



Harsco Annual Report 2020

Form 10-K (NYSE:HSC)

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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES 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 EXCHANGE ACT OF 1934
Commission File Number 001-03970

HARSCO CORPORATION

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

350 Poplar Church Road, Camp Hill, Pennsylvania

(Address of principal executive offices)

Registrant's telephone number, including area code **717-763-7064**

23-1483991

(I.R.S. employer identification number)

17011

(Zip Code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, par value \$1.25 per share	HSC	New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: NONE

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in 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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation 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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See 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	<input checked="" type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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 Company's voting stock held by non-affiliates of the Company as of June 30, 2019 was \$2,202,849,000

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date:

Class	Outstanding at January 31, 2020
Common stock, par value \$1.25 per share	78,514,758

DOCUMENTS INCORPORATED BY REFERENCE

Selected portions of the 2020 Proxy Statement are incorporated by reference into Part III of this Report.

HARSCO CORPORATION
FORM 10-K
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PART I

Item 1. Business.

OUR COMPANY - OUR VISION

Harsco Corporation ("we," "our" or the "Company") is a market-leading, global provider of environmental solutions for industrial and specialty waste streams, and innovative equipment and technology for the rail sector. Our three reportable business segments are Harsco Environmental, Harsco Clean Earth, and Harsco Rail and we are working towards transforming the Company into a single-thesis environmental solutions company that is a global leader in the markets we serve.

We have worked in recent years to both transform our portfolio and strengthen our financial results, and we are now investing to grow the Company. While we are pleased with our performance and progress, we have further accelerated our business transformation through targeted internal investment as well as M&A. The purchase of Clean Earth and sale of our energy-linked business in 2019 were significant strategic steps for our Company. As a result, approximately 80% of our revenues today are generated from our two environmentally-focused segments. It also is important to note that these moves have reduced the Company's portfolio complexity and business cyclicality.

More broadly, we are committed to viewing every customer need through a sustainability lens. Our customers are increasingly expecting more customizable solutions that address environmental challenges within their industries. The Company is responding to this need by helping our customers build better businesses and, in a larger sense, a better environment. Our go-forward strategy is clear: to continue our transformation with the goal of becoming a leading, global environmental solutions company.

SEGMENT INFORMATION

The Company's current operations consist of three reportable business segments: Harsco Environmental, Harsco Clean Earth, and Harsco Rail. Until 2019, the Company also reported the Harsco Industrial Segment composed of three businesses, which were sold in 2019 and 2020. Historical results for these businesses are now accounted for as discontinued operations.

The Company reports segment information using the "management approach," based on the way management organizes and reports the segments within the enterprise for making operating decisions and assessing performance. The Company's reporting segments are identified based upon differences in products, services, and markets served. Financial information concerning segments and international and domestic operations is included in Note 15, Information by Segment and Geographic Area, in Part II, Item 8, "Financial Statements and Supplementary Data," which information is incorporated herein by reference.

Our revenues by business segment are as follows, and a description of the products and services offered through these business segments is further below.

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HARSCO ENVIRONMENTAL

BUSINESS OVERVIEW

Our Harsco Environmental Segment (previously known as Metals & Minerals) can trace its heritage back to the earliest efforts in industrial recycling and environmental resource management. Where others only saw waste and expense, our predecessors saw opportunity and value nearly 100 years ago. Harsco Environmental ("HE") was founded upon market insights, grounded in respect for environments, efficient use of resources, and optimism for the future.

Today, HE is the premier, global provider of environmental services and material processing to the global steel and metals industries. HE partners with its global customer base to deliver production-critical on-site operational support and resource recovery services, through management of our customers' primary waste or byproduct streams. Our services support the metal manufacturing process, generating significant operational and financial efficiencies for our customers and allowing them to focus on their core steelmaking businesses.

HE serves 70 customers at over 145 sites in more than 30 countries. Our diversified customer base includes the largest steel producers in the regions where we operate, serving a mix of mini-mill and integrated operations. In recent years, HE has greatly extended its reach, signing major new services contracts in bellwether emerging markets like China and India, and further strengthening our footprint in Western economies. As a result, our global portfolio is balanced and diversified, and any foreign currency risk is partially mitigated by the fact that our operating costs and revenues are regularly denominated in local currencies.

In addition to providing critical services to our customers, we provide zero-waste solutions for relevant waste or byproduct streams - an important component of our value proposition. We repurpose processed material for alternative uses and / or convert this material into viable products to be sold in other markets via our applied products offerings and capabilities. Our applied products portfolio includes road and roofing materials, abrasives, agriculture products and aggregates. This expertise is increasingly important to our customers as environmental regulations increase and the marketplace grows more averse to landfilling waste.

2019 REBRANDING

In 2019, the Company rebranded its Metals & Minerals business as Harsco Environmental, further signaling our commitment to serving our customers by preserving the environment. The rebranding planted our stake in the ground as a go-to resource for environmental solutions. These solutions now account for approximately 70% of this segment's revenues. The new name reflects our role as a trusted business partner, as well as the services and products we offer. It also better positions the business to expand our reach into adjacent industries. We expect to continue to expand our environmental solutions portfolio and transfer and implement proven best practices across our customer base.

CUSTOMERS AND SERVICE CONTRACTS

We offer our customers a suite of more than 30 services, and our on-site work is performed under long-term contracts. These contracts typically include fixed fees or minimum billings, which de-risk our investment during periods of economic weakness, and variable fees often linked to the amount of metal produced or waste processed at a site. Our variable fees under contracts are, importantly, not linked to steel prices. Additionally, in recent years we have strengthened our contract terms and underwriting practices, in an effort to earn a sufficient and timely return on our investments, as well as achieve other objectives. These measures, along with various improvement initiatives, have boosted our site portfolio results and driven more consistent performance across our operations.

Our contract renewal rates are high, with many customer relationships that span decades. Our largest customers today include ArcelorMittal, Gerdau, Tata, Taiyuan Iron & Steel, and ThyssenKrupp. We serve most of our major customers at multiple sites, often under many more contracts. The length of our customer relationships reflects our value proposition. Customers choose the Company to (1) achieve operational and financial efficiencies; (2) concentrate their efforts of metal manufacturing and supporting end-market product demands; (3) gain access to process innovations and technologies developed by the Company; and (4) leverage our downstream product applications and know-how. Lastly, HE had one customer in the past three years that provided more than 10% of this segment's revenues, again under many long-term contracts at multiple sites.

On December 31, 2019, the Company's services contracts had estimated future revenues of \$3.2 billion at current production levels, compared with \$3.1 billion at December 31, 2018, with the increase primarily due to new and renewed contracts and the timing of contract expirations, partially offset by the impact of foreign currency translation. This provides the Company with a substantial base of anticipated long-term revenues. Approximately 21% of these revenues are expected to be recognized by December 31, 2020; approximately 40% of these revenues are expected to be recognized between January 1, 2021 and December 31, 2023; approximately 18% of these revenues are expected to be recognized between January 1, 2024 and

December 31, 2026; and the remaining revenues are expected to be recognized thereafter. Estimated future revenues are exclusive of anticipated contract renewals, projected volume increases and ad-hoc services as well as future revenues from roofing granules, abrasives products, roadmaking materials, additives and specialty recovery technology services.

ON-SITE SERVICES

HE provides a broad range of services, most of which address our customers' environmental challenges. In total, these services reduce both landfill waste and the carbon footprint of our customers' sites and in 2019, on-site services represented approximately 85% of HE's revenues. A summary of our most significant services is as follows:

Resource Recovery, Metal Recycling and Slag Optimization

Resource recovery, metal recycling and slag optimization is the core component of our service offerings. We capture liquid steel waste or byproduct (slag) and transport it for cooling, treatment and conditioning. We then recover valuable metal from the waste-stream, which is returned to our customer in a form suitable for recycling through the customers' manufacturing process. The residual non-metallic processed material is then finally transformed into environmental products that create new and additional revenue streams to other customers.

Scrap Management

We manage customer scrap inventories and upgrade scrap by making it cleaner and denser. Improved scrap characteristics reduce electricity usage which, combined with the usage of recycled material, provides sustainability benefits to our customers.

Materials Handling and Logistics

We transport materials, including semi-finished and finished products, safely and efficiently for our customers. Our tracking technology also provides real-time analysis of material location, quantities and product quality.

Meltshop and Furnace Services

Meltshop and furnace services allow the molten metal production process to run smoothly and efficiently. These services include under vessel cleaning and the removal of ladle slag (waste) and general melt shop debris.

APPLIED PRODUCTS

HE creates value-added downstream products from industrial waste-streams. Our experience in manufacturing these products and successfully penetrating relevant end-markets is an important differentiator for the Company. These zero-waste solutions preserve our natural resources and reduce or eliminate landfill disposal. Applied products in 2019 represented approximately 12% of HE's revenues, and our major applied products include the following:

Road Surfacing and Materials

Because of its natural shape and interlocking properties, steel slag holds many advantages when used in asphalt roadway surfaces, ranging from high skid resistance to better durability. The Company's slag-based asphalt product, developed and sold as SteelPhalt™, maintains positive surface characteristics throughout the life of the road, allowing longer replacement intervals and lower maintenance costs. The Company also sells a slag aggregate that is a sustainable and cost-effective alternative to natural stone. This aggregate is often used as unbound road base material for secondary roads and sub-base material elsewhere.

Abrasives and Roofing Materials

Our Reed Minerals business is among the largest roofing granule suppliers in the U.S., partnering with the country's leading shingle manufacturers. Nearly 100 years ago, we pioneered a process of recycling coal combustion waste from power plants. Through the Company's proprietary process, we create premium quality roofing granules that are a critical raw material in asphalt roofing shingles.

Reed is also one of the largest U.S. manufacturers of abrasives, using coal as well as copper slag and crushed glass, for the surface preparation market. Our BLACK BEAUTY® abrasives are well-recognized within the industry and are used as blast material to remove paint, rust, and other coatings from surfaces, prior to applying a new finish.

Metallurgical Additives

The Company's custom-designed steelmaking additives facilitate fluid slag formation in the steelmaking process, thus improving customer productivity and helping achieve the steel product specifications required for today's premium applications.

Agriculture and Turf Products

We produce soil conditioners and fertilizers, principally from stainless steel slag that optimize crop yields and turf performance. CrossOver® and AgrowSil products are our leading silicon, calcium and magnesium-based product brands, sold mainly in the Americas. These products are formulated to address nutrient deficiencies and toxicity issue in soil as well as help plants withstand outside pressures and disease.

Cement Additives

Steel slag is naturally cementitious and commonly blended with other materials to produce environmentally-friendly, high-performing cement products. Cement made with slag aggregate can achieve permeabilities and strengths that compare favorably to concrete made with conventional aggregates.

ALTEK GROUP

In 2018, the Company acquired Altek Europe Holdings Limited and its affiliated entities ("Altek"), a UK-based manufacturer of market-leading products that enable aluminum producers and recyclers to manage and extract value from critical waste streams, reduce waste generation, and improve operating productivity. The cost-efficient recovery of metal and other valuable materials is increasingly important to the aluminum industry. Altek's products and technologies address this challenge, and its latest innovation, AluSalt™, offers customers a breakthrough technology that converts salt slag waste into valuable products, addressing one of the largest environmental concerns within the aluminum market.

The Altek acquisition aligns with HE's core strategy of creating value from waste. Altek also represented an initial step in building a significant environmental solutions business within the aluminum industry, where we believe the growth potential is significant.

GROWTH STRATEGY

After a period of business improvement, we have started in recent years to invest growth capital in HE. We have identified attractive opportunities that meet our return thresholds to expand our service portfolio, and our pipeline of opportunities remains significant. Additionally, we have initiated efforts to expand our downstream products business and plan to continue investing in innovation - and our workforce that drives it - to support our business sustainability.

A summary of our key growth initiatives is as follows:

- **Further Penetrate Existing Sites.** Given our broad services capabilities, we see significant potential for add-on services contracts at existing sites.
- **New Sites.** We continue to pursue new services contracts in certain markets, particularly in emerging economies where out-sourcing opportunities are significant because of increased environmental awareness or where steel consumption (production) is set to grow.
- **Investment in Downstream Products.** We see ample opportunities to expand certain products businesses, and our investment in a second SteelPhalt™ (road materials) plant in Europe is a recent example.
- **Innovation.** We are at the forefront of innovation in our industry. Our Pure and Applied Innovation Programs are specifically focused on helping our customers solve their most pressing environmental challenges amid ever-increasing regulation. This initiative includes developing new customer or industry solutions, either in-house or externally, and expanding the usage of technologies that already exist within our business.

COMPETITORS

HE competes principally with a small number of privately-held businesses for services outsourced by customers on a global basis. We also compete with numerous smaller, privately-held businesses in each of our regional markets and, to some degree, customers that may decide to perform certain services themselves.

We believe that HE differentiates itself from its competition through innovative technologies that support our service offerings, and through the operating expertise developed by sharing best practices across our global portfolio. Our safety practices and performance also support our business, as do our long-standing relationships and our downstream product solutions.

HARSCO CLEAN EARTH

BUSINESS OVERVIEW

In June 2019, the Company acquired Clean Earth ("CE"), one of the largest specialty waste processing companies in the U.S. CE provides processing and beneficial reuse solutions for hazardous wastes, contaminated materials, and dredged volumes through its 27 facilities in 16 States. Ninety-nine percent of the waste handled by CE is beneficially reused, and it serves a widely-diversified base of over 1,700 customers, in essentially every industry that generates waste. It also holds a portfolio of more than 200 critically-important permits, that support its unique portfolio of services and technologies.

With the acquisition of CE, the Company entered an adjacent, financially-attractive environmental services market with significant regulatory oversight. Specialty-waste permits have considerable value, and CE is positioned to take advantage of increasingly stringent regulation on the handling of this waste. These dynamics provide recurring revenues and support attractive underlying growth. CE also operates in a fragmented market where acquisition opportunities are likely to develop. As a result, we see CE as a platform for growth as we continue the transformation of the Company's business portfolio.

INTEGRATION

By the end of 2020, the Company expects to integrate and fully realize identified synergies, most of which are cost synergies related to support-function integration, from the acquisition of CE. Revenue synergies are also anticipated given the complementary nature of our environmental businesses in this time frame, and a longer-term opportunity is to leverage HE's global footprint to expand our specialty waste business outside of the U.S.

CUSTOMERS

CE provides low-cost, regulatory-compliant solutions to a diverse base of customers or suppliers (waste originators). These customers include waste generators in numerous industries, including chemicals, power, aerospace, medical, and metals, as well as integrated waste companies and brokers. CE also services federal, state and local governments as well as developers linked to large infrastructure and redevelopment projects, and it processes a variety of consumer goods, including electronics, cleaners, pesticides and aerosols, which must be handled in strict compliance with environmental regulation.

LINES OF BUSINESS

Hazardous Waste

CE provides testing, tracking, processing, recycling, and disposal services for hazardous waste and it operates 9 Resource Conservation and Recovery Act ("RCRA") Part B Permits. This includes 6 Treatment, Storage and Disposal Facility permits (TSDFs) that enable the Company to process a variety of complex hazardous wastes, consisting of toxic, reactive and flammable materials such as industrial wastewater, manufacturing sludge, oily-mixtures, asbestos and pharmaceutical waste. The remaining facilities handle a limited number of other wastes, including landfill leachate with per- and polyfluoroalkyl substances ("PFAS"), electronics, batteries and light bulbs. These operations possess unique and differentiated processing technologies, such as applications for aerosol can and medical waste recycling. In the second half of 2019, this line of business represented approximately 36% of CE's revenues.

Contaminated Materials

CE processes approximately four million tons per year of contaminated soil at thirteen locations. These soils are contaminated with heavy metals, PCBs, pesticides, PFAS or other chemicals, and the related clean-up work is often the result of infrastructure improvements, private redevelopment, industrial site remediation and/or underground storage tank removal. CE treats and recycles this soil through various processes, after which the material is suitable for beneficial reuse as construction fill material or landfill capping. In the second-half of 2019, this line of business represented approximately 54% of CE's revenues.

Dredged Materials

CE operates two facilities to treat dredged material, the sediment accumulated at the bottom of waterways that is removed for environmental (clean-up) or maintenance (maintain depth) purposes. After treatment, these materials are also beneficially reused as fill material. In the second half of 2019, dredged material processing represented approximately 10% of CE's revenues.

OPERATIONS AND PERMITS

CE maintains a full suite of regulation-compliant treatment capabilities that de-characterize waste and that can be tailored to meet customer-specific requirements. These solutions include: a) **Thermal Desorption** - a remediation technology that involves heating soil to remove or separate the contaminants; b.) **Bioremediation** - a treatment process that degrades contaminants by the application of microorganisms or engineered bacteria; c.) **Chemical fixation** - a remediation process using chemical additives; and d.) **Physical treatment** - a sizing and segregation process to remove unsuitable materials.

Additionally, CE holds a portfolio of more than 200 process, treatment and operating permits, including the ones mentioned above. This permit portfolio is difficult to duplicate, making these permits valuable and critically-important assets in this heavily-regulated industry. CE has achieved a 100% renewal-retention rate on desired permits in the past 20 years, and the number of permits held by CE has increased considerably over the past few years. CE's ability to secure new permits or permit modifications for new waste streams or processes in the future remains an important growth lever for the business.

BACKLOG

The dollar value of CE's backlog is excluded due to the short-cycle nature of services provided and variability in revenues due to the timing of receipt and composition of materials. CE had an estimated material backlog on December 31, 2019 of approximately 3 million tons, most of which can be attributed to its contaminated materials business. This backlog provides us significant visibility on future performance, given that this tonnage represents approximately two-thirds of a full-year processing volume for the business.

GROWTH

Favorable underlying market dynamics, driven by increased regulation and a growing list of contaminants and hazardous materials, and investment are anticipated to fuel CE's growth in the coming years. We also anticipate penetrating the market with new treatment solutions and expansion of existing technologies, including through permit modifications and applications in new geographic markets. Lastly, CE is well-positioned to benefit from an improved outlook for maintenance and environmental dredging, and we expect acquisitions to be an important growth lever for CE. CE operates in a very fragmented, regionally-driven market. As a result, we expect to pursue acquisition opportunities that may provide increased scale and/or new capabilities, along with synergies and attractive financial returns to the Company.

On February 7, 2020, the Company announced it had entered into a definitive agreement to acquire the Stericycle Environmental Solutions Business ("ESOL"), an established hazardous waste transportation and processing solutions provider from Stericycle, Inc. Under the terms of the agreement, the Company will acquire ESOL for \$462.5 million in cash, subject to post-closing adjustments. The transaction has been approved by the Company's Board of Directors and is expected to close by March 31, 2020 subject to customary closing conditions, including regulatory approvals.

COMPETITION

Given the fragmented nature of the specialty waste industry, CE competes with numerous companies. Our larger peers include Clean Harbors, Heritage Environmental Services, Stericycle, and U.S. Ecology within the hazardous materials line of business, and GFL Environmental (SoilSafe) and Impact Environmental within the contaminated materials market. CE differentiates itself from competitors through service reliability and responsiveness, its diverse operating capabilities and regulatory compliant solutions, and the value it provides through providing low-cost solutions relative to other disposal alternatives in the regions where it operates.

HARSCO RAIL

BUSINESS OVERVIEW

Harsco Rail is recognized for technical leadership and our worldwide experience in all aspects of railway track maintenance. We enable railroads to operate at peak efficiency over smooth, precisely aligned track, which improves safety performance and reduces fuel consumption. Our broad array of products and services helps every type of railway operator, from major national and international railway systems, to short lines and high-speed urban transit networks, achieve their productivity and sustainability objectives.

More specifically, Harsco Rail is a supplier of equipment, after-market parts and services for the construction and maintenance of railway track. We manufacture highly-engineered railway track maintenance equipment and support a large installed-base of the Company's equipment with a full suite of aftermarket parts. We are a leading supplier of collision avoidance and warning systems to enhance passenger, rail worker and pedestrian safety, and we pioneered a number of measurement and diagnostic technologies that further support railway maintenance programs.

RAIL EQUIPMENT

Manufacturing high-quality, cutting-edge technology equipment is core to Harsco Rail. These products are developed through an active research and development effort, often in conjunction with our customers. Our primary operating costs include product engineering, metal and electrical components. Rail equipment sales represented approximately 49% of segment revenues in 2019. Below is a sampling of our major equipment categories.

Surfacing Equipment

Harsco Rail's surfacing machines precisely align and stabilize railway track by raising the rail to the desired height and packing the supporting ballast foundation. This process increases rail productivity and limits maintenance downtime for our customers. The Company is also a leader in the development of automated tamping equipment through the integration of drone technology, which provides customers with incremental operating flexibility.

Utility Track Vehicles ("UTVs")

Our all-purpose UTVs are used to power work trains for a broad range of rail maintenance requirements, including snow removal, catenary maintenance, and other repairs. UTVs are engineered to order, providing highly versatile configurations equipped with cranes, generators and/or work platforms used by our customers. Harsco Rail has also recently developed and introduced a hybrid diesel-electric maintenance vehicle, a breakthrough technology, that supports customer ambitions to electrify their rails and lower their carbon footprint.

Production Grinders

Harsco Rail's suite of grinding products extend the life of track and enhance customer performance. Our grinders remove cracks and other surface defects and re-profile rail heads. The result is smoother and quieter track that enables our customers to operate at higher speeds and lower fuel consumption.

Tie Equipment

Harsco Rail provides a full line of tie equipment, with drone capabilities, to help customers maintain their linear assets. These products include spike puller, anchor spreader and tie replacement vehicles that support optimal track performance and safety.

New Track Construction Equipment

A new track construction machine produced by the Company can lay roughly a mile of track per day in continuous operation. The equipment constructs track three times faster than the stick-building alternative and works with all forms of ties.

AFTERMARKET PARTS AND SERVICE

Harsco Rail sells a full range of aftermarket parts and provides on-site technical assistance and training programs to our customers. These products include OEM genuine replacement parts and upgrade kits to ensure equipment achieves peak performance and to minimize operating costs. Our service representatives are deployed around the world, and our e-commerce website features over 15,000 parts. Aftermarket parts sales and services represented approximately 40% of segment revenues in 2019.

PROTRAN TECHNOLOGY

Protran is a leading technology provider to the rail and transit market. Its railway track worker and train operator safety systems help protect railway personnel from oncoming rail traffic and prevent vehicle-to-vehicle collisions. Protran's safety equipment is found on transit buses as well, providing turn alerts to pedestrians. Protran also sells track measurement and diagnostic solutions. This technology provides analytical data on track conditions, thereby helping railways plan the timing and location of preventive maintenance. Protran represented approximately 4% of segment revenues in 2019.

RAILWAY CONTRACTING SERVICES

Harsco Rail's contracting services provide customers with a quality service through work crews that operate the equipment and understand the customer's maintenance needs. With years of experience, Harsco Rail's contract service teams have covered more than 397,500 miles of track, helping customers achieve desired productivity goals. Railways contracting services represented approximately 7% of segment revenues in 2019.

CUSTOMERS

Over 125 major railways, including Class-1 railroads in North America, mass transit systems (authorities), equipment leasing companies and state-owned railroads around the world have chosen Harsco Rail to optimize the condition of their tracks. Harsco Rail's geographic and product mix is diversified. In 2019, approximately 26% of Harsco Rail's revenues were derived outside of North America. Harsco Rail had one customer in 2019, 2018 and 2017 that provided more than 10% of the segment's revenues.

BACKLOG

Harsco Rail had an order backlog on December 31, 2019 of \$446.9 million compared with \$297.2 million on December 31, 2018. Most of this backlog can be attributed to our Rail equipment business, and the year-on-year backlog increase is attributable to higher equipment bookings during the year. Equipment is often sold through long lead-time purchase orders or under large, multi-year supply contracts, while aftermarket and Protran sales have shorter-cycle characteristics.

Importantly, this backlog also provides us significant visibility for future quarters. As of December 31, 2019, \$225.9 million or 51% of the Harsco Rail segment's manufactured products order backlog is expected to be filled in 2020. The remainder of this backlog is expected to be filled through 2024.