Part II:

A. Institutional Mission:
Virginia Polytechnic Institute and State University (Virginia Tech) is a public land-grant university serving the Commonwealth of Virginia, the nation, and the world community. The discovery and dissemination of new knowledge remain central to its mission. Through its focus on teaching and learning, research and discovery, and outreach and engagement, the university creates, conveys, and applies knowledge to expand personal growth and opportunity, advance social and community development, foster economic competitiveness, and improve the quality of life.

B. Strategies

208 Program Strategies:

1. **Advance Faculty Salary Competitiveness to the 60th Percentile:** The success of the university is due in large measure to its outstanding faculty who are committed to excellence in education, research, and outreach. In a competitive, global marketplace that values human capital, the highest quality employees in our organization are constantly being recruited by peer institutions, industry, and research centers around the world. Attracting and retaining the caliber of faculty needed to maintain and improve upon our success is becoming increasingly competitive. While compensation is only one factor that contributes to the university’s ability to attract and retain the best faculty, it remains a major consideration. In addition, the replacement of faculty is far more expensive than the cost to retain those persons for whom the university has already invested significant time and resources. The university’s actual faculty salary currently ranks at the 33rd percentile of the SCHEV peer group for Virginia Tech: 20th out of 26 institutions in terms of salary competitiveness. Maintaining an annual merit process that rewards our top faculty for their efforts is fundamental to keeping pace with the market and mitigating turnover. SCHEV estimates peer salaries moving at an average of 2.8% per year. With a 2% statewide compensation process pending in 2019, the university plans to make limited progress through a combination of General Fund support and institutional nongeneral fund resources, supporting an approximate 3.6% merit-based program in 2019-20.

2. **Increase Staff Salaries:** Much like faculty, the slow pace of growth of staff compensation has negatively influenced retention and recruitment efforts at the university, a trend likely to accelerate as the local labor market continues to tighten. Competitively compensating the hard-working support staff at the university is a key factor in ensuring a highly productive and innovative organization. The university plans to implement the state’s 2% statewide Classified Staff compensation process in 2019 (with an additional 2% merit-based action for Classified Staff), and a 3% merit-based compensation process for University-Staff. This supports a multi-year strategy to position the university at the median of the competitive market, enabling the university to compete for talented staff that support continued university excellence.
3. **Increase Access for Virginia Undergraduates and Support the Production of STEM-H Degrees in the Commonwealth:** The university has grown enrollment of resident undergraduates by 4,550 students since 2004. Despite this growth, demand continues to grow for a Virginia Tech education. A record of more than 32,000 students applied to be in the university’s fall 2018 class. Demand is broad-based and impacts every college on campus. New and growing STEM-H degree offerings such as biomedical engineering, neuroscience, computational modeling and data analytics provide an opportunity to leverage the university’s expertise to provide students with high-demand skills and knowledge to be successful in the evolving economy. The targeted commitment from the Commonwealth in support of degree growth goals in the fields of Data Science and Technology and Science and Engineering will further bolster the university’s existing strengths in these demanding fields.

4. **Develop “Destination Areas”: Invest in Strategic Market-Centered Instruction and Research Clusters:** The university will continue its investment in world-leading instruction and research clusters, including Adaptive Brain and Behavior, Data and Decision Sciences, Global Systems Science, Integrated Security, and Intelligent Infrastructure for Human-Centered Communities. Destination Areas courses directly support Virginia Tech’s goal of becoming a strong model for the modern land-grant university with a global mission. By transcending traditional academic boundaries, the university’s destination areas engage students and faculty to evaluate and address complex (regional, national and global) challenges in a holistic manner. Sustained investment in high-demand degree attainment and transdisciplinary research will allow the university to continue to attract and retain innovative and creative faculty and students who will strengthen Virginia’s workforce and knowledge economy. While the university will make limited progress in 2018-19 with nongeneral fund support and reallocation of existing resources, this initiative envisions the traditional state fund split to fully develop Destination Areas in the future.

5. **Advance Strategic Research Opportunities and Enhance Entrepreneurial and Innovation Ecosystem:** As the Commonwealth’s largest research institution and 43rd largest research program in the United States, Virginia Tech is advancing transdisciplinary knowledge in areas such as neuroscience, water, energy, cybersecurity, autonomous transportation, resiliency and nanoscience. The university continues to pursue promising economic development strategies designed to reward human capital and innovative entrepreneurship. In collaboration with the Commonwealth and private sector partners, these efforts remain crucial for realizing the growth potential of the university’s research programs. The university is encouraged by recent state initiatives, such as the TEConomy Partners Assessment of Virginia’s Research Assets, to develop a more cohesive and comprehensive framework for research, development, and commercialization. Providing students with opportunities to work directly with cutting-edge industries and to exercise their own entrepreneurial ideas remains a key facet of the university curriculum.

The university envisions continued growth in research areas of existing success, including:
i. Health Sciences, specifically neuroscience
ii. Autonomous vehicle systems
iii. Cybersecurity

While it is a separate from the university’s internal research portfolio, the new Commonwealth Cyber Initiative (CCI) will leverage Virginia Tech’s considerable strengths in science and engineering and expertise in cybersecurity research to further catalyze innovation and commercialization in this field. This initiative will further enhance and facilitate the university’s collaboration with the Virginia Research Investment Committee, partner institutions of higher education, and the private sector to meet critical state economic and workforce development goals, and will ensure that Virginia remains a global leader in the development of cutting-edge cyber technologies. The CCI is expected to generate new research activity at the university and opportunities for academic and research collaboration.

For other promising areas of university research, such as health sciences and autonomous vehicle systems, direct state investment remains crucial for the strategic growth of research infrastructure and capacity as well as new partnerships with industry. The Virginia Research Investment Fund provides an additional means to strengthen the university’s technology transfer practices, expand opportunities for commercialization, and incentivize university-industry partnerships. Both of these fund sources remain critical for attracting talent to Virginia and creating new knowledge-intensive, high growth companies in the Commonwealth. Significant investments to support the university’s research program are not possible without the support of General Fund resources.

6. Establish a Learning Systems Innovation and Effectiveness Initiative: A responsive learning environment requires a meaningful connection between its core activities of teaching, research, and service with the diverse array of communities the university serves. Working in tandem with the colleges and other university organizations, Learning Systems Innovation and Effectiveness will lead efforts to implement curricular innovation through a focus on purpose-driven learning, disciplinary depth, and cross-disciplinary integration. The synthesis of these objectives creates a unique structure to promote the development of experiential learning opportunities. Through participation in undergraduate research, internships, and service projects, students experience the unity of theory and practice and discover how their academic training translates into different contexts. The development and expansion of opportunities for experiential learning requires sustained, collaborative partnerships between internal and external stakeholders. The university’s business engagement center will play a prominent role in developing these partnerships, helping both undergraduate and graduate students build relationships with external organizations and employers. The center will also explore innovative ways to help students understand the professional world they will encounter upon graduation. This initiative envisions the traditional state fund split. Without General Fund support, the university will move forward with partial implementation.
7. **Ensure Access for Low and Middle-Income Families by Continuing to Expand Need-based Financial Aid to Undergraduate Students:** As a land grant institution, Virginia Tech is very sensitive to student access to higher education, including student cost and borrowing levels. As a Restructured Level III institution, part of the university's Management Agreement includes a commitment to mitigate tuition increases and reduce the unmet need of Virginia residents. To fulfill these responsibilities, the university will continue its support of the Funds for the Future and Virginia Tech Grant financial aid programs. Funds for the Future protects returning students with financial need from tuition rate increases, while the Virginia Tech Grant program seeks to further reduce student need. In addition, the university's Presidential Scholarship Initiative enrolls an annual cohort of 85 Virginia undergraduate students (340 once fully implemented) from underserved areas and first-generation families, providing the full cost of tuition, fees, and room & board through a combination of aid resources.

The primary goal of investment in student financial aid is to reduce the net price for Virginians in the first through third income quintiles, ensuring that financial obstacles are mitigated for low- and middle-income students. The plan represents the university's use of incremental nongeneral fund revenue to fund this initiative. Additional General Fund support of student financial aid will allow the university to make a greater impact on student access and affordability.

8. **Expand Access to a Virginia Tech Education Through Development of Pathway Opportunities for Underserved Virginia Residents:** Virginia Tech, the commonwealth's premier STEM-H institution, is committed to supporting the Statewide Strategic Plan for Higher Education. In order to increase access and affordability for all Virginians, while also optimizing student success for work and life, the university will expand upon existing, successful outreach programs to advance the university's College Access Collaborative through several programs. These initiatives envision the traditional state fund split. Without General Fund support, the university will move forward with partial implementation of the following initiatives:

   i. A comprehensive K-12 Pipeline initiative is a three-pronged approach that will 1) enhance outreach to underserved Virginians while students are in the K-12 system, 2) expand student financial aid to increase access to Virginia Tech, and 3) offer additional support networks for students while at the university to improve success and retention levels.

   ii. A premier Mechanical Engineering Technology pathway program in Southside Virginia is being explored through a partnership with Danville Community College. This initiative would deliver Mechanical Engineering courses taught by VT faculty to students intending to transfer to Virginia Tech. The program would include STEM mentorship/internship programs for local middle and high school students, the co-location of Virginia Tech collegiate faculty at the
Institute for Advanced Learning and Research, and significant partnerships with manufacturing industries in the commonwealth, including Goodyear, Kyocera, HAAS automation, and many others.

iii. In collaboration with Virginia Western Community College, establishment of a Life Sciences pathway in Roanoke. This initiative will build on the success of the Virginia Tech Health Sciences & Technology District.

iv. Partnership with Virginia State University, Virginia Tech’s sister Land Grant institution, on an Undergraduate-to-Graduate pipeline to provide additional access for Virginia students to further their education in the state.

9. Enhance Degree Completion and Instructional Sharing with Other Institutions:
Leveraging the 4VA platform and the Cybersecurity Range supported with an initial investment from the commonwealth, the university is expanding the use of data to improve the efficiency and effectiveness of its quality education. The university envisions recruiting industry leaders to share their experiences in data analytics and to provide industry exposure to students through internships and job placement opportunities.

To support better course completion rates and thereby enhance timely degree completion, Virginia Tech is working with faculty to incorporate research-based approaches to course design and delivery that facilitate a personalized adaptive learning experience, allowing students to learn in ways that suit their individual strengths. This will be accomplished through the combined use of multi-modal course design (allowing multiple ways to engage learners) with learning technologies designed to help both learners and instructors more fully understand what is happening through the use of learning analytics. This approach will be developed in partnership with other institutions and made available to Virginia community colleges and high schools to help improve the preparation of students for the growing workforce in data analytics.

Excellent student advising services are essential for helping students properly plan and execute an efficient course of study leading to their desired credential. Departments and colleges are continuing to shift to a model that relies more heavily upon professional advisors for students in order to provide continuity over an undergraduate student’s career. Professional advising staff can assist students in this more technical process and allow faculty advising to focus on academic mentoring and career planning.

To accelerate degree completion, incentives must be expanded to increase on-campus instruction and facility use over the summer and winter months. The university is working to implement strategies to increase the utilization of year-round instruction at the Blacksburg campus by leveraging: (1) Lower costs for students who take seat based courses in Blacksburg over the summer/winter sessions, (2) the expansion of summer/winter undergraduate research programs to provide meaningful, resume building employment for students, (3) the expansion of course offerings to meet the needs of students seeking to advance their plans of study toward early degree completion and (4)
an increase in available student financial aid to ensure access to non-traditional session enrollment. These initiatives envision the traditional state fund split. Without General Fund support, the university will move forward with partial implementation.

10. **Support Faculty Startup Packages, Particularly for New Faculty in the STEM-H Fields, Including Equipment and Lab Renovation:** Establishing and setting up a research facility or lab for a newly hired faculty member typically costs millions of dollars. Investment in advanced facilities and equipment is essential for faculty to successfully compete for research funding from the federal government and other private sources. The university continues to expand the number of faculty to adequately serve enrollment growth, and startup resources are a significant factor in our recruitment efforts. This initiative envisions the traditional state fund split. Without General Fund support, the university will be required to find alternative fund sources or reduce the magnitude of startup resources.

11. **Increase Support for Unique Military Activities:** Virginia Tech’s Corps of Cadets is one of six Senior Military Colleges in the United States, established by law, and one of only two that is a Corps within a public tier-one research university. The mission of the Corps, established in 1872, is to develop leaders of character for the Commonwealth and the country. The Corps’ ability to fulfill its mission is predicated on the receipt of an equitable population-based level of support as other military programs in the commonwealth. Based on the state’s per-student UMA General Fund formula, Virginia Tech Corps has a shortfall of $1,039,293 as compared to VMI. Addressing this shortfall over six years results in an annual incremental General Fund increase of $173,215 per year. This critical request allows the Corps to address mandatory cost increases and make critical programmatic enhancements to ensure mission success.

12. **Increase Graduate Enrollment in Strategic Areas:** The university will strive to increase graduate student enrollment with an emphasis on professional masters degrees and attracting leading doctoral level science, technology, engineering, mathematics, and health sciences (STEM-H) students. Graduate education is a key component of the university research mission and supports university efforts to remain a leader in innovation, technological development and entrepreneurship. Enrollment growth and externally sponsored research revenue will be utilized to support the instructional needs of this initiative.

13. **Integrate the Virginia Tech Carilion School of Medicine (VTSCOM) into the University as the Ninth College:** The university continues to meet key benchmarks as part of the integration process of the Virginia Tech Carilion School of Medicine. In June 2018, SCHEV sent the university notification of its final approval of integration, putting the medical school under the authority of the Virginia Tech’s Board of Visitors. The university has also received official notice from the Southern Association of Colleges and Schools Commission on Colleges (SACS-COC) of its approval for the medical school to become
part of Virginia Tech. The medical school remains a focal point of regional economic development efforts in the health and life sciences sector. A recent economic impact study by the Center for Economic and Policy Studies Weldon Cooper Center for Public Service finds that the synergistic research, clinical, educational, and industrial collaboration activities at the Virginia Tech Carilion Health Sciences and Technology Campus will generate $465 million in economic output and employ over 3000 people by 2026. The VTCSOM will operate using tuition and Carilion/VT partnership revenue; therefore the university is not requesting General Fund support at this stage.

14. **Advance Institutional Efficiencies and Effectiveness to Support Cost Containment Efforts:** Improvement of university internal processes and infrastructure requires ongoing support of cost containment strategies. Reducing expenses, addressing capacity needs, and modernizing instructional and other university facilities will better position the university to address challenges such as student health, safety and environmental sustainability, while simultaneously enhancing its adaptability to a constantly changing regulatory environment. These are university-funded initiatives that are expected to bend future costs curves and potentially reduce long-term costs, allowing resources to be recycled into a continuous improvement process.

15. **Reallocation of Existing Resources to Support University Priorities:** In an environment of cost containment and limited capacity for revenue generation, the university plans to continue efforts to reallocate existing resources. Strategic reallocation will support university priorities including academic advancement, faculty startup packages, and other emerging needs.

16. **Library Enhancement:** Addressing the rising costs of journals and other library materials is central to maintaining and enhancing the value of the university’s library collection to both students and researchers. Additional investment is needed to offset the increasing costs of subscription based resources and information platforms, ensuring continued access to information on cutting-edge research across a variety of subject areas. The university’s expanding research programs require access to new resources, journals and other databases outside the current collection. These costs will be managed by the university.

17. **Utility and Fixed Cost Increases:** Rising costs of contracts, utility service, and other mandated or required operating costs must be addressed to maintain consistent delivery of institutional services. This is a university-funded initiative.

18. **Address Operation and Maintenance of New Facilities:** With new facilities coming online during the planning period, including the Health Sciences & Technology Building, and two current capital projects to renovate and up-fit existing facilities, operation and maintenance support is a primary cost driver in the future budget. Facilities must be open year-round in order for the university to deliver its mission of providing programming for
the citizens of the Commonwealth. Addressing operation and maintenance of facilities will ensure maximum facility service life and prevent building deficiencies. This is a university-funded initiative.

19. **Fringe/Health Insurance Benefits Increase**: Based on the assumptions used by the state in Chapter 2 of the 2018 Acts of the Assembly, the incremental cost of providing employee health insurance and other employment-related benefits is included utilizing the traditional fund split methodology.

20. **VRS Increase**: Based on the assumptions used by the state in Chapter 2 of the 2018 Acts of the Assembly, the incremental cost of Virginia Retirement System employer contributions is included utilizing the traditional fund split methodology.

21. **Annualization of 2017-18 Salary Increase**: This represents the cost of annualizing the statewide salary increase implemented on July 10, 2017. The university envisions a traditional fund split approach.

C. **Financial Aid**: Virginia Tech’s student financial aid programs are designed to support student access, enrollment, retention and graduation goals. The university provides access to low and middle income students with demonstrated financial need through multiple funding sources, including the use of unfunded scholarships as prescribed in §23.1-612 of the Code of Virginia, and as required by the university’s management agreement.

A key innovation in meeting this need is the university’s Funds for the Future program, which ensures a predictable tuition rate for returning students. Starting with the incoming class of 2005, the university has protected continuing students with financial need from tuition and fee increases with the Funds for the Future program. The program provides varying levels of tuition increase protection for families with adjusted gross incomes up to $99,999, capturing both low and middle-income students with need.

Additionally, the Virginia Tech Grant has been retooled to better support low and middle-income students with the greatest financial need. The university also supports other, smaller programs that assist low and middle-income students. The university continues to allocate institutional resources to maintain the purchasing power of student financial aid programs and mitigate the impact of tuition increases on student borrowing. The university’s Virginia resident graduates continue to track lower than their national peers in the percentage who take out student loans and their average debt at graduation. And as an indicator of debt moderation and employment success of Virginia Tech graduates, the university’s 3-year Cohort Default Rate is just 1.4%; the third lowest of all Virginia public four-year institutions and the third lowest of the university’s national SCHEV peer group.
State support for student financial aid has been extremely helpful in supporting access and affordability for Virginia residents, and the university plans to continue to support the goal of reducing the net price for Virginia residents in the first through third income quintiles.

D. Evaluation of Progress Towards Meeting Goals of Current Six Year Plan:
As the Commonwealth of Virginia makes strides to invest and grow its support of higher education, the university has been able to make progress towards several major initiatives in the Six-Year Plan. New General Fund support in the 2018-20 biennium will allow the university expand degree production in the key areas of Data Science & Technology, Science and Engineering, Healthcare, and Education. In addition, potential state funding for faculty and staff salary increases will allow university maintain its position relative to our peer institutions regarding compensation. Increases in fixed costs such as and health and retirement costs have limited the full implementation of some initiatives; however, the institution has been able to make significant advancements including:

Enrollment:
- In fall 2017, Virginia Tech set enrollment records with 4,365 Virginia freshmen.
- Total enrollment included 19,340 Virginia undergraduates, also a record.
- In 2017-18, the university continued its successful Winter Session, offering additional degree credit opportunities for students during the winter break. The Winter 2017 session delivered 6,931 student credit hours to 2,010 students.

Access and Affordability:
- Continued expansion of institutional student financial aid programs to support low- and middle-income families.
- Strengthening of the K-12 pipeline to serve all of Virginia.
- Establishment of the Virginia Tech Network for Engineering Transfer Students (VT-NETS) to support scholarships for low-income students from Virginia community colleges to pursue VT Engineering programs.
- Adoption of a new application model developed by the Coalition for Access, Affordability, and Success designed to encourage more lower-income and first generation students to apply early.

Student Outcomes:
- Demonstrating the university’s commitment to both access and completion, the Virginia Tech’s six-year graduation rate is up to 84 percent.
- Time-to-degree is down to just 4.05 years on average, even when including programs with required 5th year components. (IR)
- The university admitted 972 transfer students in Fall 2017; 711 from the Virginia Community College System.
- More than 81% of all transfer students to Virginia Tech graduate within four years.
• Payscale.com reports an average salary of $58,600 for early career graduates and $110,200 for mid-career alumni of Virginia Tech.
• A study by career website Zippia ranked Virginia Tech #1 in the Commonwealth for job placement.

Research and Economic Development:
• Health/Life science research has advanced rapidly at the university, including growth of the Virginia Tech Carilion Research Institute. The expansion of the medical research program, along with a growing core of highly skilled researchers and a current portfolio of $75 million in externally sponsored research, continues to play a key role in the revitalization of the Roanoke and Southwest Virginia economy.
• The Virginia Tech Water Study Research Team was named one of four regional winners of the 2018 Kellogg Foundation Community Engagement Scholarship Award and received the 2018 Scientific Freedom and Responsibility Award by the American Association for the Advancement of Science.
• The Virginia Tech Mid-Atlantic Aviation Partnership (MAAP) will manage operations Virginia’s winning bid in the U.S. Department of Transportation’s UAS Integration Pilot Program, a public-private sector initiative to explore safe applications of drone technology and the development of future regulation in this rapidly evolving field.
• The Virginia Tech Carilion Research Institute was awarded $1 million in combined grant funding from the Virginia Biosciences Health Research Corporation to develop innovative approaches to prevent opioid users from relapsing during treatment.

Recognition:
• U.S. News & World Report ranked several graduate programs in the top 20 nationwide (#2 Online Information Technology, #7 Civil Engineering, #6 Environmental Health Engineering, #7 Industrial/Manufacturing/Systems Engineering, #17 Evening MBA program)
• Virginia Tech ranks 2nd in Niche’s Best College Campuses in America
• Princeton Review ranks Virginia Tech in the top ten in three categories:
  o Number 1 for “Their Students Love These Colleges”
  o Number 5 for “Best Quality of Life”
  o Number 6 for “Best Campus Food”

E. Tuition Rate Increases:
Virginia Tech is sensitive to the impact of rising operating costs on our students. As the commonwealth’s senior Land Grant institution, Virginia Tech remains committed to providing access and opportunity to the citizens of Virginia. Tuition for resident undergraduates increased 2.9% for 2018-19, consistent with the Six-Year plan submitted in 2017. Moving
forward, the university hopes to minimize tuition increases to the greatest extent possible. Factors that impact tuition include General Fund support levels, enrollment growth, mandatory cost drivers such as health insurance, retirement, other employee related benefits, utility and lease costs, operation and maintenance of facilities, and the university’s share of new academic and operating initiatives, such as the need for competitive compensation and robust financial aid programs. The university remains focused on controlling costs, restructuring areas of campus, and reallocating existing resources to support new initiatives without relying solely upon new revenue. Though the academic plan presented in this submission would traditionally drive the tuition rate significantly higher, the rate placeholders utilized in this plan reflects the university’s continued efforts to mitigate increases to Virginia undergraduates.

In-state enrollment growth provides a limited mechanism to offset the impact of new costs on tuition levels. However, the growth of Virginia resident undergraduates presents a structural financial challenge to the university. Sustained investment by the Commonwealth enhances the university's ability to meet this challenge. Meanwhile, nonresident enrollment demand continues to grow, yet much of that demand remains unmet due to the 2003 General Assembly's percentage limitation of nonresident undergraduate enrollment. Granting the university greater autonomy to adjust its percentage of in-state/out-of-state enrollment would enhance its responsiveness to changing economic conditions and allow the university to meet the growing needs of in-state residents while simultaneously reducing pressure on in-state tuition.

F. Contributions to Economic Development:

Describe the institution’s contributions to stimulate the economic development of the Commonwealth.

Virginia Tech’s mission is to create, convey, and apply knowledge to “expand personal growth and opportunity, advance social and community development, foster economic competitiveness, and improve the quality of life.” We contribute to economic development by facilitating the movement of new ideas to market and distributing the opportunity to broadly leverage those innovations. This activity grows our institution through partnerships and investments that strengthen regional economies across Virginia. We are able to contribute to the pool of skilled talent across the Commonwealth, foster innovation in partnership with industry, and support the development of vibrant places.

a. University-led or public-private partnerships in real estate and/or community development.

We broke ground this year on construction of Building One @ Tech Center Research Park, an 80,000-square-foot building that will be the first of several structures in the 50-acre park located in Newport News, Virginia. Tech Center is anchored by nearby federal research facilities like the Department of Energy’s Jefferson National Lab and NASA-Langley, as well as leading firms like Canon.

Tenants in Building One @ Tech Center Research Park will have access to VT Knowledgeworks business acceleration program, videoconferencing, conference
rooms, research-grade internet speeds, networking events, and co-working space. The location of Tech Center Research Park in Newport News’ Enterprise Zone includes economic and business incentives that will help grow this economically challenged area. Building One, which will open this fall, is almost completely pre-leased. Full plans for the park include nearly 1 million square feet of office and laboratory space.

An economic impact study by Magnum Economics projects that the research park, along with adjacent retail and residential components of the larger privately financed 100-acre Tech Center development, will create more than 5,500 new jobs in Newport News. Half of these jobs should be in the highest paying employment sector – professional, scientific, and technical services. The study also predicts the state and local tax impact of Tech Center at build-out to be in excess of $28 million annually.

b. State industries to which the institution’s research efforts have direct relevance.

We are very pleased to lead the implementation of the Commonwealth Cyber Initiative. The 2018-20 Virginia budget includes $25 million that will leverage public institutions of higher education to build an ecosystem of cyber-related research, education, and engagement to position Virginia as a world leader in cybersecurity at the confluence of many industries concerned with data analytics, machine learning, and autonomous systems.

The initiative calls for a primary “hub” to be located in Northern Virginia and a network of “spoke” sites across the commonwealth with collaborating universities in Virginia and industry partners that will catalyze research, innovation, and the commercialization of cybersecurity technologies and address the state’s need for growth of advanced degrees and professional training within the cyber workforce.

Currently, it is estimated more than 33,000 cybersecurity jobs in Virginia remain unfilled. Virginia Tech will receive up to $10 million over the next two years to launch the hub, including funds for facilities, equipment, student engagement, entrepreneurship programs and internships, and research faculty. An additional $10 million will be available to universities across the state to apply for matching funds to recruit innovative, entrepreneurial faculty to Virginia, as the initiative helps build capabilities at the hub and various spokes across the commonwealth. In addition, $5 million in capital funding will be used for renovations, space enhancements, and equipment.

c. High-impact programs designed to meet the needs of local families, community partners, and businesses.

Agency 229 is part of the fabric of the Commonwealth’s key agricultural and forestry industry sectors. Activities performed by Agency 229 through the Virginia Cooperative Extension (VCE), its 107 local offices, and 11 Agricultural Research and Extension
Centers facilitate economic growth and technological innovation, and forge collaborative partnerships between researchers, agents, and industry stakeholders.

A detailed overview of the economic impacts of Agency 229 is presented in the Agency 229 narrative.

d. Business management/consulting assistance.

One of the largest companies producing farm equipment worldwide, Mahindra Group, joined the Virginia Tech Corporate Research Center in May to become its largest internationally headquartered tenant. Consulting directly with Virginia Tech faculty, Mahindra’s new research center will seek to create breakthrough products for North American markets.

Mahindra’s U.S. presence will support research into new-generation farm equipment, including the latest in technology that envisions automating farm tasks. For example, mechanical engineering faculty are working with Mahindra to create a robotic arm on wheels that can move through a vineyard independently conducting pruning tasks.

Mahindra’s center, called MaTC@Virginia (Mahindra AgTech Center at Virginia) complements work being done at Mahindra Research Valley in India and the company’s other product development centers in Japan and Finland. Mahindra’s presence in the VTCRC is only a part of its association with Virginia Tech. In India, Virginia Tech’s Chennai-headquartered campus – called Virginia Tech, India – is close to Mahindra World City, an economic zone and industrial development covering 1,550 acres. This has made the university-industry collaboration convenient for Mahindra engineers who hope to “democratize technology” and bring technological innovations within affordable reach of small farmers worldwide.

G. Capital Outlay Significantly Impacting E&G and NGF costs:

Virginia Tech appreciates the significant support to advance enrollment growth, research and economic development by fully funding four high priority capital projects in the 2016-18 Biennium.

Supporting enrollment growth and facilitating STEM-H instruction is a primary goal of the university. The construction of a new Classroom Building facility (completed in summer 2016) was the first phase of supporting needed instructional space; the second phase is the construction of an Undergraduate Science Laboratory Building that (approved for planning in the 2016 session) will provide much needed STEM-H instructional capacity. As the campus begins to utilize previously undeveloped portions of campus, the construction of the second phase of the Central Chiller Plant will allow the university to support new facilities without the addition of several individual and less efficient chiller installations. In addition, renovating and replacing existing instructional space in Holden Hall will allow the university to offer greater square footage to support instruction and lab space for engineering students and faculty. After
these projects that support the instructional needs of the university, additional research space at the Virginia Tech Carilion Research Institute will allow continued growth of the university’s research program to enhance the economy in both the Roanoke and New River Valleys.

Virginia Tech continues to grow in undergraduate students, particularly in STEM-H majors. Over the past decade STEM-H majors have grown by 2,600, or 31 percent. Thus, as the total number of students is expanding, the number of STEM-H majors is growing at a faster rate. Most of this growth will be in engineering, traditional sciences, as well as in new degree programs such as neuroscience. Meanwhile, during this period of expansion, the university last constructed an undergraduate laboratory facility in 2004 for instruction in chemistry and physics. The university’s existing inventory of science laboratory instruction is now too small and generally outdated to accommodate the current demand for instruction spaces by engineering and science majors. The Undergraduate Science Laboratory project that was approved for planning in the 2016 General Assembly session would construct a new undergraduate science laboratory facility of 102,000 gross square feet to accommodate the growing demand for STEM-H degrees at Virginia Tech. The timing of this project is critical for the university in order to continue to support enrollment growth, especially for STEM-H majors.

In accordance with the state’s traditional capital outlay process, the university has begun its internal work to develop the 2020–2026 Capital Outlay Plan. There are certain key focus areas that will be needed to continue to advance the instruction, research, economic development, and campus infrastructure at the university including: Data and Decision Sciences, Intelligent Infrastructure, Resilient Earth Systems, Integrated Security, and Global Business and Agriculture Systems.

Virginia Tech is sensitive to the total cost of education passed on to our students. We understand that resources are finite, and projects that impact the cost of attendance to our students undergo significant scrutiny and planning to ensure that students’ value meets or exceeds the impact of any incremental costs. A project that may occur in the upcoming Six-Year Planning period envisions new student facilities to support enrollment growth; including but not limited to residential, dining, recreation, and student unions. Planning for these activities will be coordinated with actual growth and spending plans and balanced with the needs and impact on student costs. The university seeks to phase in projects over a multi-year planning period in an effort to control costs and minimize any potential impact on student fees.

H. Restructuring:
In the thirteen years since the General Assembly passed the Restructured Higher Education Financial and Administrative Operations Act of 2005, Virginia Tech has experienced significant benefits through the ability to locally manage university processes and resources. Particularly in a period of constrained resources and growing fixed costs, the flexibility provided through Restructuring has allowed the university to continue to make progress in important strategic areas, and has become the standard operating environment at Virginia
Tech. The benefits of the Restructuring Act permeate the operating culture of the university and facilitate decision-making at the ground level where the university can deploy efficient and specialized solutions to meet our management needs.

Given the resource constraints at the state level, the increasing dependency on cost containment, tuition and self-generated revenue, and the need to mitigate student costs and indebtedness, the university believes that a renewed focus on administrative and financial operational autonomy can yield additional opportunities to advance the strategic goals of both the university and the commonwealth.

Opportunities for additional flexibility and cost savings could include the following domains:

- The ability to develop and enact long-term plans.
- Expanded management authority regarding enrollment management, including enrollment mix, to strengthen revenues without significant tuition rate increases while assuring the delivery of a high quality education to an increasing number of Virginia students.
- Assured continuity of operation in the event that a state budget is not passed to honor student contracts and continue research programs.
- Define VT treasury as equivalent to State Treasury to eliminate unnecessary transactions.
- Procurement flexibility
- Ability to retain Legal Counsel
- Flexibility in the management of human resource and compensation programs
- Ability to explore alternative employee benefits programs that would result in ongoing cost savings to our students.
- Assured retention of nongeneral funds and savings by institutions
- Additional flexibility in leasing
- Explore expansion of capital budgeting authority to achieve cost-savings in small scale facilities and specifically in regard to agricultural industry-related facilities
- Reduced administrative requirements
- Streamlined access to state programs (e.g. VCBA)
- In areas where state agency operating reforms have provided authorities that exceed those originally provided by restructuring, the state should ensure that restructured institutions, at a minimum, maintain the authority granted to all state agencies.

Many of these opportunities can be explored through a collaborative university-state partnership designed to effectively align institutional initiatives and programs with the Commonwealth’s strategic economic and workforce development objectives. A new partnership between the university and the state could be used to identify additional areas for the university to leverage its specific strengths and expertise, particularly in those industry clusters and sectors the Commonwealth has targeted for growth. Such a partnership could also be used to facilitate collaboration with business organizations and other private- and public sector partners across the region and state on mutually shared goals, including the expansion of experiential learning opportunities, the improvement of translational research and commercialization capacity, and the
retention of human capital. Finally, this initiative could further refine commitments and expectations related to student outcomes.

To remain competitive as a modern land grant university in a dynamic, global economy, the institution must continue its efforts to reconcile the competing challenges of promoting accessibility and affordability with funding commitments for key university initiatives, programs, and priorities. The university’s ability to make strategic investments in cutting-edge technologies, the attraction and retention of top faculty, and the modernization of aging university infrastructure is further constrained by the uncertainty of future state appropriations and unpredictable cost drivers like health care and retirement benefits. The enhancement of the institution’s managerial autonomy, particularly in areas such as enrollment and revenue management, would provide needed flexibility for the university to navigate these fiscal challenges while simultaneously achieving the mutual economic development objectives shared by the university and the Commonwealth. The university looks forward to continuing dialogue with the Commonwealth to further these critical shared goals.