

Vulcan Materials CO
Form 10-K
February 26, 2019

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF
THE

SECURITIES EXCHANGE ACT OF 1934

For the Fiscal Year Ended December 31, 2018

Commission file number: 001-33841

VULCAN MATERIALS COMPANY

(Exact Name of Registrant as Specified in Its Charter)

New Jersey 20-8579133

(State or other jurisdiction of (I.R.S. Employer Identification No.)
incorporation or organization)

1200 Urban Center Drive, Birmingham, Alabama 35242

(Address of Principal Executive Offices) (Zip Code)

(205) 298-3000

(Registrant's telephone number, including area code)

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

Title of each class	Name of each exchange on which registered
Common Stock, \$1 par value	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 during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).
Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or

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information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, 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	Smaller reporting company
Non-accelerated filer	Emerging
growth company	

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

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

Aggregate market value of voting and non-voting common stock held by non-affiliates as of June 29, 2018:	\$17,035,024,582
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Number of shares of common stock, \$1.00 par value, outstanding as of February 12, 2019:	131,830,868
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DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant’s annual proxy statement for the annual meeting of its shareholders to be held on May 10, 2019, are incorporated by reference into Part III of this Annual Report on Form 10-K.

VULCAN MATERIALS COMPANY

ANNUAL REPORT ON FORM 10-k
 FISCAL YEAR ENDED DECEMBER 31, 2018

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Unless otherwise stated or the context otherwise requires, references in this report to “Vulcan,” the “Company,” “we,” “our,” or “us” refer to Vulcan Materials Company and its consolidated subsidiaries.

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PART I

“SAFE HARBOR” STATEMENT UNDER THE PRIVATE SECURITIES
LITIGATION REFORM ACT OF 1995

Certain of the matters and statements made herein or incorporated by reference into this report constitute forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934. All such statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements reflect our intent, belief or current expectation. Often, forward-looking statements can be identified by the use of words, such as “anticipate,” “may,” “believe,” “estimate,” “project,” “expect,” “intend” and words of similar import. In addition to the statements included in this report, we may from time to time make other oral or written forward-looking statements in other filings under the Securities Exchange Act of 1934 or in other public disclosures. Forward-looking statements are not guarantees of future performance, and actual results could differ materially from those indicated by the forward-looking statements. All forward-looking statements involve certain assumptions, risks and uncertainties that could cause actual results to differ materially from those included in or contemplated by the statements. These assumptions, risks and uncertainties include, but are not limited to:

- § general economic and business conditions
- § the timing and amount of federal, state and local funding for infrastructure
- § changes in the level of spending for private residential and private nonresidential construction
- § changes in our effective tax rate
- § the increasing reliance on information technology infrastructure for our ticketing, procurement, financial statements and other processes could adversely affect operations in the event that the infrastructure does not work as intended or experiences technical difficulties or is subjected to cyber-attacks
- § the impact of the state of the global economy on our businesses and financial condition and access to capital markets
- § the highly competitive nature of the construction materials industry
- § the impact of future regulatory or legislative actions, including those relating to climate change, wetlands, greenhouse gas emissions, the definition of minerals, tax policy or international trade
- § the outcome of pending legal proceedings
- § pricing of our products
- § weather and other natural phenomena, including the impact of climate change
- § energy costs
- § costs of hydrocarbon-based raw materials
- § healthcare costs
- § the amount of long-term debt and interest expense we incur
- § changes in interest rates
- § volatility in pension plan asset values and liabilities, which may require cash contributions to the pension plans
- § the impact of environmental cleanup costs and other liabilities relating to existing and/or divested businesses
- § our ability to secure and permit aggregates reserves in strategically located areas
- § our ability to manage and successfully integrate acquisitions
- § the effect of changes in tax laws, guidance and interpretations, including those related to the Tax Cuts and Jobs Act that was enacted in December 2017
- § significant downturn in the construction industry may result in the impairment of goodwill or long-lived assets
- § changes in technologies, which could disrupt the way we do business and how our products are distributed
- § the risks set forth in Item 1A “Risk Factors,” Item 3 “Legal Proceedings,” Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” and Note 12 “Commitments and Contingencies” to the consolidated financial statements in Item 8 “Financial Statements and Supplementary Data,” all as set forth in this report
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other assumptions, risks and uncertainties detailed from time to time in our filings made with the Securities and Exchange Commission

Part I 1

All forward-looking statements are made as of the date of filing or publication. We undertake no obligation to publicly update any forward-looking statements, whether as a result of new information, future events or otherwise, except to the extent required by law. Investors are cautioned not to rely unduly on such forward-looking statements when evaluating the information presented in our filings, and are advised to consult any of our future disclosures in filings made with the Securities and Exchange Commission and our press releases with regard to our business and consolidated financial position, results of operations and cash flows.

Part I 2

ITEM 1

BUSINESS

Vulcan Materials Company, a New Jersey corporation, operates primarily in the U.S. and is the nation's largest supplier of construction aggregates (primarily crushed stone, sand and gravel) and a major producer of asphalt mix and ready-mixed concrete. We provide the basic materials for the infrastructure needed to maintain and expand the U.S. economy. Delivered by trucks, ships, barges and trains, our products are the indispensable materials building homes, offices, places of worship, schools, hospitals and factories, as well as vital infrastructure including highways, bridges, roads, ports and harbors, water systems, campuses, dams, airports and rail networks. As of December 31, 2018, we had 351 active aggregates facilities, 67 asphalt facilities and 46 concrete facilities.

BUSINESS STRATEGY

Our strategy and competitive advantage are based on our strength in aggregates which are used in most types of construction and in the production of asphalt mix and ready-mixed concrete. Our strategy for long-term value creation is built on: (1) an aggregates-focused business, (2) a disciplined approach to portfolio management and capital allocation, (3) a focus on continuous compounding improvement in profitability, (4) a holistic approach to land management, and (5) our commitment to safety, health and the environment.

1. AGGREGATES FOCUS

Aggregates are used in virtually all types of public and private construction and practically no substitutes for quality aggregates exist. Given our focus on aggregates, we:

BUILD AND HOLD SUBSTANTIAL RESERVES: Our reserves are critical to our long-term success. We currently have 16.3 billion tons of permitted and proven or probable aggregates reserves. They are strategically located throughout the United States in high-growth areas that are expected to require large amounts of aggregates to meet future construction demand. Moreover, there are significant barriers to entry in many metropolitan markets due to stringent zoning and permitting regulations. These restrictions curtail expansion in certain areas, but they also increase the value of our reserves at existing locations. Our downstream businesses (asphalt and concrete) use Vulcan-produced aggregates almost exclusively.

TAKE ADVANTAGE OF SIZE AND SCALE: We are the largest aggregates supplier in the U.S. Our 351 active aggregates facilities as of December 31, 2018 provide opportunities to standardize operating practices and procure equipment (fixed and mobile), parts, supplies and services in an efficient and cost-effective manner, both regionally and nationally. Each aggregates operation is also unique because of its location within a local market and its particular geological characteristics. Every operation, however, uses a similar group of assets to produce saleable aggregates and provide customer service. Additionally, we are able to share best practices across the organization and leverage our size for administrative support, customer service, accounting, procurement, technical support and engineering.

2. PORTFOLIO MANAGEMENT AND CAPITAL ALLOCATION

Demand for our products is dependent on construction activity and correlates positively with changes in population growth, household formation and employment. During the period 2020 - 2030, Moody's Analytics projects that 80% of the U.S. population growth, 73% of household formation and 64% of new jobs will occur in Vulcan-served states. The close proximity of our production facilities and our aggregates reserves to this projected population growth creates many opportunities to invest capital in high-return projects.

Source: Moody's Analytics as of December 14, 2018

We have pursued a strategy to increase our presence in U.S. metropolitan areas that are expected to grow the most rapidly and by divesting assets that are no longer considered part of our long-term growth strategy. Our coast-to-coast footprint serves 19 of the top 25 highest-growth U.S. metropolitan areas in 20 states plus the District of Columbia.

Our top ten revenue producing states accounted for 86% of our 2018 revenues while our top five accounted for 61%.

VULCAN'S TOP TEN REVENUE PRODUCING STATES IN 2018

1.	California	6.	Florida
2.	Texas	7.	Arizona
3.	Virginia	8.	North Carolina
4.	Tennessee	9.	South Carolina
5.	Georgia	10.	Alabama

§ portfolio management: Since becoming a public company in 1957, Vulcan has principally grown by mergers and acquisitions. For example, in 1999 we acquired CalMat Co., thereby expanding our aggregates operations into California and Arizona and making us one of the nation's leading producers of asphalt mix. In 2007, we acquired Florida Rock Industries, Inc. This acquisition expanded our aggregates business in Florida and our aggregates and ready-mixed concrete businesses in other Southeastern and Mid-Atlantic states. In 2017, we acquired Aggregates USA — this acquisition greatly expanded our ability to serve customers in Florida, Georgia and South Carolina. Additionally, throughout our history we have completed many bolt-on acquisitions that have contributed significantly to our growth. We closed seven additional acquisitions in 2017 that complement our existing positions in Arizona, California, Illinois, New Mexico, Tennessee, and Virginia. From 2015 to 2017, we invested over \$1.2 billion in acquisitions and internal projects for long-term growth, while further strengthening our portfolio through divestitures and swaps, including swapping our concrete operations in Arizona for asphalt operations in Arizona during 2017.

While an aggregates-focused business, we selectively make investments in downstream products that drive local market profitability. In January 2017, we entered the asphalt market in Tennessee through the acquisition of several asphalt mix operations and a construction paving business. During 2018, we entered the asphalt mix and construction paving markets in Alabama and expanded our asphalt operations and service offerings in Texas through the acquisition of several asphalt mix operations and construction paving businesses.

§ capital allocation: Our long-term strategy around capital allocation has given us the ability to leverage decisions we have made over the past few years. During 2018, we reinvested \$469.1 million into core operating, internal growth and maintenance capital expenditures, in addition to \$459.6 million reinvested in 2017. These investments are fundamental actions that strengthen the business. They improve the longer-term efficiency, capacity and flexibility of our production, and they support our strong commitment to superior customer service.

3. compounding improvement in profitability

Our focus on the following three major profit drivers has made us one of the most profitable public companies in the industry (as measured by aggregates gross profit per ton).

§ Price for Service — We seek to receive full and fair value for the quality of products and services we provide. We should be paid appropriately for helping our customers be successful. Our expanding margins will continue to benefit from the compounding pricing gains associated with cyclical recoveries.

§ Operating Efficiency and Leverage — We focus on rigorous cost management throughout the economic cycle. Small savings per ton add up to significant cost reductions. We are operating a capital-intensive business well below full capacity and are extremely well positioned to further leverage fixed costs on incremental sales as we move forward.

§ Sales and Production Mix — We adjust production levels to meet varying market conditions. Managing inventories responsibly results in improved cost performance and an improved return on capital. As the recovery continues and as we see a larger portion of new construction activity in the end-use mix, we will sell the entire production mix much more efficiently and at fuller value.

We manage these factors locally and align our talent and incentives accordingly. Our knowledgeable and experienced workforce and our flexible production capabilities allow us to manage operational and overhead costs aggressively. Recovery in demand serves as a tailwind for all three major profit drivers.

4. LAND MANAGEMENT

With approximately 240,000 acres in our land portfolio, a long-term holistic approach to preserving land and water is integral to sustaining our success. From pre-mining to mining to reclamation, we are actively managing the entire life cycle of our land, creating maximum value for the business, our shareholders and our communities.

We are putting land to use before we mine by creating opportunities for agriculture and timber development. After mining, our land and water assets will be converted to other valuable uses including drinking water reservoirs, aquifer recharge basins, public parks, habitat mitigation banks, wetlands, productive farmland and residential and commercial developments.

Because of the evolving needs of our communities, we listen to and collaborate with our neighbors to prepare the land for its highest and best use after mining is complete. Our work with state, regional and local governments to develop solutions today will benefit future generations.

5. SAFETY, HEALTH AND THE ENVIRONMENT

A strategy for sustainable, long-term value creation must include doing right by your employees, your neighbors and the environment in which you operate. We are a leader in our industry in safety performance by applying the shared experiences, expertise and resources at each of our locally led sites with an emphasis on taking care of one another. We focus on our environmental stewardship programs with the same intensity that we bring to our health and safety initiatives. And, our community relations programs serve our neighbors, while ensuring that we grow and thrive in the communities where we operate.

PRODUCT LINES

Our products are used to build the roads, tunnels, bridges, railroads and airports that connect us, and to build the hospitals, schools, shopping centers, factories and places of worship that are essential to our lives and the economy. We have four operating (and reportable) segments organized around our principal product lines:

1. Aggregates – 74% of 2018’s total revenues and 90% of gross profit
 2. Asphalt – 17% of 2018’s total revenues and 5% of gross profit
 3. Concrete – 9% of 2018’s total revenues and 5% of gross profit
 4. Calcium – less than 1% of 2018’s total revenues and less than 1% of gross profit
- See Note 15 “Segment Reporting” in Item 8 “Financial Statements and Supplementary Data.”

1. AGGREGATES

Our construction aggregates are used in a number of ways:

- § as a base material underneath highways, walkways, airport runways, parking lots and railroads
- § to aid in water filtration, purification and erosion control
- § as a raw material used in combination with other resources to construct many of the items we rely on to sustain our quality of life including:
 - § houses and apartments
 - § roads, bridges and parking lots
 - § schools and hospitals
 - § commercial buildings and retail space
 - § sewer systems

- § power plants
- § airports and runways

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AGGREGATES INDUSTRY

Factors that affect the U.S. aggregates industry and our business include:

§ Location of reserves: Aggregates have a high weight-to-value ratio and, in most cases, must be produced near where they are used; if not, transportation can cost more than the materials, rendering them uncompetitive compared to locally produced materials. Exceptions to this typical market structure include areas along the U.S. Gulf Coast and the Eastern Seaboard where there are limited supplies of locally available, high-quality aggregates. We serve these markets from quarries that have access to cost-effective long-haul transportation — shipping by barge and rail — and from our quarry on Mexico's Yucatan Peninsula with our fleet of Panamax-class, self-unloading ships.

Where practical, we have operations located close to our local markets because the cost of trucking materials long distances is prohibitive. Approximately 80% of our total aggregates shipments are delivered exclusively from the producing location to the customer by truck, and another 15% are delivered by truck after reaching a sales yard by rail or water. The remaining 5% of aggregates shipments are delivered directly to the customer by rail or water.

§ Limited product substitution: There are limited substitutes for quality aggregates. Recycled concrete and asphalt have certain applications as a lower-cost alternative to virgin aggregates. However, many types of construction projects cannot be served by recycled concrete and require the use of virgin aggregates to meet technical specifications and performance-based criteria for durability, strength and other qualities. Moreover, the amount of recycled asphalt included in asphalt mix as a substitute for aggregates is limited due to specifications.

§ Highly fragmented industry: The U.S. aggregates industry is composed of over 5,800 companies that manage more than 10,600 operations. This fragmented structure provides many opportunities for consolidation. Companies in the industry commonly enter new markets or expand positions in existing markets through the acquisition of existing facilities.

Through strategic acquisitions and investments, we have developed an unmatched coast-to-coast footprint of strategically located permitted reserves concentrated in and serving the nation's key growth centers. We have over 23,000 customers in 20 states, the District of Columbia, Mexico and the Bahamas.

§ Flexible production capabilities: The production of aggregates is a mechanical process in which stone is crushed and, through a series of screens, separated into various sizes depending on how it will be used. Production capacity can be flexible by adjusting operating hours to meet changing market demand.

§ raw material inputs largely ControlLED: Unlike typical industrial manufacturing industries, the aggregates industry does not require the input of raw material beyond owned or leased aggregates reserves. Stone, sand and gravel are naturally occurring resources. However, production does require the use of explosives, hydrocarbon fuels and electric power.

§ Demand cycles: Long-term growth in demand for aggregates is largely driven by growth in population, jobs and households. While short-term and medium-term demand for aggregates fluctuates with economic cycles, declines have historically been followed by strong recoveries, with each peak establishing a new historical high.

The drivers underpinning demand recovery — and sustained, multi-year volume and pricing growth — remain firmly in place, in both the public and private sectors of the economy. They include: population growth; gains in total employment and in household income and wages; a continuing increase in household formations; the growing need for additional housing stock and housing demand; a multi-year federal transportation law in place and continuing increases in transportation funding at state and local levels; record state tax receipts; public investment in infrastructure that is still well below the long-term trend-line, and increasing political awareness and acceptance of the need to invest in infrastructure.

AGGREGATES MARKETS

We focus on the U.S. markets with above-average long-term expected population growth and where construction is expected to expand. Because transportation is a significant part of the delivered cost of aggregates, our facilities are typically located in the markets they serve or have access to economical transportation via rail, barge or ship to a particular end market. We serve both the public and the private sectors.

Public sector construction activity has historically been more stable and less cyclical than privately-funded construction, and generally requires more aggregates per dollar of construction spending. Private sector construction (primarily residential and nonresidential buildings) typically is more affected by general economic cycles than publicly-funded projects (particularly highways, roads and bridges), which tend to receive more consistent levels of funding throughout economic cycles.

Source: Company estimates

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PUBLIC SECTOR CONSTRUCTION MARKET

Public sector construction includes spending by federal, state, and local governments for highways, bridges, buildings, airports, schools and prisons as well as other infrastructure construction for sewer and waste disposal systems, water supply systems, dams, reservoirs and other public construction projects. Construction for power plants and other utilities is funded from both public and private sources. In 2018, publicly-funded construction accounted for approximately 44% of our total aggregates shipments, and approximately 23% of our aggregates sales by volume were used in highway construction projects.

§ Public Sector Funding: Generally, public sector construction spending is more stable than private sector construction spending; public sector spending is less sensitive to interest rates and has historically been supported by multi-year laws, which provide certainty in funding amounts, program structures, and rules and regulations. Federal spending is governed by authorization, budget and appropriations laws. The level of state and local spending on infrastructure varies across the United States and depends on individual state needs and economies.

§ STATE AND LOCAL TRANSPORTATION FUNDING: Since 2012, 31 states have approved plans to increase revenues for transportation investment through motor fuel tax increases, revenues outside of fuel taxes, and one-time increases; 13 of those states, representing 81% of our 2018 revenues, are in Vulcan's footprint. In 2017 alone, 7 state legislatures voted to raise motor fuel taxes for transportation investment.

In the November 2018 general election, voters in 31 states approved 79% of 352 state and local transportation funding ballot measures. Major transportation funding measures in Vulcan-served areas are estimated to result in \$30 billion in revenues and bond proceeds primarily dedicated to roads, streets and bridges. Including 2018, voters have approved 78% of nearly 1,700 transportation investment ballot measures since 2009.

§ federal highway funding: In December 2015, President Obama signed a new, long-term federal highway and transit authorization bill, Fixing America's Surface Transportation Infrastructure Act (FAST Act), into law after the final legislation received strong, bipartisan support in both the House and the Senate. The FAST Act provides multi-year funding to state and local governments in support of road, bridge, intermodal and public transportation projects. The FAST Act increases Federal-Aid Highway Program funding from \$41 billion in the federal fiscal year (FFY) 2015 to \$47 billion in FFY 2020. In addition, the Bipartisan Budget Act of 2018 added approximately \$2 billion per year to base highway programs in 2018 and 2019.

The long-term nature of the FAST Act is important. The Federal-Aid Highway Program is the largest component of the law and has provided, on average, 52% of all state capital investment in roads and bridges over the last 10 years. This multi-year authorization and the associated dedicated funding provides state departments of transportation with the ability to plan and execute long-range, complex highway projects.

The FAST Act also contains important policy changes. To further accelerate the project delivery process, it augments the environmental review and permitting process reforms contained in the prior law, Moving Ahead for Progress in the 21st Century Act (MAP-21). The new law also provides assistance for states making investments in major capital projects — particularly freight projects. In states where we operate, we are well positioned to serve the large general contractors who will compete for new freight and other major capacity projects that will move forward with this FAST Act funding and policy implementation.

Project financing remains an important additional component of overall surface transportation spending, with the Transportation Infrastructure Finance & Innovation Act (TIFIA) program authorized at \$275 million (in line with the previous program outlays) and growing to \$300 million by 2020. The FAST Act also created a new National Surface Transportation and Innovative Finance Bureau to provide technical assistance to states seeking to pursue public-private partnerships and other financing arrangements for transportation projects.

Part I 9

§ FEDERAL WATER INFRASTRUCTURE: In October 2018, President Trump signed America's Water Infrastructure Act of 2018 (AWIA 2018) into law. The new law includes the Water Resources Development Act of 2018 (WRDA 2018), which reauthorizes needed investment in America's ports, channels, locks, dams, and other infrastructure that supports the maritime and waterways transportation system and provides flood protection for communities. It also improves EPA programs for storm water, water recycling, and sewer overflow projects. Included in AWIA 2018 are improvements to the Water Infrastructure Finance and Innovation Act (WIFIA) program, which was modeled after the highly popular TIFIA program in the surface transportation sector. Created in the Water Resources Reform and Development Act of 2014 (WRRDA 2014), WIFIA allows for federal credit assistance to water resources projects in the form of low-cost loans, loan guarantees and lines of credit. In addition to these regular authorizations, \$89.3 billion in immediate federal emergency supplemental appropriations was provided for disaster recovery in the Bipartisan Budget Act of 2018 for hurricane-affected areas in Florida, Louisiana, Texas and other states. A portion of these funds will be directed to long-term and short-term U.S. Army Corps of Engineers-supported flood control and other water resources construction projects as well as additional infrastructure projects that use aggregates and related materials.

Private sector CONSTRUCTION MARKET

The private sector construction markets include both nonresidential building construction and residential construction and are considerably more cyclical than public construction. In 2018, privately-funded construction accounted for approximately 56% of our total aggregates shipments.

§ Nonresidential Construction: Private nonresidential building construction includes a wide array of projects. Such projects generally are more aggregates intensive than residential construction. Overall demand in private nonresidential construction generally is driven by job growth, vacancy rates, private infrastructure needs and demographic trends. The growth of the private workforce creates demand for offices, hotels and restaurants. Likewise, population growth generates demand for stores, shopping centers, warehouses and parking decks as well as hospitals, places of worship and entertainment facilities. Large industrial projects, such as a new manufacturing facility, can increase the need for other manufacturing plants to supply parts and assemblies. Construction activity in this end market is influenced by a firm's ability to finance a project and the cost of such financing. This end market also includes capital investments in public nonresidential facilities to meet the needs of a growing population.

§ Residential Construction: Household formations in Vulcan-served states continue to outpace household formations in the rest of the United States. The majority of residential construction is for single-family housing with the remainder consisting of multi-family construction (i.e., two family houses, apartment buildings and condominiums). Public housing comprises only a small portion of housing demand. Construction activity in this end market is influenced by the cost and availability of mortgage financing and builders' ability to maintain skilled labor. U.S. housing starts, as measured by Dodge Data & Analytics data, peaked in early 2006 at over 2 million units annually. By the end of 2009, total housing starts had declined to less than 0.6 million units, well below prior historical lows of approximately 1 million units annually. In 2018, total annual housing starts in the U.S. reached 1.35 million units.

ADDITIONAL AGGREGATES PRODUCTS AND MARKETS

We sell aggregates that are used as ballast for construction and maintenance of railroad tracks. We also sell riprap and jetty stone for erosion control along roads and waterways. In addition, stone can be used as a feedstock for cement and lime plants and for making a variety of adhesives, fillers and extenders. Coal-burning power plants use limestone in scrubbers to reduce harmful emissions. Limestone that is crushed to a fine powder can be sold as agricultural lime.

We sell a relatively small amount of construction aggregates outside of the United States, principally in the areas surrounding our large quarry on the Yucatan Peninsula in Mexico. Nondomestic sales and long-lived assets outside

the United States are reported in Note 15 “Segment Reporting” in Item 8 “Financial Statements and Supplementary Data.”

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VERTICAL INTEGRATION

While aggregates is our focus and primary business, we believe vertical integration between aggregates and downstream products, such as asphalt mix and ready-mixed concrete, can be managed effectively in certain markets generating acceptable financial returns and enhancing financial returns in our core Aggregates segment. We produce and sell asphalt mix and/or ready-mixed concrete primarily in our Alabama, mid-Atlantic, Southwestern, Tennessee and Western markets. Aggregates comprise approximately 95% of asphalt mix by weight and 80% of ready-mixed concrete by weight. In both of these downstream businesses, aggregates are primarily supplied from our operations.

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2. ASPHALT

We produce and sell asphalt mix in Alabama, Arizona, California, New Mexico, Tennessee and Texas. In June 2018, we strengthened our asphalt position in Texas by acquiring additional asphalt mix operations and a construction paving business. In March 2018, we entered the Alabama asphalt market through the acquisition of an aggregates, asphalt mix and construction paving business. In December 2017, we strengthened our asphalt position in Arizona by swapping ready-mixed concrete operations for an asphalt mix operation. In January 2017, we entered the Tennessee asphalt market through the acquisition of several asphalt mix operations and a construction paving business. For additional details, see Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data.”

This segment relies on our reserves of aggregates, functioning essentially as a customer to our aggregates operations. Aggregates are a major component in asphalt mix, comprising approximately 95% by weight of this product. We meet the aggregates requirements for our Asphalt segment primarily through our Aggregates segment. These product transfers are made at local market prices for the particular grade and quality of material required.

Because asphalt mix hardens rapidly, delivery typically is within close proximity to the producing facility. The asphalt mix production process requires liquid asphalt cement, which we purchase from third-party producers. We do not anticipate any significant difficulties in obtaining the raw materials necessary for this segment to operate. We serve our Asphalt segment customers directly from our local production facilities.

3. CONCRETE

We produce and sell ready-mixed concrete in California, Maryland, New Mexico, Texas, Virginia, Washington D.C. and the Bahamas. In March 2018, we exited the Georgia ready-mixed concrete market (we retained all real property which is leased to the buyer, and obtained a long-term aggregates supply agreement). As noted above, in December 2017 we exited the Arizona ready-mixed concrete market via a swap for an asphalt mix operation, continuing our strategy to focus on asphalt mix in that market. In March 2017, we reentered the California ready-mixed concrete market through an acquisition. For additional details see Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data.”

This segment relies on our reserves of aggregates, functioning essentially as a customer to our aggregates operations. Aggregates are a major component in ready-mixed concrete, comprising approximately 80% by weight of this product. We meet the aggregates requirements of our Concrete segment primarily through our Aggregates segment. These product transfers are made at local market prices for the particular grade and quality of material required.

We serve our Concrete segment customers from our local production facilities or by truck. Because ready-mixed concrete hardens rapidly, delivery typically is within close proximity to the producing facility. Ready-mixed concrete production also requires cement which we purchase from third-party producers. We do not anticipate any significant difficulties in obtaining the raw materials necessary for this segment to operate.

4. CALCIUM

Our Calcium segment is composed of a single calcium operation in Brooksville, Florida. This facility produces calcium products for the animal feed, plastics and water treatment industries with high-quality calcium carbonate material mined at the Brooksville quarry.

OTHER BUSINESS-RELATED ITEMS

SEASONALITY AND CYCLICAL NATURE OF OUR BUSINESS

Almost all of our products are produced and consumed outdoors. Seasonal changes and other weather-related conditions can affect the production and sales volumes of our products. Therefore, the financial results for any quarter do not necessarily indicate the results expected for the year. Normally, the highest sales and earnings are in the third quarter and the lowest are in the first quarter. Furthermore, our sales and earnings are sensitive to national, regional and local economic conditions, demographic and population fluctuations, and particularly to cyclical swings in construction spending, primarily in the private sector.

COMPETITORS

We operate in a generally fragmented industry with a large number of small, privately-held companies. We estimate that the ten largest aggregates producers accounted for less than one-third of the total U.S. aggregates production in 2018. Despite being the industry leader, Vulcan's total U.S. market share is less than 10%. Other publicly traded companies among the ten largest U.S. aggregates producers include the following:

- § Cemex S.A.B. de
C.V.
- § CRH plc
- § HeidelbergCement AG
- § LafargeHolcim
- § Martin Marietta Materials, Inc.
- § MDU Resources Group, Inc.
- § Summit Materials, Inc.

Because the U.S. aggregates industry is highly fragmented, with over 5,800 companies managing more than 10,600 operations during 2018, many opportunities for consolidation exist. Therefore, companies in the industry tend to grow by acquiring existing facilities to enter new markets or extend their existing market positions.

CUSTOMERS

No material part of our business depends upon any single customer whose loss would have a significant adverse effect on our business. In 2018, our five largest customers accounted for 8% of our total revenues (excluding internal sales), and no single customer accounted for more than 2% of our total revenues. Our products typically are sold to private industry and not directly to governmental entities. Although approximately 45% to 55% of our aggregates shipments have historically been used in publicly-funded construction, such as highways, airports and government buildings, relatively insignificant sales are made directly to federal, state, county or municipal governments/agencies. Therefore, although reductions in state and federal funding can curtail publicly-funded construction, our business is not directly subject to renegotiation of profits or termination of contracts with state or federal governments.

ENVIRONMENTAL COSTS AND GOVERNMENTAL REGULATION

Our operations are subject to numerous federal, state and local laws and regulations relating to the protection of the environment and worker health and safety; examples include regulation of facility air emissions and water discharges, waste management, protection of wetlands, listed and threatened species, noise and dust exposure control for workers, and safety regulations under both Mine Safety and Health Administration (MSHA) and Occupational Safety and Health Administration (OSHA). Compliance with these various regulations requires a substantial capital investment, and ongoing expenditures for the operation and maintenance of systems and implementation of programs. We estimate that capital expenditures for environmental control facilities in 2019 and 2020 will be \$12.2 million and \$21.3 million, respectively. These anticipated expenditures are not expected to have a material impact on our earnings or competitive position.

We have received notices from the United States Environmental Protection Agency (EPA) or similar state or local agencies that we are considered a potentially responsible party (PRP) at a limited number of sites under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) or similar state and local environmental laws. Generally we share the cost of remediation at these sites with other PRPs or alleged PRPs in accordance with negotiated or prescribed allocations. There is inherent uncertainty in determining the potential cost of remediating a given site and in determining any individual party's share in that cost. As a result, estimates can change substantially as additional information becomes available about the nature or extent of site contamination, remediation methods, other PRPs and their probable level of involvement, and actions by or against governmental agencies or private parties.

For additional information about litigation and environmental matters, see Notes 1 and 12 to the consolidated financial statements in Item 8 "Financial Statements and Supplementary Data."

Frequently, we are required by state and local regulations or contractual obligations to reclaim our former mining sites. These reclamation liabilities are recorded in our financial statements as a liability at the time the obligation arises. The fair value of such obligations is capitalized and depreciated over the estimated useful life of the owned or leased site. The liability is accreted through charges to operating expenses. To determine the fair value, we estimate the cost for a third party to perform the legally required reclamation, which is adjusted for inflation and risk and includes a reasonable profit margin. All reclamation obligations are reviewed at least annually. Reclaimed quarries often have potential for use in commercial or residential development or as reservoirs or landfills. However, no projected cash flows from these anticipated uses have been considered to offset or reduce the estimated reclamation liability.

For additional information about reclamation obligations (referred to in our financial statements as asset retirement obligations), see Notes 1 and 17 to the consolidated financial statements in Item 8 "Financial Statements and Supplementary Data."

PATENTS AND TRADEMARKS

We do not own or have a license or other rights under any patents, registered trademarks or trade names that are material to any of our reporting segments.

OTHER INFORMATION ABOUT VULCAN

Vulcan is a New Jersey corporation incorporated on February 14, 2007, while its predecessor company was incorporated on September 27, 1956. Our principal sources of energy are electricity, diesel fuel and natural gas. We do not anticipate any difficulty in obtaining sources of energy required for operation of any of our reporting segments in

2019.

As of January 1, 2019, we employed 8,373 people in the United States. Of these employees, 659 are represented by labor unions. Also, as of that date, we employed 408 people in Mexico and 1 in the Bahamas, 332 of whom are represented by labor unions. We do not anticipate any significant issues with any unions in 2019.

We generally ship our products upon receipt of a purchase order or in some cases simply a price quote. Therefore, we do not have a significant order backlog.

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shareholder return performance presentation

Below is a graph comparing the performance of our common stock, with dividends reinvested, to that of the Standard & Poor's 500 Stock Index (S&P 500) and the Materials and Services Sector of the Wilshire 5000 Index (Wilshire 5000 M&S) from December 31, 2013 to December 31, 2018. The Wilshire 5000 M&S is a market capitalization weighted sector containing public equities of firms in the Materials and Services sector, which includes our company and approximately 1,300 other companies.

	2013	2014	2015	2016	2017	2018
Comparative Total Return 1						
Vulcan Materials Company	\$ 100.00	\$ 111.00	\$ 161.06	\$ 213.73	\$ 220.99	\$ 171.71
S&P 500	\$ 100.00	\$ 113.70	\$ 115.29	\$ 129.13	\$ 157.28	\$ 150.36
Wilshire 5000 M&S	\$ 100.00	\$ 108.30	\$ 113.50	\$ 126.44	\$ 161.33	\$ 149.23

1 Assumes an initial investment at December 31, 2013 of \$100 in each stock/index, with quarterly reinvestment of dividends.

INVESTOR INFORMATION

We make available on our website, www.vulcanmaterials.com, free of charge, copies of our:

- § Annual Report on Form 10-K
- § Quarterly Reports on Form 10-Q
- § Current Reports on Form 8-K

Our website also includes amendments to those reports filed with or furnished to the Securities and Exchange Commission (SEC) pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934 as well as all Forms 3, 4 and 5 filed with the SEC by our executive officers and directors, as soon as the filings are made publicly available by the SEC on its EDGAR database (www.sec.gov).

In addition to accessing copies of our reports online, you may request a copy of our Annual Report on Form 10-K, including financial statements, by writing to Jerry F. Perkins Jr., General Counsel and Secretary, Vulcan Materials Company, 1200 Urban Center Drive, Birmingham, Alabama 35242.

We have a:

- § Business Conduct Policy applicable to all employees and directors
- § Code of Ethics for the CEO and Senior Financial Officers

Copies of the Business Conduct Policy and the Code of Ethics are available on our website under the heading “Corporate Governance.” If we make any amendment to, or waiver of, any provision of the Code of Ethics, we will disclose such information on our website as well as through filings with the SEC.

Our Board of Directors has also adopted:

- § Corporate Governance Guidelines
- § Charters for our Audit, Compensation, Executive, Finance, Governance and Safety, Health & Environmental Affairs Committees

These documents meet all applicable SEC and New York Stock Exchange (NYSE) regulatory requirements.

The Charters of the Audit, Compensation and Governance Committees are available on our website under the heading, “Corporate Governance,” or you may request a copy of any of these documents by writing to Jerry F. Perkins Jr., General Counsel and Secretary, Vulcan Materials Company, 1200 Urban Center Drive, Birmingham, Alabama 35242.

Information included on our website is not incorporated into, or otherwise made a part of, this report.

CERTIFICATIONS AND ASSERTIONS

The certifications of our Chief Executive Officer and Chief Financial Officer made pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 are included as exhibits to this Annual Report on Form 10-K. Additionally, on June 5, 2018 our Chief Executive Officer submitted to the NYSE the annual written affirmation required by the rules of the NYSE certifying that he was not aware of any violations of Vulcan Materials Company of NYSE corporate governance listing standards.

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ITEM 1A

RISK FACTORS

The following risks could materially and adversely affect our business, financial condition and results of operations, and cause the trading price of our common stock to decline. These risk factors do not identify all risks that we face; our operations could also be affected by factors that are not presently known to us or that we currently consider to be immaterial to our operations. Due to risks and uncertainties, known and unknown, our past financial results may not be a reliable indicator of future performance and historical trends should not be used to anticipate results or trends in future periods. You should also refer to the other information set forth in this Annual Report on Form 10-K, including Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and Item 8 “Financial Statements and Supplementary Data.”

ECONOMIC/POLITICAL RISKS

Our business is dependent on the construction industry and is subject to economic cycles — Our products are principally sold to the U.S. construction industry. Since our business is dependent on spending in both the public and private sector construction markets, our profits are sensitive to the underlying national, regional, and local economic conditions. Construction spending, which is cyclical, is affected by general economic conditions, changes in interest rates, demographic shifts, industry cycles, employment levels, inflation and other business, economic and financial factors that are beyond our control. A downturn in construction activities or spending in Vulcan-served markets, particularly in our top revenue-generating markets, could have a material adverse effect on our business, financial condition, and results of operations.

Changes in legal requirements and governmental policies concerning zoning, land use, environmental and other areas of the law may result in additional liabilities, a reduction in operating hours and additional capital expenditures — Our operations are affected by numerous federal, state and local laws and regulations related to zoning, land use and environmental matters. Despite our compliance efforts, we have an inherent risk of liability in the operation of our business. These potential liabilities could have an adverse impact on our operations and profitability. In addition, our operations require numerous governmental approvals and permits, which often require us to make significant capital and operating expenditures to comply with the applicable requirements. Stricter laws and regulations, or more stringent interpretations of existing laws or regulations, may impose new liabilities, taxes or tariffs on us, reduce operating hours, require additional investment by us in pollution control equipment, create restrictions on our products or impede our access to reserves or opening new or expanding existing plants or facilities.

Our business is dependent on the timing and amount of federal, state and local funding for infrastructure — Our products are used in a variety of public infrastructure projects that are funded and financed by federal, state and local governments. In 2018, voters in local jurisdictions in California, Florida, Georgia, North Carolina and Texas, among others, approved bond and revenue-raising measures to provide additional resources for transportation projects. In 2017, three state legislatures in Vulcan-served areas — California, South Carolina and Tennessee — passed new long-term highway funding legislation. In 2016, three states saw one-time revenue increases for transportation, and numerous ballot measures were passed to increase investment in several Vulcan-served areas including northern and southern California, Georgia, North Carolina and South Carolina. The federal FAST Act, a five year, fully-funded road, bridge and public transportation authorization law, is providing assistance to state DOTs and metro areas. However, given varying state and local budgetary situations and the associated pressure on infrastructure spending, we cannot be entirely assured of the existence, amount and timing of appropriations for future public infrastructure projects.

Climate change and climate change legislation or regulations may adversely impact our business — A number of governmental bodies have introduced or are contemplating legislative and regulatory change in response to the potential impacts of climate change. Such legislation or regulation, if enacted, potentially could include provisions for a “cap and trade” system of allowances and credits or a carbon tax, among other provisions.

Other potential impacts of climate change include physical impacts, such as disruption in production and product distribution due to impacts from major storm events, shifts in regional weather patterns and intensities, and potential impacts from sea level changes. There is also a potential for climate change legislation and regulation to adversely impact the cost of purchased energy and electricity.

The impacts of climate change on our operations and the company overall are highly uncertain and difficult to estimate. However, climate change legislation and regulation concerning greenhouse gases could have a material adverse effect on our future financial position, results of operations or cash flows.

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We are subject to various risks arising from our international business operations and relationships, which could adversely affect our business — We have international operations and are subject to both the risks of conducting international business and the requirements of the Foreign Corrupt Practices Act of 1977 (the FCPA). We face political and other risks associated with our international operations, including our largest production facility located in Playa del Carmen, Mexico. These risks may include changes in international trade policies, such as the North American Free Trade Agreement, imposition of duties, taxes or government royalties, arbitrary changes to permits, zoning classifications or operating agreements, or overt acts by foreign governments, including expropriations and other forms of takings of property. In addition, failure to comply with the FCPA may result in legal claims against us.

GROWTH AND COMPETITIVE RISKS

Within our local markets, we operate in a highly competitive industry which may negatively impact prices, volumes and costs — The construction aggregates industry is highly fragmented with a large number of independent local producers in a number of our markets. Additionally, in most markets, we also compete against large private and public companies, some of which are significantly vertically integrated. Therefore, there is intense competition in a number of markets in which we operate. This significant competition could lead to lower prices and lower sales volumes in some markets, negatively affecting our earnings and cash flows.

The expanded use of aggregates substitutes could have a material adverse effect on our business, financial condition and results of operations — Recycled concrete and asphalt are increasingly being used in a number of our markets, particularly urban markets, as a substitute for aggregates. The expanded use of recycled concrete and asphalt could cause a significant reduction in the demand for aggregates.

Our long-term success depends upon securing and permitting aggregates reserves in strategically located areas. If we are unable to secure and permit such reserves it could negatively affect our future earnings — Construction aggregates are bulky and heavy and, therefore, difficult to transport efficiently. Because of the nature of the products, the freight costs can quickly surpass the production costs. Therefore, except for geographic regions that do not possess commercially viable deposits of aggregates and are served by rail, barge or ship, the markets for our products tend to be localized around our quarry sites and are served by truck. New quarry sites often take years to develop; therefore, our strategic planning and new site development must stay ahead of actual growth. Additionally, in a number of urban and suburban areas in which we operate, it is increasingly difficult to permit new sites or expand existing sites due to community resistance. Therefore, our future success is dependent, in part, on our ability to accurately forecast future areas of high growth in order to locate optimal facility sites and on our ability to secure operating and environmental permits to operate at those sites.

Our future growth depends in part on acquiring other businesses in our industry and successfully integrating them with our existing operations. If we are unable to integrate acquisitions successfully, it could lead to higher costs and could negatively affect our earnings — The expansion of our business is dependent in part on the acquisition of existing businesses that own or control aggregates reserves. Disruptions in the availability of financing could make it more difficult to capitalize on potential acquisitions. Additionally, with regard to the acquisitions we are able to complete, our future results will depend in part on our ability to successfully integrate these businesses with our existing operations.

FINANCIAL/ACCOUNTING RISKS

Our industry is capital intensive, resulting in significant fixed and semi-fixed costs. Therefore, our earnings are highly sensitive to changes in product shipments — Due to the high levels of fixed capital required for extracting and producing construction aggregates, our profits are negatively affected by significant decreases in shipments.

Significant downturn in the construction industry may result in an impairment of our goodwill — We test goodwill for impairment on an annual basis or more frequently if events or circumstances change in a manner that would more likely than not reduce the fair value of a reporting unit below its carrying value. While we have not identified any events or changes in circumstances since our annual impairment test on November 1, 2018 that indicate the fair value of any of our reporting units is below its carrying value, a significant downturn in the construction industry may have a material effect on the fair value of our reporting units. A significant decrease in the estimated fair value of one or more of our reporting units could result in the recognition of a material, noncash write-down of goodwill.

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A deterioration in our credit ratings and/or the state of the capital markets could negatively impact our business — We currently have \$2.8 billion of debt with maturities between 2019 and 2048. Given our current credit metrics and ratings, together with other factors, we expect to refinance our nearer term debt maturities rather than repay them when due. Furthermore, we expect to finance acquisitions with a combination of cash flows from existing operations, additional debt and/or additional equity. The mix of financing sources for acquisitions will be situationally dependent.

A deterioration in our credit ratings, regardless of the cause, could limit our debt financing options and increase the cost of such debt financing (whether for refinancing existing debt or financing acquisitions). While we do not anticipate a credit ratings downgrade, and plan to manage our capital structure consistent with investment-grade credit metrics, we cannot assure our current credit ratings.

A deterioration in the state of the capital markets, regardless of our credit rating, could impact our access to, and cost of, new debt or equity capital.

We use estimates in accounting for a number of significant items. Changes in our estimates could adversely affect our future financial results — As discussed more fully in “Critical Accounting Policies” under Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” we use significant judgment in accounting for:

- § goodwill impairment
- § impairment of long-lived assets excluding goodwill
- § business combinations and purchase price allocation
- § pension and other postretirement benefits
- § environmental compliance costs
- § claims and litigation including self-insurance
- § income taxes

These assumptions and estimates could change significantly in the future and could adversely affect our financial position, results of operations, or cash flows.

PERSONNEL RISKS

Our future success greatly depends upon attracting and retaining qualified personnel, particularly in sales and operations — A significant factor in our future profitability is our ability to attract, develop and retain qualified personnel. Our success in attracting qualified personnel, particularly in the areas of sales and operations, is affected by changing demographics of the available pool of workers with the training and skills necessary to fill the available positions, the impact on the labor supply due to general economic conditions, and our ability to offer competitive compensation and benefit packages.

Disputes with organized labor could disrupt our business operations — Labor unions represent approximately 11% of our workforce. Disputes with our trade unions, or the inability to renew our labor agreements, may lead to strikes or other actions that could disrupt our business operations leading to higher costs and/or reduced revenues resulting in lower earnings.

OTHER RISKS

A significant interruption of our information technology systems or the loss of confidential or other sensitive data could have a material adverse impact on our operations and financial results — Given our reliance on information technology (our own and our third-party providers’), a significant interruption in the availability of information technology, regardless of the cause, could negatively impact our operations. Additionally, the loss of confidential,

personal, or proprietary information (whether our own, our employees', our suppliers', or our customers'), regardless of the cause, could result in a business interruption, reputational damage, lost revenue, litigation, penalties or higher costs. While we have, and periodically test, information technology and data protection policies and procedures, there can be no assurance that our efforts will prevent breakdowns or breaches that could adversely affect our business. Management is not aware of a cybersecurity incident that has had a material adverse impact on our operations.

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Weather can materially affect our operating results — Almost all of our products are consumed outdoors in the public or private construction industry, and our production and distribution facilities are located outdoors. Inclement weather affects both our ability to produce and distribute our products and affects our customers' short-term demand because their work also can be hampered by weather.

Our products are transported by truck, rail, barge or ship, often by third-party providers. Significant delays or increased costs affecting these transportation methods could materially affect our operations and earnings — Our products are distributed either by truck to local markets or by rail, barge or oceangoing vessel to remote markets. The costs of transporting our products could be negatively affected by factors outside of our control, including rail service interruptions or rate increases, tariffs, rising fuel costs, truck/railcar/barge shortages and capacity constraints. Additionally, inclement weather, including hurricanes, tornadoes and other weather events, can negatively impact our distribution network.

We use large amounts of electricity, diesel fuel, liquid asphalt and other petroleum-based resources that are subject to potential supply constraints and significant price fluctuation, which could affect our operating results and profitability — In our production and distribution processes, we consume significant amounts of electricity, diesel fuel, liquid asphalt and other petroleum-based resources. The availability and pricing of these resources are subject to market forces that are beyond our control. Our suppliers contract separately for the purchase of such resources and our sources of supply could be interrupted should our suppliers not be able to obtain these materials due to higher demand or other factors that interrupt their availability. Variability in the supply and prices of these resources could materially affect our operating results from period to period and rising costs could erode our profitability.

We are involved in a number of legal proceedings. We cannot predict the outcome of litigation and other contingencies with certainty — We are involved in several complex litigation proceedings, some arising from our previous ownership and operation of our Chemicals business. Although we divested our Chemicals business in June 2005, we retained certain liabilities related to the business. As required by generally accepted accounting principles (GAAP), we establish reserves when a loss is determined to be probable and the amount can be reasonably estimated. Our assessment of probability and loss estimates are based on the facts and circumstances known to us at a particular point in time. Subsequent developments in legal proceedings may affect our assessment and estimates of a loss contingency, and could result in an adverse effect on our financial position, results of operations or cash flows. For a description of our current significant legal proceedings see Note 12 "Commitments and Contingencies" in Item 8 "Financial Statements and Supplementary Data."

Our construction paving business may subject us to contractually imposed penalties or lost profits — As a result of recent acquisitions, we operate construction paving businesses in Alabama, Tennessee and Texas. In some instances, including many of our fixed price paving contracts, we agree to complete a project by a certain date. If we fail to complete the project as scheduled, we may be held responsible for costs resulting from the delay. Consequently, the total project cost could exceed our original estimate and we could experience reduced profits or even a loss on the project.

We are involved in certain environmental matters. We cannot predict the outcome of these contingencies with certainty — We are involved in environmental investigations and cleanups at sites where we operate or have operated in the past or sent materials for recycling or disposal. As required by generally accepted accounting principles, we establish reserves when a loss is determined to be probable and the amount can be reasonably estimated. Our assessment of probability and loss estimates are based on the facts and circumstances known to us at a particular point in time. Subsequent developments related to these matters may affect our assessment and estimates of loss contingency, and could result in an adverse effect on our financial position, results of operations or cash flows. For a description of our current significant environmental matters see Note 12 "Commitments and Contingencies" in Item 8 "Financial Statements and Supplementary Data."

ITEM 1B

UNRESOLVED STAFF COMMENTS

We have not received any written comments from the Securities and Exchange Commission staff regarding our periodic or current reports under the Exchange Act of 1934 that remain unresolved.

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ITEM 2

PROPERTIES

AGGREGATES

As the largest U.S. supplier of construction aggregates, we have operating facilities across the U.S. and in Mexico and the Bahamas. We principally serve markets in 20 states, Washington D.C. and the local markets surrounding our operations in Mexico and the Bahamas. Our primary focus is serving states and metropolitan markets in the U.S. that are expected to experience the most significant growth in population, households and employment. These three demographic factors are significant drivers of demand for aggregates.

Our current estimate of 16.3 billion tons of proven and probable aggregates reserves reflects an increase of 0.3 billion tons from the prior year's estimate. Estimates of reserves are of recoverable stone, sand and gravel of suitable quality for economic extraction, based on drilling and studies by our geologists and engineers, recognizing reasonable economic and operating constraints as to maximum depth of overburden and stone excavation, and subject to permit or other restrictions.

Proven, or measured, reserves are those reserves for which the quantity is computed from dimensions revealed by drill data, together with other direct and measurable observations, such as outcrops, trenches and quarry faces. The grade and quality of those reserves are computed from the results of detailed sampling, and the sampling and measurement data are spaced so closely and the geologic character is so well defined that size, shape, depth and mineral content of reserves are well established. Probable, or indicated, reserves are those reserves for which quantity, grade and quality are computed partly from specific measurements and partly from projections based on reasonable, though not drilled, geologic evidence. The degree of assurance, although lower than that for proven reserves, is high enough to assume continuity between points of observation.

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Reported proven and probable reserves include only quantities that are owned in fee or under lease, and for which all appropriate zoning and permitting have been obtained through permit, contract or grandfathered status. Leases, zoning, permits, reclamation plans and other government or industry regulations often set limits on the areas, depths and lengths of time allowed for mining, stipulate setbacks and slopes that must be left in place, and designate which areas may be used for surface facilities, berms, and overburden or waste storage, among other requirements and restrictions. Our reserve estimates take into account these factors. Technical and economic factors also affect the estimates of reported reserves regardless of what might otherwise be considered proven or probable based on a geologic analysis. For example, excessive overburden or weathered rock, rock quality issues, excessive mining depths, groundwater issues, overlying wetlands, endangered species habitats, and rights of way or easements may effectively limit the quantity of reserves considered proven and probable. In addition, computations for reserves in-place are adjusted for estimates of unsaleable sizes and materials as well as pit and plant waste.

The 16.3 billion tons of estimated proven and probable aggregates reserves reported at the end of 2018 include reserves at inactive and greenfield (undeveloped) sites. The table below presents, by division, the tons of proven and probable aggregates reserves as of December 31, 2018 and the types of facilities operated.

Division 1	(millions of tons) Aggregates Reserves			2018 Production	Count of Aggregates Operating Facilities 2		
	Proven	Probable	Total		Stone	Sand and Gravel	Sales Yards
Central	2,875.6	859.9	3,735.5	38.3	53	5	9
International	554.2	0.0	554.2	12.7	1	0	0
Mideast	2,519.9	988.8	3,508.7	35.4	34	5	22
Mountain							
West	177.0	125.8	302.8	9.4	2	12	2
Southeast 3	3,067.1	882.5	3,949.6	49.8	43	11	22
Southern							
Gulf Coast	1,326.8	45.4	1,372.2	16.3	22	0	19
Southwest	1,322.4	0.0	1,322.4	22.5	15	1	23
Western	1,033.6	504.1	1,537.7	22.2	5	13	2
Total	12,876.6	3,406.5	16,283.1	206.6	175	47	99

1 The divisions are defined by states/countries as follows:

Central
Division —
Arkansas,
Illinois,
Kentucky and
Tennessee

International
Division —
Mexico

Mideast
Division —
Delaware,
Maryland,
North Carolina,
Pennsylvania,
Virginia and
Washington
D.C.

Mountain West
Division —
Arizona and
New Mexico

Southeast
Division —
Florida
(excluding
panhandle),
Georgia, South
Carolina and
the Bahamas

Southern Gulf
Coast Division —
Alabama,
Florida
Panhandle,
Louisiana and
Mississippi

Southwest
Division —
Oklahoma and
Texas

Western
Division —
California

2 In addition to
the facilities
included in the
table above, we
operated 30
recycled
concrete plants

which are not dependent on reserves.

3 Includes a maximum of 340.1 million tons of reserves encumbered by volumetric production payments as defined in Note 2 “Revenues” in Item 8 “Financial Statements and Supplementary Data.”

Of the 16.3 billion tons of aggregates reserves at December 31, 2018, 9.0 billion tons or 55% are located on owned land and 7.3 billion tons or 45% are located on leased land.

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The following table lists our ten largest active aggregates facilities based on the total proven and probable reserves at the sites. None of our aggregates facilities, other than Playa del Carmen, contributed more than 5% to our total revenues in 2018.

Location (nearest major metropolitan area)	Reserves at 12/31/2018			2018
	Proven	Probable	Total	Production
Playa del Carmen (Cancun), Mexico	554.2	0.0	554.2	12.7
Hanover (Harrisburg), Pennsylvania	226.3	236.4	462.7	2.7
McCook (Chicago), Illinois	105.8	266.5	372.3	5.0
Corona (Los Angeles), California	12.5	321.8	334.3	2.2
Gold Hill (Charlotte), North Carolina	148.6	121.2	269.8	1.0
Postell (Macon), Georgia	195.3	72.3	267.6	3.8
San Emidio (Bakersfield), California	250.0	0.0	250.0	1.4
Macon, Georgia	119.2	128.0	247.2	1.8
Norcross (Atlanta), Georgia	186.9	27.7	214.6	2.8
1604 Stone (San Antonio), Texas	208.1	0.0	208.1	1.4

ASPHALT, CONCRETE AND CALCIUM

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As of December 31, 2018, we operated a number of facilities producing asphalt mix, ready-mixed concrete and calcium in several of our divisions as reflected in the table below:

Division 1	Asphalt 2 Facilities	Concrete 3 Facilities	Calcium 4 Facilities
Central	10	0	0
Mideast	0	31	0
Mountain West	21	2	0
Southeast	0	1	1
Southern Gulf Coast	3	0	0
Southwest	13	7	0
Western	20	5	0
Total	67	46	1

1 International Division has no asphalt, concrete or calcium facilities.

2 Asphalt facilities for the Central, Southern Gulf Coast and Southwest Divisions are comprised of asphalt mix facilities and construction paving businesses.

3 Southeast Division Concrete is comprised of a ready-mixed concrete plant in the Bahamas.

4 Comprised of a ground calcium plant.

The asphalt and concrete facilities are able to meet their needs for raw material inputs with a combination of internally sourced and purchased raw materials.

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Our Calcium segment operates a quarry at Brooksville, Florida which provides feedstock for the ground calcium operation.

(millions of tons)

Location	Reserves at 12/31/2018			2018
	Proven	Probable	Total	Production
Brooksville	5.0	7.2	12.2	0.3

Our Brooksville limestone quarry is mined and processed primarily as a supplement for end-use products, such as animal feed and plastics. High purity limestone is inert and relatively inexpensive compared to the other components used in these end-use products. The Brooksville limestone quarry has an average calcium carbonate (CaCO₃) content of 97%.

HEADQUARTERS

Our headquarters are located in an office complex in Birmingham, Alabama. The office space consists of approximately 184,410 square feet and is leased through December 31, 2023, with three five-year renewal periods thereafter. The annual rental cost for the current term of the lease is approximately \$3.6 million.

ITEM 3

LEGAL PROCEEDINGS

We are subject to occasional governmental proceedings and orders pertaining to occupational safety and health or to protection of the environment, such as proceedings or orders relating to noise abatement, air emissions or water discharges. As part of our continuing program of stewardship in safety, health and environmental matters, we have been able to resolve such proceedings and to comply with such orders without any material adverse effects on our business.

We are a defendant in various lawsuits in the ordinary course of business. It is not possible to determine with precision the outcome of, or the amount of liability, if any, under these lawsuits, especially where the cases involve possible jury trials with as yet undetermined jury panels.

We were not subject to any penalties in 2018 for failure to disclose transactions identified by the Internal Revenue Service as abusive under Internal Revenue Code Section 6707A.

See Note 12 “Commitments and Contingencies” in Item 8 “Financial Statements and Supplementary Data” for a discussion of our material legal proceedings.

ITEM 4

MINE SAFETY DISCLOSURES

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

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EXECUTIVE OFFICERS OF THE REGISTRANT

The names, positions and ages, as of February 20, 2019, of our executive officers are as follows:

Name	Position	Age
J. Thomas Hill	Chairman, President and Chief Executive Officer	59
Suzanne H. Wood	Senior Vice President and Chief Financial Officer	58
Stanley G. Bass	Chief Growth Officer	57
Michael R. Mills	Chief Administrative Officer	58
Thompson S. Baker II	Senior Vice President	60
Jerry F. Perkins Jr.	General Counsel and Secretary	49
Randy L. Pigg	Vice President, Controller and Principal Accounting Officer	46
David P. Clement 1	President, Central Division	58
C. Brockway Lodge, Jr. 1	President, Western Division	46

1 These Division Presidents are designated as Executive Officers as a result of their significant policy-making function and direct reporting relationship to J. Thomas Hill.

The principal occupations of the executive officers during the past five years are set forth below:

J. Thomas Hill was elected Chairman of the Board of Directors effective January 1, 2016. He was elected President and Chief Executive Officer in July 2014. Prior to that, he served as Executive Vice President and Chief Operating Officer (January 2014 – July 2014), Senior Vice President – South Region (December 2011 – December 2013). Prior to that, he served in a number of positions with Vulcan including President, Florida Rock Division (September 2010 – December 2011).

Suzanne H. Wood was elected Senior Vice President, Chief Financial Officer effective September 2018. From 2012 to 2018, she served as Group Finance Director and Chief Financial Officer of Ashtead Group plc, a FTSE 50 international equipment rental company serving the construction industry and other markets. Prior to that, she was Executive Vice President and Chief Financial Officer of Sunbelt Rentals, Inc., the North American subsidiary of Ashtead Group plc. A certified public accountant, she also previously held Chief Financial Officer positions at Tultex Corporation and Oakwood Homes Corporation. She currently serves on the board of directors and audit committee of RELX Group, a FTSE 50 global professional information and analytics company.

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Stanley G. Bass was elected Chief Growth Officer in February 2016. He served as Senior Vice President – Western and Mountain West Divisions from January 2015 to February 2016. He served as Senior Vice President – West Region from September 2013 to December 2014. Prior to that, he served as Senior Vice President – Central and West Regions (February 2013 – September 2013), Senior Vice President – Central Region (December 2011 – February 2013). Prior to that, he served in a number of positions with Vulcan including President, Midsouth and Southwest Divisions (September 2010 – December 2011).

Michael R. Mills was elected Chief Administrative Officer in February 2016. He served as Senior Vice President and General Counsel from November 2012 to February 2016; and as Senior Vice President – East Region from December 2011 to October 2012. Prior to that, he was President, Southeast Division.

Thompson S. Baker II was elected Senior Vice President in March 2017. He served in a number of positions with Vulcan, including President – Florida Rock Division, prior to serving as Chief Executive Officer of FRP Holdings, Inc. from October 2010 to March 2017 and President and Chief Executive Officer of Patriot Transportation Holding, Inc. from December 2014 to March 2017.

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Jerry F. Perkins Jr. was elected General Counsel and Secretary in February 2016. He served as Assistant General Counsel and Secretary since 2011.

Randy L. Pigg was elected Vice President, Controller and Principal Accounting Officer in April 2018. He served as Vice President, Accounting since June 2016, and prior to that served as Director, Financial Shared Services since April 2014. Prior to that, he served in a number of positions with Vulcan, including Manager Financial Research & Reporting and Finance Director – Central Region.

David P. Clement was named President, Central Division effective January 1, 2015. He served as Senior Vice President – Central Region from September 2013 through December 2014. During the five years prior to such role, he served in a number of positions with Vulcan including Vice President and General Manager, Midwest Division and Vice President of Operations, Midwest Division.

C. Brockway (Brock) Lodge, Jr. was named President, Western Division in February 2016. He served as Vice President and General Manager, Western Division from April 2015 to February 2016. Before that, he was Senior Area General Manager – Central Division (June 2013 – March 2015) and Director of Sales and Marketing – Midsouth Division (April 2010 – May 2013).

PART II

ITEM 5

MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS
AND ISSUER PURCHASES OF EQUITY SECURITIES

Our common stock is traded on the New York Stock Exchange (ticker symbol VMC). As of February 12, 2019, the number of shareholders of record was 2,601.

ISSUER PURCHASES OF EQUITY SECURITIES

Purchases of our equity securities during the quarter ended December 31, 2018 are summarized below.

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 Number of Shares that May Yet Be Purchased Under the Plans or Programs ¹
2018				
Oct 1 - Oct 31	0	\$ 0.00	0	8,623,227
Nov 1 - Nov 30	325,438	\$ 104.68	325,438	8,297,789
Dec 1 - Dec 31	0	\$ 0.00	0	8,297,789
Total	325,438	\$ 104.68	325,438	

¹ On February 10, 2017, our Board of Directors authorized us to purchase up to 8,243,243 shares of our common stock to refresh the number of shares we were authorized to purchase to

10,000,000.
As of
December 31,
2018, there
were
8,297,789
shares
remaining
under this
authorization.
Depending
upon market,
business,
legal and
other
conditions,
we may
purchase
shares from
time to time
through the
open market
(including
plans
designed to
comply with
Rule 10b5-1
of the
Securities
Exchange
Act of 1934)
and/or
through
privately
negotiated
transactions.
The
authorization
has no time
limit, does
not obligate
us to
purchase any
specific
number of
shares, and
may be
suspended or
discontinued
at any time.

We did not have any unregistered sales of equity securities during the fourth quarter of 2018.

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ITEM 6

SELECTED FINANCIAL DATA

The selected earnings data, per share data and balance sheet data for each of the five most recent years ended December 31 set forth below have been derived from our audited consolidated financial statements. The following data should be read in conjunction with our consolidated financial statements and notes to consolidated financial statements in Item 8 “Financial Statements and Supplementary Data.”

	2018	2017	2016	2015	2014
As of and for the years ended December 31 in millions, except per share data					
Total revenues	\$ 4,382.9	\$ 3,890.3	\$ 3,592.7	\$ 3,422.2	\$ 2,994.2
Gross profit 1	\$ 1,100.9	\$ 993.5	\$ 988.9	\$ 857.5	\$ 587.6
Gross profit margin	25.1%	25.5%	27.5%	25.1%	19.6%
Earnings from continuing operations 2	\$ 517.8	\$ 593.4	\$ 422.4	\$ 232.9	\$ 207.1
Earnings (loss) on discontinued operations, net of tax 3	\$ (2.0)	\$ 7.8	\$ (2.9)	\$ (11.7)	\$ (2.2)
Net earnings	\$ 515.8	\$ 601.2	\$ 419.5	\$ 221.2	\$ 204.9
Basic earnings (loss) per share					
Continuing operations	\$ 3.91	\$ 4.48	\$ 3.17	\$ 1.75	\$ 1.58
Discontinued operations	(0.01)	0.06	(0.02)	(0.09)	(0.02)
Basic net earnings (loss) per share	\$ 3.90	\$ 4.54	\$ 3.15	\$ 1.66	\$ 1.56
Diluted earnings (loss) per share					

Continuing operations	\$ 3.87	\$ 4.40	\$ 3.11	\$ 1.72	\$ 1.56
Discontinued operations	(0.02)	0.06	(0.02)	(0.08)	(0.02)
Diluted net earnings (loss) per share	\$ 3.85	\$ 4.46	\$ 3.09	\$ 1.64	\$ 1.54
Cash and cash equivalents	\$ 40.0	\$ 141.6	\$ 259.0	\$ 284.1	\$ 141.3
Total assets	\$ 9,832.1	\$ 9,504.9	\$ 8,471.5	\$ 8,301.6	\$ 8,041.1
Working capital	\$ 476.6	\$ 737.2	\$ 764.9	\$ 731.1	\$ 468.6
Current maturities and short-term debt	\$ 133.0	\$ 41.4	\$ 0.1	\$ 0.1	\$ 150.1
Long-term debt	\$ 2,779.4	\$ 2,813.5	\$ 1,982.8	\$ 1,980.3	\$ 1,834.6
Equity	\$ 5,202.9	\$ 4,968.9	\$ 4,572.5	\$ 4,454.2	\$ 4,176.7
Cash dividends declared per share	\$ 1.12	\$ 1.00	\$ 0.80	\$ 0.40	\$ 0.22

- 1 As a result of our first quarter 2018 adoption of ASU 2017-07 (see Note 1 “Summary of Significant Accounting Policies” in Item 8 “Financial Statements and Supplementary Data” under the caption New Accounting Standards), gross profit was reduced by \$7.0 million and \$11.9 million for the years ended December 31, 2017 and 2016, respectively. We have not revised years prior to 2016 as the impact is deemed as immaterial.
- 2 Earnings from continuing operations for 2017 include pretax interest charges of \$153.1 million referable to debt purchases and \$297.0 million of discrete net tax benefits. Earnings from continuing operations for 2014 include a pretax gain of \$211.4 million referable to the sale of our Florida cement and concrete businesses.
- 3 Discontinued operations include the results attributable to our former Chemicals business.

ITEM 7

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

EXECUTIVE SUMMARY

FINANCIAL SUMMARY FOR 2018 (compared to 2017)

- § Total revenues increased \$492.6 million, or 13%, to \$4,382.9 million
- § Gross profit increased \$107.4 million, or 11%, to \$1,100.9 million
- § Aggregates segment sales increased \$417.6 million, or 13%, to \$3,513.6 million
- § Aggregates segment freight-adjusted revenues increased \$274.6 million, or 11%, to \$2,667.3 million
- § Shipments increased 10%, or 18.2 million tons, to 201.4 million tons
- § Same-store shipments increased 6%, or 10.7 million tons, to 193.8 million tons
- § Freight-adjusted sales price increased 1%, or \$0.19 per ton
- § Same-store freight-adjusted sales price increased 2%, or \$0.21 per ton
- § Segment gross profit increased \$137.3 million, or 16%, to \$991.9 million
 - § Asphalt, Concrete and Calcium segment gross profit decreased \$29.9 million, or 22%, to \$109.1 million, collectively
- § Selling, administrative and general (SAG) expenses increased 3% to \$333.4 million and decreased 0.75 percentage points (75 basis points) as a percentage of total revenues
- § Operating earnings increased \$108.7 million, or 17%, to \$747.7 million
- § Earnings from continuing operations before income taxes were \$623.3 million compared to \$361.3 million
- § Effective tax rate was 16.9% compared with negative 64.2%
- § Earnings from continuing operations were \$517.8 million, or \$3.87 per diluted share, compared to \$593.4 million, or \$4.40 per diluted share
- § Discrete items in 2018 include:
 - § \$0.6 million of tax expense related to the Tax Cuts and Jobs Act (TCJA)
 - § pretax interest charges of \$7.4 million related to the January and March early debt retirements
 - § pretax gains of \$2.9 million for the sale of businesses
 - § pretax charges of \$18.5 million for divested operations
 - § pretax gains of \$2.3 million for business interruption claims
 - § pretax charges of \$5.2 million associated with non-routine business development
 - § pretax charges of \$6.2 million for restructuring
- § Discrete items in 2017 include:
 - § \$297.0 million of net tax benefits (including \$268.2 million related to TCJA and a \$28.8 million partial release of a net operating loss (NOL) carryforward valuation allowance)
 - § pretax interest charges of \$153.1 million related to debt purchases
 - § pretax gains of \$10.5 million for the sale of real estate and businesses
 - § pretax charges of \$4.3 million for property donation
 - § pretax charges of \$18.1 million for divested operations
 - § pretax charges of \$6.7 million for one-time employee bonuses
 - § pretax charges of \$3.1 million associated with non-routine business development, net of an asset purchase agreement termination fee
 - § pretax charges of \$1.9 million for restructuring
- § Net earnings were \$515.8 million, a decrease of \$85.4 million, or 14%

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§ Adjusted EBITDA was \$1,131.7 million, an increase of \$149.8 million, or 15%

§ Returned capital to shareholders via dividends (\$148.1 million versus \$132.3 million) and share repurchases (\$134.0 million versus \$60.3 million)

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In 2018, we executed on our goals through a commitment to our shareholders, customers, employees and the communities we serve. We delivered growth and enhanced profitability in the face of several severe weather events that disrupted operations in some states for weeks at a time. With a clear and compelling strategy, a lean and locally-led operational structure, and unparalleled positions in attractive long-term growth markets, we are especially well-situated to benefit as infrastructure demand in key Vulcan states continues to grow, fueled by marked increases in state and local funding and we are well-equipped to overcome market challenges.

Even though the year provided plenty of headwinds for the construction industry, including weather disruptions and a 25% increase in the cost of diesel fuel during the year, we delivered strong top and bottom line growth. For the year, we increased total revenues, gross profit and earnings from continuing operations before income taxes, and adjusted earnings before interest, taxes, depreciation, and amortization (Adjusted EBITDA). Our 2018 net earnings were down compared to 2017 because of the one-time impact of TCJA on our 2017 income tax provision (-64.2% effective tax rate).

Our capital allocation and investment-grade rating priorities remain unchanged. For the full year, capital expenditures were \$469.1 million. This amount included \$221.7 million of core operating and maintenance capital investments to improve or replace existing property, plant & equipment. In addition, we invested \$247.4 million in internal growth projects to secure new aggregates reserves, develop new production sites, enhance our distribution capabilities and support the targeted growth of our asphalt and concrete operations.

At year end, total debt was \$2,912.4 million, or 2.6 times 2018 Adjusted EBITDA. Throughout 2017 and during the first quarter of 2018, we completed a number of debt refinancing activities (see Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data”) in order to extend the maturity of our debt portfolio consistent with the long-lived nature of our asset base. As a result of these actions, the weighted-average term of our debt portfolio has more than doubled to approximately 15 years.

As the leading aggregates producer in the U.S., serving many of the most attractive markets, we are well positioned for continued top line growth, particularly as federal, state and local governments increase spending on public infrastructure construction, while demand from private sector projects remains stable. In addition, our keen focus on operational excellence, cost control and disciplined investment should enable us to continue to enhance profitability and drive sustainable, long-term shareholder value.

Additionally, we advanced our world-class safety performance, improving on our record-setting results from the previous year.

2018 ACQUISITIONS

We continue to pursue opportunities for value-creating acquisitions, swaps and greenfield investments. We remain active in the pursuit of bolt-on acquisitions and other value-creating growth investments. We closed four business acquisitions during 2018 for total consideration of \$219.9 million (see Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data”). These acquisitions complement our existing positions in our Alabama, California and Texas markets.

We will continue to make disciplined investments in organic and acquisition-led growth, while continuing to emphasize capital returns and cost control. We are completely focused on actions that improve returns to our shareholders. We seek continuous, compounding improvement, generating big results through small actions. Our capital allocation priorities remain unchanged:

§ deploying operating capital to sustain our franchise

- § maintaining the financial strength and flexibility needed through the cycle
 - § strategic growth through mergers and acquisitions and internal development
 - § returning excess cash to shareholders through a healthy mix of sustainable dividend growth and stock repurchases
- For a detailed discussion of our acquisitions and divestitures, see Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data.”

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MARKET DEVELOPMENTS AND OUTLOOK

Our aggregates-focused business is well positioned in 2019 for further gains in our industry-leading unit profitability in aggregates and double-digit earnings growth. Vulcan-served markets are benefitting disproportionately from both strong growth in public construction demand and continued growth in private demand.

Public funding for transportation infrastructure has changed significantly over the last three years. State transportation funding legislation and local ballot measures are bringing about important increases in public spending for much needed projects and are finally beginning to generate new highway construction and the repair and maintenance work necessary to address the country's failing infrastructure — all projects that depend upon aggregates as the fundamental building block.

Nine of our key states that generate almost 80% of our revenue have passed legislation over the last three years that raises their transportation infrastructure funding by almost 60% over 2015 levels. These nine key states — California, Florida, Georgia, Maryland, North Carolina, South Carolina, Tennessee, Texas and Virginia — have all addressed their transportation infrastructure needs and boosted their economies.

Altogether, state laws and local initiatives to increase transportation infrastructure funding have added more than \$20 billion annually in just these nine Vulcan states. To put that in perspective, that's nearly half as much as the federal transportation law, the FAST Act, provides on an annual basis to all 50 states. We expect more Vulcan-served states to follow suit in 2019 and following years. In last November's elections, 352 state and local transportation funding initiatives appeared on ballots in 31 states, and 79% of them were approved by voters.

We are excited about accelerating public sector growth. At the same time, demand from private sector projects has continued to be stable in our markets, providing a solid base for overall growth. In fact, private construction activity continues to improve in several of our important markets, particularly housing and nonresidential construction in the South and West.

Overall, we see significant room for growth, with demand for aggregates still below historical averages, and well below past peaks in demand, even as population and economic activity continue to increase in our key markets. We believe that we are in the middle stages of the market upturn that began five and a half years ago and see significant upside in revenues and profitability.

Management Expectations for 2019 — We expect solid growth in private demand and strong growth in public demand. Above-average demand growth in Vulcan markets compared to the rest of the U.S. further supports our positive outlook for aggregates shipment growth. The underlying direction of aggregates unit profitability remains clear, strongly supported by our strategic and tactical focus on compounding pricing improvements. We expect double-digit earnings growth in 2019.

Management expectations for 2019 include:

- § Aggregates shipments growth of 3% to 5%
- § Aggregates freight-adjusted price increase of 5% to 7%
- § Collective Asphalt, Concrete and Calcium segment gross profit growth of 15% to 20%
- § SAG expenses of approximately \$355 million
- § Net earnings of \$610 million to \$670 million
- § Adjusted EBITDA of \$1.25 billion to \$1.33 billion
- § Interest expense of approximately \$130 million
- § Depreciation, depletion, accretion and amortization expense of approximately \$360 million

§ An effective tax rate of approximately 20%

§ Earnings from continuing operations of \$4.55 to \$5.05 per diluted share

Additionally, we expect to spend approximately \$250 million on maintenance capital and \$200 million for internal growth projects that are largely underway.

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COMPETITIVE ADVANTAGES

AGGREGATES FOOTPRINT

Over time, we have strategically and systematically built one of the most valuable aggregates franchises in the U.S., with a footprint that is impossible to replicate. Zoning and permitting regulations have made it increasingly difficult to expand existing quarries or to develop new quarries. Such regulations, while curtailing expansion, also increase the value of our reserves that were zoned and permitted decades ago.

Demand for aggregates correlates positively with changes in population growth, household formation and employment. We have a coast-to-coast footprint that serves 19 of the top 25 highest-growth metropolitan areas and states where 80% of U.S. population growth from 2020 to 2030 is projected to occur. As state and federal spending increases, Vulcan is poised to benefit greatly from growing private and public demand for aggregates, thereby delivering significant long-term value for our shareholders.

OPERATIONAL EXCELLENCE

We have continued to deliver strong financial performance over time and through business cycles. Through our aggregates-led strategy with a focus on continuous operational improvement; disciplined investment in organic and acquisition-led growth; and an ongoing emphasis on capital returns and controlling costs, we have created one of the most profitable public companies in our industry as measured by aggregates gross profit per ton.

Current economic indicators and market fundamentals point toward continued market growth. We are currently operating at well below full capacity making us extremely well positioned to further benefit from economies of scale as this growth continues.

Additionally, we recognize that the aggregates mining in which we engage is an interim use of the approximately 240,000 acres of land in our portfolio. Our land and water assets will be converted to other valuable uses at the end of mining. Effective management throughout the life cycle of our land — from pre-mining utilization as agriculture and timber development, to post-mining development as water reservoirs or residential and commercial development — not only generates significant additional value for our shareholders but greatly benefits the communities in which we operate.

SAFETY, HEALTH AND ENVIRONMENTAL PERFORMANCE

A strategy for sustainable, long-term value creation must include doing right by your employees, your neighbors and the environment in which you operate. Over our more than six decades as a public company, we have built a strong, resilient and vital business on this foundation of doing things the right way.

We are a leader in our industry in safety, health and environmental performance, with a safety record substantially better than the industry average. We apply the shared experiences, expertise and resources at each of our locally led sites, with an emphasis on taking care of one another. The result is a record of safety excellence consistently outperforming the industry.

Source: Mine Safety and Health Administration (MSHA) records and Internal Vulcan Data.

* The aggregates industry MSHA injury rate for 2018 was not available as of the filing of this report.

We focus on our environmental stewardship programs with the same intensity that we bring to our health and safety initiatives resulting in 98% citation-free inspections out of all 2018 federal and state environmental inspections.

We lead community relations programs that serve our neighbors while ensuring that we grow and thrive in the communities where we operate. During 2018, we operated 44 certified wildlife habitat sites, the second largest number of sites in the nation and third largest globally, as certified by the Wildlife Habitat Council. We conducted tours for more than 26,000 students and neighbors at our operations, partnered with 238 adopted schools, and provided 141 scholarships to students nationwide.

CUSTOMER SERVICE

More than an aggregates supplier, we are a business dedicated to customer service and finding creative solutions to meet our customers' needs. Being a valued partner and trusted supplier means that we are providing the right product, with the right specifications, that is the right quality, delivered the right way — on time and safely. Our One-Vulcan, Locally Led approach, in which our employees work together to leverage the size and strengths of Vulcan as a whole, while running their operations with a strong entrepreneurial spirit and sense of ownership, allows us to deliver market-leading services to our customers.

Transportation costs are passed along to our customers, and because aggregates have a very high weight-to-value ratio, those costs can add up quickly when transporting aggregates long distances. Having the most extensive distribution network of any aggregates producer sets us apart. Combining our trucking, rail, barge and shipping logistics capabilities allows us to provide better customer solutions and create a seamless customer experience at a competitive price.

RESULTS OF OPERATIONS

Total revenues are primarily derived from our product sales of aggregates, asphalt mix and ready-mixed concrete, and include freight & delivery costs that we pass along to our customers to deliver these products. We also generate revenues from our asphalt construction paving business and services related to our aggregates business. We discuss separately our discontinued operations, which consists of our former Chemicals business.

The following table highlights significant components of our consolidated operating results including EBITDA and Adjusted EBITDA.

CONSOLIDATED OPERATING RESULTS HIGHLIGHTS

For the years ended December 31	2018	2017	2016
in millions, except per share data			
Total revenues	\$ 4,382.9	\$ 3,890.3	\$ 3,592.7
Cost of revenues	3,282.0	2,896.8	2,603.8
Gross profit	\$ 1,100.9	\$ 993.5	\$ 988.9
Selling, administrative and general expenses	\$ 333.4	\$ 325.0	\$ 316.8
Operating earnings	\$ 747.7	\$ 639.0	\$ 665.9
Interest expense	\$ 138.0	\$ 295.5	\$ 134.1
Earnings from continuing operations before income taxes	\$ 623.3	\$ 361.3	\$ 547.3
Earnings from continuing operations	\$ 517.8	\$ 593.4	\$ 422.4
Earnings (loss) on discontinued operations, net of income taxes	(2.0)	7.8	(2.9)
Net earnings	\$ 515.8	\$ 601.2	\$ 419.5

Basic earnings (loss) per share			
Continuing operations	\$ 3.91	\$ 4.48	\$ 3.17
Discontinued operations	(0.01)	0.06	(0.02)
Basic net earnings per share	\$ 3.90	\$ 4.54	\$ 3.15
Diluted earnings (loss) per share			
Continuing operations	\$ 3.87	\$ 4.40	\$ 3.11
Discontinued operations	(0.02)	0.06	(0.02)
Diluted net earnings per share	\$ 3.85	\$ 4.46	\$ 3.09
EBITDA	\$ 1,107.0	\$ 958.4	\$ 965.5
Adjusted EBITDA	\$ 1,131.7	\$ 981.9	\$ 966.0

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Net earnings for 2018 were \$515.8 million (\$3.85 per diluted share) compared to \$601.2 million (\$4.46 per diluted share) in 2017 and \$419.5 million (\$3.09 per diluted share) in 2016. Each year's results were impacted by discrete items, as follows:

Net earnings for 2018 include:

- § \$0.6 million of tax expense related to TCJA
- § pretax gains of \$2.9 million related to the sale of businesses
- § pretax charges of \$18.5 million associated with divested operations
- § pretax gains of \$2.3 million for business interruption claims
- § pretax charges of \$5.2 million associated with non-routine business development
- § pretax charges of \$6.2 million for restructuring
- § pretax interest charges of \$7.4 million related to early debt retirements (see Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data”)

Net earnings for 2017 include:

- § \$297.0 million of net tax benefits (TCJA — \$268.2 million, and partial release of the Alabama NOL carryforward valuation allowance — \$28.8 million)
- § pretax gains of \$10.5 million related to the sale of real estate and businesses
- § pretax charges of \$4.3 million for property donation
- § pretax charges of \$18.1 million associated with divested operations
- § pretax charges of \$6.7 million for one-time employee bonuses
- § pretax charges of \$3.1 million associated with non-routine business development, net of an asset purchase agreement termination fee
- § pretax charges of \$1.9 million for restructuring
- § a pretax loss on debt purchases of \$153.1 million presented as a component of interest expense (see Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data”)

Net earnings for 2016 include:

- § \$11.3 million of tax benefits (utilization of foreign tax credits — \$6.5 million, and partial release of the Alabama NOL carryforward valuation allowance — \$4.8 million)
- § pretax gains of \$16.2 million related to the sale of real estate
 - § pretax gains of \$11.0 million for business interruption claims (net of incentives)
- § pretax charges of \$16.9 million associated with divested operations
- § pretax losses of \$10.5 million from asset impairment

EARNINGS FROM CONTINUING OPERATIONS BEFORE INCOME TAXES

Year-over-year changes in earnings from continuing operations before income taxes are summarized below:

in millions

	2016 \$	2017 \$
Higher (lower) aggregates gross profit	(9.3)	137.3
Lower asphalt gross profit	(5.3)	(34.8)
Higher concrete gross profit	20.2	4.7

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Higher (lower) calcium gross profit	(1.0)	0.2
Higher selling, administrative and general expenses	(8.2)	(8.4)
Higher (lower) gain on sale of property, plant & equipment and businesses	2.4	(2.9)
Lower (higher) interest expense	(161.4)	157.5
All other	(23.4)	8.4
	2017 \$ 361.3	2018 \$ 623.3

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OPERATING RESULTS BY SEGMENT

We present our results of operations by segment at the gross profit level. We have four operating (and reportable) segments organized around our principal product lines: (1) Aggregates, (2) Asphalt, (3) Concrete and (4) Calcium. Management reviews earnings for the product line reporting segments principally at the gross profit level.

1. AGGREGATES

Our year-over-year aggregates shipments:

§ increased 10% in 2018 ¹

§ increased 1% in 2017

§ increased 2% in 2016

§

¹ The fourth quarter 2017 acquisition of Aggregates USA contributed to the 2018 increase.

Aggregates shipments increased 10% (6% same-store) led by double-digit growth in Alabama, Arizona, Florida, Illinois, Tennessee and Texas. Most other key markets realized flat-to-modest shipment growth. Conversely, in Virginia, volumes declined 9% due mostly to wet weather experienced throughout the first half of the year.

Our year-over-year freight-adjusted selling price¹ for aggregates:

§ increased 1% in 2018

§ increased 3% in 2017

§ increased 7% in 2016

¹ We routinely arrange the delivery of our aggregates to the customer. Additionally, we incur freight costs to move aggregates from the production site to remote distribution sites. These costs are passed on to our customers in the aggregates price. We remove these pass-through freight & delivery revenues (and any other aggregates-derived revenues, such as landfill tipping fees) from the freight-adjusted selling price for aggregates. See the Reconciliation of Non-GAAP Financial Measures within this Item 7 for a reconciliation of freight-adjusted revenues.

Throughout 2018, aggregates pricing momentum continued to improve as the year-over-year growth rate in freight-adjusted average sales price increased each quarter. For the year, freight-adjusted aggregates pricing increased more than 1%. On a mix-adjusted basis, pricing increased 3.5% versus the prior year. Positive trends in backlogged project work along with demand visibility, customer confidence and logistics constraints support continued upward pricing movements in 2019.

AGGREGATES SEGMENT SALES AND FREIGHT-ADJUSTED REVENUES

in millions

AGGREGATES GROSS PROFIT AND CASH GROSS PROFIT
in millions

AGGREGATES AGGREGATES SELLING PRICE AND UNIT CASH GROSS PROFIT PER TON SHIPMENTS

tons, in millions Freight-adjusted average sales price per ton 1

1 Freight-adjusted sales price is calculated as freight-adjusted revenues divided by aggregates unit shipments

Unit cost of sales (freight-adjusted) decreased 1% (same-store -2%) versus the prior year as fixed cost leverage and other operating efficiencies more than offset a 25% increase in the unit cost for diesel fuel. We remain focused on compounding improvements in unit margins throughout the cycle through fixed cost leverage, price growth and operating efficiencies. Since the recovery began in the second half of 2013, gross profit per ton in our Aggregates segment has compounded at an average annual growth rate of 13%.

Incremental gross profit as a percentage of segment sales excluding freight & delivery was 47%. On a same-store basis, this metric was in-line with our longer-term expectations of 60%. We evaluate this metric on a trailing-twelve month basis as quarterly gross profit flow-through rates can vary widely from quarter to quarter.

2. ASPHALT

Our year-over-year asphalt mix shipments:

- § increased 4% in 2018 ¹
- § increased 14% in 2017 ²
- § decreased 2% in 2016

- 1 Same-store declined 2%. The 4% increase in asphalt mix shipments in 2018 was attributable to first and second quarter 2018 acquisitions of asphalt mix operations and construction paving businesses in Alabama and Texas, coupled with the fourth quarter 2017 swap of our concrete operations for asphalt operations in Arizona.
- 2 The 14% increase in asphalt mix shipments in 2017 was largely attributable to a first quarter 2017 acquisition of asphalt mix operations and a construction paving business in Tennessee.

Asphalt segment gross profit of \$56.5 million was \$34.8 million or 38% lower than 2017. Higher liquid asphalt costs negatively affected segment earnings by \$54.4 million. Pricing gains are beginning to offset higher liquid asphalt costs, but their impact will be gradual during 2019.

ASPHALT SEGMENT SALES	ASPHALT GROSS PROFIT AND CASH GROSS PROFIT
in millions	in millions

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3. CONCRETE

Our year-over-year ready-mixed concrete shipments:

- § decreased 10% in 2018 ¹
- § increased 19% in 2017 ²
- § increased 7% in 2016

- 1 The 10% decrease in ready-mixed concrete shipments in 2018 was attributable to the March 2018 disposition of ready-mixed concrete facilities in Georgia, and the fourth quarter 2017 swap of our concrete operations for asphalt operations in Arizona.
- 2 Of the 19% increase in ready-mixed concrete shipments in 2017, 9% was attributable to a March 2017 acquisition of ready-mixed concrete facilities in California.

Concrete segment gross profit was \$49.9 million, up 10% from 2017 on a 10% decline in shipments (same-store -1%). Strategic market restructuring (exiting Georgia and Arizona and entering Northern California) contributed to improved Concrete segment material margins and unit gross profit. The material margins per cubic yard improved 6% (same store +3%) and unit gross profit improved 22% (+2% same-store).

<p>CONCRETE SEGMENT SALES in millions</p>	<p>CONCRETE GROSS PROFIT AND CASH GROSS PROFIT in millions</p>
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4. CALCIUM

Calcium segment gross profit increased 10% from 2017 to \$2.7 million.

<p>CALCIUM SEGMENT SALES in millions</p>	<p>CALCIUM GROSS PROFIT AND CASH GROSS PROFIT in millions</p>
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In total, the 2018 gross profit contributions from our three non-aggregates (Asphalt, Concrete and Calcium) segments was \$109.1 million, a 22% decrease over 2017, and a 13% decrease over 2016. As stated previously, higher liquid asphalt costs in our Asphalt segment accounted for all of this decrease.

SELLING, ADMINISTRATIVE AND GENERAL (SAG) EXPENSES

in millions

As a percentage of total revenues, SAG expense was:

§ 7.6% in 2018 — decreased 0.75 percentage points (75 basis points)

§ 8.4% in 2017 — decreased 0.45 percentage points (45 basis points)

§ 8.8% in 2016 — increased 0.4 percentage points (40 basis points)

Our comparative total company employment levels at year end:

§ increased 6% in 2018

§ increased 11% in 2017

§ increased 4% in 2016

Increases in our employment levels were driven by our acquisitions (see Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data”). As noted above, 2018 SAG expenses were \$333.4 million or 7.6% as a percentage of total revenues, down from 8.4% in 2017. We remain focused on further leveraging our overhead cost structure.

GAIN ON SALE OF PROPERTY, PLANT & EQUIPMENT AND BUSINESSES

in millions

The 2018 gain on sale of property, plant & equipment and businesses of \$14.9 million includes \$2.9 million of pretax gain from the sale of our ready-mixed concrete operations in Georgia, \$3.8 million of pretax gain related to the sale of mitigation credits and \$1.3 million of pretax gain from the sale of one of the replaced self-unloading ships. The 2017 gain on sale of property, plant & equipment and businesses of \$17.8 million includes \$8.0 million of pretax gain from a swap of ready-mixed concrete operations for an asphalt operation (all in Arizona) and \$2.5 million of pretax gain related to a property donation. The 2016 gain includes \$11.9 million of pretax gain from surplus land sales in Virginia and California. See Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data.”

OTHER OPERATING EXPENSE, NET

Other operating expense, which has an approximate run-rate of \$12 million a year (exclusive of discrete items), is composed of various operating items not specifically presented in the accompanying Consolidated Statements of Comprehensive Income. The total other operating expense, net and significant items included in the total were:

- § \$34.8 million in 2018— includes discrete items as follows:
 - § \$5.2 million of non-routine business development charges
 - § \$18.5 million of charges associated with divested operations, including environmental liability accruals associated with previously divested properties (\$20.0 million)
 - § \$6.2 million of managerial restructuring charges
 - § \$2.3 million gain referable to the settlement of business interruption claims related to the 2010 Gulf Coast oil spill
- § \$47.3 million in 2017 — includes discrete items as follows:
 - § \$3.1 million of non-routine business development charges, net of a termination fee. These net charges were composed of \$11.1 million of non-routine business development charges partially offset by an \$8.0 million credit related to an asset purchase agreement termination fee
 - § \$18.1 million of charges associated with divested operations including \$16.6 million of environmental liability accruals related to the Hewitt Landfill matter (see Note 12 to the consolidated financial statements)
 - § \$6.7 million of one-time cash bonuses for non-incentive eligible employees (\$1,000 per employee)
 - § \$4.3 million of charges related to a property donation
 - § \$1.9 million of managerial restructuring charges
- § \$21.6 million in 2016 — includes discrete items as follows:
 - § \$16.9 million of charges associated with divested operations, including charges associated with office space no longer needed and vacated (\$5.2 million), the write-off of a prepaid royalty asset resulting from a change in long-term mining plans (\$3.6 million), a property litigation settlement (\$1.9 million), a pension withdrawal settlement revision (\$1.5 million), and environmental liability accruals associated with previously divested properties (\$4.5 million)
 - § \$10.5 million of impairment charges related to the termination of a nonstrategic aggregates site lease we no longer intended to develop (\$9.6 million) and the write-off of nonrecoverable project costs related to two Aggregates segment capital projects that we no longer intend to complete (\$0.9 million)
 - § \$11.7 million gain referable to the settlement of business interruption claims related to the 2010 Gulf Coast oil spill
 - § \$4.3 million gain referable to a plant relocation

INTEREST EXPENSE

in millions

Interest expense was \$138.0 million in 2018 compared to \$295.5 million in 2017 and \$134.1 million in 2016. Interest expense for 2017 included \$153.1 million of charges related to the 2017 debt purchases. See Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data” for additional discussion.

INCOME TAXES

Our income tax expense (benefit) from continuing operations for the years ended December 31 is shown below:

dollars in millions	2018	2017	2016
Earnings from continuing operations before income taxes	\$ 623.3	\$ 361.3	\$ 547.3
Income tax expense (benefit)	\$ 105.4	\$ (232.1)	\$ 124.9
Effective tax rate	16.9%	-64.2%	22.8%

The \$337.5 million increase in our 2018 income tax expense was primarily due to \$297.0 million of net discrete tax benefits recorded in the fourth quarter of 2017.

These discrete items were composed of two tax benefits:

§ a \$301.6 million remeasurement of our deferred tax assets and liabilities at the new Tax Cuts and Jobs Act (TCJA) 21% federal corporate income tax rate

§ a \$28.8 million partial release of our Alabama NOL carryforward valuation allowance

Partially offset by two tax charges:

§ \$21.1 million of lost tax benefits associated with tax deductions accelerated into 2017 (e.g., lost U.S. production deduction)

§ a \$12.3 million tax expense for the one-time Deemed Repatriation Transition Tax
See Note 9 “Income Taxes” in Item 8 “Financial Statements and Supplementary Data.”

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DISCONTINUED OPERATIONS

Pretax earnings (loss) from discontinued operations were:

§ \$(2.7) million in 2018

§ \$13.0 million in 2017

§ \$(4.9) million in 2016

Pretax earnings (loss) from discontinued operations for 2018, 2017 and 2016, resulted primarily from general and product liability costs, including legal defense costs and environmental remediation costs associated with our former Chemicals business. The 2017 results also include insurance recoveries from previously incurred general liability costs. For additional information about discontinued operations, see Note 1 “Summary of Significant Accounting Policies” in Item 8 “Financial Statements and Supplementary Data” under the caption Discontinued Operations.

RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

SAME-STORE

We have provided certain information on a same-store basis. When discussing our financial results in comparison to prior periods, we may exclude the operating results of recently acquired/divested businesses that do not have comparable results in the periods being discussed. These recently acquired/divested businesses are disclosed in Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data.” This approach allows us to evaluate the performance of our operations on a comparable basis. We believe that measuring performance on a same-store basis is useful to investors because it enables evaluation of how our operations are performing period over period without the effects of acquisition and divestiture activity. Our same-store information may not be comparable to similar measures used by other companies.

AGGREGATES SEGMENT FREIGHT-ADJUSTED REVENUES

Aggregates segment freight-adjusted revenues is not a Generally Accepted Accounting Principle (GAAP) measure. We present this metric as it is consistent with the basis by which we review our operating results. We believe that this presentation is consistent with our competitors and meaningful to our investors as it excludes revenues associated with freight & delivery, which are pass-through activities. It also excludes immaterial other revenues related to services, such as landfill tipping fees, that are derived from our aggregates business. Additionally, we use this metric as the basis for calculating the average sales price of our aggregates products. Reconciliation of this metric to its nearest GAAP measure is presented below:

dollars in millions	2018	2017	2016
Aggregates segment			
Segment sales	\$ 3,513.6	\$ 3,096.1	\$ 2,961.8
Less			
Freight & delivery revenues 1	796.9	670.7	651.9
Other revenues	49.4	32.7	15.7
	\$ 2,667.3	\$ 2,392.7	\$ 2,294.2

Freight-adjusted revenues				
Unit shipments				
- tons	201.4	183.2	181.4	
Freight-adjusted sales price	\$ 13.25	\$ 13.06	\$ 12.65	

1 At the segment level, freight & delivery revenues include intersegment freight & delivery (which are eliminated at the consolidated level) and freight to remote distribution sites.

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AGGREGATES SEGMENT GROSS PROFIT

Aggregates segment gross profit margin as a percentage of segment sales excluding freight & delivery (revenues and costs) is not a GAAP measure. We present this metric as it is consistent with the basis by which we review our operating results. We believe that this presentation is consistent with our competitors and meaningful to our investors as it excludes revenues associated with freight & delivery, which are pass-through activities (we do not generate a profit associated with the transportation component of the selling price of the product). Incremental gross profit as a percentage of segment sales excluding freight & delivery represents the year-over-year change in gross profit divided by the year-over-year change in segment sales excluding freight & delivery. Reconciliations of these metrics to their nearest GAAP measures are presented below:

MARGIN IN ACCORDANCE WITH GAAP

dollars in millions	2018	2017	2016
Aggregates segment			
Gross profit	\$ 991.9	\$ 854.5	\$ 863.8
Segment sales	\$ 3,513.6	\$ 3,096.1	\$ 2,961.8
Gross profit margin	28.2%	27.6%	29.2%
Incremental gross profit margin	32.9%	n/a	

AS A PERCENTAGE OF SEGMENT SALES EXCLUDING FREIGHT & DELIVERY

dollars in millions	2018	2017	2016
Aggregates segment			
Gross profit	\$ 991.9	\$ 854.5	\$ 863.8
Segment sales	\$ 3,513.6	\$ 3,096.1	\$ 2,961.8
Freight & delivery revenues ¹	796.9	670.7	651.9
Segment sales excluding freight & delivery	\$ 2,716.7	\$ 2,425.4	\$ 2,309.9

Gross profit as a percentage of segment sales excluding freight & delivery	36.5%	35.2%	37.4%
Incremental gross profit as a percentage of segment sales excluding freight & delivery	47.1%	n/a	

1 At the segment level, freight & delivery revenues include intersegment freight & delivery (which are eliminated at the consolidated level) and freight to remote distribution sites.

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CASH GROSS PROFIT

GAAP does not define “cash gross profit” and it should not be considered as an alternative to earnings measures defined by GAAP. We and the investment community use this metric to assess the operating performance of our business. Additionally, we present this metric as we believe that it closely correlates to long-term shareholder value. We do not use this metric as a measure to allocate resources. Aggregates segment cash gross profit per ton is computed by dividing Aggregates segment cash gross profit by tons shipped. Reconciliation of this metric to its nearest GAAP measure is presented below:

in millions, except per ton data	2018	2017	2016
Aggregates segment			
Gross profit	\$ 991.9	\$ 854.5	\$ 863.8
Depreciation, depletion, accretion and amortization	281.6	245.2	236.5
Aggregates segment cash gross profit	\$ 1,273.5	\$ 1,099.7	\$ 1,100.3
Unit shipments - tons	201.4	183.2	181.4
Aggregates segment cash gross profit per ton	\$ 6.32	\$ 6.00	\$ 6.07
Asphalt segment			
Gross profit	\$ 56.5	\$ 91.3	\$ 96.6
Depreciation, depletion, accretion and amortization	31.3	25.4	16.8
Asphalt segment cash gross profit	\$ 87.8	\$ 116.7	\$ 113.4
Concrete segment			
Gross profit	\$ 49.9	\$ 45.2	\$ 25.0
Depreciation, depletion, accretion and amortization	12.5	13.8	12.1
	\$ 62.4	\$ 59.0	\$ 37.1

Concrete segment cash gross profit					
Calcium segment Gross profit \$	2.7	\$	2.5	\$	3.5
Depreciation, depletion, accretion and amortization	0.3		0.7		0.7
Calcium segment cash gross profit \$	3.0	\$	3.2	\$	4.2

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EBITDA AND ADJUSTED EBITDA

GAAP does not define “Earnings Before Interest, Taxes, Depreciation and Amortization” (EBITDA) and it should not be considered as an alternative to earnings measures defined by GAAP. We use this metric to assess the operating performance of our business and as a basis for strategic planning and forecasting as we believe that it closely correlates to long-term shareholder value. We do not use this metric as a measure to allocate resources. We adjust EBITDA for certain items to provide a more consistent comparison of earnings performance from period to period. Reconciliation of this metric to its nearest GAAP measure is presented below:

in millions	2018	2017	2016
Net earnings	\$ 515.8	\$ 601.2	\$ 419.5
Income tax expense (benefit)	105.4	(232.1)	124.9
Interest expense, net of interest income (Earnings)	137.6	291.1	133.3
loss on discontinued operations, net of tax	2.0	(7.8)	2.9
EBIT	760.8	652.4	680.6
Depreciation, depletion, accretion and amortization	346.2	306.0	284.9
EBITDA	\$ 1,107.0	\$ 958.4	\$ 965.5
Gain on sale of real estate and businesses 1	\$ (2.9)	\$ (10.5)	\$ (16.2)
Property donation	0.0	4.3	0.0
Business interruption claims recovery, net of incentives	(2.3)	0.0	(11.0)
Charges associated with divested operations	18.5	18.1	16.9
Business development, net of	5.2	3.1	0.0

termination fee 2			
One-time employee bonuses	0.0	6.7	0.0
Asset impairment	0.0	0.0	10.5
Restructuring charges	6.2	1.9	0.3
Adjusted EBITDA	\$ 1,131.7	\$ 981.9	\$ 966.0
Depreciation, depletion, accretion and amortization	346.2	306.0	284.9
Adjusted EBIT	\$ 785.5	\$ 675.9	\$ 681.1

1 The 2016 amount includes a \$4.3 million gain (reflected within Other operating income, net) for plant relocation reimbursement.

2 Represents non-routine charges associated with acquisitions including the cost impact of purchase accounting inventory valuations.

2019 PROJECTED EBITDA

The following reconciliation to the mid-point of the range of 2019 Projected EBITDA excludes adjustments (as noted in Adjusted EBITDA above) as they are difficult to forecast (timing or amount). Due to the difficulty of forecasting such adjustments, we are unable to estimate their significance. This metric is not defined by GAAP and should not be considered as an alternative to earnings measures defined by GAAP. Reconciliation of this metric to its nearest GAAP measure is presented below:

	2019 Projected in millions Mid-point
Net earnings	\$ 640
Income tax expense	160
Interest expense, net of interest income	130
Discontinued operations, net of tax	0
Depreciation, depletion, accretion and amortization	360

Projected
EBITDA \$ 1,290

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LIQUIDITY AND FINANCIAL RESOURCES

Our primary sources of liquidity are cash provided by our operating activities and a substantial, committed bank line of credit. Additional sources of capital include access to the capital markets, the sale of surplus real estate, and dispositions of nonstrategic operating assets. We believe these financial resources are sufficient to fund our business requirements for 2019, including:

- § cash contractual obligations
- § capital expenditures
 - § debt service obligations
- § dividend payments
- § potential share repurchases
- § potential acquisitions

Our balanced approach to capital deployment remains unchanged. We intend to balance reinvestment in our business, growth through acquisitions and return of capital to shareholders, while sustaining financial strength and flexibility. In 2018 and 2017, we returned \$148.1 million and \$132.3 million, respectively, in cash to shareholders through our dividends and \$134.0 million and \$60.3 million, respectively, through share repurchases.

We actively manage our capital structure and resources in order to minimize the cost of capital while properly managing financial risk. We seek to meet these objectives by adhering to the following principles:

- § maintain substantial bank line of credit borrowing capacity
- § proactively manage our debt maturity schedule such that repayment/refinancing risk in any single year is low
- § maintain an appropriate balance of fixed-rate and floating-rate debt
- § minimize financial and other covenants that limit our operating and financial flexibility

CASH

Included in our December 31, 2018 cash and cash equivalents and restricted cash balances of \$44.4 million is \$19.1 million of cash held at our foreign subsidiaries. Use of this cash is no longer limited to our foreign operations as a result of our decision to remove our indefinite reinvestment assertion as it relates to the earnings of our foreign subsidiaries (see Note 9 “Income Taxes” in Item 8 “Financial Statements and Supplementary Data”).

CASH FROM OPERATING ACTIVITIES

in millions

Net cash provided by operating activities is derived primarily from net earnings before noncash deductions for depreciation, depletion, accretion and amortization.

in millions	2018	2017	2016
Net earnings	\$ 515.8	\$ 601.2	\$ 419.5
Depreciation, depletion, accretion and amortization (DDA&A)	346.2	306.0	284.9
Contributions to pension plans	(109.6)	(20.0)	(9.6)
Deferred tax expense (benefit) 1	64.6	(235.7)	33.6
Cost of debt purchase	6.9	140.8	0.0
Other operating cash flows, net 2	8.9	(147.6)	(83.8)
Net cash provided by operating activities	\$ 832.8	\$ 644.7	\$ 644.6

- 1 The change from 2016 to 2017 reflects a \$301.6 million reduction of our net deferred income tax liability as a result of the Tax Cuts and Jobs Act (TCJA).
- 2 Primarily reflects changes to working capital balances.

2018 versus 2017 — Net cash provided by operating activities was \$832.8 million during 2018, a \$188.1 million increase compared to 2017. During the first quarter of 2018, we made a \$100.0 million discretionary contribution to our qualified pension plans that was deductible for tax purposes in 2017 and early retired debt incurring premium and transaction costs of \$6.9 million which was added back to operating cash flows and reflected as a financing cash outflow. During 2017, we made a discretionary pension plan contribution of \$10.6 million and early retired debt incurring premium and transaction costs of \$140.8 million which was added back to operating cash flows and is reflected as a financing cash outflow.

2017 versus 2016 — Net cash provided by operating activities was \$644.7 million during 2017 and \$644.6 during 2016. Although net earnings increased by \$181.7 million compared to 2016, 2017 earnings included discrete deferred tax benefits of \$301.6 million referable to the TCJA (see Note 9 “Income Taxes” in Item 8 “Financial Statements and Supplementary Data”) partially offset by cost of debt purchases of \$140.8 million (see Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data”). Cash paid for debt purchases is presented as a component of financing activities.

CASH FROM INVESTING ACTIVITIES

in millions

2018 versus 2017 — Net cash used for investing activities was \$669.9 million during 2018, a \$599.6 million decrease compared to 2017. We invested \$469.1 million in our existing operations in 2018, a \$9.5 million increase compared to 2017. Of this \$469.1 million, \$247.4 million was invested in internal growth projects to secure new aggregates reserves, develop new production sites, enhance our distribution capabilities and support the targeted growth of our asphalt and concrete operations. Additionally, during 2018 we acquired businesses for \$221.4 million of cash consideration as compared to \$822.4 million of cash consideration (excluding the assets immediately divested in the Aggregates USA acquisition for \$287.3 million) for businesses in 2017.

2017 versus 2016 — Net cash used for investing activities was \$1,269.5 million during 2017, a \$912.3 million increase compared to 2016. We invested \$459.6 million in our existing operations in 2017, a \$109.4 million increase compared to 2016. Of this \$459.6 million, \$167.7 million was invested in internal growth projects to secure new aggregates reserves, develop new production sites, enhance our distribution capabilities and support the targeted growth of our asphalt and concrete operations. As noted above, acquisitions during 2017 totaled \$822.4 million of cash consideration. During 2016, we expanded our aggregates distribution capabilities in Georgia and completed two strategic bolt-on acquisitions in New Mexico and Texas for \$32.5 million of cash consideration (see Note 19 “Acquisitions and Divestitures” in Item 8 “Financial Statements and Supplementary Data”).

CASH FROM FINANCING ACTIVITIES

in millions

2018 VERSUS 2017 — Net cash used for financing activities in 2018 was \$265.1 million, compared to \$503.4 million provided by financing activities in 2017. The 2017 results included \$721.4 million of net proceeds from debt refinancing activities compared to 2018 net proceeds of \$48.8 million. Additionally, we increased by \$89.5 million the return of capital to our shareholders via higher dividends of \$15.8 million (\$1.12 per share compared to \$1.00 per share) and higher share repurchases of \$73.7 million (1,191,928 shares @ \$112.41 per share compared to 510,283 shares @ \$118.18 per share).

2017 VERSUS 2016 — Net cash provided by financing activities in 2017 was \$503.4 million, an increase of \$808.0 million compared with the cash used during 2016. This increase was primarily attributable to the 2017 debt issuances (see Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data”) which provided net proceeds of \$2,184.7 million partially offset by the repayment of \$235.0 million borrowed against our line of credit and the early retirement of notes due in 2018 and 2021 for a total cost of \$1,228.2 million (\$1,087.4 million principal and \$140.8 million cost of debt purchase). Additionally, we increased dividends to our shareholders by \$26.0 million (\$1.00 per share compared to \$0.80 per share). Share repurchases decreased by \$101.2 million (510,283 shares @ \$118.18 per share

compared to 1,426,659 shares @ \$113.18 per share).

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DEBT

Certain debt measures as of December 31 are outlined below:

dollars in millions	2018	2017
Debt		
Current maturities		
of long-term debt \$	0.0	\$ 41.4
Short-term debt	133.0	0.0
Long-term debt 1	2,779.4	2,813.5
Total debt	\$ 2,912.4	\$ 2,854.9
Capital		
Total debt	\$ 2,912.4	\$ 2,854.9
Equity	5,202.9	4,968.9
Total capital	\$ 8,115.3	\$ 7,823.8
Total Debt as a		
Percentage of		
Total Capital	35.9%	36.5%
Weighted-average		
Effective Interest		
Rates		
Line of credit 2	1.25%	1.25%
Term debt	4.56%	4.26%
Fixed versus		
Floating Interest		
Rate Debt		
Fixed-rate debt	70.4%	61.8%
Floating-rate		
debt	29.6%	38.2%

1 Includes borrowing under our line of credit for which we have the intent and ability to extend repayment beyond twelve months, as follows: December 31, 2018 — none, and December 31, 2017 — \$250.0 million. The December 31, 2017 long-term debt also includes a \$350.0 million unsecured term loan due 2018 which was subsequently refinanced in February 2018.

2 Reflects the margin above LIBOR for LIBOR-based borrowings; we also paid upfront fees that are amortized to interest expense and pay fees for unused borrowing capacity and standby letters of credit.

LINE OF CREDIT

Covenants, borrowings, cost ranges and other details are described in Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data.” As of December 31, 2018, we were in compliance with the line of credit covenants and the credit margin for LIBOR borrowings was 1.25%, the credit margin for base rate borrowings was 0.25%, and the

commitment fee for the unused portion was 0.15%.

As of December 31, 2018, our available borrowing capacity under the line of credit was \$572.0 million. Utilization of the borrowing capacity was as follows:

§ \$133.0 million was borrowed

§ \$45.0 million was used to provide support for outstanding standby letters of credit

TERM DEBT

All of our \$2,846.4 million (face value) of term debt is unsecured. \$2,846.2 million of such debt is governed by three essentially identical indentures that contain customary investment-grade type covenants. The primary covenant in all three indentures limits the amount of secured debt we may incur without ratably securing such debt. As of December 31, 2018, we were in compliance with all term debt covenants.

Throughout 2017 and during the first quarter of 2018, we completed a number of debt refinancing activities (see Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data”) in order to extend the maturity of our debt portfolio consistent with the long-lived nature of our asset base. As a result of these actions, the weighted-average term of our debt portfolio has more than doubled to approximately 15 years.

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As a result of the first quarter 2018 early debt retirements, we recognized premiums of \$5.6 million, transaction costs of \$1.3 million and noncash expense (acceleration of unamortized deferred transaction costs) of \$0.5 million. The combined charge of \$7.4 million was a component of interest expense for the year ended December 31, 2018.

As a result of the 2017 early debt retirements, we recognized premiums of \$139.2 million, transaction costs of \$1.6 million and noncash expense (acceleration of unamortized deferred transaction costs) of \$7.2 million. The combined charge of \$148.0 million was a component of interest expense for the year ended December 31, 2017.

DEBT PAYMENTS AND MATURITIES

Scheduled debt payments during 2018 included \$350.0 million (which we refinanced in February via issuing \$350.0 million of 30-year 4.70% senior notes due 2048) as described in Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data.” Additionally, we early retired \$396.1 million of debt during the first quarter of 2018. There were no significant scheduled debt payments during 2017 and 2016.

As of December 31, 2018, maturities for the next four quarters and maturities for the next five years are due as follows (excluding borrowings on the line of credit):

	2019		Debt
in millions	Debt Maturities	in millions	Maturities
First quarter	\$ 0.0	2019	\$ 0.0
Second quarter	0.0	2020	250.0
Third quarter	0.0	2021	506.1
Fourth quarter	0.0	2022	0.0
		2023	0.0

DEBT RATINGS

Our debt ratings and outlooks as of December 31, 2018 are as follows:

Rating/Outlook	Date	Description
Senior Unsecured Term Debt		
Fitch BBB-/stable	9/24/2018	rating/outlook affirmed
Moodys A3/stable	3/7/2018	rating/outlook affirmed
Standard &		
Poor's BBB/stable	4/6/2018	rating/outlook affirmed

EQUITY

Our common stock issuances and purchases are as follows:

in thousands	2018	2017	2016
Common stock shares at January 1, issued and outstanding	132,324	132,339	133,172
Common Stock Issuances			
Share-based compensation plans	630	495	594
Common Stock Purchases			
Purchased and retired	(1,192)	(510)	(1,427)
Common stock shares at December 31, issued and outstanding	131,762	132,324	132,339

On February 10, 2017, our Board of Directors authorized us to purchase 8,243,243 shares of our common stock to refresh the number of shares we were authorized to purchase to 10,000,000. As of December 31, 2018, there were 8,297,789 shares remaining under the authorization. Depending upon market, business, legal and other conditions, we may purchase shares from time to time through the open market (including plans designed to comply with Rule 10b5-1 of the Securities Exchange Act of 1934) and/or privately negotiated transactions. The authorization has no time limit, does not obligate us to purchase any specific number of shares, and may be suspended or discontinued at any time.

Our common stock purchases (all of which were open market purchases) are detailed below:

in thousands, except	2018	2017	2016
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average cost Shares Purchased and Retired Number	1,192	510	1,427
Total purchase price	\$ 133,983	\$ 60,303	\$ 161,463
Average price per share	\$ 112.41	\$ 118.18	\$ 113.18

There were no shares held in treasury as of December 31, 2018, 2017 and 2016.

OFF-BALANCE SHEET ARRANGEMENTS

We have no off-balance sheet arrangements, such as financing or unconsolidated variable interest entities, that either have or are reasonably likely to have a current or future material effect on our:

- § results of operations and financial position
- § capital expenditures
- § liquidity and capital resources

STANDBY LETTERS OF CREDIT

For a discussion of our standby letters of credit see Note 6 “Debt” in Item 8 “Financial Statements and Supplementary Data.”

CASH CONTRACTUAL OBLIGATIONS

We expect core capital spending (excluding growth) of \$250.0 million during 2019. Excluding future cash requirements for capital expenditures and immaterial or contingent contracts, our obligations to make future contractual payments as of December 31, 2018 are summarized in the table below:

Note in Reference	Payments Due by Year				
	2019	2020-2021	2022-2023	Thereafter	Total
Cash Contractual Obligations Bank line of credit 1 Principal payments and fees 2 Term debt Principal payments Interest payments Operating leases Mineral royalties Unconditional purchase obligations Capital Noncapital 3					
Note 6	\$ 0.0	\$ 133.0	\$ 0.0	\$ 0.0	\$ 133.0
Note 6	2.2	3.4	0.0	0.0	5.6
Note 6	0.0	756.1	0.0	2,090.3	2,846.4
Note 6	121.6	216.6	192.0	1,482.1	2,012.3
Note 7	48.0	79.3	47.2	195.0	369.5
Note 12	23.2	36.6	26.0	154.8	240.6
Note 12	35.2	0.0	0.0	0.0	35.2
Note 12	11.9	9.1	3.7	12.0	36.7
Note 10	9.1	16.5	39.8	44.4	109.8

Benefit
plans

4

Total

cash

contractual

obligations

5, 6	\$ 251.2	\$ 1,250.6	\$ 308.7	\$ 3,978.6	\$ 5,789.1
------	----------	------------	----------	------------	------------

- 1 Bank line of credit represents borrowings under our unsecured \$750.0 million line of credit that expires December 2021.
- 2 Includes fees for unused borrowing capacity, and fees for standby letters of credit. The figures for all years assume that the amount of unused borrowing capacity and the amount of standby letters of credit do not change from December 31, 2018, and borrowing costs reflect a rising LIBOR.
- 3 Noncapital unconditional purchase obligations relate primarily to transportation and electricity contracts.
- 4 Payments in “Thereafter” column for benefit plans are for the years 2024-2028.
- 5 The above table excludes discounted asset retirement obligations in the amount of \$225.7 million at December 31, 2018, the majority of which have an estimated settlement date beyond 2023 (see Note 17 “Asset Retirement Obligations” in Item 8 “Financial Statements and Supplementary Data”).
- 6 The above table excludes liabilities for unrecognized tax benefits in the amount of \$3.7 million at December 31, 2018, as we cannot make a reasonably reliable estimate of the amount and period of related future payment of these uncertain tax positions (for more details, see Note 9 “Income Taxes” in Item 8 “Financial Statements and Supplementary Data”).

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CRITICAL ACCOUNTING POLICIES

We follow certain significant accounting policies when preparing our consolidated financial statements. A summary of these policies is included in Note 1 “Summary of Significant Accounting Policies” in Item 8 “Financial Statements and Supplementary Data.”

We prepare these financial statements to conform with accounting principles generally accepted in the United States of America. These principles require us to make estimates and judgments that affect reported amounts of assets, liabilities, revenues and expenses, and the related disclosures of contingent assets and contingent liabilities at the date of the financial statements. We base our estimates on historical experience, current conditions and various other assumptions we believe reasonable under existing circumstances and evaluate these estimates and judgments on an ongoing basis. The results of these estimates form the basis for our judgments about the carrying values of assets and liabilities as well as identifying and assessing the accounting treatment with respect to commitments and contingencies. Our actual results may materially differ from these estimates.

We believe the following critical accounting policies require the most significant judgments and estimates used in the preparation of our consolidated financial statements:

1. Goodwill impairment
2. Impairment of long-lived assets excluding goodwill
3. Business combinations and purchase price allocation
4. Pension and other postretirement benefits
5. Environmental compliance costs
6. Claims and litigation including self-insurance
7. Income taxes

1. GOODWILL IMPAIRMENT

Goodwill represents the excess of the cost of net assets acquired in business combinations over the fair value of the identifiable tangible and intangible assets acquired and liabilities assumed in a business combination. Goodwill impairment exists when the fair value of a reporting unit is less than its carrying amount. Goodwill is tested for impairment on an annual basis or more frequently whenever events or changes in circumstances would more likely than not reduce the fair value of a reporting unit below its carrying amount. The impairment evaluation is a critical accounting policy because goodwill is material to our total assets (as of December 31, 2018, goodwill represents 32% of total assets) and the evaluation involves the use of significant estimates, assumptions and judgment.

HOW WE TEST GOODWILL FOR IMPAIRMENT

Goodwill is tested for impairment at the reporting unit level, one level below our operating segments. We have identified 17 reporting units (of which 9 carry goodwill) based primarily on geographic location. We have the option of either assessing qualitative factors to determine whether it is more likely than not that the carrying value of our reporting units exceeds their respective fair value or proceeding directly to a quantitative test. We elected to perform the quantitative impairment test for all years presented.

The quantitative impairment test compares the fair value of a reporting unit to its carrying value, including goodwill. If the fair value exceeds its carrying value, the goodwill of the reporting unit is not considered impaired. However, if the carrying value of a reporting unit exceeds its fair value, we recognize an impairment loss equal to that excess.

HOW WE DETERMINE CARRYING VALUE AND FAIR VALUE

First, we determine the carrying value of each reporting unit by assigning assets and liabilities, including goodwill, to those units as of the measurement date. Then, we estimate the fair values of the reporting units using both an income approach (which involves discounting estimated future cash flows) and a market approach (which involves the application of revenue and EBITDA multiples of comparable companies). We consider market factors when determining the assumptions and estimates used in our valuation models. Finally, to assess the reasonableness of the reporting unit fair values, we compare the total of the reporting unit fair values to our market capitalization.

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OUR FAIR VALUE ASSUMPTIONS

We base our fair value estimates on market participant assumptions we believe to be reasonable at the time, but such assumptions are subject to inherent uncertainty and actual results may differ. Changes in key assumptions or management judgment with respect to a reporting unit or its prospects may result from a change in market conditions, market trends, interest rates or other factors outside of our control, or underperformance relative to historical or projected operating results. These conditions could result in a significantly different estimate of the fair value of our reporting units, which could result in an impairment charge in the future.

The significant assumptions in our discounted cash flow models include our estimate of future profitability, capital requirements and the discount rate. The profitability estimates used in the models were derived from internal operating budgets and forecasts for long-term demand and pricing in our industry. Estimated capital requirements reflect replacement capital estimated on a per ton basis and if applicable, acquisition capital necessary to support growth estimated in the models. The discount rate was derived using a capital asset pricing model.

RESULTS OF OUR IMPAIRMENT TESTS

The results of our annual impairment tests for the last three years indicated that the fair values of all reporting units with goodwill substantially exceeded (in excess of 100%) their carrying values.

For additional information about goodwill, see Note 18 “Goodwill and Intangible Assets” in Item 8 “Financial Statements and Supplementary Data.”

2. IMPAIRMENT OF LONG-LIVED ASSETS EXCLUDING GOODWILL

We evaluate the carrying value of long-lived assets, including intangible assets subject to amortization, when events and circumstances indicate that the carrying value may not be recoverable. The impairment evaluation is a critical accounting policy because long-lived assets are material to our total assets (as of December 31, 2018, net property, plant & equipment represents 43% of total assets, while net other intangible assets represents 11% of total assets) and the evaluation involves the use of significant estimates, assumptions and judgment. The carrying value of long-lived assets is considered impaired when the estimated undiscounted cash flows from such assets are less than their carrying value. In that event, we recognize a loss equal to the amount by which the carrying value exceeds the fair value.

Fair value is estimated primarily by using a discounted cash flow methodology that requires considerable judgment and assumptions. Our estimate of net future cash flows is based on historical experience and assumptions of future trends, which may be different from actual results. We periodically review the appropriateness of the estimated useful lives of our long-lived assets.

We test long-lived assets for impairment at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets. As a result, our long-lived asset impairment test is at a significantly lower level than the level at which we test goodwill for impairment. In markets where we do not produce downstream products (e.g., asphalt mix and ready-mixed concrete), the lowest level of largely independent identifiable cash flows is at the individual aggregates operation or a group of aggregates operations collectively serving a local market. Conversely, in vertically integrated markets, the cash flows of our downstream and upstream businesses are not largely independently identifiable as the selling price of the upstream products (aggregates) impacts the profitability of the downstream business.

During 2018 and 2017, we recorded no losses on impairment of long-lived assets. During 2016, we recorded a \$10.5 million impairment loss resulting from the termination of a nonstrategic aggregates lease and the write off of

nonrecoverable project costs related to two Aggregates segment capital projects that we no longer intended to complete.

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We maintain certain long-lived assets that are not currently being used in our operations. These assets totaled \$415.7 million at December 31, 2018, essentially flat from December 31, 2017. Of the total \$415.7 million, approximately 50% relates to real estate held for future development and expansion of our operations. In addition, approximately 25% is comprised of real estate (principally former mining sites) pending development as commercial or residential real estate, reservoirs or landfills. The remaining 25% is composed of aggregates, asphalt and concrete operating assets idled temporarily. We evaluate the useful lives and the recoverability of these assets whenever events or changes in circumstances indicate that carrying amounts may not be recoverable.

For additional information about long-lived assets and intangible assets, see Note 4 “Property, Plant & Equipment” and Note 18 “Goodwill and Intangible Assets” in Item 8 “Financial Statements and Supplementary Data.”

3. BUSINESS COMBINATIONS AND PURCHASE PRICE ALLOCATION

Our strategic long-term plans include potential investments in value-added acquisitions of related or similar businesses. When an acquisition is completed, our consolidated statements of comprehensive income includes the operating results of the acquired business starting from the date of acquisition, which is the date that control is obtained.

HOW WE DETERMINE AND ALLOCATE THE PURCHASE PRICE

The purchase price is determined based on the fair value of consideration transferred to and liabilities assumed from the seller as of the date of acquisition. We allocate the purchase price to the fair values of the tangible and identifiable intangible assets acquired and liabilities assumed as of the date of acquisition. Goodwill is recorded for the excess of the purchase price over the net of the fair value of the identifiable assets acquired and liabilities assumed. The purchase price allocation is a critical accounting policy because the estimation of fair values of acquired assets and assumed liabilities is judgmental and requires various assumptions. Additionally, the amounts assigned to depreciable and amortizable assets compared to amounts assigned to goodwill, which is not amortized, can significantly affect our results of operations.

Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction, and therefore represents an exit price. A fair value measurement assumes the highest and best use of the asset by market participants. The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into three broad levels as described below:

- Level 1: Quoted prices in active markets for identical assets or liabilities
- Level 2: Inputs that are derived principally from or corroborated by observable market data
- Level 3: Inputs that are unobservable and significant to the overall fair value measurement

Level 1 fair values are used to value investments in publicly-traded entities and assumed obligations for publicly-traded long-term debt.

Level 2 fair values are typically used to value acquired machinery and equipment, land, buildings, and assumed liabilities for asset retirement obligations, environmental remediation and compliance obligations. Additionally, Level 2 fair values are typically used to value assumed contracts at other-than-market rates.

Level 3 fair values are used to value acquired mineral reserves as well as leased mineral interests (referred to in our financial statements as contractual rights in place) and other identifiable intangible assets. We determine the fair values of owned mineral reserves and leased mineral interests using a lost profits approach and/or an excess earnings approach. These valuation techniques require management to estimate future cash flows. The estimate of future cash

flows is based on available historical information and future expectations and assumptions determined by management, but is inherently uncertain. Key assumptions in estimating future cash flows include sales price, shipment volumes, production costs and capital needs. The present value of the projected net cash flows represents the fair value assigned to mineral reserves and mineral interests. The discount rate is a significant assumption used in the valuation model and is based on the required rate of return that a hypothetical market participant would assume if purchasing the acquired business, with an adjustment for the risk of these assets not generating the projected cash flows.

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Other identifiable intangible assets may include, but are not limited to, noncompetition agreements and favorable/unfavorable lease agreements. The fair values of these assets are typically determined by an excess earnings method, a replacement cost method or a market approach.

MEASUREMENT PERIOD ADJUSTMENTS

We may adjust the amounts recognized in an acquisition during a measurement period after the acquisition date. Any such adjustments are the result of subsequently obtaining additional information that existed at the acquisition date regarding the assets acquired or the liabilities assumed. Measurement period adjustments are generally recorded as increases or decreases to goodwill, if any, recognized in the transaction. The cumulative impact of measurement period adjustments on depreciation, amortization and other income statement items are recognized in the period the adjustment is determined. The measurement period ends once we have obtained all necessary information that existed as of the acquisition date, but does not extend beyond one year from the date of acquisition. Any adjustments to assets acquired or liabilities assumed beyond the measurement period are recorded through earnings.

4. PENSION AND OTHER POSTRETIREMENT BENEFITS

Accounting for pension and other postretirement benefits requires that we use assumptions for the valuation of projected benefit obligations (PBO) and the performance of plan assets. Each year, we review our assumptions for discount rates (used for PBO, service cost, and interest cost calculations) and the expected return on plan assets. Due to plan changes made in 2012 and 2013, annual pay increases and the per capita cost of healthcare benefits do not materially impact plan obligations.

§ DISCOUNT RATES — We use a high-quality bond full yield curve approach (specific spot rates for each annual expected cash flow) to establish the discount rates at each measurement date. See Note 10 “Benefit Plans” in Item 8 “Financial Statements and Supplementary Data” for the discount rates used for PBO, service cost, and interest cost calculations.

§ EXPECTED RETURN ON PLAN ASSETS — Our expected return on plan assets is: (1) a long-term view based on our current asset allocation, and (2) a judgment informed by consultation with our retirement plans’ consultant and our pension plans’ actuary. For the year ended December 31, 2018, the expected return on plan assets remained at 7.0%.

Changes to the assumptions listed above would have an impact on the PBO and the annual net benefit cost. The following table reflects the favorable and unfavorable outcomes associated with a change in certain assumptions:

in millions	(Favorable) Unfavorable		0.5 Percentage Point Decrease	
	0.5 Percentage Point Increase Inc (Dec) in Benefit Obligation	0.5 Percentage Point Increase Inc (Dec) in Annual Benefit Cost	0.5 Percentage Point Decrease Inc (Dec) in Benefit Obligation	0.5 Percentage Point Decrease Inc (Dec) in Annual Benefit Cost
Actuarial Assumptions				
Discount rates				
Pension	\$ (51.1)	\$ (0.9)	\$ 56.2	\$ 1.3
Other postretirement benefits	(1.1)	(0.0)	1.2	0.0
Expected return on plan assets	not applicable	(4.3)	not applicable	4.3

As of the December 31, 2018 measurement date, the fair value of our pension plan assets decreased from \$840.9 million for the prior year-end to \$836.8 million. This decrease in fair value was the net result of our \$100.0 million contribution to the qualified pension plans offset by benefit payments and negative investment returns. Our postretirement plans are unfunded.

The discount rate is the weighted-average of the spot rates for each cash flow on the yield curve for high-quality bonds as of the measurement date. As of the December 31, 2018 measurement date, the PBO of our pension plans decreased from \$1,091.2 million to \$958.9 million. The PBO of our postretirement plans decreased from \$43.5 million to \$40.8 million. The PBO decreases were primarily due to higher discount rates, which ranged from 3.92% to 4.47% in 2018 compared with 3.24% to 3.79% in 2017.

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During 2019, we expect to recognize net pension expense of \$0.7 million and net postretirement income of \$2.6 million compared to income of \$6.8 million and income of \$2.7 million, respectively, in 2018. The increase in pension expense is due to investment losses during 2018 coupled with a reduction in our assumption for expected return on plan assets (from 7.00% in 2018 to 5.75% in 2019).

We do not anticipate that contributions to the funded pension plans will be required during 2019 and we do not anticipate making a discretionary contribution. We currently do not anticipate that the funded status of any of our plans will fall below statutory thresholds requiring accelerated funding or constraints on benefit levels or plan administration.

For additional information about pension and other postretirement benefits, see Note 10 “Benefit Plans” in Item 8 “Financial Statements and Supplementary Data.”

5. ENVIRONMENTAL COMPLIANCE COSTS

Our environmental compliance costs include the cost of ongoing monitoring programs, the cost of remediation efforts and other similar costs. Our accounting policy for environmental compliance costs is a critical accounting policy because it involves the use of significant estimates and assumptions and requires considerable management judgment.

HOW WE ACCOUNT FOR ENVIRONMENTAL COSTS

To account for environmental costs, we:

- § expense or capitalize environmental costs consistent with our capitalization policy
- § expense costs for an existing condition caused by past operations that do not contribute to future revenues
- § accrue costs for environmental assessment and remediation efforts when we determine that a liability is probable and we can reasonably estimate the cost

At the early stages of a remediation effort, environmental remediation liabilities are not easily quantified due to the uncertainties of various factors. The range of an estimated remediation liability is defined and redefined as events in the remediation effort occur, but generally liabilities are recognized no later than completion of the remedial feasibility study. When we can estimate a range of probable loss, we accrue the most likely amount. If no amount in the range of probable loss is considered most likely, the minimum loss in the range is accrued. As of December 31, 2018, the difference between the amount accrued and the maximum loss in the range for all sites for which a range can be reasonably estimated was \$3.1 million — this amount does not represent our maximum exposure to loss for all environmental remediation obligations as it excludes those sites for which a range of loss cannot be reasonably estimated at this time. Our environmental remediation obligations are recorded on an undiscounted basis.

Accrual amounts may be based on technical cost estimations or the professional judgment of experienced environmental managers. Our Safety, Health and Environmental Affairs Management Committee routinely reviews cost estimates and key assumptions in response to new information, such as the kinds and quantities of hazardous substances, available technologies and changes to the parties participating in the remediation efforts. However, a number of factors, including adverse agency rulings and unanticipated conditions as remediation efforts progress, may cause actual results to differ materially from accrued costs.

For additional information about environmental compliance costs, see Note 8 “Accrued Environmental Remediation Costs” in Item 8 “Financial Statements and Supplementary Data.”

6. CLAIMS AND LITIGATION INCLUDING SELF-INSURANCE

We are involved with claims and litigation, including items covered under our self-insurance program. We are self-insured for losses related to workers' compensation up to \$2.0 million per occurrence and automotive and general/product liability up to \$3.0 million per occurrence. We have excess coverage on a per occurrence basis beyond these retention levels.

Under our self-insurance program, we aggregate certain claims and litigation costs that are reasonably predictable based on our historical loss experience and accrue losses, including future legal defense costs, based on actuarial studies. Certain claims and litigation costs, due to their unique nature, are not included in our actuarial studies. For matters not included in our actuarial studies, legal defense costs are accrued when incurred.

Our accounting policy for claims and litigation including self-insurance is a critical accounting policy because it involves the use of significant estimates and assumptions and requires considerable management judgment.

HOW WE ASSESS THE PROBABILITY OF LOSS

We use both internal and outside legal counsel to assess the probability of loss, and establish an accrual when the claims and litigation represent a probable loss and the cost can be reasonably estimated. Significant judgment is used in determining the timing and amount of the accruals for probable losses, and the actual liability could differ materially from the accrued amounts.

For additional information about claims and litigation including self-insurance, see Note 1 "Summary of Significant Accounting Policies" in Item 8 "Financial Statements and Supplementary Data" under the caption Claims and Litigation Including Self-insurance.

7. INCOME TAXES

VALUATION OF OUR DEFERRED TAX ASSETS

We file federal, state and foreign income tax returns and account for the current and deferred tax effects of such returns using the asset and liability method. We recognize deferred tax assets and liabilities (which reflect our best assessment of the future taxes we will pay) based on the differences between the book basis and tax basis of assets and liabilities. Deferred tax assets represent items to be used as a tax deduction or credit in future tax returns while deferred tax liabilities represent items that will result in additional tax in future tax returns.

Significant judgments and estimates are required in determining our deferred tax assets and liabilities. These estimates are updated throughout the year to consider income tax return filings, our geographic mix of earnings, legislative changes and other relevant items. We are required to account for the effects of changes in income tax rates on deferred tax balances in the period in which the legislation is enacted.

Each quarter we analyze the likelihood that our deferred tax assets will be realized. Realization of the deferred tax assets ultimately depends on the existence of sufficient taxable income of the appropriate character in either the carryback or carryforward period. A valuation allowance is recorded if, based on the weight of all available positive and negative evidence, it is more likely than not (a likelihood of more than 50%) that some portion, or all, of a deferred tax asset will not be realized. A summary of our deferred tax assets is included in Note 9 "Income Taxes" in Item 8 "Financial Statements and Supplementary Data."

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LIABILITY FOR UNRECOGNIZED TAX BENEFITS

We recognize a tax benefit associated with a tax position when we judge it is more likely than not that the position will be sustained based upon the technical merits of the position. For a tax position that meets the more likely than not recognition threshold, we measure the income tax benefit as the largest amount that we judge to have a greater than 50% likelihood of being realized. A liability is established for the unrecognized portion of any tax position. Our liability for unrecognized tax benefits is adjusted periodically due to changing circumstances, such as the progress of tax audits, case law developments and new or emerging legislation.

Generally, we are not subject to significant changes in income taxes by any taxing jurisdiction for the years before 2015. While it is often difficult to predict the final outcome or the timing of resolution of any particular tax matter, we believe our liability for unrecognized tax benefits is appropriate.

We consider a tax position to be resolved at the earlier of the issue being “effectively settled,” settlement of an examination, or the expiration of the statute of limitations. Upon resolution of a tax position, any liability for unrecognized tax benefits will be released.

Our liability for unrecognized tax benefits is generally presented as noncurrent. However, if we anticipate paying cash within one year to settle an uncertain tax position, the liability is presented as current. We classify interest and penalties associated with our liability for unrecognized tax benefits as income tax expense.

NEW ACCOUNTING STANDARDS

For a discussion of accounting standards recently adopted or pending adoption and the effect such accounting changes will have on our results of operations, financial position or liquidity, see Note 1 “Summary of Significant Accounting Policies” in Item 8 “Financial Statements and Supplementary Data” under the caption New Accounting Standards.

FORWARD-LOOKING STATEMENTS

The foregoing discussion and analysis, as well as certain information contained elsewhere in this Annual Report, contain “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and are intended to be covered by the safe harbor created thereby. See the discussion in Safe Harbor Statement under the Private Securities Litigation Reform Act of 1995 in Part I, above.

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QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

MARKET RISK

We are exposed to certain market risks arising from transactions that are entered into in the normal course of business. To manage these market risks, we may use derivative financial instruments. We do not enter into derivative financial instruments for speculative or trading purposes.

As discussed in the Liquidity and Financial Resources section of Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” we actively manage our capital structure and resources to balance the cost of capital and risk of financial stress. Such activity includes balancing the cost and risk of interest expense. In addition to floating-rate borrowings, we at times use interest rate swaps to manage the mix of fixed-rate and floating-rate debt. Over time, our EBITDA and operating income are positively correlated to floating interest rates (as measured by 3-month LIBOR). As such, our business serves as a natural hedge to rising interest rates, and floating-rate debt serves as a natural hedge against weaker operating results due to general economic weakness.

At December 31, 2018, the estimated fair value of our long-term debt including current maturities was \$2,695.8 million compared to a book value of \$2,779.4 million. The estimated fair value was determined by averaging several asking price quotes for the publicly traded notes and assuming par value for the remainder of the debt. The fair value estimate is based on information available as of the balance sheet date. The effect of a decline in interest rates of one percentage point would increase the fair value of our debt by approximately \$236.1 million.

We are exposed to certain economic risks related to the costs of our pension and other postretirement benefit plans. These economic risks include changes in the discount rate for high-quality bonds and the expected return on plan assets. The impact of a change in these assumptions on our annual pension and other postretirement benefits costs is discussed in greater detail within the Critical Accounting Policies section of this Annual Report.

ITEM 8

FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the shareholders and the Board of Directors of Vulcan Materials Company:

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Vulcan Materials Company and subsidiaries (the “Company”) as of December 31, 2018 and 2017, the related consolidated statements of comprehensive income, equity, and cash flows, for each of the three years in the period ended December 31, 2018, 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, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, 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, 2018, based on the criteria established in Internal Control — Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 26, 2019 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.

/s/ DELOITTE & TOUCHE LLP

Birmingham, Alabama

February 26, 2019

We have served as the Company's auditor since 1956.

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VULCAN MATERIALS COMPANY AND SUBSIDIARY COMPANIES

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME

	2018	2017	2016
For the years ended December 31 in thousands, except per share data			
Total revenues	\$ 4,382,869	\$ 3,890,296	\$ 3,592,667
Cost of revenues	3,281,924	2,896,783	2,603,782
Gross profit	1,100,945	993,513	988,885
Selling, administrative and general expenses	333,371	324,972	316,769
Gain on sale of property, plant & equipment and businesses	14,944	17,827	15,431
Other operating expense, net	(34,805)	(47,324)	(21,645)
Operating earnings	747,713	639,044	665,902
Other nonoperating income, net	13,000	13,357	14,624
Interest income	554	4,437	807
Interest expense	137,977	295,522	134,076
Earnings from continuing operations before income taxes	623,290	361,316	547,257
Income tax expense (benefit)			
Current	40,516	354	94,254
Deferred	64,933	(232,429)	30,597
Total income tax expense (benefit)	105,449	(232,075)	124,851
Earnings from continuing operations	517,841	593,391	422,406
Earnings (loss) on discontinued operations, net of tax	(2,036)	7,794	(2,915)
Net earnings	\$ 515,805	\$ 601,185	\$ 419,491
Other comprehensive income (loss), net of tax			
Deferred gain on interest rate derivative	2,496	0	0
Amortization of prior interest rate derivative loss	226	1,862	1,194
Adjustment for funded status of benefit plans	(207)	(14,106)	(20,583)
Amortization of actuarial loss and prior service cost for benefit plans	4,365	2,154	82
Other comprehensive income (loss)	6,880	(10,090)	(19,307)
Comprehensive income	\$ 522,685	\$ 591,095	\$ 400,184
Basic earnings (loss) per share			
Continuing operations	\$ 3.91	\$ 4.48	\$ 3.17
Discontinued operations	(0.01)	0.06	(0.02)
Net earnings	\$ 3.90	\$ 4.54	\$ 3.15
Diluted earnings (loss) per share			
Continuing operations	\$ 3.87	\$ 4.40	\$ 3.11
Discontinued operations	(0.02)	0.06	(0.02)
Net earnings	\$ 3.85	\$ 4.46	\$ 3.09
Weighted-average common shares outstanding			
Basic	132,393	132,513	133,205
Assuming dilution	133,926	134,878	135,790

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

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VULCAN MATERIALS COMPANY AND SUBSIDIARY COMPANIES

CONSOLIDATED BALANCE SHEETS

	2018	2017
As of December 31		
in thousands		
Assets		
Cash and cash equivalents	\$ 40,037	\$ 141,646
Restricted cash	4,367	5,000
Accounts and notes receivable		
Customers, less allowance for doubtful accounts		
2018 — \$2,090; 2017 — \$2,649	512,279	434,089
Other	28,499	154,248
Inventories	429,330	384,338
Other current assets	64,633	60,780
Total current assets	1,079,145	1,180,101
Investments and long-term receivables	44,615	35,115
Property, plant & equipment, net	4,237,307	3,918,931
Goodwill	3,165,396	3,122,321
Other intangible assets, net	1,095,378	1,063,630
Other noncurrent assets	210,289	184,793
Total assets	\$ 9,832,130	\$ 9,504,891
Liabilities		
Current maturities of long-term debt	23	41,383
Short-term debt	133,000	0
Trade payables and accruals	216,473	197,335
Accrued salaries, wages and management incentives	91,960	87,208
Accrued interest	19,631	11,664
Other current liabilities	141,463	105,282
Total current liabilities	602,550	442,872
Long-term debt	2,779,357	2,813,482
Deferred income taxes, net	567,283	464,081
Deferred management incentive and other compensation	16,604	19,856
Pension benefits	119,587	245,449
Other postretirement benefits	35,274	37,856
Asset retirement obligations	225,726	218,117
Deferred revenue	186,397	191,476
Other noncurrent liabilities	96,449	102,809
Total liabilities	\$ 4,629,227	\$ 4,535,998
Other commitments and contingencies (Note 12)		
Equity		
Common stock, \$1 par value, Authorized 480,000 shares,		
Outstanding 131,762 and 132,324 shares, respectively	131,762	132,324
Capital in excess of par value	2,798,486	2,805,587

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Retained earnings	2,444,870	2,180,448
Accumulated other comprehensive loss	(172,215)	(149,466)
Total equity	5,202,903	4,968,893
Total liabilities and equity	\$ 9,832,130	\$ 9,504,891

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

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VULCAN MATERIALS COMPANY AND SUBSIDIARY COMPANIES

CONSOLIDATED STATEMENTS OF CASH FLOWS

	2018	2017	2016
For the years ended December 31 in thousands			
Operating Activities			
Net earnings	\$ 515,805	\$ 601,185	\$ 419,491
Adjustments to reconcile net earnings to net cash provided by operating activities			
Depreciation, depletion, accretion and amortization	346,246	305,965	284,940
Net gain on sale of property, plant & equipment and businesses	(14,944)	(17,827)	(15,431)
Contributions to pension plans	(109,631)	(20,023)	(9,576)
Share-based compensation expense	25,215	26,635	20,670
Deferred tax expense (benefit)	64,639	(235,697)	33,591
Cost of debt purchase	6,922	140,772	0
(Increase) decrease in assets excluding the initial effects of business			
acquisitions and dispositions			
Accounts and notes receivable	63,230	(81,561)	(72,763)
Inventories	(34,976)	(14,121)	1,625
Prepaid expenses	(2,167)	(28,445)	2,558
Other assets	(58,489)	(23,759)	(18,236)
Increase (decrease) in liabilities excluding the initial effects of business			
acquisitions and dispositions			
Accrued interest and income taxes	12,148	1,303	(7,187)
Trade payables and other accruals	40,181	9,823	30,353
Other noncurrent liabilities	(26,901)	(32,592)	(29,138)
Other, net	5,499	13,020	3,691
Net cash provided by operating activities	\$ 832,777	\$ 644,678	\$ 644,588
Investing Activities			
Purchases of property, plant & equipment	(469,088)	(459,566)	(350,148)
Proceeds from sale of property, plant & equipment	22,210	15,756	23,318
Proceeds from sale of businesses	11,256	287,292	0
Payment for businesses acquired, net of acquired cash	(221,419)	(1,109,725)	(32,537)
Other, net	(12,850)	(3,248)	2,173
Net cash used for investing activities	\$ (669,891)	\$ (1,269,491)	\$ (357,194)
Financing Activities			
Proceeds from short-term debt	739,900	5,000	3,000
Payment of short-term debt	(606,900)	(5,000)	(3,000)
Payment of current maturities and long-term debt	(892,055)	(1,463,308)	(130)
Proceeds from issuance of long-term debt	850,000	2,200,000	0
Debt issuance and exchange costs	(45,513)	(15,291)	(1,860)

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Settlements of interest rate derivatives	3,378	0	0
Purchases of common stock	(133,983)	(60,303)	(161,463)
Dividends paid	(148,109)	(132,335)	(106,333)
Share-based compensation, shares withheld for taxes	(31,846)	(25,323)	(34,799)
Net cash provided by (used for) financing activities	\$ (265,128)	\$ 503,440	\$ (304,585)
Net decrease in cash and cash equivalents and restricted cash	(102,242)	(121,373)	(17,191)
Cash and cash equivalents and restricted cash at beginning of year	146,646	268,019	285,210
Cash and cash equivalents and restricted cash at end of year	\$ 44,404	\$ 146,646	\$ 268,019

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

VULCAN MATERIALS COMPANY AND SUBSIDIARY COMPANIES

CONSOLIDATED STATEMENTS OF EQUITY

in thousands	Common Shares	Stock Amount	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total
Balances at December 31, 2015	133,172	\$ 133,172	\$ 2,822,578	\$ 1,618,507	\$ (120,069)	\$ 4,454,188
Net earnings	0	0	0	419,491	0	419,491
Share-based compensation plans, net of shares withheld for taxes	594	594	(35,363)	0	0	(34,769)
Purchase and retirement of common stock	(1,427)	(1,427)	0	(160,036)	0	(161,463)
Share-based compensation expense	0	0	20,670	0	0	20,670
Cash dividends on common stock	0	0	0	(106,333)	0	(106,333)
Other comprehensive loss	0	0	0	0	(19,307)	(19,307)
Other	0	0	110	(111)	0	(1)
Balances at December 31, 2016	132,339	\$ 132,339	\$ 2,807,995	\$ 1,771,518	\$ (139,376)	\$ 4,572,476
Net earnings	0	0	0	601,185	0	601,185
Share-based compensation plans, net of shares withheld for taxes	495	495	(29,168)	0	0	(28,673)
Purchase and retirement of common stock	(510)	(510)	0	(59,793)	0	(60,303)
Share-based compensation expense	0	0	26,635	0	0	26,635
Cash dividends on common stock	0	0	0	(132,335)	0	(132,335)
Other comprehensive loss	0	0	0	0	(10,090)	(10,090)
Other	0	0	125	(127)	0	(2)
	132,324	\$ 132,324	\$ 2,805,587	\$ 2,180,448	\$ (149,466)	\$ 4,968,893

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Balances at December 31, 2017							
Released stranded tax effects ASU 2018-02 (Note 9)	0	0	0	29,629	(29,629)	0	
Balances at January 1, 2018, due to							
reclassification	132,324	\$ 132,324	\$ 2,805,587	\$ 2,210,077	\$ (179,095)	\$ 4,968,893	
Net earnings	0	0	0	515,805	0	515,805	
Share-based compensation plans, net of shares withheld for taxes	630	630	(32,428)	0	0	(31,798)	
Purchase and retirement of common stock	(1,192)	(1,192)	0	(132,791)	0	(133,983)	
Share-based compensation expense	0	0	25,215	0	0	25,215	
Cash dividends on common stock	0	0	0	(148,109)	0	(148,109)	
Other comprehensive income	0	0	0	0	6,880	6,880	
Other	0	0	112	(112)	0	0	
Balances at December 31, 2018	131,762	\$ 131,762	\$ 2,798,486	\$ 2,444,870	\$ (172,215)	\$ 5,202,903	

The accompanying Notes to Consolidated Financial Statements are an integral part of these statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1: SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

NATURE OF OPERATIONS

Vulcan Materials Company (the “Company,” “Vulcan,” “we,” “our”), a New Jersey corporation, is the nation's largest supplier of construction aggregates (primarily crushed stone, sand and gravel) and a major producer of asphalt mix and ready-mixed concrete.

We operate primarily in the United States and our principal product — aggregates — is used in virtually all types of public and private construction projects and in the production of asphalt mix and ready-mixed concrete. We serve markets in twenty states, Washington D.C., and the local markets surrounding our operations in Mexico and the Bahamas. Our primary focus is serving metropolitan markets in the United States that are expected to experience the most significant growth in population, households and employment. These three demographic factors are significant drivers of demand for aggregates. While aggregates is our focus and primary business, we produce and sell asphalt mix and/or ready-mixed concrete in our Alabama, mid-Atlantic, Southwestern, Tennessee and Western markets.

Due to the 2005 sale of our Chemicals business as described below, the results of the Chemicals business are presented as discontinued operations in the accompanying Consolidated Statements of Comprehensive Income.

DISCONTINUED OPERATIONS

In 2005, we sold substantially all the assets of our Chemicals business to Basic Chemicals, a subsidiary of Occidental Chemical Corporation. The financial results of the Chemicals business are classified as discontinued operations in the accompanying Consolidated Statements of Comprehensive Income for all periods presented. Results from discontinued operations are as follows:

in thousands	2018	2017	2016
Discontinued Operations			
Pretax earnings (loss)	\$ (2,748)	\$ 12,959	\$ (4,877)
Income tax (expense) benefit	712	(5,165)	1,962
Earnings (loss) on discontinued operations, net of tax	\$ (2,036)	\$ 7,794	\$ (2,915)

Discontinued operations include charges related to general and product liability costs, including legal defense costs, and environmental remediation costs associated with our former Chemicals business. The 2017 results also reflect insurance recoveries for past legal expenses associated with the Texas Brine matter (see Note 12). There were no revenues from discontinued operations for the years presented.

PRINCIPLES OF CONSOLIDATION

The consolidated financial statements include the accounts of Vulcan Materials Company and all our majority or wholly-owned subsidiary companies. Partially-owned affiliates are either consolidated or accounted for at cost or as equity investments depending on the level of ownership interest or our ability to exercise control over the affiliates' operations. All intercompany transactions and accounts have been eliminated in consolidation.

USE OF ESTIMATES IN THE PREPARATION OF FINANCIAL STATEMENTS

The preparation of these financial statements in conformity with accounting principles generally accepted (GAAP) in the United States of America requires us to make estimates and judgments that affect reported amounts of assets, liabilities, revenues and expenses, and the related disclosures of contingent assets and contingent liabilities at the date of the financial statements. We evaluate these estimates and judgments on an ongoing basis and base our estimates on historical experience, current conditions and various other assumptions that are believed to be reasonable under the circumstances. The results of these estimates form the basis for our judgments about the carrying values of assets and liabilities as well as identifying and assessing the accounting treatment with respect to commitments and contingencies. Actual results may differ materially from these estimates. The most significant estimates included in the preparation of these financial statements are related to goodwill and long-lived asset impairments, business combinations and purchase price allocation, pension and other postretirement benefits, environmental compliance, claims and litigation including self-insurance, and income taxes.

BUSINESS COMBINATIONS

We account for business combinations under the acquisition method of accounting. The purchase price of an acquisition is allocated to the underlying identifiable assets acquired and liabilities assumed based on their respective fair values. The purchase price is determined based on the fair value of consideration transferred to and liabilities assumed from the seller as of the date of acquisition. We allocate the purchase price to the fair values of the tangible and identifiable intangible assets acquired and liabilities assumed as of the date of acquisition. Goodwill is recorded for the excess of the purchase price over the net of the fair value of the identifiable assets acquired and liabilities assumed.

Determining the fair values of assets acquired and liabilities assumed requires judgment and often involves the use of significant estimates and assumptions. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction, and therefore represents an exit price. A fair value measurement assumes the highest and best use of the asset by market participants.

We may adjust the amounts recognized in an acquisition during a measurement period after the acquisition date. Any such adjustments are the result of subsequently obtaining additional information that existed at the acquisition date regarding the assets acquired or the liabilities assumed. Measurement period adjustments are generally recorded as increases or decreases to goodwill, if any, recognized in the transaction. The cumulative impact of measurement period adjustments on depreciation, amortization and other income statement items are recognized in the period the adjustment is determined.

FOREIGN CURRENCY TRANSACTIONS

The U.S. dollar is the functional currency for all of our operations. For our non-U.S. subsidiaries, local currency inventories and long-term assets such as property, plant & equipment and intangibles are remeasured into U.S. dollars at approximate rates prevailing when acquired; all other assets and liabilities are remeasured at year-end exchange rates. Inventories charged to cost of sales and depreciation are remeasured at historical rates; all other income and expense items are remeasured at average exchange rates prevailing during the year. Gains and losses which result from remeasurement are included in earnings and are not material for the years presented.

CASH EQUIVALENTS

We classify as cash equivalents all highly liquid securities with a maturity of three months or less at the time of purchase. The carrying amount of these securities approximates fair value due to their short-term maturities.

RESTRICTED CASH

Restricted cash consists of cash proceeds from the sale of property held in escrow for the acquisition of replacement property under like-kind exchange agreements and cash reserved by other contractual agreements (such as asset purchase agreements) for a specified purpose and therefore not available for use in our operations. The escrow accounts are administered by an intermediary. Cash restricted pursuant to like-kind exchange agreements remains restricted for a maximum of 180 days from the date of the property sale pending the acquisition of replacement property. Restricted cash is included with cash and cash equivalents in the accompanying Consolidated Statements of Cash Flows.

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ACCOUNTS AND NOTES RECEIVABLE

Accounts and notes receivable from customers result from our extending credit to trade customers for the purchase of our products. The terms generally provide for payment within 15 days of the month following invoice. On occasion, when necessary to conform to regional industry practices, we sell product under extended payment terms, which may result in either secured or unsecured short-term notes; or, on occasion, notes with durations of less than one year are taken in settlement of existing accounts receivable. Other accounts and notes receivable result from short-term transactions (less than one year) other than the sale of our products, such as interest receivable; insurance claims; freight claims; tax refund claims; bid deposits or rents receivable. As of December 31, 2018, income tax receivables of \$922,000 are included in other accounts and notes receivable in the accompanying Consolidated Balance Sheet. There were similar receivables of \$106,980,000 (\$106,000,000 related to 2017 federal estimated payments which were refunded early 2018) as of December 31, 2017.

Receivables are aged and appropriate allowances for doubtful accounts and bad debt expense are recorded. Bad debt expense (net of recoveries) for the years ended December 31 was as follows: 2018 — \$251,000, 2017 — \$812,000 and 2016 — \$(1,190,000). Write-offs of accounts receivables for the years ended December 31 were as follows: 2018 — \$1,291,000, 2017 — \$1,384,000 and 2016 — \$1,544,000. The bad debt recovery in 2016 relates to the collection of previously reserved receivables primarily attributable to the 2014 sale of our Florida area concrete and cement businesses.

INVENTORIES

Inventories and supplies are stated at the lower of cost or net realizable value. We use the last-in, first-out (LIFO) method of valuation for most of our inventories because it results in a better matching of costs with revenues. Such costs include fuel, parts and supplies, raw materials, direct labor and production overhead. An actual valuation of inventory under the LIFO method can be made only at the end of each year based on the inventory levels and costs at that time. Accordingly, interim LIFO calculations are based on our estimates of expected year-end inventory levels and costs and are subject to the final year-end LIFO inventory valuation. Substantially all operating supplies inventory is carried at average cost. For additional information about our inventories see Note 3.

PROPERTY, PLANT & EQUIPMENT

Property, plant & equipment are carried at cost less accumulated depreciation, depletion and amortization. The cost of properties held under capital leases, if any, is equal to the lower of the net present value of the minimum lease payments or the fair value of the leased property at the inception of the lease.

Capitalized software costs of \$4,155,000 and \$4,446,000 are reflected in net property, plant & equipment as of December 31, 2018 and 2017, respectively. We capitalized software costs for the years ended December 31 as follows: 2018 — \$2,213,000, 2017 — \$1,988,000 and 2016 — \$152,000.

For additional information about our property, plant & equipment see Note 4.

REPAIR AND MAINTENANCE

Repair and maintenance costs generally are charged to operating expense as incurred. Renewals and betterments that add materially to the utility or useful lives of property, plant & equipment are capitalized and subsequently depreciated. Actual costs for planned major maintenance activities, related primarily to periodic overhauls on our oceangoing vessels, are capitalized and amortized to the next overhaul.

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DEPRECIATION, DEPLETION, ACCRETION AND AMORTIZATION

Depreciation is generally computed by the straight-line method at rates based on the estimated service lives of the various classes of assets, which include machinery and equipment (3 to 35 years), buildings (7 to 20 years) and land improvements (8 to 20 years). Capitalized software costs are included in machinery and equipment and are depreciated on a straight-line basis beginning when the software project is substantially complete.

Cost depletion on depletable land is computed by the unit-of-sales method based on estimated recoverable units.

Accretion reflects the period-to-period increase in the carrying amount of the liability for asset retirement obligations. It is computed using the same credit-adjusted, risk-free rate used to initially measure the liability at fair value.

Leaseholds are amortized over varying periods not in excess of applicable lease terms or estimated useful lives.

Amortization of intangible assets subject to amortization is computed based on the estimated life of the intangible assets.

A significant portion of our intangible assets is contractual rights in place associated with zoning, permitting and other rights to access and extract aggregates reserves. Contractual rights in place associated with aggregates reserves are amortized using the unit-of-sales method based on estimated recoverable units. Other intangible assets are amortized principally by the straight-line method.

Depreciation, depletion, accretion and amortization expense for the years ended December 31 is outlined below:

in thousands	2018	2017	2016
Depreciation, Depletion, Accretion and Amortization			
Depreciation	\$ 276,814	\$ 250,835	\$ 238,237
Depletion	23,260	19,342	17,812
Accretion	10,776	11,415	11,059
Amortization of leaseholds	472	608	267
Amortization of intangibles	34,924	23,765	17,565
Total	\$ 346,246	\$ 305,965	\$ 284,940

DERIVATIVE INSTRUMENTS

During the normal course of operations, we are exposed to market risks including interest rates, foreign currency exchange rates and commodity prices. From time to time, and consistent with our risk management policies, we use derivative instruments to balance the cost and risk of such expenses. We do not use derivative instruments for trading or other speculative purposes.

The accounting for gains and losses that result from changes in the fair value of derivative instruments depends on whether the derivatives have been designated and qualify as hedging instruments and the type of hedging relationship. Changes in the fair value of interest rate swap cash flow hedges are recorded in accumulated other comprehensive income (AOCI) and are reclassified into interest expense in the same period the hedged items affect earnings. Changes in the fair value of interest rate swap fair value hedges are recorded as interest expense consistent with the change in

the fair value of the hedged items attributable to the risk being hedged. Additional disclosures about our derivative instruments are presented in Note 5.

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FAIR VALUE MEASUREMENTS

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into three broad levels as described below:

- Level 1: Quoted prices in active markets for identical assets or liabilities
- Level 2: Inputs that are derived principally from or corroborated by observable market data
- Level 3: Inputs that are unobservable and significant to the overall fair value measurement

Our assets at December 31 subject to fair value measurement on a recurring basis are summarized below:

Level 1 Fair Value			
in			
thousands	2018	2017	
Fair Value			
Recurring			
Rabbi			
Trust			
Mutual			
funds	\$ 19,164	\$ 20,348	
Total	\$ 19,164	\$ 20,348	

Level 2 Fair Value			
in			
thousands	2018	2017	
Fair Value			
Recurring			
Rabbi			
Trust			
Money			
market			
mutual			
fund	\$ 1,015	\$ 1,203	
Total	\$ 1,015	\$ 1,203	

We have two Rabbi Trusts for the purpose of providing a level of security for the employee nonqualified retirement and deferred compensation plans and for the directors' nonqualified deferred compensation plans. The fair values of these investments are estimated using a market approach. The Level 1 investments include mutual funds and equity securities for which quoted prices in active markets are available. Level 2 investments are stated at estimated fair value based on the underlying investments in the fund (short-term, highly liquid assets in commercial paper,

short-term bonds and certificates of deposit).

Net gains (losses) of the Rabbi Trusts' investments were \$(2,741,000), \$2,441,000 and \$2,741,000 for the years ended December 31, 2018, 2017 and 2016, respectively. The portions of the net gains (losses) related to investments still held by the Rabbi Trusts at December 31, 2018, 2017 and 2016 were \$(4,386,000), \$(3,618,000) and \$1,599,000, respectively.

The carrying values of our cash equivalents, restricted cash, accounts and notes receivable, short-term debt, trade payables and accruals, and all other current liabilities approximate their fair values because of the short-term nature of these instruments. Additional disclosures for derivative instruments and interest-bearing debt are presented in Notes 5 and 6, respectively.

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GOODWILL IMPAIRMENT

Goodwill represents the excess of the cost of net assets acquired in business combinations over the fair value of the identifiable tangible and intangible assets acquired and liabilities assumed in a business combination. Goodwill impairment exists when the fair value of a reporting unit is less than its carrying amount. As of December 31, 2018, goodwill totaled \$3,165,396,000, as compared to \$3,122,321,000 at December 31, 2017. Goodwill represents 32% of total assets at December 31, 2018 compared to 33% at December 31, 2017.

Goodwill is tested for impairment annually, as of November 1, or more frequently whenever events or changes in circumstances would more likely than not reduce the fair value of a reporting unit below its carrying amount. Goodwill is tested for impairment at the reporting unit level, one level below our operating segments. We have four operating segments organized around our principal product lines: Aggregates, Asphalt, Concrete and Calcium. Within these four operating segments, we have identified 17 reporting units (of which 9 carry goodwill) based primarily on geographic location. We have the option of either assessing qualitative factors to determine whether it is more likely than not that the carrying value of our reporting units exceeds their respective fair value or proceeding directly to a quantitative test. We elected to perform the quantitative impairment test for all years presented.

The quantitative impairment test compares the fair value of a reporting unit to its carrying value, including goodwill. If the fair value exceeds its carrying value, the goodwill of the reporting unit is not considered impaired. However, if the carrying value of a reporting unit exceeds its fair value, we recognize an impairment loss equal to that excess.

The results of the annual impairment tests performed as of November 1, 2018, 2017 and 2016 indicated that the fair values of all reporting units with goodwill substantially exceeded their carrying values. Accordingly, there were no charges for goodwill impairment in the years ended December 31, 2018, 2017 or 2016.

We estimate the fair values of the reporting units using both an income approach (which involves discounting estimated future cash flows) and a market approach (which involves the application of revenue and EBITDA multiples of comparable companies). Determining the fair value of our reporting units involves the use of significant estimates and assumptions and considerable management judgment. We base our fair value estimates on assumptions we believe to be reasonable at the time, but such assumptions are subject to inherent uncertainty and actual results may differ. Changes in key assumptions or management judgment with respect to a reporting unit or its prospects, which may result from a change in market conditions, market trends, interest rates or other factors outside of our control, or underperformance relative to historical or projected operating results, could result in a significantly different estimate of the fair value of our reporting units, which could result in an impairment charge in the future.

For additional information about goodwill see Note 18.

IMPAIRMENT OF LONG-LIVED ASSETS EXCLUDING GOODWILL

We evaluate the carrying value of long-lived assets, including intangible assets subject to amortization, when events and circumstances indicate that the carrying value may not be recoverable. The carrying value of long-lived assets is considered impaired when the estimated undiscounted cash flows from such assets are less than their carrying value. In that event, we recognize a loss equal to the amount by which the carrying value exceeds the fair value. Fair value is determined primarily by using a discounted cash flow methodology that requires considerable judgment and assumptions. Our estimate of net future cash flows is based on historical experience and assumptions of future trends, which may be different from actual results. We periodically review the appropriateness of the estimated useful lives of our long-lived assets.

We test long-lived assets for impairment at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets. As a result, our long-lived asset impairment test is at a significantly lower level than the level at which we test goodwill for impairment. In markets where we do not produce downstream products (e.g., asphalt mix and ready-mixed concrete), the lowest level of largely independent identifiable cash flows is at the individual aggregates operation or a group of aggregates operations collectively serving a local market. Conversely, in vertically integrated markets, the cash flows of our downstream and upstream businesses are not largely independently identifiable as the selling price of the upstream products (aggregates) determines the profitability of the downstream business.

Part II 73

As of December 31, 2018, net property, plant & equipment represents 43% of total assets, while net other intangible assets represents 11% of total assets. During 2018 and 2017, we recorded no losses on impairment of long-lived assets. During 2016, we recorded a \$10,506,000 loss on impairment of long-lived assets resulting from the termination of a nonstrategic aggregates lease and the write off of nonrecoverable project costs related to two Aggregates segment capital projects that we no longer intend to complete.

For additional information about long-lived assets and intangible assets see Notes 4 and 18.

STRIPPING COSTS

In the mining industry, the costs of removing overburden and waste materials to access mineral deposits are referred to as stripping costs.

Stripping costs incurred during the production phase are considered costs of extracted minerals under our inventory costing system, inventoried, and recognized in cost of sales in the same period as the revenue from the sale of the inventory. The production stage is deemed to begin when the activities, including removal of overburden and waste material that may contain incidental saleable material, required to access the saleable product are complete. Stripping costs considered as production costs and included in the costs of inventory produced were \$78,911,000 in 2018, \$65,944,000 in 2017 and \$55,987,000 in 2016.

Conversely, stripping costs incurred during the development stage of a mine (pre-production stripping) are excluded from our inventory cost. Pre-production stripping costs are capitalized and reported within other noncurrent assets in our accompanying Consolidated Balance Sheets. Capitalized pre-production stripping costs are expensed over the productive life of the mine using the unit-of-sales method. Pre-production stripping costs included in other noncurrent assets were \$95,800,000 as of December 31, 2018 and \$81,241,000 as of December 31, 2017. This year-over-year increase resulted primarily from the removal of overburden at a greenfield site in California.

RECLAMATION COSTS

Reclamation costs resulting from normal use of long-lived assets are recognized over the period the asset is in use when there is a legal obligation to incur these costs upon retirement of the assets. Additionally, reclamation costs resulting from normal use under a mineral lease are recognized over the lease term when there is a legal obligation to incur these costs upon expiration of the lease. The obligation, which cannot be reduced by estimated offsetting cash flows, is recorded at fair value as a liability at the obligating event date and is accreted through charges to operating expenses. This fair value is also capitalized as part of the carrying amount of the underlying asset and depreciated over the estimated useful life of the asset. If the obligation is settled for other than the carrying amount of the liability, a gain or loss is recognized on settlement.

To determine the fair value of the obligation, we estimate the cost (including a reasonable profit margin) for a third party to perform the legally required reclamation tasks. This cost is then increased for both future estimated inflation and an estimated market risk premium related to the estimated years to settlement. Once calculated, this cost is discounted to fair value using present value techniques with a credit-adjusted, risk-free rate commensurate with the estimated years to settlement.

In estimating the settlement date, we evaluate the current facts and conditions to determine the most likely settlement date. If this evaluation identifies alternative estimated settlement dates, we use a weighted-average settlement date considering the probabilities of each alternative.

We review reclamation obligations at least annually for a revision to the cost or a change in the estimated settlement date. Additionally, reclamation obligations are reviewed in the period that a triggering event occurs that would result in either a revision to the cost or a change in the estimated settlement date. Examples of events that would trigger a change in the cost include a new reclamation law or amendment of an existing mineral lease. Examples of events that would trigger a change in the estimated settlement date include the acquisition of additional reserves or the closure of a facility.

The carrying value of these obligations was \$225,726,000 as of December 31, 2018 and \$218,117,000 as of December 31, 2017. For additional information about reclamation obligations (referred to in our financial statements as asset retirement obligations) see Note 17.

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ENVIRONMENTAL COMPLIANCE

Our environmental compliance costs are undiscounted and include the cost of ongoing monitoring programs, the cost of remediation efforts and other similar costs. We accrue costs for environmental assessment and remediation efforts when we determine that a liability is probable and we can reasonably estimate the cost. At the early stages of a remediation effort, environmental remediation liabilities are not easily quantified due to the uncertainties of various factors. The range of an estimated remediation liability is defined and redefined as events in the remediation effort occur, but generally liabilities are recognized no later than the completion of the remedial feasibility study.

When we can estimate a range of probable loss, we accrue the most likely amount. If no amount in the range of probable loss is considered most likely, the minimum loss in the range is accrued. As of December 31, 2018, the spread between the amount accrued and the maximum loss in the range for all sites for which a range can be reasonably estimated was \$3,105,000 — this amount does not represent our maximum exposure to loss for all environmental remediation obligations as it excludes those sites for which a range of loss cannot be reasonably estimated at this time. Accrual amounts may be based on technical cost estimations or the professional judgment of experienced environmental managers. Our Safety, Health and Environmental Affairs Management Committee routinely reviews cost estimates and key assumptions in response to new information, such as the kinds and quantities of hazardous substances, available technologies and changes to the parties participating in the remediation efforts. However, a number of factors, including adverse agency rulings and encountering unanticipated conditions as remediation efforts progress, may cause actual results to differ materially from accrued costs.

For additional information about environmental compliance costs see Note 8.

CLAIMS AND LITIGATION INCLUDING SELF-INSURANCE

We are involved with claims and litigation, including items covered under our self-insurance program. We are self-insured for losses related to workers' compensation up to \$2,000,000 per occurrence and automotive and general/product liability up to \$3,000,000 per occurrence. We have excess coverage on a per occurrence basis beyond these retention levels.

Under our self-insurance program, we aggregate certain claims and litigation costs that are reasonably predictable based on our historical loss experience and accrue losses, including future legal defense costs, based on actuarial studies. Certain claims and litigation costs, due to their unique nature, are not included in our actuarial studies. We use both internal and outside legal counsel to assess the probability of loss, and establish an accrual when the claims and litigation represent a probable loss and the cost can be reasonably estimated. For matters not included in our actuarial studies, legal defense costs are accrued when incurred. The following table outlines our self-insurance program at December 31:

dollars in thousands	2018	2017
Self-insurance Program		
Self-insured liabilities (undiscounted)	\$ 68,912	\$ 58,216
Insured liabilities (undiscounted)	4,377	7,892
Discount rate	2.93%	1.93%
Amounts Recognized in Consolidated Balance Sheets		

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Other accounts and notes receivable	\$ 631	\$ 6,158
Investments and long-term receivables	3,932	7,246
Other current liabilities	(18,466)	(20,036)
Other noncurrent liabilities	(48,049)	(41,792)
Net liabilities (discounted)	\$ (61,952)	\$ (48,424)

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Estimated payments (undiscounted and excluding the impact of related receivables) under our self-insurance program for the five years subsequent to December 31, 2018 are as follows:

in thousands

Estimated Payments under Self-insurance Program	
2019	\$ 20,529
2020	15,232
2021	11,615
2022	6,360
2023	3,665

Significant judgment is used in determining the timing and amount of the accruals for probable losses, and the actual liability could differ materially from the accrued amounts.

SHARE-BASED COMPENSATION

All of our share-based compensation awards are classified as equity awards. We measure share-based compensation awards using fair-value-based measurement methods. This results in the recognition of compensation expense for all share-based compensation awards based on their fair value as of the grant date. Compensation cost is recognized over the requisite service period. Forfeitures are recognized as they occur.

A summary of the estimated future compensation cost (unrecognized compensation expense) as of December 31, 2018 related to share-based awards granted to employees under our long-term incentive plans is presented below:

dollars in thousands	Unrecognized Compensation Expense	Expected Weighted-average Recognition (Years)
Share-based Compensation		
SOSARs 1	\$ 3,376	1.4
Performance shares	14,250	1.6
Restricted shares	6,098	1.7
Total/weighted-average	\$ 23,724	1.6

1 Stock-Only Stock Appreciation Rights (SOSARs)

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Pretax compensation expense related to our employee share-based compensation awards and related income tax benefits for the years ended December 31 are summarized below:

in thousands	2018	2017	2016
Employee Share-based Compensation Awards			
Pretax compensation expense	\$ 23,250	\$ 24,367	\$ 17,823
Income tax benefits	5,940	6,226	6,925

We receive an income tax deduction for share-based compensation equal to the excess of the market value of our common stock on the date of exercise or issuance over the exercise price. Tax benefits resulting from tax deductions in excess of the compensation cost recognized (excess tax benefits) are reflected as discrete income tax benefits in the period of exercise or issuance. Net excess tax benefits were recorded as reductions to our income tax expense and reflected as operating cash flows, as follows (combined federal and state): 2018 — \$20,137,000; 2017 — \$22,962,000; and 2016 — \$24,847,000.

For additional information about share-based compensation, see Note 11 under the caption Share-based Compensation Plans.

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PENSION AND OTHER POSTRETIREMENT BENEFITS

Accounting for pension and other postretirement benefits requires that we use assumptions for the valuation of projected benefit obligations (PBO) and the performance of plan assets. Each year, we review our assumptions for discount rates (used for PBO, service cost, and interest cost calculations) and the expected return on plan assets. Due to plan changes made in 2012 and 2013, annual pay increases and the per capita cost of healthcare benefits do not materially impact plan obligations.

§ DISCOUNT RATES — We use a high-quality bond full yield curve approach (specific spot rates for each annual expected cash flow) to establish the discount rates at each measurement date. See Note 10 for the discount rates used for PBO, service cost, and interest cost calculations.

§ EXPECTED RETURN ON PLAN ASSETS — Our expected return on plan assets is: (1) a long-term view based on our current asset allocation, and (2) a judgment informed by consultation with our retirement plans' consultant and our pension plans' actuary. For the year ended December 31, 2018, the expected return on plan assets remained at 7.0%.

Accounting standards provide for the delayed recognition of differences between actual results and expected or estimated results. This delayed recognition of actual results allows for a smoothed recognition in earnings of changes in benefit obligations and asset performance. The differences between actual results and expected or estimated results are recognized in full in other comprehensive income. Amounts recognized in other comprehensive income are reclassified to earnings in a systematic manner over the average remaining service period of participants for our active plans or the average remaining lifetime of participants for our inactive plans.

For additional information about pension and other postretirement benefits see Note 10.

INCOME TAXES

We file federal, state and foreign income tax returns and account for the current and deferred tax effects of such returns using the asset and liability method. We recognize deferred tax assets and liabilities (which reflect our best assessment of the future taxes we will pay) based on the differences between the book basis and tax basis of assets and liabilities. Deferred tax assets represent items to be used as a tax deduction or credit in future tax returns while deferred tax liabilities represent items that will result in additional tax in future tax returns.

Significant judgments and estimates are required in determining our deferred tax assets and liabilities. These estimates are updated throughout the year to consider income tax return filings, our geographic mix of earnings, legislative changes and other relevant items. We are required to account for the effects of changes in income tax rates on deferred tax balances in the period in which the legislation is enacted.

Each quarter we analyze the likelihood that our deferred tax assets will be realized. Realization of the deferred tax assets ultimately depends on the existence of sufficient taxable income of the appropriate character in either the carryback or carryforward period. A valuation allowance is recorded if, based on the weight of all available positive and negative evidence, it is more likely than not (a likelihood of more than 50%) that some portion, or all, of a deferred tax asset will not be realized. A summary of our deferred tax assets is included in Note 9.

U.S. income taxes are not provided on foreign earnings when such earnings are indefinitely reinvested offshore. At least annually, we evaluate our investment strategies for each foreign tax jurisdiction in which we operate to determine whether foreign earnings will be indefinitely reinvested offshore.

We recognize a tax benefit associated with a tax position when, in our judgment, it is more likely than not that the position will be sustained based upon the technical merits of the position. For a tax position that meets the more likely

than not recognition threshold, we measure the income tax benefit as the largest amount that we judge to have a greater than 50% likelihood of being realized. A liability is established for the unrecognized portion of any tax position. Our liability for unrecognized tax benefits is adjusted periodically due to changing circumstances, such as the progress of tax audits, case law developments and new or emerging legislation.

Generally, we are not subject to significant changes in income taxes by any taxing jurisdiction for the years before 2015. While it is often difficult to predict the final outcome or the timing of resolution of any particular tax matter, we believe our liability for unrecognized tax benefits is appropriate.

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We consider a tax position to be resolved at the earlier of the issue being “effectively settled,” settlement of an examination, or the expiration of the statute of limitations. Upon resolution of a tax position, any liability for unrecognized tax benefits will be released.

Our liability for unrecognized tax benefits is generally presented as noncurrent. However, if we anticipate paying cash within one year to settle an uncertain tax position, the liability is presented as current. We classify interest and penalties associated with our liability for unrecognized tax benefits as income tax expense.

Our largest permanent item in computing both our taxable income and effective tax rate is the deduction allowed for statutory depletion. The impact of statutory depletion on the effective tax rate is presented in Note 9. The deduction for statutory depletion does not necessarily change proportionately to changes in pretax earnings.

COMPREHENSIVE INCOME

We report comprehensive income in our Consolidated Statements of Comprehensive Income and Consolidated Statements of Equity. Comprehensive income comprises two subsets: net earnings and other comprehensive income (OCI). OCI includes fair value adjustments to cash flow hedges, as well as actuarial gains or losses and prior service costs related to pension and postretirement benefit plans.

For additional information about comprehensive income see Note 14.

EARNINGS PER SHARE (EPS)

Earnings per share are computed by dividing net earnings by the weighted-average common shares outstanding (basic EPS) or weighted-average common shares outstanding assuming dilution (diluted EPS), as set forth below:

in thousands	2018	2017	2016
Weighted-average common shares outstanding	132,393	132,513	133,205
Dilutive effect of			
SOSARs	963	1,295	1,339
Other stock compensation plans	570	1,070	1,246
Weighted-average common shares outstanding, assuming dilution	133,926	134,878	135,790

All dilutive common stock equivalents are reflected in our earnings per share calculations. In periods of loss, shares that otherwise would have been included in our diluted weighted-average common shares outstanding computation would be excluded.

Antidilutive common stock equivalents are not included in our earnings per share calculations. The number of antidilutive common stock equivalents for which the exercise price exceeds the weighted-average market price for the years ended December 31 is as follows:

in thousands	2018	2017	2016
Antidilutive common stock equivalents	162	79	97

RECLASSIFICATIONS

Certain items previously reported in specific financial statement captions have been reclassified to conform with the 2018 presentation. Refer below to Accounting Standards Recently Adopted (Presentation of Benefit Plan Costs) for the impact of reclassifying certain benefit costs from operating income to nonoperating income in our Statements of Comprehensive Income.

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NEW ACCOUNTING STANDARDS

ACCOUNTING STANDARDS RECENTLY ADOPTED

RELEASING STRANDED TAX EFFECTS During the fourth quarter of 2018, we adopted Accounting Standards Update (ASU) 2018-02, “Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income,” effective as of the beginning of the year. This ASU allowed us to reclassify \$29,629,000 of stranded tax effects due to remeasuring certain deferred tax assets as a result of applying the TCJA enacted in December 2017 from accumulated other comprehensive income (AOCI) to retained earnings.

PRESENTATION OF BENEFIT PLAN COSTS During the first quarter of 2018, we adopted ASU 2017-07, “Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost,” on a retrospective basis as required. This ASU changed the presentation of the net benefit cost in the income statement and limits benefit costs eligible for inventory capitalization to the service cost component (benefit costs capitalized in inventory are immaterial to our financial statements). We continue to present the service cost component of net benefit cost in cost of revenues and selling, administrative and general expense consistent with employee compensation costs. The other components of net benefit cost (credit) are now included in other nonoperating income. These other components were a net credit for all periods presented resulting in a decrease in operating earnings and an increase in other nonoperating income, as follows: 2018 — \$16,539,000; 2017 — \$8,102,000 and 2016 — \$13,715,000.

CLASSIFICATION AND MEASUREMENT OF FINANCIAL INSTRUMENTS During the first quarter of 2018, we adopted ASU 2016-01, “Recognition and Measurement of Financial Assets and Financial Liabilities.” This ASU amends certain aspects of current guidance on the recognition, measurement and disclosure of financial instruments. Among other changes, this ASU requires most equity investments be measured at fair value. Additionally, the ASU eliminates the requirement to disclose the method and significant assumptions used to estimate the fair value for instruments not recognized at fair value in our financial statements. The adoption of this standard had no material impact on our consolidated financial statements.

REVENUE RECOGNITION During the first quarter of 2018, we adopted ASU 2014-09, “Revenue from Contracts with Customers” (ASC Topic 606). Topic 606 outlines a single comprehensive model for entities to use in accounting for revenue arising from contracts with customers and supersedes most current revenue recognition guidance, including industry-specific guidance. Additionally, it provides a more robust framework for addressing revenue issues and expands required revenue recognition disclosures. We adopted this standard using the cumulative effect transition approach; however, because there was no change in the identified performance obligations under Topic 606 compared with the identification of deliverables and separate units of account under previous guidance (Topic 605), the amount and timing of our revenues remain materially unchanged. Our expanded revenue disclosure is presented in Note 2.

ACCOUNTING STANDARDS PENDING ADOPTION

DEFINED BENEFIT PLANS In August 2018, the Financial Accounting Standards Board (FASB) issued ASU 2018-14, “Changes to the Disclosure Requirements for Defined Benefit Plans,” which adds, removes and clarifies the disclosure requirements for employers that sponsor defined benefit pension and other postretirement benefit plans. ASU 2018-14 is effective for fiscal years ending after December 15, 2020 and is to be applied retrospectively. Early adoption is permitted. While we are still evaluating the impact of ASU 2018-14 and whether we will early adopt, it will not impact our consolidated financial statements as it only affects disclosure. Thus, the adoption of this standard will have a minor impact on the notes to our consolidated financial statements, specifically, our benefit plans note.

CREDIT LOSSES In June 2016, the FASB issued ASU 2016-13, “Measurement of Credit Losses on Financial Instruments,” which amends guidance on the impairment of financial instruments. The new guidance estimates credit

losses based on expected losses, modifies the impairment model for available-for-sale debt securities and provides for a simplified accounting model for purchased financial assets with credit deterioration. ASU 2016-13 is effective for annual reporting periods beginning after December 15, 2019, and interim reporting periods within those annual reporting periods. We do not expect the adoption of this standard to have a material impact on our consolidated financial statements.

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LEASE ACCOUNTING In February 2016, the FASB issued ASU 2016-02, “Leases,” which amends existing accounting standards for lease accounting and adds additional disclosures about leasing arrangements. Under the new guidance, lessees are required to recognize lease assets and lease liabilities on the balance sheet for all leases (with certain exclusions, including mineral leases) with terms longer than 12 months. Leases will be classified as either finance or operating, with classification affecting the pattern of expense recognition in the income statement and presentation of cash flow in the statement of cash flows. This ASU is effective for annual reporting periods beginning after December 15, 2018, and interim reporting periods within those annual reporting periods.

We will adopt this standard in the first quarter of 2019 utilizing the comparatives transition option under ASC 840. Under this transition approach, we will not restate our comparative periods in the period of adoption. We currently expect to recognize operating lease liabilities of approximately \$430,000,000, with corresponding right-of-use assets of the same amount based on the present value of the remaining minimum rental payments under current leasing standards for existing operating leases.

We expect to elect the ‘package of practical expedients’, which permits us not to reassess under the new standard our prior conclusions about lease identification, lease classification, and initial direct costs. Also, we expect to elect the use of the practical expedient pertaining to land easements. We do not expect to elect the use-of-hindsight practical expedient. The new standard also provides practical expedients for an entity’s ongoing accounting. We currently expect to elect the short-term lease recognition exemption for all equipment leases. This means, for those leases that qualify, we will not recognize right-of-use assets or lease liabilities, and this includes not recognizing right-of-use assets or lease liabilities for existing short-term leases of those assets in transition. We also currently expect to elect the practical expedient to not separate lease and non-lease components for all of our leases.

NOTE 2: REVENUES

There have been no significant changes to the amount or timing of our revenue recognition as a result of our adoption of ASU 2014-09, “Revenue from Contracts with Customers” (Accounting Standards Codification Topic 606). Revenues are measured as the amount of consideration we expect to receive in exchange for transferring goods or providing services. Sales and other taxes we collect are excluded from revenues. Costs to obtain and fulfill contracts (primarily asphalt construction paving contracts) are immaterial and are expensed as incurred when the expected amortization period is one year or less.

Total revenues are primarily derived from our product sales of aggregates (crushed stone, sand and gravel, sand and other aggregates), asphalt mix and ready-mixed concrete, and include freight & delivery costs that we pass along to our customers to deliver these products. We also generate service revenues from our asphalt construction paving business and service revenues related to our aggregates business, such as landfill tipping fees. Our total service revenues were as follows: 2018 — \$198,897,000, 2017 — \$113,422,000 and 2016 — \$42,904,000. The increased service revenues resulted from acquisitions that included asphalt construction paving businesses (2018 – Alabama and Texas, and 2017 – Tennessee, See Note 19).

Our products typically are sold to private industry and not directly to governmental entities. Although approximately 45% to 55% of our aggregates shipments have historically been used in publicly-funded construction, such as highways, airports and government buildings, relatively insignificant sales are made directly to federal, state, county or municipal governments/agencies. Therefore, although reductions in state and federal funding can curtail publicly-funded construction, our aggregates business is not directly subject to renegotiation of profits or termination

of contracts with state or federal governments.

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Our segment total revenues by geographic market for the years ended December 31, 2018, 2017 and 2016 are disaggregated as follows:

For the Year Ended December 31, 2018

in thousands	Aggregates	Asphalt	Concrete	Calcium	Total
Total Revenues by Geographic Market 1					
East Gulf Coast	\$ 1,109,489	\$ 156,591	\$ 257,250	\$ 0	\$ 1,523,330
West	\$ 821,853	131,745	71,739	8,110	2,033,447
Segment sales	\$ 1,823,307	444,846	73,010	0	1,100,163
Intersegment sales	\$ 3,513,649	\$ 733,182	\$ 401,999	\$ 8,110	\$ 4,656,940
Total revenues	(\$ 274,071)	0	0	0	(274,071)
	\$ 3,239,578	\$ 733,182	\$ 401,999	\$ 8,110	\$ 4,382,869

For the Year Ended December 31, 2017

in thousands	Aggregates	Asphalt	Concrete	Calcium	Total
Total Revenues by Geographic Market 1					
East Gulf Coast	\$ 1,045,682	\$ 112,673	\$ 244,568	\$ 0	\$ 1,402,923
West	\$ 512,505	80,311	102,716	7,740	1,703,272
Segment sales	\$ 1,379,077	429,090	70,461	0	1,037,458
Intersegment sales	\$ 3,096,094	\$ 622,074	\$ 417,745	\$ 7,740	\$ 4,143,653
Total revenues	(\$ 253,357)	0	0	0	(253,357)
	\$ 2,842,737	\$ 622,074	\$ 417,745	\$ 7,740	\$ 3,890,296

For the Year Ended December 31, 2016

in thousands	Aggregates	Asphalt	Concrete	Calcium	Total
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Total Revenues
by Geographic
Market 1

East	\$ 994,559	\$ 0	\$ 203,734	\$ 0	\$ 1,198,293
Gulf Coast	\$ 497,762	102,035	99,253	8,860	1,707,910
West	\$ 469,514	410,275	27,138	0	906,927
Segment sales	\$ 2,961,835	\$ 512,310	\$ 330,125	\$ 8,860	\$ 3,813,130
Intersegment sales	\$(220,463)	0	0	0	(220,463)
Total revenues	\$ 2,741,372	\$ 512,310	\$ 330,125	\$ 8,860	\$ 3,592,667

1 The geographic markets are defined by states/countries as follows:

East market — Arkansas, Delaware, Illinois, Kentucky, Maryland, North Carolina, Pennsylvania, Tennessee, Virginia, and Washington D.C.

Gulf Coast market — Alabama, Florida, Georgia, Louisiana, Mexico, Mississippi, Oklahoma, South Carolina, Texas and the Bahamas

West market — Arizona, California and New Mexico

PRODUCT AND SERVICE REVENUES

Revenue is recognized when obligations under the terms of a contract with our customer are satisfied; generally this occurs at a point in time when our aggregates, asphalt mix and ready-mixed concrete are shipped/delivered and control passes to the customer. Revenue for our products and services is recorded at the fixed invoice amount and is due by the 15th day of the following month — we do not offer discounts for early payment. Freight & delivery generally represents pass-through transportation we incur (including our administrative costs) and pay to third-party carriers to deliver our products to customers and are accounted for as a fulfillment activity. Likewise, the cost related to freight & delivery are included in cost of revenues.

Freight & delivery revenues are as follows:

in thousands	2018	2017	2016
Freight & Delivery Revenues Total			
revenues	\$ 4,382,869	\$ 3,890,296	\$ 3,592,667
Freight & delivery revenues ¹	(641,815)	(528,916)	(535,929)
Total revenues excluding freight & delivery	\$ 3,741,054	\$ 3,361,380	\$ 3,056,738

¹ Includes freight & delivery to remote distribution sites.

CONSTRUCTION PAVING REVENUES

Revenue from our asphalt construction paving business is recognized over time using the percentage-of-completion method under the cost approach. The percentage of completion is determined by costs incurred to date as a percentage of total costs estimated for the project. Under this approach, recognized contract revenue equals the total estimated contract revenue multiplied by the percentage of completion. Our construction contracts are unit priced and an account receivable is recorded for amounts invoiced based on actual units produced. Contract assets for estimated earnings in excess of billings, contract assets related to retainage provisions and contract liabilities for billings in excess of costs are immaterial. Variable consideration in our construction paving contracts is immaterial and consists of incentives and penalties based on the quality of work performed. Our construction paving contracts may contain warranty provisions covering defects in equipment, materials, design or workmanship that generally run from nine months to one year after project completion. Due to the nature of our construction paving projects, including contract owner inspections of the work during construction and prior to acceptance, we have not experienced material warranty costs for these short-term warranties.

VOLUMETRIC PRODUCTION PAYMENT REVENUES

In 2013 and 2012, we sold a percentage interest in certain future aggregates production for net cash proceeds of \$226,926,000. These transactions, structured as volumetric production payments (VPPs):

- § relate to eight quarries in Georgia and South Carolina
- § provide the purchaser solely with a nonoperating percentage interest in the subject quarries' future aggregates production
- § contain no minimum annual or cumulative guarantees by us for production or sales volume, nor minimum sales price
- §

are both volume and time limited (we expect the transactions will last approximately 25 years, limited by volume rather than time)

We are the exclusive sales agent for, and transmit quarterly to the purchaser the proceeds from the sale of, the purchaser's share of future aggregates production. Our consolidated total revenues exclude the revenue from the sale of the purchaser's share of aggregates.

The proceeds we received from the sale of the percentage interest were recorded as deferred revenue on the balance sheet. We recognize revenue on a unit-of-sales basis (as we sell the purchaser's share of future production) relative to the volume limitations of the transactions. Given the nature of the risks and potential rewards assumed by the buyer, the transactions do not reflect financing activities.

Reconciliation of the VPP deferred revenue balances (current and noncurrent) is as follows:

in thousands	2018	2017	2016
Deferred Revenue			
Balance at beginning of year	\$ 199,556	\$ 206,468	\$ 214,060
Revenue recognized from deferred revenue	(6,773)	(6,912)	(7,592)
Balance at end of year	\$ 192,783	\$ 199,556	\$ 206,468

Based on expected sales from the specified quarries, we expect to recognize \$7,500,000 of VPP deferred revenue as income in 2019 (reflected in other current liabilities in our December 31, 2018 Consolidated Balance Sheet).

NOTE 3: INVENTORIES

Inventories at December 31 are as follows:

in thousands	2018	2017
Inventories		
Finished products ¹	\$ 372,604	\$ 327,711
Raw materials	27,942	27,152
Products in process	3,064	1,827
Operating supplies and other	25,720	27,648
Total	\$ 429,330	\$ 384,338

¹ Includes inventories encumbered by volumetric production payments (see Note 2), as follows: December 31, 2018 — \$3,230 thousand and December 31, 2017 — \$2,808 thousand.

In addition to the inventory balances presented above, as of December 31, 2018 and December 31, 2017, we have \$9,980,000 and \$11,810,000, respectively, of inventory classified as long-term assets (other noncurrent assets) as we do not expect to sell the inventory within one year of their respective balance sheet dates. Inventories valued under the LIFO method total \$308,257,000 at December 31, 2018 and \$252,808,000 at December 31, 2017. During 2018, 2017 and 2016, inventory reductions resulted in liquidations of LIFO inventory layers carried at lower costs prevailing in prior years as compared to current-year costs. The effect of the LIFO liquidation on 2018 results was to increase cost of revenues by \$132,000 and decrease net earnings by \$99,000. The effect of the LIFO liquidation on 2017 results was to decrease cost of revenues by \$2,714,000 and increase net earnings by \$1,662,000. The effect of the LIFO liquidation on 2016 results was to decrease cost of revenues by \$3,956,000 and increase net earnings by \$2,419,000.

Estimated current cost exceeded LIFO cost at December 31, 2018 and 2017 by \$175,844,000 and \$168,829,000, respectively. We use the LIFO method of valuation for most of our inventories as it results in a better matching of costs with revenues. In periods of increasing costs, LIFO generally results in higher cost of revenues than under FIFO. In periods of decreasing costs, the results are generally the opposite. We provide supplemental income disclosures to facilitate comparisons with companies not on LIFO. The supplemental income calculation is derived by tax-affecting the change in the LIFO reserve for the periods presented. If all inventories valued at LIFO cost had been valued under first-in, first-out (FIFO) method, the approximate effect on net earnings would have been an increase of \$5,223,000 in 2018, an increase of \$8,092,000 in 2017 and a decrease of \$(8,338,000) in 2016.

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NOTE 4: PROPERTY, PLANT & EQUIPMENT

Balances of major classes of assets and allowances for depreciation, depletion and amortization at December 31 are as follows:

in thousands	2018	2017
Property, Plant & Equipment		
Land and land improvements		
1	\$ 2,823,092	\$ 2,742,285
Buildings	139,948	135,655
Machinery and equipment	5,106,918	4,740,212
Leasehold improvements	18,217	17,354
Deferred asset retirement costs	183,324	172,631
Construction in progress	186,120	161,175
Total, gross	\$ 8,457,619	\$ 7,969,312
Less allowances for depreciation, depletion and amortization	4,220,312	4,050,381
Total, net	\$ 4,237,307	\$ 3,918,931

1 Includes depletable land, as follows: December 31, 2018 — \$1,626,899 thousand and December 31, 2017 — \$1,606,303 thousand.

Capitalized interest costs with respect to qualifying construction projects and total interest costs incurred before recognition of the capitalized amount for the years ended December 31 are as follows:

in thousands	2018	2017	2016
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Capitalized interest cost\$	3,674	\$	5,177	\$	7,468
Total interest cost incurred before recognition of the capitalized amount	141,651		300,699		141,544

NOTE 5: DERIVATIVE INSTRUMENTS

During the normal course of operations, we are exposed to market risks including interest rates, foreign currency exchange rates and commodity prices. From time to time, and consistent with our risk management policies, we use derivative instruments to balance the cost and risk of such expenses. We do not use derivative instruments for trading or other speculative purposes.

In 2007 and 2018, we entered into interest rate locks of future debt issuances to hedge the risk of higher interest rates. These interest rate locks were designated as cash flow hedges. The gain/loss upon settlement of these interest rate hedges is deferred (recorded in AOCI) and amortized to interest expense over the term of the related debt.

This amortization was reflected in the accompanying Consolidated Statements of Comprehensive Income for the years ended December 31 as follows:

in thousands	Location on Statement	2018	2017	2016
Interest Rate Hedges Loss reclassified from AOCI (effective portion)	Interest expense	\$ (306)	\$ (3,070)	\$ (2,008)

The 2017 loss reclassified from AOCI includes the acceleration of deferred losses in the amount of \$1,405,000 referable to the debt purchase as described in Note 6.

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For the 12-month period ending December 31, 2019, we estimate that \$308,000 of the \$11,180,000 pretax loss in AOCI will be reclassified to interest expense.

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NOTE 6: DEBT

Debt at December 31 is detailed as follows:

in thousands	Effective Interest Rates	2018	2017
Short-term Debt			
Bank line of credit expires			
2021 1, 2	1.25%	\$ 133,000	\$ 0
Total short-term debt			
		\$ 133,000	\$ 0
Long-term Debt			
Bank line of credit expires			
2021 1		\$ 0	\$ 250,000
Term loan due 2018 3			
		0	350,000
Floating-rate notes due			
2020	3.50%	250,000	250,000
Floating-rate notes due			
2021	3.71%	500,000	0
7.50% notes due 2021			
		0	35,111
8.85% notes due 2021			
	8.88%	6,000	6,000
Term loan due 2021			
		0	250,000
4.50% notes due 2025			
	4.65%	400,000	400,000
3.90% notes due 2027			
	4.00%	400,000	400,000
7.15% notes due 2037			
	8.05%	129,239	240,188
4.50% notes due 2047			
	4.59%	700,000	700,000
4.70% notes due 2048			
	5.42%	460,949	0
Other notes			
	6.46%	208	230
		\$ 2,846,396	\$ 2,881,529

Total long-term debt - face value		
Unamortized discounts and debt issuance costs	(67,016)	(26,664)
Total long-term debt - book value	\$ 2,779,380	\$ 2,854,865
Less current maturities	23	41,383
Total long-term debt - reported value	\$ 2,779,357	\$ 2,813,482
Estimated fair value of long-term debt	\$ 2,695,802	\$ 2,983,419

- 1 Borrowings on the bank line of credit are classified as short-term debt if we intend to repay within twelve months and as long-term debt if we have the intent and ability to extend payment beyond twelve months.
- 2 The effective interest rate reflects the margin above LIBOR for LIBOR-based borrowings. We also paid upfront fees that are amortized to interest expense and pay fees for unused borrowing capacity and standby letters of credit.
- 3 This short-term loan was refinanced on a long-term basis in February 2018 as discussed below. Thus, it was classified as long-term debt as of December 31, 2017.

Discounts and debt issuance costs are amortized using the effective interest method over the terms of the respective notes resulting in \$5,161,000 and \$9,808,000, respectively, of net interest expense for these items for 2018 and 2017.

LINE OF CREDIT

Our unsecured \$750,000,000 line of credit matures December 2021 and contains affirmative, negative and financial covenants customary for an unsecured investment-grade facility. The primary negative covenant limits our ability to incur secured debt. The financial covenants are: (1) a maximum ratio of debt to EBITDA of 3.5:1 (upon certain acquisitions, the maximum ratio can be 3.75:1 for three quarters), and (2) a minimum ratio of EBITDA to net cash interest expense of 3.0:1. As of December 31, 2018, we were in compliance with the line of credit covenants.

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Borrowings on our line of credit are classified as short-term debt if we intend to repay within twelve months and as long-term debt if we have the intent and ability to extend repayment beyond twelve months. Borrowings bear interest, at our option, at either LIBOR plus a credit margin ranging from 1.00% to 1.75%, or SunTrust Bank's base rate (generally, its prime rate) plus a credit margin ranging from 0.00% to 0.75%. The credit margin for both LIBOR and base rate borrowings is determined by our credit ratings. Standby letters of credit, which are issued under the line of credit and reduce availability, are charged a fee equal to the credit margin for LIBOR borrowings plus 0.175%. We also pay a commitment fee on the daily average unused amount of the line of credit that ranges from 0.10% to 0.25% determined by our credit ratings. As of December 31, 2018, the credit margin for LIBOR borrowings was 1.25%, the credit margin for base rate borrowings was 0.25%, and the commitment fee for the unused amount was 0.15%.

As of December 31, 2018, our available borrowing capacity was \$572,021,000. Utilization of the borrowing capacity was as follows:

§ \$133,000,000 was borrowed

§ \$44,979,000 was used to provide support for outstanding standby letters of credit

TERM DEBT

All of our \$2,846,396,000 (face value) of term debt is unsecured. \$2,846,188,000 of such debt is governed by three essentially identical indentures that contain customary investment-grade type covenants. The primary covenant in all three indentures limits the amount of secured debt we may incur without ratably securing such debt. As of December 31, 2018, we were in compliance with all term debt covenants.

In December 2018, we completed an exchange offer in which all of the \$460,949,000 of 4.70% senior unregistered notes due 2048 (issued in February 2018 and March 2018 as described below) were exchanged for new registered notes of like principal amount and like denomination as the unregistered notes, with substantially identical terms. We did not receive any proceeds from the issuance of the new notes.

In March 2018, we early retired via exchange offer \$110,949,000 of the \$240,188,000 7.15% senior notes due 2037 for: (1) a like amount of notes due 2048 (these notes are a further issuance of, and form a single series with, the \$350,000,000 of 4.70% senior notes due 2048 issued in February 2018 as described below, and (2) \$38,164,000 of cash. The cash payment primarily reflects the trading price of the retired notes relative to par and will be amortized to interest expense over the term of the notes due 2048. We recognized transaction costs of \$1,314,000 with this early retirement.

In February 2018, we issued \$350,000,000 of 4.70% senior notes due 2048 (these notes now total \$460,949,000 including the notes issued in March as described above) and \$500,000,000 of floating-rate senior notes due 2021. Total proceeds of \$846,029,000 (net of discounts, transaction costs and an interest rate derivative settlement gain), together with cash on hand, were used to retire/repay without penalty or premium: (1) the \$350,000,000 term loan due 2018, (2) the \$250,000,000 term loan due 2021, and (3) the \$250,000,000 bank line of credit borrowings. We recognized noncash expense of \$203,000 with the acceleration of unamortized deferred transaction costs.

In January 2018, we early retired via redemption the remaining \$35,111,000 of the 7.50% senior notes due 2021 at a cost of \$40,719,000 including a premium of \$5,608,000. Additionally, we recognized noncash expense of \$263,000 with the acceleration of unamortized deferred transaction costs.

As a result of the first quarter 2018 early debt retirements described above, we recognized premiums of \$5,608,000, transaction costs of \$1,314,000 and noncash expense (acceleration of unamortized deferred transaction costs) of \$466,000. The combined charge of \$7,388,000 was a component of interest expense for the year ended December 31, 2018.

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In December 2017, we early retired via tender offer \$564,889,000 of the \$600,000,000 7.50% senior notes due 2021 at a cost of \$662,613,000 including a premium of \$96,167,000 and transaction costs of \$1,558,000. Additionally, we recognized noncash expense of \$4,228,000 with the acceleration of unamortized deferred transaction costs.

Also in December 2017, we entered into a 6-month \$350,000,000 unsecured term loan with one of the banks that provides our line of credit. Proceeds were used for general corporate purposes. This term loan was prepaid, as described above, in February 2018 with the proceeds of the 4.70% senior notes due 2048.

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In July 2017, we early retired via redemption: (1) the \$272,512,000 7.00% senior notes due 2018 and (2) the \$250,000,000 10.375% senior notes due 2018 (neither of which now appear in the table above) — at a combined cost of \$565,560,000 including a premium of \$43,020,000 and transaction costs of \$28,000. Additionally, we recognized noncash expense of \$3,029,000 with the acceleration of unamortized deferred discounts, transaction costs and interest rate derivative settlement losses. Such redemptions were partially funded with the proceeds of the senior notes issued in June 2017 as described below.

In June 2017, we issued \$1,000,000,000 of debt composed of three issuances as follows: (1) \$700,000,000 of 4.50% senior notes due 2047, (2) \$50,000,000 of 3.90% senior notes due 2027 (these notes are a further issuance of, and form a single series with, the 3.90% notes issued in March 2017), and (3) \$250,000,000 of floating-rate senior notes due 2020. Total proceeds of \$989,512,000 (net of discounts/premiums and transaction costs) were used to partially finance an acquisition and to early retire the notes due in 2018 as described above.

In June 2017, we drew the full \$250,000,000 on the unsecured delayed draw term loan due 2021. These funds were used to repay the \$235,000,000 line of credit borrowings and for general corporate purposes. This term loan was repaid, as described above, in February 2018 with proceeds of the floating-rate senior notes due 2021.

In March 2017, we issued \$350,000,000 of 3.90% senior notes due 2027. Proceeds of \$345,450,000 (net of discounts and transaction costs) were used for general corporate purposes. This series of notes now totals \$400,000,000 including the additional \$50,000,000 issued in June as described above.

As a result of the 2017 early debt retirements described above, we recognized premiums of \$139,187,000, transaction costs of \$1,586,000 and noncash expense (acceleration of unamortized deferred transaction costs) of \$7,257,000. The combined charge of \$148,030,000 was a component of interest expense for the year ended December 31, 2017.

The total scheduled (principal and interest) debt payments, excluding the line of credit, for the five years subsequent to December 31, 2018 are as follows:

in thousands	Total	Principal	Interest
Scheduled Debt Payments (excluding the line of credit)			
2019	\$ 121,629	\$ 23	\$ 121,606
2020	366,366	250,025	116,341
2021	606,312	506,026	100,286
2022	96,041	28	96,013
2023	96,041	30	96,011

STANDBY LETTERS OF CREDIT

We provide, in the normal course of business, certain third-party beneficiaries with standby letters of credit to support our obligations to pay or perform according to the requirements of an underlying agreement. Such letters of credit

typically have an initial term of one year, typically renew automatically, and can only be modified or canceled with the approval of the beneficiary. All of our standby letters of credit are issued by banks that participate in our \$750,000,000 line of credit, and reduce the borrowing capacity thereunder. Our standby letters of credit as of December 31, 2018 are summarized by purpose in the table below:

in thousands

Standby Letters of
Credit

Risk management

insurance \$ 38,111

Reclamation/restoration

requirements 6,868

Total \$ 44,979

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NOTE 7: OPERATING LEASES

Rental expense from continuing operations under nonmineral operating leases for the years ended December 31, exclusive of rental payments made under leases of one month or less, is summarized as follows:

in thousands	2018	2017	2016
Operating Leases			
Minimum rentals	\$ 76,443	\$ 59,536	\$ 52,713
Contingent rentals (based principally on usage)	54,572	50,822	57,278
Total	\$ 131,015	\$ 110,358	\$ 109,991

Future minimum operating lease payments under all leases with initial or remaining noncancelable lease terms in excess of one year, exclusive of mineral leases (see Note 12), as of December 31, 2018 are payable as follows:

in thousands	
Future Minimum Operating Lease Payments	
2019	\$ 47,979
2020	43,540
2021	35,732
2022	27,463
2023	19,707
Thereafter	195,104
Total	\$ 369,525

Lease agreements frequently include renewal options and require that we pay for utilities, taxes, insurance and maintenance expense. Options to purchase are also included in some lease agreements.

NOTE 8: ACCRUED ENVIRONMENTAL REMEDIATION COSTS

Our Consolidated Balance Sheets as of December 31 include accrued environmental remediation costs (measured on an undiscounted basis) as follows:

in thousands	2018	2017
Accrued Environmental Remediation Costs		
Continuing operations	\$ 39,745	\$ 21,784
Retained from former Chemicals business	10,685	10,704
Total	\$ 50,430	\$ 32,488

The long-term portion of the accruals noted above is included in other noncurrent liabilities in the accompanying Consolidated Balance Sheets and amounted to \$13,597,000 at December 31, 2018 and \$12,760,000 at December 31, 2017. The short-term portion of these accruals is included in other current liabilities in the accompanying Consolidated Balance Sheets.

The accrued environmental remediation costs in continuing operations relate primarily to the former Florida Rock, Tarmac, and CalMat facilities acquired in 2007, 2000 and 1999, respectively. The current increase primarily relates to the Hewitt Landfill Matter, a former CalMat facility. The balances noted above for Chemicals relate to retained environmental remediation costs from the 2003 sale of the Performance Chemicals business and the 2005 sale of the Chloralkali business. Refer to Note 12 for additional discussion of contingent environmental matters.

NOTE 9: INCOME TAXES

The Tax Cuts and Jobs Act (TCJA) was enacted in December 2017. The TCJA, among other changes, (1) reduces the U.S. federal corporate income tax rate from 35% to 21%, (2) allows for the immediate 100% deductibility of certain capital investments, (3) eliminates the alternative minimum tax (though allows for the future use of previously generated alternative minimum tax credits), (4) repeals the domestic production deduction, (5) requires a one-time “transition tax” on earnings of certain foreign subsidiaries that were previously tax deferred, (6) limits the deductibility of interest expense, (7) further limits the deductibility of certain executive compensation and (8) taxes global intangible low taxed income.

The SEC’s Staff Accounting Bulletin (SAB) 118 provided a one-year measurement period from the TCJA enactment date for companies to complete their income tax accounting.

During 2017, we recorded provisional estimates for the following two elements. During 2018 we recorded measurement-period adjustments to finalize these elements as follows:

§ DEEMED REPATRIATION TRANSITION TAX — The TCJA subjected companies to a one-time Deemed Repatriation Transition Tax (Transition Tax) on previously untaxed foreign accumulated earnings. We recorded a provisional Transition Tax obligation of \$12,301,000 at December 31, 2017. In the fourth quarter of 2018, we completed our accounting for this element, which resulted in an insignificant amount of additional income tax expense.

§ DEDUCTIBILITY OF EXECUTIVE COMPENSATION — The TCJA eliminated the performance-based compensation exception from the limitation on covered employee remuneration. As a result, we believe that a portion of the performance-based remuneration accounted for in our deferred taxes will no longer be deductible. As such, we included a provisional expense of \$1,403,000 at December 31, 2017. In the fourth quarter of 2018, we completed our accounting for this element which resulted in an insignificant amount of additional income tax expense.

Our accounting for the following two elements of the TCJA were recognized solely in 2018 as we were unable to make reasonable estimates of the effects during 2017.

§ OUTSIDE BASIS DIFFERENCE IN FOREIGN SUBSIDIARIES — We have previously considered the outside basis difference in our foreign subsidiaries to be indefinitely reinvested (the vast majority of which related to the undistributed earnings of our foreign subsidiaries). For U.S. federal income tax purposes, the Transition Tax (mentioned above) greatly reduced the outside basis difference in our foreign subsidiaries. After passage of the TCJA, if we choose to repatriate any previously taxed or undistributed foreign earnings, we have determined that the deferred tax impacts would be: (1) no U.S. federal income tax, (2) no foreign withholding tax, and (3) an insignificant amount of state income tax. As a result, we have chosen to remove our indefinite reinvestment assertion on the earnings of our foreign subsidiaries. We continue to assert indefinite reinvestment on any outside basis differences in excess of our previously taxed and undistributed foreign subsidiary earnings that may be subject to tax in the future.

§ GLOBAL INTANGIBLE LOW TAXED INCOME — We do not expect to have significant U.S. inclusions in taxable income related to global intangible low taxed income (GILTI). As such, we have made an accounting policy election to treat taxes due on the future U.S. inclusions in taxable income related to GILTI as a current period expense when incurred (period cost method) versus factoring such amounts into our measurement of deferred taxes (deferred method).

During the fourth quarter of 2018, we adopted ASU 2018-02, “Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income,” effective as of the beginning of the year. This ASU allowed us to reclassify \$29,629,000 of stranded tax effects due to remeasuring certain deferred tax assets as a result of applying the TCJA enacted in December 2017 from accumulated other comprehensive income (AOCI) to retained earnings.

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The components of earnings from continuing operations before income taxes are as follows:

in thousands	2018	2017	2016
Earnings from Continuing Operations before Income Taxes			
Domestic	\$ 593,446	\$ 346,668	\$ 513,721
Foreign	29,844	14,648	33,536
Total	\$ 623,290	\$ 361,316	\$ 547,257

Income tax expense (benefit) from continuing operations consists of the following:

in thousands	2018	2017	2016
Income Tax Expense (Benefit) from Continuing Operations			
Current			
Federal	\$ 21,111	\$ (7,416)	\$ 72,506
State and local	15,127	4,661	14,774
Foreign	4,278	3,109	6,974
Total	\$ 40,516	\$ 354	\$ 94,254
Deferred			
Federal	\$ 59,216	\$ (202,184)	\$ 37,246
State and local	8,369	(30,052)	(6,647)
Foreign	(2,652)	(193)	(2)
Total	\$ 64,933	\$ (232,429)	\$ 30,597
Total expense (benefit)	\$ 105,449	\$ (232,075)	\$ 124,851

Income tax expense (benefit) differs from the amount computed by applying the federal statutory income tax rate to earnings from continuing operations before income taxes. The sources and tax effects of the differences are as follows:

dollars in thousands	2018		2017		2016	
Income tax expense at the federal statutory tax rate	\$ 130,891	21.0%	\$ 126,461	35.0%	\$ 191,540	35.0%
Expense (Benefit) from Income Tax Differences						
Statutory depletion	(21,733)	-3.5%	(28,995)	-8.0%	(32,230)	-5.9%

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State and local income taxes, net of federal income tax benefit	18,562	3.0%	8,115	2.2%	10,074	1.9%
Share-based compensation	(16,551)	-2.7%	(20,740)	-5.7%	(22,443)	-4.1%
Uncertain tax positions	(6,402)	-1.0%	1,062	0.3%	1,272	0.2%
Revaluation - deferred tax balances	0	0.0%	(301,567)	-83.5%	0	0.0%
AL NOL valuation allowance release	0	0.0%	(28,827)	-8.0%	(4,791)	-0.9%
U.S. production deduction	0	0.0%	2,452	0.7%	(8,790)	-1.6%
Transition tax	595	0.1%	12,301	3.4%	0	0.0%
Foreign tax credit carryforward	0	0.0%	0	0.0%	(6,513)	-1.2%
Other, net	87	0.0%	(2,337)	-0.6%	(3,268)	-0.6%
Total income tax expense (benefit)/						
Effective tax rate	\$ 105,449	16.9%	\$ (232,075)	-64.2%	\$ 124,851	22.8%

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Deferred taxes on the balance sheet result from temporary differences between the amount of assets and liabilities recognized for financial reporting and tax purposes. The components of the net deferred income tax liability at December 31 are as follows:

in thousands	2018	2017
Deferred Tax Assets Related to		
Employee benefits	\$ 24,407	\$ 29,547
Incentive compensation	62,829	59,010
Asset retirement obligations & other reserves	55,822	47,116
State net operating losses	68,436	73,083
Federal credit carryforwards	0	51,284
Other	31,294	37,518
Total gross deferred tax assets	\$ 242,788	\$ 297,558
Valuation allowance	(29,680)	(29,723)
Total net deferred tax asset	\$ 213,108	\$ 267,835
Deferred Tax Liabilities Related to		
Property, plant & equipment	\$ 510,604	\$ 490,459
Goodwill/other intangible assets	233,471	216,039
Other	36,316	25,418
Total deferred tax liabilities	\$ 780,391	\$ 731,916
Net deferred tax liability	\$ 567,283	\$ 464,081

Each quarter we analyze the likelihood that our deferred tax assets will be realized. A valuation allowance is recorded if, based on the weight of all available positive and negative evidence, it is more likely than not (a likelihood of more than 50%) that some portion, or all, of a deferred tax asset will not be realized. At December 31, 2018, we have Alabama state net operating loss (NOL) carryforward deferred tax assets of \$65,577,000, against which we have a valuation allowance of \$29,183,000. At this time, we do not expect any future adjustment to this valuation allowance. The Alabama NOL carryforward, if not utilized, would expire between 2023 and 2032.

Changes in our liability for unrecognized tax benefits for the years ended December 31 are as follows:

in thousands	2018	2017	2016
Unrecognized tax benefits as of January 1	\$ 11,643	\$ 10,828	\$ 8,447
Increases for tax positions related to			
Prior years	0	27	1,368
Current year	698	1,039	1,040
Decreases for tax positions related to			
Prior years	(655)	(204)	0
Settlements with taxing authorities	0	0	0
Expiration of applicable statute of limitations	(8,025)	(47)	(27)

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Unrecognized tax benefits as of December 31	\$	3,661	\$	11,643	\$	10,828
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We classify interest and penalties recognized on the liability for unrecognized tax benefits as income tax expense. Interest and penalties recognized as income tax expense (benefit) were \$(1,477,000) in 2018, \$420,000 in 2017 and \$266,000 in 2016. The balance of accrued interest and penalties included in our liability for unrecognized tax benefits as of December 31 was \$312,000 in 2018, \$1,789,000 in 2017 and \$1,369,000 in 2016. Our liability for unrecognized tax benefits at December 31 in the table above include \$3,481,000 in 2018, \$10,673,000 in 2017 and \$9,884,000 in 2016 that would affect the effective tax rate if recognized. We anticipate no single tax position generating a significant increase in our liability for unrecognized tax benefits within 12 months of this reporting date.

As of December 31, 2018, income tax receivables of \$922,000 are included in other accounts and notes receivable in the accompanying Consolidated Balance Sheet. There were similar receivables of \$106,980,000 (\$106,000,000 related to 2017 federal estimated payments which were refunded early 2018) as of December 31, 2017.

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NOTE 10: BENEFIT PLANS

PENSION PLANS

We sponsor three qualified, noncontributory defined benefit pension plans. These plans cover substantially all employees hired before July 2007, other than those covered by union-administered plans. Normal retirement age is 65, but the plans contain provisions for earlier retirement. Benefits for the Salaried Plan and the Chemicals Hourly Plan are generally based on salaries or wages and years of service; the Construction Materials Hourly Plan provides benefits equal to a flat dollar amount for each year of service. In addition to these qualified plans, we sponsor three unfunded, nonqualified pension plans. The projected benefit obligation presented in the table below includes \$71,435,000 and \$82,136,000 related to these unfunded, nonqualified pension plans for 2018 and 2017, respectively.

Effective July 2007, we amended our defined benefit pension plans to no longer accept new participants. Future benefit accruals for participants in our salaried defined benefit pension plan ceased on December 31, 2013, while salaried participants' earnings considered for benefit calculations were frozen on December 31, 2015.

The following table sets forth the combined funded status of the plans and their reconciliation with the related amounts recognized in our consolidated financial statements at December 31:

in thousands	2018	2017
Change in Benefit Obligation Projected benefit obligation at beginning of year	\$ 1,091,223	\$ 1,006,674
Service cost	5,716	6,715
Interest cost	35,503	36,230
Plan amendment	0	10,869
Actuarial (gain) loss	(118,827)	81,969
Benefits paid	(54,679)	(51,234)
Projected benefit obligation at end of year	\$ 958,936	\$ 1,091,223
Change in Fair Value of Plan Assets		
Fair value of assets at beginning of	\$ 840,901	\$ 749,515

year		
Actual return on		
plan assets	(59,083)	122,597
Employer		
contribution	109,631	20,023
Benefits paid	(54,679)	(51,234)
Fair value of		
assets at end of		
year	\$ 836,770	\$ 840,901
Funded status	(122,166)	(250,322)
Net amount		
recognized	\$ (122,166)	\$ (250,322)
Amounts		
Recognized in		
the		
Consolidated		
Balance Sheets		
Noncurrent		
assets	\$ 6,488	\$ 4,605
Current		
liabilities	(9,067)	(9,478)
Noncurrent		
liabilities	(119,587)	(245,449)
Net amount		
recognized	\$ (122,166)	\$ (250,322)
Amounts		
Recognized in		
Accumulated		
Other		
Comprehensive		
Income		
Net actuarial		
loss	\$ 240,199	\$ 250,581
Prior service		
cost	7,828	9,167
Total amount		
recognized	\$ 248,027	\$ 259,748

1 Effective January 2017, we amended the Construction Materials Hourly Plan to increase the multiplier for years of service.

The accumulated benefit obligation (ABO) and the projected benefit obligation (PBO) exceeded plan assets for all of our defined benefit plans at December 31, 2018 and December 31, 2017, except for one where the plan assets exceeded the ABO by \$6,525,000 and \$5,346,000, respectively. The ABO for all of our defined benefit pension plans totaled \$958,899,000 (unfunded, nonqualified plans of \$71,435,000) at December 31, 2018 and \$1,090,482,000 (unfunded, nonqualified plans of \$82,136,000) at December 31, 2017.

The following table sets forth the components of net periodic benefit cost, amounts recognized in other comprehensive income and weighted-average assumptions of the plans at December 31:

dollars in thousands	2018	2017	2016
Components of Net Periodic Pension Benefit Cost			
Service cost	\$ 5,716	\$ 6,715	\$ 5,343
Interest cost	35,503	36,230	36,505
Expected return on plan assets	(59,188)	(48,506)	(51,562)
Amortization of prior service cost (credit)	1,340	1,340	(43)
Amortization of actuarial loss	9,826	7,397	6,163
Net periodic pension benefit cost (credit)	\$ (6,803)	\$ 3,176	\$ (3,594)
Changes in Plan Assets and Benefit Obligations Recognized in Other Comprehensive Income			
Net actuarial loss (gain)	\$ (555)	\$ 7,879	\$ 33,682
Prior service cost	0	10,868	0
Reclassification of prior service (cost) credit	(1,340)	(1,340)	43
Reclassification of actuarial loss	(9,826)	(7,397)	(6,163)
Amount recognized in			

other comprehensive income	\$ (11,721)	\$ 10,010	\$ 27,562
Amount recognized in net periodic pension benefit cost and other comprehensive income	\$ (18,524)	\$ 13,186	\$ 23,968
Assumptions			
Weighted-average assumptions used to determine net periodic benefit cost for years ended December 31			
Discount rate — PBO	3.72%	4.29%	4.55%
Discount rate — service cost	3.90%	4.63%	4.68%
Discount rate — interest cost	3.35%	3.63%	3.79%
Expected return on plan assets	7.00%	7.00%	7.50%
Weighted-average assumptions used to determine benefit obligation at December 31			
Discount rate	4.39%	3.72%	4.29%

The estimated net actuarial loss and prior service cost that will be amortized from accumulated other comprehensive income into net periodic pension benefit cost (credit) during 2019 are \$4,933,000 and \$1,339,000, respectively.

Plan assets are invested according to an investment policy that allocates investments in return seeking assets and liability hedging assets based on the plans' funded ratio (fair value of assets/PBO). Return seeking assets include public and private equity securities, public and private debt securities, and commodities. Liability hedging assets include money market securities, inflation linked debt securities, public corporate debt securities, and government debt securities.

At each measurement date, we estimate the net asset values and fair values of our pension assets using various valuation techniques. For certain investments, we use the net asset value as a practical expedient to estimating fair value. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. The fair value hierarchy prioritizes the inputs to valuation techniques used to measure fair value into three broad levels as described below:

- Level 1: Quoted prices in active markets for identical assets or liabilities
- Level 2: Inputs that are derived principally from or corroborated by observable market data
- Level 3: Inputs that are unobservable and significant to the overall fair value measurement

The fair values and net asset values of our pension plan assets at December 31, 2018 and 2017 are in the tables below. The assets in the common/collective trusts and in the private partnerships consist of both return seeking and liability hedging investments. At December 31, 2018, the total pension asset allocation was approximately 70% return seeking and 30% liability hedging, compared to the December 31, 2017 allocation of approximately 80% return seeking and 20% liability hedging. Based on the funded ratio at December 31, 2018, we are in process of shifting the asset allocation to approximately 55% return seeking and 45% liability hedging.

Fair Value Measurements at December 31, 2018

in thousands	Level 1	Level 2	Level 3	Total
Asset Category				
Debt				
fund	\$ 0	\$ 168,953	\$ 0	\$ 168,953
Commodity				
fund	0	14,697	0	14,697
Equity				
fund	246	135,656	0	135,902
Investments				
in the fair value hierarchy	246	\$ 319,306	\$ 0	\$ 319,552
Interest in common/collective trusts (at NAV)				462,566
				54,652

Private partnerships
 (at NAV)
 Total
 pension
 plan
 assets \$ 836,770
 Fair Value Measurements at December 31, 2017

in thousands	Level 1	Level 2	Level 3	Total
Asset Category				
Debt funds	\$ 0	\$ 178,512	\$ 0	\$ 178,512
Commodity fund	0	17,041	0	17,041
Equity funds	1,089	143,010	0	144,099
Investments in the fair value hierarchy	1,089	\$ 338,563	\$ 0	\$ 339,652
Interest in common/collective trusts (at NAV)				416,397
Private partnerships (at NAV)				84,852
Total pension plan assets				\$ 840,901

The following describes the types of investments included in each asset category listed in the tables above and the valuation techniques we used to determine the fair values or net asset values as of December 31, 2018 and 2017.

The debt funds category consists of U.S. federal, state and local government debt securities, corporate debt securities, foreign government debt securities, and asset-backed securities. The fair values of U.S. government and corporate debt securities are based on current market rates and credit spreads for debt securities with similar maturities. The fair values of debt securities issued by foreign governments are based on prices obtained from broker/dealers and international indices. The fair values of asset-backed securities are priced using prepayment speed and spread inputs that are sourced from the new issue market.

The commodity funds category consists of a single open-end commodity mutual fund. The equity funds category consists of a mutual fund investing in domestic equities. For investment funds publicly traded on a national securities exchange, the fair value is based on quoted market prices. For investment funds not traded on an exchange, the total fair value of the underlying securities is used to determine the net asset value for each unit of the fund held by the pension fund. The estimated fair values of the underlying securities are generally valued based on quoted market prices. For securities without quoted market prices, other observable market inputs are used to determine the fair value.

Common/collective trust fund investments consist of index funds for domestic equities, an actively managed fund for international equities, and a short-term investment fund for highly liquid, short-term debt securities. Investments are valued at the net asset value (NAV) of units of a bank collective trust. The NAV is based on the fair value of the underlying investments held by the fund less its liabilities. This practical expedient is not used when it is determined to be probable that the fund will sell the investment for an amount different than the reported NAV.

The private partnerships category consists of various venture capital funds, mezzanine debt funds and leveraged buyout funds. The NAV of these investments has been estimated based on methods employed by the general partners, including consideration of, among other things, reference to third-party transactions, valuations of comparable companies operating within the same or similar industry, the current economic and competitive environment, creditworthiness of the corporate issuer, as well as market prices for instruments with similar maturities, terms, conditions and quality ratings. The use of different assumptions, applying different judgment to inherently subjective matters and changes in future market conditions could result in significantly different estimates of fair value of these securities.

Total employer contributions to the pension plans are presented below:

in thousands	Pension
Employer	
Contributions	
2016	\$ 9,576
2017	20,023
2018	109,631
2019	
(estimated)	9,067

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For our qualified pension plans, we made discretionary contributions of \$100,000,000 and \$10,600,000 during 2018 and 2017, respectively, and made no contributions during 2016. We do not anticipate making contributions to our qualified pension plans in 2019. For our nonqualified pension plans, we contributed \$9,631,000, \$9,423,000 and \$9,576,000 during 2018, 2017 and 2016, respectively, and expect to contribute \$9,067,000 during 2019.

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The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid:

in	
thousands	Pension
Estimated	
Future	
Benefit	
Payments	
2019	\$ 56,493
2020	57,191
2021	58,317
2022	59,705
2023	60,871
2024-2028	301,996

We contribute to a number of multiemployer defined benefit pension plans under the terms of collective-bargaining agreements for union-represented employees. A multiemployer plan is subject to collective bargaining for employees of two or more unrelated companies. Multiemployer plans are managed by boards of trustees on which management and labor have equal representation. However, in most cases, management is not directly represented. The risks of participating in multiemployer plans differ from single employer plans as follows:

- § assets contributed to a multiemployer plan by one employer may be used to provide benefits to employees of other participating employers
- § if a participating employer stops contributing to the plan, the unfunded obligations of the plan may be borne by the remaining participating employers
- § if we cease to have an obligation to contribute to one or more of the multiemployer plans to which we contribute, we may be required to pay those plans an amount based on the underfunded status of the plan, referred to as a withdrawal liability

None of the multiemployer pension plans that we participate in are individually significant. Our contributions to individual multiemployer pension funds did not exceed 5% of the fund's total contributions in the three years ended December 31, 2018, 2017 and 2016. Total contributions to multiemployer pension plans were \$10,081,000 in 2018, \$9,253,000 in 2017 and \$10,435,000 in 2016.

As of December 31, 2018, a total of 8.5% of our domestic hourly labor force was covered by collective-bargaining agreements. Of such employees covered by collective-bargaining agreements, 7.5% were covered by agreements that expire in 2019. We also employed 332 union employees in Mexico who are covered by a collective-bargaining agreement that will expire in 2019. None of our union employees in Mexico participate in multiemployer pension plans.

In addition to the pension plans noted above, we had one unfunded supplemental retirement plan as of December 31, 2018 and 2017. The accrued costs for the supplemental retirement plan were \$1,122,000 at December 31, 2018 and \$1,252,000 at December 31, 2017.

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POSTRETIREMENT PLANS

In addition to pension benefits, we provide certain healthcare and life insurance benefits for some retired employees. In 2012, we amended our postretirement healthcare plan to cap our portion of the medical coverage cost at the 2015 level. Substantially all our salaried employees and, where applicable, certain of our hourly employees may become eligible for these benefits if they reach a qualifying age and meet certain service requirements. Generally, Company-provided healthcare benefits end when covered individuals become eligible for Medicare benefits, become eligible for other group insurance coverage or reach age 65, whichever occurs first.

The following table sets forth the combined funded status of the plans and their reconciliation with the related amounts recognized in our consolidated financial statements at December 31:

in thousands	2018	2017
Change in Benefit Obligation Projected benefit obligation at beginning of year	\$ 43,480	\$ 45,546
Service cost	1,357	1,167
Interest cost	1,240	1,260
Actuarial loss	856	378
Benefits paid	(6,099)	(4,871)
Projected benefit obligation at end of year	\$ 40,834	\$ 43,480
Change in Fair Value of Plan Assets		
Fair value of assets at beginning of year	\$ 0	\$ 0
Actual return on plan assets	0	0
Fair value of assets at end of year	\$ 0	\$ 0
Funded status	\$ (40,834)	\$ (43,480)
Net amount recognized	\$ (40,834)	\$ (43,480)

Amounts Recognized in the Consolidated Balance Sheets			
Current liabilities	\$	(5,560)	\$ (5,624)
Noncurrent liabilities		(35,274)	(37,856)
Net amount recognized	\$	(40,834)	\$ (43,480)
Amounts Recognized in Accumulated Other Comprehensive Income			
Net actuarial gain	\$	(18,624)	\$ (20,757)
Prior service credit		(11,494)	(15,456)
Total amount recognized	\$	(30,118)	\$ (36,213)

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The following table sets forth the components of net periodic benefit cost, amounts recognized in other comprehensive income, weighted-average assumptions and assumed trend rates of the plans at December 31:

dollars in thousands	2018	2017	2016
Components of Net Periodic Postretirement Benefit Cost			
Service cost	\$ 1,358	\$ 1,167	\$ 1,123
Interest cost	1,240	1,260	1,209
Amortization of prior service credit	(3,962)	(4,236)	(4,236)
Amortization of actuarial gain	(1,298)	(1,587)	(1,751)
Net periodic postretirement benefit cost (credit)	\$ (2,662)	\$ (3,396)	\$ (3,655)
Changes in Plan Assets and Benefit Obligations Recognized in Other Comprehensive Income			
Net actuarial loss (gain)	\$ 835	\$ 342	\$ (111)
Reclassification of prior service credit	3,962	4,236	4,236
Reclassification of actuarial gain	1,298	1,587	1,751
Amount recognized in other comprehensive income	\$ 6,095	\$ 6,165	\$ 5,876
Amount recognized in net periodic postretirement benefit cost and			

other comprehensive income	\$ 3,433	\$ 2,769	\$ 2,221
Assumptions			
Weighted-average assumptions used to determine net periodic benefit cost for years ended December 31			
Discount rate — PBO	3.34%	3.59%	3.69%
Discount rate — service cost	3.56%	3.96%	3.77%
Discount rate — interest cost	2.90%	2.89%	2.81%
Weighted-average assumptions used to determine benefit obligation at December 31			
Discount rate	4.01%	3.33%	3.58%

The estimated net actuarial gain and prior service credit that will be amortized from accumulated other comprehensive income into net periodic postretirement benefit cost (credit) during 2019 are \$(1,344,000) and \$(3,919,000), respectively.

Total employer contributions to the postretirement plans are presented below:

in thousands	Postretirement
Employer Contributions	
2016	\$ 5,280
2017	4,871
2018	6,099
2019 (estimated)	5,561

The employer contributions shown above are equal to the cost of benefits during the year. The plans are not funded and are not subject to any regulatory funding requirements.

The following benefit payments, which reflect expected future service, as appropriate, are expected to be paid:

in		
thousands	Postretirement	
Estimated		
Future		
Benefit		
Payments		
2019	\$	5,561
2020		5,381
2021		5,077
2022		4,733
2023		4,523
2024–2028		17,168

Contributions by participants to the postretirement benefit plans for the years ended December 31 are as follows:

in thousands	Postretirement	
Participants		
Contributions		
2016	\$	2,085
2017		2,025
2018		1,984

PENSION AND OTHER POSTRETIREMENT BENEFITS ASSUMPTIONS

Each year, we review our assumptions for discount rates (used for PBO, service cost, and interest cost calculations) and the expected return on plan assets. Due to plan changes made in 2012 and 2013, annual pay increases and the per capita cost of healthcare benefits do not materially impact plan obligations.

We use a high-quality bond full yield curve approach (specific spot rates for each annual expected cash flow) to establish the discount rates at each measurement date. At December 31, 2018, the discount rates used were as follows:

- § PBO for various plans – ranged from 3.92% to 4.47% (December 31, 2017 ranged from 3.24% to 3.79%)
- § Service cost – weighted average of 3.90% and 3.56%, respectively, for our pension plans and our other postretirement plans (2017 figures were 4.63% and 3.96%, respectively)
- § Interest cost – weighted average of 3.35% and 2.90%, respectively, for our pension plans and our other postretirement plans (2017 figures were 3.63% and 2.89%, respectively)

Our expected return on plan assets is: (1) a long-term view based on our current asset allocation, and (2) a judgment informed by consultation with our retirement plans' consultant and our pension plans' actuary. The expected return on plan assets used to measure plan benefit costs was 7.0% in 2018 and 2017. For 2019, we decreased the expected return on plan assets to 5.75%.

DEFINED CONTRIBUTION PLANS

We sponsor two defined contribution plans. Substantially all salaried and nonunion hourly employees are eligible to be covered by one of these plans. Under these plans, we match employees' eligible contributions at established rates. Expense recognized in connection with these matching obligations totaled \$40,718,000 in 2018, \$44,562,000 in 2017 and \$45,295,000 in 2016.

NOTE 11: INCENTIVE PLANS

SHARE-BASED COMPENSATION PLANS

Our 2016 Omnibus Long-term Incentive Plan (Plan) authorizes the granting of performance shares, restricted shares, Stock-Only Stock Appreciation Rights (SOSARs) and other types of share-based awards to key salaried employees and nonemployee directors. The maximum number of shares that may be issued under the Plan is 8,000,000.

PERFORMANCE SHARES — Each performance share unit is equal to and paid in one share of our common stock, but carries no voting or dividend rights. The number of units ultimately paid for performance share awards may range from 0% to 200% of the number of units awarded on the date of grant. Payment is based upon our Total Shareholder Return (TSR) performance relative to the TSR performance of the S&P 500®. Awards vest on December 31 of the third (2018 and 2017 awards) or fourth (all other outstanding awards) year after date of grant. Vesting is accelerated upon reaching retirement age, death, disability, or change of control, all as defined in the award agreement. Nonvested units are forfeited upon termination for any other reason. Expense provisions referable to performance share awards amounted to \$13,656,000 in 2018, \$16,272,000 in 2017 and \$12,074,000 in 2016.

The fair value of performance shares is estimated as of the date of grant using a Monte Carlo simulation model. The following table summarizes the activity for nonvested performance share units during the year ended December 31, 2018:

	Target Number of Shares	Weighted-average Grant Date Fair Value
Performance Shares Nonvested at January 1, 2018	498,979	\$ 89.16
Granted	130,715	117.20
Vested	(218,725)	74.85
Canceled/forfeited	(60,291)	103.56
Nonvested at December 31, 2018	350,678	\$ 106.06

During 2017 and 2016, the weighted-average grant date fair value of performance shares granted was \$117.49 and \$87.77, respectively.

The aggregate values for distributed performance share awards are based on the closing price of our common stock as of the distribution date. The aggregate values of distributed performance shares for the years ended December 31 are as follows:

in thousands	2018	2017	2016
Aggregate value of distributed performance shares	\$ 53,721	\$ 52,368	\$ 60,443

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RESTRICTED SHARES — Each restricted share unit is equal to and paid in one share of our common stock, but carries no voting or dividend rights. Awards vest on the third (2018 and 2017 awards) or fourth (all other outstanding awards) anniversary of the grant date. Vesting is accelerated upon reaching retirement age, death, disability, or change of control, all as defined in the award agreement. Nonvested units are forfeited upon termination for any other reason. Expense provisions referable to restricted share awards amounted to \$4,831,000 in 2018, \$4,371,000 in 2017 and \$3,004,000 in 2016.

The fair value of restricted shares is estimated as of the date of grant based on the stock price adjusted for dividends foregone. The following table summarizes the activity for nonvested restricted share units during the year ended December 31, 2018:

	Number of Shares	Weighted-average Grant Date Fair Value
Restricted Stock Units		
Nonvested at January 1, 2018	109,302	\$ 97.43
Granted	52,065	117.20
Vested	(11,622)	100.35
Canceled/forfeited	(4,366)	110.73
Nonvested at December 31, 2018	145,379	\$ 103.88

During 2017 and 2016, the weighted-average grant date fair value of restricted shares granted was \$117.49 and \$87.77, respectively.

The aggregate values for distributed restricted share awards are based on the closing price of our common stock as of the distribution date. The aggregate values of distributed restricted shares for the years ended December 31 are as follows:

in thousands	2018	2017	2016
Aggregate value of distributed restricted shares	\$ 1,345	\$ 7,685	\$ 0

STOCK-ONLY STOCK APPRECIATION RIGHTS (SOSARs) — SOSARs granted have an exercise price equal to the market value of our underlying common stock on the date of grant. The SOSARs vest ratably over 3 years (2018 and 2017 awards) or 4 years (all other awards) and expire 10 years subsequent to the grant. Vesting is accelerated upon reaching retirement age, death, disability, or change of control, all as defined in the award agreement. Nonvested

awards are forfeited upon termination for any other reason.

The fair value of SOSARs is estimated as of the date of grant using the Black-Scholes option pricing model. Compensation cost for SOSARs is based on this grant date fair value and is recognized for awards that ultimately vest. The following table presents the weighted-average fair value and the weighted-average assumptions used in estimating the fair value of grants during the years ended December 31:

	2018	2017	2016
SOSARs			
Fair value \$	43.72	\$ 43.01	\$ 29.20
Risk-free interest rate	2.90%	2.36%	1.66%
Dividend yield	1.39%	1.27%	1.39%
Volatility	31.49%	31.35%	30.42%
Expected term	9.00 years	9.00 years	9.00 years

The risk-free interest rate is based on the yield at the date of grant of a U.S. Treasury security with a maturity period approximating the SOSARs expected term. The dividend yield assumption is based on our historical dividend payouts adjusted for current expectations of future payouts. The volatility assumption is based on the historical volatility and expectations about future volatility of our common stock over a period equal to the SOSARs expected term. The expected term is based on historical experience and expectations about future exercises and represents the period of time that SOSARs granted are expected to be outstanding.

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A summary of our SOSAR activity as of December 31, 2018 and changes during the year are presented below:

	Number of Shares	Weighted-average Exercise Price	Weighted-average Remaining Contractual Life (Years)	Aggregate Intrinsic Value (in thousands)
SOSARs				
Outstanding at January				
1, 2018	2,242,487	\$ 52.95		
Granted	82,800	121.69		
Exercised	(583,539)	45.71		
Forfeited or expired	(165)	79.41		
Outstanding at December				
31, 2018	1,741,583	\$ 58.64	3.70	\$ 72,276
Exercisable at December				
31, 2018	1,518,900	\$ 51.39	3.08	\$ 71,284

The aggregate intrinsic values in the table above represent the total pretax intrinsic value (the difference between our stock price on the last trading day of 2018 and the exercise price, multiplied by the number of in-the-money SOSARs) that would have been received by the option holders had all SOSARs been exercised on December 31, 2018. These values change based on the fair market value of our common stock. The aggregate intrinsic values of SOSARs exercised for the years ended December 31 are as follows:

in thousands	2018	2017	2016
Aggregate intrinsic value of SOSARs exercised	\$ 49,248	\$ 13,758	\$ 27,705

The following table presents cash and stock consideration received and tax benefit realized from SOSAR exercises and compensation cost recorded referable to SOSARs for the years ended December 31:

in thousands	2018	2017	2016
SOSARs			
Cash and stock consideration received from exercises	\$ 0	\$ 0	\$ 0
Tax benefit from exercises	19,083	5,331	10,767
Compensation cost	4,763	3,723	2,744

DEFERRED STOCK UNITS — In addition to the share-based compensation plans for employees discussed above, we issue a limited number of deferred stock units to our nonemployee directors annually. These deferred stock units vest immediately upon issuance (except for the 2015 grant which vested over three years) and accumulate dividends over the vesting period. Expense provisions referable to nonemployee director deferred stock units amounted to \$1,965,000 in 2018, \$2,260,000 in 2017 and \$2,848,000 in 2016.

CASH-BASED COMPENSATION PLANS

We have incentive plans under which cash awards may be made annually. Expense provisions under these plans referable to awards to officers and certain employees amounted to \$36,969,000 in 2018, \$35,280,000 in 2017 and \$46,758,000 in 2016. Additionally, expense provision referable to a 2017 one-time bonus for non-incentive eligible employees amounted to \$6,716,000.

NOTE 12: COMMITMENTS AND CONTINGENCIES

We have commitments in the form of unconditional purchase obligations as of December 31, 2018. These include commitments for the purchase of property, plant & equipment of \$35,248,000 and commitments for noncapital purchases of \$36,722,000. These commitments are due as follows:

in thousands	Unconditional Purchase Obligations
Property, Plant & Equipment	
2019	\$ 35,248
Thereafter	0
Total	\$ 35,248
Noncapital (primarily transportation and electricity contracts)	
2019	\$ 11,912
2020–2021	9,120
2022–2023	3,690
Thereafter	12,000
Total	\$ 36,722

Expenditures under noncapital purchase commitments totaled \$56,674,000 in 2018, \$40,526,000 in 2017 and \$60,591,000 in 2016.

We have commitments in the form of minimum royalties under mineral leases as of December 31, 2018 in the amount of \$240,575,000, due as follows:

in thousands	Mineral Leases
Minimum Royalties	
2019	\$ 23,211
2020–2021	36,630
2022–2023	26,014
Thereafter	154,720
Total	\$ 240,575

Expenditures for royalties under mineral leases totaled \$76,761,000 in 2018, \$67,933,000 in 2017 and \$62,978,000 in 2016. Refer to Note 7 for future minimum nonmineral operating lease payments.

Certain of our aggregates reserves are burdened by volumetric production payments (nonoperating interest) as described in Note 2. As the holder of the working interest, we have responsibility to bear the cost of mining and producing the reserves attributable to this nonoperating interest.

As summarized by purpose in Note 6, our standby letters of credit totaled \$44,979,000 as of December 31, 2018.

As described in Note 9, our liability for unrecognized tax benefits is \$3,661,000 as of December 31, 2018.

As described in Note 17, our asset retirement obligations totaled \$225,726,000 as of December 31, 2018.

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LITIGATION AND ENVIRONMENTAL MATTERS

We are subject to occasional governmental proceedings and orders pertaining to occupational safety and health or to protection of the environment, such as proceedings or orders relating to noise abatement, air emissions or water discharges. As part of our continuing program of stewardship in safety, health and environmental matters, we have been able to resolve such proceedings and to comply with such orders without any material adverse effects on our business.

We have received notices from the United States Environmental Protection Agency (EPA) or similar state or local agencies that we are considered a potentially responsible party (PRP) at a limited number of sites under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund) or similar state and local environmental laws. Generally we share the cost of remediation at these sites with other PRPs or alleged PRPs in accordance with negotiated or prescribed allocations. There is inherent uncertainty in determining the potential cost of remediating a given site and in determining any individual party's share in that cost. As a result, estimates can change substantially as additional information becomes available regarding the nature or extent of site contamination, remediation methods, other PRPs and their probable level of involvement, and actions by or against governmental agencies or private parties.

We have reviewed the nature and extent of our involvement at each Superfund site, as well as potential obligations arising under other federal, state and local environmental laws. While ultimate resolution and financial liability is uncertain at a number of the sites, in our opinion based on information currently available, the ultimate resolution of claims and assessments related to these sites will not have a material effect on our consolidated results of operations, financial position or cash flows, although amounts recorded in a given period could be material to our results of operations or cash flows for that period. Amounts accrued for environmental matters are presented in Note 8.

We are a defendant in various lawsuits in the ordinary course of business. It is not possible to determine with precision the outcome, or the amount of liability, if any, under these lawsuits, especially where the cases involve possible jury trials with as yet undetermined jury panels.

In addition to these lawsuits in which we are involved in the ordinary course of business, certain other material legal proceedings are specifically described below.

Lower Passaic River Study Area (DISCONTINUED OPERATIONS) — The Lower Passaic River Study Area is part of the Diamond Shamrock Superfund Site in New Jersey. Vulcan and approximately 70 other companies are parties (collectively the Cooperating Parties Group, CPG) to a May 2007 Administrative Order on Consent (AOC) with the EPA to perform a Remedial Investigation/Feasibility Study (draft RI/FS) of the lower 17 miles of the Passaic River (River). The draft RI/FS was submitted recommending a targeted hot spot remedy; however, the EPA issued a record of decision (ROD) in March 2016 that calls for a bank-to-bank dredging remedy for the lower 8 miles of the River. The EPA estimates that the cost of implementing this proposal is \$1.38 billion. In September 2016, the EPA entered into an Administrative Settlement Agreement and Order on Consent with Occidental Chemical Corporation (Occidental) in which Occidental agreed to undertake the remedial design for this bank-to-bank dredging remedy, and to reimburse the United States for certain response costs.

In August 2017, the EPA informed certain members of the CPG, including Vulcan, that it planned to use the services of a third-party allocator with the expectation of offering cash-out settlements to some parties in connection with the bank-to-bank remedy. This voluntary allocation process is intended to establish an impartial third-party expert recommendation that may be considered by the government and the participants as the basis of possible settlements. We have begun participating in this voluntary allocation process, which is likely to take several years.

In July 2018, Vulcan, along with more than one hundred other defendants, was sued by Occidental in United States District Court for the District of New Jersey, Newark Vicinage. Occidental is seeking cost recovery and contribution under CERCLA. It is unknown at this time whether the filing of the Occidental lawsuit will impact the EPA allocation process.

In October 2018, the EPA ordered the CPG to prepare a streamlined feasibility study specifically for the upper nine miles of the River. This directive is focused on dioxin.

Efforts to remediate the River have been underway for many years and have involved hundreds of entities that have had operations on or near the River at some point during the past several decades. We formerly owned a chemicals operation near the mouth of the River, which was sold in 1974. The major risk drivers in the River have been identified as dioxins, PCBs, DDX and mercury. We did not manufacture any of these risk drivers and have no evidence that any of these were discharged into the River by Vulcan.

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The AOC does not obligate us to fund or perform the remedial action contemplated by either the draft RI/FS or the ROD. Furthermore, the parties who will participate in funding the remediation and their respective allocations have not been determined. We do not agree that a bank-to-bank remedy is warranted, and we are not obligated to fund any of the remedial action at this time; nevertheless, we previously estimated the cost to be incurred by us as a potential participant in a bank-to-bank dredging remedy and recorded an immaterial loss for this matter in 2015.

TEXAS BRINE MATTER (DISCONTINUED OPERATIONS) — During the operation of its former Chemicals Division, Vulcan secured the right to mine salt out of an underground salt dome formation in Assumption Parish, Louisiana from 1976 - 2005. Throughout that period and for all times thereafter, the Texas Brine Company (Texas Brine) was the operator contracted by Vulcan (and later Occidental) to mine and deliver the salt. We sold our Chemicals Division in 2005 and transferred our rights and interest related to the salt and mining operations to the purchaser, a subsidiary of Occidental, and we have had no association with the leased premises or Texas Brine since that time. In August 2012, a sinkhole developed in the vicinity of the Texas Brine mining operations, and numerous lawsuits were filed in state court in Assumption Parish, Louisiana. Other lawsuits, including class action litigation, were also filed in federal court before the Eastern District of Louisiana in New Orleans.

There are numerous defendants, including Texas Brine and Occidental, to the litigation in state and federal court. Vulcan was first brought into the litigation as a third-party defendant in August 2013 by Texas Brine. We were then added as a direct and third-party defendant by other parties, including a direct claim by the state of Louisiana. Damage categories encompassed within the litigation have included individual plaintiffs' claims for property damage, a claim by the State of Louisiana for response costs and civil penalties, claims by Texas Brine for response costs and lost profits, claims for physical damages to nearby oil and gas pipelines and storage facilities (pipelines), and business interruption claims.

In addition to the plaintiffs' claims, we were also sued for contractual indemnity and comparative fault by both Texas Brine and Occidental. It was alleged that the sinkhole was caused, in whole or in part, by our negligent actions or failure to act. It was also alleged that we breached the salt lease with Occidental, as well as an operating agreement and related contracts with Texas Brine; that we were strictly liable for certain property damages in our capacity as a former lessee of the salt lease; and that we violated certain covenants and conditions in the agreement under which we sold our Chemicals Division to Occidental. We likewise made claims for contractual indemnity and on a basis of comparative fault against Texas Brine and Occidental. Vulcan and Occidental have since dismissed all of their claims against one another. Texas Brine has claims that remain pending against Vulcan and against Occidental.

A bench trial (judge only) began in September 2017 and ended in October 2017 in the pipeline cases. The trial was limited in scope to the allocation of comparative fault or liability for causing the sinkhole, with a damages phase of the trial to be held at a later date. In December 2017, the judge issued a ruling on the allocation of fault among the three defendants as follows: Occidental 50%, Texas Brine 35% and Vulcan 15%. This ruling has been appealed by the parties.

We have settled all but two outstanding cases and our insurers have funded these settlements in excess of our self-insured retention amount. The remaining cases involve Texas Brine and the State of Louisiana. Discovery remains ongoing and we cannot reasonably estimate a range of liability pertaining to these open cases at this time.

NEW YORK WATER DISTRICT CASES (DISCONTINUED OPERATIONS) — During the operation of our former Chemicals Division, which was divested to Occidental in 2005, Vulcan manufactured a chlorinated solvent known as 1,1,1-trichloroethane. We are a defendant in eleven cases allegedly involving 1,1,1-trichloroethane. All of the cases are filed in the United States District Court for the Eastern District of New York. According to the various complaints, the plaintiffs are public drinking water providers who serve customers in Nassau County and Suffolk County, New York. It is alleged that our 1,1,1-trichloroethane was stabilized with 1,4-dioxane and that various water

wells of the plaintiffs are contaminated with 1,4-dioxane. The cases, against us and other defendants, have been filed by the following plaintiffs: Albertson Water District, Carle Place Water District, Garden City Park Water District, Jericho Water District, Manhasset-Lakeview Water District, Oyster Bay Water District, Port Washington Water District, Roslyn Water District, Suffolk County Water Authority, Water Authority of Great Neck North, and the West Hempstead Water District (collectively, the Cases). The plaintiffs are seeking unspecified compensatory and punitive damages. We will vigorously defend the Cases. At this time we cannot determine the likelihood or reasonably estimate a range of loss, if any, pertaining to the Cases.

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HEWITT LANDFILL MATTER (SUPERFUND SITE) — In September 2015, the Los Angeles Regional Water Quality Control Board (RWQCB) issued a Cleanup and Abatement Order (CAO) directing Vulcan to assess, monitor, cleanup and abate wastes that have been discharged to soil, soil vapor, and/or groundwater at the former Hewitt Landfill in Los Angeles. The CAO follows a 2014 Investigative Order from the RWQCB that sought data and a technical evaluation regarding the Hewitt Landfill, and a subsequent amendment to the Investigative Order requiring us to provide groundwater monitoring results to the RWQCB and to create and implement a work plan for further investigation of the Hewitt Landfill. In April 2016, we submitted an interim remedial action plan (IRAP) to the RWQCB, proposing an on-site pilot test of a pump and treat system for groundwater; testing and implementation of a leachate recovery system; and storm water capture and conveyance improvements.

Operation of the on-site pilot-scale treatment system began in January 2017 and was completed in April 2017. With completion of the pilot testing and other investigative work, we submitted an amendment to the IRAP (AIRAP) to RWQCB in August 2017 proposing the use of a pump, treat and reinjection system. In December 2017, we submitted an addendum to the AIRAP, incorporating new data acquired since the prior submission. In February 2018, the AIRAP was approved by RWQCB. As a result of this approval, we have begun to implement the on-site source control activities described in the AIRAP, including procurement of vendors to perform the work and additional bench scale testing of the treatment system, which indicated that additional pre and post treatment of the water would be required. Based on the proposals from contractors for construction, operation and maintenance of the facility, we accrued an additional \$10,392,000 of other operating expense during the fourth quarter of 2018, bringing the year-to-date and life-to-date total accruals for the on-site system to \$19,032,000 and \$34,271,000, respectively.

We are also engaged in an ongoing dialogue with the EPA, the Los Angeles Department of Water and Power, and other stakeholders regarding the potential contribution of the Hewitt Landfill to groundwater contamination in the North Hollywood Operable Unit (NHO) of the San Fernando Valley Superfund Site. We are gathering and analyzing data and developing technical information to determine the extent of possible contribution by the Hewitt Landfill to the groundwater contamination in the area. This work is also intended to assist in identification of other PRPs that may have contributed to groundwater contamination in the area.

The EPA and Vulcan entered into an AOC and Statement of Work having an effective date of September 2017 for the design of two extraction wells south of the Hewitt Site to protect the North Hollywood West (NHW) well field. In November 2017, we submitted a Pre-Design Investigation (PDI) Work Plan to the EPA, which sets forth the activities and schedule for our evaluation of the need for a two-well remedy. These activities were completed between the first and third quarters of 2018, and in December 2018 we submitted a PDI Evaluation Report to the EPA. The PDI Evaluation Report summarizes data collection activities conducted pursuant to the PDI Work Plan, and provides model updates and evaluation of remediation alternatives to protect the NHW and Rinaldi-Toluca well fields from 1,4-dioxane from the Hewitt Site. Vulcan has not yet received comments or feedback from the EPA or the Regional Board on the report. Until the EPA's review of the PDI Evaluation Report is complete and an effective remedy can be agreed upon, we cannot identify an appropriate remedial action. Given the various stakeholders involved and the uncertainties relating to issues such as testing, monitoring, and remediation alternatives, we cannot reasonably estimate a loss pertaining to this matter.

NAFTA ARBITRATION — In September 2018, our subsidiary Legacy Vulcan, LLC (Legacy Vulcan), on its own behalf, and on behalf of our Mexican subsidiary Calizas Industriales del Carmen, S.A. de C.V. (Calica), served the United Mexican States (Mexico) a Notice of Intent to Submit a Claim to Arbitration under Chapter 11 of the North American Free Trade Agreement (NAFTA). Our NAFTA claim relates to the treatment of a portion of our quarrying operations in the State of Quintana Roo, in Mexico's Yucatan Peninsula, arising from, among other measures, Mexico's failure to comply with a legally binding zoning agreement and to other unfair, arbitrary and capricious actions by Mexico's environmental enforcement agency. We assert that these actions are in breach of Mexico's international obligations under NAFTA and international law.

As required by Article 1118 of NAFTA, we sought to settle this dispute with Mexico through consultations. Notwithstanding our good faith efforts to resolve the dispute amicably, we were unable to do so and filed a Request for Arbitration, which we filed with the International Centre for Settlement of Investment Disputes (ICSID) in December 2018. In January 2019, ICSID registered our Request for Arbitration.

We expect that the NAFTA arbitration will take at least two years to be concluded. At this time, there can be no assurance whether we will be successful in our NAFTA claim, and we cannot quantify the amount we may recover, if any, under this arbitration proceeding if we were successful.

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It is not possible to predict with certainty the ultimate outcome of these and other legal proceedings in which we are involved and a number of factors, including developments in ongoing discovery or adverse rulings, or the verdict of a particular jury, could cause actual losses to differ materially from accrued costs. No liability was recorded for claims and litigation for which a loss was determined to be only reasonably possible or for which a loss could not be reasonably estimated. Legal costs incurred in defense of lawsuits are expensed as incurred. In addition, losses on certain claims and litigation described above may be subject to limitations on a per occurrence basis by excess insurance, as described in Note 1 under the caption Claims and Litigation Including Self-insurance.

NOTE 13: EQUITY

Our capital stock consists solely of common stock, par value \$1.00 per share. Holders of our common stock are entitled to one vote per share. Our Certificate of Incorporation also authorizes 5,000,000 shares of preferred stock, of which no shares have been issued. The terms and provisions of such shares will be determined by our Board of Directors upon any issuance of preferred shares in accordance with our Certificate of Incorporation.

There were no shares held in treasury as of December 31, 2018, 2017 and 2016.

Our common stock purchases (all of which were open market purchases) and subsequent retirements for the years ended December 31 are summarized below:

in thousands, except average cost	2018	2017	2016
Shares Purchased and Retired			
Number	1,192	510	1,427
Total purchase price	\$ 133,983	\$ 60,303	\$ 161,463
Average price per share	\$ 112.41	\$ 118.18	\$ 113.18

As of December 31, 2018, 8,297,789 shares may be purchased under the current authorization of our Board of Directors.

Dividends were as follows:

in thousands, except per share data	2018	2017	2016
Dividends			
Cash dividends	\$ 148,109	\$ 132,335	\$ 106,333
Cash dividends per share	\$ 1.12	\$ 1.00	\$ 0.80

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NOTE 14: OTHER COMPREHENSIVE INCOME

Comprehensive income comprises two subsets: net earnings and other comprehensive income (OCI). The components of other comprehensive income are presented in the accompanying Consolidated Statements of Comprehensive Income and Consolidated Statements of Equity, net of applicable taxes.

Amounts in accumulated other comprehensive income (AOCI), net of tax, at December 31, are as follows:

in thousands	2018	2017	2016
AOCI			
Interest rate hedges	\$ (11,180)	\$ (11,438)	\$ (13,300)
Pension and postretirement plans	(161,035)	(138,028)	(126,076)
Total	\$ (172,215)	\$ (149,466)	\$ (139,376)

Changes in AOCI, net of tax, for the three years ended December 31, 2018 are as follows:

in thousands	Interest Rate Hedges	Pension and Postretirement Benefit Plans	Total
AOCI			
Balances at December 31, 2015	\$ (14,494)	\$ (105,575)	\$ (120,069)
Other comprehensive income (loss) before reclassifications	0	(20,583)	(20,583)
Amounts reclassified from AOCI	1,194	82	1,276
Net OCI changes	1,194	(20,501)	(19,307)
Balances at December 31, 2016	\$ (13,300)	\$ (126,076)	\$ (139,376)
Other comprehensive income (loss) before reclassifications	0	(14,106)	(14,106)
Amounts reclassified from AOCI	1,862	2,154	4,016
Net OCI changes	1,862	(11,952)	(10,090)
Balances at December 31, 2017	\$ (11,438)	\$ (138,028)	\$ (149,466)
Released stranded tax effects ASU 2018-02 (Note 9)	(2,464)	(27,165)	(29,629)
Balances at January 1, 2018, due to reclassification	\$ (13,902)	\$ (165,193)	\$ (179,095)
Other comprehensive income (loss) before reclassifications	2,496	(207)	2,289
Amounts reclassified from AOCI	226	4,365	4,591
Net OCI changes	2,722	4,158	6,880
Balances at December 31, 2018	\$ (11,180)	\$ (161,035)	\$ (172,215)

Amounts reclassified from AOCI to earnings, are as follows:

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in thousands	2018	2017	2016
Amortization of Interest Rate Hedge Losses			
Interest expense	\$ 306	\$ 3,070	\$ 2,008
Benefit from income taxes	(80)	(1,208)	(814)
Total	\$ 226	\$ 1,862	\$ 1,194
Amortization of Pension and Postretirement Plan			
Actuarial Loss and Prior Service Cost			
Other nonoperating income	\$ 5,906	\$ 2,915	\$ 134
Benefit from income taxes	(1,541)	(761)	(52)
Total	\$ 4,365	\$ 2,154	\$ 82
Total reclassifications from AOCI to earnings	\$ 4,591	\$ 4,016	\$ 1,276

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NOTE 15: SEGMENT REPORTING

We have four operating (and reportable) segments organized around our principal product lines: Aggregates, Asphalt, Concrete and Calcium. Management reviews earnings from the product line reporting segments principally at the gross profit level.

The Aggregates segment produces and sells aggregates (crushed stone, sand and gravel, sand, and other aggregates) and related products and services. During 2018, the Aggregates segment principally served markets in twenty states, Washington D.C., Mexico and the Bahamas with a full line of aggregates, and nine additional states with railroad ballast. Customers use aggregates primarily in the construction and maintenance of highways, streets and other public works and in the construction of housing and commercial, industrial and other nonresidential facilities. Customers are served by truck, rail and water distribution networks from our production facilities and sales yards. Due to the high weight-to-value ratio of aggregates, markets generally are local in nature. Quarries located on waterways and rail lines allow us to serve remote markets where local aggregates reserves may not be available.

The Asphalt segment produces and sells asphalt mix in six states: Alabama, Arizona, California, New Mexico, Tennessee and Texas, and includes asphalt construction paving in three states: Alabama, Tennessee and Texas. We entered the Alabama and Tennessee asphalt markets in 2018 and 2017, respectively, through acquisitions (see Note 19).

The Concrete segment produces and sells ready-mixed concrete in five states, Washington D.C. and an immaterial amount in the Bahamas. In 2018, we exited the Georgia ready-mixed concrete market through a divestiture (see Note 19). In 2017, we reentered the California ready-mixed concrete market through an acquisition and exited the Arizona market through a swap (see Note 19).

The Calcium segment consists of a Florida facility that mines, produces and sells calcium products.

Aggregates comprise approximately 95% of asphalt mix by weight and 80% of ready-mixed concrete by weight. Our Asphalt and Concrete segments are primarily supplied with their aggregates requirements from our Aggregates segment. These intersegment sales are made at local market prices for the particular grade and quality of product used in the production of asphalt mix and ready-mixed concrete. Customers for our Asphalt and Concrete segments are generally served locally at our production facilities or by truck. Because asphalt mix and ready-mixed concrete harden rapidly, delivery is time constrained and generally confined to a radius of approximately 20 to 25 miles from the producing facility.

The vast majority of our activities are domestic. We sell a relatively small amount of construction aggregates outside the United States. Total domestic revenues were \$4,365,309,000 in 2018, \$3,872,494,000 in 2017 and \$3,579,427,000 in 2016. Nondomestic Aggregates segment revenues were \$17,560,000 in 2018, \$17,802,000 in 2017 and \$13,240,000 in 2016; there were no significant nondomestic revenues in our Asphalt, Concrete or Calcium segments. Long-lived assets outside the United States, which consist primarily of property, plant & equipment, were \$278,520,000 in 2018, \$211,282,000 in 2017 and \$188,652,000 in 2016. Equity method investments of \$39,395,000 in 2018, \$22,967,000 in 2017 and \$22,965,000 in 2016 are included below in the identifiable assets for the Aggregates segment and in investments and long-term receivables on the accompanying Consolidated Balance Sheets.

SEGMENT FINANCIAL DISCLOSURE

in thousands	2018	2017	2016
Total Revenues			
Aggregates 1	\$ 3,513,649	\$ 3,096,094	\$ 2,961,835
Asphalt 2	733,182	622,074	512,310
Concrete	401,999	417,745	330,125
Calcium	8,110	7,740	8,860
Segment sales	\$ 4,656,940	\$ 4,143,653	\$ 3,813,130
Aggregates intersegment sales	(274,071)	(253,357)	(220,463)
Total revenues	\$ 4,382,869	\$ 3,890,296	\$ 3,592,667
Gross Profit			
Aggregates 3	\$ 991,858	\$ 854,524	\$ 863,811
Asphalt 3	56,480	91,313	96,608
Concrete 3	49,893	45,201	24,992
Calcium	2,714	2,475	3,474
Total	\$ 1,100,945	\$ 993,513	\$ 988,885
Depreciation, Depletion, Accretion and Amortization (DDA&A)			
Aggregates	\$ 281,641	\$ 245,151	\$ 236,472
Asphalt	31,290	25,400	16,797
Concrete	12,539	13,822	12,129
Calcium	272	677	774
Other	20,504	20,915	18,768
Total	\$ 346,246	\$ 305,965	\$ 284,940
Capital Expenditures 4			
Aggregates	\$ 422,175	\$ 421,989	\$ 297,737
Asphalt	38,154	12,970	29,002
Concrete	12,291	25,176	10,047
Calcium	22	78	534
Corporate	2,587	4,020	7,621
Total	\$ 475,229	\$ 464,233	\$ 344,941
Identifiable Assets 5			
Aggregates	\$ 8,887,749	\$ 8,409,505	\$ 7,589,225
Asphalt	527,226	426,575	259,514
Concrete	266,581	271,818	192,673
Calcium	3,942	4,428	4,959
Total identifiable assets	\$ 9,685,498	\$ 9,112,326	\$ 8,046,371
General corporate assets	102,228	245,919	157,085
Cash and cash equivalents and restricted cash	44,404	146,646	268,019
Total assets	\$ 9,832,130	\$ 9,504,891	\$ 8,471,475

1 Includes product sales, as well as freight & delivery costs that we pass along to our customers, and service revenues (see Note 2) related to aggregates.

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- 2 Includes product sales, as well as service revenues (see Note 2) from our asphalt construction paving business.
- 3 The 2017 and 2016 amounts have been revised as a result of our adoption of ASU 2017-07 as described in Note 1 under the captions New Accounting Standards and Accounting Standards Recently Adopted.
- 4 Capital expenditures include capitalized replacements of and additions to property, plant & equipment, including capitalized leases, renewals and betterments. Capital expenditures exclude property, plant & equipment obtained by business acquisitions.
- 5 Certain temporarily idled assets are included within a segment's Identifiable Assets but the associated DDA&A is shown within Other in the DDA&A section above as the related DDA&A is excluded from segment gross profit.

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NOTE 16: SUPPLEMENTAL CASH FLOW INFORMATION

Supplemental information referable to the Consolidated Statements of Cash Flows is summarized below:

in thousands	2018	2017	2016
Cash Payments			
Interest (exclusive of amount capitalized)	\$ 128,217	\$ 285,801	\$ 135,039
Income taxes	(65,968)	125,135	102,849
Noncash Investing and Financing Activities			
Accrued liabilities for purchases of property, plant & equipment	\$ 37,116	\$ 31,267	\$ 26,676
Amounts referable to business acquisitions			
Liabilities assumed 1	5,405	3,876	798
Consideration payable to seller	4,500	9,681	0
Fair value of noncash assets and liabilities exchanged	0	9,900	0

1 The 2018 amount includes adjustments to 2017 acquisitions.

NOTE 17: ASSET RETIREMENT OBLIGATIONS

Asset retirement obligations (AROs) are legal obligations associated with the retirement of long-lived assets resulting from the acquisition, construction, development and/or normal use of the underlying assets. Recognition of a liability for an ARO is required in the period in which it is incurred at its estimated fair value. The associated asset retirement costs are capitalized as part of the carrying amount of the underlying asset and depreciated over the estimated useful life of the asset. The liability is accreted through charges to operating expenses.

We record all AROs for which we have legal obligations for land reclamation at estimated fair value. These AROs relate to our underlying land parcels, including both owned properties and mineral leases. For the years ended December 31, we recognized ARO operating costs related to accretion of the liabilities and depreciation of the assets as follows:

in thousands	2018	2017	2016
ARO Operating Costs			
Accretion	\$ 10,776	\$ 11,415	\$ 11,059
Depreciation	6,034	6,302	6,353
Total	\$ 16,810	\$ 17,717	\$ 17,412

ARO operating costs are reported in cost of revenues. AROs are reported within other noncurrent liabilities in our accompanying Consolidated Balance Sheets.

Reconciliations of the carrying amounts of our AROs for the years ended December 31 are as follows:

in thousands	2018	2017
Asset Retirement Obligations		
Balance at beginning of year	\$ 218,117	\$ 223,872
Liabilities incurred	20	1,920
Liabilities settled	(13,558)	(21,477)
Accretion expense	10,776	11,415
Revisions, net	10,371	2,387
Balance at end of year	\$ 225,726	\$ 218,117

ARO liabilities settled during 2018 and 2017 include \$6,934,000 and \$11,578,000, respectively, of reclamation activities required under a development agreement and conditional use permits at two adjacent aggregates sites on owned property in Southern California. The reclamation required under the development agreement will result in the restoration of 90 acres of previously mined property to conditions suitable for commercial and retail development.

NOTE 18: GOODWILL AND INTANGIBLE ASSETS

Acquired identifiable intangible assets are classified into three categories: (1) goodwill, (2) intangible assets with finite lives subject to amortization and (3) intangible assets with indefinite lives. Goodwill and intangible assets with indefinite lives are not amortized; rather, they are reviewed for impairment at least annually. For additional information about our policies on impairment reviews, see Note 1 under the captions Goodwill Impairment, and Impairment of Long-lived Assets excluding Goodwill.

GOODWILL

Goodwill is recognized when the consideration paid for a business exceeds the fair value of the tangible and identifiable intangible assets acquired. Goodwill is allocated to reporting units for purposes of testing goodwill for impairment. There were no charges for goodwill impairment in the years ended December 31, 2018, 2017 and 2016. Accumulated goodwill impairment losses amount to \$252,664,000 in the Calcium segment.

We have four reportable segments organized around our principal product lines: Aggregates, Asphalt, Concrete and Calcium. Changes in the carrying amount of goodwill by reportable segment for the three years ended December 31, 2018 are as follows:

in thousands	Aggregates	Asphalt	Concrete	Calcium	Total
Goodwill Totals at December 31, 2016	\$ 3,003,191	\$ 91,633	\$ 0	\$ 0	\$ 3,094,824
Goodwill of acquired businesses 1	27,497	0	0	0	27,497
Totals at December 31, 2017	\$ 3,030,688	\$ 91,633	\$ 0	\$ 0	\$ 3,122,321
Goodwill of acquired businesses 1	43,075	0	0	0	43,075
Totals at December 31, 2018	\$ 3,073,763	\$ 91,633	\$ 0	\$ 0	\$ 3,165,396

1 See Note 19 for a summary of acquisitions.

We test goodwill for impairment on an annual basis or more frequently if events or circumstances change in a manner that would more likely than not reduce the fair value of a reporting unit below its carrying value. A decrease in the estimated fair value of one or more of our reporting units could result in the recognition of a material, noncash write-down of goodwill.

INTANGIBLE ASSETS

Intangible assets acquired in business combinations are stated at their fair value determined as of the date of acquisition. Costs incurred to renew or extend the life of existing intangible assets are capitalized. These capitalized renewal/extension costs were immaterial for the years presented. Intangible assets consist of contractual rights in place (primarily permitting and zoning rights), noncompetition agreements, favorable lease agreements, customer relationships and trade names and trademarks. Intangible assets acquired individually or otherwise obtained outside a business combination consist primarily of permitting, permitting compliance and zoning rights and are stated at their historical cost less accumulated amortization.

See Note 19 for the details of the intangible assets acquired in business acquisitions during 2018, 2017 and 2016. Amortization of finite-lived intangible assets is computed based on the estimated life of the intangible assets. Contractual rights in place associated with aggregates reserves are amortized using the unit-of-sales method based on estimated recoverable units. Other intangible assets are amortized principally by the straight-line method. Intangible assets are reviewed for impairment when events or circumstances indicate that the carrying amount may not be recoverable. There were no charges for impairment of intangible assets in 2018 and 2017. During 2016, we incurred \$8,180,000 of impairment charges related to intangible Aggregates segment assets.

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The gross carrying amount and accumulated amortization by major intangible asset class for the years ended December 31 are summarized below:

in thousands	2018	2017
Gross Carrying Amount		
Contractual rights in place	\$ 1,107,838	\$ 1,050,816
Noncompetition agreements	7,667	7,067
Favorable lease agreements	9,479	9,479
Permitting, permitting compliance and zoning rights	126,538	119,002
Other 1	4,517	4,616
Total gross carrying amount	\$ 1,256,039	\$ 1,190,980
Accumulated Amortization		
Contractual rights in place	\$ (122,100)	\$ (94,534)
Noncompetition agreements	(4,212)	(2,440)
Favorable lease agreements	(3,533)	(3,179)
Permitting, permitting compliance and zoning rights	(27,464)	(24,352)
Other 1	(3,352)	(2,845)
Total accumulated amortization	\$ (160,661)	\$ (127,350)
Total Intangible Assets Subject to Amortization, net	\$ 1,095,378	\$ 1,063,630
Intangible Assets with Indefinite Lives	0	0
	\$ 1,095,378	\$ 1,063,630

Total Intangible Assets, net Amortization Expense for the Year	\$	34,924	\$	23,765
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1 Includes customer relationships and tradenames and trademarks.

Estimated amortization expense for the five years subsequent to December 31, 2018 is as follows:

in thousands	
Estimated Amortization Expense for Five Subsequent Years	
2019	\$ 34,973
2020	33,698
2021	31,695
2022	29,146
2023	28,635

NOTE 19: ACQUISITIONS AND DIVESTITURES

BUSINESS ACQUISITIONS

2018 business acquisitions — During 2018, we purchased the following operations for total consideration of \$219,863,000 (\$215,363,000 cash and \$4,500,000 payable):

§ Alabama — aggregates, asphalt mix and construction paving operations

§ California — aggregates and asphalt mix operations

§ Texas — aggregates rail yards, asphalt mix and construction paving operations

The 2018 acquisitions listed above are reported in our consolidated financial statements as of their respective acquisition dates. None of these acquisitions are material to our results of operations or financial position either individually or collectively. The fair value of consideration transferred for these business acquisitions and the preliminary amounts assigned (pending appraisals of contractual rights in place and property, plant & equipment) to assets acquired and liabilities assumed, are summarized below:

in thousands	2018
Fair Value of Purchase Consideration	
Cash	\$ 215,363
Payable to seller	4,500
Total fair value of purchase consideration	\$ 219,863
Identifiable Assets Acquired and Liabilities Assumed	
Accounts and notes receivable, net	\$ 15,402
Inventories	11,874
Other current assets	661
Property, plant & equipment	150,274
Other intangible assets	
Contractual rights in place	44,163
Deferred income taxes, net	(32,871)
Liabilities assumed	(11,965)
Net identifiable assets acquired	\$ 177,538
Goodwill	\$ 42,325

As a result of the 2018 acquisitions, we recognized \$44,163,000 of amortizable intangible assets (contractual rights in place). The contractual rights in place will be amortized against earnings (\$43,072,000 - straight-line over a weighted-average 19.9 years and \$1,080,000 - units of sales in excess of 30.0 years) and \$7,385,000 will be deductible for income tax purposes over 15 years. Of the \$42,325,000 of goodwill recognized, \$4,468,000 will be deductible for income tax purposes over 15 years, and \$32,871,000 represents the balance of deferred tax liabilities generated from carrying over the seller's tax basis in the assets acquired.

2017 business acquisitions — During 2017 (excluding the assets immediately divested in the December 2017 Aggregates USA acquisition for \$287,292,000), we purchased the following operations related to material business acquisitions for total consideration of \$793,523,000:

- § California — aggregates and ready-mixed concrete operations
- § Florida — aggregates operations
- § Georgia — aggregates operations
- § South Carolina — aggregates operations
- § Tennessee — asphalt mix and construction paving operations

The amounts of total revenues and net earnings for the material business acquisitions noted above are included in our Consolidated Statement of Comprehensive Income for the year ended December 31, 2017, as follows:

in thousands	2017
Actual Results	
Total revenues	\$ 162,462
Net earnings	11,830

The unaudited pro forma financial information in the table below summarizes the results of operations for Vulcan and these material business acquisitions as if they were combined as of January 1, 2016. The 2016 financial information does not reflect any cost savings, operating efficiencies or synergies as a result of these combinations. Transactions between Vulcan and these businesses during the periods presented in the pro forma financial information were immaterial and have been eliminated as if the companies were consolidated affiliates during the following periods:

in thousands	2017	2016
Supplemental Pro Forma Results		
Total revenues	\$ 4,015,891	\$ 3,882,257
Net earnings	610,494	433,431

The unaudited pro forma results above may not be indicative of the results that would have been obtained had these acquisitions occurred at the beginning of 2016, nor does it intend to be a projection of future results.

The fair value of consideration transferred for these material business acquisitions and the preliminary amounts assigned as of December 31, 2017 (immaterial adjustments were recorded in 2018 including an increase to goodwill of \$750,000) to assets acquired and liabilities assumed, are summarized below:

in thousands	2017
Fair Value of Purchase Consideration	
Cash	\$ 1,072,978
Payable to seller	7,837
Total fair value of purchase consideration	\$ 1,080,815
Identifiable Assets Acquired and Liabilities Assumed	

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Accounts and notes receivable, net	\$ 14,955
Inventories	21,679
Other current assets	608
Investments	3,590
Property, plant & equipment	433,606
Other intangible assets	
Contractual rights in place	295,482
Liabilities assumed	(3,894)
Net identifiable assets acquired and retained	\$ 766,026
Goodwill	\$ 27,497