long-term other assets in our Consolidated Balance Sheets, as appropriate. We also reflect our share of the unrealized gains and losses on available-for-sale securities held by these trusts as a component of our accumulated other comprehensive income (loss). Our investments and receivables related to these trusts had an aggregate carrying value of $101 million and $92 million as of December 31, 2019 and 2018, respectively.

Consolidated Variable Interest Entities — Trust funds for which we are the sole beneficiary are consolidated because we are the primary beneficiary. These trust funds are recorded in restricted trust and escrow accounts in our Consolidated Balance Sheets. Unrealized gains and losses on available-for-sale securities held by these trusts are recorded as a component of accumulated other comprehensive income (loss). These trusts had a fair value of $109 million and $103 million as of December 31, 2019 and 2018, respectively.

20. Segment and Related Information

We evaluate, oversee and manage the financial performance of our Solid Waste business subsidiaries through our 17 Areas. The 17 Areas constitute operating segments and we have evaluated the aggregation criteria and concluded that, based on the similarities between our Areas, including the fact that our Solid Waste business is homogenous across geographies with the same services offered across the Areas, aggregation of our Areas is appropriate for purposes of presenting our reportable segments. Accordingly, we have aggregated our 17 Areas into three tiers that we believe have similar economic characteristics and future prospects based in large part on a review of the Areas' income from operations margins. The economic variations experienced by our Areas are attributable to a variety of factors, including regulatory environment of the Area; economic environment of the Area, including level of commercial and industrial activity; population density; service offering mix and disposal logistics, with no one factor being singularly determinative of an Area's current or future economic performance.

In 2019, as part of our annual review process, we analyzed the Areas' income from operations margins for purposes of segment reporting and realigned our Solid Waste tiers to reflect recent changes in their relative economic characteristics and prospects. These changes are the results of various factors including acquisitions, divestments, business mix and the economic climate of various geographies. As a result, we reclassified Western Canada from Tier 1 to Tier 2 and Northern California from Tier 3 to Tier 2. Reclassifications have been made to our prior period consolidated financial information to conform to the current year presentation.

Tier 1 is comprised of our operations across the Southern U.S., with the exception of Southern California and the Florida peninsula, and also includes the New England states and the tri-state area of Michigan, Indiana and Ohio. Tier 2 includes California, Canada, Wisconsin and Minnesota. Tier 3 encompasses all the remaining operations including the Pacific Northwest, the Mid-Atlantic region of the U.S., the Florida peninsula, Illinois and Missouri.

The operating segments not evaluated and overseen through the 17 Areas are presented herein as "Other" as these operating segments do not meet the criteria to be aggregated with other operating segments and do not meet the quantitative criteria to be separately reported.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

Summarized financial information concerning our reportable segments as of December 31 and for the years then ended is shown in the following table (in millions):

Years Ended December 31:	Gross Operating Revenues	Intercompany Operating Revenues(c)	Net Operating Revenues	Income from Operations (d)(e)	Depreciation and Amortization	Capital Expenditures (f)	Total Assets (g)(h)
2019							
Solid Waste:							
Tier 1	$ 6,136	$ (1,141)	$ 4,995	$ 1,682	$ 551	$ 508	$ 7,519
Tier 2	3,865	(777)	3,088	854	327	329	5,558
Tier 3	6,386	(1,209)	5,177	1,136	585	453	8,243
Solid Waste	16,387	(3,127)	13,260	3,672	1,463	1,290	21,320
Other (a)	2,317	(122)	2,195	(203)	75	118	1,648
	18,704	(3,249)	15,455	3,469	1,538	1,408	22,968
Corporate and Other (b)	—	—	—	(763)	36	407	5,042
Total	$18,704	$ (3,249)	$15,455	$ 2,706	$ 1,574	$ 1,815	$28,010
2018							
Solid Waste:							
Tier 1	$ 5,730	$ (1,045)	$ 4,685	$ 1,619	$ 493	$ 584	$ 6,736
Tier 2	3,675	(724)	2,951	784	317	322	5,224
Tier 3	6,132	(1,146)	4,986	992	546	493	7,878
Solid Waste	15,537	(2,915)	12,622	3,395	1,356	1,399	19,838
Other (a)	2,487	(195)	2,292	(66)	91	72	1,571
	18,024	(3,110)	14,914	3,329	1,447	1,471	21,409
Corporate and Other (b)	—	—	—	(540)	30	200	1,487
Total	$18,024	$ (3,110)	$14,914	$ 2,789	$ 1,477	$ 1,671	$22,896
2017							
Solid Waste:							
Tier 1	$ 5,441	$ (987)	$ 4,454	$ 1,506	$ 438	$ 588	$ 6,305
Tier 2	3,599	(654)	2,945	777	274	308	5,214
Tier 3	5,792	(1,024)	4,768	1,006	516	487	7,485
Solid Waste	14,832	(2,665)	12,167	3,289	1,228	1,383	19,004
Other (a)	2,538	(220)	2,318	(68)	103	93	1,785
	17,370	(2,885)	14,485	3,221	1,331	1,476	20,789
Corporate and Other (b)	—	—	—	(585)	45	92	1,327
Total	$17,370	$ (2,885)	$14,485	$ 2,636	$ 1,376	$ 1,568	$22,116

(a) "Other" includes (i) our WMSBS organization; (ii) those elements of our landfill gas-to-energy operations and third-party subcontract and administration revenues managed by our EES and WM Renewable Energy organizations that are not included in the operations of our reportable segments; (iii) our recycling brokerage services and (iv) certain other expanded service offerings and solutions. In addition, our "Other" segment reflects the results of non-operating entities that provide financial assurance and self-insurance support for our Solid Waste business, net of intercompany activity.

(b) Corporate operating results reflect certain costs incurred for various support services that are not allocated to our reportable segments. These support services include, among other things, treasury, legal, information technology, tax,

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

insurance, centralized service center processes, other administrative functions and the maintenance of our closed landfills. Income from operations for "Corporate and Other" also includes costs associated with our long-term incentive program and any administrative expenses or revisions to our estimated obligations associated with divested operations.

(c) Intercompany operating revenues reflect each segment's total intercompany sales, including intercompany sales within a segment and between segments. Transactions within and between segments are generally made on a basis intended to reflect the market value of the service.

(d) For those items included in the determination of income from operations, the accounting policies of the segments are the same as those described in Note 3.

(e) The income from operations provided by our Solid Waste business is generally indicative of the margins provided by our collection, landfill, transfer and recycling lines of business. From time to time, the operating results of our reportable segments are significantly affected by certain transactions or events that management believes are not indicative or representative of our results. Refer to Note 12 for explanations of certain transactions and events affecting our operating results.

(f) Includes non-cash items. Capital expenditures are reported in our reportable segments at the time they are recorded within the segments' property and equipment balances and, therefore, may include amounts that have been accrued but not yet paid.

(g) The reconciliation of total assets reported above to total assets in the Consolidated Balance Sheets as of December 31 is as follows (in millions):

	2019	2018	2017
Total assets, as reported above	$28,010	$22,896	$22,116
Elimination of intercompany investments and advances	(267)	(246)	(287)
Total assets, per Consolidated Balance Sheet	$27,743	$22,650	$21,829

(h) Goodwill is included within each segment's total assets. For segment reporting purposes, our material recovery facilities are included as a component of their respective Areas and our recycling brokerage services are included as part of our "Other" operations. The following table presents changes in goodwill during the reported periods by segment (in millions):

	Solid Waste				
	Tier 1	Tier 2	Tier 3	Other	Total
Balance, December 31, 2017	$2,117	$1,595	$2,414	$ 121	$6,247
Acquired goodwill	82	23	142	1	248
Divested goodwill	(6)	—	—	(19)	(25)
Impairments	—	—	—	(6)	(6)
Foreign currency translation	—	(34)	—	—	(34)
Balance, December 31, 2018	$2,193	$1,584	$2,556	$ 97	$6,430
Acquired goodwill (a)	90	12	6	—	108
Divested goodwill	—	—	—	—	—
Impairments	—	—	—	(27)	(27)
Foreign currency translation	—	21	—	—	21
Balance, December 31, 2019	$2,283	$1,617	$2,562	$ 70	$6,532

(a) Includes $3 million of post-closing adjustments related to prior year acquisitions.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

The mix of operating revenues from our major lines of business for the years ended December 31 are as follows (in millions):

	2019	2018	2017
Commercial	$ 4,229	$ 3,972	$ 3,714
Residential	2,613	2,529	2,528
Industrial	2,916	2,773	2,583
Other collection	482	450	439
Total collection	10,240	9,724	9,264
Landfill	3,846	3,560	3,370
Transfer	1,820	1,711	1,591
Recycling	1,040	1,293	1,432
Other (a)	1,758	1,736	1,713
Intercompany (b)	(3,249)	(3,110)	(2,885)
Total	$15,455	$14,914	$14,485

(a) The "Other" line of business includes (i) our WMSBS organization; (ii) our landfill gas-to-energy operations; (iii) certain services within our EES organization, including our construction and remediation services and our services associated with the disposal of fly ash and (iv) certain other expanded service offerings and solutions. In addition, our "Other" line of business reflects the results of non-operating entities that provide financial assurance and self-insurance support, net of intercompany activity. Activity related to collection, landfill, transfer and recycling has been reclassified to the appropriate line of business for purposes of presentation.

(b) Intercompany revenues between lines of business are eliminated in the Consolidated Financial Statements included within this report.

Net operating revenues relating to operations in the U.S. and Canada for the years ended December 31 are as follows (in millions):

	2019	2018	2017
U.S.	$14,701	$14,167	$13,768
Canada	754	747	717
Total	$15,455	$14,914	$14,485

Property and equipment, net of accumulated depreciation and amortization, relating to operations in the U.S. and Canada for the years ended December 31 are as follows (in millions):

	2019	2018	2017
U.S.	$11,941	$11,044	$10,591
Canada	952	898	968
Total	$12,893	$11,942	$11,559

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

21. Quarterly Financial Data (Unaudited)

The following table summarizes the unaudited quarterly results of operations for 2019 and 2018 (in millions, except per share amounts):

	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
2019				
Operating revenues	$ 3,696	$ 3,946	3,967	3,846
Income from operations	621	696	734	655
Consolidated net income	347	382	495	447
Net income attributable to Waste Management, Inc.	347	381	495	447
Basic earnings per common share	0.82	0.90	1.17	1.05
Diluted earnings per common share	0.81	0.89	1.16	1.05
2018				
Operating revenues	$ 3,511	$ 3,739	$ 3,822	$ 3,842
Income from operations	608	715	699	767
Consolidated net income	395	499	498	531
Net income attributable to Waste Management, Inc.	396	499	499	531
Basic earnings per common share	0.91	1.16	1.16	1.25
Diluted earnings per common share	0.91	1.15	1.16	1.24

Basic and diluted earnings per common share for each of the quarters presented above is based on the respective weighted average number of common and dilutive potential common shares outstanding for each quarter and the sum of the quarters may not necessarily be equal to the full year basic and diluted earnings per common share amounts.

Our operating revenues tend to be somewhat higher in summer months, primarily due to higher construction and demolition waste volumes. The volumes of industrial and residential waste in certain regions where we operate also tend to increase during the summer months. Our second and third quarter revenues and results of operations typically reflect these seasonal trends. Additionally, from time to time, our operating results are significantly affected by certain transactions or events that management believes are not indicative or representative of our ongoing results. The following items significantly impacted our operating results during the periods indicated:

First Quarter 2019

- The recognition of (i) a $52 million impairment charge related to our minority-owned investment in a waste conversion technology business, which was not deductible for tax purposes and (ii) a $3 million loss upon redemption of a preferred stock investment, which is discussed further in Note 17. These charges had a negative impact of $0.13 on our diluted earnings per share.

Second Quarter 2019

- The recognition of a pre-tax loss of $84 million associated with the early extinguishment of $257 million of our high-coupon senior notes through a cash tender offer, which is discussed further in Note 7. The charge incurred for the redemption had a negative impact of $0.15 on our diluted earnings per share.
- The recognition of pre-tax charges of $32 million primarily related to (i) a $16 million non-cash charge to write-off certain equipment costs; (ii) $9 million of charges related to preparation for our pending acquisition of Advanced Disposal and (iii) $7 million of asset impairments primarily related to certain solid waste operations. These charges had a negative impact of $0.06 on our diluted earnings per share.

Third Quarter 2019

- The recognition of pre-tax charges of $8 million related to preparation for our pending acquisition of Advanced Disposal which had a negative impact of $0.02 on our diluted earnings per share.

Fourth Quarter 2019

- The recognition of pre-tax charges of $38 million primarily related to preparation for our pending acquisition of Advanced Disposal and, to a lesser extent, costs incurred to support our plan to implement a new enterprise resource planning system. These charges had a negative impact of $0.07 on our diluted earnings per share.
- The recognition of pre-tax charges of $37 million related to (i) goodwill impairment charges of $17 million related to our EES organization and $10 million related to our LampTracker® reporting unit and (ii) $10 million of asset impairment charges primarily related to certain solid waste operations and, to a lesser extent, restructuring charges. These charges had a negative impact of $0.07 on our diluted earnings per share.

Second Quarter 2018

- The recognition of net pre-tax gains of $40 million related to the sale of certain ancillary operations, which had a favorable impact of $0.07 on our diluted earnings per share.
- An income tax benefit of $33 million due to the settlement of various tax audits, which had a favorable impact of $0.07 on our diluted earnings per share.

Third Quarter 2018

- Income tax benefits of $27 million primarily due to impacts of enactment of tax reform and changes in state laws, which had a favorable impact of $0.06 on our diluted earnings per share.
- The recognition of pre-tax charges of $32 million primarily related to a $29 million charge to impair a landfill in our Tier 3 segment, which is discussed further in Note 12. These charges had a negative impact of $0.05 on our diluted earnings per share.

Fourth Quarter 2018

- The recognition of a pre-tax gain of $52 million associated with the sale of certain hauling operations in our Tier 1 segment and $8 million of impairment charges primarily related to our LampTracker® reporting unit. These items had a favorable impact of $0.07 on our diluted earnings per share.
- A reduction in our income tax expense of $17 million for an adjustment to our deferred taxes to reduce our deferred tax liability based on an analysis of certain deferred tax balances. This item had a favorable impact of $0.04 on our diluted earnings per share.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

22. Condensed Consolidating Financial Statements

WM Holdings has fully and unconditionally guaranteed all of WM's senior indebtedness. WM has fully and unconditionally guaranteed all of WM Holdings' senior indebtedness. None of WM's other subsidiaries have guaranteed any of WM's or WM Holdings' debt. As a result of these guarantee arrangements, we are required to present the following condensed consolidating financial information (in millions):

CONDENSED CONSOLIDATING BALANCE SHEETS

December 31, 2019

	WM	WM Holdings	Non-Guarantor Subsidiaries	Eliminations	Consolidated
ASSETS					
Current assets:					
Cash and cash equivalents	$ 3,485	$ —	$ 76	$ —	$ 3,561
Other current assets	2	4	2,642	—	2,648
	3,487	4	2,718	—	6,209
Property and equipment, net	—	—	12,893	—	12,893
Investments in affiliates	26,221	26,673	—	(52,894)	—
Advances to affiliates	—	—	19,047	(19,047)	—
Other assets	6	10	8,625	—	8,641
Total assets	$29,714	$26,687	$ 43,283	$ (71,941)	$ 27,743
LIABILITIES AND EQUITY					
Current liabilities:					
Current portion of long-term debt	$ 15	$ —	$ 203	$ —	$ 218
Accounts payable and other current liabilities	105	7	2,814	—	2,926
	120	7	3,017	—	3,144
Long-term debt, less current portion	10,736	248	2,296	—	13,280
Due to affiliates	19,131	214	7,345	(26,690)	—
Other liabilities	4	—	4,245	—	4,249
Total liabilities	29,991	469	16,903	(26,690)	20,673
Equity:					
Stockholders' equity	7,068	26,218	26,676	(52,894)	7,068
Advances to affiliates	(7,345)	—	(298)	7,643	—
Noncontrolling interests	—	—	2	—	2
	(277)	26,218	26,380	(45,251)	7,070
Total liabilities and equity	$29,714	$26,687	$ 43,283	$ (71,941)	$ 27,743

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

CONDENSED CONSOLIDATING BALANCE SHEETS (Continued)

December 31, 2018

	WM	WM Holdings	Non-Guarantor Subsidiaries	Eliminations	Consolidated
ASSETS					
Current assets:					
Cash and cash equivalents	$ —	$ —	$ 61	$ —	$ 61
Other current assets	2	5	2,577	—	2,584
	2	5	2,638	—	2,645
Property and equipment, net	—	—	11,942	—	11,942
Investments in affiliates	24,547	24,968	—	(49,515)	—
Advances to affiliates	—	—	17,129	(17,129)	—
Other assets	8	31	8,024	—	8,063
Total assets	$24,557	$25,004	$ 39,733	$ (66,644)	$ 22,650
LIABILITIES AND EQUITY					
Current liabilities:					
Current portion of long-term debt	$ 258	$ —	$ 174	$ —	$ 432
Accounts payable and other current liabilities	82	9	2,585	—	2,676
	340	9	2,759	—	3,108
Long-term debt, less current portion	7,377	304	1,913	—	9,594
Due to affiliates	17,269	146	6,709	(24,124)	—
Other liabilities	5	—	3,667	—	3,672
Total liabilities	24,991	459	15,048	(24,124)	16,374
Equity:					
Stockholders' equity	6,275	24,545	24,970	(49,515)	6,275
Advances to affiliates	(6,709)	—	(286)	6,995	—
Noncontrolling interests	—	—	1	—	1
	(434)	24,545	24,685	(42,520)	6,276
Total liabilities and equity	$24,557	$25,004	$ 39,733	$ (66,644)	$ 22,650

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

CONDENSED CONSOLIDATING STATEMENTS OF OPERATIONS

	WM	WM Holdings	Non-Guarantor Subsidiaries	Eliminations	Consolidated
Years Ended December 31:					
2019					
Operating revenues (a)	$ —	$ —	$ 15,455	$ —	$ 15,455
Costs and expenses (a)	—	—	12,749	—	12,749
Income from operations	—	—	2,706	—	2,706
Other income (expense):					
Interest expense, net	(347)	(19)	(45)	—	(411)
Loss on early extinguishment of debt	(70)	(14)	(1)	—	(85)
Equity in earnings of subsidiaries, net of tax	1,976	2,007	—	(3,983)	—
Other, net	—	68	(101)	(72)	(105)
	1,559	2,042	(147)	(4,055)	(601)
Income before income taxes	1,559	2,042	2,559	(4,055)	2,105
Income tax expense (benefit)	(111)	(5)	550	—	434
Consolidated net income	1,670	2,047	2,009	(4,055)	1,671
Less: Net income (loss) attributable to noncontrolling interests	—	—	1	—	1
Net income attributable to Waste Management, Inc.	$1,670	$ 2,047	$ 2,008	$ (4,055)	$ 1,670
2018					
Operating revenues (a)	$ —	$ —	$ 14,914	$ —	$ 14,914
Costs and expenses (a)	—	—	12,125	—	12,125
Income from operations	—	—	2,789	—	2,789
Other income (expense):					
Interest expense, net	(312)	(20)	(42)	—	(374)
Equity in earnings of subsidiaries, net of tax	2,155	2,169	—	(4,324)	—
Other, net	—	—	(39)	—	(39)
	1,843	2,149	(81)	(4,324)	(413)
Income before income taxes	1,843	2,149	2,708	(4,324)	2,376
Income tax expense (benefit)	(82)	(5)	540	—	453
Consolidated net income	1,925	2,154	2,168	(4,324)	1,923
Less: Net income (loss) attributable to noncontrolling interests	—	—	(2)	—	(2)
Net income attributable to Waste Management, Inc.	$1,925	$ 2,154	$ 2,170	$ (4,324)	$ 1,925
2017					
Operating revenues	$ —	$ —	$ 15,040	$ (555)	$ 14,485
Costs and expenses	555	—	11,849	(555)	11,849
Income from operations	(555)	—	3,191	—	2,636
Other income (expense):					
Interest expense, net	(299)	(20)	(44)	—	(363)
Loss on early extinguishment of debt	(6)	—	—	—	(6)
Equity in earnings of subsidiaries, net of tax	2,469	2,482	—	(4,951)	—
Other, net	2	(1)	(77)	—	(76)
	2,166	2,461	(121)	(4,951)	(445)
Income before income taxes	1,611	2,461	3,070	(4,951)	2,191
Income tax expense (benefit)	(338)	(8)	588	—	242
Consolidated net income	1,949	2,469	2,482	(4,951)	1,949
Less: Net income (loss) attributable to noncontrolling interests	—	—	—	—	—
Net income attributable to Waste Management, Inc.	$1,949	$ 2,469	$ 2,482	$ (4,951)	$ 1,949

(a) For 2019 and 2018, operating revenues and costs and expenses related to insurance premiums for a wholly-owned insurance captive are included in Non-Guarantor Subsidiaries to more accurately reflect those transactions.

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

CONDENSED CONSOLIDATING STATEMENTS OF COMPREHENSIVE INCOME

	WM	WM Holdings	Non-Guarantor Subsidiaries	Eliminations	Consolidated
Years Ended December 31:					
2019					
Comprehensive income	$1,678	$2,047	$ 2,080	$ (4,055)	$ 1,750
Less: Comprehensive income (loss) attributable to noncontrolling interests	—	—	1	—	1
Comprehensive income attributable to Waste Management, Inc.	$1,678	$2,047	$ 2,079	$ (4,055)	$ 1,749
2018					
Comprehensive income	$1,933	$2,154	$ 2,070	$ (4,324)	$ 1,833
Less: Comprehensive income (loss) attributable to noncontrolling interests	—	—	(2)	—	(2)
Comprehensive income attributable to Waste Management, Inc.	$1,933	$2,154	$ 2,072	$ (4,324)	$ 1,835
2017					
Comprehensive income	$1,955	$2,469	$ 2,564	$ (4,951)	$ 2,037
Less: Comprehensive income (loss) attributable to noncontrolling interests	—	—	—	—	—
Comprehensive income attributable to Waste Management, Inc.	$1,955	$2,469	$ 2,564	$ (4,951)	$ 2,037

WASTE MANAGEMENT, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (Continued)

CONDENSED CONSOLIDATING STATEMENTS OF CASH FLOWS

	WM(a)	WM Holdings(a)	Non-Guarantor Subsidiaries(a)	Eliminations	Consolidated
Years Ended December 31:					
2019					
Cash flows provided by (used in):					
Operating activities	$ —	$ —	$ 3,874	$ —	$ 3,874
Investing activities	—	—	(2,376)	—	(2,376)
Financing activities	—	—	1,964	—	1,964
Effect of exchange rate changes on cash, cash equivalents and restricted cash and cash equivalents	—	—	2	—	2
Intercompany activity	3,485	—	(3,485)	—	—
Increase (decrease) in cash, cash equivalents and restricted cash and cash equivalents	3,485	—	(21)	—	3,464
Cash, cash equivalents and restricted cash and cash equivalents at beginning of period	—	—	183	—	183
Cash, cash equivalents and restricted cash and cash equivalents at end of period	$ 3,485	$ —	$ 162	$ —	$ 3,647
2018					
Cash flows provided by (used in):					
Operating activities	$ —	$ —	$ 3,570	$ —	$ 3,570
Investing activities	—	—	(2,169)	—	(2,169)
Financing activities	—	—	(1,508)	—	(1,508)
Effect of exchange rate changes on cash, cash equivalents and restricted cash and cash equivalents	—	—	(3)	—	(3)
Increase (decrease) in cash, cash equivalents and restricted cash and cash equivalents	—	—	(110)	—	(110)
Cash, cash equivalents and restricted cash and cash equivalents at beginning of period	—	—	293	—	293
Cash, cash equivalents and restricted cash and cash equivalents at end of period	$ —	$ —	$ 183	$ —	$ 183
2017					
Cash flows provided by (used in):					
Operating activities	$ —	$ —	$ 3,180	$ —	$ 3,180
Investing activities	—	—	(1,620)	—	(1,620)
Financing activities	—	—	(1,361)	—	(1,361)
Effect of exchange rate changes on cash, cash equivalents and restricted cash and cash equivalents	—	—	—	—	—
Increase (decrease) in cash, cash equivalents and restricted cash and cash equivalents	—	—	199	—	199
Cash, cash equivalents and restricted cash and cash equivalents at beginning of period	—	—	94	—	94
Cash, cash equivalents and restricted cash and cash equivalents at end of period	$ —	$ —	$ 293	$ —	$ 293

(a) Cash receipts and payments of WM and WM Holdings are transacted by Non-Guarantor Subsidiaries. Cash, cash equivalents and restricted cash and cash equivalents of WM as of December 31, 2019 include remaining proceeds from our senior note issuances which are discussed further in Notes 7 and 17.

Item 9. ***Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.***

None.

Item 9A. ***Controls and Procedures.***

Effectiveness of Controls and Procedures

Our management, with the participation of our principal executive and financial officers, has evaluated the effectiveness of our disclosure controls and procedures in ensuring that the information required to be disclosed in reports that we file or submit under the Securities Exchange Act of 1934, as amended, is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, including ensuring that such information is accumulated and communicated to management (including the principal executive and financial officers) as appropriate to allow timely decisions regarding required disclosure. Based on such evaluation, our principal executive and financial officers have concluded that such disclosure controls and procedures were effective as of December 31, 2019 (the end of the period covered by this Annual Report on Form 10-K).

Management's Report on Internal Control Over Financial Reporting

Management of the Company, including the principal executive and financial officers, is responsible for establishing and maintaining adequate internal control over financial reporting, as defined in Rules 13a-15(f) and 15d-15(f) of the Securities Exchange Act of 1934, as amended. Our internal controls are designed to provide reasonable assurance as to the reliability of our financial reporting and the preparation of the consolidated financial statements for external purposes in accordance with accounting principles generally accepted in the United States and includes those policies and procedures that:

i. pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;

ii. provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and

iii. provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management of the Company assessed the effectiveness of our internal control over financial reporting as of December 31, 2019 based on the Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework). Based on this assessment, management has concluded that our internal control over financial reporting was effective as of December 31, 2019.

The effectiveness of our internal control over financial reporting has been audited by Ernst & Young LLP, the independent registered public accounting firm that audited our consolidated financial statements, as stated in their report, which is included within this report.

Changes in Internal Control over Financial Reporting

Management, together with our CEO and CFO, evaluated the changes in our internal control over financial reporting during the quarter ended December 31, 2019. We determined that there were no changes in our internal control over financial reporting during the quarter ended December 31, 2019 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. *Other Information.*

None.

PART III

Item 10. *Directors, Executive Officers and Corporate Governance.*

The information required by this Item is incorporated by reference to the sections entitled "Board of Directors," "Delinquent Section 16(a) Reports," and "Executive Officers," in the Company's definitive Proxy Statement for its 2020 Annual Meeting of Stockholders (the "Proxy Statement"), to be held May 12, 2020. The Proxy Statement will be filed with the SEC within 120 days of the end of our fiscal year.

We have adopted a code of ethics that applies to our CEO, CFO and Chief Accounting Officer, as well as other officers, directors and employees of the Company. The code of ethics, entitled "Code of Conduct," is posted on our website at www.wm.com in the section "ESG — Corporate Governance" on the "Investors" page.

Item 11. *Executive Compensation.*

The information required by this Item is incorporated herein by reference to the sections entitled "Board of Directors — Compensation Committee Report," "— Compensation Committee Interlocks and Insider Participation," "— Non-Employee Director Compensation," "Executive Compensation — Compensation Discussion and Analysis" and "— Executive Compensation Tables" in the Proxy Statement.

Item 12. *Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.*

The information required by this Item is incorporated herein by reference to the sections entitled "Executive Compensation — Executive Compensation Tables — Equity Compensation Plan Table," "Director and Officer Stock Ownership," and "Security Ownership of Certain Beneficial Owners" in the Proxy Statement.

Item 13. *Certain Relationships and Related Transactions, and Director Independence.*

The information required by this Item is incorporated herein by reference to the sections entitled "Board of Directors — Related Party Transactions" and "— Independence of Board Members" in the Proxy Statement.

Item 14. *Principal Accounting Fees and Services.*

The information required by this Item is incorporated herein by reference to the section entitled "Ratification of Independent Registered Public Accounting Firm — Independent Registered Public Accounting Firm Fee Information" in the Proxy Statement.

PART IV

Item 15. *Exhibits, Financial Statement Schedules.*

(a) (1) Consolidated Financial Statements:

Reports of Independent Registered Public Accounting Firm
Consolidated Balance Sheets as of December 31, 2019 and 2018
Consolidated Statements of Operations for the years ended December 31, 2019, 2018 and 2017
Consolidated Statements of Comprehensive Income for the years ended December 31, 2019, 2018 and 2017
Consolidated Statements of Cash Flows for the years ended December 31, 2019, 2018 and 2017
Consolidated Statements of Changes in Equity for the years ended December 31, 2019, 2018 and 2017
Notes to Consolidated Financial Statements

(a) (2) Consolidated Financial Statement Schedules:

All schedules have been omitted because the required information is not significant or is included in the financial statements or notes thereto, or is not applicable.

(a) (3) Exhibits:

Exhibit No.		Description
2.1	—	Agreement and Plan of Merger dated April 14, 2019 by and among WM, Everglades Merger Sub Inc., and Advanced Disposal Services, Inc. [incorporated by reference to Exhibit 2.1 to Form 8-K filed April 15, 2019].
2.2	—	Voting Agreement dated April 14, 2019 by and between WM and Canada Pension Plan Investment Board [incorporated by reference to Exhibit 2.2 to Form 8-K filed April 15, 2019].
3.1	—	Third Restated Certificate of Incorporation of Waste Management, Inc. [incorporated by reference to Exhibit 3.1 to Form 10-Q for the quarter ended June 30, 2010].
3.2	—	Amended and Restated By-laws of Waste Management, Inc. [incorporated by reference to Exhibit 3.2 to Form 8-K dated November 19, 2019].
4.1	—	Specimen Stock Certificate [incorporated by reference to Exhibit 4.1 to Form 10-K for the year ended December 31, 1998].
4.2	—	Third Restated Certificate of Incorporation of Waste Management Holdings, Inc. [incorporated by reference to Exhibit 4.2 to Form 10-K for the year ended December 31, 2014].
4.3	—	Amended and Restated By-laws of Waste Management Holdings, Inc. [incorporated by reference to Exhibit 4.3 to Form 10-Q for the quarter ended June 30, 2014].
4.4	—	Indenture for Subordinated Debt Securities dated February 3, 1997, among the Registrant and The Bank of New York Mellon Trust Company, N.A. (the current successor to Texas Commerce Bank National Association), as trustee [incorporated by reference to Exhibit 4.1 to Form 8-K dated February 7, 1997].
4.5	—	Indenture for Senior Debt Securities dated September 10, 1997, among the Registrant and The Bank of New York Mellon Trust Company, N.A. (the current successor to Texas Commerce Bank National Association), as trustee [incorporated by reference to Exhibit 4.1 to Form 8-K dated September 10, 1997].
4.6	—	Officers' Certificate delivered pursuant to Section 301 of the Indenture dated September 10, 1997 by and between Waste Management, Inc. and The Bank of New York Mellon Trust Company, N.A., as Trustee, establishing the terms and form of Waste Management, Inc.'s 4.150% Senior Notes due 2049 [incorporated by reference to Exhibit 4.5 to Form 10-Q for the quarter ended June 30, 2019].
4.7	—	Guarantee Agreement by Waste Management Holdings, Inc. in favor of The Bank of New York Mellon Trust Company, N.A., as Trustee for the holders of Waste Management, Inc.'s 4.150% Senior Notes due 2049 [incorporated by reference to Exhibit 4.10 to Form 10-Q for the quarter ended June 30, 2019].

4.8*	—	Schedule of Officers' Certificates delivered pursuant to Section 301 of the Indenture dated September 10, 1997 establishing the terms and form of Waste Management, Inc.'s Senior Notes. Waste Management and its subsidiaries are parties to debt instruments that have not been filed with the SEC under which the total amount of securities authorized under any single instrument does not exceed 10% of the total assets of Waste Management and its subsidiaries on a consolidated basis. Pursuant to paragraph 4(iii)(A) of Item 601(b) of Regulation S-K, Waste Management agrees to furnish a copy of such instruments to the SEC upon request.
4.9*	—	Description of Waste Management, Inc.'s Common Stock.
10.1†	—	2014 Stock Incentive Plan [incorporated by reference to Exhibit 10.1 to Form 8-K dated May 13, 2014].
10.2†	—	2009 Stock Incentive Plan [incorporated by reference to Appendix B to the Proxy Statement on Schedule 14A filed March 25, 2009].
10.3†	—	2005 Annual Incentive Plan [incorporated by reference to Appendix D to the Proxy Statement on Schedule 14A filed April 8, 2004].
10.4†	—	Waste Management, Inc. Employee Stock Purchase Plan [incorporated by reference to Exhibit 10.1 to Form 8-K dated May 15, 2015].
10.5†	—	First Amendment to Waste Management, Inc. Employee Stock Purchase Plan effective as of July 1, 2015 [incorporated by reference to Exhibit 10.5 to Form 10-K for the year ended December 31, 2015].
10.6†	—	Waste Management, Inc. 409A Deferral Savings Plan as Amended and Restated effective January 1, 2014 [incorporated by reference to Exhibit 10.2 to Form 10-Q for the quarter ended March 31, 2014].
10.7	—	$3.5 Billion Fifth Amended and Restated Revolving Credit Agreement dated as of November 7, 2019 by and among Waste Management, Inc., Waste Management of Canada Corporation, WM Quebec Inc. and Waste Management Holdings, Inc., certain banks party thereto, and Bank of America, N.A., as administrative agent [incorporated by reference to Exhibit 10.1 to Form 8-K dated November 7, 2019].
10.8	—	Commercial Paper Dealer Agreement, substantially in the form as executed with each of Mizuho Securities USA Inc., Merrill Lynch, Pierce, Fenner & Smith Incorporated, and J.P. Morgan Securities LLC, as Dealer, dated August 22, 2016 [incorporated by reference to Exhibit 10.11 to Form 10-K for the year ended December 31, 2016].
10.9	—	Commercial Paper Issuing and Paying Agent Agreement between Waste Management, Inc. and Bank of America, National Association dated August 15, 2016 [incorporated by reference to Exhibit 10.12 to Form 10-K for the year ended December 31, 2016].
10.10†	—	First Amended and Restated Employment Agreement between USA Waste-Management Resources, LLC and James C. Fish, Jr. dated December 22, 2017 [incorporated by reference to Exhibit 10.2 to Form 8-K dated December 22, 2017].
10.11†	—	Employment Agreement between USA Waste-Management Resources, LLC and Devina A. Rankin dated December 22, 2017 [incorporated by reference to Exhibit 10.3 to Form 8-K dated December 22, 2017].
10.12†	—	First Amended and Restated Employment Agreement between USA Waste-Management Resources, LLC and John J. Morris, Jr. [incorporated by reference to Exhibit 10.4 to Form 8-K dated December 22, 2017].
10.13†	—	Employment Agreement between USA Waste-Management Resources, LLC and Charles C. Boettcher dated December 22, 2017 [incorporated by reference to Exhibit 10.23 to Form 10-K for the year ended December 31, 2017].
10.14†	—	Form of Director and Executive Officer Indemnity Agreement [incorporated by reference to Exhibit 10.43 to Form 10-K for the year ended December 31, 2012].
10.15†	—	Waste Management Holdings, Inc. Executive Severance Plan [incorporated by reference to Exhibit 10.1 to Form 8-K dated December 22, 2017].
10.16	—	Form of 2017 Senior Leadership Team Award Agreement [incorporated by reference to Exhibit 10.1 to Form 8-K dated February 27, 2017].
10.17†	—	Form of 2017 Long Term Incentive Compensation Award Agreement (Mid-Year Award) [incorporated by reference to Exhibit 10.37 to Form 10-K for the year ended December 31, 2017].

10.18†	—	Form of 2018 Senior Leadership Team Award Agreement [incorporated by reference to Exhibit 10.1 to Form 8-K dated February 19, 2018].
10.19	—	Form of 2019 Senior Leadership Team Award Agreement [incorporated by reference to Exhibit 10.1 to Form 8-K dated February 19, 2019].
21.1*	—	Subsidiaries of the Registrant.
23.1*	—	Consent of Independent Registered Public Accounting Firm.
31.1*	—	Certification Pursuant to Rule 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as amended, of James C. Fish, Jr., President and Chief Executive Officer.
31.2*	—	Certification Pursuant to Rule 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as amended, of Devina A. Rankin, Senior Vice President and Chief Financial Officer.
32.1**	—	Certification Pursuant to 18 U.S.C. §1350 of James C. Fish, Jr., President and Chief Executive Officer.
32.2**	—	Certification Pursuant to 18 U.S.C. §1350 of Devina A. Rankin, Senior Vice President and Chief Financial Officer.
95*	—	Mine Safety Disclosures.
101.INS*	—	Inline XBRL Instance.
101.SCH*	—	Inline XBRL Taxonomy Extension Schema.
101.CAL*	—	Inline XBRL Taxonomy Extension Calculation.
101.LAB*	—	Inline XBRL Taxonomy Extension Labels.
101.PRE*	—	Inline XBRL Taxonomy Extension Presentation.
101.DEF*	—	Inline XBRL Taxonomy Extension Definition.
104*	—	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

* Filed herewith.
** Furnished herewith.
† Denotes management contract or compensatory plan or arrangement.

Item 16. ***Form 10-K Summary.***

None.

Table of Contents

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this Report to be signed on its behalf by the undersigned, thereunto duly authorized.

WASTE MANAGEMENT, INC.

By: /s/ JAMES C. FISH, JR.
James C. Fish, Jr.
President, Chief Executive Officer and Director

Date: February 13, 2020

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ JAMES C. FISH, JR. James C. Fish, Jr.	President, Chief Executive Officer and Director (Principal Executive Officer)	February 13, 2020
/s/ DEVINA A. RANKIN Devina A. Rankin	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	February 13, 2020
/s/ LESLIE K. NAGY Leslie K. Nagy	Vice President and Chief Accounting Officer (Principal Accounting Officer)	February 13, 2020
/s/ FRANK M. CLARK, JR. Frank M. Clark, Jr.	Director	February 13, 2020
/s/ ANDRÉS R. GLUSKI Andrés R. Gluski	Director	February 13, 2020
/s/ PARTICK W. GROSS Patrick W. Gross	Director	February 13, 2020
/s/ VICTORIA M. HOLT Victoria M. Holt	Director	February 13, 2020
/s/ KATHLEEN M. MAZZARELLA Kathleen M. Mazzarella	Director	February 13, 2020
/s/ WILLIAM B. PLUMMER William B. Plummer	Director	February 13, 2020
/s/ JOHN C. POPE John C. Pope	Director	February 13, 2020

/s/ THOMAS H. WEIDEMEYER Thomas H. Weidemeyer	Chairman of the Board and Director	February 13, 2020