



**2018**

**C O R P O R A T E  
R E S P O N S I B I L I T Y  
R E P O R T**

**THE VALUE OF PERFORMANCE.**

**NORTHROP GRUMMAN**

# OUR VALUES

We, the women and men of Northrop Grumman, are guided by the following Values. We want our decisions and actions to demonstrate these Values. We believe that putting our Values into practice creates long-term benefits for shareholders, customers, employees, suppliers and the communities we serve.

## Quality

Our products and services are best-in-class in terms of value received for money paid. We deliver excellence, strive for continuous improvements and respond vigorously to change. Each of us is responsible for the quality of whatever we do.

## Customer Satisfaction

We are dedicated to satisfying our customers. We believe in respecting our customers, listening to their requests and understanding their expectations. We strive to exceed their expectations in affordability, mission capability, quality and on-time delivery.

## Leadership

Northrop Grumman's leadership is founded on talented employees effectively applying advanced technology, innovative manufacturing and sound business management. We add more value at lower cost with faster response. We each lead through our competence, creativity and teamwork.

## Integrity

We are each personally accountable for the highest standards of behavior, including honesty and fairness in all aspects of our work. We fulfill our commitments as responsible citizens and employees. We treat customers and company resources with the respect they deserve. We comply with all applicable laws and regulations.

## People

We treat one another with respect and take pride in the significant contributions that come from our diversity of individuals and ideas. Our continued success requires us to provide the education and development needed to help our people grow. We are committed to openness and trust in all relationships.

## Safety

We work to protect the health and well-being of our employees and to provide our customers with high quality, reliable and safe products. We are committed to safe operations and are diligent in our safety practices and processes.

## Suppliers

We owe our suppliers the same respect we show our customers. Our suppliers deserve fair and equitable treatment, clear agreements, and honest feedback on performance. We consider our suppliers' needs in conducting our business.

# CEO MESSAGE



At Northrop Grumman, we are committed to the highest standards of ethical behavior, corporate governance and responsible citizenship. This corporate responsibility report highlights our global initiatives and the commitment of our employees. I am proud of our culture and the initiatives outlined in this report. As important, I am proud of our exceptional employees.

Our culture is reflective of who we are—from our care for the environment and the communities where we work and live, to embracing a diverse and inclusive workplace. It is this culture that helps us attract and retain innovative and dedicated people who deliver the very best solutions for our customers.

I am fortunate to lead this team, comprised of people passionate about supporting our customers' missions, and who do so in a culture defined by inclusive behavior and strong values.

A handwritten signature in black ink that reads "Kathy Warden". The signature is fluid and cursive, with a long horizontal stroke at the end.

**Kathy J. Warden, Chief Executive Officer and President**

## 2018 HIGHLIGHTS

### Financial Performance

2018 was another year of strong financial performance. Sales rose 16%, operating income increased 17% and we generated higher net earnings and earnings per share. These results reflect the June 2018 acquisition of Orbital ATK, which greatly enhanced our position in the critical space and missile defense domains.

We continued to generate strong cash flows and executed the elements of our capital deployment strategy. We invested in the business and maintained robust capital expenditures to drive innovation and affordability for our customers. We managed our liabilities by reducing debt and making voluntary contributions to our pension funds. We distributed \$2.1 billion to our shareholders through dividends and share repurchases. We increased our dividend twice in 2018, totaling approximately 20%, and our share repurchases totaled \$1.3 billion.

## Diversity

Innovation thrives on diversity—diversity of thought, background, perspective, culture, gender, race, age and many other factors. We know that diverse teams create better solutions, which is why we foster diversity at all levels of our organization. We are at our best when we maximize the participation of all kinds of exceptional people.

### Employee Diversity

We continue to make progress on our employee diversity goals. Since 2010, the representation of females at the vice president level and above increased from 16% to 33%, and the representation of People of Color at the vice president level and above increased from 11% to 18%. We have also increased the numbers of veterans and people with disabilities working at our company. And in 2018, our college hires were more than 55% diverse—strengthening our future leadership pipeline.

In addition, in 2018 Northrop Grumman was one of four companies that earned the top award from Catalyst, a global nonprofit focused on advancing women in corporate leadership. The award recognized our “Build the Best Culture, Leverage the Power of Women” campaign, which aims to expand our leadership pipeline with diverse representation, including women and People of Color.

### Supply Chain Diversity

For more than 13 years, Northrop Grumman has exceeded the 23% statutory small-business goal. In 2018, we subcontracted 37% of our domestic procurements to small business suppliers, including women-, veteran- and minority-owned firms. Through our Global Supplier Diversity Program, we develop collaborative partnerships with the small business community to provide technologically-advanced products and services that support the growth and development of our supply chain. For example, working with the U.S. Department of Defense Mentor-Protégé Program, we are collaborating with the University of Southern California Center for Economic Development and several historically black colleges and universities to provide cybersecurity training to approximately 4,000 suppliers.

## Environment

This year marked the tenth anniversary of our environmental sustainability program, greeNG. Through our efforts we are achieving measurable success in reducing our environmental footprint, driving operational efficiency and realizing long-term cost savings.

For two consecutive years we have exceeded our 2020 greenhouse gas goal, reducing 244,110 metric tonnes of greenhouse gas emissions and representing a 33% reduction from our 2010 base year. Since establishing our water goal in 2015, we have implemented water conservation projects estimated to reduce 155 million gallons of potable water per year. Our global potable water use has declined by nearly 7%, relative to our 2014 base year, and 14% specifically in California where drought is an ongoing concern. By implementing recycling and waste diversion practices, our solid waste diversion from landfill rate has increased from 52% in 2014 to 62% in 2018.

## Community Engagement

Northrop Grumman and the Northrop Grumman Foundation are dedicated to expanding and enhancing our community engagement. One of our major focus areas is supporting STEM education opportunities for students and educators globally. In 2018, we contributed nearly \$20 million to diverse science, technology, engineering and math-focused organizations and programs. Our employees shared their time and talent in local communities and schools to excite, engage and educate the workforce of the future.

We celebrated our 10-year anniversary sponsoring Space Camp® for students and educators. We also sponsor CyberPatriot, the Air Force Association’s initiative to inspire K–12 students to pursue careers in cybersecurity, which celebrated a 10-year anniversary. More than 250,000 students have been impacted by these programs over the past 10 years.



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Appendix: GRI Content Index



# LEADERSHIP

At Northrop Grumman, we are committed to maintaining the highest of ethical standards, embracing diversity and inclusion, protecting the environment, and striving to be an ideal corporate citizen in the community and in the world.



# COMPANY PROFILE

Northrop Grumman is a leading global security company providing innovative systems, products and solutions to customers worldwide. We participate in many high-priority defense and government programs in the United States and abroad. We offer a broad portfolio of capabilities and technologies that enable us to deliver innovative platforms, systems and solutions for applications that range from undersea to outer space and cyberspace. We provide capabilities in autonomous systems; cyber; command, control, communications and computers, intelligence, surveillance and reconnaissance (C4ISR); space; strike; and logistics and modernization. We conduct most of our business with the U.S. government, principally the Department of Defense and intelligence community. We also conduct business with foreign, state and local governments, as well as commercial customers.

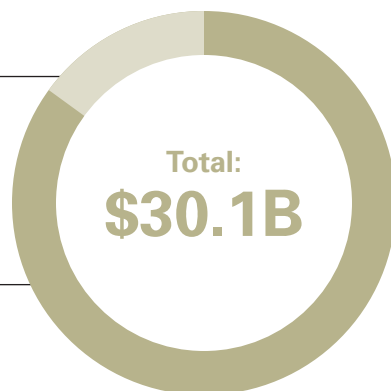
## Northrop Grumman at a Glance 2018

- NYSE Symbol: NOC
- Diluted Earnings per Share: \$18.49
- Headquarters: Falls Church, Virginia
- Backlog: \$53.5 billion
- Employees: Approximately 85,000
- Floor Space: 53.3 million square feet
- Net Earnings: \$3.2 billion

## 2018 Revenue

15%  
International

85%  
U.S.



## Expanding Our Mission Capabilities

In June 2018, we completed the acquisition of Orbital ATK, Inc., a leader in the design, development, integration and production of flight, armament and space systems, and established this group as a new, fourth business sector within Northrop Grumman: Innovation Systems. The addition of Innovation Systems broadens our offerings in space and missile defense and enables us to provide our customers with enhanced capabilities and more competitive offerings. The acquisition has also significantly increased the number of people we employ and our geographic footprint. With the exception of company profile information, quantitative data in this report represents legacy Northrop Grumman operations only and does not include our Innovation Systems sector, unless otherwise noted.

## OUR MISSION

- Provide high-quality, innovative and affordable products and systems to support the U.S. government and allies in missions around the world.
- Lead the defense industry in sustainable, top performance; generate value for our shareholders, customers and employees; and maintain strong, enduring values.

We remain committed to environmental sustainability, corporate social responsibility and strong governance. Northrop Grumman does not currently manufacture cluster munitions, anti-personnel mines, chemical or biological weapons. Our focus globally is on doing business in a manner consistent with our values. We work to incorporate social responsibility and customer support into decision-making, including the products we design, develop, manufacture and sustain.

MATERIAL ISSUE  
**Financial Performance**



**WHY IT'S IMPORTANT**

Robust financial performance allows us to invest in our business globally while delivering innovative and affordable solutions for our customers.



**MANAGEMENT APPROACH SUMMARY**

We use a balanced scorecard to reflect financial and non-financial performance criteria important to our shareholders, customers and employees. Our financial performance metrics include measures of operating margin rates, net income growth, and cash from operations. Our non-financial metrics were customer satisfaction, quality, employee engagement, inclusion, accountability, diversity, safety and environmental sustainability. In 2018, we achieved above 100% on our balanced scorecard, reflecting performance that, in the aggregate, met our financial and non-financial goals.



# MATERIAL ISSUES

Through our environmental, social and governance strategies and reporting efforts, Northrop Grumman has identified topics that rank highest in importance to our business and our stakeholders. This Corporate Responsibility Report addresses our management approach and our performance within each of these areas.

We conducted a materiality assessment survey in 2017 with employees across different levels and business units. For each potentially material topic, we asked employees to rate its importance to four different stakeholder groups: customers, investors, employees and society. We intend to broaden our materiality assessment in 2019 to include external stakeholders, with the aim of refreshing and refining our understanding of key stakeholder expectations.

We have prepared this Corporate Responsibility Report in accordance with Global Reporting Initiative (GRI) Standards at the core level. The GRI Index, included in the report appendix, provides references to the relevant information addressing GRI disclosures. The GRI Index also identifies how our performance disclosures relate to the United Nations Sustainable Development Goals (SDGs). The SDGs address global challenges and are designed to encourage active participation by corporations, governments and non-profit organizations to collaborate on finding solutions.

The table on the next page lists our material issues and indicates the report sections where we present information on our management approach for each topic. Throughout this report, we use the word “material” as defined by GRI, rather than as defined by the U.S. Securities and Exchange Commission or other securities laws. For this report, material aspects are those that “...reflect the organization’s significant economic, environmental, and social impacts; or substantively influence the assessments and decisions of stakeholders.”



MATERIAL ISSUE	DEFINITION FOR NORTHROP GRUMMAN	REPORT SECTION
<b>Financial Performance</b>	Northrop Grumman's financial performance (e.g., sales, income and earnings, cash flow and other financial metrics in the Annual Report).	Leadership, page 3
<b>Ethics and Integrity</b>	Includes a number of components such as anti-corruption, influencing the development of public policy, ethical business development, executive misbehavior, employee conflict of interest.	Governance, page 11
<b>Regulatory and Legal Compliance</b>	Compliance with regulations across a full range of functional areas (and geographies), includes EHS, affirmative action, equality, equal employment and equal access requirements, reporting on use of company resources, and anti-corruption regulations.	Governance, page 14
<b>Data Privacy</b>	The protecting and safeguarding of Personal Information we collect, process and/or maintain and to respect the privacy of the individuals to whom it relates consistent with applicable laws and contractual obligations.	Governance, page 15
<b>Supply Chain</b>	Includes supply base diversity, growing the supply chain internationally, as well as managing cost, quality and compliance across the supply base. Also may have to communicate changing customer requirements back to suppliers.	Governance, page 17
<b>Program Performance</b>	Includes a number of components related to satisfying our customers—respecting our customers, listening to their requests and understanding their expectations. We strive to exceed their expectations in affordability, mission capability, quality and on-time delivery.	Products and Innovation, page 22
<b>Product and Service Quality</b>	Quality of product and services; also includes addressing of counterfeit parts.	Products and Innovation, page 24 See also Supply Chain Security, page 19
<b>Customer Satisfaction</b>	Ensuring customers' expectations are met or exceeded, and customer concerns are acknowledged and addressed as appropriate. Includes issues with affordability and product environmental attributes (e.g., contains recycled content, emissions when in use by customer, etc.).	Products and Innovation, page 24
<b>R&amp;D and Innovation</b>	Developing new products and services, fostering a culture of innovation, to meet evolving customer mission needs and support top line growth.	Products and Innovation, page 26
<b>Environment</b>	A broad view of environment, in particular emissions and climate change, resource efficiency, compliance and management systems, and remediation at Northrop Grumman.	Environment, page 30
<b>Talent Management</b>	Includes new STEM talent pipeline development, recruitment, development and engagement, retention, and managing attrition.	People and Culture, page 39
<b>Diversity and Inclusion</b>	The collective mixture of differences in the workplace that includes—but not limited to—individual and organizational characteristics, values, beliefs, experiences, backgrounds, preferences and behaviors.	People and Culture, page 43
<b>Health and Safety</b>	Includes the health and safety of Northrop Grumman employees and contractors with a focus on accident prevention.	People and Culture, page 45
<b>Corporate Citizenship</b>	Includes community engagement, philanthropy and volunteering.	Community Engagement, page 49

<sup>1</sup>Order in which material issues are listed does not reflect priority, but rather the order in which they are addressed within this report.

# STAKEHOLDER ENGAGEMENT

Our stakeholders include academia, community, customers, employees, government, industry partners, policymakers, professional associations, shareholders, scientists and suppliers. Throughout the year, we engage extensively with these stakeholder groups through various means. Examples of our stakeholder engagement methods are described below.

Annually, as part of our Corporate Responsibility Report preparation, we convene an External Review Panel to provide feedback on our disclosure practices. This direct input is helpful as we continue to make improvements in our disclosure practices.

## Customers

- Engage with customers on establishing goals and priorities.
- Pilot “Joint Quality Council” quarterly meetings with Defense Contracts Management Agency (DCMA) representatives. Invited DCMA members as keynote speakers at the 2018 Quality Symposia.

## Suppliers

- Host supplier outreach events, offer mentoring programs and sponsor academic, customer and industry activities that support small business growth and development.
- Collaborate with government and industry partners to develop and drive common strategies and standards in order to reduce supply chain risk.

## Shareholders

- Bi-annual engagement with the governance leads of our largest shareholders, as well as ongoing engagement with the investment leads at our actively managed shareholders.

## Employees

- Host Leadership Council Meetings and Sector Diversity and Inclusion Council Meetings.
- Consult and collaborate with our 12 Employee Resource Groups, Global and Sector Diversity & Inclusion Committees, and our Veterans Inclusion Committee on numerous issues.
- Charter the Technical Talent Working Group to address the development needs of the technical staff across the enterprise.

## Industry Organizations

- Engage with governmental agencies and industry groups on workplace accommodations and equal employment opportunity.
- Engage with and represent the company on industry working groups addressing security stakeholder topics such as critical technology protection, controlled unclassified information, insider threat and personnel security clearances.
- Host industry compliance meetings with various nonprofit and government organizations.

## Community

- Meet and collaborate with leadership to develop community outreach plans and review programs and initiatives.
- Engage with community partners at nonprofit organizations to facilitate funding and grant requests.
- Collaborate with educational thought leaders to develop and provide relevant professional development programming to middle school science, technology, engineering and mathematics (STEM) teachers.
- Collaborate with organizations focused on military and veterans and diversity and inclusion to understand key issues and needs.

# PARTNERSHIPS AND PROFESSIONAL ASSOCIATIONS

We maintain affiliations with a variety of organizations to enhance business performance, collaboration, community involvement, diversity and inclusion, employee relations, environmental sustainability, health and safety, innovation and supplier relationships. A partial list of these organizations is provided below.

- Advanced Product Quality Planning (APQP)
- Aerospace Industries Association (AIA)
- American Society for Quality (ASQ)
- Americas Aerospace Quality Group (AAQG)
- Aperian Global
- Asian American Engineer of the Year
- Asian Business Association
- Association of Corporate Citizenship Professionals
- Australian Defence Force Centre for Defence Leadership and Ethics
- Black Business Association
- Black Engineer of the Year
- Boston College Center for Corporate Citizenship
- Catalyst
- Counterfeit Microelectronics Working Group
- Defense Contracts Management Agency (DCMA)
- Defense Industry Initiative on Business Ethics and Conduct
- Direct Employers Association
- Disability:IN
- Diversity Best Practices
- Equal Justice Works
- Ethics and Compliance Initiative
- Gartner Advisory Group
- Great Minds in STEM
- Industrial Security Awareness Council
- Institute of Business Ethics
- International Aerospace Environmental Group
- International Council on Systems Engineering (INCOSE)
- International Forum on Business Ethical Conduct
- Latin Business Association
- Legal Aid Society of DC
- Mercer
- Military Spouse Employment Partnership
- Minority Corporate Counsel Association
- National Association of Asian American Professionals
- National Association of Women Business Owners
- National Center for American Indian Enterprise Development
- National Classification Management Society
- National Defense Industrial Association Integrated Program Management Division
- National Defense Industry Association (NDIA)
- National Industry Liaison Group
- National Labor Exchange
- National LGBT Chamber of Commerce
- National Military Family Foundation
- National Minority Supplier Development Council
- National Organization on Disability
- National Partnership for Women & Families
- National Society of Black Engineers
- ORC Health, Safety, and Environmental Strategies (ORCHSE)
- Organization for Economic Co-operation and Development
- Out & Equal Workplace Summit
- Overseas Awareness Council
- PsychArmor
- Responsible Sourcing Initiative
- Society of Asian Scientists and Engineers
- Society of Corporate Compliance and Ethics
- Society of Hispanic Professional Engineers
- Society of Women Engineers
- The Institute for Workplace Equality
- Value of a Veteran

## University Collaborations

- American University
- California Polytechnic State University, San Luis Obispo
- California State University, Long Beach
- Carnegie Mellon University
- Florida A&M University
- George Mason University
- George Washington University
- Georgetown University
- Georgia Institute of Technology
- Howard University
- Johns Hopkins University
- Massachusetts Institute of Technology
- North Carolina A&T State University
- Purdue University
- San Diego State University
- Stanford University
- University of California, Los Angeles
- University of Central Florida
- University of Florida
- University of Maryland
- University of Michigan, Ann Arbor
- University of Southern California
- University of Sydney
- University of Virginia
- Virginia Commonwealth University
- Virginia Polytechnic Institute and State University

## SELECTED 2018 AWARDS

- Included in the Dow Jones Sustainability Index for North America for the third year in a row
- Maintained a leadership score on the CDP climate change program for the seventh consecutive year—scoring A–
- Best Places to Work for LGBTQ Equality by Human Rights Campaign
- Top Leaders in Corporate Supplier Diversity by Women’s Enterprise USA magazine
- America’s Top Organizations for Multicultural Business Opportunities by Omni50—Ranked #2
- Platinum Hire VETS Medallion Award from US Department of Labor
- Military Friendly® Employer—Top 100 Silver Award
- Military Friendly® Spouse Employer
- Best for Vets Employers #63 by Military Times
- Corporate Leadership Award—National Veterans Legal Services Program
- National Organization on Disability Leading Disability Employer
- U.S. Veteran Magazine Best of the Best Veteran Friendly Companies and Top Supplier Diversity Programs
- Best Places to Work for People with Disabilities by Disability Equality Index (DEI)
- Top 50 Employers by Careers & the disABLED magazine
- Forbes Global 100 Most Sustainable Corporations
- Forbes The Just 100
- 2018 James S. Cogswell Award for Industrial Security Excellence by Defense Security Service
- Disability: IN Employer of the Year—Inspire Award
- Indeed.com #1 Top Rated Workplace by Millennials in 2018
- STEM Partner of the Year from The Robotics Education & Competition Foundation

### HIGHLIGHT STORIES

#### Catalyst Award—Recognizing Workplaces that Work for Women

In 2018, Northrop Grumman was one of four companies earning the top award from Catalyst, a global nonprofit focused on advancing women in corporate leadership. The Catalyst Award recognized our “Build the Best Culture, Leverage the Power of Women” campaign, which has helped to accelerate the career progress of women at Northrop Grumman. Among other areas, the company was recognized for increasing the number of women on the executive team from 8% in 2010 to 46% in 2016.

#### DiversityInc—Top 50 Companies in 2018

Northrop Grumman was ranked 23rd on DiversityInc’s annual list for the 2018 Top 50 Companies for Diversity. The company moved up from 29th in 2017 and was once again the top rated aerospace and defense company. In the DiversityInc specialty lists rankings, Northrop Grumman was rated No. 1 for veterans (for the second year in a row), No. 2 for support to people with disabilities (for the second year in a row) and No. 2 for diversity councils. For the last nine years, Northrop Grumman has earned a Top 50 ranking for diversity from DiversityInc.

#### Great Minds in STEM

Northrop Grumman’s Sandra Evers-Manly, José Castellón and Alejandro Salazar were honored for being outstanding role models in science, technology, engineering and mathematics (STEM) at the 30th Annual Great Minds in STEM Hispanic Engineers National Achievement Awards Conference (HENAAC). HENAAC recognizes the achievements and contributions of top professionals in the Hispanic community from academia, government, military and industry.





# ***GOVERNANCE***

We are committed to maintaining the highest standards in corporate governance, ensuring our interests at Northrop Grumman are aligned throughout the company, increasing accountability to shareholders and demonstrating our commitment to compliance, ethics and integrity.

# GOVERNANCE PRACTICES HIGHLIGHTS

- All Board committees comprised entirely of independent directors
- Annual election of all directors
- Lead independent director with significant and clearly defined responsibility
- Majority voting for directors in uncontested elections
- Proxy access bylaw
- Annual Board and committee self-evaluations
- Ability of shareholders to act by written consent
- Ability of shareholders to call a special meeting
- Annual advisory vote on executive compensation
- Recoupment policy for incentive compensation
- Stock ownership guidelines for directors and executive officers
- Policy prohibiting hedging and pledging of Northrop Grumman stock by directors and executive officers

We regularly engage with our shareholders to better understand their perspectives regarding Northrop Grumman. That ongoing dialogue with shareholders informs decisions by the Board of Directors and shapes our governance and compensation to help ensure our interests remain aligned with the owners of our company.

The Board has adopted corporate governance policies and programs, including the Principles of Corporate Governance, which reinforce our values and provide for effective management, oversight and responsible business practices. See the [Principles of Corporate Governance](#) on the Northrop Grumman website.

## Board of Directors

The Board of Directors fosters the long-term success of Northrop Grumman, promoting the interests of our shareholders. In July 2018, Wes Bush, then chairman and chief executive officer of Northrop Grumman Corporation, announced his intention to step down from the position of chief executive officer effective January 1, 2019. He will remain chairman through July 2019. The Board of Directors elected Kathy Warden, then president and chief operating officer, to the position of chief executive officer and president, effective January 1, 2019. The Board also elected Warden to serve as a member.

### Board Composition and Tenure

As of December 31, 2018, the Board included 13 directors, 11 of whom are independent. The Board represents a diverse group of accomplished directors who bring a wide range of experience to the company. The average tenure is 6.5 years. Four of the directors are women, bringing female representation on the board to more than 30%, and three are People of Color.

We believe our directors possess the reputation, education, professional background and skills highly beneficial to the Board and to our shareholders. Each year, the full Board, as well as each of its committees, conducts an assessment of performance and discusses in executive session the results and opportunities for improvement. In addition, the directors conduct an annual assessment of each individual director's performance. The Lead Independent Director or Chairperson discusses the results of this assessment with each director individually. Our directors are required to have a significant financial interest in Northrop Grumman through stock ownership to help reaffirm their interests align with those of the company's shareholders.

The Board has four standing committees: audit, compensation, governance and policy. Among other duties, the Board oversees our risk management activities. Each of our Board committees assists the Board in this role. The Board also receives reports on the activities of our Enterprise Risk Management Council, which seeks to ensure effective mitigation programs are in place for each of the most significant risks to our business. Our 2019 Proxy Statement provides a summary of the duties of each committee. The committee charters are posted on the [Northrop Grumman website](#).

## Committees of the Board of Directors

### Audit

- Focuses on risks that could affect financial performance.
- Reviews management reports on material financial risks and how we respond to, and mitigate, these risks.
- Reviews periodic Northrop Grumman reports filed with the Securities and Exchange Commission.
- Annually reviews the company's compliance program and discusses with management implementation of the company's global compliance policies, practices and programs.
- Receives periodic reports on any material findings of bribery and corruption.

### Compensation

- Reviews risk assessment of Northrop Grumman compensation programs.
- Reviews measures to ensure compensation policies and procedures incentivize ethical conduct, consistent with company values.
- With input from its independent compensation consultant, evaluates the mix of at-risk compensation linked to stock performance and the alignment of compensation programs with shareholder value creation.

### Governance

- Regularly reviews corporate governance policies and practices.
- Makes recommendations to the Board regarding composition and Board succession planning.

### Policy

- Assists the Board in identifying and evaluating global security, political, budgetary, environmental, health and safety issues and trends that could impact Northrop Grumman business.
- Reviews and provides oversight of the company's environmental sustainability programs.
- Reviews management reports on ethics and corporate responsibility programs.

## ETHICS

### Training

All Northrop Grumman employees are responsible for ensuring that we maintain absolute integrity across the company. Each employee participates in mandatory annual ethics and compliance training. In 2018 we provided enterprise training on Northrop Grumman's Values, building the best culture, information security, export awareness, property awareness, and for U.S. employees, the importance of time and labor charging accuracy. For international employees, we included a module on Anti-Corruption and translated training content into German, French, Italian, Dutch, Flemish, Chinese and Arabic.

U.S. employees are required to annually disclose any conflicts of interest and certify that they have read, understand and will comply with the Northrop Grumman Standards of Business Conduct. Our Standards of Business Conduct brochure is published in 12 different languages.

Approximately **84,000** employees received Ethics and Compliance Training in 2018 (including online and in-person training sessions).

*We use positive reinforcement with our ongoing "Ethics: Own It, Live It, Lead It" award for employees who demonstrate integrity and inspire others to do the right thing.*



## Our “Speak-Up Culture”

We strive to ensure employees have a safe place to bring their issues and concerns for independent and objective review. Our employees are encouraged to raise concerns or questions with their manager, another manager they trust, their business conduct officer, a member of our Law Department or Human Resources. Our “Speak Up—We’re Listening” OpenLine posters, with contact information for local business conduct officers and the OpenLine, are prominently displayed at all Northrop Grumman facilities and serve to reinforce our commitment to integrity. We have translated posters into nine different languages.

Northrop Grumman requires all employees to understand their ethical and legal obligations and to conduct themselves in full compliance with the company’s values, standards of business conduct, policies and procedures. This personal commitment is critical for sustaining the company’s high performance culture and executing the company’s strategic goals. The company’s non-retaliation policy, prominently posted online and in brochures, clearly states zero tolerance of direct or indirect retaliation against any individual who reports a concern in good faith.



## MATERIAL ISSUE Ethics and Integrity



### WHY IT'S IMPORTANT

Northrop Grumman has a strong ethical reputation in the industry. Our mission is to promote a culture where leaders create and encourage an open and ethical work climate and lead by example. In this way, we can meet the expectations of our customers, shareholders and employees and maintain our standing as a highly regarded corporate partner.



### MANAGEMENT APPROACH SUMMARY

We implement mandatory training related to ethics and compliance to help develop a workforce that takes ownership of our ethical culture, conducts itself with integrity and lives our company values.

We help enable employees to act with integrity and in compliance with all ethical and legal responsibilities by providing necessary tools and knowledge. We pledge to conduct ourselves with integrity to support an internal culture of innovation and trust. Our ethical obligations extend to all employees and those who represent the interests of Northrop Grumman anywhere in the world.

Our [Ethics and Business Conduct](#) webpage has more information on our policies and practices.



## Northrop Grumman Values

Northrop Grumman's culture is shaped by our company Values. These Values describe our company as we want it to be. Our values-based ethics program goes beyond the minimum standards to create and sustain an open environment and a "speak up" culture that fosters trust, helps employees achieve goals and improves our performance. We believe that putting our Values into practice creates long-term benefits for shareholders, customers, employees, suppliers, and the communities around the world where we live and work. By making the right decisions based on Values, Northrop Grumman employees maximize both individual and company success.

Our strong commitment to our company Values helps create and sustain a culture of trust. Part of our annual ethics and compliance training included a module on company Values supplemented with a video featuring our international chief executives speaking on the importance of a strong ethical culture. This video, subtitled in German, French, Italian and Dutch, was designed for a global audience and reinforced Tone at the Top messaging that our company Values apply no matter where we work or what we do.

The ethics organization at Northrop Grumman plays an important role in achieving and sustaining our company's ethical reputation. In addition to the corporate office that defines and implements ethics strategy and initiatives, there are full-time ethics directors and advisors at each sector. To support our ethics program, Northrop Grumman also has a global network of business conduct officer's at all major company locations.



These individuals, appointed by management, are approachable and broadly trained in Northrop Grumman policies and procedures. In addition to their full-time positions, they are responsible for promoting the values and ethical culture within Northrop Grumman and providing guidance to employees and management on ethics and compliance related issues and the Standards of Business Conduct.

In April 2018, 37 international business conduct officers and ethics partners, representing 12 countries, came together in the Netherlands for the annual international business conduct officer workshop. We hosted a similar two-day workshop in Falls Church, Virginia, for more than 80 U.S.-based business conduct officers in June 2018. The two-day sessions featured executive leaders sharing their views on ethics and integrity, as well as, sessions on compliance topics, workplace culture, emerging risk areas, and ethics data and trends. Our business conduct officers had an opportunity to discuss challenges, share best practices and lessons learned, and develop strategic plans for program enhancements.

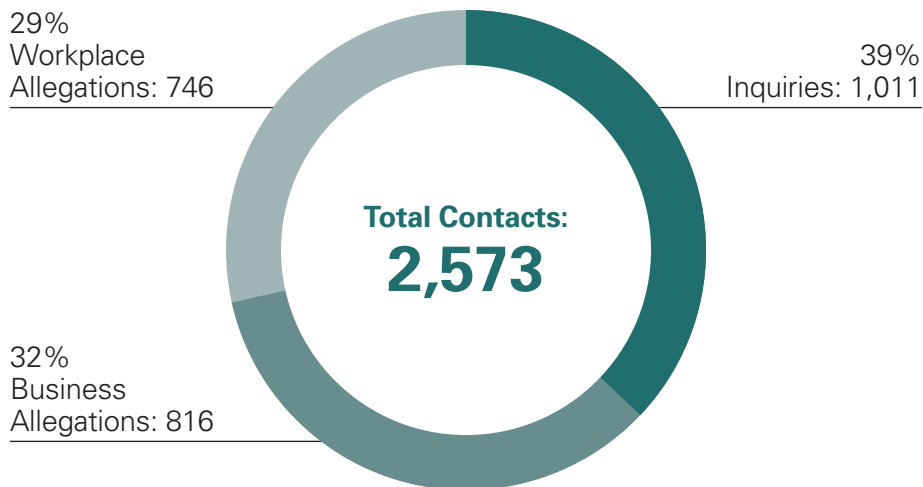
One major project in 2018 was integrating our new Innovation System sector into the Northrop Grumman ethics program and ensuring our strong culture of integrity was imbedded from day one. On the first day of integrating the new company, we launched our Standards of Business Conduct and Northrop Grumman Values, both updated to account for the needs of the new organization. We selected Business Conduct Officers throughout the sector and introduced the OpenLine as an employee resource. This strong ethics presence on day one set the tone for how Northrop Grumman values ethics and integrity.

## Northrop Grumman OpenLine

The OpenLine is a valuable resource where employees, business partners, suppliers and other stakeholders can seek guidance on ethics questions and report suspected violations of laws, regulations and company policy. The toll-free 24/7 number, administered by a third-party service provider, is communicated on brochures, posters, the company intranet and internet sites.

There are dedicated OpenLine numbers at most of our international locations so employees in those countries can speak to a representative in their native language. In addition, an online web-based reporting system is available to employees. In 2018 we extended OpenLine to Singapore and Hong Kong, and revamped our global OpenLine intake process to make it easier and more employee friendly.

### Allegations and Inquiries



### Corrective Actions

Written Warnings: 159  
Coaching/Counseling: 136  
Terminations: 94

Memo of Expectations: 37  
Verbal Warning: 33  
Suspension: 11

Demotion: 4  
Personnel Move: 1

**Total Corrective Actions: 475**

There were 2,573 OpenLine contacts in 2018, including phone and web entries, as well as input from our business conduct officers and human resources business partners. The number of allegations were about the same from the previous year; however, inquiries decreased by 3.4% possibly due to targeted training and enhanced communications.

Most inquiries relate to business courtesies and conflicts of interest. These inquiries are generally a one-time contact with a response based on policy or procedures. They are documented for evaluation and guidance on training and communication content. Callers may choose to remain anonymous if permitted by local law.

Allegations are investigated by dedicated teams of full-time professionals trained to conduct interviews in a manner that respects the reporting individual and the trust they have placed with us. Examples of allegations include misuse of company resources, violations of employment, harassment or retaliation practices and policy or security concerns; however, most raise issues involving employee behavioral misconduct and time reporting.

In 2018, 33% of these allegations were substantiated, up 3% from the previous year. There were 94 terminations due to substantiated OpenLine allegations.

*In 2018, over 90 employees participated in a scenario-based Investigator Training workshop to ensure a consistent training process across the enterprise, regardless of function.*

# COMPLIANCE

The unwavering commitment of our management to a strong culture of integrity is the foundation of our ethics and compliance program. Our leadership demonstrates its commitment regularly through communications and actions. We publicly recognize employees who do the right thing, even when it might result in a loss of business. We also have effective processes for addressing allegations and disciplining employees who engage in misconduct. We measure employee confidence in our commitment to support employees who report concerns through our annual employee engagement survey.

We devote significant resources to evaluating and carefully selecting third parties, including sales representatives, partners, consultants, suppliers and teammates. We clearly communicate our expectations that these third parties must share our commitment to doing business with the highest levels of ethics and integrity, and in compliance with all applicable laws and regulations.

## Anti-Corruption Compliance

We do not tolerate bribery or corrupt business practices. We report material findings of bribery and corruption from our investigations to the company's Audit Committee of the Board of Directors and also to relevant authorities where appropriate and in accordance with applicable law. We strive to conduct our business consistent with high ethical standards and in full compliance with applicable anti-corruption laws. We compete in the global marketplace based on the quality of our products and services and the value we create for our customers by offering those products and services at a competitive price. We have zero tolerance for bribes, kickbacks or any other illegal business practices. Our [Anti-Corruption Compliance webpage](#) provides additional details.

## Human Rights

At Northrop Grumman, our business practices reflect our strong commitment to human rights. Our [Human Rights Policy](#) highlights our commitment to treat employees, suppliers, customers and competitors with dignity and respect and prohibits unlawful discrimination, harassment or retaliation. Additionally, our policy covers freedom of association, fair working conditions, ethical procurement practices, health and safety and protection of the environment. We also have established policies against human trafficking. We expect our partners and suppliers in our worldwide supply chain to share this commitment; we include these requirements in our [Supplier Standards of Business Conduct](#).

### MATERIAL ISSUE

## Regulatory and Legal Compliance



### WHY IT'S IMPORTANT

Compliance with laws and regulations is a business and legal imperative, but also reflects our shared culture of strong ethics and integrity, which in turn provides the foundation for our performance and growth.



### MANAGEMENT APPROACH SUMMARY

As the global business environment changes at an accelerated pace, the compliance program remains focused on our people, our culture and our values. We provide clear written guidance available to our officers, directors and employees. We foster an environment where employees feel safe to speak up without fear of retaliation. We collaborate across functions and business units to anticipate and mitigate risks. We also work to continually improve the efficiency and effectiveness of the compliance program. Northrop Grumman is an active member of the Defense Industry Initiative on Business Ethics and Conduct, and the International Forum on Business Ethical Conduct, organizations that promote and benchmark best practices.

In addition to our Standards of Business Conduct, we have a comprehensive set of policies and procedures that establishes clear roles and responsibilities to ensure strong internal controls, as well as communicates standards to which we hold employees accountable.

To leverage our compliance program, we use internal teams that work to provide oversight and resources. We draw upon stakeholders and expertise from our Office of the Chief Compliance Officer; Corporate Compliance Council; Law Department; Global Corporate Responsibility; Ethics; and Internal Audit.

# SECURITY AND DATA PRIVACY

The Northrop Grumman Security organization provides enterprise-wide oversight over security systems, controls, and processes established by the Northrop Grumman Security Council and implemented throughout the company's operating sectors to ensure the continuing effectiveness of our uniform security compliance framework.

Northrop Grumman provides a security program to protect and secure our personnel, resources and information and, as required, that of our customers and suppliers. The program also complies with customer, federal, state and risk management requirements.

Northrop Grumman undertakes a comprehensive approach to data privacy not only in compliance with US laws but also around the globe. We understand and comply with data privacy laws in each country in which we conduct business and have established a business operating model that provides oversight to ensure compliance.

Northrop Grumman requires an effective program at each sector that considers risks, vulnerabilities, emergency response, crisis management, IT disaster recovery and business recovery and resumption.

*Implementation of our Business Continuity and Crisis Management Program promotes operational resilience across our organization. The program enables us to respond effectively to unanticipated events with an emphasis on the protection of people, information, assets and brand as well as continuity of mission.*

## MATERIAL ISSUE Data Privacy



### WHY IT'S IMPORTANT

Implementing an effective company-wide privacy program allows us to minimize risk and comply with legal and regulatory requirements. We protect the personal data of our customers, suppliers and employees. In so doing we are a trusted business partner and hold a reputational advantage.



### MANAGEMENT APPROACH SUMMARY

Our Corporate Privacy Office manages our global commitment to respect the personal information of our employees, customers and other individuals with whom we conduct business. We continue to enhance our Privacy Governance Framework that includes privacy training and awareness initiatives, effective privacy notices, frequent audits and self-assessments, access controls, international and third-party supplier risk assessments, compliant cross-border transfers of data, and other risk mitigation measures. Our online privacy notice has more information on our data privacy practices.





# GLOBAL SUPPLY CHAIN MANAGEMENT

## Supplier Responsibility

We take pride in conducting our business with a broad perspective, taking into account our customers, employees, shareholders, and the environment and communities in which we operate. As a global company, we continue to mature our supply base both domestically and abroad. We have established strategic supplier relationships that support the growth of our global business. Our suppliers must act ethically at all times and ensure the integrity of their operations. Our reputation, ability to do business and products and services may be impacted by among other things, the improper conduct of employees, agents and/or our supply base.

Our Enterprise Terms and Conditions include a provision requiring compliance with our Supplier Standards of Business Conduct as a condition of acceptance. In the event of a violation of our Supplier Standards of Business Conduct, we may pursue corrective action in order to remedy the situation. In the case of an actual or possible violation of law or regulation, we may be required to report to proper authorities. We reserve the right to terminate our relationship or take any other appropriate action with any supplier under the terms of the existing procurement/ purchasing contract. Please see our [Supplier Standards of Business Conduct](#) for more information.

## Anti-Human Trafficking

We fully support the elimination of human trafficking and slavery from the supply chain and do not tolerate trafficking in persons. Suppliers must comply with all applicable local laws in the country or countries in which they operate and comply with our standard terms and conditions that expressly prohibit trafficking in persons and the use of forced labor. For more information, please see our [Anti-human Trafficking and Slavery Statement](#).

## Responsible Sourcing of Materials/Conflict Minerals

We are committed to the responsible sourcing of minerals through our supply chain. Suppliers must comply with applicable laws and regulations regarding conflict minerals (tantalum, tin, tungsten and gold) and assist us in meeting our obligations under law and regulation. We file annually our report with the United States Securities and Exchange Commission (SEC) regarding the use of conflict minerals. We continuously review our process for opportunities to improve our conflict minerals due diligence process. In 2018, we issued a Conflict Minerals Communication which further clarifies our conflict minerals disclosure and reporting requirements and expectations of our suppliers. As a result, we improved visibility into our supply chain sourcing practices regarding conflict minerals. Please see our [Conflict Minerals Statement](#) as well as our [2018 Conflict Minerals Supplier Communication online](#).

## Environmental Sustainability

We promote best practices in environmental management within the supply chain function and our supply base with a focus on improved risk management, performance and transparency. Additionally, we expect our suppliers to support our commitment to the environment and comply with all applicable environmental laws, regulations and directives, operating as responsible stewards of the environment.

*Our suppliers must maintain the highest standards of ethics and integrity and comply with laws, regulations, their contractual obligations with us and the Northrop Grumman Supplier Standards of Business Conduct.*

## Supplier Performance

We expect a commitment from our suppliers and their supply base to achieve the highest standards of ethics, integrity and performance. Producing the best, most innovative and affordable technology solutions for our customers is essential for our growth, our future and the security of our nation and allies.

Our supplier qualification and rating process helps us make decisions, predict performance and identify suppliers at risk of reduced performance. It also provides supplier performance expectations and an opportunity for recurring communications. We perform due diligence to monitor and assess our suppliers and potential suppliers for a variety of risks, including debarment or suspension from U.S. Government contracting. Performance is evaluated across several major categories including: Management, Technical, Schedule, Cost, Proposal, Mission Assurance, Supply Chain Management and Customer Satisfaction with emphasis on our “most critical suppliers” to our core business requirements. Critical suppliers criteria include:

- Level of criticality of program
- Past performance
- Dollar value and total spending
- Open purchase order value and volume
- Sole-source versus single-source
- Multiple programs
- Affordability
- Risk/financial health
- Investments, business agreements and small business categories
- Unique technology and strategic partnering

We proactively engage in verification of product supply chains to evaluate and address various risks, as well as conduct supplier audits to evaluate compliance with regulatory, contractual requirements and company policies/procedures. Rigorous corrective action plans are developed as necessary, for any non-compliance. We monitor the implementation of such plans until they are completed.

### MATERIAL ISSUE

## Supply Chain



#### WHY IT'S IMPORTANT

At Northrop Grumman, our vision is to be a leader in delivering integrated and effective supply chain solutions by harmonizing and leveraging shared strategies, processes, people and systems to generate value. We rely on our suppliers to provide raw materials, chemicals, components and subsystems for our products and to produce hardware elements and sub-assemblies, provide software and intellectual property, and perform some of the services we provide to our customers, and to do so in compliance with all applicable laws, regulations and contract terms. We regard our suppliers as essential team members and expect our supplier base to maintain the highest standards of ethics and integrity. In 2018, we subcontracted \$8.3 billion to a broad base of suppliers, spanning all 50 U.S. states.



#### MANAGEMENT APPROACH SUMMARY

Our goals are to ensure our suppliers act ethically, promote supplier diversity and inclusion as a business imperative and protect our products and sensitive information against threats such as counterfeit parts, terrorism and information security incidents. Our Supplier Standards of Business Conduct set forth the fundamental requirements we expect our suppliers (and those who work for them, including employees and subcontractors) to comply with at all tiers.

## HIGHLIGHT STORY

## Mentor-Protégé Program

The Mentor-Protégé Program encourages major Department of Defense prime contractors to develop the technical and business capabilities of Small Disadvantaged Businesses, Women-Owned Small Businesses, Service-Disabled Veteran and Veteran-Owned Small Businesses, Historically Underutilized Business (HUB) Zone Small Businesses and Organizations Employing Severely Disabled Individuals.

In 2018, Northrop Grumman received a Mentor-Protégé agreement from the Department of the Air Force to deliver 40 Cybersecurity Workshops for small business suppliers and employees across the country. The training focused on a new cybersecurity requirement mandated under the Defense Federal Acquisition Regulation. Northrop Grumman collaborated with its Protégé, the University of Southern California Center for Economic Development as well as several Historically Black Colleges and Universities/Minority Institutions (HBCU/MI) to provide cybersecurity training to more than 4,000 past, present and prospective suppliers.

Since the inception of the Mentor-Protégé Program, Northrop Grumman has formally mentored more than 130 small, women and veteran-owned small businesses. In addition, Northrop Grumman is the first prime contractor to successfully conduct a mentor-protégé relationship with an AbilityOne organization. During 2018, we received our 25th Department of Defense Nunn-Perry award for outstanding achievement in the Mentor-Protégé Program, the most awards of any prime contractor. Nunn-Perry awards are the highest honor prime contractors can receive for participation in the program.

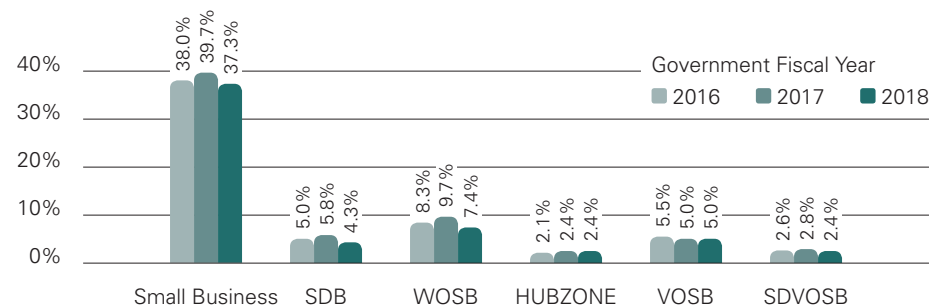


## Supplier Diversity

Northrop Grumman cultivates and maintains a diverse supply chain that provides optimal value to the enterprise and our customers. The Northrop Grumman Global Supplier Diversity Program (GSDP) office is a link to small and disadvantaged business owners, as well as to our partners at Historically Black Colleges and Universities, Hispanic-Serving Institutions and Tribal Colleges and Universities. We host outreach events for members of the small business community, offer mentoring programs and sponsor academic, customer and industry activities that support small business growth and development. For more information, see our [GSDP webpage](#).

During government fiscal year 2018, we subcontracted 37% of domestic procurement spend, or \$3.1 billion, to small business suppliers. As a company, Northrop Grumman has met and exceeded the 23% U.S. government small business statutory goal for more than 13 consecutive years.

### Diverse Supplier Spend



SDB = Small Disadvantaged Business

WOSB = Women-Owned Small Business

HUBZONE = Historically Underutilized Business Zone

VOSB = Veteran-Owned Small Business

SDVOSB = Service-Disabled Veteran-Owned Small Business

## Supply Chain Security

The current operational environment is besieged with bad actors with the intent to infect our product, disrupt our business and compromise our nation's defenses. As a government prime contractor, we understand the important role supply chain security plays in protecting our and our customers' information. We expect our suppliers to not only comply with counterfeit parts and cybersecurity regulatory requirements but also to provide adequate security for our intellectual property and proprietary information. Northrop Grumman's procedures and procurement strategies are designed to detect and prevent counterfeit material from entering our supply chain. In 2018, we enhanced our enterprise material authenticity training for supply chain, quality, engineering, program management and receiving. This training strengthens awareness and provides guidelines on the prevention, detection, and mitigation of counterfeit parts to preclude them from entering our products. Additionally, our Counterfeit Electronic Material Detection and Avoidance program requires sourcing of electronic parts from suppliers that have been vetted for their counterfeit prevention processes. Increased quality control measures are put in place to validate the authenticity of parts where approved suppliers are not available in the market.

In 2018, we implemented an improved multi-tier cyber supply chain strategy that allows for risk-based sourcing and supplier management, focusing our due diligence efforts on those suppliers with the highest level of customer and Northrop Grumman sensitive data. Suppliers that cannot attest to security standards that adequately protect customer and Northrop Grumman data are excluded from sourcing opportunities and subject to corrective action. In the event that a supplier fails to correct deficiencies, they will continue to be restricted from future opportunities that require the protection of applicable data.

Northrop Grumman has both a material authenticity and information security clause in our Enterprise Terms and Conditions in order to contractually bind our suppliers to counterfeit prevention and maintenance of reasonable and appropriate security controls designed to protect against cyber attacks. To assist our suppliers and those of the industrial base in implementing effective information security, we maintain a supplier cybersecurity resources website and share the content with the general public. Refer to our [Cybersecurity Resources for Suppliers webpage](#) for additional information.

We continue to collaborate with government and industry partners to develop and drive common strategies and standards in order to reduce the risk of counterfeit material and cyber attacks. In 2018, Northrop Grumman led the Aerospace Industries Association (AIA) Supplier Management Council Cybersecurity working group. The group is a forum for sharing best practices and providing supplier resources and communications regarding management of cyber risk in the supply base.

### HIGHLIGHT STORY

## Transportation & Shipping: EPA SmartWay Partner

Established in 2004, the EPA SmartWay program is administered by the United States Environmental Protection Agency and is designed to help companies advance supply chain sustainability by measuring, benchmarking, and improving freight transportation efficiency. As a registered EPA SmartWay Transport Partner since 2008, our Global Supply Chain organization has gained increased visibility into our freight transportation activities, identified opportunities for additional efficiencies and optimized modes of transportation that we use. In 2018, SmartWay Carriers accounted for more than 98% of our freight transportation requirements, resulting in a reduction of fossil fuel usage and greenhouse gas emissions through improved fuel efficiency.



# *PRODUCTS AND INNOVATION*

Northrop Grumman offers an extraordinary portfolio of capabilities and technologies that enables us to deliver innovative systems and solutions. Meeting customer expectations drives our focus on program performance, enabled by a Systems Thinking approach to complex opportunities.



# ***SYSTEMS ENGINEERING AND SYSTEMS THINKING***

A Systems Thinking culture is key to our business and success. Systems Thinking goes beyond program engineering to include all of our disciplines in solving complex problems. We assess the impact of each decision from the widest possible perspective to reach a final outcome that is sound for the entire system from the initial concept to capture, delivery, sustainment and closeout. Systems Thinking embraces diversity and inclusion of thoughts and ideas, by understanding the “problem” from all angles (diversity) and assessing the impact from various implementations (inclusion). A strong culture of Systems Thinking across the organization differentiates Northrop Grumman, allowing us to better execute on programs, increase customer confidence and grow our business.

In 2018, Northrop Grumman implemented a procedure to establish comprehensive execution requirements and align best practices for systems engineering for all sectors across the company. The procedure guides consistency in terminology, approach and execution, driving improved performance.

Our Systems Engineers consider the business and technical needs of customers to provide a quality product or solution that delivers the mission objective. Systems Engineering adds value by creating sound proposals, clear requirements, robust designs, effective testing and sound deployment into production.

*As a top-performing technology company, Northrop Grumman must maintain the very best systems engineering capability, and go beyond systems engineering to systems thinking.*

## HIGHLIGHT STORY

### Internal Award Program Recognizes World-Class Systems Engineering

The Simon Ramo Award celebrates the highest achievement in systems engineering for a team or employee at Northrop Grumman. The prestigious award recognizes the finest examples of the world-class systems engineering work done every day across Northrop Grumman.

In December 2018, we announced two individual and two team winners of the third annual Simon Ramo Award. One of the recipients was Amir Drusbosky, senior enterprise architect in the System Modernization and Services division of Northrop Grumman Technology Services. Amir delivered value and customer results through creative and critical thought leadership of the Fraud Prevention System. Under his direction, the team developed a software solution and release process to combat fraudulent Medicare claims, resulting in savings to the government of nearly \$1 billion. These innovations allowed the team to deploy algorithms more frequently and at a lower cost, which improved return on investment for the customer.





## HIGHLIGHT STORY

## Recognition for Program Excellence from Aviation Week

The Global Adaptive Planning Collaborative Information Environment (GAP CIE) won the Aviation Week Program Excellence Award in the Supplier Sustainment category. The GAP CIE is a web-based system that provides U.S. military commanders with global collaborative planning capabilities across multiple agencies in support of global missions. Northrop Grumman took over the program from another contractor in 2014, and has since turned the program around by overcoming serious performance challenges, repairing a large backlog of major defects and demonstrating a firm commitment to quality.

Our GAP CIE leadership team started with a sharp focus on understanding customer needs. To accomplish this goal, Northrop Grumman instituted effective Agile methodologies, created and stabilized cross-functional scrum teams, and implemented continuous delivery and DevOps practices. We also created a “learning organization” by challenging each team member to improve his or her personal and professional skills, share knowledge, and pursue health and fitness goals. The “learning organization” approach has inspired personal growth, empowered teams, and motivated individuals to excel.

Our customer has realized significant cost savings due to reduction in time needed for deployment and troubleshooting. We received a rating of Exceptional in the most recent evaluation of contractor performance with respect to quality, schedule, management, and utilization of small businesses.

*We collaborated with all customers to implement a shared vision of improving quality through unrelenting adherence to sound engineering practices and quality principles.*

## MATERIAL ISSUE Program Performance



### WHY IT'S IMPORTANT

Program performance includes a number of components related to satisfying our customers—respecting our customers, listening to their requests and understanding their expectations. We strive to exceed their expectations in affordability, mission capability, quality and on-time delivery.

Strong, sustainable program performance creates value for all our stakeholders. Program performance directly impacts customer satisfaction and reputation, which supports our competitive standing and leads to new and repeat business.

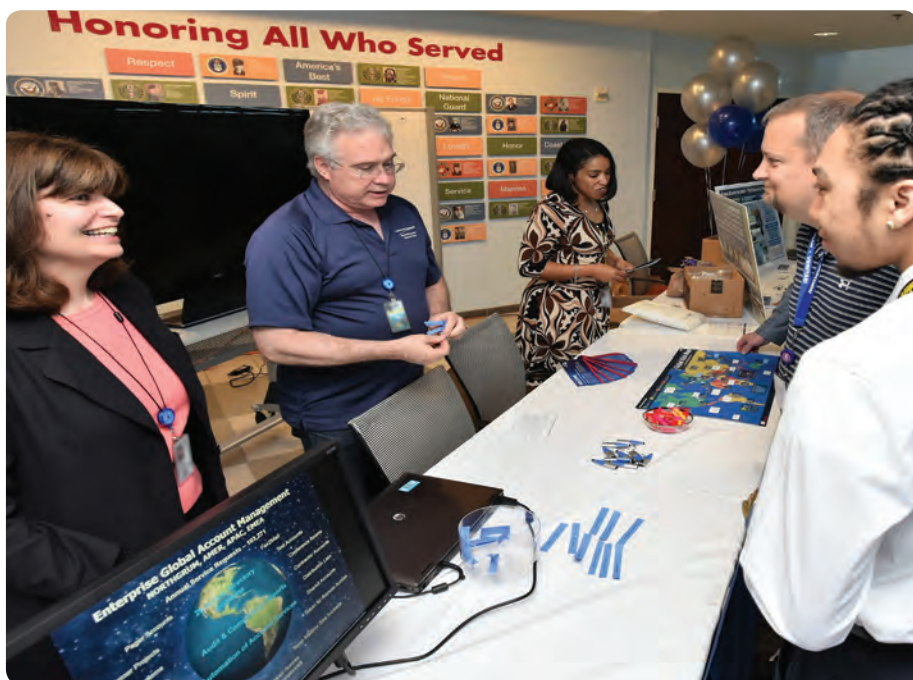


### MANAGEMENT APPROACH SUMMARY

In order to meet and exceed the expectations of our customers, we focus on improving program management training and development, increasing adoption of a common program execution framework, improving schedule, cost, change and supplier management, enhancing risk and opportunity management and collecting informative metrics. We measure our progress in program performance through customer satisfaction and quality.

# QUALITY MANAGEMENT AND CUSTOMER SATISFACTION

Quality is at the core of our culture and of all systems, products and services delivered to our customers. We drive our quality culture by integrating the phrases “Quality drives performance in everything we do” and “Quality is Personal” throughout the company. In Fall 2018, we launched the Corporate Operations Council (COC) to ensure quality is embedded in all aspects and functions of our business. Representatives from functional organizations across our enterprise, including quality, global supply chain, operations, engineering, safety and environmental and program management, participate on the COC. Every Northrop Grumman sector and site must implement a quality management system (QMS) consistent with ISO 9001 or AS9100 quality standards.



The Corporate Quality Council is a company-wide organization that convenes sector-level Quality leadership for best-practice sharing and collaboration on cross-sector topics. The council ensures effective execution of corporate quality policies and the deployment, refinement and integrity of the company’s Corporate Quality metrics. We also maintain a forum for professionals across the company to share best practices related to quality. During our annual Quality Month celebration, in October 2018 we held a series of workshops and events that reached staff from 97 Northrop Grumman locations, including 11 international locations (Germany, Italy, Australia, and eight in the UK).

We convene the Corporate Program Management Council similar to the Corporate Quality Council, to provide company-wide collaboration on management issues, which includes a focus on customer satisfaction. Together, these councils sponsor a protégé program in which outstanding Northrop Grumman personnel are organized into small cross-sector teams to investigate issues or make improvements in our company’s organization. Past projects include tracking quality issues with data analytics, developing common tools for program management professionals, and supporting the Global Supply Chain team in ensuring supplier quality.

Communities of Practice (CoP) in both Quality and Program Management bring together related professionals across the company for presentations on new processes, methods, and other topics. Communication through these groups ensures that Northrop Grumman’s experts in quality and customer satisfaction are connected across sectors and locations.

Quality and customer satisfaction metrics are compiled on a monthly basis. Each program reports their individual activities, which are then compiled into program-level and sector-level ratings. These metrics impact executive compensation, ensuring that all levels of the organization have a vested interest in delivering high quality products that exceed customer expectations.



## MATERIAL ISSUE

## Product and Service Quality



## WHY IT'S IMPORTANT

Northrop Grumman strives to deliver high quality products and services because our systems ensure the security and freedom of our nation and its allies. Our commitment to quality demands that our employees, suppliers and contractors be responsible and accountable for the quality of their work and dedicated to continuously improving company processes, products and services.



## MANAGEMENT APPROACH SUMMARY

We maintain the Corporate Quality Council that sets strategic and collaborative goals for the company, ensuring high quality products are delivered to our customers. We implement common approaches to data analytics and program review that ensure quality in manufacturing.



## MATERIAL ISSUE

## Customer Satisfaction



## WHY IT'S IMPORTANT

Maintaining strong relationships with our customers is critical to program success and, more broadly, the success of our business. We believe in respecting our customers, listening to their requests and understanding their expectations. We aim to exceed their expectations in affordability, quality, security and on-time delivery.



## MANAGEMENT APPROACH SUMMARY

We strive to maintain a high level of customer satisfaction across all of our sectors. This is measured by customer satisfaction scores and monthly conversations with the customer to solicit their opinions and concerns on our programs and products. We also receive feedback directly from customers through contractor performance assessment reports and from award fees.





#### HIGHLIGHT STORY

## Program Planning and Execution Drive Customer Satisfaction

In 2018, Northrop Grumman Technology Services (NGTS) made dramatic improvements in customer satisfaction for the United Kingdom (UK) E-3 Sentry Airborne Warning and Control System (AWACS). The program supports the Royal Air Force (RAF) and is overseen by the UK Ministry of Defense. The UK E-3 Sentry program is the flagship program for NGTS in the UK and its performance impacts Northrop Grumman's reputation in the European business community. Improving the E-3's customer satisfaction is therefore a high priority for Northrop Grumman, NGTS and the team.

The E-3 team developed and deployed a structured program plan to ensure a continued drive toward superior results. This plan was and is updated and shared regularly with the client's senior leadership, demonstrating responsive and intimate customer communications. Our team also worked with the Royal Air Force to deploy Northrop Grumman Field Service Representatives to work alongside RAF maintenance teams, thereby boosting aircraft availability rates.

Customer satisfaction results for this program are exceptional. The RAF Military Airworthiness assessment team stated that aircraft ZH-103 was the "best quality Sentry aircraft their team have ever surveyed." The RAF forward operating squadron also delivered thank you letters praising the quality and reliability of their aircraft.

#### HIGHLIGHT STORIES

## Delivering Product Quality

Northrop Grumman Mission Systems (NGMS) deployed the Drive For Excellence (DFX) approach to maximize product quality with excellent results in 2018. DFX is a collaborative effort with stakeholders to adopt proactive quality-improvement processes. The DFX approach improves multiple aspects of our programs, including improvement of design for manufacturability, clarification of assembly instructions, and proactive prevention of defects and risks.

NGMS deployed the plan on the AN/APG-81 radar for the F-35 Lightning II fighter jet. In 2018, the Airborne C4ISR division tripled production of these radars, while reducing its defect rate, resulting in a 70% improvement in delivered quality. Engineers, assembly personnel and supply chain were all involved in refining the F-35 radar program, making this a true multi-disciplinary, cross-functional and collaborative effort. The DFX approach illustrates Northrop Grumman's commitment to delivering quality to our customers. The process will be rolled out at other NGMS campuses in the coming years.

## Maximizing Manufacturing Quality

Northrop Grumman Aerospace Systems (NGAS) developed and deployed the Cost of Poor Quality (CoPQ) project on the MQ-4C Triton program. CoPQ has allowed the program to comprehensively identify costs associated with hardware non-conformances during the manufacturing process. Prior to this project, technician labor charges (touch labor hours) were the only costs accurately captured down to the detailed non-conforming part level. By combining defect data attributes, schedule, bill of materials data and subject matter expertise, the team increased traceability and accuracy when calculating non-conformance costs.

The data infrastructure and architecture that was pioneered by the NGAS data analytics team allows for expedited adoption on other programs using similar data sources.

## MATERIAL ISSUE R&D and Innovation



### WHY IT'S IMPORTANT

Throughout our history, innovation has driven the success of our company and our customers. At Northrop Grumman, the pursuit of sustainable innovation drives our technology research & development (R&D), operational efficiency, solution agility and responsible business growth. Sustainable innovation allows Northrop Grumman to consistently meet and exceed the needs of our customers.



### MANAGEMENT APPROACH SUMMARY

The Northrop Grumman Corporate Technology Council and sector technology, strategy and functional offices work collaboratively to formulate enterprise-wide policies, procedures and campaigns that identify, address and develop solutions for our customer's most complex mission challenges. Northrop Grumman is actively engaged in shaping the curriculum, skill credentials and research applications that support a modern digital workforce for global security.





# RESEARCH AND DEVELOPMENT

We have a robust R&D program that develops products and services for today's business needs and invests in emerging technologies for the future. The creativity and mission focus of our employees drive the company's innovation engine. We empower our employees to innovate efficiently and effectively by providing tools and environments for exploration and experimentation. Through partnerships with industry and universities, we extend our innovation ecosystem by maintaining collaborative R&D environments.

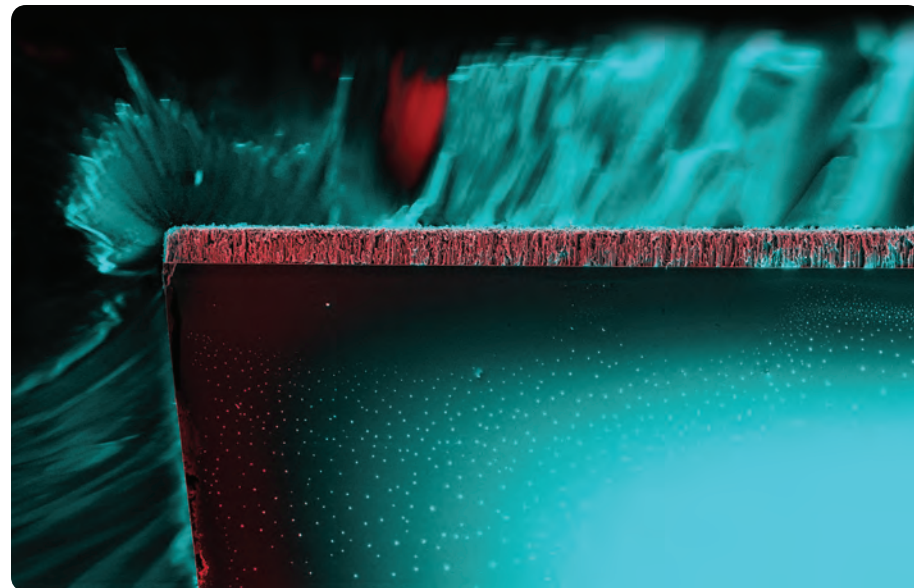
Some examples of our innovation accomplishments in 2018 are highlighted below.

## Parker Solar Probe

Northrop Grumman Innovation Systems played an integral part in the launch of NASA's Parker Solar Probe. Northrop Grumman provided the fully integrated third stage propulsion system of the ULA Delta IV Heavy Rocket as well as composite structures used throughout the rocket, all of which helped the Parker Solar Probe become the fastest human-made object ever launched with a top speed of over 121 miles per second. That record spurred its recognition as one of the year's Top 100 Innovations by Popular Science magazine.

## Enabling Employee Innovation

- Tech Underground and FabLabs provide innovation and creativity spaces for employees from all levels and backgrounds. Participants volunteer their time to collaborate and turn ideas into inventions. These resources harness our employees' ingenuity while strengthening their motivation and engagement. Over the past five years, more than 4,000 employees have participated in FabLab projects.



- SPARK is an enterprise tool that brings together innovation platforms and programs from across the company into one common community. Using SPARK, employees pose challenges, discuss one another's ideas and solutions and collaborate across Northrop Grumman.

## Northrop Grumman Research Collaboration Spaces

- Marking its first decade of collaboration, the Northrop Grumman Cybersecurity Research Consortium (NGCRC) brings together researchers from Carnegie Mellon, Purdue University, Massachusetts Institute of Technology (MIT), and University of Southern California to advance research into solutions to counter the newest and most pressing cyber threats to our economy and national security.
- Launching in late 2018, the Research in Applications for Learning Machines (REALM) consortium is bringing together research teams from University of Maryland, Johns Hopkins University, Carnegie Mellon University, Purdue University, MIT, Stanford University, University of Illinois at Chicago and University of Massachusetts to develop and apply the latest artificial intelligence and machine learning techniques to challenging global security problems.



## HIGHLIGHT STORY

## Innovative Technology for Conservation: Sea Turtle Monitoring

Northrop Grumman and the Brevard Zoo partnered on a unique project to bring emerging technologies and innovative solutions to sea turtle research programs. The collaboration enables Northrop Grumman employee volunteers to apply their problem solving mindsets, engineering knowledge and systems integration experience to help address sea turtle conservation challenges.

- 1. Problem Identification:** A team of sea turtle staff and researchers from the Zoo identified a number of challenges associated with monitoring sea turtles and collecting data.
- 2. Solution Development:** Over 75 volunteer Northrop Grumman engineers thoroughly analyzed the challenges to determine the best engineering solution in terms of cost, durability and effectiveness.
- 3. Project Selection:** After reviewing the potential technological solutions, the team selected two focus challenges (described below) for which the Northrop Grumman team could design and build solutions.

### 2018 Turtle Tech Achievements

- Selected and purchased equipment necessary to create prototypes of the first-generation onshore and offshore sensor systems.
- Tested solutions in sample environments. The design work is continuing with planned deployment of tracker prototypes in mid-2019.

### STEM Education

This unique collaboration between field research teams and engineers also led to new STEM education opportunities across different segments of the community, including high school students and general zoo visitors. Northrop Grumman engineers spent over 250 volunteer hours working with students and science teachers at two Brevard County public high schools to increase awareness, promote engineering and science careers, and involve students in the engineering process. At one high school, students, mentored by an engineer, develop additional solutions for sea turtle conservation, to be presented at the annual science fair. At the second school, Northrop Grumman volunteers participate in guest speaker events related to engineering and the Turtle Tech project.



#### CHALLENGE 1: ON LAND MONITORING NEST CONDITIONS AND HATCHING TIMES

**Challenge:** Performing data collection on public beaches is highly regulated and impacted by local conditions.

**Proposed Solution:** Install low-cost sensors that monitor nest conditions and relay alerts to researchers in real time.



#### CHALLENGE 2: AT SEA MONITORING MATING BEHAVIOR AND MIGRATION PATTERNS

**Challenge:** Collecting data continuously on or under the ocean requires very wide area and persistent coverage with high resolution sensors.

**Proposed Solution:** Deploy an array of airborne, surface and subsurface sensor systems that can collect data over water, 24/7 for six months during turtle mating and nesting period.

# *ENVIRONMENT*




Northrop Grumman is committed to being a good steward of the global environment and a responsible member of our local communities.



# OVERVIEW

In 2018, we maintained our focus on improving environmental management across our diverse operations, increasing transparency and ensuring the company is on a strong path to achieving our 2020 environmental sustainability goals. In this section, we highlight how we work to proactively manage our environmental footprint, reduce the use of natural resources, maintain compliance with environmental, health and safety (EHS) laws and regulations across our global operations, and address contamination and resurrect ecosystems at our remediation sites. More about our health and safety program can be found on [page 45](#).

## 2020 Environmental Goals and Performance

METRIC	2020 GOAL	2018 PERFORMANCE
 Greenhouse Gas Emissions Reduction	<b>30%</b> From 2010	<b>33.3%</b>
 Potable Water Use Reduction	<b>20%</b> From 2014	<b>6.6%</b>
 Solid Waste Diversion	<b>70%</b> From Landfill	<b>62.2%</b>

For more information on our progress toward these goals, please go to [page 33](#).

### MATERIAL ISSUE

## Environment



### WHY IT'S IMPORTANT

Protecting the environment is important to our employees and the communities where we operate. It helps ensure a more sustainable future on a global scale. Northrop Grumman strives to be a responsible steward of the environment by proactively managing our impacts and enhancing the sustainability of our operations.



### MANAGEMENT APPROACH SUMMARY

Northrop Grumman has a strong culture that ensures our business is conducted in an environmentally responsible manner. Aligned with our company policy, we have established procedures and programs to identify environmental risk, manage environmental compliance and promote environmental sustainability. Environmental professionals are positioned at all levels of our operations to manage and support the implementation of our environmental programs. We promote employees' awareness of our environmental programs through enterprise-wide educational campaigns and job specific training.

We also engage regularly with external stakeholders including regulatory agencies, industry organizations and peers, and the community. Interacting with these stakeholders allows us to share insights on industry-wide issues, benchmark our performance and gather feedback to inform our environmental priorities.



# ENVIRONMENTAL COMPLIANCE

Through robust environmental compliance programs and awareness campaigns, we are committed to conducting our operations in a manner that complies with applicable environmental laws and regulations and company-established EHS requirements and directives and that minimizes our impacts.

For more information on our 2018 performance, including relevant regulatory activity, please see our [online performance data summary matrix](#).

## Hazardous Waste Management

Northrop Grumman is committed to responsibly managing hazardous waste (HW) generated within our operations in compliance with all legal requirements. HW generation within our business operations fluctuates based on product demand, research and development activities, and facility operations, so our primary focus is ensuring HW is properly managed from point of generation to final disposition. Our long-term focus has been on maintaining a list of approved facilities to ensure proper disposal.

### Hazardous Waste Generated (tons)

2016	2017	2018
1,306	1,460	1,838

The increase in HW generation for 2018 is largely due to construction and demolition activity associated with facility modernization efforts underway at a few of our sites. We continue to look for opportunities to reduce HW generation where technically and economically feasible. Recent HW minimization efforts include identifying alternate HW disposal methods for our used jet fuel and implementing a chemical review process to help support the identification of chemical substitutes that might reduce HW generation.

## Chemical Management

We are committed to responsibly managing chemical use in all Northrop Grumman operations. As a Department of Defense contractor, our chemical usage is highly influenced by fluctuations in demand, material specifications from our customers, and emerging technologies. Our facilities comply with the federal Toxic Release Inventory (TRI) Program reporting requirements for listed chemicals by tracking usage, and we continue to look for opportunities to substitute and minimize the use of toxic chemicals where possible.

### Toxic Release Inventory (tons)

2015	2016	2017
42.0	39.8	29.4

## Effectively Sharing Best Practices

Launched in 2017, our Corporate EHS Best Practices Webinars are an effective way of sharing EHS information across the Enterprise. Topics have ranged from calibration of EHS instruments to implementing Change Management at large facilities. The webinars allow EHS professionals across our company to connect with one another and discuss innovative solutions to common challenges in the EHS field. Each quarter, we also communicate EHS updates, changes and news across the company through our Northrop Grumman EHS News publication. The Corporate EHS organization solicits articles from all Northrop Grumman's sectors to get a full-scope view of global events. The newsletter is a great way to increase engagement and share the latest accomplishments, challenges and triumphs within our EHS teams.



## 2018 Corporate Forum Participation

Each year, we participate in EHS forums across the United States to take advantage of the valuable information shared among member companies on relevant EHS and environmental sustainability topics. In 2018, our participation in these events provided us the opportunity to collaborate with our peers, share educational resources, and learn about regulatory updates and changes on the horizon. We have highlighted some of our important forum participation for the year.

- Association of Climate Change Officers
- Conservation International Business and Sustainability Council
- Corporate Eco Forum
- International Aerospace Environmental Group (IAEG)
- Organization Resources Counselors: Health, Safety and Environment (ORCHSE)
- Rocky Mountain Institute Business Renewables Center

Through representation on the ORCHSE steering committee and the group meetings, we receive updates on regulatory changes, present to peers on sustainability strategies and collaborate with member companies during workshops. The partnership with the ORCHSE group is integral to our commitment to excellence.

As a founding member of the International Aerospace Environmental Group (IAEG), a global aerospace and defense industry association, we support environmental compliance and environmental sustainability initiatives in collaboration with our peers to discuss and find solutions common to industry challenges. We engage at the Board level, supporting the organization's governance and strategy, as well as at the work-group level where we provide subject matter expertise for work groups related to chemical reporting, replacement technologies, GHG management and reporting, REACH authorization, supply chain sustainability and TSCA compliance.

## EHS Audit Program

Our Corporate EHS audit program helps us to better monitor and manage our EHS performance. The program relies on our internal EHS subject matter experts to thoroughly review EHS performance for compliance and improved management opportunities.

The scope of the audits includes compliance with federal, state and local regulatory requirements, standards organization codes (e.g., fire codes), and company policy and procedures. Our audits also include an EHS Management System component to assess the overall health of each site's EHS program. EHS Management System evaluations are required by company policy and follow the ISO 14001 and OHSAS 18001 standards. Currently, there are 74 sites in the audit program, accounting for approximately 78% of the company's global footprint.

This year, we conducted EHS compliance and management system audits at 21 of our U.S. facilities and five of our international sites located in the UK, Italy, and the Netherlands, which accounts for 26% of the company's total square footage. Our focus for the audit program in 2018 was to continue strengthening the quality and consistency of our findings and to increase transparency of our audit program through the use of an Environmental Management Information System. The system has been effective at automating our audit process through the creation of efficiencies in execution that included easier review of findings and timely closure of corrective actions.

## EHS Certifications

In addition to establishing an internal EHS management system, we have 23 sites certified to ISO 14001 across the globe, which make up approximately 32.6% of Northrop Grumman's square footage. These sites work diligently to achieve and maintain this widely recognized certification.

# ENVIRONMENTAL SUSTAINABILITY

This year marked the tenth year of our environmental sustainability program—greenNG. Northrop Grumman’s increasing commitment to environmental sustainability is valued by our employees and other diverse stakeholders. We have incorporated environmental sustainability as one of the company’s six non-financial performance metrics, specifically greenhouse gas emissions reductions, water conservation, and solid waste diversion. Through efforts to manage and reduce our environmental impact, we have improved operational efficiencies, realized long-term cost savings, and enhanced our understanding and management of climate-related risks and opportunities. As we approach the end of our 2020 goal period, we are now working to define the next evolution of environmental sustainability at Northrop Grumman.

We are committed to managing our environmental impacts with transparency. Our environmental sustainability goals and greenhouse gas (GHG), water, and solid waste inventories include the full portfolio of facilities where we have operational control (consolidation approach). To ensure our data is accurate, our GHG emissions and potable water use data undergoes third-party verification each year. Verification statements for the data included in the performance section can be found at our [corporate responsibility webpage](#).

## Greenhouse Gas Emissions

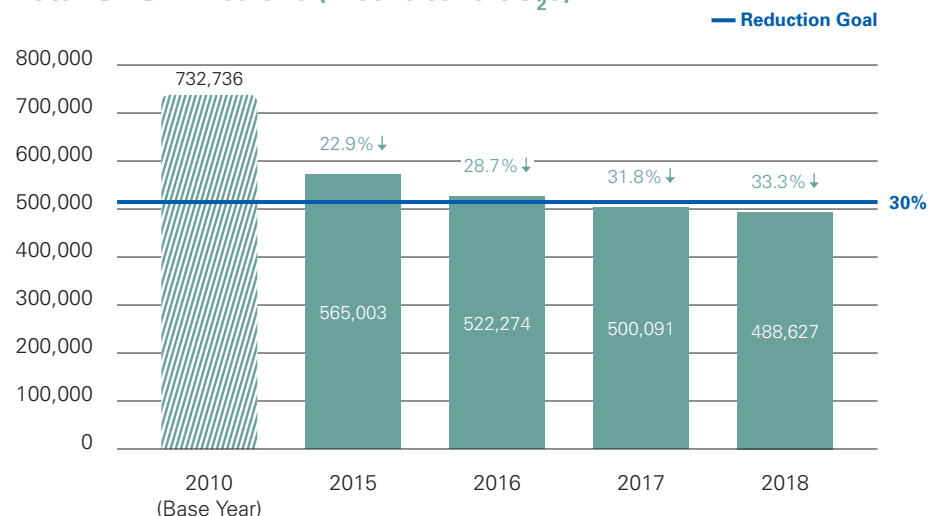
We develop our GHG inventories in accordance with The GHG Protocol Corporate Standard and in alignment with the International Aerospace Environmental Group Greenhouse Gas Reporting Guidance. We are committed to maintaining high-quality data and performance tracking through third-party verification to the International Organization for Standardization (ISO) 14064-3. We perform verification of our Scope 1 (direct), Scope 2 (indirect, location- and market-based), and Scope 3 (other indirect) Business Travel emissions.

We met our GHG emissions-reduction goal—30% reduction compared to our 2010 baseline—in 2017, three years ahead of schedule, and improved on that performance through 2018.

### 2018 Highlights

- Maintained performance beyond our 2020 goal with a 33.3% reduction.
- GHG reduction projects implemented across the company reduced an estimated 11,167 MTCO<sub>2</sub>e per year.
- We achieved more than 5,700 MTCO<sub>2</sub>e of GHG emissions reductions through upgrading lighting to LED fixtures. These initiatives not only reduce emissions, but also reduce electricity costs and provide improved lighting for our manufacturing operations.
- Achieved an A- Leadership rating on the 2018 CDP Climate Change Disclosure. The full report is available at our website and includes details on our climate change risk management, energy consumption and GHG emissions (including Scope 3).

### Total GHG Emissions (metric tons CO<sub>2</sub>e)\*



\*GHG emissions data presented above is inclusive of the following gases: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub> and NF<sub>3</sub>

## Water Conservation

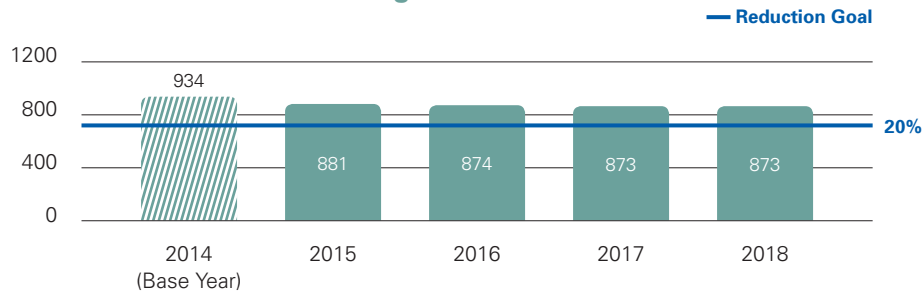
We are committed to minimizing our water consumption and focusing our action in water-stressed regions where we have operations, including California and parts of Australia. Our conservation efforts are increasing our understanding of how water is used in our operations and resulting in new opportunities for improved efficiencies that reduce our reliance on potable water.

Since 2015, we have completed projects estimated to save more than 150 million gallons of potable water per year. However, the success in implementing these projects has been offset by real estate growth and expansion of our operations, which has significantly stalled our measured progress year over year. Looking forward, we have prioritized projects in 2019 that will reduce an additional 91 million gallons per year, and we will continue to identify additional projects to drive further progress towards our goal.

### 2018 Highlights

- Completed water conservation projects across the company that are estimated to reduce 9.7 million gallons annually.
- Conducted a third-party water use assessment at our Melbourne, Florida, site. A total of 11 water use assessments at priority sites, representing 71% of our total water use, have been conducted since 2015.
- Established the Water Collaboration Forum, enabling best practice sharing between sites.
- Launched a Water Conservation Challenge on our SPARK innovation platform to leverage employee innovation to identify opportunities.

### Potable Water Use (million gallons)



## Solid Waste Diversion

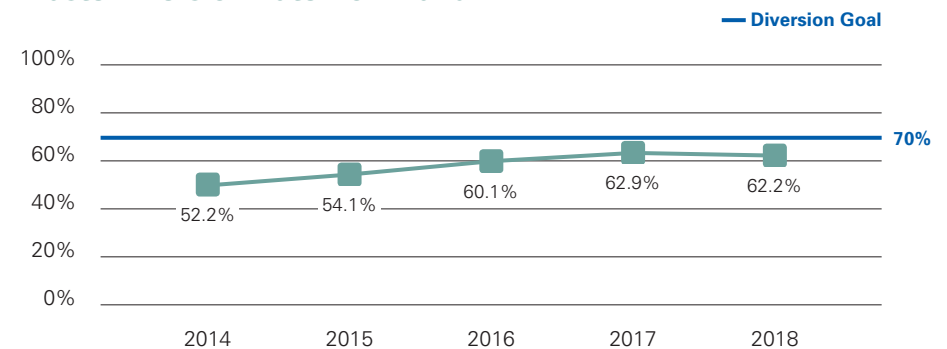
Our solid waste diversion goal has helped increase awareness of how we use materials across our operations. Through analysis of our waste streams, we have diverted more waste from landfills by recycling, composting, reuse, and donation of used materials to local organizations.

Waste diversion performance in 2018 declined slightly from the prior year largely as a result of changes in waste hauling services at some of our key sites. In 2019, we will be working to address this issue and continue our focus on implementing projects that will drive performance to our 70% solid waste diversion goal.

### 2018 Highlights

- Completed solid waste diversion projects that will divert 500 tons of waste from landfills.
- Completed 25 solid waste assessments, which guided adjustments to our strategies for solid waste management and meeting our diversion goal. The first waste assessment was conducted at the new Innovation Systems sector site in Rocket Center, West Virginia.
- Improved infrastructure to make recycling more accessible to employees and expanded composting programs at multiple sites.

### Waste Diversion Rate from Landfill\*



\*Diversion rate includes waste to energy, but does not include construction and demolition debris

## Environmental Sustainability Highlights

The environmental projects we implement to support achievement of our 2020 goals are also designed to drive long-term sustainability across Northrop Grumman. The following highlights include a cross section of initiatives we implement to create a positive impact on our environment.

### Reclaimed Water

One of our most successful and innovative water projects of the year came from a collaboration with the local water district, cooling tower contractors, and site team at our Redondo Beach site. The team successfully connected a municipal reclaimed water line to the cooling towers of three buildings on the site to offset potable water use. To verify the technical feasibility of the project, the team conducted extensive research on the reclaimed water to determine a proper water treatment method for protecting the integrity and functionality of the cooling towers. The project has been estimated to reduce potable water use by 16,000,000 gallons water per year; enough to fill 24 Olympic size swimming pools.

### Ecosystem Conservation

Forests play an important role in sequestering carbon and maintaining biodiversity around the world. To promote forest conservation, we continue our multi-year commitment and purchase of 11,000 MTCO<sub>2</sub>e of American Carbon Registry-certified carbon offsets. These conservation-based carbon offsets are generated by the Mississippi Valley Reforestation Project in the southeastern United States and are supporting the re-forestation of the Lower Mississippi Alluvial Valley, one of the most important ecosystems in North America.

### Renewable Energy

We currently have two company-owned on-site solar systems, and one landlord-owned system located at one of our leased facilities. In addition, we continue our long-term commitment to purchase Renewable Energy Certificates (RECs). In 2018, our renewable energy sources generated 22,107 MWh of electricity. We continue to investigate new opportunities to increase our use of renewable energy across our operations.

### EV Charging Stations

Our electric vehicle (EV) Workplace Charging Program was established to support the growing number of employees who use low/no emission vehicles to commute. As the use of electric vehicles increases, we continue to look for opportunities to install new chargers to meet the growing demand.

**22** Northrop Grumman locations

**91** "level 2" charging connections

**828** employee EV drivers



### Green Buildings

One strategy we employ to minimize the impact of our operations as we expand our business is using green buildings. We have operations in 15 certified green buildings, which total more than 2.5 million square feet of floor space:

- 13 buildings designed to U.S. Green Building Council® Leadership in Energy and Environmental Design (LEED®) standards.
- 2 buildings U.S. Environmental Protection Agency ENERGY STAR® Program for energy-efficient equipment and building systems design.

### Solid Waste Technology: Dumpster Sensors

We have focused on improving our solid waste performance through piloting the use of innovative dumpster sensors at seven Northrop Grumman locations. Sensors capture real-time dumpster fullness rates that enable sites to optimize fullness of the dumpsters, lower waste-hauling costs and improve reporting data quality.



# ENVIRONMENTAL REMEDiation

Northrop Grumman is committed to addressing environmental remediation obligations resulting from operations conducted prior to the enactment of applicable federal, state, or local regulations. We strive to execute the lifecycle of these obligations in a scientifically sound and technologically proven manner, maintaining the continued protection of human health and the environment. We strategically employ innovative technologies as alternatives to traditional resource-intensive remediation practices—reducing environmental disturbance, minimizing energy use and accelerating the resurrection of ecosystems to beneficial use.

## Former Printing Manufacturing Site, Western Massachusetts

Northrop Grumman is addressing soil and groundwater impacts from former printer manufacturing operations at a 31-acre legacy site in western Massachusetts. To address a rarely occurring cadmium contaminant in groundwater, we implemented an advanced remediation method, employing in-situ treatment using calcium polysulfide (CPS) over a two-third acre area to treat in excess of one million gallons of groundwater. The CPS technology proved to be a sustainable application, as it provided instantaneous treatment of the impacted groundwater. This remedial method eliminated the need to install and operate a conventional pump and treat system for an extended period of time.

## Former Medical Equipment and Products Manufacturer, Eastern Kansas

Northrop Grumman successfully addressed impacted soils and groundwater from former medical equipment and products manufacturing operations at a 10-acre legacy site in eastern Kansas. To address contamination in groundwater, a unique bioremediation technology was employed using a natural and biodegradable additive, fish scales, over a quarter acre area. The application of this additive proved to be effective as remediation and monitoring was completed in less than five years. This innovative remedial approach replaced a conventional pump and treat alternative with an extended operational period. Due to the successful application of the bioremediation technology, Northrop Grumman achieved a No Further Action (NFA) determination from the State of Kansas.

## Former US Navy/Grumman Facilities in Bethpage, New York

We are engaged in remediation activities relating to environmental conditions allegedly resulting from historic operations at the former United States Navy and Grumman facilities in Bethpage, New York. For more than 20 years, we have worked closely with the United States Navy, the United States Environmental Protection Agency, the New York State Department of Environmental Conservation, the New York State Department of Health and other federal, state and local governmental authorities to address legacy environmental conditions. We are committed to continuing to address environmental conditions with other responsible parties through implementation of scientifically sound and technically proven remedies.

# *PEOPLE AND CULTURE*

At Northrop Grumman, our employees are the foundation of our company's top performance. We seek to attract and retain the best and most diverse talent across the labor market, ultimately delivering better performance for our stakeholders.





## BUILDING THE BEST CULTURE

We understand that diversity underpins our culture of inclusion, improving employee engagement, innovation and excellence. We are committed to hiring top talent, which is achieved by strategic relationships with top universities and veterans organizations. Our dedication to diversity drives us to seek out opportunities to develop the pipeline of talent with diverse backgrounds and to provide opportunities for all of our employees to learn more about diversity and inclusion.

In 2010, we began a US-based initiative, Building the Best Culture, to shape a diverse pipeline of leaders that would be ready for future leadership positions. Our focus on best culture ensures that we attract and retain the best employees. We do this by creating a diverse and inclusive workforce that emphasizes employee and team engagement. Diversity and inclusion are an important component of our talent management plan. By seeking top talent from a diverse pool, we can guarantee that we have the right team of people to help us reach our goals.

We conduct an annual employee survey, which gives our employees the opportunity to provide feedback on our company culture. The process is independently managed by a third-party vendor to encourage candor and solicit feedback on many topics including company leadership, accountability, inclusion and career development. In 2018, 80% of Northrop Grumman employees completed the survey, providing over 115,000 comments. One specific area of focus was inclusion, where our score was in line with externally benchmarked, high-performing companies. We significantly exceeded the benchmark for other aerospace and defense companies included in the survey database. Our leaders and teams are working together to create 2019 action plans based on survey findings.



Through our Northrop Grumman Development Center, all employees can leverage online career-specific tools and resources to help them gain job experience, increase business exposure and enhance skills with education and training. We also support development opportunities for our workforce through educational institutions. Our Education Assistance Program helps employees pursue a college degree, or professional or technical certification, that directly aligns to the company's present and future skills requirements.

Our robust performance management process focuses on recognizing Northrop Grumman's top performers. Annual performance reviews are conducted for all active employees working more than 20 hours per week. Employees categorized as on-call, casual or part-time are not required to participate in the annual review process. During 2018, 96.9% of eligible employees received an annual review, evaluating their 2017 performance.

*Our six leadership characteristics—Values, Performance, People Leadership, Customer Intimacy, Innovation and Strategic Value Creation—express the Northrop Grumman culture.*

## Early Career Development

Pathways, an enterprise-wide early career rotation program, helps graduating college students and entry-level hires rapidly develop through rotations in core areas of our business. The program accelerates the development and readiness of new college hires for experienced roles through three guided rotational experiences within a chosen discipline. Participants are hired as full-time employees and upon completion of three 12-month rotational assignments, they move into a non-rotational experienced role at Northrop Grumman.

## Professional and Technical Development

In response to a Presidential Executive Order and Corporate Initiative, we launched an apprenticeship pilot program and developed a framework for rapid apprenticeship expansion in 2019. These programs will allow us to tap into a new talent pool and develop our talent through strong internal and external partnerships. We also led the design and implementation of a digital credential with the Greater Washington Partnership, collaborating with 13 Capital region universities and more than a dozen industry partners to develop talent at the college level and prepare students with the entry-level digital technology skills that area employers need most. We are excited by the growing momentum around technical and functional talent development at all levels across the enterprise.

In 2018, we launched Technical Academies in three critical skill areas—embedded cyber, data science and artificial intelligence. This work will assist in developing solutions to shifting technology trends by delivering timely learning to technical employees.

## MATERIAL ISSUE Talent Management



### WHY IT'S IMPORTANT

Talent management is a top priority at Northrop Grumman. Our employees are the foundation of our company's success. For Northrop Grumman to excel in fulfilling its mission, we must build an inclusive culture where all employees can reach their full potential.



### MANAGEMENT APPROACH SUMMARY

We seek to attract the best, most diverse talent from top universities and from the labor market. We are committed to hiring military veterans because of their skills, experiences, commitment, high ethical standards and their knowledge of our industry. We maintain strategic partnerships with military organizations and universities to create a pipeline of the best talent in the industry.

Northrop Grumman strives to provide all employees with career development and leadership opportunities, ranging from education assistance to mentoring programs. Our annual employee engagement survey is an important tool for understanding global employee perspectives.

Northrop Grumman Leadership Characteristics enable employees at all levels to strengthen their leadership skills and their ability to deliver and develop top-tier sustainable performance. These six leadership characteristics—Values, Performance, People Leadership, Customer Intimacy, Innovation and Strategic Value Creation—are representative of the Northrop Grumman culture. The extent to which employees demonstrate our Leadership Characteristics is considered in our hiring practices, performance review and succession planning process.



## HIGHLIGHT STORY

## Aligning with UN Sustainable Development Goals

Through Northrop Grumman's Building the Best Culture initiative and the ongoing measurement and development of leadership talent and in alignment with UN Sustainable Development Goal 5, Northrop Grumman is working to ensure women's full and effective participation in and equal opportunities for leadership at all levels of decision-making—from individual contributors who are leading in place to executive officers and board members.

In alignment with UN Sustainable Development Goal 10, Northrop Grumman is committed to helping create a fully inclusive world by empowering and promoting the inclusion of all employees, irrespective of age, sex, disability, race, ethnicity, national origin, religion, economic or other status by continuing to Build the Best Culture. With ongoing monitoring and updating of Northrop Grumman's internal policies, procedures and practices, Northrop Grumman works to ensure equal opportunity and promote equalities of outcome, through non-discriminatory policies and expansive protections from discrimination above and beyond what is legally required. Northrop Grumman has programs and partnerships in place to promote legislation, policies and actions in this regard.



## New Manager Program

Highly skilled managers create a work environment that is inclusive and encourages the development of their staff to optimize individual performance and advancement opportunity. In 2018, we continued to deliver and enhance programs supporting the preparation, selection and development of effective new managers. Through the New Manager Program, new leaders develop skills to effectively coach, develop and maximize their team's performance. Access to information is important for all managers, therefore we connect them through an internal, online portal—helping to refine their communication skills using a variety of tools to coach and support the new manager's ongoing development and transition into management at Northrop Grumman.

## Leadership

We promote a culture of inclusive leadership by raising leaders' awareness of inequalities and unconscious bias while discussing opportunities to proactively foster inclusion. New leaders learn ways to leverage diversity to maximize performance as part of the New Manager Program.

The Northrop Grumman Leadership Series helps vice presidents, directors, managers and technical leaders improve manager effectiveness and team performance by focusing on people leadership, sustainable performance and our company's culture. Leaders hear from external and internal keynote speakers followed by virtual, interactive sessions where they learn more about business topics, ask questions and collaborate with other leaders across the company. More than 12,000 leaders attend annually.

*Leaders at Northrop Grumman develop critical inclusive leadership skills, as well as strategies to promote an inclusive work environment for all employees.*

## Mentoring

Mentoring is a valuable method for developing employees at all levels and supports our culture of performance, learning and innovation. We offer a variety of formal and informal opportunities to support career growth and development for mentors and mentees. 2019 will mark the fourth year of the Vice President Mentor Program that creates increased leadership visibility and business exposure of high-potential talent to all vice presidents. The program will continue offering mentees the opportunity to pay it forward by mentoring other talent transitioning from individual contributors to managing people. Formal and informal mentoring provides an ideal opportunity for knowledge transfer and talent development.

## Executive Development

Our annual succession planning process identifies and develops high-potential employees. To further prepare and evaluate candidates for advancement, employees attend a number of leadership programs including Strategic Leadership, Executive Leadership Program, Women in Leadership and Affinity Forum. Program participants receive one-on-one executive coaching, shadowing opportunities and access to 360-degree feedback and executive assessments.

*Our Building the Best Culture program helps leaders develop critical inclusive leadership strategies, sharpening their awareness of unconscious biases and privilege while strengthening their leadership skills.*

## Benefits and Employment Practices

We monitor and address all complaints regarding employment discrimination. In 2018, external agencies logged a total of 30 complaints of discrimination across the company. We investigate all such complaints and take appropriate action. Of these complaints, we successfully resolved seven, with 23 still open/pending as of December 31, 2018.

We are committed to upholding best management practices for our employees. Currently, collective bargaining agreements cover approximately 3.5% of Northrop Grumman employees. At Northrop Grumman facilities, our employees are free to exercise their rights of freedom of association and collective bargaining.

Employees who are regularly scheduled to work 20 or more hours per week are eligible for health and welfare benefits under the Northrop Grumman Health Plan, including benefits for domestic partners and transgender benefits. Qualified full-time and part-time employees are eligible for the 401(k) plan, retirement plans, work/life benefits, childcare information, life and disability insurance, education assistance and other employee benefits.

## Employee Assistance Program

We strive to promote a productive, healthy and safe work environment for all Northrop Grumman employees through our Employee Assistance Program (EAP). The program includes consultation and training for managers and employees, with the ultimate goal of resolving personal and/or work-related challenges that can negatively impact an employee's well-being. The EAP provides resources and referrals to support services including child and elder care, relocation, wellness and recreation. Legal and financial service referrals are also available to address identity theft and other issues. In 2018, the Northrop Grumman EAP addressed the multigenerational needs of approximately 14,000 employees and family members.



# DIVERSITY AND INCLUSION

Our strategy of Building the Best Culture fosters creativity, innovation and colleague engagement and seeks to increase the number of underrepresented women and People of Color in leadership positions. In 2018, year four of our five-year diversity plan, we recorded growth in almost all areas. Since 2010, the representation of females at the Vice President level and above increased from 16% to 33% in 2018, and in our entry- and mid-level management, female representation increased from 22% to 27%. Since 2010, the representation of People of Color at the Vice President level and above increased from 11% to 18%, and in our entry- and mid-level management, representation of People of Color increased from 19% to 28%.

In 2018, more than 55% of college hires were diverse, strengthening our pipeline of future leaders. Our overall representation for People with Disabilities increased from 7.1% in 2017 to 7.4% in 2018. Of all 2018 hires, People with Disabilities comprised 12.1% and veterans comprised 26.2%.



## Employee Demographics

### Total Population

26.5% Female  
73.5% Male

### Total Management Population

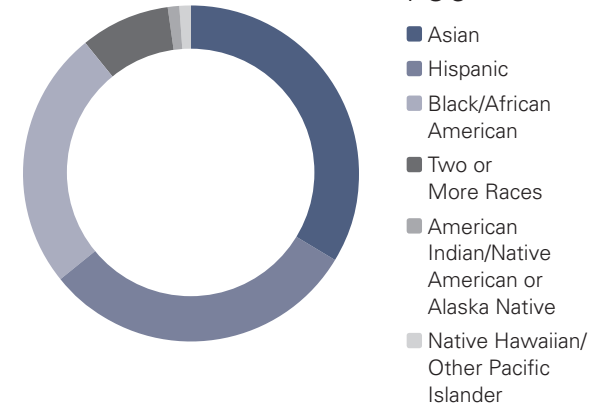
27.1% Female  
26.3% POC

### Vice President and Above Population

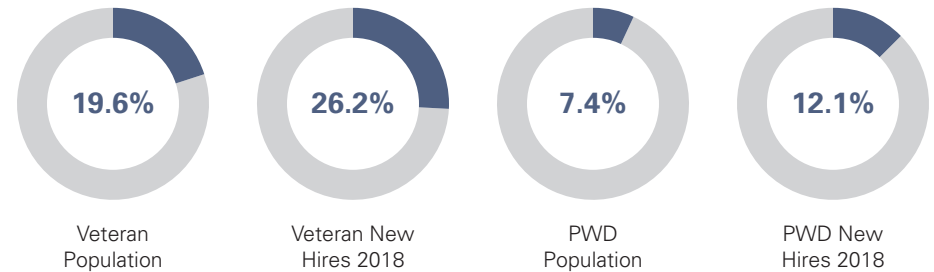
33.2% Female  
17.6% POC

### People of Color (POC) Population

35.5% POC



### Veterans and Persons with Disabilities (PWD) Population



*Through IT and facilities initiatives, we are expanding access for individuals of all abilities. We value the contributions of every Northrop Grumman employee.*



MATERIAL ISSUE  
**Diversity and Inclusion**



**WHY IT'S IMPORTANT**

Our culture is critical to our ability to be a top performing company. Diversity provides a foundation to build an inclusive work environment. Together, diversity and inclusion support higher levels of engagement which leads to increased innovation and quality, and innately delivers better performance for our shareholders, customers and employees.



**MANAGEMENT APPROACH SUMMARY**

We aim to create an inclusive work environment that fosters creativity, innovation and engagement, and increases the number of underrepresented women and minority groups in leadership positions. As a major government contractor, we solicit and report demographic data, including racial/ethnic, gender, disability and veteran status, in accordance with applicable laws and regulations.

Our diversity and inclusion team works within the Global Corporate Responsibility department. Diversity and Inclusion directors and specialists work within each business sector, supported by the enterprise initiatives and staff operations team at the corporate level. The team works with many groups across the organization, including with all global corporate responsibility groups, employee resource groups, human resources and the veterans inclusion committee, among others. We offer a growing training catalog that provides courses and resources on topics such as affirmative action and EEO, disability inclusion, religious bias, veteran inclusion and intercultural development.







#### HIGHLIGHT STORY

## Operation IMPACT

Northrop Grumman's Operation IMPACT (Injured Military Pursuing Assisted Career Transition) program, which was created in 2005, provides personalized placement assistance, community outreach and workplace accommodations for severely injured service members transitioning to civilian employment.

In 2009, Northrop Grumman established the Operation IMPACT Network of Champions, a group of 90 companies and partners that share job candidates, best practices and create wider opportunities for veterans with disabilities.

## Equality and Access

Equality and access are two important aspects of creating a culture of trust and inclusion. Northrop Grumman ensures equality through its Equal Employment Opportunity (EEO) compliance efforts as a US federal contractor, as well as through US and global government reporting related to gender, race/ethnicity, disability status and veteran status. Through workplace adjustments and accessibility efforts, Northrop Grumman promotes a barrier-free workplace to maximize the contributions of individuals of all abilities. While equality and access efforts are part of Northrop Grumman's compliance as a US federal contractor and global employer, the work of the team expands beyond compliance to help to build the best culture for all employees across Northrop Grumman.

We benchmark pay using external salary surveys, and our incentive system is performance-based. We are committed to equitable pay for all employees, including for women and People of Color, and we review our pay decisions accordingly.

As part of our efforts to maximize the inclusion and contributions of all employees, Northrop Grumman manages accommodation and adjustment requests from employees, applicants and visitors through the online ACCOMMODATE system. Adjustments are managed and distributed from a centralized budget. Since the launch of ACCOMMODATE in 2015, we have received 4,660 requests for accommodations from employees, applicants and visitors. In 2018, we received nearly 1,200 requests for accommodations through ACCOMMODATE.

The disability inclusion programs at Northrop Grumman, including strategies, policies, procedures and initiatives, have created measurable results for the representation and inclusion of people with disabilities in our workforce. Northrop Grumman received the highest ranking for the fourth year in a row on the Disability Equality Index, a ranking produced by the American Association of People with Disabilities (AAPD) and DisabilityIN and received the Employer of the Year: Inspire award from DisabilityIN. In addition, Northrop Grumman was named as a 2018 National Organization on Disability Leading Disability Employer.™

# EMPLOYEE HEALTH AND SAFETY

Northrop Grumman strives to protect the safety and health of our employees, visitors and contractors. We work diligently to drive down injuries and illnesses through the innovation of new tools and processes, job safety training and continuous improvement. Every employee has a voice in ensuring that they and their coworkers are not exposed to hazards in the workplace.

We maintain a Safety Committee, with representation from each sector, to develop and manage safety initiatives. One ongoing safety initiative is our recognition of National Safety Month. Each June, in conjunction with the National Safety Council and other supporting partners, we recognize the value of employees and the importance placed on their well-being. We work to bring awareness to employees about injury prevention, and empower them to take actions to help keep themselves and their coworkers safe. In 2018, Safety Month activities addressed workplace safety issues, household safety and distracted driving.

Northrop Grumman works aggressively to prevent employee injuries, leveraging our partnerships with leading consultants in the loss prevention industries. On a regular basis, we review our loss data to identify injury trends by type and also by location. Northrop Grumman invests resources in projects designed to keep employees from getting injured. In 2018, we focused on the prevention of slip, trip and fall injuries. Our work focused on a company-wide awareness campaign, as well as site-specific assessments at many of our locations where these types of injuries had occurred. Through these combined efforts, we saw a reduction in slip, trip and fall injuries at many facilities.

## MATERIAL ISSUE Health and Safety



### WHY IT'S IMPORTANT

Our people are our most valuable resource. We are committed to providing a safe and healthful workplace, and to conducting our business activities in a responsible manner that preserves natural resources and minimizes adverse impacts to the health and safety of our employees, customers and community. We strive to prevent all injuries in the workplace.



### MANAGEMENT APPROACH SUMMARY

Safety is one of the core Northrop Grumman Values, and safety performance has been incorporated into the company's non-financial metrics since 2010. A strong safety culture exists at Northrop Grumman as evidenced by employee participation (both management and line employees) in a variety of environmental, health and safety committees. These committees engage proactively to identify and eliminate hazards and identify processes and practices to prevent future injuries.

## Don't Fall for Distracted Walking

Distracted walking is bad for employees and bad for business. Keep your eyes on path, don't use your smartphone, and avoid using headphones or ear buds while walking.



We use eye-catching visuals in our facility communication channels to raise employees' safety awareness.

## Ergonomics

One safety area we target is preventing ergonomic-related injuries. Northrop Grumman conducted a variety of ergonomic studies and assessments in 2018, examining job activities associated with a higher incidence of repetitive motion injuries. A review of hand tools used in the aircraft assembly process was undertaken, to leverage the advancement in recent hand tool technologies to reduce/eliminate musculoskeletal strain.

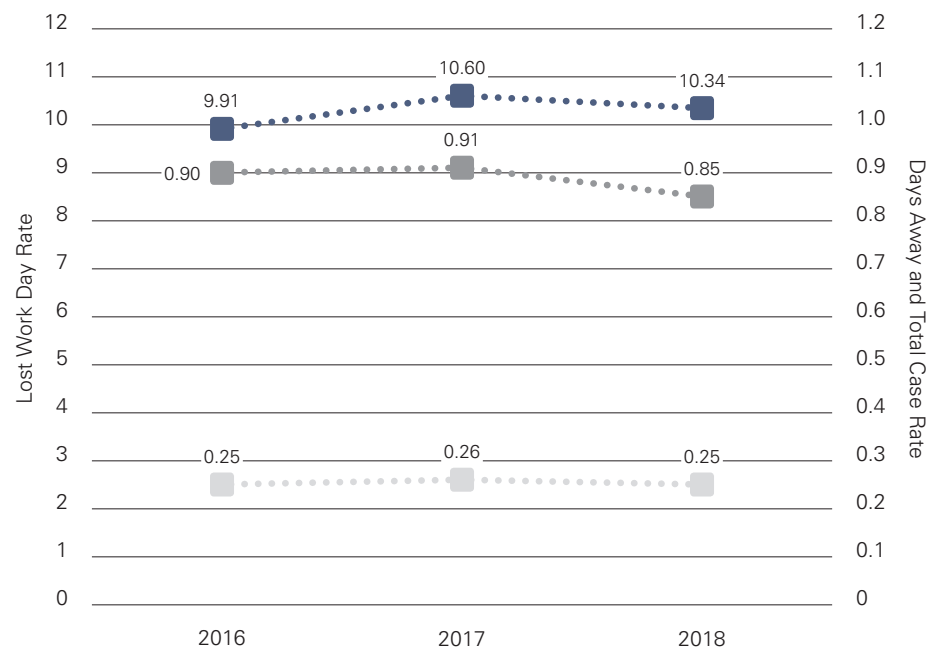
Ergonomics training for engineers was also conducted at several manufacturing facilities in 2018, emphasizing prevention by identifying potential problems before they occur. Ergonomic and economic analysis tools along with workstation design guidelines will help engineers select and implement practical solutions. Existing workstations may also be evaluated with this training to eliminate inefficient design that may lead to strains and overexertion.

Northrop Grumman implemented a pilot project with ergonomics wearables at some of our manufacturing sites in 2018. The small devices are belt-mounted and monitor bending and twisting at the waist (along with other variables). An alarm sounds when the user bends or moves in a manner that can result in a strain or overexertion. The results of our pilot project indicate that these devices may reduce injuries for a wide variety of worker tasks. Further study and deployment of the wearable devices are planned for 2019.

## Health and Safety Performance Summary

We evaluate the effectiveness of our health and safety programs externally, through benchmarking with industry peers and the U.S. Bureau of Labor Statistics. Internally we determine program effectiveness by conducting trend analyses of our past performance. Safety is one of Northrop Grumman's six corporate non-financial performance metrics, and we have not experienced a work-related fatality since 2014.

## Health and Safety Performance\*



\*Safety statistics are for U.S. workforce only. For each metric, a lower value indicates better performance:

- **Lost Work Day Rate:** Total number of lost work days per 100 full-time workers
- **Total Case Rate:** Total recordable injury and illness cases requiring treatment beyond first aid per 100 full-time workers
- **Days Away Case Rate:** Cases resulting in lost or restricted days or job transfer because of work-related injury and illness per 100 full-time workers



# *COMMUNITY ENGAGEMENT*

Northrop Grumman focuses on connecting our passions and talents to build partnerships that transform our communities.



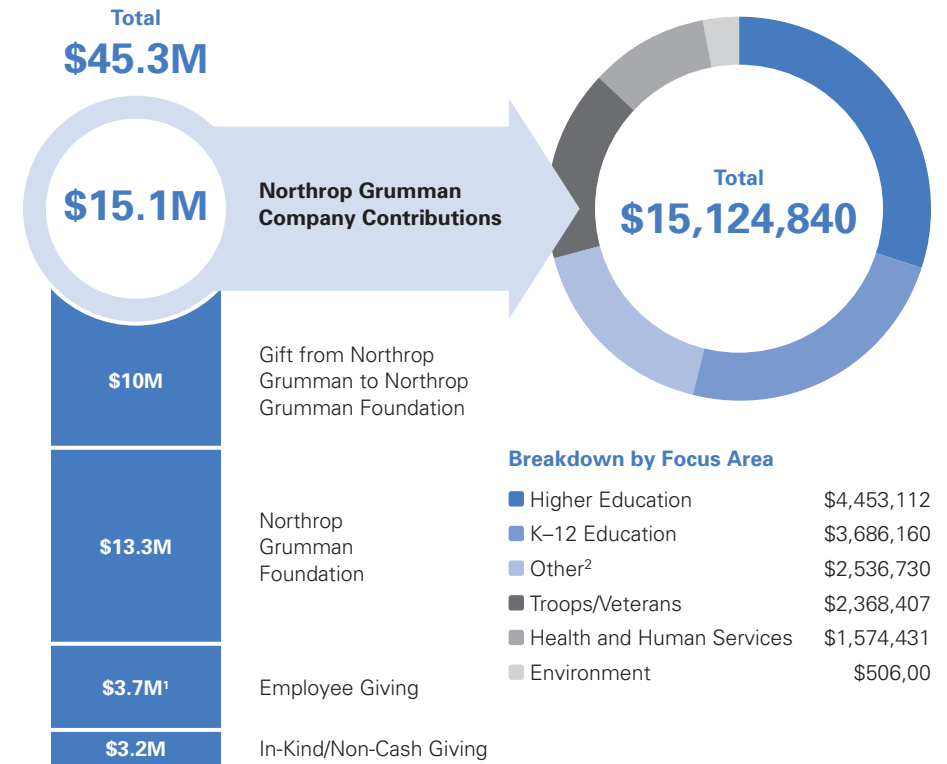


# CORPORATE CITIZENSHIP

At Northrop Grumman, our goal is to leverage our time, talent and dollars to cultivate a future workforce and strengthen the lives of those within our communities. Our strategy is to impact programs focused on education, military and veterans, health and human services and environmental stewardship. In addition to our corporate programs and partnerships, we encourage our employees to give back to their local communities. Through the Northrop Grumman Foundation, we dedicate resources to increasing STEM educational opportunities for students so that our future workforce is diverse and prepared with the skills necessary for our business. We take great pride in serving those who defend our freedom. Through volunteerism and charitable giving we stand in support of our veterans, service members and their families. We recognize that we can enhance employee experiences through impactful community outreach opportunities, thereby positioning Northrop Grumman as an employer and business of choice.



## Investment Through Philanthropy



<sup>1</sup>Includes ECHO, employee donations for education matched by company and local fund-raising campaigns.

<sup>2</sup>Includes contributions in categories such as arts and culture, youth and civic that are not in one of our four focus areas.

*Per the London Benchmarking Group model, 75% of our contributions (Northrop Grumman Company Contributions, Northrop Grumman Foundation and In-Kind/Non-Cash Giving combined) are classified as community investments and 25% as charitable contributions.*

## Education and STEM

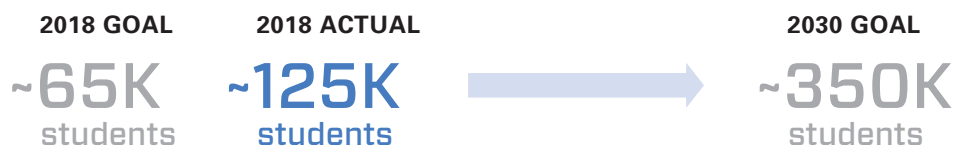
As an organization, we recognize that developing talent for the future is the most sustainable way to grow our business and arm our next generation of employees with the skills they need to succeed. Northrop Grumman and the Northrop Grumman Foundation are committed to expanding and enhancing the pipeline of diverse, talented STEM students globally. In 2018, Northrop Grumman and the Northrop Grumman Foundation contributed nearly \$20 million to STEM-related organizations and programs.

Our education strategy focuses on engineering and technology-based programs and initiatives. We work with schools and other partners to excite, engage, and educate a diverse group of students. By successfully executing in these areas, we contribute to the following outcomes:

1. Relevant STEM educational experiences for students and teachers
2. Global gender parity in STEM careers
3. A robust and diverse pipeline of tomorrow's workforce

By 2030, Northrop Grumman will provide workforce-relevant professional development programming to middle school educators in order to increase their math and science knowledge and their confidence and competence in teaching STEM subjects, in turn helping to increase math and science proficiency for 350,000 students.

### STEM Education Impact: Benefiting Students Through Professional Development for Teachers



## MATERIAL ISSUE Corporate Citizenship



### WHY IT'S IMPORTANT

Being a good Corporate Citizen means improving the lives of the people in the communities where we live and work through a variety of programs that position Northrop Grumman as an employer and business of choice.



### MANAGEMENT APPROACH SUMMARY

We invest in communities by supporting and providing funding to a variety of causes related to education, military and veterans, health and human services and environmental stewardship. Through our support, we aim to meet or exceed the median total giving for companies in our industry. Corporate giving guidelines are available on our [website](#).



## HIGHLIGHT STORIES

## STEM Mobile Debut

The STEM Mobile made its debut last spring at Endeavor Elementary School in Alabama, supported by employee volunteers and a Northrop Grumman Foundation Teacher's Academy Fellow with about 20 fourth and fifth graders in her Endeavor Cubs Engineering Academy. The STEM Mobile is part classroom, part science carnival and all about the future. Northrop Grumman volunteers repurposed a 32-year old van, stocking its shelves with hands-on STEM activities and materials designed to engage, excite, educate and expose students and teachers to new possibilities in science and technologies.

The STEM Mobile was rolling in 2018, taking telescopes, robots, rockets and more to schools and special events like NASA in the Park and the Scoutfest, reaching over 3,000 students this year.

## Space Camp Ten Year Anniversary

The Northrop Grumman Foundation sponsored scholarships for middle school students and teachers from Australia, Japan, the United Kingdom and the United States to attend Space Camp® at the U.S. Space and Rocket Center® (USSRC) in Alabama. The Foundation sponsored 54 teachers and 98 students to attend this year's camp. 2018 marked the tenth year the Foundation sponsored the program, partnering with nearly 280 schools and exposing nearly 1,000 students and teachers from around the globe to space exploration and STEM.

## Expanding Your Horizons

In 2018, Northrop Grumman sponsored the 18th annual Expanding Your Horizons conference in Utah. Over 100 employees volunteered at this conference, which aims to engage middle school girls in STEM fields. Approximately 400 young women from grades six through nine selected three workshops to attend out of 25 available. Women in STEM professions taught hands-on workshops, acting as both teachers and role models for the participants.



## STEM Camps

One of the ways we contribute to STEM education is through our contributions to summer camps. Northrop Grumman provides funding and volunteer support for camps across the globe.

In the United States, Northrop Grumman sponsors STEM Academy camps in several locations including Colorado, Virginia and Alabama. These camps offer subjects like cybersecurity and robotics that excite, engage and educate students. Northrop Grumman provides employee volunteers as mentors and speakers during camps.

In the UK, Northrop Grumman sponsors the Summer Time Advanced Aerospace Residency (STAAR) program, a week-long residential camp for high school students in partnership with the Royal Air Force. Focused on aerospace engineering, the program provides historical context and lessons on aviation-related missions, with the goal of students developing critical mission-focused thinking. After a highly successful 'pilot' camp in summer 2017, the program was officially launched in summer 2018 with two sessions.

These types of experiences outside of traditional classroom settings allow students to learn about topics and skillsets that may not arise within a traditional school setting. By helping to sponsor these programs, Northrop Grumman creates a fun, positive, memorable learning experience for these students, encouraging them to pursue these fields as a future career.



## Diversity in STEM Education

Addressing diversity in STEM is a key focus of our educational programs. By focusing initiatives specifically on women and minorities in STEM, we hope to ensure that the pipeline of talent for the future is as diverse as possible.

One example is the National Society of Black Engineers (NSBE) Summer Engineering Experience for Kids (SEEK) program. The program is led by NSBE engineering students and technical professionals dedicated to giving back to the community. These students and professionals serve as mentors and role models for the students. The SEEK program utilizes a hands-on design curriculum, where participants work in teams to solve problems and create products while discovering the underlying math and science principles involved in these processes. The program was supported by employee volunteers in two locations.



## Global Cyber Education Initiatives

Our thought leadership in global cyber education, outreach and workforce development programs and initiatives engages all elements of Northrop Grumman. Our cyber initiatives aim to excite young people about cybersecurity opportunities, remove barriers and advocate for a diverse and talented cyber workforce.



### CyberPatriot

Our key initiative is the CyberPatriot National Youth Cyber Education program, created by the Air Force Association and sponsored by the Northrop Grumman Foundation. In 2018, CyberPatriot's National Youth Cyber Defense Competition celebrated 10 years of continued success, drawing a record 5,584 teams, a 26% increase over 2017. CyberPatriot continues to exceed national averages for female, culturally diverse and underserved community participation.



### CyberCenturion

CyberPatriot is branded in the United Kingdom as CyberCenturion. Now in its fourth year, its success among 12- to 18-year-olds is reflected by increased number of registered teams and diversity from across the UK. Enrollment for the 2018 competition was 575 teams, exceeding 300% growth in four years.



### CyberArabia

Held at King Saud University in Riyadh, CyberArabia is a workshop and competition designed for college students. Propelled by student interest, participation expanded to numerous universities from across the Kingdom of Saudi Arabia within three years.



### CyberTaipan

In Australia, CyberTaipan launched as a pilot program in June 2018 for youth ages 12 to 18 in the Australian Capital Territory and Victoria. The National Finals event will be held in Canberra in March 2019. We anticipate expanding CyberTaipan to a nation-wide competition next year.





# EMPLOYEE ENGAGEMENT AND VOLUNTEERISM

An important aspect of our corporate citizenship program is our employees' involvement and engagement with their communities. Employee volunteering is an important tactic that creates a culture of excellence and engagement that our employees are proud to be a part of. We aim to connect employees to strategic opportunities for volunteerism, skills development and community giving with the hopes of driving improvements in our communities and our workforce.

## Volunteer Time

For 2018, our employees logged 61,160 hours of time in our event management system, Volunteer1NG. Of these hours, 55,861 were personal time and 512 were paid by the company. These hours are valued at more than \$1.5 million in community impact (based on an average value of volunteer time at \$24.69 per hour as suggested by the nonprofit and corporate giving coalition group, Independent Sector).

## Community Service Grants

We honor employees who have demonstrated a commitment to volunteerism. The Community Service Grants program provides a \$400 donation to organizations in which an employee has volunteered a minimum of 40 hours in a year. This program continues to grow as our employees engage in the communities where they live and work. In 2018, 321 grants were awarded to 247 organizations representing 37,571 volunteer hours by 321 employees.

## Excellence in Volunteerism Awards

Employee volunteers were nominated by non-profit organizations across the country and 10 were selected for the Excellence in Volunteerism Award for their commitment and dedication to their communities. Examples of grants provided include support for a volunteer fire department, the arts, veterans and a robotics club.

# SUPPORTING VETERANS

Veterans make up an important part of both our workforce and communities. We employ thousands of military veterans worldwide and we are committed to valuing this experience both in and out of the workforce. We support troops, veterans and their families, specifically in the area of wounded warriors, veterans, homelessness, employment and military appreciation.

Northrop Grumman supports veterans seeking to transition out of service and back into the workforce, both within our company and elsewhere. Northrop Grumman leaders serve as mentors with American Corporate Partners, an organization dedicated to helping post 9/11 veterans and service members find their next career. Our volunteers mentor program participants and provide them career development guidance and networking opportunities. More than 300 veterans have been mentored by 166 Northrop Grumman mentors. Veterans, Employees, Reservists Inspired to Act and Serve (VERITAS), our employee resource group for veterans, is active in seeking opportunities to help fellow veterans. For example, our VERITAS employee resource group collaborated with Still Serving Veterans, a nonprofit organization supporting veterans transitioning from activity duty to the workforce. The annual event kicked off with a panel discussion from Northrop Grumman veteran employees talking about their transition into the workforce. The event ended with a networking session in which Still Serving Veterans clients had an opportunity to engage with employees and site leadership.

Across the United States, Northrop Grumman supports United Service Organization (USO) locations through employee volunteerism and fundraising. In 2018, employees donated more than \$130,000. Employee volunteers joined the USO Metro Washington-Baltimore Pack for Troops event and showed support for active duty military and their loved ones by creating kits full of supplies, snacks and other items. The completed packs were given to service members and families at local military bases, local USO airport lounges and on the USO-Mobile.

## HIGHLIGHT STORIES

### Operation Homefront

Northrop Grumman sponsored a toy drive and gift wrapping events at 3 site locations (BWI, Fair Lakes and Herndon). Operation Homefront provides assistance to the families of service members ranked E-6 and below as well as wounded warriors. Corporate Citizenship partnered with Operation Homefront in committing to collect 750 toys to be distributed to local military installations in the Maryland, DC and Northern Virginia area, thanking our military families during the holiday season. In addition, the Northrop Grumman Technology Services executive leadership team and executive administrative team filled 250 stockings to be distributed to the children.

### Soldier On

Northrop Grumman provides grant funding to the Soldier On program in Australia to assist veterans and their families with support services including workforce integration, counseling and mentoring.

### Wreaths Across America

Northrop Grumman partnered with Wreaths Across America, an organization that provides wreaths for the graves of veterans and conducts a live ceremony at Arlington National Cemetery every year. This year, we donated 2,192 wreaths to 55 cemeteries across the United States, donating a total of \$33,007. Hundreds of employees across the enterprise participated in simultaneous wreath laying ceremonies at local cemeteries.





## HIGHLIGHT STORIES

## Corporate Social Responsibility Award for Teachers Academy Partnership

In 2018, the Northrop Grumman Foundation Teachers Academy partnership with the National Science Teachers Association earned a first-place win in the “Corporate-Community or Nonprofit Partnership” category of PR Daily’s 2018 Corporate Social Responsibility Awards. This program, now in its fourth year, helps middle school teachers (grades 5–8) understand the skills needed for a scientifically literate workforce and promotes classroom excellence in science, engineering and technology. Our engineers and technologists are integral to the design and implementation of the program and provide real-world perspective to teachers. The Academy has benefited more than 100 teachers and continues to grow.

## American Cancer Society Relay For Life

The American Cancer Society Relay for Life is an enterprise-wide partnership that helps employees honor the important people in their lives who have either survived or succumbed to cancer. The company supports employees who would like to fundraise or walk on behalf of a loved one. This year, Northrop Grumman sponsored 34 walks, through which 300 employees raised over \$165,000.



# STRENGTHENING COMMUNITIES

Northrop Grumman tackles many other challenges in our communities through corporate citizenship. These include building houses for those in need, raising awareness and funds for health-related causes and improving the local environment in communities.

- **American Red Cross:** Northrop Grumman employees in Richmond, Virginia organized a blood drive in response to a shortage of blood in the state of Virginia and were able to donate 25 pints of blood.
- **Virginia Commonwealth University Massey Cancer Center:** Northrop Grumman employees collaborated with the Cancer Center during Breast Cancer Awareness month and decorated hats and head coverings for women who are undergoing chemotherapy.
- **Habitat for Humanity:** Northrop Grumman helped sponsor Habitat for Humanity of Northern Virginia for the Hundredth Families Served Initiative, celebrating the chapter’s accomplishment of building homes for 100 local families. The last two homes were built on land donated to Habitat NOVA by a veteran to support local military and veteran families. Northrop Grumman also collaborates with Habitat for Humanity in other states including California, Alabama and Florida.
- **Boulder Shelter for the Homeless:** Northrop Grumman volunteers cook and serve meals every fifth Monday at the Boulder Shelter for the Homeless. In the winter, employees conduct a warm clothing drive to donate to the shelter.
- **EarthEcho:** The Northrop Grumman Foundation partnered with EarthEcho International to execute the second year of the Expedition series. The second year of this program brought twenty-five middle school teachers from Australia on a week-long expedition exploring the effects of plastic pollution and coastal development on Port Phillip Bay in Melbourne, Australia.

## Strengthening Communities Around the World

These icons represent the types of programs that Northrop Grumman supports in countries and regions around the world.



**Education**



**Military and Veterans**



**Health and Human Services**



**Environment**

### Royal Air Force Museum—STAAR

This program provides a unique experience to inspire and engage young people aged 14–15 years to understand more about advanced aerospace systems and mission engineering, and to encourage them to study and take up careers in STEM-related fields, with a focus on aerospace engineering.

### Center for Women in Science, Engineering and Technology

In the Republic of Korea, Northrop Grumman provides grant funding to strengthen research capacity, female leadership capabilities and networking opportunities for high school and college undergraduate students in STEM.

### InFUSE

We support this Australian initiative aimed at increasing girls' participation in STEM in the senior years of secondary schooling. The program builds teachers' capacity to understand the complex psychological, linguistic and social factors acting on girls' decisions in relation to STEM subjects at school, and to counteract negative influences.

### Pikes Peak Greenway Trail Clean Up

Northrop Grumman employees in Colorado Springs led a group of 13 volunteers to participate in the trail clean up on Pikes Peak.

### Education Support for Institute for Military Children

We provide educational support to children who have a parent serving full-time in the South Korean Armed Forces, creating a more stable educational environment for them.

### TOMODACHI Disability Leadership Program

This leadership training for Japanese people with disabilities, ages 18 to 35, helps prepare them for community involvement, service, advocacy and policy development.

### Water For People

Through Northrop Grumman grants, communities in Uganda are building their capacities to manage water and sanitation systems. The program resulted in new or improved water services for 5,823 people, adequate sanitation for 1,032 people, and hygiene education received by 20,376 people.

### Land Trust North Alabama

Northrop Grumman adopted the Rainbow Mountain Trail, a greenway utilized by the local community. Employees lead quarterly clean-up events staffed by employee volunteers, friends and family members.



# GRI CONTENT INDEX

Our corporate responsibility report is guided by the GRI Standards: Core requirements. This content index indicates the location of each disclosure within this report, externally on our website or other reports or provides the information directly in a statement. We have also indicated how our reporting topic areas align with the United Nations Sustainable Development Goals (SDGs). The SDGs address global challenges and are designed to encourage active participation by corporations, governments and non-profit organizations to collaborate on finding solutions. For more information see the [United Nations SDGs website](#).



## Legend

- PR 2019 Proxy Statement
- PCG Principles of Corporate Governance

General Disclosures		Report Location (or Direct Information)	SDG Reference
<b>Organizational Profile</b>			
102-1	Name of the organization	<a href="#">Company Profile</a>	
102-2	Activities, brands, products, services	<a href="#">Company Profile</a>	
102-3	Location of headquarters	<a href="#">Company Profile</a>	
102-4	Location of operations	See <a href="#">Northrop Grumman website</a> , <a href="#">Contact Us</a>	
102-5	Ownership and legal form	<a href="#">Company Profile</a>	
102-6	Markets served	<a href="#">Company Profile</a>	
102-7	Scale of the organization	<a href="#">Company Profile</a>	
102-8	Information on employees and other workers	<a href="#">People and Culture</a>	
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102-10	Significant changes to the organization and its supply chain	<a href="#">Company Profile</a> , <a href="#">Global Supply Chain</a>	
102-11	Precautionary Principle or approach	<a href="#">Environment</a>	
102-12	External initiatives	<a href="#">Stakeholder Engagement</a>	
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<b>Strategy</b>			
102-14	Statement from senior decision-maker	<a href="#">CEO Message</a>	
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102-17	Mechanisms for advice and concerns about ethics	<a href="#">Ethics: Northrop Grumman OpenLine</a>	SDG 16

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<b>Governance</b>			
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102-19	Delegating authority	<a href="#">Governance Practices</a> ; PCG Section IV.G	
102-21	Consulting stakeholders on economic, environmental, and social topics	<a href="#">Stakeholder Engagement</a> ; PR 24; PCG Section IV.G	SDG 16
102-22	Composition of the highest governance body and its committees	<a href="#">Stakeholder Engagement</a> ; PR 2, 3, 6, 7, 8, 9, 10, 11, 12	SDG 5, 16
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102-30	Effectiveness of risk management processes	<a href="#">Governance Practices</a> ; PR 15	
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102-34	Nature and total number of critical concerns	PR 5	
102-35	Remuneration policies	PR 25, 26, 27, 35, 37, 39	
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102-43	Approach to stakeholder engagement	<a href="#">Stakeholder Engagement</a>	
102-44	Key topics and concerns raised	<a href="#">Stakeholder Engagement</a>	
102-45	Entities included in the consolidated financial statements	Northrop Grumman Corporation	
102-46	Defining report content and topic Boundaries	<a href="#">Material Issues</a>	
102-47	List of material topics	<a href="#">Material Issues</a>	
102-48	Restatements of information	No restatements reported	
102-49	Changes in reporting	No significant changes	
102-50	Reporting period	2018	
102-51	Date of most recent report	Spring 2018 (reporting on 2017 data)	

General Disclosures		Report Location (or Direct Information)	SDG Reference
102-52	Reporting cycle	Annual	
102-53	Contact point for questions regarding the report	See introduction to GRI Index	
102-54	Claims of reporting in accordance with the GRI Standards	This report has been prepared in accordance with the GRI Standards: Core option	
102-55	GRI content index	GRI Standards Content Index	
102-56	External assurance	We externally assure our Emissions data. See our <a href="#">website</a> .	
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General Disclosures		Report Location (or Direct Information)	SDG Reference
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305-2	Energy indirect (Scope 2) GHG emissions	Greenhouse Gas Emissions, Data Matrix, CDP Climate Response	SDG 12, 13
305-3	Other indirect (Scope 3) GHG emissions	CDP Climate Response	SDG 12, 13
305-4	GHG emissions intensity	Data Matrix, CDP Climate Response	SDG 12, 13
305-5	Reduction of GHG emissions	Data Matrix, CDP Climate Response	SDG 12, 13
Effluents and Waste			
306-2	Waste by type and disposal method	Solid Waste Diversion, Data Matrix	SDG 12
Environmental Compliance			
307-1	Non-compliance with environmental laws and regulations	Data Matrix	
<b>Social</b>			
Employment			
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	Benefits and Employment Practices	SDG 8
Occupational Health and Safety			
403-1	Occupational health and safety management system	EHS Audit Program	SDG 8
403-4	Worker participation, consultation, and communication on occupational health and safety	Employee Health and Safety	SDG 8
403-9	Work-related injuries	Data Matrix	SDG 8
403-10	Work-related ill health	Data Matrix	SDG 8
Training and Education			
404-2	Programs for upgrading employee skills and transition assistance programs	Professional and Technical Development	SDG 8
404-3	Percentage of employees receiving regular performance and career development reviews	Benefits and Employment Practices	SDG 8
Diversity and Equal Opportunity			
405-1	Diversity of governance bodies and employees	Governance	SDG 5, 8
Public Policy			
415-1	Political Contributions	Northrop Grumman Political Contributions	SDG 16

## EXTERNAL REVIEW PANEL – SUMMARY DOCUMENT

### Background

For the eighth consecutive year, Northrop Grumman convened an External Review Panel as part of the annual corporate responsibility reporting process. The mission of the five-member group was to review the *2018 Northrop Grumman Corporate Responsibility Report* for readability, clarity of goals and activities, transparency and year-on-year comparability.

Northrop Grumman contributors nominate stakeholder Panelists with significant professional background, knowledge and experience in key topics related to sustainability and corporate responsibility. Panelist terms are staggered to promote continuous improvement and fresh perspectives. For the 2018 External Review Panel, two new members, Carolyn Berkowitz and Dan Johnson, joined three current panel members: Fred Guy, James Haddow and Margret Hanley (see panelist biographies at the end of this summary document). Panelists' observations reflect individual points of view and not those of their respective organizations.

Each panel member received an executive review draft of the 2018 Corporate Responsibility Report (hereafter "Report") in advance of an in-person meeting at Northrop Grumman corporate headquarters in Falls Church, Virginia. During the all-day meeting, Panelists held a series of discussions with Northrop Grumman senior managers and content providers. Subject matter experts from Northrop Grumman highlighted key aspects of their respective Report sections and Panelists asked clarifying questions and provided preliminary feedback. The Panel did not review underlying data or relevant process documents, and therefore the review process does not represent independent verification of the performance data within the Report.

In recognition of the respective time, expertise and contribution of each Panelist, Northrop Grumman offered to make a grant in each Panelist's name to a designated, qualified 501(c)(3) organization. Additionally, Northrop Grumman reimbursed Panelists for related travel expenses.

### General Overview

Overall, the Report is a clear, articulate, detailed description of Northrop Grumman's Corporate Responsibility activities. The use of links to additional information on the Northrop Grumman website allows readers to dive more deeply into a topic without impacting the balance or length of coverage.

The treatment of Material Issues in the Report—both the definitions of each topic and the Material Issues summary boxes throughout the Report—improved the reader's understanding of why the topics are important to Northrop Grumman and how they are managed. However, the discussions of material topics vary in length and substance. An improvement for the future would be to cover each topic with a similar level of detail and include supporting metrics and targets for each topic. This could be accomplished by updating the materiality assessment prior to the next Report, taking into account both external and internal stakeholders, and any shifting stakeholder perspectives due to the acquisition of Orbital ATK.

Linking sections of the Report to the United Nations Sustainable Development Goals (SDGs) is helpful. Northrop Grumman should consider highlighting the SDGs consistently across Report sections or including them alongside materiality to demonstrate how the SDGs inform strategy at the company. The People and Culture section of the Report linked the SDGs to Northrop Grumman's strategy in this area, and can serve as an example to the other sections of the Report.

The Report includes a more robust discussion of financial performance and strategic business goals and strategies, broadening the Report audience to include external stakeholders (such as investors and shareholders) in addition to the traditional internal stakeholder audience.

The Report covers Northrop Grumman's performance well in a variety of key areas. Making the Data Matrix easily available online and linked into the Report addresses the varying needs of Report audience members. For improvement, the Panelists recommend covering performance topics in a consistent manner within the Report (for example, consistently providing the same number of years of data) and in a transparent manner, covering both positive and negative performance in equal levels of detail.

### **Leadership**

This section highlights Northrop Grumman's company profile and performance. The Report emphasizes Northrop Grumman leaders' commitment to integrity as an over-arching company value. It provides an insight into the company's approach to stakeholder engagement and materiality, with updated definitions of material issues to the company. The Panelists appreciated the description of the Orbital ATK acquisition, the explanation of why the acquisition was not yet fully included in the Report and that Northrop Grumman adjusted its Values to include Safety as a result of this acquisition.

### **Governance**

Northrop Grumman's governance practices exceed expectations for coverage within a report. This section covers governance topics ranging from Board structure, to ethics and compliance, to global supply chain. Northrop Grumman has a number of commendable governance practices, including the "Speak-Up Culture" and Business Conduct Officer programs.

The Global Supply Chain section is strong. Highlighting supplier responsibility, supplier performance, supplier diversity and supply chain security are appropriate for demonstrating that Northrop Grumman is a proactive Corporation globally. During the panel discussion, the supply chain team mentioned that Northrop Grumman has exceptions to its payments terms to support small businesses – this is a positive story to highlight in the Report.

The discussion on Ethics and Compliance are both strong; however, the report presents the two topics as being practically the same. The company might consider language that more clearly differentiates between these two separate (yet related) material issues. The Open Line disclosure and data around allegations, inquiries and corrective actions is very transparent and provides a benchmark against which readers can compare data over time.



Data privacy is a timely issue and well-covered in the Security and Data Privacy section though it seems to focus more on personal data privacy at the expense of information security and protection of intellectual property.

### **Products and Innovation**

The Report has a new section focusing on Products and Innovation, with an emphasis on how systems thinking drives performance across program performance, quality, customer satisfaction and R&D and innovation. Highlighting how systems thinking adds value throughout the company differentiates Northrop Grumman from its competitors. The highlight stories in this section emphasize a variety of successful programs at the company in 2018. The Report would benefit from more discussion of actual products and related policy.

The section culminates with a highlight story focused on innovative solutions for sea turtle conservation--bringing together multiple facets of Northrop Grumman's strategy (including STEM education, technology and innovation, corporate citizenship and systems thinking) to create an engaging case study. Including examples of how systems thinking and innovation can positively impact other parts of the business (environment, safety, corporate citizenship) would improve the linkage between this section and the rest of the Report.

### **Environment**

The discussion of environmental topics at Northrop Grumman was comprehensive with a balance of graphics displaying goals and environmental performance. The narrative would benefit from improved balance in the discussion of Northrop Grumman's performance related to these goals, giving equal coverage to where the company met its goals and where it fell short. Noting the discrepancy between the Water goal for 2020 and the 2018 performance, the Panelists recommend providing an explanation and action plan to give context to readers.

The environmental remediation discussion is a powerful section that highlights an environmental activity that is not often covered in corporate sustainability reports, but one that is important to many stakeholder groups. However, this discussion does not convey the significant financial obligation related to legacy disposal sites that require remediation as detailed in the Annual Financial Report. Providing metrics would allow stakeholders to track progress over time and demonstrate successes in remediation and restoration at these sites.

### **People and Culture**

This section exemplifies Northrop Grumman's strong leadership in creating a culture that is diverse, talented and engaged in the company. The section highlights the importance that Northrop Grumman places on proactive career management to improve employee talent and the company's commitment to diversity, inclusion and equal access. The level of employee participation in the annual employee survey regarding inclusion is a positive metric for Northrop Grumman. The company should consider a survey question about employee participation in community engagement activities. This would be an additional metric for the Community Engagement, and People and Culture sections of the Report.

The Report covers many programs within Northrop Grumman for employee development. From the Panel's conversation, these programs appear to be strong, innovative and industry-leading; however, the coverage in the Report lacks specificity which could provide concrete examples of how Northrop Grumman differentiates itself as an employer of choice.

### **Community Engagement**

The Community Engagement section of the Report highlights many of Northrop Grumman's efforts to build partnerships with communities. The highlight stories and case studies provide clear and compelling examples of how Northrop Grumman engages with communities; the examples also demonstrate the level of employee engagement in these activities. The materiality discussion should better convey how community engagement ties to business strategy. By making strategic investments, the company is building the pipeline of a STEM educated workforce, while advancing global gender parity in STEM--core issues for business success. Global Cyber Education and veterans as a focus are critical to Northrop Grumman's workforce and its "license to operate" in communities. While these are embedded in the narrative, highlighting them in the materiality discussion would better convey the thoughtfulness of Northrop Grumman's strategy.

The graphic "Investment through Philanthropy" helps the reader to envision how the donations are broken down; however, the specific breakdowns on the graphic are not entirely clear to the reader because of differences in Northrop Grumman donations and Northrop Grumman Foundation donations. To be more transparent, the Panel recommends improving clarity on what level of investment is company contribution versus foundation contribution. Additionally, improving the narrative text can better describe the nuances of the graphic.

**NORTHROP GRUMMAN CORPORATION  
EXTERNAL REVIEW PANEL BIOS**



CAROLYN BERKOWITZ

*President and CEO • Association of Corporate Citizenship Professionals*  
Carolyn Berkowitz is an accomplished Corporate Citizenship professional. Having led CSR efforts at Capital One, she re-envisioned Capital One's corporate philanthropy focus and led a team of 35 CSR professionals to develop and execute a \$450 million, ten-year strategy to prepare low- and moderate-income people for future success. Prior to Capital One, Carolyn worked with America's Promise, Points of Light Foundation and the American Association for Adult and Continuing Education. She has served as a Partner at Mission Partners, a consulting firm dedicated to guiding non-profits, foundations and socially responsible corporations in realizing their greatest social impact. She will continue to serve on its Equity Advisory Board, an initiative that she championed, through 2018.



DR. ALFRED H. GUY, JR.

*Professor • Yale University*  
Dr. Fred Guy teaches courses in ethics and philosophy at Yale University Gordon College of Arts and Sciences, where he also serves as coordinator of the university core curriculum on ethical issues in business and society. He has served as director for the Hoffberger Center for Professional Ethics from 1994 to present. He received his Ph.D. and M.A. from University of Georgia and B.A. from Auburn University.



JAMES HADDOW

*Director • Howard University School of Business*  
James Haddow is director of the Center for Excellence in Supply Chain Management at Howard University School of Business in Washington D.C. Along with teaching a range of supply chain management courses to both undergraduate and graduate students, he is also a faculty advisor to students during supply chain case competitions. Jim has 30 years of industry experience with specialties including strategic sourcing, supply chain assessment, project management, global security, expense management systems, performance measurement, strategic planning and financial analysis. He received a bachelor of science in business and management, as well as an MBA with a concentration in logistics, from the University of Maryland.



MARGRET HANLEY

*Co-founder and Principal • The Isosceles Group*

Margret Hanley is an expert in the management of environmental issues affecting the development and use of real estate. She has more than 28 years of experience in the integration of environmental management programs and the sale, redevelopment and use of industrial properties. At the Isosceles Group, she leads due diligence evaluation and asset management services. She is a licensed site professional (LSP) in Massachusetts and has a B.S. in geology and geophysics from Boston College.



DANIEL JOHNSON

*Head of Product Services • Institute of Business Ethics*

As the Head of Product Services at the IBE, Dan has a wide remit, responsible for the delivery of IBE content in publications, training and online products. He also leads on the IBE's relationships with Supporter organizations in the Defense and Aerospace, Utilities and Higher Education sectors, acting as Secretary to several of the IBE's practitioner working groups. Dan is also a trained project manager and trainer, and represents the IBE with various public speaking engagements, facilitated training sessions and webinars. Dan holds a Master's degree in Corporate Social Responsibility from the International Centre for Corporate Social Responsibility at the University of Nottingham.



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