REFINITIV

DELTA REPORT

10-K

FSS - FEDERAL SIGNAL CORP /DE/

10-K - DECEMBER 31, 2023 COMPARED TO 10-K - DECEMBER 31, 2022

The following comparison report has been automatically generated

TOTAL DELTAS	3226
CHANGES	827
DELETIONS	1173
ADDITIONS	1226

.

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 EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2022 December 31, 2023

OR

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

For the transition period from __________to __________

Commission File Number 1-6003

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FEDERAL SIGNAL CORPORATION

(Exact name of registrant as specified in its charter)

Delaware	**36-1063330**
(State or other jurisdiction of incorporation or organization)	*(I.R.S. Employer Identification No.)*

1415 West 22nd Street, Oak Brook, Illinois
(Address of principal executive offices)

60523
(Zip Code)

(630) 954-2000
(Registrant's telephone number, including area 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 $1.00 per share	FSS	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 every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or shorter period that the registrant was required to submit such files). Yes ☑ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a 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 has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☑

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

As of June 30, 2022, the aggregate market value of voting stock held by non-affiliates was $2,110,562,803. For purposes of the foregoing calculation only, executive officers and directors of the registrant have been deemed to be affiliates.

As of February 28, 2023, the number of shares outstanding of the registrant's common stock was 60,754,664.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

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

As of June 30, 2023, the aggregate market value of voting stock held by non-affiliates was $3,810,728,098. For purposes of the foregoing calculation only, executive officers and directors of the registrant have been deemed to be affiliates.

As of January 31, 2024, the number of shares outstanding of the registrant's common stock was 60,996,238.

Documents Incorporated By Reference

Portions of the registrant's definitive proxy statement for the 2023 2024 Annual Meeting of Stockholders are incorporated by reference in Part III.

FEDERAL SIGNAL CORPORATION

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FORWARD-LOOKING STATEMENTS

This Annual Report on Form 10-K ("Form 10-K") is being filed by Federal Signal Corporation and its subsidiaries (referred to collectively as the "Company," "we," "our" or "us" herein, unless the context otherwise indicates) with the United States ("U.S.") Securities and Exchange Commission (the "SEC"), and includes comments made by management that may contain words such as "may," "will," "believe," "expect," "anticipate," "intend," "plan," "project," "estimate" and "objective" or similar terminology, or the negative thereof, concerning the Company's future financial performance, business strategy, plans, goals and objectives. These expressions are intended to identify forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the Private Securities Litigation Reform Act of 1995. Forward-looking statements include information concerning the Company's possible or assumed future performance or results of operations and are not guarantees. While these statements are based on assumptions and judgments that management has made in light of industry experience as well as perceptions of historical trends, current conditions, expected future developments and other factors believed to be appropriate under the circumstances, they are subject to risks, uncertainties and other factors that may cause the Company's actual results, performance or achievements to be materially different.

These risks and uncertainties, some of which are beyond the Company's control, include, but are not limited to, the risk factors described under Item 1A, *Risk Factors* as set forth in Part I, as well as those discussed elsewhere in this Form 10-K and in our subsequently filed documents, as applicable. These factors may not constitute all factors that could cause actual results to differ materially from those discussed in any forward-looking statement. The Company operates in a continually changing business environment and new factors emerge from time to time including, for example, the ongoing coronavirus pandemic and the governmental responses to the pandemic. time. The Company cannot predict such factors, nor can it assess the impact, if any, of such factors on its results of operations, financial condition or cash flow. Accordingly, forward-looking statements should not be relied upon as a predictor of actual results. The Company disclaims any responsibility to update any forward-looking statement provided in this Form 10-K.

ADDITIONAL INFORMATION

The Company is subject to the reporting and information requirements of the Exchange Act and, as a result, is obligated to file Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and other reports and information with the SEC, as well as amendments to those reports. The Company makes these filings available free of charge through our website at www.federalsignal.com as soon as reasonably practicable after such materials are filed with, or furnished to, the SEC. We also use our website as a means of disclosing material non-public information and to comply with our disclosure requirements under Regulation FD. Information on our website does not constitute part of this Form 10-K. In addition, the SEC maintains a website at www.sec.gov that contains reports, proxy and information statements and other information regarding issuers that file electronically.

PART I

Item 1. *Business.*

Federal Signal Corporation, founded in 1901, was reincorporated as a Delaware corporation in 1969. The Company designs, manufactures and supplies a suite of products and integrated solutions for municipal, governmental, industrial and commercial customers. The Company's portfolio of products that it manufactures includes (i) vehicles and equipment for maintenance and infrastructure end-markets, including sewer cleaners, industrial vacuum loaders, vacuum- and hydro-excavation trucks (collectively, "safe-digging" trucks) "safe-digging trucks"), street sweepers, waterblasting equipment, road-marking and line-removal equipment, waterblasting equipment, dump truck bodies, trailers, metal extraction support equipment and safety multi-purpose tractors, and security systems, including technology-based products and solutions for the (ii) public safety market. equipment, such as vehicle lightbars and sirens, industrial signaling equipment, public warning systems and general alarm/public address systems. In addition, the Company engages in the sale of parts, service and repair, equipment rentals and training as part of a comprehensive aftermarket offering to its customers. The Company operates 21 23 principal manufacturing facilities in five countries and provides products and integrated solutions to customers in all regions of the world.

Narrative Description of Business

Products manufactured and supplied, and services rendered, by the Company are divided into two reportable segments: the Environmental Solutions Group and the Safety and Security Systems Group. The individual operating businesses are organized as such because they share certain characteristics, including technology, marketing, distribution and product application, which create long-term synergies. Corporate contains those items that are not included in the Company's reportable segments.

Financial information concerning the Company's two reportable segments for each of the three years in the period ended December 31, 2022 December 31, 2023, is included in Note 17 – Segment Information to the accompanying consolidated financial statements and is incorporated herein by reference.

During the year ended December 31, 2022 December 31, 2023, the Company completed the acquisition acquisitions of substantially all of the assets and operations of TowHaul Corporation ("TowHaul" Trackless Vehicles Limited and Trackless Vehicles Asset Corp, and the wholly-owned subsidiary Work Equipment Ltd. (collectively, "Trackless") and substantially all of the assets and operations of Blasters, Inc. and Blasters Technologies, LLC (collectively, "Blasters").

Environmental Solutions Group

The Company's Environmental Solutions Group is a leading manufacturer and supplier of a full range of street sweepers, sewer cleaners, industrial vacuum loaders, safe-digging trucks, high-performance waterblasting equipment, road-marking and line-removal equipment, dump truck bodies, trailers, and metal extraction support equipment. equipment and multi-purpose tractors. The Group manufactures vehicles and equipment in the U.S. and Canada that are sold under the Elgin®, Vactor®, Guzzler®, TRUVAC®, Westech™, Jetstream®, Blasters, Mark Rite Lines, Trackless, Ox Bodies®, Crysteel®, J-Craft®, Duraclass®, Rugby®, Travis®, OSW, NTE, WTB, Ground Force, TowHaul®, Bucks® and Switch-N-Go® brand names. The Group's product offerings also include certain products manufactured by other companies, such as refuse and recycling collection vehicles, camera systems, ice resurfacing equipment and snow-removal equipment. vehicles. Products are sold to both municipal and industrial customers either through a dealer network or direct sales to service customers generally depending on the type and geographic location of the customer. In addition to vehicle and equipment sales, the Group also engages in the sale of parts, service and repair, equipment rentals and training as part of a comprehensive aftermarket offering to its current and potential customers through its service centers located across North America.

Under the Elgin brand name, the Company sells a leading U.S. brand of street sweepers primarily designed for large-scale cleaning of curbed streets, parking lots and other paved surfaces utilizing mechanical sweeping, vacuum and recirculating air technology. Vactor is a leading manufacturer of equipment solutions for cleaning and maintaining sewers and catch basins. Under the TRUVAC brand name, the Company manufactures a range of premium vacuum- and hydro-excavation trucks designed to satisfy the safe-digging requirements of businesses or organizations that locate and verify underground utility lines and pipes. Guzzler is a leader in industrial vacuum loaders used to manage industrial waste or recover and recycle valuable raw materials. Westech is a manufacturer of high-quality, rugged vacuum-excavation trucks. Jetstream manufactures high-pressure waterblasting equipment and accessories for commercial and industrial cleaning and maintenance operations. Blasters is a leading U.S. manufacturer of truck-mounted waterblasting equipment. Mark Rite Lines Equipment Company, Inc. ("MRL"), is a U.S. manufacturer of truck-mounted and ride-on road-marking and line-removal equipment. Trackless is a leading Canadian manufacturer of off-road, multi-purpose tractors and attachments. Ground Force Manufacturing LLC ("Ground Force") and TowHaul are leading manufacturers of specialty vehicles that support the extraction of metals. Truck Bodies & Equipment International ("TBEI") manufactures and sells dump truck bodies and trailers under the Ox Bodies, Crysteel, J-Craft, Duraclass, Rugby, Travis, OSW, NTE and WTB brand names, as well as a range of interchangeable truck body systems and waste-hauling products under the Bucks and Switch-N-Go brand names.

Safety and Security Systems Group

The Company's Safety and Security Systems Group is a leading manufacturer and supplier of comprehensive systems and products that law enforcement, fire rescue, emergency medical services, campuses, military facilities and industrial sites use to protect people and property. Offerings include systems for community alerting, emergency vehicles, first responder interoperable communications and industrial communications. Specific products include public safety equipment, such as vehicle lightbars and sirens, industrial signaling equipment, public warning systems and general alarm/public address systems. Products are sold under the Federal Signal™, Federal Signal VAMA®, and Victor® brand names. The Group operates manufacturing facilities in the U.S., Spain, the United Kingdom ("U.K."), and South Africa.

Marketing and Distribution

Depending primarily on the type and geographic location of the end-customer, the Environmental Solutions Group uses either a dealer network or direct sales to serve customers. The dealer network serves both municipal and industrial end-markets. Within municipal markets, the majority of the Company's dealers operate exclusively in their assigned territory. In conjunction with selling vehicles to end-customers, dealer representatives demonstrate vehicle functionality and capability and provide vehicle service. In addition to selling products manufactured by the Company, certain of our businesses distribute and re-sell products manufactured by other companies. The Company believes its regional, national and global dealer networks for vehicles is a distinguishing factor from its competitors. The Company has an ownership interest in certain dealers.

The Environmental Solutions Group's direct sales channel concentrates primarily on the industrial, utility and construction market segments. To support current and potential customers in these market segments, the Group also engages in the sale of parts, service and repair, equipment rentals and training through its service centers located across North America.

The Safety and Security Systems Group sells to industrial customers through wholesalers and distributors who are supported by Company sales personnel or independent manufacturer representatives. Products are also sold to municipal and governmental customers through active independent distributors, as well as through original equipment manufacturers and the direct sales force. The Company sells comprehensive integrated warning and interoperable communications through a combination of the direct sales force and independent distributors. International sales are made through independent foreign distributors or on a direct basis.

Customers and Backlog

No single customer accounted for 10% or more of the Company's net sales in any year within the three-year period ended December 31, 2022 December 31, 2023.

The Company's backlog totaled $879 million $1.03 billion at December 31, 2022 December 31, 2023, compared to $629 million $879 million at December 31, 2021 December 31, 2022. Backlogs vary by group due to the nature of the Company's products and the buying patterns of its customers. The Environmental Solutions Group typically experiences an average backlog of approximately three to six months of shipments. The Safety and Security Systems Group typically experiences an average backlog of approximately two months of shipments. While supply chain disruption and customer demand have contributed to longer lead times for certain businesses, production of the Company's December 31, 2022 December 31, 2023 backlog is expected to be substantially completed during 2023. 2024.

Suppliers

The Company purchases a wide variety of raw materials from around the world for use in the manufacture of its products, although the majority of its purchases are currently from North American sources. To minimize risks relating to availability, price and quality of key products and components, the Company is party to numerous strategic supplier arrangements. Although certain materials are obtained from either a single-source supplier or a limited number of suppliers, the Company has generally identified alternative sources to minimize the interruption of its business in the event of supply disruptions. However, a transition to a new supplier may cause the Company may to incur supply disruptions and unanticipated costs in transitioning to a new supplier. costs.

Components critical to the production of the Company's vehicles, such as engines, are purchased from a select number of suppliers. The Company also purchases raw and fabricated steel, as well as commercial chassis, from multiple sources. In addition, we may incorporate chassis provided directly by our customers in our production process. In those situations, the Company's production processes rely upon the customer providing the chassis on a timely basis. Certain of the Company's businesses also rely on the availability of inventory supplied by others to meet customer demand.

The Company actively manages material supply sourcing and employs various methods to limit risk associated with commodity cost fluctuations and availability. During 2022, the Company's manufacturing operations Throughout 2023, supply chain conditions continued to be adversely affected by gradually improve. However, the

Company continues to experience sporadic supply chain disruptions, which impacted the supply of shortages and extended lead times for some components and raw materials, including certain classes of chassis and purchased electronic components and inflationary pressure. that are important to its manufacturing processes. The Company has designed and implemented plans to partially mitigate the impact of these challenges by using alternate suppliers, re-engineering products, expanding its supply base globally, leveraging overall purchasing volumes to obtain favorable pricing and quantities and developing a closer working relationship with key suppliers. However, the Company can provide no assurance that those efforts will be successful. Although global supply chain disruptions and inflationary pressure conditions have recently shown some signs of easing, the Company anticipates that improved in 2023, component shortages production delays and elevated material costs may persist into 2023. 2024, which could limit the Company's ability to maximize production.

Competition

Within the Environmental Solutions Group, Elgin is recognized as a market leader among domestic sweeper competitors and differentiates itself primarily on product performance. The Vactor, TRUVAC and Guzzler brands each maintain a leading domestic position in their respective marketplaces by enhancing product performance with leading technology and application flexibility. Jetstream is a market leader in the in-plant cleaning segment of the U.S. waterblast industry, competing on product performance, rapid delivery and solutions services. Joe Johnson Equipment, Inc. with Joe Johnson Equipment (USA), Inc., (collectively, "JJE"), is a leading Canadian-based distributor of maintenance equipment for municipal and industrial markets. Blasters is a leading U.S. manufacturer of truck-mounted waterblasting equipment. MRL is a U.S. manufacturer of truck-mounted and ride-on road-marking and line-removal equipment. Trackless is a leading Canadian manufacturer of off-road, multi-purpose tractors and attachments. Ground Force and TowHaul are leading manufacturers of specialty vehicles that support the extraction of metals. TBEI includes a portfolio of regional dump truck body and trailer brands with market leadership positions in distinct geographies and product categories, differentiating itself with its broad regional distribution network, focus on customer responsiveness and operational expertise. MRL is a market-leading manufacturer of road-marking and line-removal equipment. Ground Force and TowHaul are leading manufacturers of specialty vehicles that support the extraction of metals.

Within specific product categories and domestic markets, the businesses within the Safety and Security Systems Group are among the market leaders. This Group's international market position varies from leader to ancillary participant depending on the geographic region and product line. Generally, competition is intense within all of this Group's product lines and purchase decisions are made based on price, features, reputation, performance and service, often within competitive bidding situations.

Patents and Trademarks

The Company owns a number of patents and possesses rights under others to which it attaches importance, but it does not believe that its business as a whole is materially dependent upon any such patents or rights. The Company also owns a number of trademarks, including those listed within the "*Narrative Description of Business*" section above. We believe these trademarks are important in connection with the identification of our products and associated goodwill with customers, but no material part of the Company's business is dependent on our trademarks.

Human Capital Management

As of December 31, 2022 December 31, 2023, the Company employed approximately 4,100 4,500 people in its businesses located in five countries, with the Company's U.S. hourly employees accounting for approximately 54% of its total workforce. As of December 31, 2022 December 31, 2023, approximately 10% 9% of the Company's U.S. hourly workers were represented by unions. During the year ended December 31, 2022, the International Association of Machinists ("IAM") union was decertified at the Company's Rugby, North Dakota manufacturing facility. The decertification process was initiated and completed by the employees represented by the IAM union, which included approximately 73% of the employees at that facility. The Company believes that its labor relations with its employees are good, as evidenced by the decertification in 2022.

The Company believes that its employees are key to its ability to deliver exceptional products and services to its customers. The Company applies a holistic total rewards strategy, designed to recruit, motivate, and retain talented employees at all levels of the organization and offer competitive, market-based compensation programs and attractive benefit packages.

Human Rights

The Company is committed to respecting and upholding the internationally recognized human rights principles of the United Nations' Guiding Principles on Business and Human Rights and the Universal Declaration of Human Rights. In every state and country where the Company operates, it upholds standards that meet or exceed those established by local, state, and national legal frameworks, and the Company expects its partners, suppliers, vendors, and contractors to do the same. The Company has published a human rights policy, setting forth its commitment to equality and nondiscrimination, elimination of all forms of forced or compulsory labor, the effective abolition of childhood labor, workers' rights to freedom of association and unionization, and protecting employees' ability to confidentially report policy violations.

Diversity, Equity and Inclusion Cultural Philosophy

The Company is committed to promoting and supporting diversity, equity an inclusive culture throughout the organization, and inclusion ("DE&I"). The Company believes that behaving inclusively is the right thing to do. The Company also believes that hearing different voices, and seeking different perspectives and ideas, leads to better results. The Company strives to promote is proud of the diversity on its Board of Directors, senior

management and in leadership roles throughout the Company. Currently, two of the

Company's seven eight directors self-identify as members of a minority group.

In addition, two three of the Company's directors are female, placing the Company in line with ahead of the 29% average for companies in the Russell 3000 Index. Of the companies in the Russell 3000 Index, approximately 6% 7% have a female Chief Executive Officer ("CEO"), and the Company is proud to be among that group. In addition, 60% 50% of the Company's current executive officers are female, including the Company's President and CEO, Vice President and General Counsel, and Vice President, Chief Accounting Officer and Controller.

The Company's commitment to DE&I throughout the organization cultural philosophy is further evidenced by its policies related to various aspects of employment, including, but not limited to, recruiting, selecting, hiring, employment placement, job assignment, compensation, access to benefits, selection for training, use of facilities, and participation in Company-sponsored employee activities. During 2021, In recent years, the Company's Executive Leadership Team, comprised of business leaders from across the organization, completed a comprehensive DE&I educational awareness training led by an industry expert. In 2022, this same group expert and completed additional supplemental training on the importance of building inclusive workplaces. Additionally, the Company piloted DE&I training at a key manufacturing location in 2022. 2022 and provided facilitated training at another key manufacturing location in 2023.

Employee Recruitment, Training and Development

The Company believes that identifying and developing the next generation of business leaders is important to its long-term success, and is proud to support its employees in furthering their education with tuition reimbursement programs and training.

The Company's recruitment program follows a defined process to attract and hire top talent, including a college internship program designed to identify and cultivate an early-in-career pipeline of talent, and employee referral bonus programs. The Company additionally engages external professional recruiting firms to supplement its internal recruiting efforts, as needed.

The Company provides extensive training to employees within its facilities, ranging from topics such as workplace safety, anti-fraud, anti-discrimination and anti-harassment training, to advanced instruction in lean manufacturing principles and inside sales training programs. On average, the Company's employees each receive more than 10 hours of job training per year, with some employees of certain business units each averaging nearly 80 hours of training per year.

Through its Tuition Assistance Program, the Company also aims to assist and encourage employees to expand their knowledge, skills, and job effectiveness by continuing their education at local accredited institutions of higher learning. Certain of the Company's businesses also partner with nearby universities, from time to time, to offer courses and programs directly related to the employee's growth in the business.

The Company maintains a robust annual performance management process across the organization. Employees start the process by working with their supervisors to set individual performance goals. Progress against those objectives is tracked throughout the year, culminating in the year-end performance review process, which involves the completion of an employee self-assessment and a discussion between the employee and their supervisor on goal accomplishment and defined core competencies. In addition, the Company's annual talent and succession management processes are designed to identify and develop next-level successors through a variety of assignments and experiential learning.

The Company actively seeks opportunities for regular engagement and communication with its CEO and other senior executive leaders with its broader employee population. In addition, many of the Company's businesses perform employee engagement surveys that provide valuable feedback to the management teams.

The Company is committed to the communities in which it operates, and to developing a strong pipeline from which it can recruit new talent. Many of the Company's businesses support their local high schools with cooperative learning extension programs at their manufacturing plants, hosting in-person or virtual tours of our facilities, and providing scholarships and "signing-day" offers to high school seniors. The Company's employees raise funds and donate time to a variety of community engagement initiatives and support expanded outreach to diverse communities.

The Company's employees also donate time and expertise through volunteering and mentorship programs, and work with local colleges on training programs to teach valuable technical skills that can be applied in the workplace. Many of the Company's businesses also recruit summer interns from regional universities, providing hands-on experience in a manufacturing setting and building a pipeline for future engineers, information technology ("IT") specialists and financial analysts. These programs attempt to help the Company's next generation, and others, understand what career paths may be available to them and to explore future job opportunities with the Company.

Safety

The Company considers the safety of its employees a significant focus and strives to have zero workplace injuries. The Company has established an enterprise-wide Safety Council, which includes representatives from several of our manufacturing facilities. The Safety Council meets regularly to collaborate and implement safety improvement measures, including workplace

hazard reduction programs and awards focusing on continuous improvement initiatives and the reduction of incident frequency.

The Company continues to monitor the impact of the pandemic on its business and employees, while ensuring the ongoing support of customer sites to remain operational, and will implement or modify its policies to adapt to changing circumstances arising from the coronavirus pandemic.

Governmental Regulation of the Environment

As part of its ongoing commitment to environmental, social and governance initiatives, the The Company endeavors to establish environmentally-friendly policies and objectives, and believes that these actions are also consistent with cost-effective operating practices. With the application of these policies, the Company believes it complies with federal, state and local provisions that have been enacted or adopted regulating the discharge of materials into the environment, or otherwise relating to the protection of the environment. Capital expenditures in 2022 2023 attributable to compliance with such laws were not material. The Company also believes that the overall impact of compliance with environmental regulations will not have a material adverse effect on our financial position, results of operations or cash flow.

Seasonality

Certain of the Company's businesses are susceptible to the influences of seasonal factors, including buying patterns, delivery patterns and productivity influences from holiday periods and weather. In general, the Company tends to have lower equipment sales in the first calendar quarter of each year compared to other quarters as a result of these factors. In addition, rental income and parts sales are generally higher in the second and third quarters of the year, because many of the Company's products are used for maintenance activities in North America, where usage is typically lower during periods of harsher weather conditions.

Executive Officers of the Registrant

The following is a list of the Company's executive officers, including their ages, business experience and positions as of February 1, 2023 February 1, 2024:

Jennifer L. Sherman, age 58, 59, was appointed President and CEO effective January 1, 2016. Ms. Sherman was also appointed to the Board of Directors effective January 1, 2016. Since joining the Company in 1994, Ms. Sherman has served in various roles of increasing responsibility, most recently as Senior Vice President and Chief Operating Officer from April 2014 to December 31, 2015. Ms. Sherman also previously served as Senior Vice President, Chief Administrative Officer, General Counsel and Secretary from 2010 to April 2014, Senior Vice President, Human Resources, General Counsel and Secretary from 2008 to 2010, and Vice President, General Counsel and Secretary from 2004 to 2008.

Felix M. Boeschen, age 29, was appointed Vice President, Corporate Strategy and Investor Relations in September 2023. Prior to joining the Company, Mr. Boeschen served as a Vice President, Equity Research at Raymond James, where he covered companies in the machinery space, with a primary focus on the truck equipment and specialty vehicle industries.

Diane I. Bonina, age 59, 60, was appointed Vice President, General Counsel and Secretary in April 2022. Prior to joining the Company in March 2022, Ms. Bonina worked at AT&T Inc. ("AT&T"), where she served as Assistant Vice President – Senior Legal Counsel. At AT&T, Ms. Bonina held a broad range of roles of increasing legal and management responsibilities since 1996, both for AT&T and its predecessor companies. Prior to that role, Ms. Bonina worked as an attorney with Jenner & Block in its litigation department from 1990 to 1996, and also served as a law clerk for the Honorable Cornelia G. Kennedy of the U.S. Court of Appeals for the Sixth Circuit in Detroit, Michigan.

Lauren B. Elting, age 41, 42, was appointed Vice President and Chief Accounting Officer in April 2022. Ms. Elting also serves as the Company's Corporate Controller, a position she has held since May 2018. Prior to joining the Company in January 2017, Ms. Elting worked at Ernst & Young, LLP from 2004 to 2016, most recently as Senior Audit Manager.

Ian A. Hudson, age 46, 47, was appointed Senior Vice President and Chief Financial Officer in October 2017. Mr. Hudson joined the Company in August 2013 as Vice President and Corporate Controller. Prior to joining the Company, Mr. Hudson served as Director of Accounting – Latin America and Asia Pacific at Groupon, Inc. from June 2012 to August 2013. Prior to that role, Mr. Hudson worked at Ernst & Young, LLP from 1998 to 2012, most recently as Senior Audit Manager.

Mark D. Weber, age 65, 66, was appointed Senior Vice President and Chief Operating Officer in January 2018, upon rejoining the Company after four years at Supreme Industries, Inc. ("Supreme"). Mr. Weber joined Supreme in May 2013 as President and Chief Executive Officer, serving in that capacity up to the sale of Supreme to Wabash National Corporation, which was completed in September 2017. Prior to joining Supreme, Mr. Weber worked for 17 years as an executive within the Company's Environmental Solutions Group, including a decade as Group President.

These officers hold office until the next annual meeting of the Board of Directors following their election and until their successors have been elected and qualified.

There are no family relationships among any of the foregoing executive officers.

Item 1A. ***Risk Factors.***

We may occasionally make forward-looking statements and estimates such as forecasts and projections of our future performance or statements of our plans and objectives. These forward-looking statements may be contained in, but are not limited to, filings with the SEC, including this Form 10-K, press releases made by us and oral statements made by our officers. Actual results could differ materially from those contained in such forward-looking statements. Important factors that could cause our actual results to differ from those contained in such forward-looking statements include, but are not limited to, the risks described below.

Macroeconomic and Industry Risks

Our financial results are subject to U.S. economic uncertainty. uncertainty and compliance with laws and regulations.

In 2022, 2023, we generated approximately 80% 78% of our net sales in the U.S. Our ability to be profitable depends heavily on varying conditions in the U.S. governmental and municipal markets, as well as the overall U.S. economy. The industrial markets in which we compete are subject to considerable cyclicality, and move in response to cycles in the overall business environment. Many of our customers are municipal government agencies, and as a result, we are dependent on municipal government spending. Spending by our municipal customers can be affected by federal, state and local political circumstances, budgetary constraints, changing priorities, actual or potential government shutdowns and other factors. The U.S. government and municipalities depend heavily on tax revenues as a source of spending and accordingly, there is a historical correlation that suggests a lag of one to two years between the condition of the U.S. economy and our sales to the U.S. government and municipalities. Therefore, downturns in the U.S. economy are likely to result in decreases in demand for our products. Certain market factors indicate the U.S. economy may experience a significant downturn in the near future. During previous economic downturns, we experienced decreases in sales and profitability, and we expect our business to remain subject to similar economic fluctuations in the future. In addition, the extent of any potential changes to policies, tax laws and regulations under the current U.S. administration, and how any such changes may impact the Company's financial results and operations, is currently uncertain.

The extent For example, the Organization for Economic Co-operation and Development has issued Pillar Two model rules introducing a new global minimum corporate tax of 15% intended to which be effective on January 1, 2024. While the coronavirus pandemic will U.S. has not yet adopted the Pillar Two rules, various non-U.S. governments are enacting legislation. As currently designed, Pillar Two would apply to our worldwide operations. We currently do not expect these rules to materially increase our global tax costs because we do not have material operations in jurisdictions with tax rates lower than the Pillar Two minimum. We continue to adversely monitor U.S. and global legislative action related to Pillar Two for potential impacts.

Government administrations and agencies, political figures, the investment community, employees and other stakeholders have had an increased focus on sustainability issues and initiatives. Regulatory and other legal changes in laws in response to such matters could require material efforts and costs by us, and our suppliers, to comply with such changes. The costs of compliance with the various laws, regulations and policies applicable to us could be significant and penalties for non-compliance could significantly impact our business, financial condition and operating results is highly uncertain and cannot be predicted but could be material.

The coronavirus pandemic has created, and may continue to create, significant worldwide volatility, uncertainty and disruption, including substantial curtailment of business activities, slowdowns, suspensions or delays of production and commercial activity, and weakened economic conditions, both in the United States and in many foreign countries. The actual and potential impacts of the pandemic that could adversely impact the Company's business, financial condition and operating results, which could be material, will depend on numerous evolving factors, including the emergence of new variants, decreased labor availability, production delays and continued supply chain disruptions, and changes in safety protocols. Additionally, a possible recession or market correction resulting from the spread of coronavirus, or otherwise, could materially affect our business and the value of our stock. To the extent coronavirus adversely affects our business, it may heighten other risks described in this "*Risk Factors*" section.business.

We have international operations that are subject to compliance with domestic and foreign laws and regulations, economic and political uncertainties and conflicts and foreign currency rate fluctuations.

Our business is subject to fluctuations in demand and changing international economic, legal and political conditions that are beyond our control. In 2022, 2023, approximately 20% 22% of our net sales were to customers outside the U.S. and we expect a significant portion of our revenues to come from international sales in the foreseeable future. Operating in the international marketplace exposes us to a number of risks, including the need to comply with U.S. and foreign laws and regulations applicable to our foreign operations, such as the Foreign Corrupt Practices Act, the United Kingdom ("U.K.") Bribery Act and their counterparts in other foreign jurisdictions in which we operate, restrictive domestic and international trade regulations, and changes in these laws, regulations and policies by the U.S. and foreign governments. In addition, we may be exposed to risks and adverse economic effects associated with changes in tax laws, geopolitical conflicts, actual or threatened imposition of tariffs or trade barriers on our products or materials incorporated into our products, actual or threatened trade disputes, including so-called "trade wars," political and economic instability in the jurisdictions in which we operate, foreign receivables collection risk and local labor market conditions. Further, government administrations and agencies, the investment community, employees and other stakeholders have had an increased focus on certain climate change and other environmental, social and governance ("ESG") factors, issues and initiatives. Regulatory and other legal changes in laws in response to such ESG matters could require material efforts and costs by us to comply with such changes. The costs of compliance with the various laws, regulations and policies applicable to us could be significant and penalties for non-compliance could significantly impact our business.

To the extent that our international operations are affected by adverse foreign economic or political conditions, we may experience disruptions and losses that could have a material impact on our financial position, results of operations or cash flow. To mitigate the risk of foreign receivables collection, we may obtain letters of credit from international customers to satisfy concerns regarding the collectability of amounts billed to customers.

Some of our contracts are denominated in foreign currencies, which may expose us to risks of fluctuating currency values and exchange rates, hard currency shortages and controls on currency exchange. Changes in the value of foreign currencies over the long term could increase our U.S. dollar costs for, or reduce our U.S. dollar revenues from, our foreign operations. Any increased costs or reduced revenues as a result of foreign currency fluctuations could adversely affect our results of operations.

Recent increases in inflation

Inflation in the United States and elsewhere could adversely affect our business.

We are exposed to inflation effects, which could negatively affect our business, financial condition and results of operation. The United States and other jurisdictions have recently experienced high levels of inflation. inflation in recent years. If the inflation rate increases, it will likely affect our expenses, including, but not limited to, employee compensation and labor expenses and increased costs for supplies, and we may not be successful in offsetting such cost increases through pricing actions.

The execution of our growth strategy is dependent upon the continued availability of credit and third-party financing arrangements for our customers.

Economic downturns result in tighter credit markets, which could adversely affect our customers' ability to secure financing or to secure financing at favorable terms or interest rates necessary to proceed or continue with purchases of our products and services. Further, certain government agencies, including the U.S. Treasury, have previously implemented or signaled the implementation of and may continue to implement policies that have resulted and may continue to result in significantly increased interest rates and borrowing costs. Our customers' or potential customers' inability to secure financing for projects could result in the delay, cancellation or downsizing of new purchases or the suspension of purchases already under contract, which could cause a decline in the demand for our products and services and negatively impact our financial position, results of operations or cash flow.

We operate in highly competitive markets.

The markets in which we operate are highly competitive. Many of our competitors have significantly greater financial resources than we do. The intensity of this competition, which is expected to continue, can result in price discounting and margin pressures throughout the industry and may adversely affect our ability to increase or maintain prices for our products. In addition, certain of our competitors may have lower overall labor or material costs. In some cases, our contracts with municipal and other governmental customers are awarded and renewed through competitive bidding. We may not be successful in obtaining or renewing these contracts, which could have an adverse effect on our financial condition, results of operations or cash flow.

Strategic and Operational Risks

The inability to obtain raw materials, component parts and/or finished goods in a timely and cost-effective manner would adversely affect our ability to manufacture and market our products.

We purchase from suppliers raw materials, component parts and finished goods to be used in the manufacturing and sale of our products. In addition, we may incorporate vehicle chassis provided directly by our customers in our production process. Although the vast majority of our raw materials and component parts are sourced domestically, certain of our suppliers are based overseas, and certain of our domestic suppliers may source subcomponents from overseas. Global markets for various products and goods have suffered, and are continuing to suffer, material disruptions to certain supply chains, in part due to the coronavirus pandemic and geopolitical conflicts. conflicts, including the war between Russia and Ukraine and the war between Israel and Hamas. Changes in our relationships with suppliers, shortages in availability of materials, production delays, regulatory restrictions, public health crises, labor stoppages or other supply chain disruptions, whether due to our suppliers or customers, could have a material adverse effect on our ability to timely manufacture and deliver products to our customers. In addition, our profit margins would decrease if prices of purchased raw materials, component parts or finished goods increase and we are unable to pass on those increases to our customers.

Challenges within global logistics networks, including trucking and chassis shortages and shortages in labor availability, have also contributed to delays in receiving key manufacturing components, increased order backlogs and higher transportation costs. Such logistical disruption may cause us to incur higher freight costs to expedite the receipt of components from our suppliers or the delivery of products to our customers, and may also result in longer lead times for our customers.

As economies around the world have recovered since following the initial onset most significant effects of the pandemic, sharp increases in demand have created significant disruption to the global supply chain, which has adversely affected our ability to receive goods on a timely basis and increased our material costs. Short-term or sustained increases in market demand may exceed our suppliers' production capacity or otherwise strain our Throughout 2023, supply chain. Our failure, or our suppliers' failure, to meet the demand for raw materials and components could adversely affect our business and results of operations.

During 2022, our manufacturing operations chain conditions have continued to be adversely affected by supply chain disruptions. We are currently experiencing gradually improve. However, we continue to experience supply shortages and inflationary pressure extended lead times for certain some components and raw materials, including certain classes of chassis hydraulic pumps and electronic components that are important to our manufacturing processes. When facing supply-related challenges, we may increase our inventory levels and purchase commitments to shorten lead times and to help maintain adequate inventory levels to meet customer expectations. While we actively monitor and take steps in an effort to mitigate supply chain risk, there can be no assurance that our ongoing mitigation plans will prevent disruptions that may arise from shortages of materials that we use in the production of our products.

Challenges within global logistics networks, including trucking and chassis shortages and shortages in labor availability, have also contributed to delays in receiving key manufacturing components, increased order backlogs and higher transportation costs. Such logistical disruption may cause us to incur higher freight costs to expedite the receipt of components from our suppliers or the delivery of products to our customers, and may also result in longer lead times for our customers.

Uncertainties related to the magnitude and duration of global Global supply chain disruptions may continue to adversely affect our business and our outlook. If we are unable to recover a substantial portion of the increase in material and transportation costs from our customers through price adjustments and/or

surcharges, our business or results of operations could be adversely affected. We may also experience an increase in order cancellations if any such pricing actions are not accepted by our customers.

Failure to keep pace with technological developments may adversely affect our operations.

We are engaged in an industry that will be affected by future technological developments. The introduction of products or processes utilizing new technologies, including those resulting from any new ESG environmental, safety and other regulations, artificial intelligence and machine learning, could require us and our suppliers to make significant changes to existing products or processes in order for them to remain marketable and competitive. Our success will depend upon our ability to source, develop and introduce on a timely and cost-effective basis new products, applications and processes that keep pace with technological developments, ESG applicable regulations and address increasingly sophisticated customer requirements. We may not be successful in identifying, sourcing, developing and marketing new products, applications and processes and product or process enhancements. Further, if we implement emerging technologies such as artificial intelligence and machine learning into our products and services, we may not be able to anticipate vulnerabilities, flaws or security threats resulting from the use of such technology and develop adequate protection measures. We may experience difficulties that could delay or prevent the successful development, introduction and marketing of product or process enhancements or new products, applications or processes. Our products, applications or processes may not adequately meet the requirements of the marketplace and achieve market acceptance. Our financial condition, results of operations or cash flow could be materially and adversely affected if we or our suppliers were to incur delays in developing new products, applications or processes or product or process enhancements, or if our products do not gain market acceptance.

Our efforts to develop new products and services or enhance existing products and services involve substantial research, development and marketing expenses, and the resulting new or enhanced products or services may not generate sufficient revenues to justify the expense.

We place a high priority on developing new products and services, as well as enhancing our existing products and services. As a result of these efforts, we may be required to expend substantial research, development and marketing resources, and the time and expense required to develop a new product or service or enhance an existing product or service are difficult to predict. We may not succeed in developing, introducing or marketing new products or services or product or service enhancements. In addition, we cannot be certain that any new or enhanced product or service will generate sufficient revenue to justify the expense and resources devoted to the related product diversification effort.

Disruptions within our dealer network or the inability of our dealers to secure adequate access to capital could adversely affect our business.

We rely on national and global dealer networks to market certain of our products and services. As a result, our business with respect to these products and services is influenced by our ability to manage new and existing relationships with dealers. While we have relatively low turnover of dealers, from time to time, we or a dealer may choose to terminate the relationship as a result of difficulties that our dealers experience in operating their businesses due to economic conditions or other factors. While we do not believe our business is dependent on any single dealer, a disruption in our dealer network, or with a significant dealer, or within a specific market, could have an adverse impact on our business within the affected market. In addition, our dealers require adequate liquidity to finance their operations, including purchases of our products. Dealers are subject to numerous risks and uncertainties that could unfavorably affect their liquidity positions, including, among other things, continued access to adequate financing sources on a timely basis on reasonable terms. These sources of financing are vital to our ability to sell products through our dealer network. Recent significant increases in interest rates and any future deterioration in the liquidity or credit worthiness of our dealers could have a significant adverse effect on our business. From time to time, we may provide financing assistance to dealers or consider taking ownership positions. The loss or termination of a significant dealer, or a significant number of dealers, could cause difficulties in marketing and distributing our products and have an adverse effect on our business, financial condition, results of operations or cash flow.

We may be unsuccessful in our future acquisitions, if any, which may have an adverse effect on our business.

Our long-term strategy includes exploring acquisitions of companies or businesses to facilitate our growth, enhance our global market position and broaden our product offerings. Such acquisitions may help us expand into adjacent markets, add complementary products and services or allow us to leverage our distribution channels. In connection with this strategy, we could face certain risks and uncertainties in addition to those we face in the day-to-day operations of our business. We also may be unable to identify suitable targets for acquisition or to make acquisitions at favorable prices. If we identify a suitable acquisition candidate, our ability to successfully implement the acquisition would depend on a variety of factors, including our ability to obtain financing on acceptable terms. terms, especially with interest rates at comparatively high levels. In addition, our

acquisition activities could be disrupted by overtures from competitors for the targeted companies, governmental regulation and rapid developments in our industry that decrease the value of a potential target's products or services.

Acquisitions involve risks, including those associated with the following:

- integrating the operations, financial reporting, disparate systems and processes and personnel of acquired companies;
- managing geographically dispersed operations;
- diverting management's attention from other business concerns;
- changing the competitive landscape, including disrupting existing sales channels or markets;
- entering markets or lines of business in which we have either limited or no direct experience; and
- losing key employees, customers and strategic partners of acquired companies.

We also may not achieve anticipated revenue and cost benefits associated with our acquisitions. Acquisitions may not be accretive to our earnings and may negatively impact our results of operations as a result of, among other things, the incurrence of debt, acquisition costs, impairment of goodwill and amortization of other intangible assets. In addition, future acquisitions could result in dilutive issuances of equity securities.

Businesses acquired by us may have liabilities that are not known to us.

We may assume liabilities in connection with the acquisition of businesses. There may be liabilities that we fail or are unable to discover in the course of performing due diligence investigations on the acquired businesses, or that may be more material than we expected. In these circumstances, we cannot assure that our rights to indemnification will be sufficient in amount, scope or duration to fully offset the possible liabilities associated with the businesses or property acquired. Further, these liabilities could result in unexpected legal or regulatory exposure, unexpected increases in taxes or other adverse effects on our business. Any such liabilities, individually or in the aggregate, could have a material adverse effect on our financial condition, results of operations or cash flow.

We could incur restructuring and impairment charges as we continue to evaluate opportunities to restructure our business and rationalize our manufacturing operations in an effort to optimize our cost structure.

We continue to evaluate opportunities to restructure our business and rationalize our manufacturing operations in an effort to optimize our cost structure. These actions could result in significant charges that could adversely affect our financial condition and results of operations. Future actions could result in restructuring and related charges, including but not limited to impairments, employee termination costs and charges for pension and other postretirement contractual benefits and pension curtailments that could be significant and could have an adverse effect on our financial condition, results of operations or cash flow.

Indebtedness Risk

We are subject to a number of restrictive debt covenants.

Our credit facility contains certain restrictive debt covenants and customary events of default. Our ability to comply with these restrictive covenants may be affected by the other factors described in this "*Risk Factors*" section, as well as other factors outside of our control, including increased indebtedness and/or lower earnings as a result of the coronavirus pandemic. control. Failure to comply with one or more of these restrictive covenants may result in an event of default which, if not cured by us or waived by our lenders, allows our lenders to declare all amounts outstanding as due and payable. Such an acceleration of the maturity of our indebtedness may cause us to incur substantial costs and may prevent or limit us from engaging in transactions that benefit us, including responding to changing business and economic conditions and taking advantage of attractive business opportunities.

Human Capital and Labor Risks

Our ability to operate effectively could be impaired if we fail to attract and retain key personnel.

Our ability to operate our businesses and implement our strategies depends in part on the efforts of our executive officers and other key employees. In addition, our future success will depend on, among other factors, our ability to attract and retain qualified personnel. The loss of the services of any key employee or the failure to attract or retain other qualified personnel could have a material adverse effect on our business or business prospects.

Additionally, availability of labor in the markets in which we operate has declined in recent years and competition for such labor has increased, especially under the economic crises experienced through the coronavirus pandemic. increased. A significant increase in wages paid by competitors for employees similar to our work force could result in insufficient availability of workers and/or increase our labor costs. In the event prevailing wage rates continue to increase in the markets in which we operate, we may be required to concurrently increase the wages paid to our employees to maintain the quality of our work force and customer service. If the supply of skilled labor is constrained or our costs of attracting and maintaining a workforce increase, and such costs, our profit margins could decrease as well as our ability to maximize production and meet customer demand.

Our business may be adversely impacted by work stoppages and other labor relations matters.

As a portion of our workforce is unionized, we are subject to risk of work stoppages and other labor relations matters. As of December 31, 2022 December 31, 2023, approximately 10% 9% of our U.S. hourly workers were represented by labor unions and were covered by collective bargaining agreements with various unions. Any strikes, threats of strikes or other organized disruptions in connection with the negotiation of new labor agreements or other negotiations could materially adversely affect our business as well as impair our ability to implement further measures to reduce costs and improve production efficiencies. In addition, the stoppage of work for a prolonged period of time at one, or several, of our principal manufacturing facilities, due to public health concerns, or any other reason, could materially adversely affect our business.

Our pension funding requirements and expenses are affected by certain factors outside of our control, including the performance of plan assets, the discount rate used to value liabilities, actuarial assumptions and experience and legal and regulatory changes.

Our funding obligations and pension expense for our defined benefit pension plans are driven by the performance of assets set aside in trusts for these plans, the discount rate used to value the plans' liabilities, actuarial assumptions and experience and legal and regulatory funding requirements. Changes in these factors could have an adverse impact on our financial condition, results of operations or cash flow. In addition, a portion of our pension plan assets are invested in equity securities, which can experience significant declines if financial markets weaken. The level of the funding of our defined benefit pension plan liabilities was approximately 86% 88% as of December 31, 2022 December 31, 2023. Funding of the Company's U.S. defined benefit pension plan is determined in accordance with guidelines set forth in the Employee Retirement Income Security Act. Our future pension expenses and funding requirements could increase significantly due to the effect of adverse changes in the discount rate, asset values or the estimated expected return on plan assets. In addition, we could become legally required to make increased cash contributions to the pension plans, and these contributions could be material and negatively affect our cash flow.

Data Security and Intellectual Property Risks

Increased information technology IT security threats, and including more sophisticated cybersecurity attacks, pose a risk to our systems, networks, products and operations.

We rely upon information technology IT systems and networks, some of which are managed by third parties, to support a variety of business processes and activities, and to comply with regulatory, legal and tax requirements. Additionally, in the ordinary course of business, we collect and store sensitive information relating to our businesses, customers, suppliers and employees. Sensitive information may also be stored by our vendors and on the platforms and networks of third-party providers. The secure operation of these information technology IT systems and networks and processing and maintenance of this information is critical to the Company's business operations and strategy.

These information technology IT systems and networks may be susceptible to damage, disruptions or shutdowns due to hardware failures, computer viruses, cybersecurity attacks, telecommunication failures, user errors, catastrophic events or other factors. Further, information technology IT security threats are growing in frequency and sophistication. Accordingly, we have implemented and continue to implement measures to address cybersecurity attacks incidents and mitigate potential risks to our systems from these information technology-related IT-related disruptions. Despite the information security measures we have taken, our systems and networks remain potentially vulnerable to attacks, cybersecurity incidents, as do those of our vendors and third-party providers. Cybersecurity attacks on incidents with respect to the Company, our vendors or our third-party providers could potentially result in the compromising of confidential information, misuse of our systems and networks, manipulation and destruction of data, misappropriation of assets or

production stoppages and supply shortages, which in turn could adversely affect our reputation, financial condition, results of operations or cash flow.

Although we have not suffered any significant cyber cybersecurity incidents that have had a material business impact, we and our vendors have from time to time, been the target of malicious cyber threats. cybersecurity threats and attacks. While various procedures and controls have been and are being utilized to mitigate information technology IT risks, there can be no guarantee that the actions and controls that we and our third-party providers have implemented will be sufficient to protect our systems, information or other property. Further, the amount of insurance coverage we maintain may be inadequate to cover claims or liabilities relating to a cybersecurity attack.

Infringement of, or an inability to protect, our intellectual property rights could adversely affect our business.

We rely on a combination of patents, trademarks, copyrights, nondisclosure agreements, information technology IT security systems, physical security and other measures to protect our proprietary intellectual property and the intellectual property of certain customers and suppliers. However, we cannot be certain that our efforts to protect these intellectual property rights will be sufficient. Intellectual property protection is subject to applicable laws in various jurisdictions where interpretations and protections differ or can be unpredictable and costly to enforce. Further, our ability to protect our intellectual property rights may be limited in certain foreign jurisdictions that do not have, or do not enforce, strong intellectual property rights. Any failure to protect or enforce our intellectual property rights could have a material adverse effect on our competitive position, financial condition, results of operations or cash flow.

Legal and Financial Risks

We may incur material losses and costs as a result of lawsuits or claims that may be brought against us which are related to product liability, warranty, product recalls, intellectual property, client service interruptions or other matters.

We are exposed to product liability and warranty claims in the normal course of business in the event that our products actually or allegedly fail to perform as expected, or the use of our products results, or is alleged to result, in bodily injury and/or property damage. For example, we have been sued by firefighters seeking damages claiming that exposure to our sirens has impaired their hearing and that the sirens are, therefore, defective. In addition, we are subject to other claims and litigation from time to time, as further described in the accompanying notes to our consolidated financial statements. We could experience material product liability or warranty costs in the future and incur significant costs to defend ourselves against these claims. While we carry insurance and maintain reserves for product liability claims, our insurance coverage may be inadequate if such claims do arise, and any defense costs and liability not covered by insurance could have a material adverse impact on our financial condition, results of operations or cash flow. A future claim could involve the imposition of punitive damages, the award of which, pursuant to state laws, may not be covered by insurance. In addition, warranty and certain other claims are not typically covered by insurance. Any product liability or warranty issues may adversely impact our reputation as a manufacturer of high-quality, safe products and may have a material adverse effect on our business.

The costs associated with complying with environmental, safety and other ESG regulations could lower our margins.

We, like other manufacturers, continue to face heavy governmental regulation of our products, especially in the areas of the environment and employee health and safety. Increased public awareness and concern regarding climate change and other ESG related matters at numerous levels of government in various jurisdictions may lead to additional international, national, regional and local legislative and regulatory responses, and compliance with any new rules could be difficult and costly. These regulations could include environmental requirements applicable to manufacturing and vehicle emissions and regulations impacting our supply chain both nationally and internationally. Complying with environmental, safety and other ESG requirements regulations has added and will continue to add to the cost of our products, could increase the capital required to support our business and could affect the products and services that we offer. While we believe that we are in compliance in all material respects with these laws and regulations, we may be adversely impacted by costs, liabilities or claims with respect to our operations under existing laws or those that may be adopted. These requirements are complex, change frequently and have tended to become more stringent over time. Therefore, we could incur substantial costs, including cleanup costs, fines and civil or criminal sanctions as a result of violation of, or liabilities under, environmental laws and safety regulations. Further, climate change regulations at the federal, state or local level or in international jurisdictions could require us to limit emissions, change our manufacturing processes or product offerings, or undertake other activities which may require us to incur additional expense. These requirements may increase the cost of our products, which may diminish demand for those products.

Additionally, uneven application of environmental, safety and other ESG regulations could place our products at a cost or features disadvantage, which could reduce our revenues and profitability. A failure, or perceived failure, to respond to investor or customer expectations related to ESG concerns in areas such as climate change and supply chain management could materially adversely affect our business and reputation.

An impairment in the carrying value of goodwill, intangible assets or long-lived assets could negatively affect our financial position and results of operations.

As of December 31, 2022 December 31, 2023, goodwill and intangible assets represented 30% 29% and 14% 13% of total consolidated assets, respectively. Rental equipment and properties and equipment are long-lived assets, which also collectively represented 19% 20% of our total consolidated assets as of December 31, 2022 December 31, 2023. Goodwill and indefinite-lived intangible assets are tested for impairment annually, or more frequently if indicators of impairment exist. Definite-lived intangible assets and long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. In evaluating the potential for impairment of goodwill, intangible assets and long-lived assets, we make assumptions regarding future operating performance, business trends, competition and market and general economic conditions. Such analyses further require us to make certain assumptions about our sales, operating margins, growth rates and discount rates. There are inherent uncertainties related to these factors. An impairment charge may result from, among other things, a

significant decline in operating results, adverse market conditions, unfavorable changes in applicable laws or regulations, or a variety of other factors. Our total consolidated assets and results of operations for the applicable period could be materially adversely affected if any such charge is recorded.

Item 1B. ***Unresolved Staff Comments.***

None.

Item 1C. ***Cybersecurity***

The Company does not believe that there are currently any known risks from cybersecurity threats that have materially affected or are reasonably likely to materially affect the Company's business strategy, results of operations, or financial condition. However, the Company could face risks from cybersecurity threats in the future that could have a material adverse effect on its business strategy, results of operations, or financial condition. For more information on the Company's cybersecurity-related risks, see Item 1A, *Risk Factors* of this Form 10-K.

Risk Management and Strategy

The Company's processes for identifying, assessing, and managing material cybersecurity risks are incorporated into its overall Enterprise Risk Management process. The Company maintains a comprehensive cybersecurity risk management program, overseen by the Chief Information Officer ("CIO") and Chief Information Security Officer ("CISO"), to support the security, confidentiality, integrity and availability of its critical information technology ("IT") systems and information.

The Company conducts internal risk assessments, with the assistance of independent third parties, against standards including the National Institute of Standards and Technology Cybersecurity Framework. The assessment results are used to develop responsive cybersecurity controls and risk mitigation strategies. The Company's cybersecurity risk management program provides the structure for managing the respective risks through the use of a combination of automated tools, technologies and third-party monitoring, as well as ongoing employee education via cybersecurity training and security awareness communications.

The Company's cybersecurity risk management program includes an incident response plan, which provides a documented framework to support the timely and effective resolution of actual or attempted cybersecurity incidents. Cybersecurity incidents across the Company, and relevant third-party service providers, are tracked and significant incidents, as applicable, are promptly escalated to a cross-functional cybersecurity task force so that decisions regarding public disclosure can be made in a timely manner by management and the Board of Directors.

The Company's Internal Audit function performs audits to evaluate and report on compliance with cybersecurity policies and procedures, reviews internal control certifications from relevant third-party service providers, and tests IT system and network controls as part of its annual assessment of the effectiveness of the Company's internal controls. Additionally, the Company engages third-party specialists to conduct periodic tests, incident simulations and assessments to verify and continuously enhance its cybersecurity risk management program.

Governance

The Board of Directors has overall responsibility for the oversight of risk management, and has delegated oversight of cybersecurity risk management to the Audit Committee. The Company's CIO and CISO regularly report to the Audit Committee on cybersecurity risks, updates on key initiatives and progress toward the Company's objectives. In addition, the CIO provides updates to the Board of Directors, at least annually, on the Company's broader IT strategy and key initiatives.

The CIO and CISO have primary responsibility over the Company's cybersecurity risk management program. Quarterly updates are provided to the Company's IT Council, comprised of executive, business unit and IT leaders from across the organization, regarding IT initiatives and risk management processes.

Item 2. *Properties.*

As of December 31, 2022 December 31, 2023, the Company utilized 16 17 principal manufacturing plants located throughout the U.S., as well as two in Europe, two three in Canada and one in South Africa. The Company also leases facilities within the U.S., Europe and Canada from which we provide sales, service and/or equipment rentals. As of December 31, 2022 December 31, 2023, the Company devoted approximately 2.4 million 2.5 million square feet to manufacturing and 1.0 million 1.2 million square feet to sales, service, warehousing and office space. Of the total square footage, approximately 82% 84% is devoted to the Environmental Solutions Group and 18% 16% to the Safety and Security Systems Group. Approximately 65% 63% of the total square footage is owned by the Company with the remaining 35% being 37% being leased. Owned facilities are subject to liens under the Company's Third Amended and Restated Credit Agreement dated October 21, 2022 (the "2022 Credit Agreement").

The Company believes its properties, and related machinery and equipment, are well-maintained, suitable and adequate for their intended purposes. In the aggregate, these facilities are of sufficient capacity for the Company's current business needs. However, the Company may make additional investments in certain facilities in the future in response to increased demand for the Company's products.

Item 3. *Legal Proceedings.*

The information concerning the Company's legal proceedings included in Note 13 – Legal Proceedings to the accompanying consolidated financial statements is incorporated herein by reference.

Item 4. *Mine Safety Disclosures.*

Not applicable.

PART II

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

Market Information

The Company's common stock is listed and traded on the New York Stock Exchange under the symbol "FSS".

Holders

As of February 28, 2023 January 31, 2024, there were 1,492 1,463 holders of record of the Company's common stock.

Securities Authorized for Issuance under Equity Compensation

Information concerning the Company's equity compensation plans is included under Item 12 of Part III of this Form 10-K.

Recent Sales of Unregistered Securities

There were no sales of unregistered securities by the Company during the year ended December 31, 2022 December 31, 2023.

Purchases of Equity Securities

The following table provides a summary of the Company's repurchase activity for its common stock during the three months ended December 31, 2022 December 31, 2023:

Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs (a)
October 2022 (10/2/22 - 11/5/22)	—	$ —	—	$ 59,052,829
November 2022 (11/6/22 - 12/3/22)	—	—	—	59,052,829
December 2022 (12/4/22 - 12/31/22)	—	—	—	59,052,829

Period	Total Number of Shares Purchased	Average Price Paid Per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs (a)
October 2023 (10/1/23 - 11/4/23)	21,083	$ 59.5008	21,083	$ 53,544,951
November 2023 (11/5/23 - 12/2/23)	—	—	—	53,544,951
December 2023 (12/3/23 - 12/31/23)	—	—	—	53,544,951

(a) In March 2020, the Board authorized a stock repurchase program of up to $75.0 million of the Company's common stock, with the remaining authorization under our previously described repurchase program adopted in 2014 being subject to the March 2020 program.

Performance Graph

The following graph compares the cumulative five-year total return to stockholders of the Company's common stock relative to the cumulative total returns of the Russell 2000 index, the S&P Midcap 400 index, the S&P Industrials index, and the S&P 600 Capital Goods index. The graph assumes that the value of the investment in the Company's common stock, and in each index, was $100 on December 31, 2017 December 31, 2018 and assumes reinvestment of all dividends through December 31, 2022 December 31, 2023.

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		As of December 31,					
		2017	2018	2019	2020	2021	2022
Federal Signal Corporation	**Federal Signal Corporation**	$100.00	$100.38	$164.53	$171.08	$225.50	$244.04
Russell 2000	**Russell 2000**	100.00	88.99	111.70	134.00	153.85	122.41
S&P Midcap 400	**S&P Midcap 400**	100.00	88.92	112.21	127.54	159.12	138.34
S&P Industrials	**S&P Industrials**	100.00	86.71	112.17	124.59	150.89	142.63
S&P 600 Capital Goods	**S&P 600 Capital Goods**	100.00	85.79	111.20	128.64	161.27	154.30

As of December 31,						As of December 31,
2018	2018	2019	2020	2021	2022	2023

The stock price performance included in this graph is not necessarily indicative of future stock price performance. Notwithstanding anything set forth in any of our previous filings under the Securities Act or the Exchange Act, which might be incorporated into future filings in whole or part, including this Form 10-K, the preceding performance graph shall not be deemed incorporated by reference into any such filings.

Item 6. [Reserved]

Not applicable.

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

Management's Discussion and Analysis of Financial Condition and Results of Operations ("MD&A") is designed to provide information that is supplemental to, and shall be read together with, the consolidated financial statements and the accompanying notes contained in this Form 10-K. Information in MD&A is intended to assist the reader in obtaining an understanding of (i) the consolidated financial statements, (ii) the Company's business segments and how the results of those segments impact the Company's results of operations and financial condition as a whole and (iii) how certain accounting principles affect the Company's consolidated financial statements.

Executive Summary

The Company is a leading global manufacturer and supplier of (i) vehicles and equipment for maintenance and infrastructure end-markets, including sewer cleaners, industrial vacuum loaders, safe-digging trucks, street sweepers, waterblasting equipment, road-marking and line-removal equipment, dump truck bodies, trailers, and metal extraction support equipment and multi-purpose tractors, and (ii) public safety equipment, such as vehicle lightbars and sirens, industrial signaling equipment, public warning systems and general alarm/public address systems. In addition, we engage in the sale of parts, service and repair, equipment rentals and training as part of a comprehensive aftermarket offering to our customer base. We operate 21 23 manufacturing facilities in five countries and provide products and integrated solutions to municipal, governmental, industrial and commercial customers in all regions of the world.

As described in Note 17 – Segment Information to the accompanying consolidated financial statements, the Company's business units are organized in two reportable segments: the Environmental Solutions Group and the Safety and Security Systems Group.

Coronavirus, Supply Chain and Market Update

Customer demand for our product and service offerings during the year ended December 31, 2022 has been at unprecedented levels, with the ongoing strength in orders contributing to a record backlog of $879 million as of December 31, 2022.

However, the direct and indirect effects of the ongoing coronavirus pandemic continued to impact our ability to maximize production levels during the year ended December 31, 2022. Specifically, the increased demand for our products combined with ongoing global supply chain disruptions have affected our ability to obtain a sufficient quantity of raw materials and purchased components, including chassis, hydraulics and other parts, that are necessary to our production processes and to deliver products to our customers. With these supply chain challenges, we have also experienced increases in the cost of raw materials and have taken measures to mitigate the associated impacts, such as implementing price increases and surcharges. From a labor perspective, the Company experienced an escalated level of coronavirus-related absences at several locations early in the year, which improved as the year progressed. While we continue to work to mitigate these challenges as they arise, we cannot provide assurance that such efforts would continue to be successful in addressing a further significant deterioration in the global supply chain, if applicable, which could impact our ability to service our customers, effectively roll out and realize price increases to offset the effects of commodity inflation and sustain our profit margins.

We continue to closely monitor the impact of the coronavirus pandemic, including emerging variants, on our business, including how it is affecting our employees, customers, supply chain and distribution network. The overall magnitude of the direct and indirect impact of the pandemic on our operating and financial results remains uncertain and will largely depend on the duration of the pandemic and the measures implemented in response, as well as the effect on our customers and suppliers.

Operating and Financial Performance in 2022 2023

Despite Conditions in our end markets remained strong throughout 2023, with demand for our products and services at unprecedented levels. We continued to execute against our organic growth initiatives, and with contributions from our recent value-added acquisitions and additional efficiency gains resulting from the challenges created by a volatile supply chain and the coronavirus pandemic, the Company was application of our eighty-twenty initiatives, we were able to sustain a high level of financial performance performance. As the year progressed, we saw improvement in supply chain conditions, which facilitated increased production levels at several of our facilities and, make progress against several long-term objectives despite some lingering supply chain-related operational inefficiencies, we were able to deliver record financial results for our stockholders, with double-digit year-over-year top line and earnings growth, margin expansion and significant improvement in 2022. cash flow generation.

Included among the Company's highlights in 2022 2023 were the following:

- Orders for the year were at a record level of $1.7 billion $1.87 billion, an increase of $153 million $178 million, or 10% 11%, from last year.
- Backlog at December 31, 2022 December 31, 2023 was $879 million $1.03 billion, another new Company record, and an increase of $250 million $146 million, or 40% 17%, compared to the end of last year.
- Net sales for the year ended December 31, 2022 December 31, 2023 were $1.4 billion $1.72 billion, the highest level in our history, and an increase of $222 million $288 million, or 18% 20% from last year.
- For the year ended December 31, 2022 December 31, 2023, we reported operating income of $160.8 million $224.5 million, an increase of $30.1 million $63.7 million, or 23% 40%, from last year.
- Consolidated operating margin for the year ended December 31, 2022 December 31, 2023 was 11.2% 13.0%, compared to 10.8% 11.2% in the prior year.

- For the year ended December 31, 2022 December 31, 2023, we reported net income from continuing operations of $120.4 million $157.4 million, an increase of $19.8 million $37.0 million, or 20% 31%, from last year.
- On a consolidated basis, we reported adjusted EBITDA* of $215.0 million $286.0 million for the year ended December 31, 2022 December 31, 2023, an increase of $34.5 million $71.0 million, or 19% 33%, from last year.
- Adjusted EBITDA margin* for the year ended December 31, 2022 December 31, 2023 was 15.0% 16.6%, up from 14.9% 15.0% last year and towards the high-end of our current target range. year.
- Cash flow from continuing operating activities for the year ended December 31, 2022 December 31, 2023 was $71.8 million.
- In October 2022, we refinanced our credit agreement, increasing our facility $194 million, an increase of $123 million, or 171%, from $500 million to $800 million, with the potential to increase the facility further by up to the greater of (i) $400 million and (ii) 100% of Consolidated EBITDA for the applicable four-quarter period preceding any

such request to increase. last year.

- With our strong balance sheet, positive operating cash flow, and increased capacity under our new credit facility, we are well positioned to continue to invest in internal growth initiatives, pursue strategic acquisitions and consider ways to return value to stockholders, as we did during 2022: 2023:

  - Our capital expenditures in 2022 2023 were approximately $53 million $30 million, most and included a number of which related to the acquisition of our University Park, Illinois manufacturing facility, which we had previously leased. We also continued to make strategic investments for the future by purchasing in new machinery and equipment aimed at gaining operating efficiencies and expanding capacity at several of our certain production facilities.
  - We continue to invest in new product development and are encouraged that these efforts will provide additional opportunities to further diversify our customer base, penetrate new end-markets and/or gain access to new geographic regions.
  - We completed continued to execute on our ninth acquisition since 2016 disciplined M&A strategy with the acquisition acquisitions of TowHaul. Blasters and Trackless. We have now completed 11 acquisitions since 2016.
  - We demonstrated our commitment to returning value to our stockholders by paying cash dividends of $21.8 million $23.8 million, and spending $16.1 million repurchasing $5.5 million to repurchase shares under our authorized repurchase program.

- To highlight our ongoing focus on operating in a socially responsible and sustainable manner, we published our third fourth annual Sustainability Report in May 2022. June 2023.

* The Company uses adjusted earnings before interest, tax, depreciation and amortization ("adjusted EBITDA") and the ratio of adjusted EBITDA to net sales ("adjusted EBITDA margin") as additional measures which are representative of its underlying performance and to improve the comparability of results across reporting periods. Refer to the Results of Operations section for further discussion regarding these non-GAAP metrics and a reconciliation of each to the most comparable GAAP measure for each of the periods presented.

Results of Operations

The following table summarizes our Consolidated Statements of Operations as of, and for the years ended, December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, and illustrates the key financial indicators used to assess our consolidated financial results:

($ in millions, except per share data)		For the Years Ended December 31, 2022	2021	2020	Change 2022 vs. 2021	2021 vs. 2020
Net sales	Net sales	$1,434.8	$1,213.2	$1,130.8	$221.6	$82.4
Cost of sales	Cost of sales	1,089.9	924.5	837.2	165.4	87.3
Gross profit	Gross profit	344.9	288.7	293.6	56.2	(4.9)
Selling, engineering, general and administrative expenses	Selling, engineering, general and administrative expenses	171.7	149.2	149.2	22.5	—
Amortization expense	Amortization expense	12.9	10.9	9.6	2.0	1.3
Acquisition and integration-related (benefits) expenses		(0.5)	(2.1)	2.1	1.6	(4.2)
Restructuring		—	—	1.3	—	(1.3)
Acquisition and integration-related expenses (benefits), net						

(in millions of dollars, except per share data)	For the Years Ended December 31,	(in millions of dollars, except per share data)	For the Years Ended December 31, 2023	2022	2021	Change 2023 vs. 2022	2022 vs. 2021

Operating income	Operating income	160.8	130.7	131.4	30.1	(0.7)						
Interest expense		10.3	4.5	5.7	5.8	(1.2)						
Debt settlement charges		0.1	—	—	0.1	—						
Operating income												
Operating income												
Interest expense, net												
Pension settlement charges	Pension settlement charges	—	10.3	—	(10.3)	10.3						
Other (income) expense, net		(0.5)	(1.7)	1.1	1.2	(2.8)						
Pension settlement charges												
Pension settlement charges												
Other expense (income), net												
Income before income taxes	Income before income taxes	150.9	117.6	124.6	33.3	(7.0)						
Income tax expense	Income tax expense	30.5	17.0	28.5	13.5	(11.5)						
Income from continuing operations		120.4	100.6	96.1	19.8	4.5						
Gain from discontinued operations and disposal, net of tax		—	—	0.1	—	(0.1)						
Net income												
Net income												
Net income	Net income	$ 120.4	$ 100.6	$ 96.2	$ 19.8	$ 4.4						
Other data:	Other data:											
Operating margin	Operating margin	11.2 %	10.8 %	11.6 %	0.4 %	(0.8)%						
Operating margin												
Operating margin								13.0 %	11.2 %	10.8 %	1.8 %	0.4 %
Adjusted EBITDA (a)	Adjusted EBITDA (a)	$ 215.0	$ 180.5	$ 182.2	$ 34.5	$ (1.7)						
Adjusted EBITDA margin (a)	Adjusted EBITDA margin (a)	15.0 %	14.9 %	16.1 %	0.1 %	(1.2)%	Adjusted EBITDA margin (a)	16.6 %	15.0 %	14.9 %	1.6 %	0.1 %
Diluted earnings per share — Continuing operations		$ 1.97	$ 1.63	$ 1.56	$ 0.34	$0.07						
Diluted earnings per share												
Total orders	Total orders	1,692.2	1,538.8	1,047.1	153.4	491.7						
Backlog	Backlog	879.2	628.9	303.9	250.3	325.0						
Depreciation and amortization	Depreciation and amortization	54.7	50.4	44.8	4.3	5.6						

(a) The Company uses adjusted EBITDA and adjusted EBITDA margin as additional measures which are representative of its underlying performance and to improve the comparability of results across reporting periods. We believe that investors use versions of these metrics in a similar manner. For these reasons, the Company believes that adjusted EBITDA and adjusted EBITDA margin are meaningful metrics to investors in evaluating the Company's underlying financial performance. Adjusted EBITDA is a non-GAAP measure that represents the total of net income, from continuing operations, interest expense, pension settlement charges, acquisition and integration-related (benefits) expenses restructuring activity, (benefits), coronavirus-related expenses, debt settlement charges, purchase accounting effects, other income/expense, income tax expense, and depreciation and amortization expense, where applicable. Adjusted EBITDA margin is a non-GAAP measure that represents the total of net income, from continuing operations, interest expense, pension settlement charges, acquisition and integration-related (benefits) expenses restructuring activity, (benefits), coronavirus-related expenses, debt settlement charges, purchase accounting effects, other income/expense, income tax expense, and depreciation and amortization expense, where applicable, divided by net sales for the applicable period(s). Other companies may use different methods to calculate adjusted EBITDA and adjusted EBITDA margin.

A discussion of changes in the Company's financial condition and results of operations during the year ended December 31, 2021 December 31, 2022 compared to the year ended December 31, 2020 December 31, 2021 has been omitted from this Annual Report on Form 10-K, but may be found under the heading "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations" in the Company's Annual Report on Form 10-K for the year ended December 31, 2021 December 31, 2022, filed with the SEC on March 1, 2022 March 1, 2023.

Year ended December 31, 2022 December 31, 2023 vs. year ended December 31, 2021 December 31, 2022

Net sales

Net sales for the year ended December 31, 2022 December 31, 2023 increased by $221.6 million $287.9 million, or 18% 20%, compared to the prior year, inclusive of the effects of acquisitions, pricing actions and pricing actions. increased chassis sales. The Environmental Solutions Group reported a net sales increase of $186.6

million, $247.3 million, or 19% 21%, primarily due to a $30.6 million $66.2 million improvement in aftermarket revenues and increases in sales of dump truck bodies, street sweepers, sewer cleaners, refuse trucks, multi-purpose tractors, metal extraction support equipment, sewer cleaners, industrial vacuum loaders, safe-digging trucks, trailers street sweepers, and road-marking and line-removal equipment hoists of $38.6 million, $35.0 million, $31.1 million, $21.4 million, $17.2 million, $16.3 million, $15.5 million, $10.5 million and industrial vacuum loaders of $40.9 million, $33.1 million, $32.6 million, $18.3 million, $12.2 million, $11.5 million, $11.3 million, $8.7 million and $6.1 million $7.4 million, respectively. Partially offsetting these improvements was a $9.1 million reduction in shipments sales of refuse trucks hoists and waterblasting equipment of $7.9 million and $5.1 million, respectively, as well as a $5.7 million $6.4 million unfavorable foreign currency translation impact. Within the Safety and Security Systems

Group, net sales increased by $35.0 million $40.6 million, or 17%, primarily due to improvements in sales of public safety equipment, industrial signaling equipment and warning systems of $28.1 million $22.7 million, $9.4 million $11.0 million and $3.8 million $6.8 million, respectively, partially offset by a $6.3 million unfavorable foreign currency translation impact. respectively.

Cost of sales

For the year ended December 31, 2022 December 31, 2023, cost of sales increased by $165.4 million $182.6 million, or 18% 17%, compared to the prior year, largely due to an increase of $143.9 million $162.3 million, or 18% 17%, within the Environmental Solutions Group, primarily related to increased sales volumes, additional costs from prior-year inclusive of the effects of acquisitions, higher material increased chassis costs and a $0.9 million $3.2 million increase in depreciation expense, partially offset by a $5.4 million $6.2 million favorable foreign currency translation impact. Within the Safety and Security Systems Group, cost of sales increased by $21.5 million $20.3 million, or 16% 13%, primarily related to higher sales volumes, benefits from pricing actions and increased material costs, partially offset by a $4.8 million favorable foreign currency translation impact. lower freight costs.

Gross profit

For the year ended December 31, 2022 December 31, 2023, gross profit increased by $56.2 million $105.3 million, or 19% 31%, compared to the prior year, primarily due to a $42.7 million $85.0 million improvement within the Environmental Solutions Group and a $13.5 million $20.3 million increase within the Safety and Security Systems Group. Gross profit as a percentage of net sales ("gross profit margin") for the year ended December 31, 2022 December 31, 2023 was 24.0% 26.1%, compared to 23.8% 24.0% in the prior year, primarily driven by improvements within the Environmental Solutions Group and Safety and Security Systems Group of 30 220 basis points and 20 180 basis points, respectively.

Selling, engineering, general and administrative ("SEG&A") expenses

For the year ended December 31, 2022 December 31, 2023, SEG&A expenses increased by $22.5 million $38.4 million, or 15% 22%, compared to the prior year, primarily due to increases of $16.9 million $16.8 million, $5.4 million $6.3 million and $0.2 million $15.3 million within the Environmental Solutions Group, the Safety and Security Systems Group and Corporate, respectively. As a percentage of net sales, SEG&A expenses decreased increased from 12.3% 12.0% in the prior year, to 12.0% 12.2% in the current year.

Operating income

Operating income for the year ended December 31, 2022 December 31, 2023 increased by $30.1 million $63.7 million, or 23% 40%, compared to the prior year, largely due to the $56.2 million $105.3 million improvement in gross profit, partially offset by the $22.5 million $38.4 million increase in SEG&A expenses, a $2.0 million $2.3 million increase in amortization expense and a $1.6 million reduction $0.9 million increase in acquisition-related benefits. costs. Consolidated operating margin for the year ended December 31, 2022 December 31, 2023 was 11.2% 13.0%, compared to 10.8% 11.2% in the prior year.

Interest expense, net

Interest expense for the year ended December 31, 2022 December 31, 2023 increased by $5.8 million $9.4 million, or 129% 91%, compared to the prior year, largely due to an increase in average debt levels and higher interest rates.

Pension settlement charges

During the year ended December 31, 2021, the Company recognized a pension settlement charge of $10.3 million in connection with the purchase of a group annuity contract from an insurance company, under which approximately $25 million of the projected benefit obligation of the Company's U.S. defined benefit plan was transferred to the insurance company. For further discussion, see Note 11 – Pension and Other Post-Employment Plans to the accompanying consolidated financial statements.

Other expense (income) expense, , net

For the year ended December 31, 2022 December 31, 2023, Other (income) expense (income), net, totaled $0.5 million of income, largely increased by $2.2 million compared to the prior year, primarily due to the recognition of $0.6 million of a $1.0 million increase in net periodic pension benefit. For the year ended December 31, 2021, Other (income) expense, net, totaled $1.7 million of income, largely due to the recognition of $1.1 million of net periodic pension benefit a $0.8 million increase in estimated environmental remediation costs associated with a business discontinued in 2009, and $0.3 million of a $0.4 million increase in foreign currency transaction gains.

losses.

Income tax expense

The Company recognized income tax expense of $45.6 million for the year ended December 31, 2023, compared to $30.5 million for the year ended December 31, 2022, compared to $17.0 million for the year ended December 31, 2021. The increase in income tax expense in the current year was primarily due to higher earnings and the non-recurrence of certain discrete tax benefits recognized in the prior year associated with the release of valuation allowances, partially offset by a $3.2 million reduction $1.5 million increase in the amount of excess tax benefits from stock compensation activity compared to the prior year, and fewer discrete tax benefits than in the prior year. In the year ended December 31, 2022, the Company recognized a $2.6 million tax benefit from the release of a valuation allowance that had previously been recorded against deferred tax assets associated with foreign tax credits in the U.S., which are now considered more-likely-than-not to be realized, primarily due to tax planning. The Company also recognized a $1.1 million tax benefit during the current year ended December 31, 2022 associated with the release of a valuation allowance in the U.K., as the associated deferred tax assets are now were considered more-likely-than-not to be realized primarily due to increased projections of future taxable income. In the year ended December 31, 2021, the Company recognized a $3.4 million tax benefit associated with the release of state valuation allowances and a $3.3 million tax benefit associated with the remeasurement of deferred taxes for changes in state tax apportionment, both of which primarily resulted from a change in tax status and other tax planning activities executed during the year. Including these items, the Company's effective tax rate for the year ended December 31, 2022 December 31, 2023 was 20.2% 22.5%, compared to 14.5% 20.2% in 2021. 2022. For further discussion, see Note 10 – Income Taxes to the accompanying consolidated financial statements.

Income from continuing operations

Income from continuing operations

Net income

Net income for the year ended December 31, 2022 December 31, 2023 increased by $19.8 million $37.0 million, or 20% 31%, compared to the prior year, largely due to the increased operating income, and the non-recurrence of the pension settlement charge recognized in the prior year, partially offset by a $13.5 million increase increases in income tax expense, the $5.8 million increase in interest expense a $1.2 million reduction in and other income expense of $15.1 million, $9.4 million and a $0.1 million debt settlement charge. $2.2 million, respectively.

Adjusted EBITDA

Adjusted EBITDA for the year ended December 31, 2022 December 31, 2023 was $215.0 million $286.0 million, compared to $180.5 million $215.0 million in the prior year. Adjusted EBITDA margin for the year ended December 31, 2022 December 31, 2023 was 15.0% 16.6%, compared to 14.9% 15.0% in the prior year.

The following table summarizes the Company's adjusted EBITDA and adjusted EBITDA margin and reconciles net income from continuing operations to adjusted EBITDA for each of the three years in the period ended December 31, 2022 December 31, 2023:

	For the Years Ended December 31,		
($ in millions)	**2022**	**2021**	**2020**
Income from continuing operations	$ 120.4	$ 100.6	$ 96.1

	For the Years Ended December 31,		
(in millions of dollars)	**2023**	**2022**	**2021**
Net income			
Add (less):			
Interest expense	10.3	4.5	5.7
Interest expense, net			
Interest expense, net			
Interest expense, net			
Pension settlement charges	—	10.3	—
Acquisition and integration-related (benefits) expenses	(0.5)	(2.1)	2.1
Restructuring	—	—	1.3

Acquisition and integration-related expenses (benefits), net				
Acquisition and integration-related expenses (benefits), net				
Acquisition and integration-related expenses (benefits), net				
Coronavirus-related expenses (a)	Coronavirus-related expenses (a)	—	1.2	2.3
Debt settlement charges		0.1	—	—
Coronavirus-related expenses (a)				
Coronavirus-related expenses (a)				
Purchase accounting effects (b)	Purchase accounting effects (b)	—	0.3	0.3
Other (income) expense, net		(0.5)	(1.7)	1.1
Purchase accounting effects (b)				
Purchase accounting effects (b)				
Other expense (income), net				
Income tax expense	Income tax expense	30.5	17.0	28.5
Depreciation and amortization	Depreciation and amortization	54.7	50.4	44.8
Adjusted EBITDA	Adjusted EBITDA	$ 215.0	$ 180.5	$ 182.2
Adjusted EBITDA				
Adjusted EBITDA				
Net sales				
Net sales				
Net sales	Net sales	$1,434.8	$1,213.2	$1,130.8
Adjusted EBITDA margin	Adjusted EBITDA margin	15.0 %	14.9 %	16.1 %
Adjusted EBITDA margin				
Adjusted EBITDA margin		16.6 %	15.0 %	14.9 %

(a) Coronavirus-related expenses relate to direct expenses incurred in connection with the Company's response to the coronavirus pandemic, that are incremental to, and separable from, normal operations. Such expenses primarily relate to incremental paid time off provided to employees and costs incurred to implement enhanced workplace safety protocols.

(b) Purchase accounting effects represent the step-up in the valuation of equipment acquired in recent business combinations that was sold during the periods presented.

Environmental Solutions

The following table summarizes the Environmental Solutions Group's operating results as of, and for the years ended, December 31, 2022 December 31, 2023, 2021 2022 and 2020: 2021:

		For the Years Ended December 31,			Change							
($ in millions)		2022	2021	2020	2022 vs. 2021	2021 vs. 2020						
		For the Years Ended December 31,							For the Years Ended December 31,			Change
(in millions of dollars)							(in millions of dollars)	2023	2022	2021	2023 vs. 2022	2022 vs. 2021
Net sales	Net sales	$1,190.6	$1,004.0	$915.8	$186.6	$ 88.2						
Operating income	Operating income	144.5	120.5	124.3	24.0	(3.8)						
Other data:	Other data:											
Operating margin	Operating margin	12.1 %	12.0 %	13.6 %	0.1 %	(1.6)%						
Operating margin												
Operating margin								14.5 %	12.1 %	12.0 %	2.4 %	0.1 %
Total orders	Total orders	$1,444.2	$1,297.3	$840.0	$146.9	$457.3						
Backlog	Backlog	824.4	576.4	282.5	248.0	293.9						
Depreciation and amortization	Depreciation and amortization	50.3	46.7	41.3	3.6	5.4						

Year ended December 31, 2022 December 31, 2023 vs. year ended December 31, 2021 December 31, 2022

Total orders increased by $146.9 million $133.8 million, or 11% 9%, for the year ended December 31, 2022 December 31, 2023, inclusive of the effects of acquisitions and pricing actions. U.S. orders increased by $122.3 million $73.1 million, or 11% 6%, primarily due to improvements in orders for safe-digging trucks, street sweepers, sewer cleaners, road-marking and line-removal equipment, dump truck bodies, multi-purpose tractors, industrial vacuum loaders and refuse trucks of $53.3 million $26.9 million, $33.2 million $22.9 million, $22.3 million $19.5 million, $12.2 million $12.0 million, $9.5 million and $8.6 million $6.4 million, respectively. Additionally, aftermarket demand increased by $32.7 million $43.2 million. Partially offsetting these improvements were reductions in orders for dump truck bodies trailers, safe-digging trucks and metal extraction support waterblasting equipment of $27.1 million $36.9 million, $28.8 million and $5.1 million $7.4 million, respectively. Non-U.S. orders increased by $24.6 million $60.7 million, or 11% 25%, primarily due to improvements in orders for metal extraction support equipment, street sweepers, snow removal equipment, refuse trucks, multi-purpose tractors and sewer cleaners of $45.0 million, $8.7 million and $4.8 million, respectively. Additionally, aftermarket demand of $31.4 million, $4.0 million, $3.0 million, $2.8 million and $2.1 million, respectively. increased by $14.2 million. Partially offsetting these improvements were reductions was a $5.6 million reduction in orders for safe-digging trucks street sweepers and industrial vacuum loaders of $10.1 million and $4.8 million, respectively, as well as a $6.2 million $7.8 million unfavorable foreign currency translation impact.

Net sales increased by $186.6 million $247.3 million, or 19% 21%, for the year ended December 31, 2022 December 31, 2023, primarily due to increased higher sales volumes, inclusive of the effects of acquisitions, pricing actions and higher increased chassis revenues. sales. U.S. sales increased by $194.3 million $165.8 million, or 24% 17%, largely due to a $31.9 million $45.1 million increase in aftermarket revenues and increases in sales of dump truck bodies, street sweepers, sewer cleaners, safe-digging trucks, industrial vacuum loaders, trailers, multi-purpose tractors, road-marking and line-removal equipment and refuse trucks of $35.5 million, $28.1 million, $21.4 million, $16.3 million, $10.5 million, $7.8 million, $7.5 million and $6.3 million, respectively. Partially offsetting these improvements were reductions in shipments of hoists and waterblasting equipment of $7.9 million and $5.5 million, respectively. Non-U.S. sales increased by $81.5 million, or 42%, largely due to a $21.1 million improvement in aftermarket revenues and increases in sales of refuse trucks, metal extraction support equipment, multi-purpose tractors and sewer cleaners of $24.8 million, $17.9 million, $13.6 million and $6.9 million, respectively. Partially offsetting these improvements was a $5.9 million reduction in sales of safe-digging trucks trailers, road-marking and line-removal equipment, street sweepers, hoists, industrial vacuum loaders and refuse trucks of $36.6 million, $32.6 million, $19.5 million, $17.7 million, $12.2 million, $12.0 million, $10.9 million, $8.7 million, $6.1 million and $5.0 million, respectively. Non-U.S. sales decreased by $7.7 million, or 4%, primarily due to a $14.1 million reduction in shipments of refuse trucks, a $5.7 million $6.4 million unfavorable foreign currency translation impact and a $3.2 million reduction in shipments of camera systems, primarily associated with the timing of a large fleet shipment in the prior year. Partially offsetting these reductions were improvements in shipments of metal extraction support equipment and dump truck bodies of $13.6 million and $4.3 million, respectively. impact.

Cost of sales increased by $143.9 million $162.3 million, or 18% 17%, for the year ended December 31, 2022 December 31, 2023, primarily related to increased sales volumes, inclusive of the effects of acquisitions, higher material increased chassis costs and a $1.4 million $3.2 million increase in depreciation expense, partially offset by a $5.4 million $6.2 million favorable foreign currency translation impact. Including these factors, gross profit margin for the year ended December 31, 2022 December 31, 2023 was 21.4% 23.6%, compared to 21.1% 21.4% in the prior year, with the impact of improvement primarily attributable to improved operating leverage from higher sales volumes and benefits from pricing actions, and a more favorable sales mix, associated with the increase in aftermarket demand, being partially offset by higher material costs and production inefficiencies associated with supply chain disruptions. an increase in lower margin chassis sales.

SEG&A expenses increased by $16.9 million $16.8 million, or 21% 17%, for the year ended December 31, 2022 December 31, 2023, primarily due to additional costs from prior-year acquisitions, acquired businesses, as well as higher selling expenses, including increases in sales commissions and marketing costs. incentive-based compensation expense. As a percentage of net sales, SEG&A expenses were 8.1% 7.9% in the current year, compared to 8.0% 8.1% in the prior year.

Operating income increased by $24.0 million $64.7 million, or 20% 45%, for the year ended December 31, 2022 December 31, 2023, largely due to a $42.7 million $85.0 million increase in gross profit, and a $0.2 million decrease in acquisition-related costs, partially offset by the $16.9 million $16.8 million increase in SEG&A expenses, and a $2.0 million $2.3 million increase in amortization expense. expense and a $1.2 million increase in acquisition-related costs.

Backlog was $824 million $967 million at December 31, 2022 December 31, 2023, compared to $576 million $824 million at December 31, 2021 December 31, 2022.

Safety and Security Systems

The following table summarizes the Safety and Security Systems Group's operating results as of, and for the years ended, December 31, 2022 December 31, 2023, 2021 2022 and 2020: 2021:

		For the Years Ended December 31,			Change							
($ in millions)		2022	2021	2020	2022 vs. 2021	2021 vs. 2020						
(in millions of dollars)		For the Years Ended December 31,					(in millions of dollars)	For the Years Ended December 31,			Change	
								2023	2022	2021	2023 vs. 2022	2022 vs. 2021
Net sales	Net sales	$244.2	$209.2	$215.0	$35.0	$ (5.8)						
Operating income	Operating income	40.8	32.7	35.5	8.1	(2.8)						
Other data:	Other data:											
Operating margin	Operating margin	16.7 %	15.6 %	16.5 %	1.1 %	(0.9)%						
Operating margin												
Operating margin								19.2 %	16.7 %	15.6 %	2.5 %	1.1 %
Total orders	Total orders	$248.0	$241.5	$207.1	$ 6.5	$34.4						
Backlog	Backlog	54.8	52.5	21.4	2.3	31.1						
Depreciation and amortization	Depreciation and amortization	4.2	3.6	3.4	0.6	0.2						

Year ended December 31, 2022 December 31, 2023 vs. year ended December 31, 2021 December 31, 2022

Total orders increased by $6.5 million $44.1 million, or 3% 18%, for the year ended December 31, 2022 December 31, 2023. U.S. orders increased by $18.7 million $16.9 million, or 13% 11%, compared to the prior year, driven by improvements in orders for public safety equipment, warning systems and industrial signaling equipment of $8.4 million $10.8 million, $8.1 million $4.9 million and $2.2 million $1.2 million, respectively. Non-U.S. orders decreased increased by $12.2 million $27.2 million, or 12% 31%, largely primarily due to a $13.8 million reduction $23.9 million improvement in orders for public safety equipment, primarily associated with the timing inclusive of a large fleet order from a customer in the prior year, Mexico, as well as a $5.8 million unfavorable foreign currency translation impact, partially offset by a $7.5 million $2.8 million improvement in orders for industrial signaling equipment. warning systems.

Net sales increased by $35.0 million $40.6 million, or 17%, for the year ended December 31, 2022 December 31, 2023, inclusive of the effects of higher sales volumes and pricing actions. U.S. sales increased by $28.8 million $21.8 million, or 23% 14%, driven by improvements in sales of public safety

equipment, warning systems and industrial signaling equipment and warning systems of $19.2 million $12.6 million, $6.7 million $4.7 million and $2.9 million $4.5 million, respectively. Non-U.S. sales increased by $6.2 million $18.8 million, or 7% 21%, largely due to improvements in sales of public safety equipment, and industrial signaling equipment and warning systems of $8.9 million $10.1 million and $6.5 million $6.3 million and $2.3 million, respectively, partially offset by a $6.3 million unfavorable foreign currency translation impact and a $2.9 million reduction in sales of warning systems. respectively.

Cost of sales increased by $21.5 million $20.3 million, or 16% 13%, for the year ended December 31, 2022 December 31, 2023, primarily related to higher sales volumes and increased material costs, partially offset by a $4.8 million favorable foreign currency translation impact. volumes. Gross profit margin for the year ended December 31, 2022 December 31, 2023 was 37.1% 38.9%, compared to 36.9% 37.1% in the prior year, with the improvement primarily attributable to improved operating leverage from higher sales volumes, and benefits from pricing actions partially offset by higher material and lower freight costs.

SEG&A expenses increased by $5.4 million $6.3 million for the year ended December 31, 2022 December 31, 2023, primarily due to higher selling expenses, including increases in sales commissions and marketing costs. incentive-based compensation expense. As a percentage of net sales, SEG&A expenses were 20.4% 19.7% in the current year, compared with 21.2% 20.4% in the prior year.

Operating income increased by $8.1 million $14.0 million, or 25% 34%, for the year ended December 31, 2022 December 31, 2023, primarily due to a $13.5 million $20.3 million increase in gross profit, partially offset by the $5.4 million $6.3 million increase in SEG&A expenses.

Backlog was $55 million $59 million at December 31, 2022 December 31, 2023, compared to $53 million $55 million at December 31, 2021 December 31, 2022.

Corporate Expense

Corporate operating expenses were $24.5 million $39.5 million, $22.5 million $24.5 million and $28.4 million $22.5 million for the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively.

For the year ended December 31, 2022 December 31, 2023, corporate operating expenses increased by $2.0 million, $15.0 million compared to the prior year, with the increase primarily due to a $1.8 million reduction higher post-retirement expenses and increases in acquisition and integration-related benefits and increased stock- and incentive-based compensation, expense, stock compensation, medical and IT costs, partially offset by lower post-retirement a $0.3 million decrease in acquisition-related expenses. During the year ended December 31, 2023, the Company recognized a $2.1 million benefit associated with a reduction in the estimated fair value of contingent consideration. During the year ended December 31, 2022, the Company received a favorable settlement of $1.9 million in a post-closing adjustment dispute associated with the 2021 acquisition of OSW Equipment & Repair, LLC ("OSW"). During the year ended December 31, 2021, the Company recorded a $3.5 million benefit associated with a reduction in the estimated fair value of contingent consideration. LLC. These acquisition-related benefits have been included as a component of Acquisition and integration-related expenses (benefits) expenses, net on the Consolidated Statements of Operations.

The Company's hearing loss litigation has historically been managed by the Company's legal staff resident at the corporate office and not by management at either segment. In accordance with Accounting Standards Codification ("ASC") 280, *Segment Reporting*, which provides that segment reporting should follow the management of the item and that certain expenses may be corporate expenses, these legal expenses (which are not part of the normal operating activities of any of our reportable segments) are reported and managed as corporate expenses.

Financial Condition, Liquidity and Capital Resources

The Company uses its cash flow from operations to fund growth and to make capital investments that sustain its operations, reduce costs, or both. Beyond these uses, remaining cash is used to pay down debt, repurchase shares, fund dividend payments and make pension contributions. The Company may also choose to invest in the acquisition of businesses. In the absence of significant unanticipated cash demands, we believe that the Company's existing cash balances, cash flow from operations and borrowings available under the 2022 Credit Agreement will provide funds sufficient for these purposes. The net cash flows associated with the Company's rental equipment transactions are included in cash flow from operating activities.

The Company's cash and cash equivalents totaled $47.5 million $61.0 million, $40.5 million $47.5 million and $81.7 million $40.5 million as of December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively. As of December 31, 2022 December 31, 2023, $19.4 million $27.8 million of cash and cash equivalents was held by foreign subsidiaries. Cash and cash equivalents held by subsidiaries outside the U.S. typically are held in the currency of the country in which it is located. The Company uses this cash to fund the operating activities of its foreign subsidiaries and for further investment in foreign operations. Generally, the Company has considered such cash to be indefinitely reinvested in its foreign operations and the Company's current plans do not demonstrate a need to repatriate such cash to fund U.S. operations. However, in the event that these funds were needed to fund U.S. operations or to satisfy U.S. obligations, they generally could be repatriated. The repatriation of these funds may cause the Company to incur additional U.S. income tax expense and withholding taxes, as applicable, dependent on income tax laws and other circumstances at the time any such amounts were repatriated.

Net cash provided by operating activities totaled $71.8 million $194.4 million, $71.8 million and $101.8 million in 2023, 2022 and $136.2 million in 2022, 2021, and 2020, respectively. The reduction increase in cash generated by operating activities in 2022 2023 compared to the prior year was primarily due to increases in

working capital including improvements and higher accounts receivable, largely due to increases in net sales, and strategic stocking of critical inventory components, such as chassis, to support demand levels and income, partially mitigate ongoing supply chain constraints. In addition, the Company had offset by increased rental fleet investment in response investments to support strong customer demand for rental rentals and used equipment. Partially offsetting these increases was an $8.6 million reduction in equipment and higher income tax payments, primarily as a result of prior-year tax planning initiatives which resulted in the Company beginning 2022 with higher prepaid income taxes. payments.

Net cash used for investing activities totaled $99.7 million $83.7 million, $99.7 million and $168.7 million in 2023, 2022 and $34.4 million in 2022, 2021, and 2020, respectively. In each of the years presented, cash was used to fund the purchase of properties and equipment, with $53.0 million $30.3 million, $37.4 million $53.0 million and $29.7 million $37.4 million of capital expenditures in 2023, 2022 2021 and 2020, 2021, respectively. Capital expenditures in 2022 included the acquisition of the Company's University Park, Illinois manufacturing facility for $28 million, and capital expenditures in 2021 included the purchase of the Company's Elgin, Illinois manufacturing facility for $19.8 million. As discussed further in Note 2 – Acquisitions During 2023, the Company made initial payments of $41.9 million and $13.0 million to the accompanying consolidated financial statements, during acquire Trackless and Blasters. During 2022 the Company completed the acquisition of TowHaul for initial consideration of $43.3 million. In addition, during 2022 the Company paid $4.3 million to acquire certain distribution rights from dealers and funded a $1.6 million post-closing adjustment related to the 2021 acquisition of substantially all of the assets and operations of Deist Industries, Inc. In 2021, the Company completed three acquisitions for aggregate initial consideration of $131.8 million, excluding cash acquired. In 2020, the Company paid $6.2 million to acquire certain assets and operations of Public Works Equipment and Supply, Inc. ("PWE") and received $0.8 million as part of the finalization of certain post-closing adjustments in connection with the acquisition of MRL.

Net cash of $35.5 million $97.9 million was used for financing activities in 2023, whereas in 2022 and 2021, $35.5 million, and $26.4 million, respectively, was provided by financing activities activities. In 2023, the Company paid down $64.1 million of borrowings under its revolving credit facility and $0.8 million under its term loan facility, funded cash dividends and share repurchases of $23.8 million and $5.5 million, respectively, and redeemed $7.0 million of stock in 2022 order to remit funds to tax authorities to satisfy employees' tax withholdings following the vesting of stock-based compensation and 2021, respectively, compared to a net cash usage the exercise of $53.4 million in 2020. stock options. The Company also received $3.9 million from stock option exercises. In 2022, the Company borrowed $81.2 million under its revolving credit facility, primarily to fund current-year acquisitions, and received $0.2 million from stock option exercises. The Company also funded cash dividends and share repurchases of $21.8 million and $16.1 million, respectively, and redeemed $6.2 million of stock in order to remit funds to tax authorities to satisfy employees' tax withholdings following the vesting of stock-based compensation and the exercise of stock options. In 2021, the Company borrowed $70.5 million under its revolving credit facility, primarily to fund acquisitions, and received $4.2 million from stock option exercises. The Company also funded cash dividends and share repurchases of $22.0 million and $15.4 million, respectively, and redeemed $10.7 million of stock in order to remit funds to tax authorities to satisfy employees' tax withholdings following the vesting of stock-based compensation and the exercise of stock options. In 2020, the Company paid down

$11.8 million of net borrowings, funded cash dividends and share repurchases of $19.4 million and $13.7 million, respectively, and redeemed $9.1 million of stock in order to remit funds to tax authorities to satisfy employees’ minimum tax withholdings.

On October 21, 2022, the Company entered into the Third Amended and Restated 2022 Credit Agreement, (the “2022 Credit Agreement”), by and among the Company and certain of its foreign subsidiaries (collectively, the “Borrowers”), Wells Fargo Bank, National Association, as administrative agent, swingline lender and issuing lender, PNC Bank, National Association and Truist Bank as syndication agents, and the other lenders and parties signatory thereto.

The 2022 Credit Agreement is a senior secured credit facility which provides the Borrowers access to an aggregate principal amount of $800 million, consisting of (i) a revolving credit facility in an amount up to $675 million (the “Revolver”) and (ii) a term loan facility in an amount up to $125 million. The Revolver provides for borrowings in the form of loans or letters of credit up to the aggregate availability under the facility, with a sub-limit of $100 million for letters of credit. Borrowings can be made in denominations of U.S. Dollars, Canadian Dollars, Euros or British Pounds (with borrowings in non-U.S. currencies subject to a sublimit of $300 million). In addition, the Company may expand its borrowing capacity under the 2022 Credit Agreement by up to the greater of (i) $400 million and (ii) 100% of Consolidated EBITDA for the applicable four-quarter period preceding such expansion notice, subject to the approval of the applicable lenders providing such additional borrowings in the form of increases to their revolving facility commitment, or funding of incremental term loans. Borrowings under the 2022 Credit Agreement may be used for working capital and general corporate purposes, including acquisitions. The 2022 Credit Agreement matures on October 21, 2027.

The Company’s material domestic subsidiaries provide guarantees for all obligations of the Borrowers under the 2022 Credit Agreement, which is secured by a first priority security interest in (i) all existing or hereafter acquired domestic property and assets of the Company and material domestic subsidiaries, (ii) the stock or other equity interests in each of the material domestic subsidiaries and (iii) 65% of outstanding voting capital stock of certain first-tier foreign subsidiaries, subject to certain exclusions.

Borrowings under the 2022 Credit Agreement bear interest, at the Company’s option, at a base rate or an Adjusted Term Secured Overnight Financing Rate (“SOFR”), Adjusted Eurocurrency Rate or Adjusted Daily Simple SONIA Rate (as each is defined in the 2022 Credit Agreement), plus, in each case, an applicable margin. The applicable margin ranges from zero to 0.75% for base rate borrowings and 1.00% to 1.75% for Adjusted Term SOFR, Adjusted Eurocurrency Rate or Adjusted Daily Simple SONIA Rate borrowings. The Company must also pay a commitment fee to the lenders ranging between 0.10% to 0.25% per annum on the unused portion of the $675 million Revolver along with other standard fees. Applicable margin, issuance fees and other customary expenses are payable on outstanding letters of credit.

The Company is subject to certain net leverage ratio and interest coverage ratio financial covenants under the 2022 Credit Agreement that are to be measured at each fiscal quarter-end. The 2022 Credit Agreement also includes certain “covenant holiday” periods, which allow for the temporary increase of the minimum net leverage ratio following the completion of a permitted acquisition, or a series of acquisitions, when the aggregate consideration over a period of twelve months exceeds $75 million. In addition, the 2022 Credit Agreement includes customary negative covenants, subject to certain exceptions, restricting or limiting the Company’s and its subsidiaries’ ability to, among other things: (i) make non-ordinary course dispositions of assets; (ii) make certain fundamental business changes, such as mergers, consolidations or any similar combination; (iii) make restricted payments, including dividends and stock repurchases; (iv) incur indebtedness; (v) make certain loans and investments; (vi) create liens; (vii) transact with affiliates; (viii) enter into certain sale/leaseback transactions; (ix) make negative pledges; and (x) modify subordinated debt documents.

Under the 2022 Credit Agreement, restricted payments, including dividends and stock repurchases, shall be permitted if (i) the Company’s leverage ratio is less than or equal to 3.25x; (ii) the Company is in compliance with all other financial covenants; and (iii) there are no existing defaults under the 2022 Credit Agreement. If its leverage ratio is more than 3.25x, the Company is still permitted to fund (1) up to $35 million of dividend payments and stock repurchases annually; and (2) additional incremental other cash payments up to the greater of $65 million or 5% of consolidated total assets for the term of the 2022 Credit Agreement.

The 2022 Credit Agreement contains customary events of default. If an event of default occurs and is continuing, the Borrowers may be required immediately to repay all amounts outstanding under the 2022 Credit Agreement and the commitments from the lenders may be terminated.

The 2022 Credit Agreement amended and restated the Second Amended and Restated Credit Agreement (as amended, the “2019 Credit Agreement”), which provided the Company with a $500 million revolving credit facility.

In connection with entering into the 2022 Credit Agreement during the year ended December 31, 2022, the Company wrote off $0.1 million of unamortized deferred financing fees associated with the 2019 Credit Agreement, and incurred $1.9 million of new debt issuance costs. The new fees have been deferred and are being amortized over the five-year term as a component of Interest expense on the Consolidated Statements of Operations.

As of December 31, 2022 December 31, 2023, there was $361.0 million $173.2 million of cash drawn on the Revolver, $124.2 million outstanding under the term loan facility and $11.2 million $9.1 million of undrawn letters of credit under the 2022 Credit Agreement, with $427.8 million $492.7 million of net availability for borrowings.

The following table summarizes the gross borrowings and gross payments under the Company’s revolving credit facilities:

	For the Years Ended December 31,		
(in millions)	**2022**	**2021**	**2020**

For the Years Ended December 31,	**For the Years Ended December 31,**

(in millions of dollars)	(in millions of dollars)	2023	2022	2021
Gross borrowings	Gross borrowings	$137.0	$214.0	$82.6
Gross payments	Gross payments	55.8	143.5	94.4

Aggregate maturities of total long-term borrowings due amount to approximately $1.5 million in 2023, $4.6 million and finance lease obligations are $4.7 million in 2024, $7.6 million $7.8 million in 2025, $10.2 million in 2026 and $339.1 million $276.3 million in 2027. The weighted average interest rate on long-term borrowings was 5.5% 5.9% at December 31, 2022 December 31, 2023.

The Company paid interest of $22.8 million in 2023, $9.4 million in 2022 and $3.9 million in 2021 and $5.4 million in 2020. 2021.

The Company paid income taxes of $46.2 million in 2023, $26.9 million in 2022 and $35.5 million in 2021 and $22.3 million in 2020. 2021.

Cash dividends of $21.8 million $23.8 million, $22.0 million $21.8 million and $19.4 million $22.0 million were declared and paid to stockholders in 2023, 2022 2021 and 2020, 2021, respectively.

The Company anticipates that capital expenditures for 2023 2024 will be in the range of $25 $35 million to $30 million $40 million. The Company believes that its financial resources and major sources of liquidity, including cash flow from operations and borrowing capacity, will be adequate to meet its operating needs, capital needs and financial commitments.

Contractual Obligations and Off-Balance Sheet Arrangements

The following table summarizes the Company's contractual obligations and payments due by period as of December 31, 2022 December 31, 2023:

(in millions) / (in millions of dollars)		Total	Less than 1 Year	2-3 Years	4-5 Years	More than 5 Years
		Payments Due by Period				
Long-term debt	Long-term debt	$361.0	$ 0.8	$10.9	$349.3	$ —
Interest payments on long-term debt (a)	Interest payments on long-term debt (a)	94.8	19.9	39.3	35.6	—
Operating lease obligations (b)	Operating lease obligations (b)	27.3	7.9	10.4	5.0	4.0
Finance lease obligations	Finance lease obligations	2.0	0.7	1.3	—	—
Purchase obligations (c)	Purchase obligations (c)	273.3	271.6	1.4	0.3	—
Pension contributions (d)	Pension contributions (d)	2.3	2.3	—	—	—
Contingent earn-out payments (e)	Contingent earn-out payments (e)	2.7	0.7	2.0	—	—
Total contractual obligations (f)	Total contractual obligations (f)	$763.4	$ 303.9	$65.3	$390.2	$ 4.0

(a) Amounts represent estimated contractual interest payments on outstanding long-term debt.

(b) Amounts include contractual obligations associated with lease arrangements with an initial term of twelve months or less, which are not recorded on the Consolidated Balance Sheets. For further discussion, see Note 4 – Leases to the accompanying consolidated financial statements.

(c) Purchase obligations primarily relate to commercial chassis and other contracts in the ordinary course of business.

(d) The Company expects to contribute up to $1.4 million $5.0 million to the U.S. benefit plan and up to $0.9 million $0.2 million to the non-U.S. benefit plan in 2023, 2024, which represent the minimum required contributions. Future contributions to the plans will be based on such factors as (i) annual service cost, (ii) the financial return on plan assets, (iii) interest rate movements that affect discount rates applied to plan liabilities and (iv) the value of benefit payments made. Due to the high degree of uncertainty regarding the potential future cash outflows associated with these plans, the Company is unable to provide a reasonably reliable estimate of the amounts and periods in which any additional liabilities might be paid.

(e) Represents the fair value of the contingent earn-out payments associated with the MRL Deist, Blasters and Deist Trackless acquisitions. For further discussion, see Note 2 – Acquisitions to the accompanying consolidated financial statements.

(f) As of December 31, 2022 December 31, 2023, the Company had a liability of approximately $1.2 million $1.1 million for unrecognized tax benefits. benefits, including penalties and interest. For further discussion, see Note 10 – Income Taxes to the accompanying consolidated financial statements. Due to the uncertainties related to these tax matters, the Company generally cannot make a reasonably reliable estimate of the period of cash settlement for this liability. As such, the potential future cash outflows are not included in the table above. We do not expect any significant change to our unrecognized tax benefits as a result of potential expiration of statute of limitations and settlements with tax authorities.

The following table summarizes the Company's off-balance sheet arrangements and the notional amount by expiration period as of December 31, 2022 December 31, 2023:

		Notional Amount by Expiration Period				Notional Amount by Expiration Period
(in millions)		Total	Less than 1 Year	2-3 Years	4-5 Years	
(in millions of dollars)						
(in millions of dollars)		Total	Less than 1 Year	2-3 Years	4-5 Years	
Financial standby letters of credit (a)	Financial standby letters of credit (a)	$11.2	$ 11.2	$ —	$ —	
Performance and bid bonds (b)	Performance and bid bonds (b)	23.8	23.7	0.1	—	
Performance and bid bonds (b)						
Performance and bid bonds (b)						
Repurchase obligations (c)	Repurchase obligations (c)	2.0	0.6	1.2	0.2	
Total off-balance sheet arrangements	Total off-balance sheet arrangements	$37.0	$ 35.5	$ 1.3	$ 0.2	

(a) Financial standby letters of credit largely relate to casualty insurance policies for the Company's workers' compensation, automobile, general liability and product liability policies.

(b) Performance and bid bonds primarily relate to guarantees of performance of certain subsidiaries that engage in transactions with domestic and foreign customers.

(c) Relates to certain transactions that the Company has entered into involving the sale of equipment to certain of its customers which included (i) guarantees to repurchase the equipment for a fixed price at a future date and (ii) guarantees to repurchase the equipment from the third-party lender in the event of default by the customer. For further discussion, see Note 12 – Commitments and Contingencies to the accompanying consolidated financial statements.

Critical Accounting Policies and Estimates

The preparation of consolidated financial statements in conformity with U.S. generally accepted accounting principles ("GAAP") requires management to make estimates and assumptions that affect (i) the reported amounts of assets and liabilities, (ii) disclosure of contingent assets and liabilities at the date of the consolidated financial statements and (iii) the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. The Company considers the following policies to be the most critical in understanding the judgments that are involved in the preparation of the Company's consolidated financial statements and the uncertainties that could impact the Company's financial condition, results of operations or cash flow.

Goodwill

Goodwill represents the excess of the cost of an acquired business over the amounts assigned to its net assets. Goodwill is not amortized but is tested for impairment at a reporting unit level on an annual basis or more frequently if indicators of impairment exist. The Company performed its annual goodwill impairment test as of October 31, 2022 October 31, 2023.

In testing the goodwill of its reporting units for potential impairment, the Company applies either a qualitative or quantitative test, in accordance with ASC 350, *Intangibles – Goodwill and Other*.

A qualitative approach may be applied when the Company concludes that it is not "more likely than not" that the fair value of a reporting unit is less than its carrying value. In conducting a qualitative assessment, the Company analyzes a variety of events or factors that may influence the fair value of the reporting unit, including, but not limited to: the results of prior quantitative assessments performed; changes in the carrying amount; actual and projected financial performance; relevant market data for both the Company and its guideline comparable companies; industry outlook; and macroeconomic conditions. Significant judgment is used to evaluate the totality of these events and factors to make the determination of whether it is more likely than not that the fair value of the reporting unit is less than its carrying value. In this situation, the Company would not be required to perform the quantitative impairment test described below.

A quantitative approach is performed by comparing the fair value of a reporting unit with its carrying amount. If the fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is not impaired and no impairment charge is required. If the carrying amount of a reporting unit exceeds its fair value, this difference is recorded as an impairment charge not to exceed the carrying amount of goodwill. The Company generally determines the fair value of its reporting units using both the income and market approaches.

Under the income approach, the key assumptions include projected sales cost of sales, operating expenses and earnings before interest, income taxes, depreciation and amortization ("EBITDA"). These assumptions are determined by management utilizing our internal operating plan, including growth rates for revenues and operating expenses and margin assumptions. An additional key assumption under this approach is the discount rate, which is determined by reviewing current risk-free rates of capital and current market interest rates and by evaluating the risk premium relevant to the reporting unit. If the Company's assumptions relative to growth rates were to change, the fair value calculation may change, which could result in impairment.

Under the market approach, the Company estimates fair value using marketplace fair value data from within a comparable industry grouping of publicly traded companies and from pricing multiples implied from sales of companies similar to the Company's reporting units. The Company's selection of comparable guideline companies is a key assumption underlying the market approach. Similar to the income approach discussed above, sales, cost of sales, operating expenses, EBITDA and their respective growth rates are also key assumptions utilized. The market prices of the Company's common stock and other guideline companies are additional key inputs. If these market prices increase, the estimated market value would increase. Conversely, if market prices decrease, the estimated market value would decrease.

The results of these two methods are weighted based upon management's evaluation of the relevance of the two approaches.

Although the Company believes its estimates of fair value are reasonable, actual financial results could differ from estimated financial results due to the inherent uncertainty involved in making such estimates. Changes in assumptions concerning future financial results or other underlying assumptions could have a significant impact on either the fair value of the reporting units, the amount of any goodwill impairment charge, or both. The Company also compares the sum of the estimated fair values of its reporting units to the overall fair value of the Company implied by its market capitalization. This comparison provides an indication that, in total, assumptions and estimates are reasonable. Future declines in the overall market value of the Company may also result in a conclusion that the fair value of one or more reporting units has declined below its carrying value.

In 2022, 2023, the Company applied the performed a combination of qualitative and quantitative approach impairment tests to assess the goodwill of its reporting units for potential impairment. For one reporting unit, a quantitative impairment and used test was performed, using a combination of the income and market approaches to determine the fair values value of its reporting units. unit. The valuations were valuation was prepared

by a third-party valuation specialist. One measure of the sensitivity of assumptions used in the impairment

analyses analysis is the amount by which each the reporting unit "passed" (fair value exceeds the carrying value). The fair values value of the Company's reporting units unit exceeded their its carrying values value by more than 20%, and, therefore, . Therefore, no impairment was recognized. For its other reporting units, the Company applied the qualitative approach and concluded that it was not "more likely than not" that the fair value of the reporting units were less than their carrying values. Accordingly, further quantitative testing was not required to be performed.

The Company had no goodwill impairments in 2023, 2022 2021 or 2020. 2021. For all reporting units, a 10% decrease in the estimated fair value would have had no effect on the carrying value of goodwill at the annual measurement date in 2022. 2023. However, adverse changes to the Company's business environment and future cash flow could cause us to record impairment charges in future periods, which could be material.

See Note 8 – Goodwill and Other Intangible Assets to the accompanying consolidated financial statements for a summary of the Company's goodwill by segment.

Indefinite-lived Intangible Assets

An intangible asset determined to have an indefinite useful life is not amortized. Indefinite-lived intangible assets are tested for impairment on an annual basis at year-end, or more frequently if an event occurs or circumstances change that indicate the fair value of an indefinite-lived intangible asset could be below its carrying amount. The Company's indefinite-lived intangible assets include trade names associated with acquisitions.

In testing the indefinite-lived intangibles assets for potential impairment, the Company applies either a qualitative test, or a quantitative test, in accordance with ASC 350, *Intangibles — Goodwill and Other*. A qualitative approach may be applied when the Company concludes that it is not "more likely than not" that the fair value of the indefinite-lived intangible assets are less than their carrying value. A quantitative impairment test consists of comparing the fair value of the indefinite-lived intangible asset with its carrying amount. An impairment loss would be recognized for the carrying amount in excess of its fair value.

Significant judgment is applied when evaluating whether an intangible asset has an indefinite useful life and in testing for impairment. The Company primarily uses the relief from royalty model to estimate the fair value of the indefinite-lived intangible assets. The relief from royalty model requires management to make a number of business and valuation assumptions including future revenue growth and royalty rates.

In 2022, 2023, the Company performed a combination of qualitative and quantitative impairment tests over its indefinite-lived intangible assets. The fair value of the indefinite-lived intangible asset that was quantitatively tested for impairment exceeded its carrying value by more than 50% approximately 40%, and, therefore, no impairment was recognized. This valuation was prepared by a third-party valuation specialist. Further, the Company concluded that it was not "more likely than not" that the fair value of indefinite-lived intangible assets that were qualitatively tested for impairment were less than the carrying amounts. Accordingly, further quantitative testing was not required to be performed.

The Company had no indefinite-lived intangible asset impairments in 2023, 2022 2021 or 2020. 2021. Although the Company believes its estimates of fair value are reasonable, actual financial results could differ from estimated financial results due to the inherent uncertainty involved in making such estimates. The use of alternative estimates and assumptions could increase or decrease the estimated fair value of the assets and potentially result in different impacts to the Company's results of operations. Actual results may differ from the Company's estimates.

See Note 8 – Goodwill and Other Intangible Assets to the accompanying consolidated financial statements for a summary of the Company's indefinite-lived intangible assets.

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

The Company is subject to market risk associated with changes in interest rates and foreign exchange rates. To mitigate this risk, the Company may utilize derivative financial instruments, including interest rate swaps and foreign currency forward contracts. The Company does not hold or issue derivative financial instruments for trading or speculative purposes and is not party to leveraged derivatives contracts.

Interest Rate Risk

The Company has certain debt instruments which subject it to market risk associated with movements in interest rates. The fair value of the Company's total debt obligations held at December 31, 2022 December 31, 2023 was $363.0 million $299.0 million. From time to time, the Company may enter into interest rate swaps as a means of fixing the floating interest rate component on its variable-rate debt. At December 31, 2022 December 31, 2023, the Company had one two interest rate swap swaps outstanding. That swap The swaps had a an aggregate notional amount of $75.0 million $150.0 million, and fixed the floating interest rate component on $75.0 million $150.0 million of the Company's variable-rate debt. See Note 9 – Debt to the accompanying consolidated financial statements for a description of the Company's debt agreements and interest rate swaps that were in place during 2022. 2023. A hypothetical 1% increase or decrease in variable interest rates on the Company's total debt obligations as of December 31, 2022 December 31, 2023 would increase or decrease annual interest expense by approximately $2.9 million $1.5 million.

Foreign Exchange Rate Risk

Although the majority of the Company's sales, expenses and cash flow are transacted in U.S. dollars, Dollars, the Company has exposure to changes in foreign exchange rates, primarily the Canadian Dollar, Euro and British pound. Pound. The impact of currency movements on the Company's financial results is largely mitigated by natural hedges in its operations. The Canadian operations of JJE and Trackless primarily conduct business in Canadian dollars. Almost all other sales of product from the U.S. to other parts of the world are denominated in U.S. dollars. Sales from and within other currency zones are predominantly transacted in the currency of the country sourcing the product or service. Approximately 80% 78% of the Company's net sales are conducted within the U.S. and are transacted in U.S. dollars. The Company estimates that a 10% appreciation of the U.S. dollar against other currencies would reduce full-year net sales by approximately 1% 2% and operating income by approximately 1%.

The Company may also have foreign currency exposures related to buying and selling in currencies other than the local currency in which it operates and to certain balance sheet positions. If such transactional or balance sheet exposures are material, the Company may enter into matching foreign currency forward contracts from time to time to protect against variability in exchange rates.

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

FEDERAL SIGNAL CORPORATION

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Federal Signal Corporation

Oak Brook, Illinois

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Federal Signal Corporation and subsidiaries (the "Company") as of December 31, 2022 December 31, 2023 and 2021, 2022, the related consolidated statements of operations, comprehensive income, stockholders' equity, and cash flows, for each of the three years in the period ended December 31, 2022 December 31, 2023, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 December 31, 2023 and 2021, 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022 December 31, 2023, in conformity with accounting principles generally accepted in the United States of America.

We have also 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, 2022 December 31, 2023, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated March 1, 2023 February 27, 2024, expressed an unqualified opinion on the Company's internal control over financial reporting.

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 Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates 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 financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Goodwill - Refer to Notes 1 and 8 to the financial statements

Critical Audit Matter Description

In testing the goodwill of its reporting units for potential impairment, the Company applies either a qualitative or quantitative test, in accordance with ASC 350, *Intangibles – Goodwill and Other*. A qualitative approach may be applied when the Company concludes that it is not "more likely than not" that the fair value of a reporting unit is less than its carrying value.
A quantitative approach is performed by comparing the fair value of a reporting unit with its carrying amount ("quantitative assessment").

For reporting units tested for impairment using the quantitative assessment, the Company determines the fair value of each reporting unit using both the income and market approaches. The income approach requires management to make a number of business and valuation assumptions for each reporting unit including annual assumptions of projected sales, cost of sales, operating expenses, earnings before interest, income taxes, depreciation, and amortization ("EBITDA"), and discount rates. The market approach requires management to estimate fair value using marketplace fair value data derived from a comparable industry grouping of publicly traded companies and from pricing multiples implied from sales of companies similar to the Company's reporting units ("market multiples"). The Company's goodwill balance was $453.4 million as of December 31, 2022. No impairment was recognized in 2022. 2023.

We identified the valuation of goodwill for one of the Company's reporting units as a critical audit matter due to the reporting unit's historical performance as compared to projections and because the determination of reporting unit fair value was based on significant assumptions that are sensitive to changes and are affected by expected future market and economic conditions. Auditing management's judgments used in the quantitative assessment regarding significant assumptions related to projected sales cost of sales, operating expenses, and EBITDA ("forecasts") as well as the selection of market multiples applied to management's projected sales and EBITDA estimates for this reporting unit required a high degree of auditor judgment and an increased extent of effort, including the need to involve our fair value specialists.

How the Critical Audit Matter Was Addressed in the Audit

Our audit procedures related to the Company's forecasts and the selection of market multiples for this reporting unit included the following, among others:

- We tested the design and operating effectiveness of controls over the annual goodwill impairment assessment, including those over the forecasts and the market multiples.
- We evaluated management's ability to accurately forecast projected sales cost of sales, operating expenses, and EBITDA by comparing actual results to management's historical forecasts.
- We evaluated the reasonableness of management's forecasts by comparing the forecasts to:
    - Internal communications to management and the Board of Directors.
    - Historical results, third-party economic research, industry performance, and peer company performance.
    - Actual results from the October 31, 2022 2023 annual measurement date to December 31, 2022 2023.
- We performed sensitivity analyses to evaluate the risk of impairment if key assumptions are changed.
- With the assistance of our fair value specialists, we evaluated the reasonableness of the (1) valuation methodology and (2) market multiples by performing certain procedures, that included:
    - Evaluating whether the fair value models being used are appropriate considering the Company's circumstances and valuation premise identified.
    - Evaluating the market multiples by considering (1) the selected comparable industry grouping of publicly traded companies, (2) the selected sales of companies similar to the Company's reporting units, and (3) the adjustments made for differences in growth prospects and risk profiles between the reporting unit and the comparable industry grouping of publicly traded companies.
    - Testing the underlying source information and mathematical accuracy of the calculations.

/s/ Deloitte & Touche LLP
Chicago, Illinois
March 1, 2023 February 27, 2024

We have served as the Company's auditor since 2013.

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of Federal Signal Corporation

Oak Brook, Illinois

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Federal Signal Corporation and subsidiaries (the "Company") as of December 31, 2022 December 31, 2023, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022 December 31, 2023, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2022 December 31, 2023, of the Company and our report dated March 1, 2023 February 27, 2024, expressed an unqualified opinion on those financial statements.

As described in Management's Annual Report on Internal Control over Financial Reporting, management excluded from its assessment, the internal control over financial reporting at TowHaul Corporation ("TowHaul" Trackless Vehicles Limited, Trackless Vehicles Asset Corp, and Work Equipment Ltd. (collectively, "Trackless"), which was were acquired on October 3, 2022 April 3, 2023, and whose financial statements constitute approximately 1% 2% of total assets and 1% of net sales of the consolidated financial statement amounts (excluding goodwill and intangible assets, which were integrated into the Company's control environment) as of and for the year ended December 31, 2022 December 31, 2023. Accordingly, our audit did not include the internal control over financial reporting at TowHaul. Trackless.

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 Annual 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.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 the controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte & Touche LLP
Chicago, Illinois
March 1, 2023 February 27, 2024

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

	For the Years Ended December 31,		
(in millions, except per share data)	**2022**	**2021**	**2020**
Net sales	$ 1,434.8	$ 1,213.2	$ 1,130.8
Cost of sales	1,089.9	924.5	837.2
Gross profit	344.9	288.7	293.6
Selling, engineering, general and administrative expenses	171.7	149.2	149.2
Amortization expense	12.9	10.9	9.6
Acquisition and integration-related (benefits) expenses	(0.5)	(2.1)	2.1
Restructuring	—	—	1.3
Operating income	160.8	130.7	131.4
Interest expense	10.3	4.5	5.7
Debt settlement charges	0.1	—	—
Pension settlement charges	—	10.3	—
Other (income) expense, net	(0.5)	(1.7)	1.1

Income before income taxes	150.9	117.6	124.6
Income tax expense	30.5	17.0	28.5
Income from continuing operations	120.4	100.6	96.1
Gain from discontinued operations and disposal, net of tax	—	—	0.1
Net income	$ 120.4	$ 100.6	$ 96.2
Basic earnings per share:			
Earnings from continuing operations	$ 1.99	$ 1.65	$ 1.59
Earnings from discontinued operations and disposal, net of tax	—	—	0.00
Net earnings per share	$ 1.99	$ 1.65	$ 1.59
Diluted earnings per share:			
Earnings from continuing operations	$ 1.97	$ 1.63	$ 1.56
Earnings from discontinued operations and disposal, net of tax	—	—	0.00
Net earnings per share	$ 1.97	$ 1.63	$ 1.56
Weighted average shares outstanding:			
Basic	60.5	60.8	60.3
Diluted	61.2	61.9	61.7

	For the Years Ended December 31,		
(in millions of dollars, except per share data)	**2023**	**2022**	**2021**
Net sales	$ 1,722.7	$ 1,434.8	$ 1,213.2
Cost of sales	1,272.5	1,089.9	924.5
Gross profit	450.2	344.9	288.7
Selling, engineering, general and administrative expenses	210.1	171.7	149.2
Amortization expense	15.2	12.9	10.9
Acquisition and integration-related expenses (benefits), net	0.4	(0.5)	(2.1)
Operating income	224.5	160.8	130.7
Interest expense, net	19.7	10.3	4.5
Pension settlement charges	—	—	10.3
Other expense (income), net	1.8	(0.4)	(1.7)
Income before income taxes	203.0	150.9	117.6
Income tax expense	45.6	30.5	17.0
Net income	$ 157.4	$ 120.4	$ 100.6
Earnings per share:			
Basic	$ 2.59	$ 1.99	$ 1.65
Diluted	$ 2.56	$ 1.97	$ 1.63
Weighted average shares outstanding:			
Basic	60.7	60.5	60.8
Diluted	61.5	61.2	61.9

See notes to consolidated financial statements.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

		For the Years Ended December 31,			For the Years Ended December 31,			
(in millions)		**2022**	**2021**	**2020**				
(in millions of dollars)					**(in millions of dollars)**	**2023**	**2022**	**2021**
Net income	Net income	$120.4	$100.6	$96.2				

Other comprehensive income (loss):	Other comprehensive income (loss):			
Change in foreign currency translation adjustment	Change in foreign currency translation adjustment	(12.6)	(4.7)	8.4
Change in unrecognized net actuarial loss and prior service cost related to pension benefit plans, net of income tax (benefit) expense of $(0.1), $6.1 and $(2.2), respectively		(0.3)	20.5	(8.0)
Change in unrealized gain or loss on interest rate swaps, net of income tax expense (benefit) of $1.1, $0.6 and $(1.0), respectively		3.1	1.7	(3.0)
Total other comprehensive (loss) income		(9.8)	17.5	(2.6)
Change in foreign currency translation adjustment				
Change in foreign currency translation adjustment				
Change in unrecognized net actuarial loss and prior service cost related to pension benefit plans, net of income tax (benefit) expense of $(0.4), $(0.1) and $6.1, respectively				
Change in unrealized gain or loss on interest rate swaps, net of income tax (benefit) expense of $(0.7), $1.1 and $0.6, respectively				
Total other comprehensive income (loss)				
Comprehensive income	Comprehensive income	$110.6	$118.1	$93.6

See notes to consolidated financial statements.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

	As of December 31,			As of December 31,	
(in millions, except per share data)	2022	2021			
(in millions of dollars, except per share data)			(in millions of dollars, except per share data)	2023	2022
ASSETS	**ASSETS**				

Current assets:	Current assets:		
Current assets:			
Current assets:			
Cash and cash equivalents			
Cash and cash equivalents			
Cash and cash equivalents	Cash and cash equivalents	$ 47.5	$ 40.5
Accounts receivable, net of allowances for doubtful accounts of $2.5 and $2.1, respectively		173.8	136.0
Accounts receivable, net of allowances for doubtful accounts of $2.5 and $2.5, respectively			
Accounts receivable, net of allowances for doubtful accounts of $2.5 and $2.5, respectively			
Accounts receivable, net of allowances for doubtful accounts of $2.5 and $2.5, respectively			
Inventories	Inventories	292.7	229.1
Prepaid expenses and other current assets	Prepaid expenses and other current assets	17.4	25.4
Total current assets			
Total current assets			
Total current assets	Total current assets	531.4	431.0
Properties and equipment, net	Properties and equipment, net	179.3	141.9
Rental equipment, net	Rental equipment, net	109.1	108.4
Operating lease right-of-use assets	Operating lease right-of-use assets	24.7	29.8
Goodwill	Goodwill	453.4	432.2
Intangible assets, net	Intangible assets, net	208.2	205.7
Deferred tax assets	Deferred tax assets	8.8	8.4
Deferred charges and other long-term assets	Deferred charges and other long-term assets	9.4	8.7
Total assets	Total assets	$1,524.3	$1,366.1
Total assets			
Total assets			
LIABILITIES AND STOCKHOLDERS' EQUITY	**LIABILITIES AND STOCKHOLDERS' EQUITY**		
Current liabilities:	Current liabilities:		
Current liabilities:			
Current liabilities:			
Current portion of long-term borrowings and finance lease obligations			
Current portion of long-term borrowings and finance lease obligations			
Current portion of long-term borrowings and finance lease obligations	Current portion of long-term borrowings and finance lease obligations	$ 1.5	$ 0.6
Accounts payable	Accounts payable	72.4	64.8

Customer deposits	Customer deposits	25.4	21.9
Accrued liabilities:	Accrued liabilities:		
Accrued liabilities:			
Accrued liabilities:			
Compensation and withholding taxes			
Compensation and withholding taxes			
Compensation and withholding taxes	Compensation and withholding taxes	31.1	29.9
Current operating lease liabilities	Current operating lease liabilities	6.9	8.8
Other current liabilities	Other current liabilities	43.2	44.4
Total current liabilities			
Total current liabilities			
Total current liabilities	Total current liabilities	180.5	170.4
Long-term borrowings and finance lease obligations	Long-term borrowings and finance lease obligations	361.5	282.2
Long-term operating lease liabilities	Long-term operating lease liabilities	18.5	22.1
Long-term pension and other post-retirement benefit liabilities	Long-term pension and other post-retirement benefit liabilities	38.9	40.4
Deferred tax liabilities	Deferred tax liabilities	51.0	53.2
Deferred tax liabilities			
Deferred tax liabilities			
Other long-term liabilities	Other long-term liabilities	13.0	13.8
Total liabilities	Total liabilities	663.4	582.1
Total liabilities			
Total liabilities			
Stockholders' equity:	Stockholders' equity:		
Common stock, $1 par value per share, 90.0 shares authorized, 69.5 and 68.9 shares issued, respectively		69.5	68.9
Common stock, $1 par value per share, 90.0 shares authorized, 70.0 and 69.5 shares issued, respectively			
Common stock, $1 par value per share, 90.0 shares authorized, 70.0 and 69.5 shares issued, respectively			
Common stock, $1 par value per share, 90.0 shares authorized, 70.0 and 69.5 shares issued, respectively			
Capital in excess of par value	Capital in excess of par value	271.8	256.7
Retained earnings	Retained earnings	782.2	683.6
Treasury stock, at cost, 8.8 and 8.0 shares, respectively		(178.6)	(151.0)

Treasury stock, at cost, 9.0 and 8.8 shares, respectively			
Accumulated other comprehensive loss	Accumulated other comprehensive loss	(84.0)	(74.2)
Total stockholders' equity	Total stockholders' equity	860.9	784.0
Total liabilities and stockholders' equity	Total liabilities and stockholders' equity	$1,524.3	$1,366.1

See notes to consolidated financial statements.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

		For the Years Ended December 31,			For the Years Ended December 31,		
(in millions)		2022	2021	2020			
(in millions of dollars)					(in millions of dollars) 2023	2022	2021
Operating activities:	Operating activities:						
Net income	Net income	$120.4	$100.6	$96.2			
Net income							
Net income							
Adjustments to reconcile net income to net cash provided by operating activities:	Adjustments to reconcile net income to net cash provided by operating activities:						
Net gain on discontinued operations and disposal		—	—	(0.1)			
Depreciation and amortization							
Depreciation and amortization							
Depreciation and amortization	Depreciation and amortization	54.7	50.4	44.8			
Deferred financing costs	Deferred financing costs	0.4	0.3	0.3			
Stock-based compensation expense	Stock-based compensation expense	10.2	7.6	8.4			
Stock-based compensation expense							
Stock-based compensation expense							
Pension settlement charges							
Pension settlement charges							
Pension settlement charges	Pension settlement charges	—	10.3	—			

Pension-related expense, net of funding	Pension-related expense, net of funding	(1.4)	(3.8)	(6.6)
Changes in fair value of contingent consideration	Changes in fair value of contingent consideration	—	(3.5)	(0.1)
Amortization of interest rate swap settlement gain				
Deferred income taxes, including change in valuation allowance	Deferred income taxes, including change in valuation allowance	(4.2)	(6.5)	5.8
Deferred income taxes, including change in valuation allowance				
Deferred income taxes, including change in valuation allowance				
Changes in operating assets and liabilities:	Changes in operating assets and liabilities:			
Accounts receivable				
Accounts receivable				
Accounts receivable	Accounts receivable	(38.0)	2.5	8.6
Inventories	Inventories	(61.0)	(24.2)	2.5
Prepaid expenses and other current assets	Prepaid expenses and other current assets	(0.5)	(2.6)	(0.6)
Rental equipment	Rental equipment	(26.0)	(15.9)	(16.9)
Accounts payable	Accounts payable	8.3	6.4	(13.9)
Customer deposits	Customer deposits	1.3	3.9	1.7
Accrued liabilities	Accrued liabilities	1.1	(5.5)	(1.2)
Income taxes	Income taxes	8.0	(11.6)	1.3
Other	Other	(1.5)	(6.6)	6.1
Net cash provided by continuing operating activities		71.8	101.8	136.3
Net cash used for discontinued operating activities		—	—	(0.1)
Net cash provided by operating activities				
Net cash provided by operating activities				

Net cash provided by operating activities	Net cash provided by operating activities	71.8	101.8	136.2
Investing activities:	Investing activities:			
Purchases of properties and equipment	Purchases of properties and equipment	(53.0)	(37.4)	(29.7)
Payments for acquisition-related activity		(49.8)	(131.8)	(5.4)
Purchases of properties and equipment				
Purchases of properties and equipment				
Payments for acquisition-related activity, net of cash acquired				
Other, net				
Other, net				
Other, net	Other, net	3.1	0.5	0.7
Net cash used for investing activities	Net cash used for investing activities	(99.7)	(168.7)	(34.4)
Net cash used for investing activities				
Net cash used for investing activities				
Financing activities:	Financing activities:			
Increase (decrease) in revolving lines of credit, net		81.2	70.5	(11.8)
(Decrease) increase in revolving lines of credit, net				
(Decrease) increase in revolving lines of credit, net				
(Decrease) increase in revolving lines of credit, net				
Payments on long-term borrowings				
Payments on long-term borrowings				
Payments on long-term borrowings				
Payments of debt financing fees	Payments of debt financing fees	(1.9)	—	—
Purchases of treasury stock	Purchases of treasury stock	(16.1)	(15.4)	(13.7)

Redemptions of common stock to satisfy withholding taxes related to stock-based compensation	Redemptions of common stock to satisfy withholding taxes related to stock-based compensation	(6.2)	(10.7)	(9.1)
Payments for acquisition-related activity				
Cash dividends paid to stockholders	Cash dividends paid to stockholders	(21.8)	(22.0)	(19.4)
Proceeds from stock compensation activity	Proceeds from stock compensation activity	0.2	4.2	0.6
Other, net	Other, net	0.1	(0.2)	—
Other, net				
Other, net				
Net cash provided by (used for) financing activities		35.5	26.4	(53.4)
Net cash (used for) provided by financing activities				
Net cash (used for) provided by financing activities				
Net cash (used for) provided by financing activities				
Effects of foreign exchange rate changes on cash and cash equivalents	Effects of foreign exchange rate changes on cash and cash equivalents	(0.6)	(0.7)	1.7
Increase (decrease) in cash and cash equivalents	Increase (decrease) in cash and cash equivalents	7.0	(41.2)	50.1
Cash and cash equivalents at beginning of year	Cash and cash equivalents at beginning of year	40.5	81.7	31.6
Cash and cash equivalents at end of year	Cash and cash equivalents at end of year	$ 47.5	$ 40.5	$81.7

See notes to consolidated financial statements.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF STOCKHOLDERS’ EQUITY

(in millions, except per share data)	Common Stock Par Value	Capital in Excess of Par Value	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total

(in millions of dollars, except per share data)	Common Stock Par Value	Capital in Excess of Par Value	Retained Earnings	Treasury Stock	Accumulated Other Comprehensive Loss	Total
Balance at January 1, 2020	$ 66.9	$ 228.6	$ 528.2	$ (93.0)	$ (89.1)	$ 641.6
Balance at January 1, 2021						
Net income Net income			96.2			96.2
Total other comprehensive loss					(2.6)	(2.6)
Cash dividends declared ($0.32 per share)			(19.4)			(19.4)
Total other comprehensive income						
Cash dividends declared ($0.36 per share)						
Stock-based payments: Stock-based payments:						
Stock-based payments:						
Stock-based payments:						
Stock-based compensation						
Stock-based compensation						
Stock-based compensation Stock-based compensation		7.8				7.8
Stock option exercises and other Stock option exercises and other	0.7	4.6		(10.2)		(4.9)
Performance share unit transactions Performance share unit transactions	0.2	(0.2)		(2.9)		(2.9)
Stock repurchase program Stock repurchase program				(13.7)		(13.7)
Balance at December 31, 2020	67.8	240.8	605.0	(119.8)	(91.7)	702.1
Net income			100.6			100.6
Total other comprehensive income					17.5	17.5
Cash dividends declared ($0.36 per share)			(22.0)			(22.0)
Stock-based payments:						
Stock-based compensation		7.0				7.0
Stock option exercises and other	0.9	9.1		(12.0)		(2.0)
Performance share unit transactions	0.2	(0.2)		(3.8)		(3.8)
Stock repurchase program						
Stock repurchase program Stock repurchase program				(15.4)		(15.4)
Balance at December 31, 2021 Balance at December 31, 2021	68.9	256.7	683.6	(151.0)	(74.2)	784.0
Net income Net income			120.4			120.4
Total other comprehensive loss Total other comprehensive loss					(9.8)	(9.8)

Cash dividends declared ($0.36 per share)	Cash dividends declared ($0.36 per share)			(21.8)			(21.8)
Stock-based payments:	Stock-based payments:						
Stock-based payments:							
Stock-based payments:							
Stock-based compensation							
Stock-based compensation							
Stock-based compensation	Stock-based compensation		9.5				9.5
Stock option exercises and other	Stock option exercises and other	0.5	5.7		(10.2)		(4.0)
Performance share unit transactions	Performance share unit transactions	0.1	(0.1)		(1.3)		(1.3)
Stock repurchase program	Stock repurchase program				(16.1)		(16.1)
Stock repurchase program							
Stock repurchase program							
Balance at December 31, 2022	Balance at December 31, 2022	$ 69.5	$ 271.8	$ 782.2	$ (178.6)	$ (84.0)	$ 860.9
Net income							
Total other comprehensive income							
Cash dividends declared ($0.39 per share)							
Stock-based payments:							
Stock-based payments:							
Stock-based payments:							
Stock-based compensation							
Stock-based compensation							
Stock-based compensation							
Stock option exercises and other							
Performance share unit transactions							
Stock repurchase program							
Stock repurchase program							
Stock repurchase program							
Balance at December 31, 2023							

See notes to consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1 — SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Organization and Description of the Business

Federal Signal Corporation was founded in 1901 and was reincorporated as a Delaware corporation in 1969. References herein to the “Company,” “we,” “our” or “us” refer collectively to Federal Signal Corporation and its subsidiaries.

Products manufactured and services rendered by the Company are divided into two reportable segments: Environmental Solutions Group and Safety and Security Systems Group. The individual operating businesses are organized as such because they share certain characteristics, including technology, marketing, distribution and product application, which create long-term synergies.

The Company’s fiscal year ends on December 31. All references to 2023, 2022 2021 and 2020 2021 relate to the fiscal year unless otherwise indicated.

Basis of Presentation and Consolidation

The accompanying consolidated financial statements represent the consolidation of Federal Signal Corporation and its subsidiaries and have been prepared by the Company pursuant to the rules and regulations of the Securities and Exchange Commission (“SEC”) and in accordance with United States (“U.S.”) generally accepted accounting principles (“GAAP”).

Intercompany balances and transactions have been eliminated in consolidation. In addition, certain prior year amounts have been reclassified to conform to current year presentation.

New Recent Accounting Standards Adopted in 2022 Pronouncements

In October 2021, November 2023, the Financial Accounting Standards Board (the “FASB” (“FASB”) issued Accounting Standards Update (“ASU”) No. 2021-08, 2023-07, *Business Combinations Segment Reporting* (Topic *805), Accounting for Contract Assets and Liabilities from Contracts with Customers 280): Improvements to Reportable Segment Disclosures*, which requires an acquirer to recognize expands annual and measure contract assets and liabilities acquired in a business combination in accordance with *Revenue from Contracts with Customers (Topic 606)* rather than adjust them to fair value at the acquisition date. This interim disclosure requirements for reportable segments, including enhanced disclosures regarding significant segment expenses. ASU which is applied on a prospective basis, 2023-07 is effective for fiscal years beginning after December 15, 2022 December 15, 2023, and for interim periods within fiscal years beginning after December 15, 2024, with early adoption is permitted. The Company adopted is currently evaluating the impact of adopting this guidance on its financial statement disclosures.

In December 2023, the FASB issued ASU effective January 1, 2022 2023-09, *Income Taxes (Topics 740): Improvements to Income Tax Disclosures*, and which expands the application of the amended guidance disclosure requirements for income taxes, specifically related to the acquisition completed in 2022 did not have a material rate reconciliation and income taxes paid. ASU 2023-09 is effective prospectively for annual periods beginning after December 15, 2024, with early adoption and retrospective application permitted. The Company is currently evaluating the impact of adopting this guidance on the Company’s consolidated its financial statements. statement disclosures.

New Accounting Pronouncements Not Yet Adopted

New accounting pronouncements issued, but not yet adopted, are either not applicable or are not expected to have a material impact on the Company’s consolidated financial statements.

Non-U.S. Operations

Assets and liabilities of non-U.S. subsidiaries, other than those whose functional currency is the U.S. dollar, are translated at current exchange rates with the related translation adjustments reported in stockholders’ equity as a component of Accumulated other comprehensive loss. Accounts within the Consolidated Statements of Operations are translated at the average exchange rate during the period. Non-monetary assets and liabilities are translated at historical exchange rates.

The Company incurs foreign currency transaction gains or losses, related to transactions that are denominated in a currency other than the functional currency, which are recognized in the Consolidated Statements of Operations as a component of Other expense (income) expense, , net. For the year years ended December 31, 2022, December 31, 2023 and 2022, the Company realized foreign currency transaction losses of $0.6 million and $0.2 million. , respectively. For the years year ended December 31, 2021 and 2020, , the Company realized foreign currency transaction gains of $0.3 million and $0.4 million, respectively.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

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Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect (i) the reported amounts of assets and liabilities, (ii) the disclosure of contingent assets and

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

liabilities at the date of the consolidated financial statements and (iii) the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Cash and Cash Equivalents

The Company considers all highly liquid investments with a maturity of three months or less, when purchased, to be cash equivalents. The carrying amount of cash and cash equivalents approximates fair value because of the short-term maturity and highly liquid nature of these instruments.

Accounts Receivable

The Company carries accounts receivable at the face amount less an allowance for doubtful accounts for estimated losses as a result of a customer's inability to make required payments. Management evaluates the aging of the accounts receivable balances, the financial condition of its customers, historical trends and the time outstanding of specific balances to estimate the amount of accounts receivables that may not be collected in the future and records the appropriate provision.

Inventories

The Company's inventories are valued at the lower of cost and net realizable value. Cost is determined using the first-in, first-out method. Included in the cost of inventories are raw materials, direct wages and associated production costs.

Properties and Equipment

Properties and equipment are stated at cost, net of accumulated depreciation. Depreciation is recorded using the straight-line method over the estimated useful lives of the assets. Useful lives generally range from eight to 40 years for buildings and three to 15 years for machinery and equipment. Leasehold improvements are depreciated over the shorter of the remaining life of the lease or the useful life of the improvement. improvement. Depreciation expense is primarily included as a component of Cost of sales on the Consolidated Statements of Operations, with depreciation expense associated with certain assets used for administrative purposes being presented within Selling, engineering, general and administrative ("SEG&A &A") expenses. Depreciation expense, which includes depreciation on rental equipment, was $41.8 million $45.2 million, $39.5 million $41.8 million and $35.2 million $39.5 million for the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively.

Properties and equipment are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable.

Rental Equipment

The Company enters into lease agreements with customers related to the rental of certain equipment. All of these leasing agreements are classified as operating leases and are for periods generally not to exceed five years. In accounting for these leases, the cost of the equipment purchased or manufactured by the Company is recorded as an asset and is depreciated over its estimated useful life. Rental income is recognized ratably over the term of the underlying leases.

Rental equipment is depreciated to an estimated residual value on a straight-line basis over the estimated useful lives of the assets and is reviewed for potential impairment whenever an event occurs or circumstances change that indicate the carrying amount of an asset may not be recoverable. If circumstances require a long-lived asset or asset group to be tested for possible impairment, the Company first compares non-discounted cash flows expected to be generated by that asset group to its carrying amount. If the carrying amount of the long-lived asset or asset group is not recoverable on a non-discounted cash flow basis, an impairment is recognized to the extent that the carrying amount exceeds fair value. Fair value is determined through various valuation techniques including discounted cash flow models, quoted market values and third-party independent appraisals, as considered necessary.

Rental equipment includes certain equipment that is manufactured by the Company and subsequently transferred to the rental fleet, as well as equipment purchased from third-party manufacturers, for the purpose of renting to end-customers. The related cash flow activity associated with these transactions is reflected within operating activities on the Consolidated Statements of Cash Flows.

Goodwill

Goodwill represents the excess of the cost of an acquired business over the amounts assigned to its net assets. Goodwill is not amortized but is tested for impairment at a reporting unit level on an annual basis or more frequently if indicators of impairment exist. The Company performed its annual goodwill impairment test as of October 31, 2022 October 31, 2023.

In testing the goodwill of its reporting units for potential impairment, the Company applies either a qualitative or quantitative test, in accordance with Accounting Standards Codification ("ASC") 350, *Intangibles – Goodwill and Other*.

A qualitative approach may be applied when the Company concludes that it is not "more likely than not" that the fair value of a reporting unit is less than its carrying value. In this situation, the Company would not be required to perform the quantitative impairment test described below.

A quantitative approach is performed by comparing the fair value of a reporting unit with its carrying amount. If the fair value of a reporting unit exceeds its carrying amount, goodwill of the reporting unit is not impaired and no impairment charge is required. If the carrying amount of a reporting unit exceeds its fair value, this difference is recorded as an impairment charge not to exceed the carrying amount of goodwill. The Company generally determines the fair value of its reporting units using both the income and market approaches.

Under the income approach, the key assumptions include projected sales, cost of sales, operating expenses earnings before interest, income taxes, depreciation and amortization ("EBITDA") and the discount rate. Under the market approach, the Company estimates fair value using marketplace fair value data from within a comparable industry grouping. The results of these two methods are weighted based upon management's evaluation of the relevance of the two approaches.

In 2022, 2023, the Company applied the performed a combination of qualitative and quantitative approach impairment tests to assess the goodwill of its reporting units for potential impairment. For one reporting unit, a quantitative impairment test was performed, using a combination of the income and market approaches to determine the fair values value of its reporting units. unit. The valuation was prepared by a third-party valuation specialist. One measure of the sensitivity of assumptions used in the impairment analysis is the amount by which the reporting unit "passed" (fair value exceeds the carrying value). The fair values value of the Company's reporting units unit exceeded their its carrying values value by more than 20% and, therefore, no impairment was recognized. For its other reporting units, the Company applied the qualitative approach and concluded that it was not "more likely than not" that the fair value of the reporting units were less than their carrying values. Accordingly, further quantitative testing was not required to be performed.

The Company had no goodwill impairments in 2023, 2022 2021 or 2020. 2021. See Note 8 – Goodwill and Other Intangible Assets for a summary of the Company's goodwill by segment.

Intangible Assets

Definite-lived intangible assets are amortized on a straight-line basis over the estimated useful lives and are tested for impairment if indicators exist in a manner similar to that described above for *Rental Equipment*.

Indefinite-lived intangible assets are tested for impairment on an annual basis at October 31, or more frequently if an event occurs or circumstances change that indicate the fair value of an indefinite-lived intangible asset could be below its carrying amount. In testing the indefinite-lived intangibles assets for potential impairment, the Company applies either a qualitative test, or a quantitative test, in accordance with ASC 350. A qualitative approach may be applied when the Company concludes that it is not "more likely than not" that the fair value of the indefinite-lived intangible assets are less than their carrying value. A quantitative impairment test consists of comparing the fair value of the indefinite-lived intangible asset with its carrying amount. An impairment loss would be recognized for the carrying amount in excess of its fair value.

In 2022, 2023, the Company performed a combination of qualitative and quantitative impairment tests over its indefinite-lived intangible assets. The fair value of the indefinite-lived intangible asset that was quantitatively tested for impairment exceeded its carrying value by more than 50% approximately 40%, and, therefore, no impairment was recognized. Further, the Company concluded that it was not "more likely than not" that the fair value of indefinite-lived intangible assets that were qualitatively tested for impairment were less than the carrying amounts. Accordingly, further quantitative testing was not required to be performed.

The Company had no indefinite-lived intangible asset impairments in 2023, 2022 2021 or 2020. 2021. See Note 8 – Goodwill and Other Intangible Assets for a summary of the Company's intangible assets.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

Warranties

Warranties are classified as either assurance-type or service-type warranties. A warranty is considered an assurance-type warranty if it provides the customer with assurance that the product will function as intended. A warranty that goes above and beyond ensuring basic functionality is considered a service-type warranty. The Company offers certain limited warranties that are assurance-type warranties and extended service arrangements that are service-type warranties. Assurance-type warranties

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

are not accounted for as separate performance obligations under the revenue model. If a service-type warranty is sold with a product or separately, revenue is recognized over the life of the warranty.

Sales of many of the Company's products include assurance-type warranties based on terms that are generally accepted in the Company's marketplaces. The Company records provisions for estimated warranty costs, which are included within Cost of sales, at the time of sale based on historical experience. The Company periodically adjusts these provisions to reflect actual experience. Infrequently, a material warranty issue can arise which is beyond the scope of the Company's historical experience. The Company records costs related to these issues as they become probable and estimable.

The Company also sells optional service-type warranty contracts that extend coverage beyond the initial term of the express warranty period. At the time of sale, revenue related to the service-type warranty contract is deferred and typically recognized as revenue on a straight-line basis over the life of the contract. As of December 31, 2022 December 31, 2023 and 2021, 2022, deferred revenue associated with service-type warranty contracts was $4.1 million $4.3 million and $4.0 million $4.1 million, respectively, and was included within Other current liabilities and Other long-term liabilities on the Consolidated Balance Sheets. Costs under service-type warranty contracts are expensed as incurred.

Workers' Compensation and Product Liability Reserves

Due to the nature of the Company's manufacturing and products, the Company is subject to claims for workers' compensation and product liability in the normal course of business. The Company is self-funded for a portion of these claims. The Company establishes a reserve using a third-party actuary for any known outstanding matters, including a reserve for claims incurred but not yet reported. The amount and timing of cash payments relating to these claims are considered to be reliably determinable given the nature of the claims and historical claim volumes to support the actuarial assumptions and judgments used to derive the expected loss payment patterns. As such, the reserves recorded are discounted using a risk-free rate that matches the average duration of the claims.

The Company has not established a reserve for potential losses resulting from the firefighter hearing loss litigation, with the exception of certain estimated losses that have been recognized related to settlement discussions (see Note 13 – Legal Proceedings). If the Company is not successful in its defense after exhausting all appellate options, it would record a charge for such claims, to the extent they exceed insurance recoveries, when the related losses become probable and estimable.

Pensions

The Company sponsors domestic and foreign defined benefit pension plans. Key assumptions used in the accounting for these employee benefit plans include the discount rate, expected long-term rate of return on plan assets and estimates of future mortality of plan participants.

The weighted-average discount rate used to measure pension liabilities and costs is selected using a hypothetical portfolio of high-quality bonds that would provide the necessary cash flow to match the projected benefit payments of the plans. The discount rate represents the rate at which our benefit obligations could effectively be settled as of the year-end measurement date. The weighted-average discount rate used to measure pension liabilities increased decreased from 2021 2022 to 2022. 2023. See Note 11 – Pension and Other Post-Employment Plans for further discussion.

The expected long-term rate of return on plan assets is based on historical and expected returns for the asset classes in which the plans are invested. The Company references published mortality tables and scales in determining its estimate of future mortality.

Revenue Recognition

See Note 3 – Revenue Recognition for discussion regarding the Company's revenue recognition accounting policies.

Product Shipping Costs

Product shipping costs are expensed as incurred and are included within Cost of sales.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

Research and Development

The Company invests in research to support development of new products and the enhancement of existing products and services. Expenditures for research and development by the Company were $12.4 million in 2023, $11.5 million in 2022 and $11.4 million in 2021, and $12.2 million in 2020, and are included within SEG&A expenses in the Consolidated Statements of Operations.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

Stock-Based Compensation Plans

The Company has various stock-based compensation plans, described more fully in Note 15 – Stock-Based Compensation. Stock-based compensation expense is recorded net of estimated forfeitures in the Company's Consolidated Statements of Operations. The Company estimates the forfeiture rate based on historical forfeitures of equity awards and adjusts the rate to reflect changes in facts and circumstances, if any. The Company revises its estimated forfeiture rate if actual forfeitures differ from its initial estimates.

Income Taxes

The Company accounts for income taxes under the asset and liability method. Deferred tax assets and liabilities are recognized for the future tax consequences attributable to temporary differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases and tax benefit carryforwards. Deferred tax assets and liabilities at the end of each period are determined using enacted tax rates expected to apply to taxable income in the period in which the deferred tax liability or asset is expected to be settled or realized. A valuation allowance is established or maintained when, based on currently available information and other factors, it is more likely than not that all or a portion of a deferred tax asset will not be realized.

The Company files a consolidated U.S. federal income tax return for Federal Signal Corporation and its eligible domestic subsidiaries. The Company's non-U.S. subsidiaries file income tax returns in their respective local jurisdictions. The Company accounts for taxes on Global Intangible Low-Taxed Income ("GILTI") as a period expense in the year in which it is incurred.

Accounting standards on accounting for uncertainty in income taxes address the determination of whether tax benefits claimed or expected to be claimed on a tax return should be recorded in the consolidated financial statements. Under the guidance on accounting for uncertainty in income taxes, the Company may recognize the tax benefit from an uncertain tax position only if it is more likely than not that the tax position will be sustained on examination by taxing authorities, based on the technical merits of the position. The tax benefits recognized in the consolidated financial statements from such a position are measured based on the largest benefit that has a greater than 50% likelihood of being realized upon ultimate settlement. The Company presents interest and penalties related to income tax matters as a component of Income tax expense on the Consolidated Statements of Operations.

Litigation Contingencies

The Company is subject to various claims, including pending and possible legal actions for product liability and other damages, and other matters arising in the ordinary course of the Company's business. The Company believes, based on current knowledge and after consultation with counsel, that the outcome of such claims and actions in the aggregate will not have an adverse effect on the Company's financial position, results of operations or cash flows. However, in the event of unexpected future developments, it is possible that the ultimate resolution of such matters, if unfavorable, could have a material adverse effect on the Company's results of operations. Professional legal fees are expensed when incurred. The Company accrues for contingent losses when such losses are probable and reasonably estimable. In the event that estimates or assumptions of contingent losses are different from actual results, adjustments are made in subsequent periods to reflect more current information.

NOTE 2 – ACQUISITIONS

The Company's acquisitions are accounted for in accordance with ASC 805, *Business Combinations*. The acquisitions completed in the periods presented, as described in further detail within, were accounted for as business combinations in accordance with ASC 805. In accordance with this guidance, the fair value of consideration transferred is allocated to assets acquired and liabilities assumed based on their estimated fair values as of the completion of the acquisition, with the remaining amount recognized as goodwill. A single estimate of fair value results from a complex series of judgments about future events and uncertainties and relies heavily on estimates and assumptions. The Company's judgments used to determine the estimated fair value assigned to each class of assets acquired and liabilities assumed, as well as asset lives, can materially impact the Company's results of operations.

Under ASC 805-10, acquisition-related costs (e.g., advisory, legal, valuation and other professional fees) are not included as a component of consideration transferred, but are accounted for as expenses in the periods in which the costs are incurred. Acquisition-related costs are included as a component of Acquisition and integration-related expenses (benefits) expenses, net on the Consolidated Statements of Operations.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

Acquisitions Completed in 2022 2023

Acquisition of TowHaul Trackless

On October 3, 2022 April 3, 2023, the Company completed the acquisition of substantially all the assets and operations of TowHaul Corporation ("TowHaul" Trackless Vehicles Limited and Trackless Vehicles Asset Corp, and the wholly-owned subsidiary Work Equipment Ltd. (collectively, "Trackless"). TowHaul is , a leading Canadian manufacturer of off-road, towing multi-purpose tractors and hauling equipment. attachments. The Company expects that the TowHaul Trackless acquisition will further bolster its position as an industry leading diversified industrial manufacturer of specialized vehicles for maintenance and infrastructure markets with leading brands of premium, value-adding products, and a strong supporting aftermarket platform. As the acquisition closed on October 3, 2022, the

The assets and liabilities of TowHaul Trackless have been consolidated into the Company's Consolidated Balance Sheet as of December 31, 2022 December 31, 2023, while and the post-acquisition results of operations have been included in the Consolidated Statement Statements of Operations, within the Environmental Solutions Group. The acquisition generated net sales and operating income of $7.2 million and $2.3 million, respectively, during the year ended December 31, 2022.

The initial cash consideration paid by the Company to acquire TowHaul Trackless was approximately $43.3 million C$56.3 million (approximately $41.9 million), inclusive of certain preliminary closing adjustments. Any additional closing adjustments are expected In addition, there is a contingent earn-out payment of up to be finalized before C$6.0 million (approximately $4.5 million), based upon the end achievement of certain financial targets over a specified performance period. The purchase price was funded through existing cash and borrowings under the second quarter of 2023. Company's credit agreement.

As of December 31, 2022 December 31, 2023, the Company's purchase price allocation reflects various provisional estimates that were based on the information that was available as of the acquisition date and the filing date of this Form 10-K. The Company believes that information provides a reasonable basis for estimating the fair values of assets acquired and liabilities assumed; however, the determination of those fair values, including the third-party valuation of acquired intangible assets and contingent consideration, is not yet finalized. Thus, the preliminary measurements of fair value set forth in the table below are subject to change during the measurement period as valuations are finalized. The Company expects to finalize the valuation and complete the purchase price allocation as soon as practicable, but not more than one year from the acquisition date.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The following table summarizes the preliminary fair value of assets acquired and liabilities assumed as of the acquisition date:

(in millions) millions of dollars)

Purchase price, inclusive of preliminary adjustment for working capital and other post-closing items closing adjustments	$	41.9
Estimated fair value of additional consideration (a)		$ 4.5 43.3
Total consideration		43.3 46.4
Accounts receivable		1.5 4.7
Inventories		4.7 15.0
Prepaid expenses and other current assets		0.1
Rental equipment		1.6
Properties and equipment		6.5 4.4
Customer relationships (b)		14.0 10.5
Trade names (c)		6.7 2.8
Other intangible assets		
Accounts payable		(0.1) (1.5)
Accrued liabilities		(0.5)
Net assets acquired		30.4 38.4
Goodwill (d)	$	12.9 8.0

(a) The initial purchase price, Represents the preliminary estimated fair value of the contingent earn-out payment as of the acquisition date, which is subject included in Other long-term liabilities on the Consolidated Balance Sheets. See Note 18 – Fair Value Measurements for discussion of the methodology used to certain post-closing adjustments, including working capital, was funded through existing cash and borrowings under determine the Company's revolving credit facility. fair value of the contingent earn-out payment.

(b) Represents the preliminary fair value assigned to customer relationships, which are considered to be definite-lived intangible assets, with a preliminary estimated useful life of approximately 12 years.

(c) Represents the preliminary fair value assigned to trade names, which are considered to be indefinite-lived intangible assets.

(d) Goodwill, which is primarily tax-deductible, has been allocated to the Environmental Solutions Group on the basis that the synergies identified will primarily benefit this segment.

In the period between the April 3, 2023 closing date and December 31, 2023, Trackless generated $28.1 million of net sales and $5.1 million of operating income, before elimination of intercompany transactions.

Acquisition of Blasters

On January 3, 2023, the Company completed the acquisition of substantially all the assets and operations of Blasters, Inc. and Blasters Technologies, LLC (collectively, "Blasters"), a leading U.S. manufacturer of truck-mounted waterblasting equipment. The Company expects that the Blasters acquisition will further bolster its position as an industry leading diversified industrial manufacturer of specialized vehicles for maintenance and infrastructure markets with leading brands of premium, value-adding products, and a strong supporting aftermarket platform.

The assets and liabilities of Blasters have been consolidated into the Company's Consolidated Balance Sheet as of December 31, 2023, and the post-acquisition results of operations have been included in the Consolidated Statements of Operations, within the Environmental Solutions Group.

The cash consideration paid by the Company to acquire Blasters was $13.0 million. In addition, there is a contingent earn-out payment of up to $8.0 million, based upon the achievement of certain financial targets over a specified performance period. The purchase price was funded through existing cash and borrowings under the Company's credit agreement.

As of December 31, 2023, the Company's purchase price allocation for the Blasters acquisition is considered to be final.

The following table summarizes the fair value of assets acquired and liabilities assumed as of the acquisition date:

(in millions of dollars)		
Purchase price, inclusive of closing adjustments	$	13.0
Estimated fair value of additional consideration (a)		0.3
Total consideration		13.3
Accounts receivable		0.7
Inventories		4.6
Prepaid expenses and other current assets		0.1
Properties and equipment		0.9
Operating lease right-of-use assets (b)		1.1
Customer relationships (c)		4.4
Trade names (d)		2.3
Accounts payable		(0.9)
Accrued liabilities		(0.5)
Customer deposits		(0.5)
Operating lease liabilities (b)		(1.1)
Finance lease obligations		(0.1)
Net assets acquired		11.0
Goodwill (e)	$	2.3

(a) Represents the estimated fair value of the contingent earn-out payment as of the acquisition date, included in Other long-term liabilities on the Consolidated Balance Sheets. See Note 18 – Fair Value Measurements for discussion of the methodology used to determine the fair value of the contingent earn-out payment.

(b) In connection with the acquisition, the Company entered into a lease agreement for the Blasters facility, which is owned by affiliates of the sellers. The related-party lease contains a market-based annual rent of $0.2 million, an initial lease term of five years, and options to renew.

(c) Represents the fair value assigned to customer relationships, which are considered to be definite-lived intangible assets, with an estimated useful life of approximately 10 years.

(d) Represents the fair value assigned to trade names, which are considered to be indefinite-lived intangible assets.

(e) Goodwill, which is tax-deductible, has been allocated to the Environmental Solutions Group on the basis that the synergies identified will primarily benefit this segment.

In the period between the January 3, 2023 closing date and December 31, 2023, Blasters generated $20.6 million of net sales and $1.5 million of operating income.

The 2023 acquisitions of Trackless and Blasters were not, and would not have been, material to the Company's net sales or results of operations during any presented, either individually or in the aggregate. Accordingly, the Company's consolidated results do not differ materially from historical performance as a result of the acquisitions, and therefore, unaudited pro-forma results are not presented.

Acquisitions Completed in 2022

Acquisition of TowHaul

On October 3, 2022, the Company completed the acquisition of substantially all the assets and operations of TowHaul Corporation ("TowHaul"). TowHaul is a leading manufacturer of off-road towing and hauling equipment. The TowHaul acquisition bolstered the Company's position as an industry leading diversified industrial manufacturer of specialized vehicles for maintenance and infrastructure markets with leading brands of premium, value-adding products, and a strong supporting aftermarket platform.

The cash consideration paid by the Company to acquire TowHaul was $43.3 million, which was funded through existing cash and borrowings under the Company's revolving credit facility.

During the year ended December 31, 2023, the Company recognized measurement period adjustments, which primarily resulted from obtaining a third-party valuation of acquired intangible assets, that resulted in a $7.5 million increase to the carrying value of Goodwill from the $12.9 million previously recorded as of December 31, 2022, with a corresponding reduction in the carrying value of acquired intangible assets. The measurement period adjustments did not have a material impact on the Company's Consolidated Statements of Operations for the year ended December 31, 2023. As of December 31, 2023, the Company's purchase price allocation for the TowHaul acquisition is considered to be final.

The following table summarizes the fair value of assets acquired and liabilities assumed as of the acquisition date:

(in millions of dollars)

Purchase price, inclusive of closing adjustments	$ 43.3
Total consideration	43.3
Accounts receivable	1.5
Inventories	4.7
Properties and equipment	6.1
Customer relationships (a)	6.9
Trade names (b)	5.7
Other intangible assets	1.0
Accounts payable	(0.1)
Accrued liabilities	(0.5)
Customer deposits	(2.4)
Net assets acquired	22.9
Goodwill (c)	$ 20.4

(a) Represents the fair value assigned to customer relationships, which are considered to be definite-lived intangible assets, with an estimated useful life of 6 years.

(b) Represents the fair value assigned to trade names, which are considered to be indefinite-lived intangible assets.

(c) Goodwill, which is tax-deductible, has been allocated to the Environmental Solutions Group on the basis that the synergies identified will primarily benefit this segment.

The acquisition was not, and would not have been, material to the Company's net sales or results of operations during any period presented. Accordingly, the Company's consolidated results from operations do not differ materially from historical performance as a result of the acquisition, and therefore, unaudited pro-forma results are not presented.

Acquisitions Completed in 2021

During the year ended December 31, 2021, the Company completed three acquisitions, all of which were accounted for as business combinations in accordance with ASC 805. acquisitions. As each of the acquisitions closed during 2021, the assets and liabilities of each of the acquisitions have been consolidated into the Company's Consolidated Balance Sheets as of December 31, 2022 December 31, 2023 and 2021, 2022, and the post-acquisition results of operations of each of the acquisitions have been included in the Consolidated Statement of Operations, within the Environmental Solutions Group.

Acquisition of Deist

On December 30, 2021, the Company completed the acquisition of substantially all of the assets and operations of each of Deist Industries, Inc.; Bucks Fabricating, LLC; Roll-Off Parts, LLC and Switch-N-Go, LLC (collectively, "Deist"). Deist designs, manufactures and sells interchangeable truck body systems for class 3-7 vehicles in the work truck industry and a full line of waste hauling products, including front/rear loading containers and specialty roll-off containers. The Deist acquisition strengthened the Company's specialty vehicle market position by expanding its geographic footprint and enhancing its portfolio of dump truck body and trailer product offerings.

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The cash consideration paid by the Company to acquire Deist was $38.1 million, which was funded through existing cash and borrowings under the Company's credit facility. In addition, there is a contingent earn-out payment of up to $7.5 million, based upon the achievement of certain financial targets over a specified performance period.

During the fourth quarter of 2022, the Company finalized its purchase price allocation for the Deist acquisition. The measurement period adjustments, which primarily resulted from the completion of a third-party valuation of acquired intangible assets, resulted in an $8.6 million increase to the carrying value of Goodwill from the $5.1 million previously recorded as of December 31, 2021. The measurement period adjustments did not have a material impact on the Company's Consolidated Statements of Operations for the year ended December 31, 2022.

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The following table summarizes the fair value of assets acquired and liabilities assumed as of the acquisition date:

(in millions) millions of dollars)

Purchase price, inclusive of closing adjustments	$	38.1
Estimated fair value of additional consideration (a)		2.0
Total consideration		40.1
Accounts receivable		5.1
Inventories		8.8
Prepaid expenses and other current assets		0.2
Properties and equipment		8.5
Customer relationships (b)		3.1
Trade names (c)		5.2
Other intangible assets		1.1
Accounts payable		(1.8)
Accrued liabilities		(3.2)
Customer deposits		(0.6)
Net assets acquired		26.4
Goodwill (d)	$	13.7

(a) Represents the estimated fair value of the contingent earn-out payment as of the acquisition date, which is included as a component of Other long-term liabilities on the Consolidated Balance Sheets. See Note 18 – Fair Value Measurements for discussion of the methodology used to determine the fair value of the contingent earn-out payment.

(b) Represents the fair value assigned to customer relationships, which are considered to be definite-lived intangible assets, with an estimated useful life of 5 five years.

(c) Represents the fair value assigned to trade names, which are considered to be indefinite-lived intangible assets.

(d) Goodwill, which is tax-deductible, has been allocated to the Environmental Solutions Group on the basis that the synergies identified will primarily benefit this segment.

Acquisition of Ground Force

On October 4, 2021, the Company completed the acquisition of substantially all of the assets and operations of Ground Force Manufacturing LLC (“Ground Force”). Ground Force is a leading manufacturer of specialty material handling vehicles that support the extraction of metals. The Ground Force acquisition further bolstered the Company’s position as an industry leading diversified industrial manufacturer of specialized vehicles for maintenance and infrastructure markets with leading brands of premium, value-adding products, and a strong supporting aftermarket platform.

The cash consideration paid by the Company to acquire Ground Force was $43.1 million, which was funded through existing cash and borrowings under the Company’s credit facility.

During the third quarter of 2022, the Company finalized its purchase price allocation for the Ground Force acquisition. The measurement period adjustments, which primarily resulted from the completion of a third-party valuation of acquired intangible assets, resulted in a $2.1 million increase to the carrying value of Goodwill from the $13.3 million previously recorded as of December 31, 2021. The measurement period adjustments did not have a material impact on the Company’s Consolidated Statements of Operations for the year ended December 31, 2022.

The following table summarizes the fair value of assets acquired and liabilities assumed as of the acquisition date:

(in millions) millions of dollars)

Purchase price, inclusive of closing adjustments	$	43.1
Total consideration		43.1
Accounts receivable		3.0
Inventories		4.0
Prepaid expenses and other current assets		0.2
Properties and equipment		1.3
Operating lease right-of-use assets		3.0
Customer relationships (a)		16.8
Trade names (b)		7.8
Operating lease liabilities		(3.0)
Accounts payable		(1.8)
Accrued liabilities		(0.7)
Customer deposits		(2.9)
Net assets acquired		27.7
Goodwill (c)	$	15.4

(a) Represents the fair value assigned to customer relationships, which are considered to be definite-lived intangible assets, with an estimated useful life of 12 years.

(b) Represents the fair value assigned to trade names, which are considered to be indefinite-lived intangible assets.

(c) Goodwill, which is tax-deductible, has been allocated to the Environmental Solutions Group on the basis that the synergies identified will primarily benefit this segment.

Acquisition of OSW

On February 17, 2021, the Company completed the acquisition of all of the outstanding equity of OSW Equipment & Repair, LLC, a leading manufacturer of dump truck bodies and custom upfitter of truck equipment and trailers. The acquisition also includes OSW's wholly-owned subsidiaries, Northend Truck Equipment, LLC and Western Truck Body Mfg. ULC (collectively "OSW"). The OSW acquisition strengthened the Company's specialty vehicle market position by expanding its geographic footprint and enhancing its portfolio of dump truck body and trailer product offerings.

The cash consideration paid by the Company to acquire OSW was $53.2 million, which was funded through existing cash and borrowings under the Company's credit facility. During the first quarter of 2022, the Company finalized its purchase price allocation for the OSW acquisition and there were no changes from the purchase price allocation previously disclosed as of December 31, 2021.

The following table summarizes the fair value of assets acquired and liabilities assumed as of the acquisition date:

(in millions) millions of dollars)

Purchase price, inclusive of closing adjustments	$	53.2
Total consideration		53.2
Cash		1.3
Accounts receivable		3.5
Inventories		8.3
Prepaid expenses and other current assets		0.7
Properties and equipment		5.8
Operating lease right-of-use assets		12.3
Customer relationships (a)		11.3
Trade names (b)		8.4
Other intangible assets		0.2
Operating lease liabilities		(12.3)
Accounts payable		(3.8)
Accrued liabilities		(1.9)
Customer deposits		(0.8)
Finance lease obligations		(1.7)
Net assets acquired		31.3
Goodwill (c)	$	21.9

(a) Represents the fair value assigned to customer relationships, which are considered to be definite-lived intangible assets, with an estimated useful life of 12 years.

(b) Represents the fair value assigned to trade names, which are considered to be indefinite-lived intangible assets.

(c) Goodwill, the majority of which is tax-deductible, has been allocated to the Environmental Solutions Group on the basis that the synergies identified will primarily benefit this segment.

During the year ended December 31, 2022, the Company received a favorable settlement of $1.9 million in a post-closing adjustment dispute associated with the acquisition of OSW. As the settlement was reached subsequent to the finalization of the Company's purchase price allocation, the related benefit has been included as a component of Acquisition and integration-related expenses (benefits) expenses, net for the year ended December 31, 2022 on the Consolidated Statements of Operations.

Unaudited Pro Forma Financial Information

The following table presents the unaudited pro forma combined net sales of the Company, OSW, Ground Force and Deist for the years ended December 31, 2021 and 2020, assuming the transactions occurred on January 1, 2020. Pro forma combined income from continuing operations and pro forma diluted earnings per share are not presented, as they would not be materially different from the results reported for the years ended December 31, 2021 and 2020.

	For the Years Ended December 31,	
(in millions)	**2021**	**2020**
	For the Years Ended December 31,	
(in millions of dollars)	**2021**	**2020**
Net sales	$1,287.7	$1,229.1

The unaudited pro forma financial information is presented for informational purposes only and is not intended to represent or be indicative of the consolidated results of operations of the Company that would have been reported had the acquisitions been completed as of the beginning of the periods presented, and should not be taken as being representative of the future consolidated results of operations of the Company.

Acquisitions Completed in 2020

Acquisition of Public Works Equipment and Supply, Inc.

On June 12, 2020, the Company acquired certain assets and operations of Public Works Equipment and Supply, Inc. ("PWE"), a distributor of maintenance and infrastructure equipment covering North Carolina, South Carolina and parts of Tennessee. The

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acquisition included cash consideration of $6.2 million, which included a payment to acquire certain inventory and fixed assets at closing. As the acquisition closed on June 12, 2020, the assets and liabilities of PWE have been consolidated into the Company's Consolidated Balance Sheets as of December 31, 2022 and 2021, and the post-acquisition results of operations have been included in the Consolidated Statements of Operations, within the Environmental Solutions Group.

The assets acquired and liabilities assumed in the PWE acquisition have been measured at their fair values at the acquisition date, resulting in $2.5 million of goodwill, which is deductible for tax purposes. The Company's purchase price allocation was finalized during the year ended December 31, 2020.

The acquisition was not, and would not have been, material to the Company's net sales or results of operations during any period presented. Accordingly, the Company's consolidated results from operations do not differ materially from historical performance as a result of the acquisition, and therefore, unaudited pro-forma results are not presented.

NOTE 3 – REVENUE RECOGNITION

Revenue is recognized when performance obligations under the terms of a contract with the customer are satisfied; generally this occurs at a point in time, with the transfer of control of the Company's products or services to customers. For most of the Company's product sales, these criteria are met at the time the product is shipped; however, occasionally control passes later or

earlier than shipment due to customer contract or letter of credit terms. In circumstances where credit is extended, payment terms generally range from 30 to 120 days and customer deposits may be required.

Revenue is measured as the amount of consideration the Company expects to be entitled to in exchange for transferring products or providing services. Expected returns and allowances are estimated and recognized based primarily on an analysis of historical experience, with Net sales presented net of such returns and allowances.

Net sales include sales of products and billed freight related to product sales. Freight has not historically comprised a material component of Net sales. The Company has elected to account for such shipping and handling activities as a fulfillment cost and not as a separate performance obligation. Taxes collected from customers and remitted to governmental authorities are recorded on a net basis and are excluded from Net sales.

During the years ended December 31, 2022, 2021 and 2020, the Company's Environmental Solutions recorded net sales of $2.9 million, $4.2 million and $1.3 million respectively, relating to products sold to Ingenieria Y Servicios Orbitec SPA, an entity which is majority-owned by affiliates of the former owners of Joe Johnson Equipment, Inc. and Joe Johnson Equipment (USA), Inc. (collectively, "JJE").

Information relating to the disaggregation of Net sales by geographic region, based on the location of the end-customer, is included in Note 17 – Segment Information. The following table presents the Company's Net sales disaggregated by major product line:

		For the Years Ended December 31,		
(in millions)		2022	2021	2020
(in millions of dollars)	For the Years Ended December 31,			
Environmental Solutions	Environmental Solutions			
Vehicles and equipment (a)				
Vehicles and equipment (a)				
Vehicles and equipment (a)	Vehicles and equipment (a)	$ 927.9	$ 764.3	$ 719.3
Parts	Parts	173.7	150.3	129.4
Rental income (b)	Rental income (b)	53.1	44.7	36.6
Other (c)	Other (c)	35.9	44.7	30.5
Total net sales	Total net sales	1,190.6	1,004.0	915.8
Safety and Security Systems	Safety and Security Systems			

(in millions of dollars)	For the Years Ended December 31, 2023	2022	2021

Public safety and security equipment	Public safety and security equipment	149.1	126.1	132.6
Public safety and security equipment				
Public safety and security equipment				
Industrial signaling equipment	Industrial signaling equipment	62.1	53.9	50.8
Warning systems	Warning systems	33.0	29.2	31.6
Total net sales	Total net sales	244.2	209.2	215.0
Total net sales	Total net sales	$1,434.8	$1,213.2	$1,130.8
Total net sales				
Total net sales				

(a) Includes net sales from the sale of new and used vehicles and equipment, including sales of rental equipment.
(b) Represents revenues from vehicle and equipment lease arrangements with customers, recognized in accordance with Topic 842.
(c) Primarily includes revenues from services such as maintenance and repair work and the sale of extended warranty contracts.

Contract Balances

The Company recognizes contract liabilities when cash payments, such as customer deposits, are received in advance of the Company's satisfaction of the related performance obligations. Contract liabilities are recognized as Net sales when the related performance obligations are satisfied, which generally occurs within three to six months of the cash receipt. Contract liability balances are not materially impacted by any other factors. The Company's contract liabilities were $28.9 30.9 million and $25.3 28.9 million, as of December 31, 2022 December 31, 2023 and 2021, 2022, respectively. Contract assets, such as unbilled receivables, were not material as of any of the periods presented herein.

Practical Expedients

As the Company's standard payment terms are less than a year, the Company has elected the practical expedient under ASC 606-10-32-18 to not assess whether a contract has a significant financing component.

The Company has also elected the practical expedient under ASC 340-40-25-4 and recognizes the incremental costs of obtaining a contract, such as sales commissions, as expense when incurred as the amortization period of the asset that otherwise would have been recognized is one year or less.

Further, as permitted by ASC 606-10-50-14, the Company does not disclose the value of its remaining performance obligations for contracts with an original expected duration of one year or less.

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NOTE 4 – LEASES

The Company leases certain facilities within the U.S., Europe and Canada from which the Company manufactures vehicles and equipment, and provides sales, service and/or equipment rentals. Some of the Company's lease agreements contain options to renew. The Company also leases vehicles and various other equipment. The Company's lease agreements may contain lease and non-lease components, which are accounted for separately. Leases with an initial term of twelve months or less are not recorded on the Consolidated Balance Sheets.

In connection with acquisitions completed in recent years, the Company has entered into certain lease agreements for facilities owned by affiliates of the sellers. All lease agreements contain an annual rent that is considered to be market-based. Total rent paid under these arrangements was $2.8 $2.3 million,, $2.5 $2.8 million and $1.5 $2.5 million during the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively. The Company's total lease liabilities under these agreements were $6.9 $4.2 million and $17.3 $6.9 million as of December 31, 2022 2023 and 2021, 2022, respectively.

The Company determines if an arrangement is a lease at inception. Operating lease right-of-use assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. Operating lease right-of-use assets and liabilities are recognized at the lease commencement date based on the present value of lease payments over the lease term. As most of the Company's leases do not provide an implicit rate, the Company uses its incremental collateralized borrowing rate based on the information available at the commencement date in determining the present value of lease payments. Implicit rates are used when readily determinable. The Company's lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for operating lease payments is recognized on a straight-line basis over the respective lease term.

The following table summarizes the Company's total lease costs and supplemental cash flow information arising from operating lease transactions:

(in millions)	For the Years Ended December 31, 2022	2021	2020
Total operating lease costs (a)	$11.7	$14.9	$13.3
Cash paid for amounts included in the measurement of lease liabilities:			
Operating cash flows from operating leases	7.7	10.7	9.2

(in millions of dollars)	For the Years Ended December 31, 2023	2022	2021
Total operating lease costs (a)			
Cash paid for amounts included in the measurement of lease liabilities:			
Cash paid for amounts included in the measurement of lease liabilities:			
Operating cash flows from operating leases			
Operating cash flows from operating leases			

(a) Includes short-term leases and variable lease costs.

The following table summarizes the components of lease right-of-use assets and liabilities:

(in millions of dollars)	2023	2022	Affected Line Item in Consolidated Balance Sheets
Assets			
Operating lease right-of-use assets	$ 21.0	$ 24.7	Operating lease right-of-use assets
Finance lease right-of-use assets	1.6	1.9	Properties and equipment, net
Total lease right-of-use assets	$ 22.6	$ 26.6	
Liabilities			
Current:			
Operating leases	$ 6.8	$ 6.9	Current operating lease liabilities
Finance leases	0.8	0.7	Current portion of long-term borrowings and finance lease obligations
Noncurrent:			
Operating leases	14.9	18.5	Long-term operating lease liabilities
Finance leases	0.8	1.3	Long-term borrowings and finance lease obligations

Total lease liabilities	$ 23.3	$ 27.4

The following table summarizes the components of lease right-of-use assets and liabilities:

(in millions)	2022	2021	Affected Line Item in Consolidated Balance Sheets
Assets			
Operating lease right-of-use assets	$ 24.7	$ 29.8	Operating lease right-of-use assets
Finance lease right-of-use assets	1.9	2.0	Properties and equipment, net
Total lease right-of-use assets	$ 26.6	$ 31.8	
Liabilities			
Current:			
Operating leases	$ 6.9	$ 8.8	Current operating lease liabilities
Finance leases	0.7	0.6	Current portion of long-term borrowings and finance lease obligations
Noncurrent:			
Operating leases	18.5	22.1	Long-term operating lease liabilities
Finance leases	1.3	1.5	Long-term borrowings and finance lease obligations
Total lease liabilities	$ 27.4	$ 33.0	

The weighted-average remaining lease terms and discount rates of the Company's operating leases were as follows:

	2023	2022	2021		2023	2022
Weighted-average remaining lease term of operating leases	Weighted-average remaining lease term of operating leases	4.9 years	5.1 years	Weighted-average remaining lease term of operating leases	4.3 years	4.9 years
Weighted-average discount rate of operating leases	Weighted-average discount rate of operating leases	2.5 %	2.5 %	Weighted-average discount rate of operating leases	3.0 %	2.5 %

Maturities of operating lease liabilities as of December 31, 2022 December 31, 2023 were as follows:

(in millions)			
2023		$	7.5
(in millions of dollars)			
2024			
2024			
2024	2024		6.1
2025	2025		4.3
2026	2026		3.3
2027	2027		1.7
2028			
Thereafter	Thereafter		4.0
Total lease payments	Total lease payments		26.9
Less: Imputed interest	Less: Imputed interest		1.5
Present value of operating lease liabilities	Present value of operating lease liabilities	$	25.4

NOTE 5 — INVENTORIES

The following table summarizes the components of inventories: Inventories:

(in millions)		2022	2021			
(in millions of dollars)				(in millions of dollars)	2023	2022
Finished goods	Finished goods	$ 97.5	$ 87.9			
Raw materials	Raw materials	164.3	116.4			
Work in process	Work in process	30.9	24.8			
Total inventories (a)	Total inventories (a)	$292.7	$229.1			

(a) Amounts at December 31, 2022 December 31, 2023 include inventories acquired in the acquisition acquisitions of TowHaul Trackless and Blasters - see Note 2 - Acquisitions.

NOTE 6 — PROPERTIES AND EQUIPMENT, NET

The following table summarizes the components of propertiesProperties and equipment, net: net:

(in millions)		2022	2021			
(in millions of dollars)				(in millions of dollars)	2023	2022
Land	Land	$ 13.4	$ 8.5			
Buildings and improvements	Buildings and improvements	117.9	82.8			
Machinery and equipment	Machinery and equipment	204.4	202.2			
Total property and equipment, at cost	Total property and equipment, at cost	335.7	293.5			
Less: Accumulated depreciation	Less: Accumulated depreciation	156.4	151.6			
Properties and equipment, net (a)	Properties and equipment, net (a)	$179.3	$141.9			

(a) Amounts at December 31, 2022 December 31, 2023 include properties and equipment acquired in the acquisition acquisitions of TowHaul Trackless and Blasters - see Note 2 - Acquisitions.

On February 16, 2022, the Company completed the acquisition of its University Park, Illinois manufacturing facility for approximately $28 million. The Company had previously leased the facility under a lease that was due to expire at the end of June 2023.

On December 22, 2021, the Company completed the acquisition of its Elgin, Illinois manufacturing facility for $19.8 million. The Company had previously leased the facility under a lease that was due to expire at the end of June 2023.

NOTE 7 — RENTAL EQUIPMENT, NET

The following table summarizes the components of rental Rental equipment, net:

(in millions)		2022	2021			
(in millions of dollars)				(in millions of dollars)	2023	2022
Rental equipment	Rental equipment	$154.5	$152.2			
Less: Accumulated depreciation	Less: Accumulated depreciation	45.4	43.8			

Rental equipment, net	Rental equipment, net	$109.1	$108.4

Rental income associated with the Company's equipment rental activity, which is included as a component of Net sales on the Consolidated Statements of Operations, totaled $55.2 million in 2023, $53.1 million in 2022 and $44.7 million in 2021 and $36.6 million in 2020. 2021.

NOTE 8 — GOODWILL AND OTHER INTANGIBLE ASSETS

The following table summarizes the carrying amount of goodwill and changes in the carrying amount of goodwill, by segment:

(in millions)	Environmental Solutions	Safety & Security Systems	Total
Balance at December 31, 2020	$ 279.9	$ 114.3	$ 394.2
Acquisitions	40.3	—	40.3
Translation adjustments	—	(2.3)	(2.3)
Balance at December 31, 2021	320.2	112.0	432.2
Acquisitions, including measurement period adjustments	24.0	—	24.0
Translation adjustments	(0.4)	(2.4)	(2.8)
Balance at December 31, 2022	$ 343.8	$ 109.6	$ 453.4

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(in millions of dollars)	Environmental Solutions	Safety & Security Systems	Total
Balance at December 31, 2021	$ 320.2	$ 112.0	$ 432.2
Acquisitions, including measurement period adjustments	24.0	—	24.0
Translation adjustments	(0.4)	(2.4)	(2.8)
Balance at December 31, 2022	343.8	109.6	453.4
Acquisitions, including measurement period adjustments	17.8	—	17.8
Translation adjustments	0.3	1.2	1.5
Balance at December 31, 2023	$ 361.9	$ 110.8	$ 472.7

The following table summarizes the gross carrying amount and accumulated amortization of intangible assets for each major class of intangible assets:

		2022			2021		
(in millions)		Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Gross Carrying Value	Accumulated Amortization	Net Carrying Value
(in millions of dollars)							
Definite-lived intangible assets:	Definite-lived intangible assets:						
Customer relationships (a)							
Customer relationships (a)							
Customer relationships (a)	Customer relationships (a)	$153.7	$ (52.0)	$101.7	$146.2	$ (39.8)	$106.4
Other (a)	Other (a)	5.7	(3.4)	2.3	5.3	(2.9)	2.4
Total definite-lived intangible assets	Total definite-lived intangible assets	159.4	(55.4)	104.0	151.5	(42.7)	108.8

	2023			2022		
(in millions of dollars)	Gross Carrying Value	Accumulated Amortization	Net Carrying Value	Gross Carrying Value	Accumulated Amortization	Net Carrying Value

Indefinite-lived intangible assets:	Indefinite-lived intangible assets:						
Trade names	Trade names	99.9	—	99.9	96.9	—	96.9
Trade names							
Trade names							
Other	Other	4.3	—	4.3	—	—	—
Total indefinite-lived intangible assets	Total indefinite-lived intangible assets	104.2	—	104.2	96.9	—	96.9
Total intangible assets	Total intangible assets	$263.6	$ (55.4)	$208.2	$248.4	$ (42.7)	$205.7

(a) Average useful life of customer relationships and other definite-lived intangible assets are estimated to be approximately 12 11 years and 7 6 years, respectively. The average useful life across all definite-lived intangible assets is estimated to be approximately 12 11 years.

The Company currently estimates that aggregate amortization expense will be approximately $15.4 million in 2024, $15.4 million in 2025, $15.3 million in 2026, $14.4 million in 2027, $13.7 million in 2023, $13.7 million in 2024, $13.7 million in 2025, $13.6 million in 2026, $12.7 million in 2027 2028 and $36.6 million $24.8 million thereafter. Actual amounts of amortization may differ from estimated amounts due to additional intangible asset acquisitions, changes in foreign currency rates, measurement period adjustments for recent acquisitions, impairment of intangible assets and other events.

NOTE 9 — DEBT

The following table summarizes the components of Long-term borrowings and finance lease obligations:

(in millions)		2022	2021
2019 Credit Agreement		$ —	$280.7
(in millions of dollars)	(in millions of dollars)	2023	2022
2022 Credit Agreement			
2022 Credit Agreement			
2022 Credit Agreement	2022 Credit Agreement	361.0	—
Finance lease obligations	Finance lease obligations	2.0	2.1
Total long-term borrowings and finance lease obligations, including current portion	Total long-term borrowings and finance lease obligations, including current portion	363.0	282.8
Less: Current maturities	Less: Current maturities	0.8	—
Less: Current finance lease obligations	Less: Current finance lease obligations	0.7	0.6
Total long-term borrowings and finance lease obligations	Total long-term borrowings and finance lease obligations	$361.5	$282.2

As more fully described within Note 18 – Fair Value Measurements, the Company uses a three-level fair value hierarchy that prioritizes the inputs used to measure fair value. The fair value of long-term debt is based on interest rates that we believe are currently available to us for issuance of debt with similar terms and remaining maturities (Level 2 input).

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The following table summarizes the carrying amounts and fair values of the Company's financial instruments:

(in millions)	2022 Notional Amount	2022 Fair Value	2021 Notional Amount	2021 Fair Value
Long-term borrowings (a)	$ 363.0	$ 363.0	$ 282.8	$ 282.8

(in millions of dollars)	2023 Notional Amount	2023 Fair Value	2022 Notional Amount	2022 Fair Value
Long-term borrowings and finance lease obligations (a)	$ 299.0	$ 299.0	$ 363.0	$ 363.0

(a) Long-term borrowings include Includes current portions of long-term borrowings and finance lease obligations aggregating to $1.5 million $4.7 million and $0.6 million $1.5 million as of December 31, 2022 December 31, 2023 and 2021, 2022, respectively.

On October 21, 2022, the Company entered into the Third Amended and Restated Credit Agreement (the "2022 Credit Agreement"), by and among the Company and certain of its foreign subsidiaries (collectively, the "Borrowers"), Wells Fargo Bank, National Association, as administrative agent, swingline lender and issuing lender, PNC Bank, National Association and Truist Bank as syndication agents, and the other lenders and parties signatory thereto.

The 2022 Credit Agreement is a senior secured credit facility which provides the Borrowers access to an aggregate principal amount of $800 million, consisting of (i) a revolving credit facility in an amount up to $675 million (the "Revolver") and (ii) a term loan facility in an amount up to $125 million. The Revolver provides for borrowings in the form of loans or letters of credit up to the aggregate availability under the facility, with a sub-limit of $100 million for letters of credit. Borrowings can be made in denominations of U.S. Dollars, Canadian Dollars, Euros or British Pounds (with borrowings in non-U.S. currencies subject to a sublimit of $300 million). In addition, the Company may expand its borrowing capacity under the 2022 Credit Agreement by up to the greater of (i) $400 million and (ii) 100% of Consolidated EBITDA for the applicable four-quarter period preceding such expansion notice, subject to the approval of the applicable lenders providing such additional borrowings in the form of increases to their revolving facility commitment, or funding of incremental term loans. Borrowings under the 2022 Credit Agreement may be used for working capital and general corporate purposes, including acquisitions. The 2022 Credit Agreement matures on October 21, 2027.

The Company's material domestic subsidiaries provide guarantees for all obligations of the Borrowers under the 2022 Credit Agreement, which is secured by a first priority security interest in (i) all existing or hereafter acquired domestic property and assets of the Company and material domestic subsidiaries, (ii) the stock or other equity interests in each of the material domestic subsidiaries and (iii) 65% of outstanding voting capital stock of certain first-tier foreign subsidiaries, subject to certain exclusions.

Borrowings under the 2022 Credit Agreement bear interest, at the Company's option, at a base rate or an Adjusted Term Secured Overnight Financing Rate ("SOFR"), Adjusted Eurocurrency Rate or Adjusted Daily Simple SONIA Rate (as each is defined in the 2022 Credit Agreement), plus, in each case, an applicable margin. The applicable margin ranges from zero to 0.75% for base rate borrowings and 1.00% to 1.75% for Adjusted Term SOFR, Adjusted Eurocurrency Rate or Adjusted Daily Simple SONIA Rate borrowings. The Company must also pay a commitment fee to the lenders ranging between 0.10% to 0.25% per annum on the unused portion of the $675 million Revolver along with other standard fees. Applicable margin, issuance fees and other customary expenses are payable on outstanding letters of credit.

The Company is subject to certain net leverage ratio and interest coverage ratio financial covenants under the 2022 Credit Agreement that are to be measured at each fiscal quarter-end. The Company was in compliance with all such covenants as of December 31, 2023. The 2022 Credit Agreement also includes certain "covenant holiday" periods, which allow for the temporary increase of the minimum net leverage ratio following the completion of a permitted acquisition, or a series of acquisitions, when the aggregate consideration over a period of twelve months exceeds $75 million. In addition, the 2022 Credit Agreement includes customary negative covenants, subject to certain exceptions, restricting or limiting the Company's and its subsidiaries' ability to, among other things: (i) make non-ordinary course dispositions of assets; (ii) make certain fundamental business changes, such as mergers, consolidations or any similar combination; (iii) make restricted payments, including dividends and stock repurchases; (iv) incur indebtedness; (v) make certain loans and investments; (vi) create liens; (vii) transact with affiliates; (viii) enter into certain sale/leaseback transactions; (ix) make negative pledges; and (x) modify subordinated debt documents.

Under the 2022 Credit Agreement, restricted payments, including dividends and stock repurchases, shall be permitted if (i) the Company's leverage ratio is less than or equal to 3.25x; (ii) the Company is in compliance with all other financial covenants; and (iii) there are no existing defaults under the 2022 Credit Agreement. If its leverage ratio is more than 3.25x, the Company is still permitted to fund (1) up to $35 million of dividend payments and stock repurchases annually; and (2) additional incremental other cash payments up to the greater of $65 million or 5% of consolidated total assets for the term of the 2022 Credit Agreement.

The 2022 Credit Agreement contains customary events of default. If an event of default occurs and is continuing, the Borrowers may be required immediately to repay all amounts outstanding under the 2022 Credit Agreement and the commitments from the lenders may be terminated.

The 2022 Credit Agreement amended and restated the Second Amended and Restated Credit Agreement (as amended, the "2019 Credit Agreement"), which provided the Company with a $500 million revolving credit facility.

In connection with entering into the 2022 Credit Agreement during the year ended December 31, 2022, the Company wrote off $0.1 million of unamortized deferred financing fees associated with the 2019 Credit Agreement, and incurred $1.9 million of new debt issuance costs. The new fees have been deferred and are being amortized over the five-year term as a component of Interest expense, net on the Consolidated Statements of Operations.

As of December 31, 2022 December 31, 2023, there was $361.0 million $173.2 million of cash drawn on the Revolver, $124.2 million outstanding under the term loan facility and $11.2 million $9.1 million of undrawn letters of credit under the 2022 Credit Agreement, with $427.8 million $492.7 million of net availability for borrowings.

The following table summarizes the gross borrowings and gross payments under the Company's revolving credit facilities:

(in millions)		For the Years Ended December 31, 2022	2021	2020
Gross borrowings	Gross borrowings	$137.0	$214.0	$82.6
Gross payments	Gross payments	55.8	143.5	94.4

(in millions of dollars)	For the Years Ended December 31,	(in millions of dollars)	2023	2022	2021

Aggregate maturities of total long-term borrowings due amount to approximately $1.5 million in 2023, $4.6 million and finance lease obligations are $4.7 million in 2024, $7.6 million $7.8 million in 2025, $10.2 million in 2026 and $339.1 million $276.3 million in 2027. The weighted average interest rate on long-term borrowings was 5.5% 5.9% at December 31, 2022 December 31, 2023.

The Company paid interest of $22.8 million in 2023, $9.4 million in 2022 and $3.9 million in 2021 and $5.4 million in 2020. 2021.

Interest Rate Swap

On October 2, 2019, the Company entered into an interest rate swap (the "2019 Swap") with a notional amount of $75.0 million, as a means of fixing the floating interest rate component on $75.0 million of its variable-rate debt. In connection with entering into the 2022 Credit Agreement in October 2022, the Company terminated the 2019 Swap, receiving proceeds of $4.3 million upon settlement. The 2019 Swap was previously designated as a cash flow hedge. The settlement gain is being recognized ratably through the original termination date of July 30, 2024 as a component of Interest expense on the Consolidated Statements of Operations.

On October 21, 2022, the Company entered into an interest rate swap (the "2022 Swap") with a notional amount of $75.0 million, as a means of fixing the floating interest rate component on $75.0 million of its variable-rate debt. The 2022 Swap is designated as a cash flow hedge, with a an original maturity date of October 31, 2025.

On July 11, 2023, the Company entered into an additional interest rate swap (the "2023 Swap") with a notional amount of $75.0 million, as a means of fixing the floating interest rate component on $75.0 million of its variable-rate debt. The 2023 Swap is designated as a cash flow hedge, with an original maturity date of August 1, 2025.

As a result of the application of hedge accounting treatment, all unrealized gains and losses related to the derivative instrument instruments are recorded in Accumulated other comprehensive loss and are reclassified into operations in the same period in which the hedged transaction affects earnings. Hedge effectiveness is assessed quarterly. We do The Company does not use derivative instruments for trading or speculative purposes.

The fair value of the Company's interest rate swaps is derived from a discounted cash flow analysis based on the terms of the contract and the interest rate curve (Level 2 inputs) and measured on a recurring basis in our Consolidated Balance Sheets.

At December 31, 2022 December 31, 2023 and 2021, 2022, the fair value of the Swap Company's interest rate swaps was a liability of $0.3 million $0.7 million and $0.7 million $0.3 million, respectively, which was and are included in Other long-term liabilities on the Consolidated Balance Sheets. During the year ended December 31, 2023, an unrealized pre-tax loss of $0.4 million was recorded in Accumulated other comprehensive loss, whereas during the years ended December 31, 2022 and 2021, unrealized pre-tax gains of $4.1 million and $2.3 million, respectively, were recorded in Accumulated other comprehensive loss, whereas during loss. No ineffectiveness was recorded in any of the year ended December 31, 2020, periods presented.

In connection with entering into the 2022 Credit Agreement in October 2022, the Company terminated an unrealized pre-tax loss interest rate swap initially entered into in 2019, receiving proceeds of $3.9 million $4.3 million upon settlement. The settlement gain was recorded in Accumulated other comprehensive loss. loss and is being amortized into earnings ratably through the original maturity date of July 30, 2024 as a component of Interest expense, net on the Consolidated Statements of Operations. During the years ended December 31, 2023 and 2022, the Company recognized non-cash settlement gains of $2.4 million and $0.5 million, respectively, as a component of Interest expense, net on the Consolidated Statements of Operations. At December 31, 2023 and

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December 31, 2022, unrealized settlement gains of $1.4 million and $3.8 million, respectively, were included in Accumulated other comprehensive loss on the Consolidated Balance Sheets.

NOTE 10 — INCOME TAXES

The following table summarizes the income components of Income tax expense from continuing operations: expense:

		For the Years Ended December 31,		
(in millions)		2022	2021	2020
	For the Years Ended December 31,			
(in millions of dollars)	(in millions of dollars)	2023	2022	2021
Current tax expense:	Current tax expense:			
Federal				
Federal				
Federal	Federal	$24.0	$14.7	$16.4
Foreign	Foreign	4.1	5.0	1.4
State and local	State and local	6.6	4.0	5.1
Total current tax expense	Total current tax expense	34.7	23.7	22.9
Deferred tax (benefit) expense:	Deferred tax (benefit) expense:			
Federal	Federal	(3.5)	0.4	2.7
Federal				
Federal				
Foreign	Foreign	(0.1)	1.5	3.1
State and local	State and local	(0.6)	(8.6)	(0.2)
Total deferred tax (benefit) expense		(4.2)	(6.7)	5.6
Total deferred tax benefit				
Total income tax expense	Total income tax expense	$30.5	$17.0	$28.5

The following table summarizes the differences between the statutory federal income tax rate and the effective income tax rate from continuing operations: rate:

		For the Years Ended December 31,				For the Years Ended December 31,		
		2022	2021	2020				
	2023					2023	2022	2021
Statutory federal income tax rate	Statutory federal income tax rate	21.0 %	21.0 %	21.0 %	Statutory federal income tax rate	21.0 %	21.0 %	21.0 %
State income taxes, net of federal tax benefit	State income taxes, net of federal tax benefit	4.0	3.4	3.5				
Valuation allowance								

Valuation allowance								
Valuation allowance	Valuation allowance	(2.3)	(2.9)	0.1				
Remeasurement of deferred taxes	Remeasurement of deferred taxes	(0.6)	(2.8)	—				
Remeasurement of deferred taxes								
Tax reserves		—	0.1	(0.1)				
Tax credits		(0.3)	(0.4)	(0.3)				
Remeasurement of deferred taxes								
Foreign-derived intangible income								
Foreign-derived intangible income								
Foreign-derived intangible income								
Executive compensation limitation								
Executive compensation limitation								
Executive compensation limitation								
Foreign tax rate effects	Foreign tax rate effects	0.6	1.2	0.8				
Excess tax benefits from stock compensation activity	Excess tax benefits from stock compensation activity	(1.6)	(4.8)	(2.9)				
Other, net	Other, net	(0.6)	(0.3)	0.8				
Effective income tax rate	Effective income tax rate	20.2 %	14.5 %	22.9 %	Effective income tax rate	22.5 %	20.2 %	14.5 %

The following table summarizes income Income before income taxes from continuing operations: taxes:

(in millions)		2022	2021	2020				
		For the Years Ended December 31,						
(in millions of dollars)					(in millions of dollars)	2023	2022	2021
						For the Years Ended December 31,		
U.S.	U.S.	$132.1	$ 94.8	$107.4				
Non-U.S.	Non-U.S.	18.8	22.8	17.2				
Income before income taxes	Income before income taxes	$150.9	$117.6	$124.6				

Summary

The Company recognized income tax expense of $45.6 million for the year ended December 31, 2023, compared to $30.5 million for the year ended December 31, 2022, compared to $17.0 million for the year ended December 31, 2021. The increase in income tax expense in the current year was primarily due to higher earnings and the non-recurrence of certain discrete tax benefits recognized in the prior year associated with the release of valuation allowances, partially offset by a $3.2 million reduction $1.5 million increase in the amount of excess tax benefits from stock compensation activity compared to the prior year, and fewer discrete tax benefits than in the prior year. In the year ended December 31, 2022, the Company recognized a $2.6 million tax benefit from the release of a valuation allowance that had previously been recorded against deferred tax assets associated with foreign tax credits in the U.S., which are now considered more-likely-than-not to be realized, primarily due to tax planning. The Company also recognized a $1.1 million tax benefit during the current year ended December 31, 2022 associated with the release of a valuation allowance in the U.K., as the associated deferred tax assets are now considered more-likely-than-not to be realized primarily due to increased projections of future taxable income. In the year ended December 31, 2021, the Company recognized a $3.4 million tax benefit associated with the release of state valuation allowances and a $3.3 million tax benefit associated with the remeasurement of deferred taxes for changes in state tax apportionment, both of which primarily resulted from a change in tax status and other tax planning activities executed during the year. were considered more-likely-than-not to be realized primarily due to increased projections of future taxable income. Including these items, the Company's effective tax rate for the year ended December 31, 2022 December 31, 2023 was 20.2% 22.5%, compared to 14.5% 20.2% in 2021. 2022.

The Company recognized income tax expense of $30.5 million for the year ended December 31, 2022, compared to $17.0 million for the year ended December 31, 2021, compared to $28.5 million for the year ended December 31, 2020. The reduction increase in income tax expense in 2021 2022 was primarily due to higher earnings, a $3.2 million reduction in the recognition amount of excess tax benefits from stock compensation activity compared to 2021, and fewer discrete tax benefits than in 2021. In the year ended December 31, 2022, the Company recognized a $2.6 million tax benefit from the release of a valuation allowance that had previously been recorded against deferred tax assets associated with foreign tax credits in the U.S., and also recognized a $1.1 million tax benefit associated with the release of a valuation allowance in the U.K. In the year ended December 31, 2021, the Company recognized a $3.4 million tax benefit associated with the release of state valuation allowances and a $3.3 million tax benefit associated with the remeasurement of deferred taxes for changes in state tax apportionment, both of which primarily resulted from a change in tax status and other tax planning activities executed during the year, a $2.0 million increase in excess tax benefits from stock compensation activity and the effects of lower pre-tax earnings. year. Including these items, the Company's effective tax rate for the year ended December 31, 2021 December 31, 2022 was 14.5% 20.2%, compared to 22.9% 14.5% in 2020. 2021.

The Company paid income taxes of $46.2 million in 2023, $26.9 million in 2022 and $35.5 million in 2021 and $22.3 million in 2020. 2021.

Deferred Taxes

The following table summarizes the Company's deferred income tax assets and liabilities of the Company's continuing operations: liabilities:

(in millions)		2022	2021			
(in millions of dollars)				(in millions of dollars)	2023	2022
Deferred tax assets:	Deferred tax assets:					
Properties and equipment						
Properties and equipment						
Properties and equipment	Properties and equipment	$ 3.5	$ 2.8			
Accrued expenses	Accrued expenses	28.7	24.7			
Stock-based compensation	Stock-based compensation	3.5	3.3			
Net operating loss and tax credit carryforwards	Net operating loss and tax credit carryforwards	18.0	19.4			
Goodwill and intangibles	Goodwill and intangibles	0.9	1.8			
Pension benefits	Pension benefits	14.8	15.1			
Gross deferred tax assets	Gross deferred tax assets	69.4	67.1			
Gross deferred tax assets						
Gross deferred tax assets						
Valuation allowance	Valuation allowance	(1.0)	(5.1)			
Total deferred tax assets	Total deferred tax assets	68.4	62.0			
Deferred tax liabilities:	Deferred tax liabilities:					
Properties and equipment	Properties and equipment	(35.4)	(31.2)			
Properties and equipment						
Properties and equipment						
Pension benefits						

Pension benefits			
Pension benefits	Pension benefits	(10.1)	(9.2)
Goodwill and intangibles	Goodwill and intangibles	(63.1)	(64.4)
Other	Other	(1.9)	(1.9)
Gross deferred tax liabilities	Gross deferred tax liabilities	(110.5)	(106.7)
Net deferred tax liabilities	Net deferred tax liabilities	$(42.1)	$(44.7)

The deferred tax asset for net operating loss and tax credit carryforwards at December 31, 2022 December 31, 2023 includes state net operating loss carryforwards of $5.4 million and state income tax credits of $0.3 million, both of which will begin to expire in 2023, foreign net operating loss carryforwards of $9.7 million $4.5 million, which will begin to expire in 2025, 2024, and U.S. foreign tax credits net operating loss carryforwards of $2.6 million $9.5 million, which will begin to expire in 2023. As previously described within, the Company expects to utilize the U.S. foreign tax credits prior to expiration, primarily as a result of tax planning. have an indefinite carryforward period.

The deferred tax asset for tax loss and tax credit carryforwards at December 31, 2021 December 31, 2022, included state net operating loss carryforwards of $6.5 million $5.4 million, state income tax credits of $0.3 million, foreign net operating loss carryforwards of $9.8 million $9.7 million, and U.S. foreign tax credits of $2.8 million $2.6 million.

The $68.4 million $75.5 million of deferred tax assets at December 31, 2022 December 31, 2023, for which no valuation allowance is recorded, is anticipated to be realized through future taxable income or the future reversal of existing taxable temporary differences recorded as deferred tax liabilities at December 31, 2022 December 31, 2023. Should the Company determine that it is not more-likely-than-not to be able to realize its remaining deferred tax assets in the future, an adjustment to the valuation allowance would be recorded in the period such determination is made.

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Generally, the Company has considered cash and cash equivalents held by subsidiaries outside the U.S. to be indefinitely reinvested in its foreign operations and the Company's current plans do not demonstrate a need to repatriate such cash to fund

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U.S. operations. As of December 31, 2022 December 31, 2023, the Company continues to assert that its undistributed earnings of certain foreign subsidiaries are indefinitely reinvested. It is not practicable to determine the income tax liability that would be payable if such earnings were not permanently reinvested.

Valuation Allowances

ASC 740*, Income Taxes*, requires that the future realization of deferred tax assets depends on the existence of sufficient taxable income in future periods. Possible sources of taxable income include taxable income in carryback periods, the future reversal of existing taxable temporary differences recorded as a deferred tax liability, tax-planning strategies that generate future income or gains in excess of anticipated losses in the carryforward period and projected future taxable income. If, based upon all available evidence, both positive and negative, it is more likely than not such deferred tax assets will not be realized, a valuation allowance is recorded. Significant weight is given to positive and negative evidence that is objectively verifiable. A company's three-year cumulative loss position is significant negative evidence in considering whether deferred tax assets are realizable and the accounting guidance restricts the amount of reliance the Company can place on projected taxable income to support the recovery of the deferred tax assets.

We continually evaluate the need to maintain a valuation allowance for deferred tax assets based on our assessment of whether it is more likely than not that deferred tax benefits will be realized through the generation of future taxable income. Appropriate consideration is given to all available evidence, both positive and negative, in assessing the need for a valuation allowance.

During the year ended December 31, 2022 As of December 31, 2023, the total Company's valuation allowance recorded against was $0.5 million, which represents the Company's deferred tax assets decreased by $4.1 million, primarily due to the release estimated amount of a valuation allowance that had previously been recorded against deferred tax assets associated with foreign tax credits in the U.S., and the release of a valuation allowance in the U.K. At December 31, 2022, the total valuation allowance recorded against the Company's deferred tax assets was $1.0 million, comprised of a $0.7 million valuation allowance recorded against state net operating loss carryforwards and a $0.3 million that are not more-likely-than not to be realized prior to expiration. During the year ended December 31, 2023, the Company's valuation allowance recorded against other deferred tax assets. decreased by $0.2 million, primarily due to increased projections of future taxable income associated with these state net operating loss carryforwards.

Unrecognized Tax Benefits

The following table summarizes the activity related to the Company's unrecognized tax benefits:

(in millions)		**2022**	**2021**	**2020**
(in millions of dollars)	**(in millions of dollars)**	**2023**	**2022**	**2021**

Balance at January 1	Balance at January 1	$1.2	$1.2	$1.3
Increases as a result of tax positions taken in the current period	Increases as a result of tax positions taken in the current period	—	0.1	—
Decreases from prior period positions				
Decreases due to lapse of statute of limitations	Decreases due to lapse of statute of limitations	—	(0.1)	(0.1)
Balance at December 31	Balance at December 31	$1.2	$1.2	$1.2

During the year ended December 31, 2023, the Company filed amended U.S. federal income tax returns for the 2015 through 2018 tax years to claim a worthless stock deduction. As of December 31, 2023, the aggregate refund claim associated with the worthless stock deduction was $13.6 million, including interest of $1.8 million which is not included in the table above. As recovery of the refund claim was not considered more-likely-than-not as of December 31, 2023, the Company recognized an offsetting increase to its liability for unrecognized tax benefits. In accordance with ASC 740, the Company has recorded a receivable for the full amount of the refund claim, including interest, and an offsetting liability for unrecognized tax benefits for the same amount. The receivable and offsetting liability have been presented net on the Consolidated Balance Sheets and, as the refund claim is fully reserved, the recognition of the uncertain tax position had no impact on the Consolidated Statements of Operations during the year ended December 31, 2023. As of December 31, 2023, the amended tax returns were under examination by the applicable tax authorities. Subsequent to December 31, 2023, the tax authorities notified the Company that the amended tax returns had been approved, at which point receipt of the refund claim was considered more-likely-than-not. As a result, the Company expects to record a corresponding reduction in unrecognized tax benefits during the first quarter of 2024, which would impact the Company's effective tax rate in 2024.

The Company's accounting policy is to recognize interest and penalties related to income tax matters in income tax expense. At each of December 31, 2022 both December 31, 2023 and 2021, 2022, accruals for interest and penalties amounting to $0.4 million, are were included in the Consolidated Balance Sheets but are not included in the table above. At December 31, 2022 December 31, 2023 and 2021, 2022, liabilities for unrecognized tax benefits, including interest and penalties of $1.6 million $1.1 million and $1.6 million, respectively, were included within Other long-term liabilities on the Consolidated Balance Sheets. At each of December 31, 2022 Sheets and 2021, would impact the Company's effective rate, if recognized.

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Other than the anticipated reduction in unrecognized tax benefits of $0.1 million, were included as a component of Deferred tax liabilities on associated with the Consolidated Balance Sheets.

All approval of the unrecognized amended tax benefits of $1.2 million at each of December 31, 2022 and 2021, would impact our annual effective tax rate, if recognized. We do returns previously described, the Company does not expect any significant change changes to our its unrecognized tax benefits as a result of potential expiration of statute of limitations or settlements with the tax authorities within the next twelve months.

Status of Tax Returns

We file U.S., state and foreign income tax returns in jurisdictions with varying statutes of limitations. The 2019 2020 through 2021 2022 tax years generally remain subject to examination by federal tax authorities, whereas the 2018 2019 through 2021 2022 tax years generally remain subject to examination by most state tax authorities. In significant foreign jurisdictions, the tax years from 2018 2019 through 2021 2022 generally remain subject to examination by their respective tax authorities.

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NOTE 11 — PENSION AND OTHER POST-EMPLOYMENT PLANS

Defined Benefit Pension Plans

The Company and its subsidiaries sponsor two defined benefit pension plans covering certain salaried and hourly employees. These plans have been closed to new participants for a number of years. Benefits under these plans are primarily based on final average compensation and years of service as defined within the provisions of the individual plans. As a result of plan amendments, the latest of which was in 2008, the only new benefits that were being accrued through the end of 2016 were salary increases for a limited group of participants. Those benefits ceased at the end of 2016, at which point all existing plans became fully frozen.

On November 5, 2021, the Company purchased a group annuity contract from an insurance company, under which approximately $25 million of the projected benefit obligation of the U.S. benefit plan was transferred to the insurance company. In this transaction, the insurance company assumed responsibility for pension benefits and administration for approximately 800 retirees or their beneficiaries. The transaction was funded on November 15, 2021 with existing assets of the U.S. benefit plan. As a result, the Company recognized a pension settlement charge of $10.3 million in the year ended December 31, 2021.

The following table summarizes net periodic pension (benefit) expense for the U.S. and non-U.S. benefit plans:

(in millions of dollars)	U.S. Benefit Plan For the Years Ended December 31,			Non-U.S. Benefit Plan For the Years Ended December 31,		
	2023	2022	2021	2023	2022	2021
Company-sponsored plans:						
Service cost						
Service cost						
Service cost						
Interest cost						
Expected return on plan assets						
Amortization of prior service costs						
Amortization of actuarial losses						
Settlement charges						
Net periodic pension (benefit) expense						

(in millions)	U.S. Benefit Plan For the Years Ended December 31,			Non-U.S. Benefit Plan For the Years Ended December 31,		
	2022	2021	2020	2022	2021	2020
Company-sponsored plans:						
Service cost	$ —	$ —	$ —	$ 0.1	$ 0.2	$ 0.2
Interest cost	4.4	4.9	5.8	0.9	0.7	1.0
Expected return on plan assets	(6.9)	(9.6)	(9.2)	(2.0)	(2.0)	(1.9)
Amortization of prior service costs	—	—	—	0.1	0.2	0.1
Amortization of actuarial losses	2.3	3.9	3.2	0.6	0.8	0.5
Settlement charges	—	10.3	—	—	—	—
Net periodic pension (benefit) expense	$(0.2)	$9.5	$(0.2)	$(0.3)	$(0.1)	$(0.1)

The items that comprise Net periodic pension (benefit) expense, other than service cost and settlement charges, are included as a component of Other expense (income) expense, , net on the Consolidated Statements of Operations.

The following table summarizes the weighted-average assumptions used in determining pension costs:

	U.S. Benefit Plan For the Years Ended December 31,			Non-U.S. Benefit Plan For the Years Ended December 31,		
	2023	2022	2021	2023	2022	2021
Discount rate	5.7 %	3.1 %	2.8 %	4.8 %	1.8 %	1.3 %

	U.S. Benefit Plan For the Years Ended December 31,			Non-U.S. Benefit Plan For the Years Ended December 31,		
	2022	2021	2020	2022	2021	2020
Discount rate	3.1 %	2.8 %	3.5 %	1.8 %	1.3 %	2.0 %

Expected long-term rate of return on plan assets	Expected long-term rate of return on plan assets	6.1 %	7.4 %	7.4 %	4.0 %	3.5 %	3.6 %

Expected long-term rate of return on plan assets						
Expected long-term rate of return on plan assets	7.2 %	6.1 %	7.4 %	6.1 %	4.0 %	3.5 %

The following table summarizes the changes in the projected benefit obligation and plan assets:

		U.S. Benefit Plan		Non-U.S. Benefit Plan	
(in millions)		2022	2021	2022	2021
Benefit obligation, beginning of year	Benefit obligation, beginning of year	$142.0	$180.2	$52.8	$57.6
Service cost	Service cost	—	—	0.1	0.2
Interest cost	Interest cost	4.4	4.9	0.9	0.7
Actuarial loss		(29.0)	(8.4)	(13.4)	(1.8)
Benefits and expenses paid	Benefits and expenses paid	(8.4)	(9.3)	(2.6)	(3.4)
Settlement payments		—	(25.4)	—	—
Foreign currency translation	Foreign currency translation	—	—	(5.4)	(0.5)
Benefit obligation, end of year	Benefit obligation, end of year	$109.0	$142.0	$32.4	$52.8
Accumulated benefit obligation, end of year	Accumulated benefit obligation, end of year	$109.0	$142.0	$32.4	$52.8

	U.S. Benefit Plan		Non-U.S. Benefit Plan	
(in millions of dollars)	2023	2022	2023	2022
Actuarial loss (gain)				
Foreign currency translation				
Foreign currency translation				

The following table summarizes the weighted-average assumptions used in determining benefit obligations:

	U.S. Benefit Plan		Non-U.S. Benefit Plan	
	2022	2021	2022	2021
Discount rate	5.7 %	3.1 %	4.8 %	1.8 %

	U.S. Benefit Plan		Non-U.S. Benefit Plan	
	2023	2022	2023	2022
Discount rate	5.4 %	5.7 %	4.5 %	4.8 %

The following summarizes the changes in the fair value of plan assets:

		U.S. Benefit Plan		Non-U.S. Benefit Plan			U.S. Benefit Plan		Non-U.S. Benefit Plan	
(in millions)		2022	2021	2022	2021					
(in millions of dollars)						(in millions of dollars)	2023	2022	2023	2022
Fair value of plan assets, beginning of year	Fair value of plan assets, beginning of year	$120.2	$142.5	$56.5	$57.4					
Actual (loss) return on plan assets (a)		(24.8)	10.5	(14.2)	1.9					
Actual return (loss) on plan assets (a)										
Company contribution	Company contribution	—	1.9	0.9	1.2					
Benefits and expenses paid	Benefits and expenses paid	(8.4)	(9.3)	(2.6)	(3.4)					
Settlement payments		—	(25.4)	—	—					
Foreign currency translation										
Foreign currency translation										
Foreign currency translation	Foreign currency translation	—	—	(5.8)	(0.6)					
Fair value of plan assets, end of year	Fair value of plan assets, end of year	$ 87.0	$120.2	$34.8	$56.5					

(a) Actual return (loss) return on plan assets of the U.S. benefit plan for the years ended December 31, 2022 December 31, 2023 and 2021, 2022, was net of fees, commissions and other expenses paid from plan assets of $1.5 million $1.4 million and $2.2 million $1.5 million, respectively.

As more fully described within Note 18 – Fair Value Measurements, the Company uses a three-level fair value hierarchy that prioritizes the inputs used to measure fair value.

Following is a description of the valuation methodologies used for assets measured at fair value for the U.S. benefit plan:

- Cash and cash equivalents are comprised of cash on deposit and a money market fund, that invests principally in short-term instruments. The money-market fund is valued at the net asset value ("NAV") of the shares in the fund.
- Equity investments represent domestic and foreign securities, including common stock, which are publicly traded on active exchanges and are valued based on quoted market prices. Certain equity securities, which are valued using a model that takes the underlying security's "best" price, divides it by the applicable exchange rate and multiplies the result by a depository receipt factor, are categorized within Level 2 of the fair value hierarchy.
- Fixed income investments include corporate bonds, asset-backed securities and treasury bonds. Corporate bonds are valued using pricing models that include bids provided by brokers or dealers, benchmark yields, base spreads and reported trades. Asset-backed securities are valued using models with readily observable data as inputs. Treasury bonds are valued based on quoted market prices in active markets.

Following is a description of the valuation methodologies used for assets measured at fair value for the non-U.S. benefit plan:

- Cash and cash equivalents are comprised of cash on deposit and a money market fund, that invests principally in short-term instruments. The money-market fund is valued at the NAV of the shares in the fund.

- Diversified investment funds and insurance-linked securities are valued based on a daily NAV per share measured by the fund sponsor and used as the basis for current transactions.

- Fixed income investments include corporate bonds and asset-backed securities. Corporate bonds are valued based on quoted market prices in active markets or other readily observable market data. Asset-backed securities are valued using models with readily observable data as inputs.

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The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Company believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

The following summarizes the Company's pension assets in a three-tier fair value hierarchy for its benefit plans:

		U. S. Benefit Plan							
		2022				2021			
(in millions)		Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
(in millions of dollars)									
Cash and cash equivalents	Cash and cash equivalents	$ 4.1	$ —	$—	$ 4.1	$ 3.6	$ —	$—	$ 3.6
Equity investments:	Equity investments:								
U.S. Large Cap	U.S. Large Cap	10.8	0.1	—	10.9	14.2	0.1	—	14.3
U.S. Large Cap									
U.S. Large Cap									
U.S. Small and Mid Cap	U.S. Small and Mid Cap	13.6	—	—	13.6	17.5	—	—	17.5
Developed international	Developed international	4.8	0.7	—	5.5	7.0	3.1	—	10.1
Emerging markets	Emerging markets	2.0	0.9	—	2.9	2.6	1.3	—	3.9
Fixed income investments:	Fixed income investments:								
Government securities									
Government securities									
Government securities	Government securities	2.9	—	—	2.9	3.8	—	—	3.8
Asset-backed securities	Asset-backed securities	—	0.2	—	0.2	—	0.3	—	0.3
Corporate bonds	Corporate bonds	—	46.4	—	46.4	—	66.2	—	66.2
Total assets at fair value (a)	Total assets at fair value (a)	$38.2	$48.3	$—	$86.5	$48.7	$71.0	$—	$119.7
Total assets at fair value (a)									
Total assets at fair value (a)									

	U. S. Benefit Plan							
	2023				2022			
(in millions of dollars)	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total

(a) Total assets at fair value in the table above exclude a net receivable of $0.5 million $0.8 million and $0.5 million at December 31, 2022 December 31, 2023 and 2021, 2022, respectively.

		Non-U. S. Benefit Plan							
		2022				2021			
(in millions)		Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
(in millions of dollars)									
Cash and cash equivalents	Cash and cash equivalents	$0.9	$ 6.5	$ —	$ 7.4	$0.8	$ 4.6	$ —	$ 5.4
Diversified investment funds (a)	Diversified investment funds (a)	—	15.3	—	15.3	—	23.3	—	23.3
Fixed income investments:	Fixed income investments:								
Asset-backed securities	Asset-backed securities	—	4.0	—	4.0	—	18.1	—	18.1
Asset-backed securities									
Asset-backed securities									
Corporate bonds	Corporate bonds	—	4.1	—	4.1	—	5.1	—	5.1
Other investments:	Other investments:								
Insurance-linked securities	Insurance-linked securities	—	—	4.0	4.0	—	—	4.6	4.6
Insurance-linked securities									
Insurance-linked securities									
Total assets at fair value	Total assets at fair value	$0.9	$29.9	$4.0	$34.8	$0.8	$51.1	$4.6	$56.5

	Non-U. S. Benefit Plan							
	2023				2022			
(in millions of dollars)	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total

(a) These funds primarily invest in a diversified portfolio of equity securities and fixed income securities.

The Company maintains a structured investment strategy for its U.S. and non-U.S. benefit plans, which are designed to achieve certain target asset allocations depending on the plans' relative funded status.

As of December 31, 2022 December 31, 2023, the target asset allocations for the U.S. benefit plan are (i) between 54% and 69% in fixed income investments, (ii) between 29% and 44% in equity investments and (iii) between 0% and 20% in cash and cash equivalents.

Plan assets for the non-U.S. benefit plan consist principally of a portfolio of diversified investment funds, corporate bonds and insurance-linked securities. As of December 31, 2022 December 31, 2023, the target asset allocations for the non-U.S. benefit plan assets are generally between 65% and 75% in fixed income investments and cash and cash equivalents, and between 25% and 35% in equity investments.

The following summarizes the funded status of the Company's benefit plans:

	U.S. Benefit Plan		Non-U.S. Benefit Plan	
(in millions of dollars)	2023	2022	2023	2022
Fair value of plan assets, end of year	$ 88.5	$ 87.0	$ 38.6	$ 34.8
Benefit obligation, end of year	111.5	109.0	33.5	32.4
Funded status, end of year	$ (23.0)	$ (22.0)	$ 5.1	$ 2.4

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The following summarizes the funded status of the Company's benefit plans:

	U.S. Benefit Plan	Non-U.S. Benefit Plan

(in millions)	2022	2021	2022	2021
Fair value of plan assets, end of year	$ 87.0	$ 120.2	$ 34.8	$ 56.5
Benefit obligation, end of year	109.0	142.0	32.4	52.8
Funded status, end of year	$ (22.0)	$ (21.8)	$ 2.4	$ 3.7

The following summarizes the amounts recognized within the Company's Consolidated Balance Sheets:

		U.S. Benefit Plan		Non-U.S. Benefit Plan		U.S. Benefit Plan		Non-U.S. Benefit Plan	
(in millions)		2022	2021	2022	2021				
(in millions of dollars)						(in millions of dollars) 2023	2022	2023	2022
Amounts recognized in our Consolidated Balance Sheets include:	Amounts recognized in our Consolidated Balance Sheets include:								
Deferred charges and other long-term assets									
Deferred charges and other long-term assets									
Deferred charges and other long-term assets	Deferred charges and other long-term assets	$ —	$ —	$ 2.4	$ 3.7				
Long-term pension and other post-retirement benefit liabilities	Long-term pension and other post-retirement benefit liabilities	(22.0)	(21.8)	—	—				
Net (liability) asset recorded	Net (liability) asset recorded	$(22.0)	$(21.8)	$ 2.4	$ 3.7				
Amounts recognized in Accumulated other comprehensive loss include:	Amounts recognized in Accumulated other comprehensive loss include:								
Actuarial losses	Actuarial losses	$ 58.1	$ 57.7	$17.3	$16.9				
Actuarial losses									
Actuarial losses									
Prior service costs	Prior service costs	—	—	2.0	2.4				
Net amount recognized, pre-tax	Net amount recognized, pre-tax	$ 58.1	$ 57.7	$19.3	$19.3				

As the Company's benefit plans are fully frozen, all plan participants are now considered to be inactive. As a result, the associated actuarial losses and prior service costs that are included in Accumulated other comprehensive loss are being amortized into net periodic benefit cost over the remaining average life expectancy of plan participants. The Company expects $2.2 million $2.9 million of the actuarial losses and $0.1 million of the prior service costs to be amortized from Accumulated other comprehensive loss into net periodic benefit cost in 2023. 2024.

The Company currently expects to contribute up to $1.4 million $5.0 million to the U.S. benefit plan and up to $0.9 million $0.2 million to the non-U.S. benefit plan in 2023. 2024. Future contributions to the plans will be based on such factors as annual service cost, the financial return on plan assets, interest rate movements that affect discount rates applied to plan liabilities and the value of benefit payments made.

The following summarizes the benefits expected to be paid under the Company's benefit plans in each of the next five years, and in aggregate for the five years thereafter:

(in millions)		U.S. Benefit Plan	Non-U.S. Benefit Plan
2023		$ 8.2	$ 2.6
(in millions of dollars)	(in millions of dollars)	U.S. Benefit Plan	Non-U.S. Benefit Plan
2024	2024	8.4	2.5
2025	2025	8.7	2.6
2026	2026	8.7	2.4
2027	2027	8.8	2.4
2028-2032		43.1	11.6
2028			
2029-2033			

Defined Contribution Retirement Plan

The Company also sponsors a defined contribution retirement plan (the "401(k) plan") covering a majority of its employees. Participation is via automatic enrollment and employees may elect to opt out of the 401(k) plan. Company contributions to the 401(k) plan are based on an employee's years of service, as well as the percentage of employee contributions. The Company's cost of the 401(k) plan was $11.4 million in 2023, $9.9 million in 2022 and $8.9 million in 2021 and $7.7 million in 2020. 2021.

Deferred Compensation Plan

The Company also provides a deferred compensation plan to certain employees. The deferred compensation plan is a non-qualified, unfunded defined contribution plan, which provides participants with benefits that would have been provided under the 401(k) plan, but could not be provided due to compensation limits for qualified plans under the Internal Revenue Code. At

December 31, December 31, 2023 and 2022, and 2021, deferred compensation liabilities of $15.3 million $19.9 million and $16.8 million $15.3 million, respectively, were included on the Consolidated Balance Sheets, primarily within Long-term pension and other post-retirement benefit liabilities.

Multi-Employer Pension Plan

During the year ended December 31, 2021, the Company withdrew from the IAM National Pension Fund, a multi-employer pension plan that provided defined benefits to employees under a U.S. collective bargaining agreement. As a result, the Company incurred a $0.3 million withdrawal charge, which was recognized as a component of Other (income) expense, net on the Consolidated Statements of Operations. The withdrawal liability was settled in full during the year ended December 31, 2021. Following this withdrawal, the Company no longer participates in any multi-employer pension plans.

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During the year ended December 31, 2020, the Company withdrew from the Sheet Metal Workers' National Pension Fund, a multi-employer pension plan that provided defined benefits to employees under a U.S. collective bargaining agreement. As a result, the Company incurred a $2.3 million withdrawal charge, which was recognized as a component of Other (income) expense, net on the Consolidated Statements of Operations. The withdrawal liability was settled in full during the year ended December 31, 2020. **NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)**

NOTE 12 — COMMITMENTS AND CONTINGENCIES

Financial Commitments

The Company provides indemnifications and other guarantees in the ordinary course of business, the terms of which range in duration and often are not explicitly defined. Specifically, the Company is occasionally required to provide letters of credit and bid and performance bonds to various customers, principally to act as security for retention levels related to casualty insurance policies and to guarantee the performance of subsidiaries that engage in export and domestic transactions. At December 31, 2022 December 31, 2023, the Company had outstanding performance and financial standby letters of credit, as well as outstanding bid and performance bonds, aggregating to $35.0 million $21.2 million. If any such letters of credit or bonds are called, the Company would be obligated to reimburse the issuer of the letter of credit or bond. The Company believes the likelihood of any currently outstanding letter of credit or bond being called is remote.

The Company has transactions involving the sale of equipment to certain of its customers which include (i) guarantees to repurchase the equipment for a fixed price at a future date and (ii) guarantees to repurchase the equipment from the third-party lender in the event of default by the customer. As of December 31, 2022 December 31, 2023, both the single year and maximum potential cash payments the Company could be required to make to repurchase equipment under these agreements amounted to $2.0 million $1.5 million. The Company's risk under these repurchase arrangements would be partially mitigated by the value of the products repurchased as part of the transaction. Historical cash requirements and losses associated with these obligations have not been significant, but could increase if customer defaults exceed current expectations.

The Company has certain lease agreements for facilities owned by affiliates which include provisions requiring the Company to guarantee any remaining lease payments in the event of default. As of December 31, 2022 December 31, 2023, the total amount of future payments guaranteed under these agreements was approximately $1.2 $0.9 million. The

Company believes the likelihood of defaulting on these leases is remote.

Product Warranties

The Company issues product performance warranties to customers with the sale of its products. The specific terms and conditions of these warranties vary depending upon the product sold and country in which the Company does business, with warranty periods generally ranging from one to five years. The Company estimates the costs that may be incurred under its basic limited warranty and records a liability in the amount of such costs at the time the sale of the related product is recognized. Factors that affect the Company's warranty liability include (i) the number of units under warranty, (ii) historical and anticipated rates of warranty claims and (iii) costs per claim. The Company periodically assesses the adequacy of its recorded warranty liabilities and adjusts the amounts as necessary.

The following table summarizes the changes in the Company's warranty liabilities:

(in millions)		**2022**	**2021**			
(in millions of dollars)				**(in millions of dollars)**	**2023**	**2022**
Balance at January 1	Balance at January 1	$9.7	$10.2			
Provisions to expense	Provisions to expense	6.8	6.9			
Acquisitions	Acquisitions	—	0.4			
Payments	Payments	(7.2)	(7.7)			
Foreign currency translation		—	(0.1)			
Balance at December 31	Balance at December 31	$9.3	$ 9.7			

NOTE 13 — LEGAL PROCEEDINGS

The Company is subject to various claims, including pending and possible legal actions for product liability and other damages, and other matters arising in the ordinary course of the Company's business. On a quarterly basis, the Company reviews uninsured material legal claims against the Company and accrues for the costs of such claims as appropriate in the exercise of management's best judgment and experience. However, due to a lack of factual information available to the Company about a claim, or the procedural stage of a claim, it may not be possible for the Company to reasonably assess either the probability of a favorable or unfavorable outcome of the claim or to reasonably estimate the amount of loss should there be an unfavorable outcome. Therefore, for many claims, the Company cannot reasonably estimate a range of loss.

The Company believes, based on current knowledge and after consultation with counsel, that the outcome of such claims and actions will not have a material adverse effect on the Company's results of operations or financial condition. However, in the

event of unexpected future developments, it is possible that the ultimate resolution of such matters, if unfavorable, could have a material adverse effect on the Company's results of operations, financial condition or cash flow.

Hearing Loss Litigation

The Company has been sued for monetary damages by firefighters who claim claiming that exposure to the Company's sirens has impaired their hearing and that the sirens are therefore defective. There Between 1999 and 2013, 40 cases were 33 cases filed during the period on behalf of 1999 through 2004, involving a total of 2,443 2,816 plaintiffs in the Circuit Court of Cook County, Illinois. These cases involved more than 1,800 firefighter plaintiffs from locations outside of Chicago. In 2009, six additional cases were filed in Cook County, involving 299 Pennsylvania firefighter plaintiffs. During 2013, another case was filed in Cook County involving 74 Pennsylvania firefighter plaintiffs.

The trial of the first 27 of these plaintiffs' claims occurred in 2008, whereby a Cook County jury returned a unanimous verdict in favor of the Company.

An additional 40 In 2009, a trial was held on behalf of nine Chicago firefighter plaintiffs were selected for trial in 2009. Plaintiffs' counsel later moved to reduce the number of plaintiffs from 40 to nine. The trial for these nine plaintiffs and concluded with a verdict against the Company and for the plaintiffs in varying amounts totaling $0.4 million. The Company appealed this verdict. On September 13, 2012, the Illinois Appellate Court rejected this appeal. The Company thereafter filed a petition for rehearing with the Illinois Appellate Court, which was denied on February 7, 2013. The Company sought further review by filing a petition for leave to appeal with the Illinois Supreme Court on March 14, 2013. On May 29, 2013, the Illinois Supreme Court issued a summary order declining to accept review of this case. On July 1, 2013, Following appeals, the Company satisfied the judgments, entered for these plaintiffs, which resulted resulting in the final dismissal of these the cases.

A third consolidated trial involving eight Chicago firefighter plaintiffs occurred during in November 2011. The jury returned a unanimous verdict in favor of the Company at the conclusion of this trial.

Following this trial, on March 12, 2012 the trial court entered an order certifying a class of the remaining Chicago Fire Department firefighter plaintiffs for trial on the sole issue of whether the Company's sirens were defective and unreasonably dangerous. The Company petitioned the Illinois Appellate Court for interlocutory appeal of this ruling. On May 17, 2012, the Illinois Appellate Court accepted the Company's petition. On June 8, 2012, plaintiffs moved to dismiss the appeal, agreeing with the Company that the trial court had erred in certifying a class action trial in this matter. Pursuant to plaintiffs' motion, the Illinois Appellate Court reversed the trial court's certification order.

Company. Thereafter, the trial court scheduled a fourth consolidated trial involving three firefighter plaintiffs, which began in December 2012. plaintiffs. Prior to the start of this trial, the claims of two of the three firefighter plaintiffs were dismissed. On dismissed, and on December 17, 2012, the jury entered a complete defense verdict for the Company.

Following this defense verdict, plaintiffs again moved to certify a class of Chicago Fire Department plaintiffs for trial on the sole issue of whether the Company's sirens were defective and unreasonably dangerous. Over the Company's objection, the trial court granted plaintiffs' motion for class certification on March 11, 2013 and scheduled a class action trial to begin on June 10, 2013. The Company filed a petition for review with the Illinois Appellate Court on March 29, 2013 seeking reversal of the class certification order.

On June 25, 2014, a unanimous three-judge panel of the First District Illinois Appellate Court issued its opinion reversing the class certification order of the trial court. Specifically, the Appellate Court determined that the trial court's ruling failed to satisfy the class-action requirements that the common issues of the firefighters' claims predominate over the individual issues and that there is an adequate representative for the class. During a status hearing on October 8, 2014, plaintiffs represented to the Court that they would again seek to certify a class of firefighters on the issue of whether the Company's sirens were defective and unreasonably dangerous. On January 12, 2015, plaintiffs filed motions to amend their complaints to add class action allegations with respect to Chicago firefighter plaintiffs, as well as the approximately 1,800 firefighter plaintiffs from locations outside of Chicago. On March 11, 2015, the trial court granted plaintiffs' motions to amend their complaints. On April 24, 2015, the cases were transferred to Cook County chancery court to decide the class certification issues. On March 23, 2018, plaintiffs filed a motion to certify as a class all firefighters from the Chicago Fire Department who have filed lawsuits in this matter. The Company objected to certification and the parties engaged in discovery and other matters related to this motion.

Thereafter, on December 20, 2021, the parties executed a settlement agreement to resolve claims of approximately 462 firefighters still involved in the Cook County litigation, as well as the DuPage County litigation discussed below. Under the terms of the settlement agreement, the Company agreed agreeing to pay a lump sum of $0.2 million to resolve the claims based upon an assessment of these firefighters. firefighters who met minimal bilateral hearing loss standards. The estimated settlement amount was accrued by the Company. The Company agreed to pay this lump sum amount based upon its assessment of firefighters who meet minimal bilateral hearing loss standards, which is a subset of the larger group referenced above. The settlement agreement did not require the payment of any attorney fees by the Company. The settlement agreement also Company and provided that plaintiffs' attorney would withdraw from representing firefighters who do did not agree to the settlement. The Company had discretion to void the settlement agreement if less than 93% of these firefighters agreed to settle their claims; the settlement agreement would also be voided if less than 70% of eligible firefighters agreed to the settlement. The settlement agreement was subject to review and approval by the Court. In July 2022, the Company issued the $0.2 million settlement payment for eligible plaintiffs who submitted a release. The claims of all other eligible plaintiffs were dismissed for want of prosecution on August 5, 2022.

The Company also filed motions to dismiss cases involving firefighters who worked for fire departments located outside of the State of Illinois based on improper venue. On February 24, 2017, the Circuit Court of Cook County entered orders dismissing dismissed the cases of 1,770 such firefighter plaintiffs from the jurisdiction of the State of Illinois. Pursuant to these orders, these plaintiffs had six months thereafter to refile their cases in jurisdictions where these firefighters are located. Prior to this six-month deadline, attorneys representing some of these plaintiffs contacted the Company regarding possible settlement of their cases. During the year ended December 31, 2017, plaintiffs. In 2017, the Company entered into a global settlement agreement (the "2017 Settlement Agreement") with two attorneys who represented approximately 1,090 of these plaintiffs. Under the terms of the settlement agreement, the Company offered plaintiffs offering to pay $700 per plaintiff to settle these cases, and 717 plaintiffs accepted this offer as a final settlement. The settlement agreement 2017 Settlement Agreement did not require the payment of any attorney fees by the Company. The attorneys representing these plaintiffs agreed to withdraw from representing plaintiffs who did not respond to the settlement offer. It is the Company's position that the non-settling plaintiffs who failed to timely refile their cases following the February 2017 dismissal by the Circuit Court of Cook County are now barred from doing so by the statute of limitations. The Company filed a venue motion seeking to transfer to DuPage County cases involving 10 plaintiffs who reside and work in Illinois but outside of Cook County. The Court granted this motion on June 28, 2017.

The Company was also sued on this issue outside of the Cook County, Illinois venue. Between 2007 and 2009, a total of 71 lawsuits involving 71 plaintiffs were filed in the Court of Common Pleas, Philadelphia County, Pennsylvania. Three of these cases were dismissed pursuant to pretrial motions, filed by the Company. Another one case was voluntarily dismissed. Prior to trial in four cases, the Company paid dismissed, and others were settled for nominal sums to obtain dismissals.

sums. Three trials occurred were held in Philadelphia involving these cases filed in 2007 through 2009. The cases. In the first trial, involving one of these plaintiffs occurred in 2010, when the a jury returned a verdict for the plaintiff. The jury found plaintiff, finding that the Company's siren was not defectively designed but that the Company negligently constructed the siren. The jury awarded damages in the an amount of less

than $0.1 million. The In 2010, a jury returned a defense verdict for the Company appealed this verdict. Another as to the claims of nine plaintiffs. In a third trial, involving nine Philadelphia firefighter plaintiffs, also occurred in 2010 when the jury returned a defense verdict for the Company as to all the claims and all plaintiffs involved in that trial. The third trial, also involving of nine Philadelphia firefighter plaintiffs, was completed during 2010 when plaintiffs. Following the jury returned a defense verdict for the Company as to all claims and all plaintiffs involved in that trial.

Following defense verdicts in the last two Philadelphia trials, in order to avoid the Company negotiated settlements with respect to all remaining filed cases in Philadelphia at that time, as well as other firefighter claimants represented by inconvenience, uncertainty and distraction of the attorney who filed the Philadelphia cases. On January 4, 2011, lawsuits, the Company entered into a Global global settlement agreement (the “2010 Settlement Agreement (the “Settlement Agreement”) with the law firm of the attorney representing the Philadelphia claimants, on behalf of 1,125 claimants the firm represented (the “Claimants”) and who had asserted product claims against the Company (the “Claims”). Three hundred eight of the Claimants had lawsuits pending against the Company in Cook County, Illinois.

The 2010 Settlement Agreement provided that the Company pay a total amount of $3.8 million (the “Settlement Payment”) to settle the Claims claims (including the costs, fees and other expenses of the law firm in connection with its representation of the Claimants), subject to certain terms, conditions and procedures set forth in the Settlement Agreement. In order for the Company to be required to make the Settlement Payment: (i) each Claimant who agreed to settle his or her claims had to sign a release acceptable to the Company (a “Release”), (ii) each Claimant who agreed to the global settlement and who was a plaintiff in a lawsuit, had to dismiss his or her lawsuit with prejudice, (iii) by April 29, 2011, at least 93% of the Claimants identified in the Settlement Agreement must have agreed to settle their claims and provide a signed Release to the Company and (iv) the law firm had to withdraw from representing any Claimants who did not agree to the settlement, including those who filed lawsuits. If the conditions to the settlement were met, but less than 100% of the Claimants agreed to settle their Claims and sign a Release, the Settlement Payment would be reduced by the percentage of Claimants who did not agree to the settlement.

agreement. On April 22, 2011, the Company confirmed that the terms and conditions of the 2010 Settlement Agreement had been met and made a an adjusted payment of $3.6 million to conclude the settlement. The amount was based upon the Company’s receipt of 1,069 signed releases provided by Claimants, which was 95% of all Claimants identified in the Settlement Agreement.

Claimants. The Company generally denies the allegations made in the claims and lawsuits by the Claimants and denies that its products caused any injuries to the Claimants. Nonetheless,

From 2007 through 2009, firefighters also brought hearing loss claims against the Company entered into the Settlement Agreement for the purpose in New Jersey, Missouri, Maryland and Kings County, New York, all of minimizing its expenses, including legal fees, and avoiding the inconvenience, uncertainty and distraction of the claims and lawsuits. which were dismissed prior to trial.

During April through October In 2012, 20 new cases were filed in the Court of Common Pleas, Philadelphia County, Pennsylvania. These cases were filed on behalf of 20 Philadelphia firefighters and involved against various defendants in addition to the Company. Five of these cases were subsequently dismissed. The first trial involving these 2012 Philadelphia cases occurred during in December 2014 and involved three firefighter plaintiffs. The jury returned a verdict in favor of the Company. Following this the trial, all of the parties agreed to settle cases involving seven firefighter plaintiffs set for trial during January 2015 for nominal amounts per plaintiff. amounts.

In January 2015, plaintiffs’ attorneys filed two new complaints in the Court of Common Pleas, Philadelphia Pennsylvania on behalf of approximately 70 additional firefighter plaintiffs. The vast majority of the firefighters identified in these complaints were located outside of Pennsylvania. One of the complaints, in these cases, which involved 11 firefighter plaintiffs from the District of Columbia, was removed to federal court in the Eastern District of Pennsylvania. Plaintiffs voluntarily dismissed all claims in this that case on May 31, 2016. The Company thereafter moved to recover various fees and costs in this case, asserting that plaintiffs’ counsel failed to properly investigate these claims prior to filing suit. The Court granted this motion on April 25, 2017, awarding $0.1 million to the Company (the “Order”). After plaintiffs appealed this Order, the United States Court of Appeals for the Third Circuit affirmed the lower court decision awarding fees and costs to the Company.

With respect to claims of other out-of-state firefighters involved in these two cases, the Company moved to dismiss these claims as improperly filed in Pennsylvania. The Court granted this motion and dismissed these claims on November 5, 2015. During August through December 2015, another nine new cases were filed in the Court of Common Pleas, Philadelphia County, Pennsylvania. These cases involved a total of 193 firefighters, most of whom were located outside of Pennsylvania. The Company again moved to dismiss all claims filed by out-of-state firefighters in these cases as improperly filed in Pennsylvania. On May 24, 2016, the Court granted this motion and dismissed these claims. Plaintiffs appealed this decision and, on September 25, 2018, the appellate court reversed this dismissal. The Company then filed a petition with the appellate court requesting that the court reconsider its ruling. On December 7, 2018, the appellate court granted the Company’s petition and withdrew its prior decision. On June 25, 2020, the Court issued a decision affirming the trial court’s dismissal of these cases with prejudice. May

On May 13, 2016, four 31, 2016. The Company thereafter moved to recover fees and costs in this case, asserting that plaintiffs’ counsel failed to properly investigate the claims prior to filing suit. The Court granted the motion, awarding $0.1 million to the Company, and the United States Court of Appeals for the Third Circuit affirmed the decision awarding fees and costs to the Company. The Court granted the Company’s motion to dismiss the remaining out-of-state firefighters. In 2015, another nine new cases involving a total of 193 firefighters were filed in Philadelphia. The court dismissed all claims filed by out-of-state firefighters, a decision affirmed by the appellate court.

In 2016 and 2017, plaintiffs filed new cases involving a total of 155 Philadelphia firefighters in Philadelphia state court, involving a total of 55 Philadelphia firefighters who live in Pennsylvania. During August 2016, and the Company settled a case for nominal amounts involving four Philadelphia firefighters that had been set for trial in Philadelphia state court during September 2016. During 2017, plaintiffs filed additional cases in the Court of Common Pleas, Philadelphia County, involving over 100 Philadelphia firefighter plaintiffs. During January 2017, plaintiffs filed a motion to consolidate and bifurcate, similar to a motion filed in the Pittsburgh hearing loss cases, as described below. The Company filed an opposition to this motion. These cases were then transferred to the mass tort program in Philadelphia for pretrial purposes. Plaintiffs’ counsel thereafter dismissed several plaintiffs. During In November 2017, a trial involving one Philadelphia firefighter occurred. The occurred, and the jury returned a verdict in favor of the Company in this trial. Prior to a dismissal of these cases pursuant to the Tolling Agreement, discussed below, there was a total of 75 firefighters involved in cases pending in the Philadelphia mass tort program. Company.

During March In 2014, an action also was brought in the Court of Common Pleas of Erie County, Pennsylvania on behalf of 61 firefighters. This case likewise involves firefighters against various defendants in addition to the Company. After the Company filed pretrial motions, 33 Erie County firefighter plaintiffs voluntarily dismissed their claims. Prior to a dismissal of these cases pursuant to the Tolling Agreement, discussed below, there was a total of 28 firefighters involved Also in cases filed in Erie County.

During August 2017, five cases involving 70 firefighter plaintiffs were filed in Lackawanna County, Pennsylvania. These cases involve firefighter plaintiffs who originally filed in Cook County several years ago and were dismissed pursuant to the Company’s forum non conveniens motion.

On September 17, 2014, 2014, 20 lawsuits involving a total of 193 Buffalo Fire Department firefighters were filed in the Supreme Court of the State of New York, Erie County. All of the cases filed in Erie County, New York were removed to federal court in the Western District of New York. Plaintiffs filed a motion to consolidate and bifurcate these cases, similar to the motion filed in the Pittsburgh hearing loss cases, as described below. The Company filed an opposition to the motion. During February 2015, a lawsuit involving one New York City firefighter plaintiff was filed in the Supreme Court of the State of New York, New York County. The plaintiff named the Company as well as several other parties as defendants. That case subsequently was transferred to federal court in the Northern District of New York and thereafter dismissed. During April 2015 through January 2016, 29 new cases involving a total of 235 firefighters were filed in various counties in the New York City area. During December 2016 through October 2017, additional cases were filed in these jurisdictions. On February 5, 2018, the Company was served with a complaint in an additional case filed in Kings County, New York. This case involved one plaintiff. Prior to a dismissal of these cases pursuant to the Tolling Agreement, discussed below, there was a total of 536 firefighters involved in cases filed in the State of New York.

During November In 2015, the Company was served with a complaint filed in Union County, New Jersey state court, involving 34 New Jersey firefighters. This case was transferred to federal court in the District of New Jersey. During the period from January through May 2016, eight additional cases were filed in various New Jersey state courts. Most of the firefighters in these cases resided in New Jersey and worked at New Jersey fire departments. During December 2016, a case involving one New Jersey firefighter was filed in the United States District Court of New Jersey. On May 2, 2017, plaintiffs filed a motion to consolidate and bifurcate in the pending federal court case in New Jersey. This motion was similar to bifurcation motions filed by plaintiffs in Pittsburgh, Buffalo and Philadelphia. The Court denied the motion as premature. Pursuant to a petition filed by both parties, all New Jersey state court cases were consolidated for pretrial purposes. Prior to a dismissal of these cases pursuant to the Tolling Agreement, discussed below, there were a total of 61 firefighters involved in cases filed in New Jersey.

During May through October In 2016, nine cases were filed in Suffolk County, Massachusetts state court, naming the Company as a defendant. These cases involved 194 firefighters who lived and worked in the Boston area. During August In 2017, plaintiffs plaintiffs' attorneys filed additional hearing loss cases in Suffolk County court. The Company moved to transfer various cases filed in Suffolk County to other counties in Massachusetts where plaintiffs resided and worked. Florida. Prior to a dismissal of these cases pursuant to the Tolling Agreement discussed below, there was a total of 218 1084 firefighters involved in cases filed in Massachusetts. these cases.

During August and September 2017, plaintiffs' attorneys filed additional hearing loss cases in Florida. The Company was the only named defendant. These cases were filed in several different counties in Florida, including Tampa, Miami and Orlando municipalities. Prior to a dismissal of these cases pursuant to the Tolling Agreement, discussed below, there was a total of 166 firefighters involved in cases filed in Florida.

During April through July In 2013, additional cases were filed in Allegheny County, Pennsylvania on behalf of 247 plaintiff firefighters from Pittsburgh and against various defendants including the Company. During May In 2016, two additional cases were filed against the Company in Allegheny County involving an additional 19 Pittsburgh firefighters. After the Company filed pretrial motions, the Court dismissed claims of 55 Pittsburgh firefighter plaintiffs. The Court scheduled trials for May, September and

November 2016, for eight firefighters per trial. Prior to the first scheduled trial, in Pittsburgh, the Court granted the Company's motion for summary judgment and dismissed all claims asserted by plaintiff firefighters involved in this trial. Following an appeal by the plaintiff firefighters, the appellate court affirmed this dismissal. The next trial for six Pittsburgh firefighters started on November 7, 2016. Shortly after this trial began, plaintiffs' counsel moved for a mistrial because a key witness suddenly became unavailable. The Court granted this motion and rescheduled this trial for March 6, 2017. During January 2017, plaintiffs also moved to consolidate and bifurcate trials involving Pittsburgh firefighters. In particular, plaintiffs sought one trial involving liability issues to apply to all Pittsburgh firefighters who filed suit against the Company. The Company filed an opposition to this motion. On April 18, 2017, the trial court granted plaintiffs' motion to bifurcate the next Pittsburgh trial. Pursuant to a motion for clarification filed by the Company, the Court ruled that the bifurcation order would only apply to six plaintiffs who were part of the next trial group in Pittsburgh. The Company thereafter sought an interlocutory appeal of the Court's bifurcation order. The appellate court declined to accept the appeal at that time. A bifurcated trial began on September 27, 2017 in Allegheny County, Pennsylvania. Prior to and during trial, two plaintiffs were dismissed, resulting in four plaintiffs remaining for trial. After approximately two weeks of trial, the jury found that the Company's siren product was not defective or unreasonably dangerous and rendered a verdict in favor of the Company. Company in 2017.

In 2017, five cases involving 70 firefighter plaintiffs were filed in Lackawanna County, Pennsylvania.

A second trial involving Pittsburgh firefighters began during January in 2018. At the outset of this trial, plaintiffs' attorneys, who represent all firefighters who have filed cases in Allegheny County, Philadelphia, Buffalo, New Jersey, Massachusetts, and Florida as described above, requested that the Company consider settlement of various cases. This trial was continued to allow the parties to further discuss possible settlement. During In March 2018, the parties agreed in principle on a framework (the "Settlement Framework") to resolve hearing loss claims and cases in all jurisdictions involved in the hearing loss litigation except in Cook County, Illinois and Lackawanna County, Pennsylvania and excluding one a case involving one firefighter in New York City. The firefighters excluded from the Settlement Framework are represented City, cases being handled by different attorneys. The Company later settled the cases in Lackawanna County and settled the case involving one firefighter in New York City for nominal amounts. Pursuant to the Settlement Framework, the Company would pay $700 to each firefighter who filed a lawsuit and is eligible to be part of the settlement. The Company would pay $300 to each firefighter who has not yet filed a case and is eligible to be part of the settlement. The settlement agreement does not include the payment of any attorney fees by the Company. To be eligible for settlement, among other things, firefighters must provide proof that they have high frequency noise-induced hearing loss. There are approximately 2,160 firefighters whose claims may be considered as part of this settlement, including approximately 921 firefighters who have ongoing filed lawsuits. This Settlement Framework was finalized in a global settlement agreement executed on November 4, 2019. Pursuant to this global settlement agreement, the parties are now in the process of determining how many of the approximately 2,160 firefighters will be eligible to participate in the settlement.

In order to minimize the parties' respective legal costs and expenses during this settlement process, on July 5, 2018, the parties entered into a tolling agreement (the "Tolling Agreement"). Pursuant to the Tolling Agreement, counsel for the settling firefighters agreed to dismiss the pending lawsuits in all jurisdictions except for the Allegheny County (Pittsburgh), Pennsylvania cases, and the Company agreed to a tolling of any statute of limitations applicable to the dismissed cases. The Tolling Agreement continued in place until the parties executed the a global settlement agreement (the "2019 Settlement Agreement") on November 4, 2019. After execution of the global settlement agreement, 2019 Settlement Agreement, the Allegheny County (Pittsburgh) cases were dismissed.

Pursuant to the Settlement Framework, the Company would pay $700 to each firefighter who filed a lawsuit and is eligible to be part of the settlement and $300 to each firefighter who has not yet filed a case and is eligible to be part of the settlement. To be eligible for settlement, among other things, firefighters must provide proof that they have high frequency noise-induced hearing loss. There are approximately 2,160 firefighters whose claims may be considered as part of this settlement, including approximately 921 firefighters who have ongoing filed lawsuits. The Settlement Framework was finalized in a global settlement agreement executed on November 4, 2019. The global settlement agreement requires plaintiffs' attorneys to withdraw from representing firefighters who elect not to participate in this the settlement and does not include the payment of any attorney fees by the Company. Pursuant to the 2019 Settlement Agreement, the parties are now in the process of determining how many of the approximately 2,160 firefighters will be eligible to participate in the settlement.

As of December 31, 2022 December 31, 2023, the Company has recognized an estimated liability for the potential settlement amount under the Settlement Framework. While it is reasonably possible that the ultimate resolution of this matter may result in a loss in excess of the amount accrued, the incremental loss is not expected to be material.

From 2007 through 2009, firefighters also brought hearing loss claims against the Company in New Jersey, Missouri, Maryland and Kings County, New York. All of those cases, however, were dismissed prior to trial, including four cases in the Supreme Court of Kings County, New York that were dismissed upon the Company's motion in 2008. On appeal, the New York appellate court affirmed the trial court's dismissal of these cases.

NOTE 14 — EARNINGS PER SHARE

The Company computes earnings per share ("EPS") in accordance with ASC 260, *Earnings per Share*, which requires that non-vested restricted stock containing non-forfeitable dividend rights should be treated as participating securities pursuant to the two-class method. Under the two-class method, net income is reduced by the amount of dividends declared in the period for common stock and participating securities. The remaining undistributed earnings are then allocated to common stock and participating securities as if all of the net income for the period had been distributed. The amounts of distributed and undistributed earnings allocated to participating securities for the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020 2021 were insignificant and did not materially impact the calculation of basic or diluted EPS.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

Basic EPS is computed by dividing income or loss available to common stockholders by the weighted average number of shares of common stock outstanding for the year.

Diluted EPS is computed using the weighted average number of shares of common stock and non-vested restricted stock awards outstanding for the year, plus the effect of dilutive potential common shares outstanding during the year. The dilutive effect of common stock equivalents is determined using the more dilutive of the two-class method or alternative methods. We use the treasury stock method to determine the potentially dilutive impact of our employee stock options and restricted stock units, and the contingently issuable method for our performance-based restricted stock unit awards.

For the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, options to purchase 0.3 million 0.1 million, 0.2 million 0.3 million and 0.5 million 0.2 million shares of the Company's common stock, respectively, had an anti-dilutive effect on EPS, and accordingly, are excluded from the calculation of diluted EPS.

The following table reconciles net income to basic and diluted EPS:

	For the Years Ended December 31,		
(in millions, except per share data)	**2022**	**2021**	**2020**
Income from continuing operations	$ 120.4	$ 100.6	$ 96.1
Gain from discontinued operations and disposal, net of tax	—	—	0.1
Net income	$ 120.4	$ 100.6	$ 96.2
Weighted average shares outstanding — Basic	60.5	60.8	60.3
Dilutive effect of common stock equivalents	0.7	1.1	1.4
Weighted average shares outstanding — Diluted	61.2	61.9	61.7
Basic earnings per share:			
Earnings from continuing operations	$ 1.99	$ 1.65	$ 1.59
Earnings from discontinued operations and disposal, net of tax	—	—	0.00
Net earnings per share	$ 1.99	$ 1.65	$ 1.59
Diluted earnings per share:			
Earnings from continuing operations	$ 1.97	$ 1.63	$ 1.56
Earnings from discontinued operations and disposal, net of tax	—	—	0.00
Net earnings per share	$ 1.97	$ 1.63	$ 1.56

	For the Years Ended December 31,		
(in millions, except per share data)	**2023**	**2022**	**2021**
Net income	$ 157.4	$ 120.4	$ 100.6
Weighted average shares outstanding — Basic	60.7	60.5	60.8
Dilutive effect of common stock equivalents	0.8	0.7	1.1
Weighted average shares outstanding — Diluted	61.5	61.2	61.9
Earnings per share:			

Basic	$ 2.59	$ 1.99	$ 1.65
Diluted	2.56	1.97	1.63

NOTE 15 — STOCK-BASED COMPENSATION

The Company’s stock compensation plan, approved by the Company’s stockholders and administered by the Compensation and Benefits Committee of the Board of Directors of the Company (the “CBC”), provides for the grant of incentive stock options, restricted stock and other stock-based awards or units to key employees and directors. The plan, as amended, authorizes the grant of up to 11.0 million shares or units through April 2030. At December 31, 2022 December 31, 2023, approximately 5.2 million 4.7 million shares were available for future issuance under the plan.

The total compensation expense related to all grants awarded under the plan was $10.2 million $13.1 million, $7.6 million $10.2 million and $8.4 million $7.6 million, for the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively. The related income tax benefits recognized in earnings were $1.9 million $2.0 million, $1.5 million $1.9 million and $1.7 million $1.5 million for the years ended December 31, 2022 December 31, 2023, 2022 and 2021, and 2020, respectively.

Stock Options

Stock options vest ratably (i.e. one-third annually) over the three years from the date of the grant. The cost of stock options, based on their fair value at the date of grant, is charged to expense over the respective vesting periods. Stock options normally become exercisable at a rate of one-third annually and in full on the third anniversary date. Under the plan, all options and rights must be exercised within ten years from date of grant. At the Company’s discretion, vested stock option holders are permitted to elect an alternative settlement method in lieu of purchasing common stock at the option price. The alternative settlement method permits the employee to receive, without payment to the Company, cash, shares of common stock or a combination thereof equal to the excess of market value of common stock over the option purchase price. The Company has historically

hashistorically settled all such options in common stock and intends to continue to do so. Stock options do not have voting or dividend rights until such time that the options are exercised and shares have been issued.

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS — (CONTINUED)

The weighted average fair value of options granted during 2023, 2022 and 2021 was $17.44, $12.64 and 2020 was $12.64, $13.54, and $7.86, respectively.

The fair value of each option grant was estimated using the Black-Scholes option pricing model with the following weighted average assumptions:

		2022	2021	2020				
2023						2023	2022	2021
Expected dividend yield	Expected dividend yield	1.0 %	0.8 %	1.2 %	Expected dividend yield	0.8 %	1.0 %	0.8 %
Expected volatility	Expected volatility	32.7 %	33.0 %	33.0 %	Expected volatility	32.7 %	32.7 %	33.0 %
Risk-free interest rate	Risk-free interest rate	3.0 %	1.1 %	0.5 %	Risk-free interest rate	3.3 %	3.0 %	1.1 %
Expected option life in years	Expected option life in years	6.9	6.4	6.2	Expected option life in years	5.6	6.9	6.4

Dividend yields are based on historical dividend payments. Expected volatility is based on historical volatility of the Company’s common stock. The risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of the grant for periods corresponding with the expected life of the options. The expected life of options represents the weighted average period of time that options granted are expected to be outstanding giving consideration to vesting schedules and the Company’s historical exercise patterns.

The following summarizes stock option activity:

		Option Shares			Weighted Average Exercise Price				Option Shares			Weighted Average Exercise Price		
(in millions, except per share data)	(in millions, except per share data)	2022	2021	2020	2022	2021	2020	(in millions, except per share data)	2023	2022	2021	2023	2022	2021

Outstanding, at beginning of year	Outstanding, at beginning of year	1.4	2.0	2.3	$ 23.58	$ 17.52	$ 13.87
Granted	Granted	0.2	0.2	0.3	35.80	42.84	27.82
Exercised	Exercised	(0.4)	(0.8)	(0.6)	16.09	12.12	7.85
Canceled or expired	Canceled or expired	—	—	—	33.89	30.76	26.44
Outstanding, at end of year	Outstanding, at end of year	1.2	1.4	2.0	$ 27.40	$ 23.58	$ 17.52
Exercisable, at end of year	Exercisable, at end of year	0.8	1.0	1.5	$ 23.60	$ 19.15	$ 14.37

At December 31, 2022 December 31, 2023, options that have vested and are expected to vest totaled 1.2 million 1.0 million shares, with a weighted average exercise price of $27.24, $31.53, and represent the sum of 0.8 million 0.7 million vested (or exercisable) options and 0.4 million 0.3 million options that are expected to vest. Options that are expected to vest are derived by applying the pre-vesting forfeiture rate assumption against outstanding, unvested options as of December 31, 2022 December 31, 2023.

The following table summarizes information for stock options outstanding as of December 31, 2022 December 31, 2023 under all plans:

		Options Outstanding			Options Exercisable	
Range of Exercise Prices	Range of Exercise Prices	Shares	Weighted Average Remaining Life	Weighted Average Exercise Price	Shares	Weighted Average Exercise Price
		(in millions)	(in years)		(in millions)	
$5.01 — 10.00		0.0	0.4	$ 8.40	0.0	$ 8.40
10.01 — 15.00		0.1	3.0	12.88	0.1	12.88
$10.01 — 15.00						
15.01 — 20.00	15.01 — 20.00	0.1	3.9	16.82	0.1	16.82
20.01 — 25.00	20.01 — 25.00	0.2	5.3	23.14	0.2	23.14
25.01 — 30.00	25.01 — 30.00	0.4	6.8	27.58	0.3	27.53
30.01 — 35.00		—	0.0	—	—	—
35.01 — 40.00	35.01 — 40.00	0.2	9.3	35.80	—	—
40.01 — 45.00	40.01 — 45.00	0.2	8.2	42.86	0.1	42.86
		1.2	6.4	$ 27.40	0.8	$ 23.60
50.01 — 55.00						
	1.0					

	Options Outstanding			Options Exercisable		
Range of Exercise Prices	Shares	Weighted Average Remaining Life	Weighted Average Exercise Price	Shares		Weighted Average Exercise Price
	(in millions)	(in years)			(in millions)	

The aggregate intrinsic value of stock options outstanding and exercisable at December 31, 2022 December 31, 2023 was $22.8 million $47.4 million and $19.0 million $37.3 million, respectively. The total intrinsic value of stock options exercised was $9.7 million $9.9 million, $22.7 million $9.7 million and $13.9 million $22.7 million for the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively. The related tax benefits were $2.5 million $2.4 million, $5.7 million $2.5 million and $3.3 million $5.7 million for the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively. Cash received from the exercise of stock options was $0.2 million $3.9 million, $4.2 million $0.2 million and $0.6 million $4.2 million for the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively.

The total compensation expense related to all stock option compensation plans was $2.1 million $2.2 million, $2.0 million $2.1 million and $1.8 million $2.0 million for the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively. As of December 31, 2022 December 31, 2023, there was $2.8 million $3.1 million of total unrecognized compensation cost related to stock options that is expected to be recognized over the weighted-average period of approximately 1.9 years.

Restricted Stock

Restricted stock awards and restricted stock units primarily cliff vest at the third anniversary from the date of grant, provided the recipient is still employed by the Company on the vesting date. The cost of restricted stock, based on the fair market value of the underlying shares determined using the closing market price on the date of grant, is charged to expense over the respective vesting periods. Shares associated with non-vested restricted stock awards have the same voting rights as the Company's common stock and have non-forfeitable rights to dividends. Shares associated with non-vested restricted stock units do not have voting or dividend rights.

The following table summarizes restricted stock activity for the year ended December 31, 2022 December 31, 2023:

	Number of Restricted Shares		Number of Restricted Shares	Weighted Average Price per Share
		Number of Restricted Shares	Weighted Average Price per Share	(in millions)
		(in millions)		
Outstanding and non-vested, at December 31, 2021		0.2	$ 32.15	
Outstanding and non-vested, at December 31, 2022				
Granted	Granted	0.2	35.60	
Vested	Vested	(0.1)	28.35	
Forfeited	Forfeited	—	34.99	
Outstanding and non-vested, at December 31, 2022		0.3	$ 34.93	
Outstanding and non-vested, at December 31, 2023				

The total grant-date fair value of restricted stock that vested in the years ended December 31, 2022 December 31, 2023, 2022 and 2021 was $3.5 million, $2.1 million and 2020 was $2.1 million, $1.9 million and $1.7 million, respectively.

The total compensation expense related to all restricted stock compensation plans was $3.8 million $4.3 million, $2.6 million $3.8 million and $2.5 million $2.6 million for the years ended December 31, 2022 December 31, 2023, 2021 2022 and 2020, 2021, respectively. As of December 31, 2022 December 31, 2023, there was $4.2 million $3.6 million of total unrecognized compensation cost related to restricted stock that is expected to be recognized over the weighted-average period of approximately 1.7 1.8 years.

Performance Awards

In each of the three years in the period ended December 31, 2022 December 31, 2023, the Company granted performance-based restricted stock unit awards ("PSUs") to certain executives and other non-executive officers. Performance targets associated with PSUs are set annually and approved by the CBC. At the Company's discretion, actual payment of the awards earned shall be in cash or in common stock of the Company, or in a combination of both. The Company intends to settle all such awards by issuing shares of its common stock. Shares associated with non-vested PSUs do not have voting or dividend rights until issuance. The Company assesses the probability of vesting, based on expected achievement against these performance targets, on a quarterly basis.

The PSUs granted in 2022 2023 have a three-year performance period ending December 31, 2024 December 31, 2025, in which the Company must achieve a certain cumulative EPS from continuing operations and a certain average return on invested capital ("ROIC"), which are performance conditions per ASC 718, *Compensation — Stock Compensation* ("ASC 718"). The percentage of shares earned under these two performance conditions may be subject to a further 20% modifier, for a maximum potential payout of 240% of target, determined by comparing the Company's total stockholder return ("TSR") over a multi-year performance period, relative to that of the S&P 600 Capital Goods Index. The TSR modifier, which is a market condition under ASC 718, will only apply if the Company's TSR performance over the performance period is in the top or bottom quartile of the S&P 600 Capital Goods Index. If earned, these shares would vest on December 31, 2024 December 31, 2025.

The PSUs granted in 2021 2022 have a three-year performance period ending December 31, 2023 December 31, 2024, in which the Company must achieve a certain cumulative EPS from continuing operations and a certain average ROIC, which are performance conditions per ASC 718. The percentage of shares earned under these two performance conditions may be subject to a further 20% modifier, for a maximum potential payout of 240% of target, determined by comparing the Company's TSR over a multi-year performance period, relative to that of the S&P 600 Capital Goods Index. The TSR modifier, which is a market condition under ASC 718, will only apply if the Company's TSR performance over the performance period is in the top or bottom quartile of the S&P 600 Capital Goods Index. If earned, these shares would vest on December 31, 2024.

The PSUs granted in 2021 had a three-year performance period ending December 31, 2023, in which a certain cumulative EPS and a certain average ROIC was targeted. The number of shares of common stock that the Company may issue in connection with the PSUs granted in 2021 can range from 0% to 200% of target. If earned, these shares would vest on December 31, 2023.

The PSUs granted in 2020 had a three-year performance period ending December 31, 2022, in which a certain cumulative EPS from continuing operations and a certain average ROIC was targeted. The number of shares of common stock that the Company may issue in connection with the PSUs granted in 2020 can range from 0% to 200% of target. The PSUs granted in 2020

2021 became fully vested on December 31, 2022 December 31, 2023. Based on the achievement against targets over the three-year performance period, 125% 132% of the target shares were earned. The underlying shares will be issued to participants in the first quarter of 2023. 2024.

The cost of PSUs, based on their fair value, is charged to expense over the respective vesting periods, which is the three-year period ended December 31, 2022 for the 2020 grants, the three-year period ended December 31, 2023 for the 2021 grants, and the three-year period ended December 31, 2024 for the 2022 grants and the three-year period ended December 31, 2025 for the 2023 grants. The fair value of the PSUs granted in 2021 and 2020 was determined using the closing market price on the date of grant. As the PSUs granted in 2023 and 2022 contain a market condition, the Company utilized a Monte Carlo simulation model to determine the respective grant date fair value, values, using the following assumptions:

PSUs granted in 2023		Expected Volatility	Expected Dividend Yield	Risk-Free Interest Rate	Correlation Between TSR for the Company and the S&P 600 Capital Goods Index
Federal Signal Corporation	Federal Signal Corporation	34.4 %	1.0 %	2.8 %	52.3 %
S&P 600 Capital Goods Index		50.5 %	n/a	2.8 %	n/a
Peer Group within S&P 600 Capital Goods Index					

PSUs granted in 2023	Annual Expected Stock Price Volatility	Annual Expected Dividend Yield	Risk-Free Interest Rate	Correlation Between TSR for Federal Signal Corporation and the Applicable S&P Index
Federal Signal Corporation	29.8 %	0.8 %	3.6 %	48.0 %
Peer Group within S&P 600 Capital Goods Index	44.4 %	n/a	3.6 %	n/a

PSUs granted in 2022	Annual Expected Stock Price Volatility	Annual Expected Dividend Yield	Risk-Free Interest Rate	Correlation Between TSR for Federal Signal Corporation and the Applicable S&P Index
Federal Signal Corporation	34.4 %	1.0 %	2.8 %	52.3 %
Peer Group within S&P 600 Capital Goods Index	50.5 %	n/a	2.8 %	n/a

The total grant-date fair value of PSUs that vested in the years ended December 31, 2022 December 31, 2023, 2022 and 2021 was $4.6 million, $4.0 million and 2020 was $4.0 million, $2.6 million and $5.4 million, respectively.

Compensation expense included in the Consolidated Statements of Operations for the PSUs in the years ended December 31, 2022 December 31, 2023, 2022 and 2021 was $6.6 million, $4.3 million and 2020 was $4.3 million, $3.0 million and $4.1 million, respectively. As of December 31, 2022 December 31, 2023, there was $4.7 million $5.6 million of total unrecognized compensation cost related to PSUs that is expected to be recognized over the weighted-average period of approximately 1.8 1.6 years.

The following table summarizes PSU activity for the year ended December 31, 2022 December 31, 2023:

	Number of PSUs	Weighted Average Price per Share
	(in millions)	
Outstanding and non-vested, at December 31, 2021	0.2	$ 34.87

	Number of PSUs	Number of PSUs	Weighted Average Price per Share
	(in millions)		
Outstanding and non-vested, at December 31, 2022			
Outstanding and non-vested, at December 31, 2022			
Outstanding and non-vested, at December 31, 2022			
Granted (a)	Granted (a)	0.1	35.82
Vested	Vested	(0.1)	28.04
Forfeited	Forfeited	—	37.97
Outstanding and non-vested, at December 31, 2022		0.2	$ 39.83
Outstanding and non-vested, at December 31, 2023			

(a) Includes the effect of the PSUs granted in 2020 2021 being earned at 125% 132% of target.

NOTE 16 — STOCKHOLDERS' EQUITY

The Company's Board of Directors (the "Board") has the authority to issue 90.0 million shares of common stock at a par value of $1 per share. The holders of common stock (i) may receive dividends subject to all of the rights of the holders of preference stock, (ii) shall be entitled to share ratably upon any liquidation of the Company in the assets of the Company, if any, remaining after payment in full to the holders of preference stock and (iii) receive one vote for each common share held and shall vote together share for share with the holders of voting shares of preference stock as one class for the election of directors and for all other purposes. The Company had 69.5 million 70.0 million and 68.9 million 69.5 million common shares issued as of December 31, 2022 December 31, 2023 and 2021, 2022,

respectively. Of those amounts, 60.7 million 61.0 million and 60.9 million 60.7 million common shares were outstanding as of December 31, 2022 December 31, 2023 and 2021, 2022, respectively.

The Board is also authorized to provide for the issuance of 0.8 million shares of preference stock at a par value of $1 per share. The authority of the Board includes, but is not limited to, the determination of the dividend rate, voting rights, conversion and redemption features and liquidation preferences. The Company has not designated or issued any preference stock as of December 31, 2022 December 31, 2023.

Dividends

The Company declared and paid dividends totaling $21.8 million $23.8 million, $21.8 million and $22.0 million during 2023, 2022 and $19.4 million during 2022, 2021, and 2020, respectively.

On February 14, 2023 February 20, 2024, the Board declared a quarterly cash dividend of $0.09 $0.12 per common share payable on March 31, 2023 March 28, 2024 to stockholders of record at the close of business on March 17, 2023 March 15, 2024.

Stock Repurchase Program

In March 2020, the Board authorized a stock repurchase program of up to $75.0 million of the Company's common stock, with the remaining authorization under our previously described repurchase program adopted in November 2014 being subject to the March 2020 program.

The stock repurchase program is intended primarily to facilitate opportunistic purchases of Company stock as a means to provide cash returns to stockholders, enhance stockholder returns and manage the Company's capital structure. Under its stock repurchase program, the Company is authorized to repurchase, from time to time, shares of its outstanding common stock in the open market or through privately negotiated transactions. Stock repurchases by the Company are subject to market conditions and other factors and may be commenced, suspended or discontinued at any time.

During the year ended December 31, 2023, the Company repurchased 93,551 shares for a total of $5.5 million under the stock repurchase program. During the year ended December 31, 2022, the Company repurchased 472,381 shares for a total of $16.1 million under the stock repurchase program. During the year ended December 31, 2021, the Company repurchased 361,804 shares for a total of $15.4 million under the stock repurchase program. During the year ended December 31, 2020, the Company repurchased 498,217 shares for a total of $13.7 million under the stock repurchase program.

Accumulated Other Comprehensive Loss

The following tables summarize the changes in each component of Accumulated other comprehensive loss, net of tax:

(in millions) (a)		Actuarial Losses	Prior Service Costs	Foreign Currency Translation	Interest Rate Swaps	Total
Balance at January 1, 2022		$ (67.9)	$ (2.4)	$ (3.4)	$ (0.5)	$(74.2)
Other comprehensive (loss) income before reclassifications	Other comprehensive (loss) income before reclassifications	(2.9)	0.3	(12.6)	2.9	(12.3)
Amounts reclassified from accumulated other comprehensive loss	Amounts reclassified from accumulated other comprehensive loss	2.2	0.1	—	0.2	2.5
Net current-period other comprehensive (loss) income	Net current-period other comprehensive (loss) income	(0.7)	0.4	(12.6)	3.1	(9.8)
Balance at December 31, 2022		$ (68.6)	$ (2.0)	$ (16.0)	$ 2.6	$(84.0)

(in millions of dollars) (a)	(in millions of dollars) (a)	Actuarial Losses	Prior Service Costs	Foreign Currency Translation	Interest Rate Swaps	Total
Balance at January 1, 2023						
Balance at December 31, 2023						

(a) Amounts in parentheses indicate losses.

(in millions) (a)	Actuarial Losses (b)	Prior Service Costs	Foreign Currency Translation	Interest Rate Swaps	Total
Balance at January 1, 2021	$ (88.2)	$ (2.6)	$ 1.3	$ (2.2)	$ (91.7)
Other comprehensive income (loss) before reclassifications	9.1	—	(4.7)	1.0	5.4
Amounts reclassified from accumulated other comprehensive loss	11.2	0.2	—	0.7	12.1
Net current-period other comprehensive income (loss)	20.3	0.2	(4.7)	1.7	17.5

Balance at December 31, 2021	$ (67.9)	$ (2.4)	$ (3.4)	$ (0.5)	$ (74.2)

(in millions of dollars) (a)	Actuarial Losses	Prior Service Costs	Foreign Currency Translation	Interest Rate Swaps	Total
Balance at January 1, 2022	$ (67.9)	$ (2.4)	$ (3.4)	$ (0.5)	$ (74.2)
Other comprehensive (loss) income before reclassifications	(2.9)	0.3	(12.6)	2.9	(12.3)
Amounts reclassified from accumulated other comprehensive loss	2.2	0.1	—	0.2	2.5
Net current-period other comprehensive (loss) income	(0.7)	0.4	(12.6)	3.1	(9.8)
Balance at December 31, 2022	$ (68.6)	$ (2.0)	$ (16.0)	$ 2.6	$ (84.0)

(a) Amounts in parentheses indicate losses.

(b) During the year ended December 31, 2021, the Company reclassified $10.3 million of actuarial losses from Accumulated other comprehensive loss to Pension settlement charges on the Consolidated Statements of Operations, in connection with the purchase of a group annuity contract from an insurance company. See Note 11 - Pension and Other Post-Employment Plans for further discussion.

The following table summarizes the amounts reclassified from Accumulated other comprehensive loss, net of tax, and the affected line item in the Consolidated Statements of Operations:

Details about Accumulated Other Comprehensive Loss Components	Details about Accumulated Other Comprehensive Loss Components	Amount Reclassified from Accumulated Other Comprehensive Loss For the Years Ended December 31, 2022	2021	Affected Line Item in Consolidated Statements of Operations	Details about Accumulated Other Comprehensive Loss Components	Amount Reclassified from Accumulated Other Comprehensive Loss		Affected Line Item in Consolidated Statements of Operations
		(in millions) (a)						
	2023							
	2023							
		(in millions of dollars) (a)						
		(in millions of dollars) (a)						
		(in millions of dollars) (a)						
Amortization of actuarial losses of defined benefit pension plans	Amortization of actuarial losses of defined benefit pension plans	$(2.9)	$ (4.7)	Other (income) expense, net				
Recognition of actuarial losses associated with pension settlement		—	(10.3)	Pension settlement charges				
Amortization of actuarial losses of defined benefit pension plans								
Amortization of actuarial losses of defined benefit pension plans						$ (2.3)	$(2.9)	Other expense (income), net

Amortization of prior service costs of defined benefit pension plans	Amortization of prior service costs of defined benefit pension plans	(0.1)	(0.2)	Other (income) expense, net	Amortization of prior service costs of defined benefit pension plans	(0.1)	(0.1)	(0.1)	Other expense (income), net		Other expense (income), net
Interest rate swaps	Interest rate swaps	(0.2)	(0.9)	Interest expense	Interest rate swaps	3.2	(0.2)	(0.2)	Interest expense, net		Interest expense, net
Total before tax	Total before tax	(3.2)	(16.1)								
Income tax benefit		0.7	4.0	Income tax expense							
Income tax (expense) benefit											
Income tax (expense) benefit											
Income tax (expense) benefit						(0.2)		0.7		Income tax expense	
Total reclassifications for the period, net of tax	Total reclassifications for the period, net of tax	$(2.5)	$(12.1)								

(a) Amount in parentheses indicate expenses on the Consolidated Statements of Operations.

NOTE 17 — SEGMENT INFORMATION

The Company has two reportable segments. Business units are organized under each reportable segment because they share certain characteristics, such as technology, marketing, distribution and product application, which create long-term synergies. The principal activities of the Company's reportable segments are as follows:

Environmental Solutions — Our Environmental Solutions Group is a leading manufacturer and supplier of a full range of street sweepers, sewer cleaners, industrial vacuum loaders, safe-digging trucks, high-performance waterblasting equipment, road-marking and line-removal equipment, dump truck bodies, trailers, and metal extraction support equipment. equipment and multi-purpose tractors. The Group manufactures vehicles and equipment in the U.S. and Canada that are sold under the Elgin®, Vactor®, Guzzler®, TRUVAC®, Westech™, Jetstream®, Blasters, Mark Rite Lines, Trackless, Ox Bodies®, Crysteel®, J-Craft®, Duraclass®, Rugby®, Travis®, OSW, NTE, WTB, Ground Force, TowHaul®, Bucks® and Switch-N-Go® brand names. Product offerings also include certain products manufactured by other companies, such as refuse and recycling collection vehicles, camera systems, ice resurfacing equipment and snow-removal equipment. vehicles.

Products are sold to both municipal and industrial customers either through a dealer network or direct sales to service customers generally depending on the type and geographic location of the customer. In addition to vehicle and equipment sales, the Group also engages in the sale of parts, service and repair, equipment rentals and training as part of a comprehensive aftermarket offering to its current and potential customers through its service centers located across North America. Our Environmental Solutions Group includes the aggregated results of two operating segments, including TBEI.

In addition, as discussed in Note 2 – Acquisitions, the Company completed the acquisition acquisitions of substantially all of the assets and operations of TowHaul Trackless and Blasters during the year ended December 31, 2022 December 31, 2023. The assets and liabilities of TowHaul Trackless and Blasters have been consolidated into the Consolidated Balance Sheet as of December 31, 2022 December 31, 2023, while the post-acquisition results of operations of TowHaul Trackless and Blasters have been included in the Consolidated Statements of Operations subsequent to their respective closing dates, within the Environmental Solutions Group.

Safety and Security Systems — Our Safety and Security Systems Group is a leading manufacturer and supplier of comprehensive systems and products that law enforcement, fire rescue, emergency medical services, campuses, military facilities and industrial sites use to protect people and property. Offerings include systems for community alerting, emergency vehicles, first responder interoperable communications and industrial communications. Specific products include public safety equipment, such as vehicle lightbars and sirens, industrial signaling equipment, public warning systems and general alarm/public address systems. Products are sold under the Federal Signal™, Federal Signal VAMA®, and Victor® brand names. The Group operates manufacturing facilities in the U.S., Spain, the U.K., and South Africa.

Corporate contains those items that are not included in our reportable segments.

Net sales by reportable segment reflect sales of products and services to external customers, as reported in the Company's Consolidated Statements of Operations. Intersegment sales are insignificant. The Company evaluates performance based on operating income of the respective segment. Operating income includes all revenues, costs and expenses directly related to the segment involved. In determining reportable segment income, neither corporate nor interest expenses are included. Reportable

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segment depreciation and amortization expense, identifiable assets and capital expenditures relate to those assets that are utilized by the respective reportable segment. Corporate assets consist principally of cash and cash equivalents, deferred tax assets and fixed assets. The accounting policies of each reportable segment are the same as those described in Note 1 – Summary of Significant Accounting Policies.

Revenues attributed to customers located outside of the U.S. aggregated to $385.3 million in 2023, $285.0 million in 2022 and $286.4 million in 2021, and $258.6 million in 2020, of which sales exported from the U.S. aggregated to $88.8 million $136.0 million, $77.0 million $88.8 million and $69.7 million $77.0 million, respectively.

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The following table summarizes the Company's continuing operations by segment, including net sales, operating income, depreciation and amortization, total assets and capital expenditures:

		For the Years Ended December 31,					
(in millions)		2022	2021	2020			
	For the Years Ended December 31,						For the Years Ended December 31,
(in millions of dollars)					(in millions of dollars)	2023	2022	2021
Net sales:	Net sales:						
Environmental Solutions							
Environmental Solutions							
Environmental Solutions	Environmental Solutions	$1,190.6	$1,004.0	$ 915.8			
Safety and Security Systems	Safety and Security Systems	244.2	209.2	215.0			
Total net sales	Total net sales	$1,434.8	$1,213.2	$1,130.8			
Operating income:	Operating income:						
Environmental Solutions	Environmental Solutions	$ 144.5	$ 120.5	$ 124.3			
Environmental Solutions							
Environmental Solutions							
Safety and Security Systems	Safety and Security Systems	40.8	32.7	35.5			
Corporate and eliminations	Corporate and eliminations	(24.5)	(22.5)	(28.4)			
Total operating income	Total operating income	160.8	130.7	131.4			
Interest expense	Interest expense	10.3	4.5	5.7			
Debt settlement charges		0.1	—	—			
Pension settlement charges	Pension settlement charges	—	10.3	—			
Other (income) expense, net		(0.5)	(1.7)	1.1			
Pension settlement charges							
Pension settlement charges							
Other expense (income), net							
Income before income taxes	Income before income taxes	$ 150.9	$ 117.6	$ 124.6			
Depreciation and amortization:	Depreciation and amortization:						
Depreciation and amortization:							

Depreciation and amortization:

Environmental Solutions

Environmental Solutions

Environmental Solutions	Environmental Solutions	$ 50.3	$ 46.7	$ 41.3
Safety and Security Systems	Safety and Security Systems	4.2	3.6	3.4
Corporate	Corporate	0.2	0.1	0.1
Total depreciation and amortization	Total depreciation and amortization	$ 54.7	$ 50.4	$ 44.8
Total assets:	Total assets:			

Total assets:

Total assets:

Environmental Solutions

Environmental Solutions

Environmental Solutions	Environmental Solutions	$1,206.4	$1,098.2	$ 926.8
Safety and Security Systems	Safety and Security Systems	279.3	226.9	225.5
Corporate and eliminations	Corporate and eliminations	38.6	41.0	56.3
Total assets of continuing operations		1,524.3	1,366.1	1,208.6
Total assets of discontinued operations		—	—	0.2

Total assets

Total assets

Total assets	Total assets	$1,524.3	$1,366.1	$1,208.8
Capital expenditures:	Capital expenditures:			

Capital expenditures:

Capital expenditures:

Environmental Solutions

Environmental Solutions

Environmental Solutions	Environmental Solutions	$ 19.4	$ 34.3	$ 24.4
Safety and Security Systems	Safety and Security Systems	32.4	2.8	4.1
Corporate	Corporate	1.2	0.3	1.2
Total capital expenditures	Total capital expenditures	$ 53.0	$ 37.4	$ 29.7

The following table summarizes net sales by geographic region based on the location of the end-customer:

(in millions)	For the Years Ended December 31, 2022	2021	2020

(in millions of dollars)	For the Years Ended December 31,			(in millions of dollars)	2023	2022	For the Years Ended December 31, 2021
Net sales:	Net sales:						
U.S.							

U.S.				
U.S.	U.S.	$1,149.8	$ 926.8	$ 872.2
Canada	Canada	175.3	192.4	160.5
Europe/Other	Europe/Other	109.7	94.0	98.1
Total net sales	Total net sales	$1,434.8	$1,213.2	$1,130.8

The following table summarizes long-lived assets by geographic region based on the location of the Company's subsidiaries:

(in millions)		2022	2021	2020				
(in millions of dollars)					(in millions of dollars)	2023	2022	2021
Long-lived assets:	Long-lived assets:							
U.S.								
U.S.								
U.S.	U.S.	$249.4	$219.9	$177.4				
Canada	Canada	59.1	56.3	60.4				
Europe/Other	Europe/Other	4.6	3.9	4.3				
Total long-lived assets	Total long-lived assets	$313.1	$280.1	$242.1				

NOTE 18 — FAIR VALUE MEASUREMENTS

The Company uses a three-level fair value hierarchy that prioritizes the inputs used to measure fair value. This hierarchy maximizes the use of observable inputs and minimizes the use of unobservable inputs. Observable inputs are developed based on market data obtained from independent sources, while unobservable inputs reflect the Company's assumptions about valuation based on the best information available in the circumstances. The three levels of inputs are classified as follows:

- Level 1 — quoted prices in active markets for identical assets or liabilities;
- Level 2 — observable inputs, other than quoted prices included in Level 1, such as quoted prices for markets that are not active, or other inputs that are observable or can be corroborated by observable market data; and
- Level 3 — unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities, including certain pricing models, discounted cash flow methodologies and similar techniques that use significant unobservable inputs.

In determining fair value, the Company uses various valuation approaches within the fair value measurement framework. The valuation methodologies used for the Company's assets and liabilities measured at fair value and their classification in the valuation hierarchy are summarized below:

Cash Equivalents

Cash equivalents primarily consist of time-based deposits and interest-bearing instruments with maturities of three months or less. The Company classified cash equivalents as Level 1 due to the short-term nature of these instruments and measured the fair value based on quoted prices in active markets for identical assets.

Interest Rate Swaps

As described in Note 9 – Debt, the Company may, from time to time, execute interest rate swaps as a means of fixing the floating interest rate component on a portion of its floating-rate debt. The Company classifies its interest rate swaps as Level 2 due to the use of a discounted cash flow model based on the terms of the contract and the interest rate curve (Level 2 inputs) to calculate the fair value of the swaps.

Contingent Consideration

As further described in Note 2 – Acquisitions, of December 31, 2023, the Company has a had contingent obligation obligations to transfer up to $7.5 million, $8.0 million, and C$6.0 million (approximately $4.5 million), to the former owners of Deist, Blasters, and Trackless, respectively, if specified financial results are met over future reporting periods (i.e., an earn-out). The acquisition of Mark Rite Lines Equipment Company, Inc. ("MRL") was Deist, Blasters, and Trackless acquisitions were completed on July 1, 2019. December 30, 2021, January 3, 2023, and April 3, 2023, respectively. The Deist and Trackless contingent earn-out payment, payments, if earned, would be due to be paid following the third anniversary of the closing date. The Blasters contingent earn-out payments, if earned, would be due to be paid annually, in each of the respective acquisition. The MRL earn-out period three years following the anniversary of the closing date. During the year ended December 31, 2023, the Company paid $0.5 million to settle the contingent consideration obligation due to the former owners of Mark Rite Lines Equipment Company, Inc. ("MRL"), which was acquired on July 1, 2022 and the associated earn-out payment is expected to be settled during the first half of 2023. July 1, 2019.

Liabilities for contingent consideration are measured at fair value each reporting period, with the acquisition-date fair value included as part of the consideration transferred. Subsequent changes in fair value are included as a component of Acquisition and integration-related expenses (benefits) expenses, net on the Consolidated Statements of

Operations.

The Company uses an income approach to value the contingent consideration obligation based on the present value of risk-adjusted future cash flows under either a scenario-based or option-pricing method, as appropriate. Due to the lack of relevant

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observable market data over fair value inputs, such as prospective financial information or probabilities of future events as of December 31, 2023, the Company has classified the contingent consideration liability within Level 3 of the fair value hierarchy outlined in ASC 820, *Fair Value Measurements*. As further described in Note 2 – Acquisitions, the Company has recognized a preliminary estimate of the fair value of the Trackless contingent consideration liability as of the applicable acquisition date. This preliminary estimate is subject to change during the measurement period as the applicable third-party valuation is finalized.

The following tables summarize the Company's assets and liabilities that are measured at fair value on a recurring basis as of December 31, 2022 December 31, 2023 and 2021: 2022:

(in millions)		Fair Value Measurement at December 31, 2022 Using Level 1	Level 2	Level 3	Total
(in millions of dollars)	Fair Value Measurement at December 31, 2023 Using				
(in millions of dollars)		Level 1	Level 2	Level 3	Total
Assets:	Assets:				
Cash equivalents					
Cash equivalents					
Cash equivalents	Cash equivalents	$0.2	$—	$—	$0.2
Liabilities:	Liabilities:				
Liabilities:					
Liabilities:					
Contingent consideration					
Contingent consideration					
Contingent consideration	Contingent consideration	—	—	2.7	2.7
Interest rate swaps	Interest rate swaps	—	0.3	—	0.3

(in millions)		Fair Value Measurement at December 31, 2021 Using Level 1	Level 2	Level 3	Total
(in millions of dollars)	Fair Value Measurement at December 31, 2022 Using				
(in millions of dollars)		Level 1	Level 2	Level 3	Total
Assets:	Assets:				
Cash equivalents					
Cash equivalents					

Cash equivalents	Cash equivalents	$0.1	$—	$—	$0.1
Liabilities:	Liabilities:				
Liabilities:					
Liabilities:					
Contingent consideration					
Contingent consideration					
Contingent consideration	Contingent consideration	—	—	2.7	2.7
Interest rate swaps	Interest rate swaps	—	0.7	—	0.7

The following table provides a roll-forward of the fair value of recurring Level 3 fair value measurements for the years ended December 31, 2022 December 31, 2023 and 2021: 2022:

(in millions)		2022	2021			
(in millions of dollars)				(in millions of dollars)	2023	2022
Contingent consideration liability, at January 1	Contingent consideration liability, at January 1	$2.7	$4.2			
Issuance of contingent consideration in connection with acquisitions	Issuance of contingent consideration in connection with acquisitions	—	2.0			
Settlements of contingent consideration liabilities						
Total gains included in earnings (a)	Total gains included in earnings (a)	—	(3.5)			
Total gains included in earnings (a)						
Total gains included in earnings (a)						
Contingent consideration liability, at December 31	Contingent consideration liability, at December 31	$2.7	$2.7			

(a) Included as a component of Acquisition and integration-related expenses (benefits) expenses , net on the Consolidated Statements of Operations.

NOTE 19 — SUBSEQUENT EVENTS

Acquisition of Blasters

On January 3, 2023, the Company completed the acquisition of substantially all the assets and operations of Blasters, Inc. and Blasters Technologies, LLC (collectively, “Blasters”) for an initial purchase price of $13.4 million. In addition, there is a contingent earn-out payment of up to $8.0 million. The initial purchase price, which is subject to certain post-closing adjustments, was funded through existing cash and borrowings under the Company’s revolving credit facility.

Blasters is a leading U.S. manufacturer of truck-mounted waterblasting equipment. The Company expects that the Blasters acquisition will further bolster its position as an industry leading diversified industrial manufacturer of specialized vehicles for maintenance and infrastructure markets with leading brands of premium, value-adding products, and a strong supporting aftermarket platform.

The preliminary purchase price allocation has not been completed at this time due to the proximity of the date of acquisition to the date of issuance of the condensed consolidated financial statements. The post-acquisition operating results of Blasters are expected to be included within the Environmental Solutions Group.

Acquisition of Trackless

On February 23, 2023, the Company announced the signing of a definitive agreement to acquire substantially all the assets and operations of Trackless Vehicles Limited and Trackless Vehicles Asset Corp, including the wholly-owned subsidiary Work Equipment Ltd. (collectively, “Trackless”). The transaction includes an initial purchase price of C$54.0 million (approximately $40.0 million), subject to closing adjustments. In addition, there is a contingent earn-out payment of up to C$6.0 million (approximately $4.4 million), based upon the achievement of certain financial targets over a specified performance period.

Trackless is a leading Canadian manufacturer of multi-purpose, off-road municipal tractors and attachments.

The Company currently expects to complete the transaction during the second quarter of 2023, subject to customary closing conditions.

Item 9. *Changes in and Disagreements with Accountants on Accounting and Financial Disclosure.*

None.

Item 9A. *Controls and Procedures.*

(a) Evaluation of Disclosure Controls and Procedures

The Company carried out an evaluation, under the supervision and with the participation of its management, including the Chief Executive Officer and Chief Financial Officer, of the effectiveness of the design and operation of the Company’s “disclosure controls and procedures” (as defined in the Exchange Act Rule 13a-15(e)) as of December 31, 2022 December 31, 2023.

Based on that evaluation, the Company’s Chief Executive Officer and Chief Financial Officer concluded that the Company’s disclosure controls and procedures were effective as of December 31, 2022 December 31, 2023.

(b) Management’s Annual Report on Internal Control over Financial Reporting and Attestation Report of the Registered Public Accounting Firm

The Company’s management is responsible for establishing and maintaining an adequate system of internal control over financial reporting, as defined in Exchange Act Rule 13a-15(f). Management conducted an assessment of the Company’s internal control over financial reporting based on the framework established by the Committee of Sponsoring Organizations of the Treadway Commission in *Internal Control — Integrated Framework (2013)*. Based on the assessment, management concluded that, as of December 31, 2022 December 31, 2023, the Company’s internal control over financial reporting is effective.

During the year ended December 31, 2022 December 31, 2023, the Company completed the acquisition of substantially all the assets and operations of TowHaul, Trackless, as discussed in Note 2 – Acquisitions to the accompanying consolidated financial statements. Management has excluded the internal controls over financial reporting for the acquired operations Trackless from its assessment of the effectiveness of Company’s internal controls over financial reporting as of December 31, 2022 December 31, 2023. TowHaul’s Trackless’ net sales and total assets (excluding goodwill and intangible assets, which were integrated into the Company’s control environment) represent approximately 1% and 2%, respectively, of the consolidated financial statement amounts as of, and for the year ended, December 31, 2022 December 31, 2023.

Deloitte & Touche LLP, an independent registered public accounting firm, has audited the consolidated financial statements included in this Annual Report on Form 10-K and, as part of their audit, has issued its report, included herein, on the effectiveness of the Company’s internal control over financial reporting. See “Report of Independent Registered Public Accounting Firm” under Item 8 of Part II of this Form 10-K.

(c) Changes in Internal Control over Financial Reporting

From time to time, the Company may make changes aimed at enhancing the effectiveness of the controls and to ensure that the systems evolve with the business. There were no changes in the Company’s internal control over financial reporting that occurred during the Company’s most recently completed fiscal quarter that have materially affected, or are reasonably likely to materially affect, the Company’s internal control over financial reporting.

Item 9B. *Other Information.*

On February 23, 2023, the Company announced the signing of a definitive agreement to acquire substantially all the assets and operations of Trackless. The parties are aiming to complete the transaction during the second quarter of 2023, subject to customary closing conditions. A copy of the related press release is furnished herewith as Exhibit 99.3 to this Form 10-K.

On March 1, 2023 February 27, 2024, the Company issued a press release announcing its financial results for the three months and year ended December 31, 2022 December 31, 2023. The presentation slides for the 2022 2023 fourth quarter earnings call were also posted on the Company’s website at that time. The full text of the press release and earnings presentation is included as Exhibits 99.1 and 99.2, respectively, to this Form 10-K.

Item 9C. *Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.*

Not applicable.

PART III

Item 10. ***Directors, Executive Officers and Corporate Governance.***

A list of our executive officers and biographical information appears in Item 1 of Part I of this Form 10-K. Information regarding directors and nominees for directors is set forth in the Company's definitive proxy statement for its 2023 2024 Annual Meeting of Stockholders and is incorporated herein by reference.

Information regarding the (i) Audit Committee, (ii) Governance and Sustainability Committee and (iii) Compensation and Benefits Committee of the Company's Board of Directors is set forth in the Company's 2023 2024 definitive proxy statement under the caption "Information Concerning the Board" and is incorporated herein by reference.

The Company has adopted a code of ethics that applies to its principal executive officer, principal financial officer and principal accounting officer. This code of ethics and the Company's corporate governance policies are posted on the Company's website at www.federalsignal.com. The Company intends to satisfy its disclosure requirements regarding amendments to or waivers from its code of ethics by posting such information on this website. The charters of the (i) Audit Committee, (ii) Governance and Sustainability Committee and (iii) Compensation and Benefits Committee of the Company's Board of Directors are available on the Company's website and are also available in print free of charge.

Item 11. ***Executive Compensation.***

The information contained under the captions "Information Concerning the Board", "Compensation Committee Interlocks and Insider Participation", "Compensation Discussion and Analysis", "Compensation and Benefits Committee Report" and "Executive Compensation" of the Company's 2023 2024 definitive proxy statement is incorporated herein by reference.

Item 12. ***Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.***

Information regarding security ownership of (i) certain beneficial owners, (ii) all directors and nominees, (iii) named executive officers and (iv) directors and executive officers as a group is set forth in the Company's 2023 2024 definitive proxy statement under the caption "Ownership of Our Common Stock" and is incorporated herein by reference. Information regarding our equity compensation plans is set forth in the Company's 2023 2024 definitive proxy statement under the caption "Equity Compensation Plan Information" and is incorporated herein by reference.

Item 13. ***Certain Relationships and Related Transactions, and Director Independence.***

Information regarding certain relationships is hereby incorporated by reference from the Company's 2023 2024 definitive proxy statement under the headings "Information Concerning the Board" and "Certain Relationships and Related Party Transactions."

Item 14. ***Principal Accountant Fees and Services.***

Information regarding principal accountant fees and services is incorporated by reference from the Company's 2023 2024 definitive proxy statement under the heading "Independent Registered Public Accounting Firm Fees and Services."

PART IV

Item 15. ***Exhibits, Financial Statement Schedules.***

1. Financial Statements

The following consolidated financial statements of the Company and the "Report of the Independent Registered Public Accounting Firm" contained under Item 8 of Part II this Form 10-K are incorporated herein by reference:

(a) Consolidated Statements of Operations for the Years Ended December 31, 2022 December 31, 2023, 2021 2022 and 2020; 2021;
(b) Consolidated Statements of Comprehensive Income for the Years Ended December 31, 2022 December 31, 2023, 2021 2022 and 2020; 2021;
(c) Consolidated Balance Sheets as of December 31, 2022 December 31, 2023 and 2021; 2022;
(d) Consolidated Statements of Cash Flows for the Years Ended December 31, 2022 December 31, 2023, 2021 2022 and 2020; 2021;
(e) Consolidated Statements of Stockholders' Equity for the Years Ended December 31, 2022 December 31, 2023, 2021 2022 and 2020; 2021; and
(f) Notes to Consolidated Financial Statements.

2. Financial Statement Schedules

All schedules for which provision is made in the applicable accounting regulations of the Securities and Exchange Commission are not required under the related instructions or are inapplicable, and therefore, have been omitted.

3. Exhibits

See Exhibit Index.

Item 16. ***Form 10-K Summary.***

None.

EXHIBIT INDEX

The following exhibits, other than those incorporated by reference, have been included in the Company's Form 10-K filed with the Securities and Exchange Commission.

Exhibit Number		Description
3.	a.	Restated Certificate of Incorporation of the Company. Incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed April 30, 2010.
	b.	Second Amended and Restated By-Laws of the Company. Incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed February 9, 2016 October 24, 2023.
4.	a.	Description of Securities. Incorporated by reference to Exhibit 4.a to the Company's Form 10-K for the year ended December 31, 2019.
10.	a. *	Supplemental Pension Plan. Incorporated by reference to Exhibit 10.C to the Company's Form 10-K for the year ended December 31, 1995.
	b. *	Executive Disability, Survivor and Retirement Plan. Incorporated by reference to Exhibit 10.D to the Company's Form 10-K for the year ended December 31, 1995.
	c. *	Savings Restoration Plan, as amended and restated January 1, 2007. Incorporated by reference to Exhibit 10.FF to the Company's Form 10-K for the year ended December 31, 2008.
	d. *	First Amendment of the Federal Signal Corporation Savings Restoration Plan. Incorporated by reference to Exhibit 10.MM to the Company's Form 10-K for the year ended December 31, 2008.
	e. *	Second Amendment to Federal Signal Corporation Savings Restoration Plan. Incorporated by reference to Exhibit 10.NN to the Company's Form 10-K for the year ended December 31, 2008.
	f. *	Third Amendment to Federal Signal Corporation Savings Restoration Plan. Incorporated by reference to Exhibit 10.OO to the Company's Form 10-K for the year ended December 31, 2008.
	g. *	Executive General Severance Plan, as amended and restated August 2012. Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the quarter ended June 30, 2012.
	h. *	Form of 2008 Executive Change-In-Control Severance Agreement (Tier 1) with certain executive officers. Incorporated by reference to Exhibit 10.HH to the Company's Form 10-K for the year ended December 31, 2008.
	i. *	Form of 2008 Executive Change-In-Control Severance Agreement (Tier 2) with certain executive officers. Incorporated by reference to Exhibit 10.II to the Company's Form 10-K for the year ended December 31, 2008.
	j. *	Form of 2010 Executive Change-In-Control Severance Agreement with certain executive officers (Tier 1). Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the quarter ended March 31, 2010.
	k. *	Form of 2010 Executive Change-In-Control Severance Agreement with certain executive officers (Tier 2).
	l. *	Federal Signal Corporation Executive Incentive Performance Plan, as amended and restated. Incorporated by reference to Appendix C to the Company's Definitive Proxy Statement filed on Schedule 14A filed March 25, 2010.
	m. *	Form of Nonqualified Stock Option Award Agreement - U.S. Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the quarter ended March 31, 2015.
	n. *	Form of Nonqualified Stock Option Award Agreement - Non-U.S. Incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q for the quarter ended March 31, 2015.
	o. *	Form of Nonqualified Stock Option Award Agreement - U.S. Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the quarter ended June 30, 2015.
	p. *	Form of Nonqualified Stock Option Award Agreement. Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the quarter ended June 30, 2016.
	q. *	Form of Nonqualified Stock Option Award Agreement. Incorporated by reference to Exhibit 10.4 to the Company's Form 10-Q for the quarter ended June 30, 2017.
	r. *	Form of Performance Share Unit Award Agreement - Non-U.S. Incorporated by reference to Exhibit 10.5 to the Company's Form 10-Q for the quarter ended June 30, 2017.
	s. *	Form of Performance Share Unit Award Agreement - U.S. Incorporated by reference to Exhibit 10.6 to the Company's Form 10-Q for the quarter ended June 30, 2017.
	t. *	Form of Restricted Stock Award Agreement - U.S. Incorporated by reference to Exhibit 10.7 to the Company's Form 10-Q for the quarter ended June 30, 2017.
	u. *	Form of Restricted Stock Unit Award Agreement - Non-U.S. Incorporated by reference to Exhibit 10.8 to the Company's Form 10-Q for the quarter ended June 30, 2017.
	v. *	Federal Signal Corporation 2015 Executive Incentive Compensation Plan. Incorporated by reference to Appendix B to the Company's Definitive Proxy Statement filed on Schedule 14A filed March 18, 2015.

w. s. *	Form of Director Distribution Election. Incorporated by reference to Exhibit 10.s to the Company's Form 10-K for the year ended December 31, 2015.
z. t. *	Short Term Incentive Bonus Plan. Incorporated by reference to Exhibit 10.3 to the Company's Form 10-Q for the quarter ended March 31, 2016.
aa. u. *	Form of Restricted Stock Unit and Dividend Equivalent – Award Agreement (Directors). Incorporated by reference to Exhibit 10.4 to the Company's Form 10-Q for the quarter ended March 31, 2016.

Separation Agreement and General Release, effective January 8, 2017, by and among Dennis J. Martin and Federal Signal Corporation. Incorporated by reference to Exhibit 99.1 to the Company's Form 8-K filed January 11, 2017.

dd. v. * First Amendment to the Federal Signal Corporation 2005 Executive Incentive Compensation Plan (2010 Restatement), dated as of March 26, 2015. Incorporated by reference to Exhibit 10.10 to the Company's Form 10-Q for the quarter ended June 30, 2017.

ee. w. * Second Amendment to the Federal Signal Corporation 2005 Executive Incentive Compensation Plan (2010 Restatement), dated as of July 24, 2017. Incorporated by reference to Exhibit 10.11 to the Company's Form 10-Q for the quarter ended June 30, 2017.

ff. x. * First Amendment to the Federal Signal Corporation Executive Incentive Performance Plan, as amended and restated, dated as of July 24, 2017. Incorporated by reference to Exhibit 10.12 to the Company's Form 10-Q for the quarter ended June 30, 2017.

gg. y. * First Amendment to the Federal Signal Corporation 2015 Executive Incentive Compensation Plan dated as of July 24, 2017. Incorporated by reference to Exhibit 10.13 to the Company's Form 10-Q for the quarter ended June 30, 2017.

ii. z.* Form of Nonqualified Stock Option Award Agreement. Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the quarter ended June 30, 2018.

jj. aa.* Form of Performance Share Unit Award Agreement - Non-U.S. Incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q for the quarter ended June 30, 2018.

kk. bb.* Form of Performance Share Unit Award Agreement - U.S. Incorporated by reference to Exhibit 10.3 to the Company's Form 10-Q for the quarter ended June 30, 2018.

ll. cc.* Form of Restricted Stock Award Agreement - U.S. Incorporated by reference to Exhibit 10.4 to the Company's Form 10-Q for the quarter ended June 30, 2018.

mm. dd.* Form of Restricted Stock Unit Award Agreement - Non-U.S. Incorporated by reference to Exhibit 10.5 to the Company's Form 10-Q for the quarter ended June 30, 2018.

nn. Second Amended and Restated Credit Agreement, dated as of July 30, 2019, by and among the Company, and certain of its foreign subsidiaries, as Borrowers, Wells Fargo Bank, National Association, as administrative agent, swingline lender and issuing lender, JPMorgan Chase Bank, as syndication agent, KeyBank National Association, PNC Bank, National Association and SunTrust Bank, as documentation agents, Wells Fargo Securities, LLC and JP Morgan Chase Bank, N.A., as joint lead arrangers and joint bookrunners, and the other parties thereto. Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the quarter ended June 30, 2019.

oo. ee.* Fourth Amendment to Federal Signal Corporation Savings Restoration Plan, effective as of March 31, 2016. Incorporated by reference to Exhibit 10.zz to the Company's Form 10-K for the year ended December 31, 2019.

pp. ff.* Fifth Amendment to Federal Signal Corporation Savings Restoration Plan, effective as of January 1, 2018. Incorporated by reference to Exhibit 10.aaa to the Company's Form 10-K for the year ended December 31, 2019.

qq. gg.* Sixth Amendment to Federal Signal Corporation Savings Restoration Plan, effective as of January 1, 2019. Incorporated by reference to Exhibit 10.bbb to the Company's Form 10-K for the year ended December 31, 2019.

rr. hh.* Seventh Amendment to Federal Signal Corporation Savings Restoration Plan, effective as of January 1, 2020. Incorporated by reference to Exhibit 10.ccc to the Company's Form 10-K for the year ended December 31, 2019.

ss. ii.* Second Amendment to the Federal Signal Corporation 2015

Executive Incentive Compensation Plan Incorporated by reference to Appendix B to the Company's Definitive Proxy Statement filed on Schedule 14A filed on March 17, 2021.

tt. jj.*	Eighth Amendment to Federal Signal Corporation Savings Restoration Plan, effective as of January 1, 2021. Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the period ended September 30, 2021.
ww.	Purchase and Sale Agreement, dated as of February 1, 2022. Incorporated by reference to Exhibit 10.ww. to the Company's Form 10-K for the year ended December 31, 2021.
	Federal Signal Corporation Retirement Savings Plan, as amended and restated effective as of January 1, 2020.

xx. kk.*	Incorporated by reference to Exhibit 10.xx. to the Company's Form 10-K for the year ended December 31, 2021.
yy. ll.*	First Amendment to the Federal Signal Corporation Retirement Savings Plan, as amended and restated as of January 1, 2020. Incorporated by reference to Exhibit 10.yy. to the Company's Form 10-K for the year ended December 31, 2021.
zz. mm.*	Second Amendment to the Federal Signal Corporation Retirement Savings Plan, as amended and restated as of January 1, 2020. Incorporated by reference to Exhibit 10.zz. to the Company's Form 10-K for the year ended December 31, 2021.
bbb. nn.*	Form of Performance Share Unit Award Agreement - U.S. Incorporated by reference to Exhibit 10.1

to the Company's Form 10-Q for the period ended June 30, 2022.

ccc. oo.* Form of Performance Share Unit Award Agreement - Non-U.S. Incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q for the period ended June 30, 2022.

ddd. Second Amendment to Second Amended and Restated Credit Agreement, dated as of April 19, 2022, among the Company, and certain of its foreign subsidiaries, as Borrowers, each of the Lenders and Wells Fargo Bank, National Association, as administrative agent. Incorporated by reference to Exhibit 10.3 to the Company's Form 10-Q for the period ended June 30, 2022.

Separation Agreement, effective September 12, 2022, by and between Daniel A. DuPré and

eee. pp.*		DuPre and Federal Signal Corporation. Incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed September 13, 2022.
	fff. qq.	Third Amended and Restated Credit Agreement as of October 21, 2022, by and among the Company and certain of its foreign subsidiaries, as Borrowers, the Lenders referred to therein, as Lenders, Wells Fargo Bank, National Association, as Administrative Agent, Swingline Lender and Issuing Lender, PNC Bank, National Association and Truist Bank as Syndication Agents, JPMorgan Chase Bank, N.A. and The Toronto Dominion Bank, New York Branch as Documentation Agents, and Wells Fargo Securities, LLC, PNC Capital Markets LLC and Truist Securities, Inc. as Joint Lead Arrangers and Joint Bookrunners. Incorporated by reference to Exhibit 10.2 to the Company's Form 10-Q for the period ended September 30, 2022.
	ggg. rr.*	Third Amendment to the Federal Signal Corporation Retirement Savings Plan,, dated December 23, 2022.
	hhh. ss.*	Fourth Amendment to the Federal Signal Corporation Retirement Savings Plan, dated December 29, 2022.
	tt. *	Employment Letter dated as of September 1, 2023, by and between the Company and Felix Boeschen. Incorporated by reference to Exhibit 10.1 to the Company's Form 10-Q for the period ended September 30, 2023.
	uu. *	Ninth Amendment to the Federal Signal Corporation Savings Restoration Plan, dated November 13, 2023.
	vv. *	Fifth Amendment to the Federal Signal Corporation Retirement Savings Plan, dated December 28, 2023.
14.		Code of Ethics for Chief Executive Officer and Senior Financial Officers, as amended. Incorporated by reference to Exhibit 14 to the Company's Form 10-K for the year ended December 31, 2003.
19.		Insider Trading Policy.
21.		Subsidiaries of the Registrant.
23.		Consent of Independent Registered Public Accounting Firm.
31.1		CEO Certification under Section 302 of the Sarbanes-Oxley Act.
31.2		CFO Certification under Section 302 of the Sarbanes-Oxley Act.
32.1		CEO Certification of Periodic Report under Section 906 of the Sarbanes-Oxley Act.
32.2		CFO Certification of Periodic Report under Section 906 of the Sarbanes-Oxley Act.
97.		Clawback Policy.
99.1		Fourth Quarter Financial Results Press Release dated March 1, 2023February 27, 2024.
99.2		Fourth Quarter Earnings Call Presentation Slides.
99.3		Federal Signal Corporation Press Release, dated February 23, 2023
101.INS		XBRL Instance Document (the instance document does not appear in the Interactive Data File because its XBRL tags are embedded within the Inline XBRL document).
101.SCH		Inline XBRL Taxonomy Extension Schema Document.
101.CAL		Inline XBRL Taxonomy Calculation Linkbase Document.
101.DEF		Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB		Inline XBRL Taxonomy Label Linkbase Document.
101.PRE		Inline XBRL Taxonomy Presentation Linkbase Document.
104		Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101).

* Management contract or compensatory plan or arrangement required to be filed as an exhibit pursuant to Item 15(a)(3) of Form 10-K.

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.

FEDERAL SIGNAL CORPORATION

By: /s/ Jennifer L. Sherman

Jennifer L. Sherman

President and Chief Executive Officer

(Principal Executive Officer)

Date: March 1, 2023 February 27, 2024

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 Company and in the capacities indicated, as of March 1, 2023 February 27, 2024.

/s/ Jennifer L. Sherman Jennifer L. Sherman	President, Chief Executive Officer and Director (Principal Executive Officer)
/s/ Ian A. Hudson Ian A. Hudson	Senior Vice President, Chief Financial Officer (Principal Financial Officer)
/s/ Lauren B. Elting Lauren B. Elting	Vice President, Corporate Controller and Chief Accounting Officer (Principal Accounting Officer)
/s/ Dennis J. Martin Dennis J. Martin	Chairman and Director
/s/ Katrina L. Helmkamp Katrina L. Helmkamp	Director
/s/ Eugene J. Lowe, III Eugene J. Lowe, III	Director
/s/ Bill Owens Bill Owens	Director
/s/ Shashank Patel Shashank Patel	Director
/s/ Brenda L. Reichelderfer Brenda L. Reichelderfer	Director
/s/ John L. Workman John L. Workman	Director

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Effective 07/27/2023 S.P.P. No. 6.1.4 INSIDER TRADING POLICY I. PURPOSE AND STATEMENT OF POLICY The Board of Directors of Federal Signal Corporation, on behalf of Federal Signal Corporation and its foreign and domestic subsidiaries (collectively, the “Company”), has adopted this Insider Trading Policy (this “Policy”) for the Company’s directors, officers, employees, and consultants. It applies to trading of the Company’s Securities (see definition in Section II.B. below) as well as the securities of other publicly traded companies with whom the Company has a business relationship. This Policy supersedes and replaces the prior insider trading policies, including the Insider Trading Policy adopted by the Board in 2004 and prior SPP No. 6.1.4. The Company is committed to continuing to maintain a robust program designed to educate Company directors, officers, and employees about the dangers of insider trading, establish mandatory rules, and prevent insider trading and claims or the appearance of the same. Federal and state securities laws prohibit insider trading – the purchase or sale of a company’s securities by persons who are aware of material information about that company that is not generally known or available to the public. Likewise, these laws prohibit persons who are aware of such material non-public information (see definition in Section IV below) from disclosing this information to others for the purpose of trading in the stock of a company with inside information. Companies and their controlling persons are also subject to liability if they fail to take reasonable steps to prevent insider trading by Company personnel. The penalties for violation of these laws can be severe. • Civil and Criminal Penalties upon Individuals: Individuals who trade on material non-public information or “tip” such information to others may be imprisoned for several years and subjected to significant criminal fines. They also may be sued in private actions, subjected to an injunction, and forced to disgorge any trading profits gained or losses avoided. Additional civil penalties, up to three (3) times the trading profits gained or losses avoided, may also be imposed on such persons. If a person or entity relies on a recommendation (a “tip”) made in violation of this Policy, or uses material non-public information disclosed in violation of this Policy to engage in a transaction involving company securities, the director, officer, employee, or consultant who violated this Policy will be legally responsible for the consequences of the transaction as if they engaged in the transaction for their own account. • Company Liability: If the Company fails to take appropriate steps to prevent illegal insider trading, the Company may have “controlling person” liability, with significant civil and criminal penalties. Federal Signal Corporation Standard Policies and Practices

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Effective 07/27/2023 2 Accordingly, it is the policy of the Company that all directors, officers, employees, and consultants comply with federal and state securities laws governing insider trading and disclosure of material non-public information. The Company prohibits: (a) the unauthorized disclosure of material non-public information to any person or entity who is not authorized by the Company to have access to such information; and (b) the use of such information for one's own personal or economic benefit or the personal or economic benefit of a third party. In addition, because certain people have regular access to material non-public information, the Company has adopted additional rules and prohibitions as to when they may trade in Company Securities. These individuals, who are defined within Section VI of this Policy as "Insiders," are prohibited by this Policy from trading during Company designated "Blackout Periods." Likewise, given the complexity of securities laws and the fact-specific nature of the applicable legal analyses, additional trading restrictions and requirements apply to Insiders and are set forth in Section VII of this Policy. This Policy is designed to prevent insider trading (or allegations of insider trading) and other specified conduct to protect the Company's reputation and to promote ethical conduct. It is the obligation of each of the Company's directors, officers, employees, and consultants to understand and comply with this Policy and the securities laws. The ultimate responsibility for adhering to this Policy and securities laws rests with the individual. Failure to comply with this Policy may subject you to Company-imposed discipline, including dismissal, whether or not your failure to comply with this Policy results in a violation of law. Should you have any questions regarding this Policy, please contact the Company's General Counsel, Diane Bonina, who is the Company's Chief Compliance Officer for Insider Trading ("Compliance Officer"), at (630) 954-2009 or dbonina@federalsignal.com. II. SCOPE A. This Policy applies to all of the following (each, a "Covered Person" and collectively, "Covered Persons"): 1. Members of the Company's Board of Directors; 2. Officers and employees of the Company; 3. Contractors and consultants of the Company ("Consultants"); 4. Immediate family members (e.g., spouses, parents, children, and siblings, whether by blood, marriage, or adoption) whose transactions in Company Securities are directed by or subject to the influence or control of directors, officers, employees, or Consultants ("Family Members"); 5. People living in the same residence as any director, officer, employee, or Consultant, regardless of relationship ("Co-Habitants"); and 6. Persons or entities controlled by a director, officer, employee, or Consultant, including corporations, partnerships and trusts ("Controlled Parties"). Directors, officers, employees, and Consultants are responsible for their own violations of this Policy. They are also responsible for Policy violations by their

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Effective 07/27/2023 3 Family Members, Co-Habitants, and Controlled Parties and for ensuring such persons are aware of, and comply with, the provisions of this Policy. B. This Policy covers all transactions in "Company Securities" including but not limited to common stock, stock options, restricted stock, restricted stock units, derivative securities such as put and call options, convertible debentures and convertible preferred stock (including derivative securities not issued by the Company, such as exchange-traded funds or exchange-traded put or call options or swaps relating to the Company's stock), and debt securities (debentures, bonds, and notes). For the avoidance of doubt, this Policy applies to Company Securities granted as part of compensation or otherwise held, directly or indirectly, by individuals subject to this Policy. C. The only exceptions to the prohibitions set forth in this Policy are those specifically described in Section VIII, entitled "Policy Exceptions." III. PROHIBITION ON INSIDER TRADING No Covered Person who is aware of material non-public information may, directly or indirectly: 1. Engage in transactions in Company Securities (e.g., purchase, sell, or offer to purchase or sell any Company Securities, in either a privately negotiated or open market transaction), even though (a) they may have planned to make the purchase or sale before learning of the material non-public information; (b) failure to execute the purchase or sale may result in an economic loss to, or the non-realization of anticipated profit by, the individual; or (c) publicly disclosed information about the Company might, even aside from the material non-public information, provide a sufficient basis for the transaction; 2. Recommend that another person or entity engage in transactions in Company Securities (sometimes referred to as "tipping"); 3. Disclose material non-public information to anyone who is not specifically authorized by the Company to have access to such information, including but not limited to posting such information to internet message boards, chat rooms, or otherwise on social media; or 4. Assist anyone in the above activities. In addition, no individual who becomes aware of material non-public information about another company, including customers and suppliers and firms with which the Company may be negotiating major transactions, may engage in any of the above activities with respect to the securities of such other company. All Covered Persons must treat material non-public information about third parties with the same care required with respect to information directly related to the Company. IV. MATERIAL NON-PUBLIC INFORMATION A. It is not possible to define all categories of material non-public information concerning the Company. However, information should be treated as material non-public information if: 1. There is a reasonable likelihood that the information would be considered important to a reasonable investor in making an investment decision to purchase or sell Company Securities or the information could be expected to affect the Company's stock price, whether positively or

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Effective 07/27/2023 4 negatively; and 2. The information has not been previously disclosed by the Company to the general public. B. In all cases where a Covered Person is not certain if the information is material non-public information, they should exercise caution and treat the information as if it is material non-public information. While it is not possible to define all categories of material non-public information, below are examples of information that may be found to be material in particular situations: • Financial condition or results; • Projections of future financial condition or results; • Receipt of or delay in receiving any key regulatory approvals; • Significant new research and development or product announcements; • Significant product defects or modifications; • Pending or proposed acquisitions, mergers, divestitures, joint ventures, partnerships, spin-offs, or tender offers; • Pending or proposed acquisitions or dispositions of a significant assets; • Company restructuring; • Significant related party transactions; • Impending defaults on indebtedness, bankruptcy, or other financial liquidity problem; • Gains or losses of substantial customers or orders; • Major changes in senior management; • A change in dividend policy, the declaration of a stock spilt, an offering of additional securities or plans to repurchase Company securities; • Significant changes in the Company's pricing or cost structure; • Significant changes in sources or availability of supply; • Planned construction or acquisition of major facilities; • Planned introduction of significant new products or product lines; • Strikes and material events in labor relations; • Significant marketing plans or changes in such plans; • Significant capital investment plans or changes in such plans; • Major financings or borrowings; • A change in auditors or notification that the auditor reports may no longer be relied upon; • Changes in accounting methods and write-offs; • Significant data breaches or similar matters; • Developments in significant litigation, administrative actions, or governmental investigations concerning the Company or any of its officers or directors; • Any substantial change in industry circumstances or competitive conditions that could significantly affect the Company's future; and • Any nonpublic information relating to the Company's actual or contemplated entry into, or amendment or termination of, a share repurchase plan or program. C. This Policy applies when information that is material is non-public. To be "public", the information must have been widely disseminated in a manner designed to reach investors generally and the investing public has had time to absorb the information. The circulation of rumors, even if accurate and reported in the media, does not constitute effective public dissemination. Generally, Covered Persons should not engage in any transaction involving Company Securities until

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Effective 07/27/2023 5 at least two (2) full trading days after material non-public information has been released to the public. For purposes of this Policy, the term "trading day" means a day on which national stock exchanges are open for trading. Even with the disclosure of information to the public as contemplated above, the pre-clearance requirements set forth in Section VII of this Policy continue to apply. D. All material non-public information relating to the Company constitutes confidential information and is the property of the Company, and the Company has the sole and exclusive right to determine how and when to disclose such information to the public. Toward this end: 1. Only the Company's Chief Executive Officer ("CEO"), Chief Financial Officer ("CFO"), or the Compliance Officer may authorize the release of material non-public information to the public. 2. All requests from the press for interviews of Company personnel concerning material non-public information should be referred to the CEO, CFO, and Compliance Officer for review prior to granting such requests. Any two of the CEO, CFO, and Compliance Officer may grant such requests. 3. All inquiries (including requests for plant visits) from investors, stock exchanges, security analysts, lenders, rating agencies and stockbrokers must be referred to the CEO, CFO, and Compliance Officer for review. Any two of the CEO, CFO, and Compliance Officer may approve the response to the inquiry. E. Inadvertent or intentional disclosures of material non-public information must be brought immediately to the attention of the Compliance Officer. F. Questions about whether information constitutes material non-public information should be directed to the Compliance Officer. V. PROHIBITION ON HEDGING AND PLEDGING TRANSACTIONS The Company has determined that certain speculative transactions may present perverse incentives, heightened legal risks, and the potential for the appearance of improper conduct. Therefore, no Covered Person may engage in the following types of transactions at any time: 1. Hedging or monetization transactions or similar arrangements with respect to Company Securities (e.g., prepaid variable forwards, equity swaps, collars, and exchange funds). Hedging transactions will not include investment in any registered investment fund (i.e., a mutual fund) or exchange traded fund (ETF) that invests generally in derivative instruments, including short positions, across a broad variety of corporate stocks or securities. 2. Selling Company Securities short. 3. Holding Company Securities in a margin account or pledging Company Securities as collateral for a loan. 4. Buying or selling puts or calls or other derivative securities on the Companies Securities. 5. Entering into standing and limit orders which are not of limited duration and do not otherwise comply with the requirements of this Policy.

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Effective 07/27/2023 6 VI. BLACKOUT PERIODS A. Because of their position with the Company, certain individuals designated as "Insiders" (defined below) are automatically deemed, for purposes of this Policy, to possess material non-public information from time to time throughout the year and are prohibited from trading in Company Securities during these time periods, known as "Blackout Periods." During Blackout Periods, unless specifically authorized by the Compliance Officer, Insiders, and their Family Members, Co-Habitants, and Controlled Parties, are not permitted to trade in Company Securities. For the avoidance of any doubt, Insiders, and their Family Members, Co-Habitants, and Controlled Parties, may not trade in Company Securities outside of Blackout Periods if they possess material non-public information at such time. Trading in Company Securities outside of Blackout Periods should not be considered a "safe harbor." B. The following persons are designated as "Insiders" for purposes of this Policy: 1. Any member of the Company's Board of Directors; 2. Any member of the Company's Enterprise Leadership Team; 3. All employees working in the Company's Corporate office; and 4. Any other employees or group of employees designated from time to time by the Compliance Officer. C. The Company has established four routine quarterly Blackout Periods. Each quarterly Blackout Period begins two (2) weeks (i.e., ten trading days) prior the end of the quarter and ends two (2) full trading days after the release of the Company's quarterly (or annual) financial results. D. In connection with other significant events (such as a pending acquisition), the Company may determine that it is appropriate to impose additional Blackout Periods, or to extend the quarterly Blackout Periods with respect to some or all of the individuals designated as Insiders. Such additional Blackout Periods require the approval of any two of the CEO, CFO, and Compliance Officer. Prior to the beginning of any non-quarterly or extended quarterly Blackout Period, Insiders who are restricted during such period will be notified via email of the expected duration of the Blackout Period. The Company will attempt to provide Insiders with advance notice of the beginning of any Blackout Period. However, it may be necessary to impose or extend a Blackout Period on very short notice and the Company reserves the right to do so at any time. The existence of a non-quarterly or extended quarterly Blackout Period should be treated as confidential information of the Company and should not be disclosed. E. If you have questions about Blackout Periods, please contact the Compliance Officer. VII. ADDITIONAL RESTRICTIONS ON INSIDERS A. Section 16 Obligations: Many additional limitations and requirements are imposed by law and this Policy on directors and Company officers who are required to file Forms 3, 4 or 5 pursuant to Section 16 of the Securities Exchange Act of 1934, as amended ("Exchange Act"). These individuals are referred to herein as "Section 16 Officers." The requirements imposed on directors and

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Effective 07/27/2023 7 Section 16 Officers include but are not limited to trading disclosure obligations and restrictions on "short swing" transactions. For more information with regard to the Section 16 filing obligations and the short swing profit rules, please contact the Compliance Officer. B. Pre-Clearance Rule: In addition to all other restrictions set forth in this Policy, no Insider (or any Family Members, Co-Habitants, and Controlled Parties of Insiders) may engage in any transaction involving Company Securities without first obtaining pre-clearance from the Compliance Officer unless such transaction is pursuant to a pre-approved Trading Plan (See Section VIII.E). Pre-clearance is required for all transactions, including but not limited to changes in 401(k) participation levels and other discretionary transactions thereunder and stock option exercises involving Company Securities. Requests for pre-clearance should be submitted to the Compliance Officer by email at least two (2) business days in advance of the proposed transaction. Each proposed transaction will be evaluated to determine if it raises insider trading concerns or other concerns under federal and state securities laws. The Compliance Officer will promptly consider any such request but is under no obligation to approve a transaction. If a request for pre-clearance is denied, the requesting party may not initiate the transaction. If pre-clearance is approved, the requesting party may proceed with the transaction after receiving such approval and must complete the transaction within two (2) trading days after receiving approval unless an exception is granted or the requesting party becomes aware of material non-public information before the trade is executed in which case the pre-clearance is void and the trade must not be completed. If the transaction order is not completed within this window, pre-clearance of the transaction must be re-requested. The Company may find it necessary, from time to time and in its discretion, to require compliance with the pre-clearance process from additional employees and Consultants. VIII. POLICY EXCEPTIONS Subject to the satisfaction of applicable pre-clearance requirements set forth in Section VII of this Policy, the trading restrictions of this Policy do not apply to the following general exceptions: A. Exercises of stock options where the individual pays cash for the cost of the exercise ("Cash Exercises"), and/or the surrender of shares to the Company in payment of the stock option exercise price or in satisfaction of any tax withholding obligations related to the exercise ("Net Exercises"), are not subject to this Policy, provided that any Company Securities acquired pursuant to such exercise are not sold while the acquirer is in possession of material non-public information or during a Blackout Period. An individual's decision to sell shares acquired by exercising stock options is a separate trading decision from the stock option exercise and remains subject to the other restrictions set forth in this Policy, meaning the sale of such acquired shares may not occur while the individual is in possession of material non-public information or subject to a Blackout Period. For the avoidance of doubt, broker-assisted "Cashless Exercises" are not exempted from the Blackout restrictions set forth in this Policy. Such exercises involve the contemporaneous sale of shares into the open market, are not intra-

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Effective 07/27/2023 8 company, and may not be implemented while the individual is in possession of material non-public information or while they are subject to a Blackout Period. B. The vesting of any equity awards, or the exercise of a tax withholding right pursuant to which an individual elects (or the Company elects on the individual's behalf) to have the Company withhold shares of stock to satisfy tax withholding requirements upon the vesting or settlement of any restricted stock or restricted stock unit award. C. Purchases of Company Securities in the Company's 401(k) Plan resulting from periodic contributions of money pursuant to a payroll deduction notice. Blackout Period restrictions and pre-clearance requirements do apply, however, to certain elections made under the Company's 401(k) Plan, including: (a) an election to increase or decrease the percentage of periodic contributions that will be allocated to the Company stock fund; (b) an election to make an intra-plan transfer of an existing account balance into or out of the Company stock fund; (c) an election to borrow money against a 401(k) Plan account if the loan will result in a liquidation of some or all of the Company stock fund balance; and (d) an election to pre-pay a plan loan if the pre-payment will result in allocation of loan proceeds to the Company stock fund. D. Gifts of Company Securities provided that: (i) the donor does not have reason to believe that the recipient intends to sell the Company Securities while the donor is aware of material non-public information; or (ii) the recipient is subject to this Policy. Additionally, donors of Company securities may be subject to certain Section 16 reporting obligations. E. Rule 10b5-1 of the Exchange Act provides an affirmative defense against insider trading liability for individuals who have entered into a pre-existing written plan, contract, instruction, or arrangement that meets certain requirements (a "Trading Plan"). Generally, a Trading Plan is a binding contract to purchase or sell securities that must: (a) have been entered into in good faith at a time when the Covered Person was not aware of any material non-public information (and, if a Covered Person is an Insider, during a non-Blackout Period); (b) have been reviewed and approved (as described below) at least thirty (30) days in advance of any trades thereunder; (c) include a cooling-off period before trades can commence thereunder equal to at least (i) for officers and directors, the later of (x) ninety (90) days after the adoption of such Trading Plan and (y) two (2) business days after the disclosure of the Company's financial results for the fiscal quarter in which the Trading Plan was adopted or modified, and (ii) for all other Covered Persons, thirty (30) days after the adoption of such Trading Plan (as applicable, a "Cooling-off Period"); (d) for officers and directors, include a representation certifying that, at the time of adoption or modification of such Trading Plan, such officer or director (i) is not aware of any material nonpublic information about the Company or its securities, and (ii) is adopting such Trading Plan in good faith and not as part of a scheme to evade the prohibitions of Rule 10b5-1 under the Exchange Act; (e) either (i) explicitly specify the Company security or securities to be purchased or sold, the number of shares, the prices and/or dates of transactions, or other formula(s) describing such transactions; or (ii) delegate discretion of these matters to an independent third party, so long as such third party does not possess any material nonpublic information

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Effective 07/27/2023 9 about the Company; and (f) be the only outstanding Trading Plan entered into by the Covered Person (subject to the exceptions set forth in Rule 10b5-1(c)(ii)(D) of the Exchange Act). 1. Any modification to a Trading Plan that changes the amount, price, or timing of trades, including a change to the formula that affects these inputs, will initiate a new Cooling-off Period. Any Covered Person who wishes to enter into, modify, or terminate a Trading Plan, is required to submit the Trading Plan (or amendment, modification, or termination) to the Compliance Officer for approval. While the Company will review a Trading Plan for compliance with this Policy, approval of such Trading Plan does not constitute legal advice and does not relieve the requesting Covered Person from ensuring that any transactions entered into under the Trading Plan fully comply with any and all securities laws. 2. Frequent amendment or entry into and then terminating Trading Plans is discouraged, as it can be perceived as a method to circumvent the restrictions of this Policy and the securities laws. Instead, amendment to or termination of Trading Plans should be done to address the Covered Person's legitimate liquidity and other financial needs. 3. Trades under a Trading Plan remain subject to Section 16 reporting obligations. XI. POST-TERMINATION TRANSACTIONS Certain portions of this Policy continue to apply even after an individual's employment or service relationship to the Company ends. If an individual is aware of material non-public information when their employment or service relationship ends, they remain subject to this Policy. For example, such individuals may not trade in Company securities or disclose or tip such information until the information has become public or is no longer material. Additionally, for example, former Section 16 Officers and directors continue to have Section 16 reporting obligations with respect to certain transactions following termination of service with the Company and may have liability under the "Short Swing" profit rules for a period of time following termination of service. XII. REPORTING VIOLATIONS Any person violating this Policy, or and federal or state securities law, or who knows of any such violation by anyone else, must report the violation immediately to the Compliance Officer. Violations may also be reported through the Company's Compliance Hotline. XIII. COMPANY ASSISTANCE/ COMPLIANCE OFFICER As stated, the Company's General Counsel, Diane Bonina, is the Company's Compliance Officer. She may be contacted by phone at (630) 954-2009 or email at dbonina@federalsignal.com. If you have questions about this Policy or its application to any proposed application or disclosure, you may obtain guidance from the Compliance Officer or her designee.

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Effective 07/27/2023 10 INSIDER ACKNOWLEDGEMENT AND CERTIFICATION By signing this Acknowledgement and Certification, I acknowledge my receipt of the Company's Insider Trading Policy (S.P.P. 6.1.4) (the "Policy"). I further certify that I have read and understand the Policy and that I agree to be governed by and comply with the Policy. I further acknowledge that I understand that I am an Insider for purposes of the Policy, that violation of insider trading or tipping laws or regulations may subject me to severe civil and/or criminal penalties, and that violation of these laws or regulations or this Policy may subject me to discipline by the Company, up to and including termination of my employment. Printed Name Signature Date

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Exhibit 21

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES

SUBSIDIARIES OF THE REGISTRANT AS OF DECEMBER 31, 2022 2023

NAME OF SUBSIDIARY	JURISDICTION OF INCORPORATION
Crysteel Manufacturing, Inc.	Minnesota
Deist Industries, LLC	Delaware
Elgin Sweeper Company	Delaware
Federal Signal of Europe B.V.	Netherlands
Federal Signal UK Holdings Limited	United Kingdom
Federal Signal VAMA, S.A.	Spain
FS Depot, LLC	Wisconsin
FST Canada Inc.	Canada
GenNx/TBEI Intermediate Co.	Delaware
Ground Force Manufacturing LLC	Delaware
Guzzler Manufacturing, Inc.	Alabama
HighMark Traffic Services, Inc.	Montana
Jetstream of Houston, Inc.	Delaware
Jetstream of Houston LLP	Texas
Joe Johnson Equipment LLC	Delaware
Mark Rite Lines Equipment Company, Inc.	Delaware
Northend Truck Equipment, LLC	Washington
OSW Equipment & Repair, LLC	Washington
Ox Bodies, Inc.	Alabama
Rugby Manufacturing Company	Oregon
Tishomingo Acquisition, LLC	Delaware
Travis Acquisition LLC	Delaware
Travis Body and Trailer, Inc.	Texas
Travis Leasing, LLC	Delaware
Truck Bodies & Equipment International, Inc.	Delaware
Vactor Manufacturing, LLC	Illinois
Victor Industrial Equipment (PTY) Limited	South Africa
Victor Products Holdings Ltd.	United Kingdom
Victor Products Ltd.	United Kingdom
Western Truck Body Mfg. ULC	Canada
Work Equipment Ltd.	Canada

Subsidiaries, including inactive subsidiaries, are not shown by name in the above listing, if considered in the aggregate as a single subsidiary, would not constitute a significant subsidiary.

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-168501, 333-190976, 333-190977, 333-204189, 333-228197 and 333-255748 on Form S-8 of our reports dated March 1, 2023 February 27, 2024, relating to the consolidated financial statements and financial statement schedule of Federal Signal Corporation and subsidiaries (the “Company”), and the effectiveness of the Company’s internal control over financial reporting, appearing in this Annual Report on Form 10-K of Federal Signal Corporation for the year ended December 31, 2022 December 31, 2023.

/s/ Deloitte & Touche LLP
Chicago, Illinois
March 1, 2023 February 27, 2024

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Exhibit 31.1

CEO Certification Under Section 302 of the Sarbanes-Oxley Act

I, Jennifer L. Sherman, certify that:

1. I have reviewed this annual report on Form 10-K of Federal Signal Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;
   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 1, 2023 February 27, 2024

/s/ Jennifer L. Sherman

Jennifer L. Sherman
President and Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CFO Certification under Section 302 of the Sarbanes-Oxley Act

I, Ian A. Hudson, certify that:

1. I have reviewed this annual report on Form 10-K of Federal Signal Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

(c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: March 1, 2023 February 27, 2024

/s/ Ian A. Hudson

Ian A. Hudson
Senior Vice President and Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002
(18 U.S.C. SECTION 1350)

In connection with the Annual Report of Federal Signal Corporation (the “Company”) on Form 10-K for the period ended December 31, 2022 December 31, 2023 as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Jennifer L. Sherman, President and Chief Executive Officer of the Company, certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (15 U.S.C. 78m or 78o (d)); and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 1, 2023 February 27, 2024

/s/ Jennifer L. Sherman

Jennifer L. Sherman
President and Chief Executive Officer

(*Principal Executive Officer)*

This certification accompanies the Report pursuant to § 906 of the Sarbanes-Oxley Act of 2002 and shall not be deemed filed by the Company for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section. This certification shall also not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange act of 1934, as amended, except to the extent that the Company specifically incorporates it by reference.

Exhibit 32.2

CERTIFICATION PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002
(18 U.S.C. SECTION 1350)

In connection with the Annual Report of Federal Signal Corporation (the “Company”) on Form 10-K for the period ended December 31, 2022 December 31, 2023, as filed with the Securities and Exchange Commission on the date hereof (the “Report”), I, Ian A. Hudson, Senior Vice President and Chief Financial Officer of the Company, certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended (15 U.S.C. 78m or 78o(d)); and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: March 1, 2023 February 27, 2024

/s/ Ian A. Hudson

Ian A. Hudson

Senior Vice President and Chief Financial Officer

(*Principal Financial Officer)*

This certification accompanies the Report pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 and shall not be deemed filed by the Company for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section. This certification shall also not be deemed to be incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, except to the extent that the Company specifically incorporates it by reference.

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31169963.3 FEDERAL SIGNAL CORPORATION CLAWBACK POLICY Effective: December 1, 2023 Introduction The Board of Directors (the "Board") of Federal Signal Corporation, a Delaware corporation (the "Company"), believes that it is in the best interests of the Company and its stockholders to create and maintain a culture that emphasizes integrity and accountability and that reinforces the Company's pay-for-performance compensation philosophy. The Board has therefore adopted this policy (the "Policy") to provide for the recoupment of certain executive compensation in the event of an accounting restatement resulting from material noncompliance with financial reporting requirements under the federal securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements, or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period ("Accounting Restatement"). For the avoidance of doubt, this Policy constitutes "clawback provisions" for purposes of the Federal Signal Corporation 2015 Executive Incentive Compensation Plan, as amended, restated, modified or supplemented from time to time (the "Incentive Plan"), and the awards issued pursuant thereto. This Policy is designed to comply with Section 10D of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and the listing standards of New York Stock Exchange LLC and its affiliates (collectively, the "NYSE") or any other national securities exchange on which the Company's securities are listed. Administration This Policy shall be administered by the Board or, if so designated by the Board, the Compensation & Benefits Committee (the "Committee") of the Board, in which case references herein to the Board shall be deemed references to the Committee. Any determinations made by the Board shall be final and binding on all affected individuals. Covered Executives This Policy applies to the Company's current and former executive officers (as determined by the Board in accordance with Section 10D of the Exchange Act, Rule 10D-1 thereunder and the listing standards of the NYSE or any other national securities exchange on which the Company's securities are listed) and such other senior executives and employees who may from time to time be deemed subject to this Policy by the Board (each, a "Covered Executive" and collectively, "Covered Executives"). Recoupment; Accounting Restatement In the event the Company is required to prepare an Accounting Restatement, the Board will require reasonably prompt reimbursement or forfeiture of any excess Incentive-Based Compensation (as defined below) Received (as defined below) by any Covered Executive during the three (3) completed fiscal years immediately preceding the date on which the Company is

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required to prepare an Accounting Restatement, in addition to any transition period (that results from any change in the Company's fiscal year) within or immediately following such three (3) completed fiscal years (the "Recoupment Amount"). The Recoupment Amount shall be computed without regard to any taxes paid by the Covered Executive with respect to such Incentive-Based Compensation. Incentive-Based Compensation is deemed "Received" in the Company's fiscal period during which the Financial Reporting Measure (as defined below) specified in the Incentive-Based Compensation award is attained, even if the payment or grant of the Incentive- Based Compensation occurs after the end of that period. Incentive-Based Compensation For purposes of this Policy, "Incentive-Based Compensation" means any of the following; provided that such compensation is granted, earned, or vested based wholly or in part upon the attainment of a "Financial Reporting Measure" (as defined below): • Annual bonuses and other short- and long-term cash incentives; • Stock options; • Stock appreciation rights; • Restricted stock; • Restricted stock units; • Performance shares; • Performance share units; • Stock bonus awards; • Dividend equivalents; and • Performance compensation awards. Financial reporting measures mean (i) measures that are determined and presented in accordance with the accounting principles used in preparing the Company's financial statements, and any measures that are derived wholly or in part from such measures (whether or not such measures are presented within the Company's financial statements or included in a filing made with the U.S. Securities and Exchange Commission), (ii) stock price and (iii) total shareholder return. Financial reporting measures include, but are not limited to: • Earnings measures such as earnings per share; • Revenues; • Net income; • Earnings before interest, taxes, depreciation, and amortization ("EBITDA"); • EBITDA margin or growth; • Funds from operations; • Liquidity measures such as working capital or operating cash flow; • Return measures such as return on invested capital or return on assets; and

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• Such other financial performance criteria as defined and set forth in the Incentive Plan or any successor plan. Excess Incentive-Based Compensation: Amount Subject to Recovery The Recoupment Amount shall be equal to the excess of the Incentive-Based Compensation Received by the Covered Executive over the Incentive-Based Compensation that would have been paid to the Covered Executive had it been based on the restated results, as determined by the Board. For Incentive-Based Compensation based on total shareholder return or Company stock price, where the Recoupment Amount is not subject to mathematical recalculation directly from the information in an Accounting Restatement, the Recoupment Amount will be based on a reasonable estimate by the Committee of the effect of the Accounting Restatement on the stock price or total shareholder return upon which the Incentive-Based Compensation was Received. The Company will maintain documentation of the determination of that reasonable estimate and provide such documentation to NYSE as required. Method of Recoupment The Board will determine, in its sole discretion, the method for recouping Incentive-Based Compensation hereunder which may include, without limitation: • requiring reimbursement of cash Incentive-Based Compensation previously paid; • seeking recovery of any gain realized on the vesting, exercise, settlement, sale, transfer, or other disposition of any equity-based awards; • offsetting the recouped amount from any compensation otherwise owed by the Company to the Covered Executive (to the extent permitted by applicable law); • cancelling outstanding vested or unvested equity awards; and/or • taking any other remedial and recovery action permitted by law, as determined by the Board. Determinations Final Any determination by the Board (or by any officer of the Company to whom enforcement authority has been delegated) with respect to this Policy shall be final, conclusive and binding on all interested parties. No Indemnification The Company shall not indemnify any Covered Executive against the loss of any incorrectly awarded Incentive-Based Compensation and shall not pay or reimburse any Covered Executive for the purchase of a third-party insurance policy to fund potential recovery obligations. Interpretation The Board is authorized to interpret and construe this Policy and to make all determinations necessary, appropriate, or advisable for the administration of this Policy. It is intended that this Policy be interpreted in a manner that is consistent with the requirements of Section 10D of the

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Exchange Act and any applicable rules or standards adopted by the Securities and Exchange Commission, NYSE or any other national securities exchange on which the Company's securities are listed (collectively, the "Applicable Rules"). Effective Date This Policy shall be effective as of the date first set forth above (the "Effective Date") and shall apply to any Incentive-Based Compensation Received on or after October 2, 2023, that is or has been approved, awarded or granted to Covered Executives, whether prior to, on or after the Effective Date. Amendment; Termination; Applicable Rules The Board may amend or terminate this Policy from time to time in its discretion. This Policy shall be interpreted in a manner that is consistent with any Applicable Rule and shall otherwise be interpreted (including in the determination of amounts recoverable) in the business judgment of the Board. To the extent the Applicable Rules require recovery of Incentive-Based Compensation in additional circumstances beyond those specified in this Policy, nothing in this Policy shall be deemed to limit or restrict the right or obligation of the Company to recover Incentive-Based Compensation to the fullest extent required by the Applicable Rules. Other Recoupment Rights The Board may require that any employment agreement, equity award agreement, restricted stock award agreement, performance share unit award agreement, performance-based restricted stock unit award agreement, restricted stock unit award agreement or other similar agreement entered into on or after the Effective Date shall, as a condition to the grant of any benefit thereunder, require a Covered Executive to agree to abide by the terms of this Policy. Any right of recoupment under this Policy is in addition to, and not in lieu of, any other remedies or rights of recoupment that may be available to the Company pursuant to the terms of any similar policy in any compensation plan or policy, employment agreement, equity award agreement, restricted stock award agreement, performance share unit award agreement, performance-based restricted stock unit award agreement, restricted stock unit award agreement or other similar agreement or instrument, and any other legal remedies available to the Company. Impracticability Notwithstanding anything contained herein to the contrary, the Board shall recover excess Incentive-Based Compensation in accordance with this Policy unless such recovery would be impracticable, as determined by the Board in accordance with the Applicable Rules. Successors This Policy shall be binding and enforceable against all Covered Executives and their beneficiaries, heirs, executors, administrators or other legal representatives.

EXHIBIT 99.1

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FOR IMMEDIATE RELEASE

Federal Signal Completes Record Year with Strong Impressive Fourth Quarter Results, including 30% 15% Net Sales Growth, 55% Increase in 35% Operating Income Increase and 40% Improvement in Backlog; Strong Cash Generation; Issues 2024 Outlook for 2023

Oak Brook, Illinois, March 1, 2023 February 27, 2024 — Federal Signal Corporation (NYSE:FSS), a leader in environmental and safety solutions, today reported results for the fourth quarter and year ended December 31, 2022 December 31, 2023.

Fourth Quarter and Full-Year Highlights

- Record Q4 net Net sales of $392 million $448 million, up $90 million $57 million, or 30% 15%, from last year; organic growth of $71 million, or 24%
- **Record full-year net sales of $1.43 billion, up $222 million, or 18%, from last year; organic growth of $130 million $42 million, or 11%**
- Q4 operating Operating income of $46.6 million $63.1 million, up $16.5 million, or 55% 35%, from last year
- Operating cash flow of $103 million, up $64 million, or 162%, from last year
- GAAP EPS of $0.57 for the quarter, $0.75, up $0.25, $0.18, or 78% 32%, from last year
- Adjusted EPS of $0.74, up $0.17, or 30%, from last year
- Orders of $465 million, up $21 million, or 5%, from last year
- Backlog of $1.03 billion, up $146 million, or 17%, from last year

Full-Year Highlights

- Net sales of $1.72 billion, up $288 million, or 20%, from last year; organic growth of $220 million, or 15%
- Operating income of $224.5 million, up $63.7 million, or 40%, from last year
- Operating cash flow of $194 million, up $123 million, or 171%, from last year
- GAAP EPS of $1.97 for the year, $2.56, up $0.34, $0.59, or 21% 30%, from last year
- Record adjusted Adjusted EPS of $0.57 for the quarter, $2.58, up $0.17, $0.62, or 43% 32%, from last year
- Record adjusted EPS Orders of $1.96 for the year, $1.87 billion, up $0.21, $178 million, or 12% 11%, from last year

2024 Outlook

- Q4 orders Adjusted EPS* of $444 million, contributing $2.85 to a record backlog of $879 million, up $250 million, or 40%, from last year $3.05
- Raises EBITDA margin target for the Safety and Security Systems Group Net sales of $1.85 billion to a new range of 17% to 21%, from the previous range of 15% to 18% $1.90 billion
- Issues 2023 outlook with adjusted EPS* Capital expenditures of $2.15 $35 million to $2.40 and net sales of $1.58 billion to $1.72 billion $40 million

Consolidated net sales for the fourth quarter were $392 million $448 million, a new quarterly record and an increase of $90 million $57 million, or 30% 15%, compared to the same quarter a year ago. Net income for the fourth quarter was $34.6 million $46.4 million, equal to $0.57 or $0.75 per diluted share, compared to $19.5 million $34.6 million, or $0.32 $0.57 per diluted share, in the prior-year quarter. The Company also reported adjusted net income for the fourth quarter of $35.0 million $45.7 million, equal to $0.57 or $0.74 per diluted share, compared to $24.9 million $35.0 million, or $0.40 $0.57 per diluted share, in the same quarter a year ago. Both net sales and adjusted EPS for the fourth quarter were new Company records. The Company is reporting adjusted results to facilitate comparisons of underlying performance on a year-over-year basis. A reconciliation of these and other non-GAAP measures is provided at the conclusion of this news release.

Consolidated net sales for the year ended December 31, 2022 December 31, 2023 were $1.43 billion $1.72 billion, the highest level in the Company's history, and an increase of $222 million $288 million, or 18% 20%, compared to the prior year. Net income for the year was $120.4 million $157.4 million, equal to $1.97 or $2.56 per diluted share, compared to $100.6 million $120.4 million, or $1.63 $1.97 per diluted share, in the prior year. Adjusted net income for the year was $120.1 million $158.8 million, equal to $1.96 or $2.58 per diluted share, compared to $108.4 million $120.1 million, or $1.75 $1.96 per diluted share, in the prior year.

Strong Fourth Quarter Performance Wraps up Record Year; Customer Demand at Unprecedented Levels; Increasing EBITDA Margin Target for the Safety and Security Systems Group Levels

"Our record-setting fourth quarter performance represented a strong finish to a year in which we delivered the highest net sales and adjusted EPS in our history," commented Jennifer L. Sherman, President and Chief Executive Officer. "Within our Environmental Solutions Group, increased sales volumes, contributions from recent acquisitions, and strong price realization contributed to a 33% 15% year-over-year net sales increase and a 300 190 basis point improvement in EBITDA margin. Our Safety and Security Systems Group also delivered impressive results, with double-digit top line top-line growth and an EBITDA margin of approximately 20%, despite a week-long plant shutdown at our University Park facility in December due to a power outage. With its consistently strong performance over the last several quarters, we are increasing the EBITDA margin target for our Safety and Security Systems Group to a new range of 17% to 21%, from the previous range of 15% to 18%. Demand for our products remains high, with our order intake this quarter representing the second highest quarterly orders in our history, contributing to a record backlog of $879 million at the end of 2022." excess

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of 21%. Demand for our products remains high, with our strong order intake this quarter contributing to a record backlog of $1.03 billion at the end of 2023."

In the Environmental Solutions Group, net sales for the fourth quarter were $325 million $373 million, up $80 million $48 million, or 33% 15%, compared to the prior-year quarter, while in the Safety and Security Systems Group, net sales for the fourth quarter were $66 million $75 million, up $10 million $9 million, or 18% 14%, compared to the prior-year quarter.

Consolidated operating income for the fourth quarter was $46.6 million $63.1 million, up $16.5 million, or 55% 35%, compared to the prior-year quarter. Consolidated operating margin for the fourth quarter was 11.9% 14.1%, compared to 10.0% up from 11.9% last year.

Consolidated adjusted earnings before interest, tax, depreciation and amortization ("adjusted EBITDA") for the fourth quarter was $61.1 million $77.5 million, up $21.1 million $16.4 million, or 53% 27%, compared to last year, the prior-year quarter, and consolidated adjusted EBITDA margin in for the current-year fourth quarter was 15.6% 17.3%, compared to 13.3% up from 15.6% last year.

Adjusted EBITDA in the Environmental Solutions Group for the fourth quarter was $57.6 million $73.3 million, up $21.4 million $15.7 million, or 59% 27%, compared to last year, the prior-year quarter, and its adjusted EBITDA margin in for the current-year fourth quarter was 17.7% 19.6%, up from 14.7% 17.7% last year. Within the Safety and Security Systems Group, adjusted EBITDA for the fourth quarter was $13.2 million $16.0 million, up $2.2 million $2.8 million, or 20% 21%, compared to the prior-year quarter, and its adjusted EBITDA margin in for the current-year fourth quarter was 19.9% 21.2%, up from 19.7% 19.9% last year.

Orders for the fourth quarter were $444 million $465 million, up $21 million, or 5%, compared to the second highest quarterly orders in the Company's history. prior-year quarter. With the strong momentum in customer demand, consolidated backlog at December 31, 2022 December 31, 2023 was at an all-time high level of $879 million $1.03 billion, an improvement of $250 million $146 million, or 40% 17%, from last year.

New Credit Facility and Healthy Increased Operating Cash Flow Supports M&A, Organic Further Strengthens Financial Position, Providing Flexibility to Fund Growth Investment Opportunities and Cash Returns to Shareholders Stockholders

Net Operating cash flow during the fourth quarter was $103 million, an increase of $39 million was $64 million, or 162%, from the prior-year quarter. Full-year cash generated from operations in totaled $194 million, an increase of $123 million, or 171%, compared to the fourth quarter, bringing the total year-to-date operating cash generation to $72 million.

During the fourth quarter, the Company completed the acquisition of TowHaul Corporation and also closed the acquisition of Blasters, Inc. in January 2023. Last week, the Company also announced the signing of a definitive agreement to acquire substantially all the assets and operations of Trackless Vehicles Limited, a leading Canadian manufacturer of multi-purpose, off-road municipal tractors and attachments. prior-year period.

At December 31, 2022 December 31, 2023, total debt was $363 million $299 million, total cash and cash equivalents were $48 million $61 million and the Company had $428 million $493 million of availability for borrowings under its new, five-year credit facility that facility.

"Our operating cash flow generation this quarter was executed outstanding, enabling us to pay down approximately $70 million of debt during the fourth quarter.

"With quarter," said Sherman. "Our full-year operating cash flow increased by 171% compared to last year, further strengthening our financial position, strengthened by the increased borrowing capacity under our new credit facility and our healthy cash generation, we have providing significant financial flexibility to invest in organic growth initiatives and fund cash returns to stockholders. We also intend to pursue additional strategic acquisitions, like Trackless, which represents acquisitions. As demonstrated with the fifth acquisition announced recent increase in our dividend and our share repurchases during the last 16 months, all of which have been internally-sourced. quarter, we also remain committed to returning cash to stockholders." said Sherman.

During the fourth quarter, the The Company funded dividends of $5.4 million, $6.1 million during the fourth quarter, reflecting a dividend of $0.10 per share, and as recently declared a similar $0.09 per share announced, the Board of Directors increased the dividend that will be payable in the first quarter of 2023. 2024 to $0.12 per share, a 20% increase from the prior dividend.

The Company also funded stock repurchases of $1.2 million during the fourth quarter.

Outlook

"Conditions in our end markets remain strong, and with the ongoing execution against our strategic initiatives and opportunities to drive improved efficiencies, we are confident that we will have another record year in 2023, 2024," noted Sherman. "We have started to see benefits from federal stimulus funding in our recent order trends and improvement in supply chain. Although "Although seasonal effects typically result in our first quarter earnings being lower than subsequent quarters, we are anticipating full-year net sales of between $1.58 billion $1.85 billion and $1.72 billion $1.90 billion, double-digit improvement in pre-tax earnings and EBITDA margin performance towards in the upper end half of our recently-increased target range. For the full-year, we currently expect to report adjusted EPS* of between $2.15 $2.85 and $2.40 $3.05 per share, despite which would represent a year-over-year increase of between 10% and 18%, and the highest EPS level in the Company's history. Our outlook does not include an aggregate year-over-year EPS headwind anticipated tax benefit of approximately $0.23 per share resulting from $14 million that we expect to realize in the normalization of our tax rate first quarter, and higher interest expense. assumes continued improvement in production output and robust aftermarket activity. With an active M&A pipeline, ongoing investment in new product development, recently-completed available capacity, expansions, good access to skilled labor, and anticipated multi-year tailwinds from infrastructure legislation, and economic stimulus, our businesses are well positioned for long-term, sustainable growth."

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CONFERENCE CALL

Federal Signal will host its fourth quarter earnings conference call on Wednesday, March 1, 2023 Tuesday, February 27, 2024 at 10:00 a.m. Eastern Time. The call will last approximately one hour. The call may be accessed over the internet through Federal Signal's website at https://www.federalsignal.com or by dialing phone number 1-844-826-3035 1-877-704-4453 and entering the pin number 10175806. 13743554. An archived replay will be available on Federal Signal's website shortly after the call.

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About Federal Signal

Federal Signal Corporation (NYSE: FSS) builds and delivers equipment of unmatched quality that moves material, cleans infrastructure, and protects the communities where we work and live. Founded in 1901, Federal Signal is a leading global designer, manufacturer and supplier of products and total solutions that serve municipal, governmental, industrial and commercial customers. Headquartered in Oak Brook, Ill., with manufacturing facilities worldwide, the Company operates two groups: Environmental Solutions and Safety and Security Systems. For more information on Federal Signal, visit: https://www.federalsignal.com.

"Safe Harbor" Statement under the Private Securities Litigation Reform Act of 1995

This release contains unaudited financial information and various forward-looking statements as of the date hereof and we undertake no obligation to update these forward-looking statements regardless of new developments or otherwise. Statements in this release that are not historical are forward-looking statements. Such statements are subject to various risks and uncertainties that could cause actual results to vary materially from those stated. Such risks and uncertainties include but are not limited to: direct and indirect impacts of the coronavirus pandemic and the associated government response, risks and adverse economic effects associated with emerging geopolitical conflicts, product and price competition, supply chain disruptions, work stoppages, availability and pricing of raw materials, cybersecurity risks, risks associated with acquisitions such as integration of operations and achieving anticipated revenue and cost benefits, foreign currency exchange rate changes, interest rate changes, increased legal expenses and litigation results, legal and regulatory developments and other risks and uncertainties described in filings with the Securities and Exchange Commission.

Contact: Ian Hudson, Chief Financial Officer, +1-630-954-2000, ihudson@federalsignal.com

* Adjusted earnings per share ("EPS") is a non-GAAP measure, which includes certain adjustments to reported GAAP net income and diluted EPS. In 2022, 2023, we made adjustments to exclude the impact of acquisition and integration-related expenses (benefits), environmental remediation costs of a discontinued operation and purchase accounting effects. In prior years, we have also made adjustments to exclude the impact of debt settlement charges where applicable. and certain other unusual or non-recurring items. Should any similar items occur in 2023, 2024, we would expect to exclude them from the determination of adjusted EPS. However, because of the underlying uncertainty in quantifying amounts which may not yet be known, a reconciliation of our Adjusted EPS outlook to the most applicable GAAP measure is excluded based on the unreasonable efforts exception in Item 10(e)(1)(i)(B).

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FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF OPERATIONS

		Three Months Ended December 31,		Twelve Months Ended December 31,			Three Months Ended December 31,		Twelve Months Ended December 31,	
(in millions, except per share data)		2022	2021	2022	2021					
(in millions of dollars, except per share data and percentages)						(in millions of dollars, except per share data and percentages)	2023	2022	2023	2022
Net sales	Net sales	$ 391.5	$ 301.4	$ 1,434.8	$ 1,213.2	Net sales	$ 448.4	$ 391.5	$ 1,722.7	$ 1,434.8
Cost of sales	Cost of sales	294.9	234.0	1,089.9	924.5	Cost of sales	329.0	294.9	1,272.5	1,089.9
Gross profit	Gross profit	96.6	67.4	344.9	288.7	Gross profit	119.4	96.6	450.2	344.9

Selling, engineering, general and administrative expenses	Selling, engineering, general and administrative expenses	46.2	37.6	171.7	149.2	Selling, engineering, general and administrative expenses	54.1	46.2	210.1	171.7
Amortization expense	Amortization expense	3.3	2.7	12.9	10.9	Amortization expense	3.8	3.3	15.2	12.9
Acquisition and integration related expenses (benefits)		0.5	(3.0)	(0.5)	(2.1)					
Acquisition and integration related (benefits) expenses						Acquisition and integration related (benefits) expenses	(1.6)	0.5	0.4	(0.5)
Operating income	Operating income	46.6	30.1	160.8	130.7	Operating income	63.1	46.6	224.5	160.8
Interest expense		4.4	1.2	10.3	4.5					
Debt settlement charges		0.1	—	0.1	—					
Pension settlement charges		—	10.3	—	10.3					
Interest expense, net						Interest expense, net	4.3	4.4	19.7	10.3
Other expense (income), net	Other expense (income), net	0.1	(0.6)	(0.5)	(1.7)	Other expense (income), net	0.3	0.2	1.8	(0.4)
Income before income taxes	Income before income taxes	42.0	19.2	150.9	117.6	Income before income taxes	58.5	42.0	203.0	150.9
Income tax expense (benefit)		7.4	(0.3)	30.5	17.0					
Income tax expense						Income tax expense	12.1	7.4	45.6	30.5
Net income	Net income	$ 34.6	$ 19.5	$ 120.4	$ 100.6	Net income	$ 46.4	$ 34.6	$ 157.4	$ 120.4
Earnings per share:	Earnings per share:					Earnings per share:				
Basic	Basic	$ 0.57	$ 0.32	$ 1.99	$ 1.65	Basic	$ 0.76	$ 0.57	$ 2.59	$ 1.99
Diluted	Diluted	$ 0.57	$ 0.32	$ 1.97	$ 1.63	Diluted	$ 0.75	$ 0.57	$ 2.56	$ 1.97
Weighted average common shares outstanding:	Weighted average common shares outstanding:					Weighted average common shares outstanding:				
Basic	Basic	60.5	60.9	60.5	60.8	Basic	60.8	60.5	60.7	60.5
Diluted	Diluted	61.2	61.8	61.2	61.9	Diluted	61.6	61.2	61.5	61.2
Cash dividends declared per common share	Cash dividends declared per common share	$ 0.09	$ 0.09	$ 0.36	$ 0.36	Cash dividends declared per common share	$ 0.10	$ 0.09	$ 0.39	$ 0.36
Operating data:	Operating data:					Operating data:				
Operating margin	Operating margin	11.9 %	10.0 %	11.2 %	10.8 %	Operating margin	14.1 %	11.9 %	13.0 %	11.2 %
Adjusted EBITDA	Adjusted EBITDA	$ 61.1	$ 40.0	$ 215.0	$ 180.5	Adjusted EBITDA	$ 77.5	$ 61.1	$ 286.0	$ 215.0
Adjusted EBITDA margin	Adjusted EBITDA margin	15.6 %	13.3 %	15.0 %	14.9 %	Adjusted EBITDA margin	17.3 %	15.6 %	16.6 %	15.0 %
Total orders	Total orders	$ 444.2	$ 443.8	$ 1,692.2	$ 1,538.8	Total orders	$ 465.0	$ 444.2	$ 1,870.1	$ 1,692.2
Backlog	Backlog	879.2	628.9	879.2	628.9	Backlog	1,025.1	879.2	1,025.1	879.2
Depreciation and amortization	Depreciation and amortization	14.0	12.9	54.7	50.4	Depreciation and amortization	15.3	14.0	60.4	54.7

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES

CONSOLIDATED BALANCE SHEETS

		As of December 31,			As of December 31,	
(in millions, except per share data)		2022	2021			
(in millions of dollars, except per share data)				(in millions of dollars, except per share data)	2023	2022
ASSETS	**ASSETS**			**ASSETS**		
Current assets:	Current assets:			Current assets:		
Cash and cash equivalents	Cash and cash equivalents	$ 47.5	$ 40.5	Cash and cash equivalents	$ 61.0	$ 47.5
Accounts receivable, net of allowances for doubtful accounts of $2.5 and $2.1, respectively		173.8	136.0			
Accounts receivable, net of allowances for doubtful accounts of $2.5 and $2.5, respectively				Accounts receivable, net of allowances for doubtful accounts of $2.5 and $2.5, respectively	186.2	173.8
Inventories	Inventories	292.7	229.1	Inventories	303.4	292.7
Prepaid expenses and other current assets	Prepaid expenses and other current assets	17.4	25.4	Prepaid expenses and other current assets	19.6	17.4
Total current assets	Total current assets	531.4	431.0	Total current assets	570.2	531.4
Properties and equipment, net of accumulated depreciation of $156.4 and $151.6, respectively		179.3	141.9			
Rental equipment, net of accumulated depreciation of $45.4 and $43.8, respectively		109.1	108.4			
Properties and equipment, net of accumulated depreciation of $173.3 and $156.4, respectively				Properties and equipment, net of accumulated depreciation of $173.3 and $156.4, respectively	190.8	179.3
Rental equipment, net of accumulated depreciation of $47.5 and $45.4, respectively				Rental equipment, net of accumulated depreciation of $47.5 and $45.4, respectively	134.8	109.1
Operating lease right-of-use assets	Operating lease right-of-use assets	24.7	29.8	Operating lease right-of-use assets	21.0	24.7
Goodwill	Goodwill	453.4	432.2	Goodwill	472.7	453.4
Intangible assets, net of accumulated amortization of $55.4 and $42.7, respectively		208.2	205.7			
Intangible assets, net of accumulated amortization of $70.7 and $55.4, respectively				Intangible assets, net of accumulated amortization of $70.7 and $55.4, respectively	207.5	208.2
Deferred tax assets	Deferred tax assets	8.8	8.4	Deferred tax assets	12.0	8.8
Deferred charges and other long-term assets	Deferred charges and other long-term assets	9.4	8.7	Deferred charges and other long-term assets	11.5	9.4
Total assets	Total assets	$ 1,524.3	$ 1,366.1	Total assets	$ 1,620.5	$ 1,524.3
LIABILITIES AND STOCKHOLDERS' EQUITY	**LIABILITIES AND STOCKHOLDERS' EQUITY**			**LIABILITIES AND STOCKHOLDERS' EQUITY**		
Current liabilities:	Current liabilities:			Current liabilities:		
Current portion of long-term borrowings and finance lease obligations	Current portion of long-term borrowings and finance lease obligations	$ 1.5	$ 0.6	Current portion of long-term borrowings and finance lease obligations	$ 4.7	$ 1.5
Accounts payable	Accounts payable	72.4	64.8	Accounts payable	66.7	72.4
Customer deposits	Customer deposits	25.4	21.9	Customer deposits	27.1	25.4
Accrued liabilities:	Accrued liabilities:			Accrued liabilities:		
Compensation and withholding taxes	Compensation and withholding taxes	31.1	29.9	Compensation and withholding taxes	42.3	31.1
Current operating lease liabilities	Current operating lease liabilities	6.9	8.8	Current operating lease liabilities	6.8	6.9
Other current liabilities	Other current liabilities	43.2	44.4	Other current liabilities	48.2	43.2

		2022	2021		2023	2022
Total current liabilities	Total current liabilities	180.5	170.4	Total current liabilities	195.8	180.5
Long-term borrowings and finance lease obligations	Long-term borrowings and finance lease obligations	361.5	282.2	Long-term borrowings and finance lease obligations	294.3	361.5
Long-term operating lease liabilities	Long-term operating lease liabilities	18.5	22.1	Long-term operating lease liabilities	14.9	18.5
Long-term pension and other post-retirement benefit liabilities	Long-term pension and other post-retirement benefit liabilities	38.9	40.4	Long-term pension and other post-retirement benefit liabilities	44.2	38.9
Deferred tax liabilities	Deferred tax liabilities	51.0	53.2	Deferred tax liabilities	53.2	51.0
Other long-term liabilities	Other long-term liabilities	13.0	13.8	Other long-term liabilities	16.2	13.0
Total liabilities	Total liabilities	663.4	582.1	Total liabilities	618.6	663.4
Stockholders' equity:	Stockholders' equity:			Stockholders' equity:		
Common stock, $1 par value per share, 90.0 shares authorized, 69.5 and 68.9 shares issued, respectively		69.5	68.9			
Common stock, $1 par value per share, 90.0 shares authorized, 70.0 and 69.5 shares issued, respectively				Common stock, $1 par value per share, 90.0 shares authorized, 70.0 and 69.5 shares issued, respectively	70.0	69.5
Capital in excess of par value	Capital in excess of par value	271.8	256.7	Capital in excess of par value	291.1	271.8
Retained earnings	Retained earnings	782.2	683.6	Retained earnings	915.8	782.2
Treasury stock, at cost, 8.8 and 8.0 shares, respectively		(178.6)	(151.0)			
Treasury stock, at cost, 9.0 and 8.8 shares, respectively				Treasury stock, at cost, 9.0 and 8.8 shares, respectively	(193.7)	(178.6)
Accumulated other comprehensive loss	Accumulated other comprehensive loss	(84.0)	(74.2)	Accumulated other comprehensive loss	(81.3)	(84.0)
Total stockholders' equity	Total stockholders' equity	860.9	784.0	Total stockholders' equity	1,001.9	860.9
Total liabilities and stockholders' equity	Total liabilities and stockholders' equity	$ 1,524.3	$ 1,366.1	Total liabilities and stockholders' equity	$ 1,620.5	$ 1,524.3

FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

		For the Years Ended December 31,			For the Years Ended December 31,	
(in millions)		2022	2021			
(in millions of dollars)				(in millions of dollars)	2023	2022
Operating activities:	Operating activities:			Operating activities:		
Net income	Net income	$ 120.4	$ 100.6	Net income	$ 157.4	$ 120.4
Adjustments to reconcile net income to net cash provided by operating activities:	Adjustments to reconcile net income to net cash provided by operating activities:			Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation and amortization	Depreciation and amortization	54.7	50.4	Depreciation and amortization	60.4	54.7
Deferred financing costs	Deferred financing costs	0.4	0.3	Deferred financing costs	0.5	0.4
Stock-based compensation expense	Stock-based compensation expense	10.2	7.6	Stock-based compensation expense	13.1	10.2
Pension settlement charges		—	10.3			
Pension-related expense, net of funding	Pension-related expense, net of funding	(1.4)	(3.8)	Pension-related expense, net of funding	(1.8)	(1.4)

Changes in fair value of contingent consideration	Changes in fair value of contingent consideration	—	(3.5)	Changes in fair value of contingent consideration	(2.1)		—	
Amortization of interest rate swap settlement gain						Amortization of interest rate swap settlement gain	(2.4)	—
Deferred income taxes, including change in valuation allowance	Deferred income taxes, including change in valuation allowance	(4.2)	(6.5)	Deferred income taxes, including change in valuation allowance	(0.3)		(4.2)	
Changes in operating assets and liabilities:	Changes in operating assets and liabilities:			Changes in operating assets and liabilities:				
Accounts receivable	Accounts receivable	(38.0)	2.5	Accounts receivable	(6.1)		(38.0)	
Inventories	Inventories	(61.0)	(24.2)	Inventories	9.8		(61.0)	
Prepaid expenses and other current assets	Prepaid expenses and other current assets	(0.5)	(2.6)	Prepaid expenses and other current assets	(1.7)		(0.5)	
Rental equipment	Rental equipment	(26.0)	(15.9)	Rental equipment	(44.8)		(26.0)	
Accounts payable	Accounts payable	8.3	6.4	Accounts payable	(8.5)		8.3	
Customer deposits	Customer deposits	1.3	3.9	Customer deposits	1.1		1.3	
Accrued liabilities	Accrued liabilities	1.1	(5.5)	Accrued liabilities	15.8		1.1	
Income taxes	Income taxes	8.0	(11.6)	Income taxes	(0.5)		8.0	
Other	Other	(1.5)	(6.6)	Other	4.5		(1.5)	
Net cash provided by operating activities	Net cash provided by operating activities	71.8	101.8	Net cash provided by operating activities	194.4		71.8	
Investing activities:	Investing activities:			Investing activities:				
Purchases of properties and equipment	Purchases of properties and equipment	(53.0)	(37.4)	Purchases of properties and equipment	(30.3)		(53.0)	
Payments for acquisition-related activity		(49.8)	(131.8)					
Payments for acquisition-related activity, net of cash acquired						Payments for acquisition-related activity, net of cash acquired	(55.0)	(49.8)
Other, net	Other, net	3.1	0.5	Other, net	1.6		3.1	
Net cash used for investing activities	Net cash used for investing activities	(99.7)	(168.7)	Net cash used for investing activities	(83.7)		(99.7)	
Financing activities:	Financing activities:			Financing activities:				
Increase in revolving lines of credit, net		81.2	70.5					
(Decrease) increase in revolving lines of credit, net						(Decrease) increase in revolving lines of credit, net	(64.1)	81.2
Payments on long-term borrowings						Payments on long-term borrowings	(0.8)	—
Payments of debt financing fees	Payments of debt financing fees	(1.9)	—	Payments of debt financing fees	—		(1.9)	
Purchases of treasury stock	Purchases of treasury stock	(16.1)	(15.4)	Purchases of treasury stock	(5.5)		(16.1)	
Redemptions of common stock to satisfy withholding taxes related to stock-based compensation	Redemptions of common stock to satisfy withholding taxes related to stock-based compensation	(6.2)	(10.7)	Redemptions of common stock to satisfy withholding taxes related to stock-based compensation	(7.0)		(6.2)	

Payments for acquisition-related activity						Payments for acquisition-related activity	(0.5)	—
Cash dividends paid to stockholders	Cash dividends paid to stockholders	(21.8)	(22.0)	Cash dividends paid to stockholders	(23.8)		(21.8)	
Proceeds from stock compensation activity	Proceeds from stock compensation activity	0.2	4.2	Proceeds from stock compensation activity	3.9		0.2	
Other, net	Other, net	0.1	(0.2)	Other, net	(0.1)		0.1	
Net cash provided by financing activities		35.5	26.4					
Net cash (used for) provided by financing activities						Net cash (used for) provided by financing activities	(97.9)	35.5
Effects of foreign exchange rate changes on cash and cash equivalents	Effects of foreign exchange rate changes on cash and cash equivalents	(0.6)	(0.7)	Effects of foreign exchange rate changes on cash and cash equivalents	0.7		(0.6)	
Increase (decrease) in cash and cash equivalents		7.0	(41.2)					
Increase in cash and cash equivalents						Increase in cash and cash equivalents	13.5	7.0
Cash and cash equivalents at beginning of year	Cash and cash equivalents at beginning of year	40.5	81.7	Cash and cash equivalents at beginning of year	47.5		40.5	
Cash and cash equivalents at end of year	Cash and cash equivalents at end of year	$ 47.5	$ 40.5	Cash and cash equivalents at end of year	$ 61.0		$ 47.5	

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FEDERAL SIGNAL CORPORATION AND SUBSIDIARIES

GROUP RESULTS

The following tables summarize group operating results as of and for the three and twelve months ended December 31, 2022 December 31, 2023 and 2021: 2022:

Environmental Solutions Group

		Three Months Ended December 31,			Twelve Months Ended December 31,				Three Months Ended December 31,			Twelve Months Ended December 3		
($ in millions)		**2022**	**2021**	**Change**	**2022**	**2021**	**Change**							
(in millions of dollars, except percentages)								**(in millions of dollars, except percentages)**	**2023**	**2022**	**Change**	**2023**	**2022**	**Chan**
Net sales	Net sales	$325.3	$245.5	$79.8	$1,190.6	$1,004.0	$186.6	Net sales	$373.1	$325.3	$47.8	$1,437.9	$1,190.6	$247.
Operating income	Operating income	44.7	24.1	20.6	144.5	120.5	24.0	Operating income	58.2	44.7	13.5	209.2	144.5	64.
Adjusted EBITDA	Adjusted EBITDA	57.6	36.2	21.4	194.9	168.8	26.1	Adjusted EBITDA	73.3	57.6	15.7	267.2	194.9	72.
Operating data:	Operating data:							Operating data:						
Operating margin	Operating margin	13.7 %	9.8 %	3.9 %	12.1 %	12.0 %	0.1 %	Operating margin	15.6 %	13.7 %	1.9 %	14.5 %	12.1 %	2.
Adjusted EBITDA margin	Adjusted EBITDA margin	17.7 %	14.7 %	3.0 %	16.4 %	16.8 %	(0.4)%	Adjusted EBITDA margin	19.6 %	17.7 %	1.9 %	18.6 %	16.4 %	2.
Total orders	Total orders	$383.5	$381.3	$ 2.2	$1,444.2	$1,297.3	$146.9	Total orders	$398.8	$383.5	$15.3	$1,578.0	$1,444.2	$133.
Backlog	Backlog	824.4	576.4	248.0	824.4	576.4	248.0	Backlog	966.5	824.4	142.1	966.5	824.4	142.
Depreciation and amortization	Depreciation and amortization	12.8	12.0	0.8	50.3	46.7	3.6	Depreciation and amortization	14.2	12.8	1.4	56.0	50.3	5.

Safety and Security Systems Group

	Three Months Ended December 31,	Twelve Months Ended December 31,	Three Months Ended December 31,	Twelve Months Ended December 31,

($ in millions)		2022	2021	Change	2022	2021	Change							
(in millions of dollars, except percentages)								(in millions of dollars, except percentages)	2023	2022	Change	2023	2022	Change
Net sales	Net sales	$ 66.2	$ 55.9	$ 10.3	$ 244.2	$ 209.2	$ 35.0	Net sales	$ 75.3	$ 66.2	$ 9.1	$ 284.8	$ 244.2	$ 40.6
Operating income	Operating income	12.1	10.1	2.0	40.8	32.7	8.1	Operating income	14.9	12.1	2.8	54.8	40.8	14.0
Adjusted EBITDA	Adjusted EBITDA	13.2	11.0	2.2	45.0	36.4	8.6	Adjusted EBITDA	16.0	13.2	2.8	59.0	45.0	14.0
Operating data:	Operating data:							Operating data:						
Operating margin	Operating margin	18.3 %	18.1 %	0.2 %	16.7 %	15.6 %	1.1 %	Operating margin	19.8 %	18.3 %	1.5 %	19.2 %	16.7 %	2.5 %
Adjusted EBITDA margin	Adjusted EBITDA margin	19.9 %	19.7 %	0.2 %	18.4 %	17.4 %	1.0 %	Adjusted EBITDA margin	21.2 %	19.9 %	1.3 %	20.7 %	18.4 %	2.3 %
Total orders	Total orders	$ 60.7	$ 62.5	$ (1.8)	$ 248.0	$ 241.5	$ 6.5	Total orders	$ 66.2	$ 60.7	$ 5.5	$ 292.1	$ 248.0	$ 44.1
Backlog	Backlog	54.8	52.5	2.3	54.8	52.5	2.3	Backlog	58.6	54.8	3.8	58.6	54.8	3.8
Depreciation and amortization	Depreciation and amortization	1.1	0.9	0.2	4.2	3.6	0.6	Depreciation and amortization	1.1	1.1	—	4.2	4.2	—

Corporate Expenses

Corporate operating expenses were $10.2 million $10.0 million and $4.1 million $10.2 million for the three months ended December 31, 2022 December 31, 2023 and 2021, 2022, respectively.

Corporate operating expenses were $24.5 million $39.5 million and $22.5 million $24.5 million for the years ended December 31, 2022 December 31, 2023 and 2021, 2022, respectively.

SEC REGULATION G NON-GAAP RECONCILIATION

The financial measures presented below are unaudited and are not in accordance with U.S. generally accepted accounting principles ("GAAP"). The non-GAAP financial information presented herein should be considered supplemental to, and not a substitute for, or superior to, financial measures calculated in accordance with GAAP. The Company has provided this supplemental information to investors, analysts, and other interested parties to enable them to perform additional analyses of operating results, to illustrate the results of operations giving effect to the non-GAAP adjustments shown in the reconciliations below, and to provide an additional measure of performance which management considers in operating the business.

Adjusted net income and adjusted earnings per share ("Adjusted EPS"):

The Company believes that modifying its 2022 2023 and 2021 2022 net income and diluted earnings per share ("EPS") provides additional measures which are representative of the Company's underlying performance and improve the comparability of results between reporting periods. Adjusted net income and Adjusted EPS are both non-GAAP measures. During the three and twelve months ended December 31, 2022 December 31, 2023 and 2021, 2022, adjustments were made to reported GAAP net income and diluted EPS to exclude the impact of acquisition and integration-related (benefits) expenses, (benefits), pension-related charges, coronavirus-related expenses, environmental remediation costs of a discontinued operation, debt settlement charges, and purchase accounting effects, where applicable.

	Three Months Ended December 31,		Twelve Months Ended December 31,	
(in millions)	2022	2021	2022	2021
Net income	$ 34.6	$ 19.5	$ 120.4	$ 100.6
Add (less):				
Income tax expense (benefit)	7.4	(0.3)	30.5	17.0
Income before income taxes	42.0	19.2	150.9	117.6
Add (less):				
Acquisition and integration-related expenses (benefits)	0.5	(3.0)	(0.5)	(2.1)
Pension-related charges (a)	—	10.3	—	10.6
Coronavirus-related expenses (b)	—	—	—	1.2
Debt settlement charges	0.1	—	0.1	—
Purchase accounting effects (c)	—	0.2	—	0.7
Adjusted income before income taxes	$ 42.6	$ 26.7	$ 150.5	$ 128.0
Adjusted income tax expense (d)	(7.6)	(1.8)	(30.4)	(19.6)
Adjusted net income	$ 35.0	$ 24.9	$ 120.1	$ 108.4

(dollars per diluted share)	Three Months Ended December 31, 2022	Three Months Ended December 31, 2021	Twelve Months Ended December 31, 2022	Twelve Months Ended December 31, 2021
EPS, as reported	$ 0.57	$ 0.32	$ 1.97	$ 1.63
Add (less):				
Income tax expense (benefit)	0.12	(0.01)	0.50	0.27
Income before income taxes	0.69	0.31	2.47	1.90
Add (less):				
Acquisition and integration-related expenses (benefits)	0.01	(0.05)	(0.01)	(0.03)
Pension-related charges (a)	—	0.17	—	0.17
Coronavirus-related expenses (b)	—	—	—	0.02
Debt settlement charges	0.00	—	0.00	—
Purchase accounting effects (c)	—	0.00	—	0.01
Adjusted income before income taxes	$ 0.70	$ 0.43	$ 2.46	$ 2.07
Adjusted income tax expense (d)	(0.13)	(0.03)	(0.50)	(0.32)
Adjusted EPS	$ 0.57	$ 0.40	$ 1.96	$ 1.75

(in millions of dollars)	Three Months Ended December 31, 2023	Three Months Ended December 31, 2022	Twelve Months Ended December 31, 2023	Twelve Months Ended December 31, 2022
Net income	$ 46.4	$ 34.6	$ 157.4	$ 120.4
Add:				
Income tax expense	12.1	7.4	45.6	30.5
Income before income taxes	58.5	42.0	203.0	150.9
Add:				
Acquisition and integration-related (benefits) expenses	(1.6)	0.5	0.4	(0.5)
Environmental remediation costs of a discontinued operation (a)	—	—	0.8	—
Debt settlement charges (b)	—	0.1	—	0.1
Purchase accounting effects (c)	0.7	—	0.7	—
Adjusted income before income taxes	$ 57.6	$ 42.6	$ 204.9	$ 150.5
Adjusted income tax expense (d)	(11.9)	(7.6)	(46.1)	(30.4)
Adjusted net income	$ 45.7	$ 35.0	$ 158.8	$ 120.1

(in dollars per diluted share)	Three Months Ended December 31, 2023	Three Months Ended December 31, 2022	Twelve Months Ended December 31, 2023	Twelve Months Ended December 31, 2022
EPS, as reported	$ 0.75	$ 0.57	$ 2.56	$ 1.97
Add:				
Income tax expense	0.20	0.12	0.74	0.50
Income before income taxes	0.95	0.69	3.30	2.47
Add:				
Acquisition and integration-related (benefits) expenses	(0.03)	0.01	0.01	(0.01)
Environmental remediation costs of a discontinued operation (a)	—	—	0.01	—
Debt settlement charges (b)	—	0.00	—	0.00
Purchase accounting effects (c)	0.01	—	0.01	—
Adjusted income before income taxes	$ 0.93	$ 0.70	$ 3.33	$ 2.46
Adjusted income tax expense (d)	(0.19)	(0.13)	(0.75)	(0.50)
Adjusted EPS	$ 0.74	$ 0.57	$ 2.58	$ 1.96

(a) Pension-related Environmental remediation costs of a discontinued operation in the twelve months ended December 31, 2023 relate to estimated environmental clean up costs at a facility associated with a business that was discontinued in 2009. Such charges are included as a component of Other expense (income), net on the Consolidated Statements of Operations.

(b) Debt settlement charges in the three and twelve months ended December 31, 2021 primarily December 31, 2022 relate to pension settlement charges the write off of deferred financing fees incurred in connection with the execution of the Company's 2022 Credit Agreement. Such costs are included as a pension annuitization project. component of Other expense (income), net on the Consolidated Statements of Operations.

(b) Coronavirus-related expenses in the twelve months ended December 31, 2021 relate to direct expenses incurred in connection with the Company's response to the coronavirus pandemic, that are incremental to, and separable from, normal operations. Such expenses primarily relate to incremental paid time off provided to employees and costs incurred to implement enhanced workplace safety protocols.

(c) Purchase accounting effects in the three and twelve months ended December 31, 2021 December 31, 2023 relate to adjustments to exclude the step-up in the valuation of equipment acquired in recent business combinations connection with acquisitions that was sold during subsequent to the periods presented. acquisition date. Such costs are included as a component of Cost of sales on the Consolidated Statements of Operations.

(d) Adjusted income tax expense for the three and twelve months ended December 31, 2022 December 31, 2023 and 2021 2022 was recomputed after excluding the impact of acquisition and integration-related (benefits) expenses, (benefits), pension-related charges, coronavirus-related expenses, environmental remediation costs of a discontinued operation, debt settlement charges, and purchase accounting effects, where applicable.

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Adjusted EBITDA:

The Company uses adjusted EBITDA and the ratio of adjusted EBITDA to net sales (“adjusted EBITDA margin”), at both the consolidated and segment level, as additional measures which are representative of its underlying performance and to improve the comparability of results across reporting periods. We believe that investors use versions of these metrics in a similar manner. For these reasons, the Company believes that adjusted EBITDA and adjusted EBITDA margin, at both the consolidated and segment level, are meaningful metrics to investors in evaluating the Company’s underlying financial performance.

Consolidated adjusted EBITDA is a non-GAAP measure that represents the total of net income, interest expense, pension settlement charges, acquisition and integration-related (benefits) expenses, (benefits), coronavirus-related expenses, debt settlement charges, purchase accounting effects, other expense/income, income tax benefit/expense, and depreciation and amortization expense, as applicable. Consolidated adjusted EBITDA margin is a non-GAAP measure that represents the total of net income, interest expense, pension settlement charges, acquisition and integration-related (benefits) expenses, (benefits), coronavirus-related expenses, debt settlement charges, purchase accounting effects, other expense/income, income tax benefit/expense, and depreciation and amortization expense, as applicable, divided by net sales for the applicable period(s).

Segment adjusted EBITDA is a non-GAAP measure that represents the total of segment operating income, acquisition and integration-related expenses, coronavirus-related expenses, purchase accounting effects, and depreciation and amortization expense, as applicable. Segment adjusted EBITDA margin is a non-GAAP measure that represents the total of segment operating income, acquisition and integration-related expenses, coronavirus-related expenses, purchase accounting effects, and depreciation and amortization expense, as applicable, divided by net sales for the applicable period(s). Segment operating income includes all revenues, costs and expenses directly related to the segment involved. In determining segment income, neither corporate nor interest expenses are included. Segment depreciation and amortization expense relates to those assets, both tangible and intangible, that are utilized by the respective segment.

Other companies may use different methods to calculate adjusted EBITDA and adjusted EBITDA margin.

Consolidated

The following table summarizes the Company’s consolidated adjusted EBITDA and adjusted EBITDA margin and reconciles net income to consolidated adjusted EBITDA for the three and twelve months ended December 31, 2022 December 31, 2023 and 2021: 2022:

	Three Months Ended December 31,		Twelve Months Ended December 31,	
($ in millions)	**2022**	**2021**	**2022**	**2021**
Net income	$ 34.6	$ 19.5	$ 120.4	$ 100.6
Add (less):				
Interest expense	4.4	1.2	10.3	4.5
Pension settlement charges	—	10.3	—	10.3
Acquisition and integration-related expenses (benefits)	0.5	(3.0)	(0.5)	(2.1)
Coronavirus-related expenses	—	—	—	1.2
Debt settlement charges	0.1	—	0.1	—
Purchase accounting effects *	—	—	—	0.3
Other expense (income), net	0.1	(0.6)	(0.5)	(1.7)
Income tax expense (benefit)	7.4	(0.3)	30.5	17.0
Depreciation and amortization	14.0	12.9	54.7	50.4
Consolidated adjusted EBITDA	$ 61.1	$ 40.0	$ 215.0	$ 180.5
Net sales	$ 391.5	$ 301.4	$ 1,434.8	$ 1,213.2
Consolidated adjusted EBITDA margin	15.6 %	13.3 %	15.0 %	14.9 %

	Three Months Ended December 31,		Twelve Months Ended December 31,	
(in millions of dollars, except percentages)	**2023**	**2022**	**2023**	**2022**
Net income	$ 46.4	$ 34.6	$ 157.4	$ 120.4
Add (less):				
Interest expense, net	4.3	4.4	19.7	10.3
Acquisition and integration-related (benefits) expenses	(1.6)	0.5	0.4	(0.5)
Purchase accounting effects	0.7	—	0.7	—

Other expense (income), net	0.3	0.2	1.8	(0.4)
Income tax expense	12.1	7.4	45.6	30.5
Depreciation and amortization	15.3	14.0	60.4	54.7
Consolidated adjusted EBITDA	$ 77.5	$ 61.1	$ 286.0	$ 215.0
Net sales	$ 448.4	$ 391.5	$ 1,722.7	$ 1,434.8
Consolidated adjusted EBITDA margin	17.3 %	15.6 %	16.6 %	15.0 %

* Excludes purchase accounting expense effects included within depreciation and amortization of $0.2 million and $0.4 million for the three and twelve months ended December 31, 2021, respectively

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Environmental Solutions Group

The following table summarizes the Environmental Solutions Group's adjusted EBITDA and adjusted EBITDA margin and reconciles operating income to adjusted EBITDA for the three and twelve months ended December 31, 2022 December 31, 2023 and 2021: 2022:

	Three Months Ended December 31,		Twelve Months Ended December 31,	
($ in millions)	**2022**	**2021**	**2022**	**2021**
Operating income	$ 44.7	$ 24.1	$ 144.5	$ 120.5
Add:				
Acquisition and integration-related expenses	0.1	0.1	0.1	0.3
Coronavirus-related expenses	—	—	—	1.0
Purchase accounting effects *	—	—	—	0.3
Depreciation and amortization	12.8	12.0	50.3	46.7
Adjusted EBITDA	$ 57.6	$ 36.2	$ 194.9	$ 168.8
Net sales	$ 325.3	$ 245.5	$ 1,190.6	$ 1,004.0
Adjusted EBITDA margin	17.7 %	14.7 %	16.4 %	16.8 %

** Excludes purchase accounting expense effects included within depreciation and amortization of $0.2 million and $0.4 million for the three and twelve months ended December 31, 2021, respectively*

	Three Months Ended December 31,		*Twelve Months Ended December 31,*	
(in millions of dollars, except percentages)	***2023***	***2022***	***2023***	***2022***
Operating income	*$ 58.2*	*$ 44.7*	*$ 209.2*	*$ 144.5*
Add:				
Acquisition and integration-related expenses	*0.2*	*0.1*	*1.3*	*0.1*
Purchase accounting effects	*0.7*	*—*	*0.7*	*—*
Depreciation and amortization	*14.2*	*12.8*	*56.0*	*50.3*
Adjusted EBITDA	*$ 73.3*	*$ 57.6*	*$ 267.2*	*$ 194.9*
Net sales	*$ 373.1*	*$ 325.3*	*$ 1,437.9*	*$ 1,190.6*
Adjusted EBITDA margin	*19.6 %*	*17.7 %*	*18.6 %*	*16.4 %*

Safety and Security Systems Group

The following table summarizes the Safety and Security Systems Group's adjusted EBITDA and adjusted EBITDA margin and reconciles operating income to adjusted EBITDA for the three and twelve months ended December 31, 2022 December 31, 2023 and 2021: 2022:

	Three Months Ended December 31,		Twelve Months Ended December 31,	
($ in millions)	**2022**	**2021**	**2022**	**2021**
Operating income	$ 12.1	$ 10.1	$ 40.8	$ 32.7
Add:				
Coronavirus-related expenses	—	—	—	0.1
Depreciation and amortization	1.1	0.9	4.2	3.6

	Three Months Ended December 31,		Twelve Months Ended December 31,	
(in millions of dollars, except percentages)	**2023**	**2022**	**2023**	**2022**
Operating income	$ 14.9	$ 12.1	$ 54.8	$ 40.8
Add:				
Depreciation and amortization	1.1	1.1	4.2	4.2

Adjusted EBITDA	Adjusted EBITDA	$ 13.2	$ 11.0	$ 45.0	$ 36.4	Adjusted EBITDA	$ 16.0	$ 13.2	$ 59.0	$ 45.0
Net sales	Net sales	$ 66.2	$ 55.9	$ 244.2	$ 209.2	Net sales	$ 75.3	$ 66.2	$ 284.8	$ 244.2
Adjusted EBITDA margin	Adjusted EBITDA margin	19.9 %	19.7 %	18.4 %	17.4 %	Adjusted EBITDA margin	21.2 %	19.9 %	20.7 %	18.4 %

slide1

2022 2023 March 1, 2023 February 27, 2024 Felix Boeschen, VP, Corporate Strategy & Investor Relations

slide2

forward-looking forward-looking forward- forward-
forward-looking forward-looking

non-GAAP non-GAAP

slide3

$708 $899 $1,090 $1,221 $1,131 $1,213 $1,435 2016 2017 2018 2019 2020 2021 2022 Delivering on our Strategy 3 Net Sales CAGR (2016-22) Total: ~13% Organic: ~6%
Strategic acquisitions, primarily focused on developing a Specialty Vehicle platform, and organic growth have contributed meaningfully to Federal Signal's growth since 2016 (US$ in millions)

slide4

4 Long-Term Organic Revenue Growth Value-Added Acquisitions (Couple of % points > GDP) ESG: 15-18% SSG: 17-21% (new) Consolidated: 12-16% High Single Digit Revenue Growth EBITDA Margin Targets: Cash Conversion: ~100% of net income ROIC > Cost of Capital With continued focus on organic growth and M&A, and with margin performance above that of many of our peers, our financial framework aims to create long-term stockholder value Financial Framework Driving Long-Term Value Creation

slide5

2022 in Review 5 • Delivered highest net sales, adjusted EPS and orders in our history • Improved EBITDA margin performance towards the high end of current target range • Executed against several long-term strategic objectives in 2022: Continued expansion of our aftermarkets business, with revenues up 10% YoY Momentum in demand for safe-digging products continued, with orders up 41% YoY Funding new product development, with focus on electrification Capital investments to support organic growth and 80/20 initiatives, including purchase of University Park, IL manufacturing facility Funded combined $38 M of cash dividends and share repurchases • Issued third annual Sustainability Report

slide6

6* 3* 2021 2022 $1.43 $1.72 $222 $288 18% 20% $130 $220 11% 15% $160.8 $224.5
$30.1 $63.7 23% 40% $215.0 $286.0 $34.5 $71.0 19% 33% 15.0% 16.6% 14.9% 15.0% $1.97, $2.56, $0.34, $0.59, 21% 30%
$1.96, $2.58, $0.21, $0.62, 12% 32% $1.69 $1.87 $153 $178 10% 11% $879 M, $1.03 B, $250 $146 40% 17%

slide4

7* 4* 2021 2022 $392 $448 $90 $57 30% 15% $71 $42 24% 11% $46.6 $63.1 55% 35%

$61.1 $77.5 $21.1 $16.4 53% 27% 15.6% 17.3% 13.3% 15.6% $0.57, $0.75, $0.25, $0.18, 78% 32% $0.57, $0.74,

43% 30% $444 M; second highest quarterly orders on record $465 M, up $21 M, or 5%

slide5

8 5 2022 2023 2021 2022 ESG 398.8$ 381.3$ 1% 4% 373.1 245.5 33% 15% 58.2 24.1 85% 30%
15.6% 9.8% 73.3 36.2 59% 27% 19.6% 14.7% SSG 66.2 62.5 -3% 9% 75.3 55.9 18% 14% 14.9 10.1 20% 23%
19.8% 18.1% 16.0 11.0 20% 21% 21.2% 19.7% 10.0 4.1 149% -2% 465.0 443.8 0% 5% 448.4
301.4 30% 15% 63.1 30.1 55% 35% 14.1% 10.0% 77.5 40.0 53% 27% 17.3% 13.3% Enivronmental Solutions Group Safety and
Security Systems Group

slide6

9 6 2022 2023 2021 2022 448.4$ 301.4$ 90.1$ 30% 56.9$ 15% 119.4 67.4 29.2 43% 22.8 24%
54.1 37.6 8.6 23% 7.9 17% 3.8 2.7 0.6 22% 0.5 15% (benefits) (benefits) (1.6) (3.0) 3.5 (2.1) 63.1 30.1 55% 35%
4.3 1.2 3.2 267% Debt settlement charges 0.1 - 0.1 NM Pension settlement charges - 10.3 (10.3) NM (0.1) -2% (income), 0.3 0.2 (0.6) 0.7 -117% 50% (benefit) 12.1
(0.3) 7.7 NM 4.7 64% 46.4$ 19.5$ 15.1$ 77% 11.8$ 34% 0.75$ 0.32$ 0.25$ 78% 0.18$ 32% 0.74$ 0.40$ 43% 30% 26.6%
22.4% 12.1% 12.5% 20.7% -1.6%

slide7

10 7 2023 2021 2023 2021 46.4$ 19.5$ 157.4$ 100.6$ (benefit) 12.1 (0.3) 45.6 17.0

58.5 19.2 203.0 117.6 (benefits) (benefits) (1.6) (3.0) 0.4 (2.1) Pension-related charges Environmental remediation costs of a discontinued

operation 10.3 10.6 Coronavirus-related expenses (2) 0.8 - - 1.2 (2) - - - 0.2 0.7 - 57.6 26.7 204.9 128.0

(11.9) (1.8) (46.1) (19.6) 45.7$ 24.9$ 158.8$ 108.4$ 0.75$ 0.32$ 2.56$ 1.63$ 0.74$ 0.40$ 2.58$

1.75$ Three Months Ended December 31, Twelve Months Ended December 31, (1) Pension-related charges in the three and tw elve months ended December 31, 2021 primarily relate to pension settlement charges incurred in connection w ith a pension annuitization project. December 31, 2022 December 31, 2023 2021 2022

integration-related integration- related (benefits) (benefits), pension-related charges, coronavirus-related expenses, environmental remediation costs of a discontinued operation,

Three Months Ended December 31, Twelve Months Ended December 31, (1) Environmental remediation costs of a discontinued operation in the tw elve months ended December 31, 2023 relate to estimated environmental clean up costs at a facility associated w ith a business that w as discontinued in 2009. Such charges are included as a component of Other expense (income), net on the Consolidated Statements of Operations. (2) Debt settlement charges in the three and tw elve months ended December 31, 2022 relate to the w rite off of deferred f inancing fees incurred in connection w ith the execution of the Company's 2022 Credit Agreement. Such costs are included as a component of Other expense (income), net on the Consolidated Statements of Operations.

December 31, 2021 December 31, 2023

recent business combinations connection w ith acquisitions during the periods presented. (2) Coronavirus-related expenses in the tw elve months ended December 31, 2021 relate to direct expenses incurred in connection w ith the Company's response subsequent coronavirus pandemic, that acquisition date. Such costs incremental to, and separable from, normal operations. Such expenses primarily relate to incremental paid time off provided to employees and costs incurred to implement enhanced w orkplace safety protocols. Included as a component of Cost of sales on the Consolidated Statements of Operations.

slide8

11 8 2022, 2023, non-GAAP non-GAAP $363.0 $299.0

$47.5 $61.0 Strong capital structure $48 $61.0 316 238 five-year, five-year,

~$493 M of availability under revolving credit facility •

Strong capital structure • Generated ~$103 M of cash from operations in Q4 2023, up ~$64 M, or 162%, vs. Q4 2022 • YTD operating cash flow of ~$194 M, up ~$123 M, or 171%, vs. prior year • Paid down ~$70 M of debt during Q4 (~$110 M in 2H 2023) • Capital expenditures of $30 M in 2023, including investments in our plants to add capacity and gain efficiencies through automation • Completed Blasters, Inc. acquisition in January 2023 for initial sum of ~$13 M • Completed Trackless Vehicles acquisition in April 2023 for initial sum of ~$42 M • Paid $6.1 M for dividends in Q4, reflecting a dividend of $0.10 per share; recently declared increased dividend of $0.12 per share for Q1 2024 • During Q4, paid $1.2 M to repurchase ~21k shares (average price of $59.50); ~$54 M remaining under authorized repurchase program (~1% of market cap)

• Generated ~$40 M of cash from operations in Q4 this year, bringing full-year operating cash generation to ~$72 M • ~$428 M of availability under revolving credit facility • Purchased University Park manufacturing facility for ~$28 M in Q1 2022 • Other cap ex of $25 M in 2022, including investments in our plants to add capacity and gain efficiencies through automation • Completed acquisition of TowHaul Corporation on October 3, 2022 for initial payment of ~$43 M • Completed acquisition of Blasters, Inc. on January 3, 2023 for initial payment of ~$13 M • Paid $5.4 M for dividends, reflecting dividend of $0.09 per share; recently declared similar dividend for Q1 2023 • Share repurchases of $16 M in 2022; ~$59 M of authorization remaining under current program (~2% of market cap)

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slide9

12 9 strong Q4 results, which included record quarterly net a record- setting quarter across and an backlog • Q4
towards the high end slightly above midpoint recently raised margin Sales YoY net sales 33% 15%; 27% increase in adjusted EBITDA
Adjusted EBITDA margin Aftermarket revenues up 24% YoY, equating to ~27% 17.7%, up 300 basis points vs. prior year ESG sales Sequential quarterly Production output improving further with combined Q4
improvement of >20% our facilities; supply chain showing signs of easing facilities up 11% YoY and 6% vs. Q3 Systems Sales YoY net sales 18% 14% Adjusted 130-

basis point improvement in adjusted of ~20%, despite week-long plant shutdown due to a power outage Increasing SSG's target EBITDA margin to a new range of 17% to 21% • Generated significant cash previous range of 15% to 18% operations in the quarter; anticipate strong free cash flow generation in 2024 and beyond

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slide10

Looking Ahead 13 Market Conditions 10 Order strength Demand for our products record aftermarket offerings remains strong, as evidenced by Q4 orders of $465 M, up 5% YoY • Q4 provide good at ~$1.03 B (up 17% YoY), up slightly vs. Q3; provides excellent 2024 • End-market diversification efforts yielding order strength across publicly-funded and industrial end-markets • Public funding for infrastructure investments continues to fuel strong demand American Rescue Plan Act Infrastructure Investment and Jobs Act • Strategic growth strategy is working aftermarket revenue +21% YoY Active M&A pipeline and healthy balance sheet Trackless realized 30%+ YoY sales growth in first year of ownership, primarily due to distribution synergies Realized $3 M+ in synergies between Ground Force and TowHaul Economic stimulus and infrastructure legislation expected Planned roll-out of codified FS operating system in 2024 • New product development focus remains Q4 marked new-high point in EV sweeper orders New dump truck body EV offerings catalysts for multi-year growth • Continued investment exhibited at NTEA work truck show new product development, with momentum on electrification initiatives Fully-electric street sweeper and dump truck offerings being unveiled at upcoming trade shows • With lead times for new equipment continuing to be extended, expect demand for aftermarkets offerings to remain high Replenishment of rental fleet means higher concentration of rental fleet builds during Q1 vs. prior year

Rental quote activity so far this year is robust Geographic expansion of aftermarkets business gaining traction Switch-N-Go® system on electric chassis Fully-electric street sweeper Plug-in hybrid electric Broom Bear ® street sweeper early March 2024 Trackless M7 Multi-Purpose Vehicle

slide11

14 Continued 11 Net Sales CAGR ('16A – '23A) Total: ~14% Organic: ~7% 2016 2017 2018 2019 2020 2021 2022 2023 CEO Remarks – Executing on Strategic Framework in 2024 (U S$ in m ill io ns) Recently Raised EBITDA Margin Targets: • Consolidated: 14-20% • Environmental Solutions Group: 17-22% • Safety and Security Systems Group: 17-21% Operational Excellence Organic Growth Value- Added Execution Grass Attachments Maintenance Attachments MT7 Tractor Snow AttachmentsLiquidator Certified Pre-Owned Water Blasters Rentals Contracting • Fills critical product gap in road marking/line-removal business and establishes Florida location for other aftermarket opportunities • Transaction closed on January 4, 2023 • Manufacturer of multi-purpose, off-road municipal tractors and a variety of attachments • Attractive aftermarket business with opportunities to leverage distribution channel • Signed February 23, 2023; transaction expected to close during Q2 2023

slide12

2023 12 2024 Financial • Full-Year EPS* ranging from $2.15 EPS1 Outlook of $2.85 $2.40 $3.05 • highest EPS in Company's history and -22% - 18% despite aggregate
headwind and the highest EPS level in our history • Does not include discrete tax benefit 0.23 from higher interest expense and normalization 14 M, anticipated in Q1 2024 • Full-year net sales tax rate 15 Revenue of $1.58 $1.85
$1.72 B; represents $1.90 B • Would represent 7% - -20% vs. $1.43 B in 2022 • pre-tax pre-tax Depreciation and amortization expense of ~$62 M -$65 M •
$25 $35 $30 $40 Interest expense of ~$18-20 M; YoY EPS headwind of ~$0.11 Effective tax rate resets to a normalized rate between 25% and 26%, excluding discrete items; YoY EPS headwind of ~$0.12
~61-62 M weighted average shares outstanding Key Issuing 2024 Guidance YoY earnings improvement expected in Q1, although • Although
 Expect expecting meaningful YoY improvement in 2023 earnings 2024, with Q1 adjusted EPS1 expected similar % between 19%-20% full-year our full-year as in 2022 •
environment; conditions; supply chain improves throughout year, continued improvement in 2024, customer-provided customer-provided •
 Includes nominal contribution from Trackless acquisition, expected to close during Q2 *Adjusted • Interest expense of ~$13 M - $14 M, without additional M&A • Effective tax rate of 25%-26%, excluding discrete items • ~62 M weighted average shares outstanding • Depreciation and amortization expense of ~$66 M - $68M 1. Adjusted
2022, 2023, integration-related integration- related , environmental remediation costs of a discontinued operation purchase accounting effects. In prior years, we have also made adjustments to exclude the impact of where applicable. and certain other unusual or non-recurring items. 2023, 2024,

slide13

2022 2023 16 13 March 1, 2023 February 27, 2024 Felix Boeschen, VP, Corporate Strategy & Investor Relations

slide14

- -

630-954-2000 Ian Hudson

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slide15

2022 2023 18 15

slide16

19 16 2023 2021 2023 2021 46.4$ 19.5$ 157.4$ 100.6$ 4.3 1.2 10.3 4.5 Pension settlement
charges - 10.3 - 19.7 (benefits) (benefits) (1.6) (3.0) 0.4 (2.1) Coronavirus-related expenses - - - 1.2 Debt settlement charges 0.1 - 0.1 - * 0.7 0.7 -
0.3 0.1 (0.6) (0.5) (1.7) 0.3 0.2 1.8 (0.4) (benefit) 12.1 (0.3) 45.6 17.0 15.3 12.9 60.4 50.4 77.5$
40.0$ 286.0$ 180.5$ 448.4$ 301.4$ 1,722.7$ 1,213.2$ 17.3% 13.3% 16.6% 14.9%

* Excludes purchase accounting expense effects included within depreciation and amortization of $0.2 million and $0.4 million for the three and twelve months ended December 31, 2021, respectively.

slide17

20 ESG 17 2022 2023 2021 2022 58.2$ 24.1$ 0.1 0.2 * - 0.7
14.2 12.0 73.3$ 36.2$ 373.1$ 245.5$ 19.6% 14.7% 2022 2023 2021 2022
14.9$ 10.1$ 0.9 1.1 16.0$ 11.0$ 75.3$ 55.9$ 21.2% 19.7% * Excludes purchase accounting expense effects
included within depreciation and amortization of $0.2 million for the three months ended December 31, 2021.

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- - 2022 2023 2021 2022

December 31, 2022 December 31, 2023 2021, 2022,

integration-related integration-related (benefits) (benefits), pension-related charges, coronavirus-related expenses, environmental

remediation costs of a discontinued operation. - -

non-GAAP non-GAAP

pension settlement charges, integration-related integration-related (benefits) (benefits), coronavirus-related expenses, debt settlement charges,

benefit/ non- non- pension settlement charges,

integration-related integration-related (benefits) (benefits), coronavirus-related expenses, debt settlement charges, benefit/

non-GAAP non-GAAP integration-

related expenses, coronavirus-related integration-related non-GAAP non-GAAP

integration-related expenses, coronavirus- related integration-related

slide19

slide1

slide1

FOR IMMEDIATE RELEASE Federal Signal to Expand its Specialty Vehicle Platform by Executing Agreement to Acquire Trackless Vehicles OAK BROOK, Illinois, February 23, 2023 — Federal Signal Corporation (NYSE: FSS) (the "Company"), a leader in environmental and safety solutions, today announced the signing of a definitive agreement to acquire substantially all the assets and operations of Trackless Vehicles Limited ("Trackless"), a leading manufacturer of multi-purpose, municipal sidewalk tractors, for initial cash consideration of C$54 million (approximately US$40 million), subject to post-closing adjustments. In addition, the transaction also includes a contingent earn-out payment of up to C$6 million. The acquisition also includes the operations of Work Equipment Limited, the exclusive Trackless dealer in Southwestern and Northern Ontario, Canada. Trackless, which is headquartered in Courtland, Ontario, Canada and employs approximately 90 people, generated revenues of approximately C$35 million for the year ended December 31, 2022. Trackless manufactures the industry-leading, MT Series 7 tractor ("MT7"), which uses a variety of attachments to provide year-round value to its customers. Snow and ice attachments, including de-icing solutions, plows, and snowblowers can be used by customers during winter months, while during warmer periods, other attachments can be used in a variety of applications, such as concrete/asphalt maintenance, sweeping, tree and vegetation control, and materials hauling. The interchangeable Trackless attachments can help customers to achieve carbon reduction and other environmental goals by operating a single, highly-versatile unit instead of several purpose- built vehicles. Trackless also supports the recurring aftermarket needs of its customers through a comprehensive parts offering, sales of which represent up to 20% of annual revenues. The superior design of the MT7, the breadth and depth of its attachment offerings, and a dedicated dealer network have allowed Trackless to establish a differentiated position in the industry. "The acquisition of Trackless represents a strong addition to our municipal product offerings and further bolsters our position as an industry-leading diversified manufacturer of specialized vehicles for maintenance and infrastructure markets," said Jennifer L. Sherman, President and Chief Executive Officer. "With our Joe Johnson Equipment subsidiary currently the largest distributor of Trackless products in North America, we have a great appreciation of Trackless' products and reputation for quality and innovation. We are excited about the opportunities to leverage Federal Signal's distribution channel in the U.S. to expand the geographic reach of Trackless products and accelerate the growth trajectory of the business". "Trackless has a proud history of growth through customer focus, quality products, and excellent service," noted Douglas Cadman, President of Trackless. "Federal Signal, through Joe Johnson Equipment, has been a valuable long-term partner of ours, and we are excited to be joining forces to launch the next phase of our growth". The Company anticipates completing the transaction over the next 90 days, subject to customary closing conditions, and expects the acquisition to be accretive in 2023. About Federal Signal Federal Signal Corporation (NYSE: FSS) builds and delivers equipment of unmatched quality that moves material, cleans infrastructure, and protects the communities where we work and live. Founded in 1901, Federal Signal is a leading global designer, manufacturer and supplier of products and total solutions that serve municipal, governmental, industrial and commercial customers. Headquartered in Oak Brook, Ill., with manufacturing

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facilities worldwide, the Company operates two groups: Environmental Solutions and Safety and Security Systems. For more information on Federal Signal, visit: www.federalsignal.com. “Safe Harbor” Statement under the Private Securities Litigation Reform Act of 1995 This release contains various forward-looking statements as of the date hereof and we undertake no obligation to update these forward-looking statements regardless of new developments or otherwise. Statements in this release that are not historical are forward-looking statements. Such statements are subject to various risks and uncertainties that could cause actual results to vary materially from those stated. Such risks and uncertainties include but are not limited to: direct and indirect impacts of the coronavirus pandemic and the associated government response, risks and adverse economic effects associated with emerging geopolitical conflicts, product and price competition, supply chain disruptions, work stoppages, availability and pricing of raw materials, cybersecurity risks, risks associated with acquisitions such as integration of operations and achieving anticipated revenue and cost benefits, foreign currency exchange rate changes, interest rate changes, increased legal expenses and litigation results, legal and regulatory developments and other risks and uncertainties described in filings with the Securities and Exchange Commission. Contact: Ian Hudson, Chief Financial Officer, +1-630-954-2000, ihudson@federalsignal.com

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