Six-Year Plans - Part I (2017): 2018-20 through 2022-24

Due: July 1, 2017

Institution:	***Virginia Tech***
Institution UNITID:	Agency 208

Individual responsible for plan

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Six-Year Plans - Part I (2017): 2018-20 through 2022-24
Virginia Tech

ACADEMIC AND FINANCIAL PLAN

Instructions: In the column entitled "Academic and Support Service Strategies for Six-Year Period (2018-2024)," please provide titles to identify strategies (for the three biennia of this six-year period) associated with goals in the Virginia Plan. *Please use this title to identify a more detailed description of the strategy in the separate Word document (Part II - Narrative)* .

Priority Ranking	ACADEMIC AND SUPPORT SERVICE STRATEGIES FOR SIX-YEAR PERIOD (2016-2022)									
	Biennium 2018-2020 (7/1/18-6/30/20)								Biennium 2020-2022 (7/1/20-6/30/22)	Biennium 2022-2024 (7/1/22-6/30/24)
	Strategies (Short Title)	VP Goal	Cost: Incremental, Savings, Reallocation	2018-2019		2019-2020			Strategies	Strategies
				Total Amount	Amount From Tuition Revenue	Total Amount	Amount From Tuition Revenue			
3	Increase Access for Virginia Undergraduates and Support the Production of STEM-H Degrees in the Commonwealth. *(General Fund assumed for 67% of the Cost of Education of new VAUGs)*	1,2	Incremental:	$8,251,000	$5,784,333	$10,970,500	$6,037,167		Support continuing demand from Virginia residents for a Virginia Tech education in strategic areas including STEM-H degree production as financial support and instructional/residential space permit.	Support continuing demand from Virginia residents for a Virginia Tech education in strategic areas including STEM-H degree production as financial support and instructional/residential space permit.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$0	$0	$0	$0			
4	Develop "Destination Areas": Invest in Strategic Market-Centered Instruction and Research Clusters including Adaptive Brain and Behavior, Data Analytics and Decision Sciences, Global Systems Science, Integrated Security, and Intelligent Infrastructure for Human-Centered Communities. *(Traditional Fund Split: 40% GF. NGF will support portion of progress.)*	3,4	Incremental:	$3,633,952	$2,180,371	$7,351,975	$3,411,185		Invest in world-leading instruction and research clusters that are focused on addressing complex (regional, national and global) problems that intersect with Virginia Tech's core strengths, while engaging industry, supporting faculty, and preparing our students to be the next generation of leaders and doers. This is the core of our effort to transform Virginia Tech into a contemporary land-grant university.	Invest in world-leading instruction and research clusters that are focused on addressing complex (regional, national and global) problems that intersect with Virginia Tech's core strengths, while engaging industry, supporting faculty, and preparing our students to be the next generation of leaders and doers. This is the core of our effort to transform Virginia Tech into a contemporary land-grant university.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$0	$0	$1,000,000	$0			
6	Establish a Learning Systems Innovation and Effectiveness Initiative *(Traditional Fund Split: 40% GF. NGF will support portion of progress.)*	2	Incremental:	$500,000	$300,000	$1,000,000	$600,000		Continue to develop and implement an outcomes-based approach to shaping the university's educational programs to meet the needs of the commonwealth's employers.	Continue to develop and implement an outcomes-based approach to shaping the university's educational programs to meet the needs of the commonwealth's employers.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$0	$0	$0	$0			
7	Ensure Access for Low and Middle-Income Families by Continuing to Expand Need-Based Financial Aid to Undergraduate Students *(Unfunded Scholarships: 100% NGF)*	1	Incremental:	$2,060,694	$2,060,694	$4,121,388	$4,121,388		Continue to protect low and middle income students from tuition increases, and work to address aggregate unmet need of undergraduate students. Ensure competitive net cost for low- and middle-income Virginia students to enhance affordability.	Continue to protect low and middle income students from tuition increases, and work to address aggregate unmet need of undergraduate students. Ensure competitive net cost for low- and middle-income Virginia students to enhance affordability.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$0	$0	$0	$0			
8	Expand Access to a Virginia Tech Education Through Development of Pathway Opportunities for Underserved Virginia Residents *(Traditional Fund Split: 40% GF. NGF will support portion of progress.)*	1,3,4	Incremental:	$1,066,250	$639,750	$1,066,250	$639,750		Enhance the university's pathways to success and accommodate a diversifying class of students while working towards reduced time-to-degree through unique non-traditional educational opportunities. Continue to work to identify opportunities to collaborate with other institutions in the Commonwealth.	Enhance the university's pathways to success and accommodate a diversifying class of students while working towards reduced time-to-degree through unique non-traditional educational opportunities. Continue to work to identify opportunities to collaborate with other institutions in the Commonwealth.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$0	$0	$0	$0			
9	Enhance Degree Completion and Instructional Sharing with Other Institutions *Traditional Fund Split: 40% GF. NGF will support portion of progress.)*	2	Incremental:	$611,732	$367,039	$747,584	$448,550		Expand opportunities to share resources, build pathways, and establish partnership with high schools and institutions across the commonwealth to provide access to a Virginia Tech education.	Expand opportunities to share resources, build pathways, and establish partnership with high schools and institutions across the commonwealth to provide access to a Virginia Tech education.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$0	$0	$0	$0			
10	Support Faculty Startup Packages, Particularly for New Faculty in the STEM-H fields, Including Equipment and Lab Renovation *(Traditional Fund Split: 40% GF. NGF will support portion of progress.)*	3	Incremental:	$2,000,000	$1,200,000	$4,000,000	$1,400,000		As STEM-H areas grow and degree offerings increase, faculty startup that allows the university to be successful in the competitive recruitment market will help ensure that students have access to the best and brightest faculty the discipline has to offer.	As STEM-H areas grow and degree offerings increase, faculty startup that allows the university to be successful in the competitive recruitment market will help ensure that students have access to the best and brightest faculty the discipline has to offer.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$0	$0	$1,000,000	$0			
11	Increase Graduate Enrollment in Strategic Areas *(100% NGF)*	2	Incremental:	$2,953,065	$2,953,065	$3,284,916	$3,284,916		The university will continue to advance graduate education as a source of innovation and entrepreneurship that leads to higher paying, high-value jobs that are vital for the continued success of the Virginia economy in the global marketplace.	The university will continue to advance graduate education as a source of innovation and entrepreneurship that leads to higher paying, high-value jobs that are vital for the continued success of the Virginia economy in the global marketplace.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$0	$0	$0	$0			
12	Integrate Virginia Tech Carilion School of Medicine (VTCSOM) into the University as the Ninth College *(100% NGF. Funded through tuition and other NGF support; no GF request). See Footnote 5)*	2,4	Incremental:	$14,103,053	$14,103,053	$14,261,637	$14,261,637		Continue to seek opportunities to collaborate and integrate operations of medical school with other university programs.	Continue to seek opportunities to collaborate and integrate operations of medical school with other university programs.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$0	$0	$0	$0			
14	Advance Institutional Efficiencies and Effectiveness, and Support Cost Containment Efforts *(100% NGF)*	3	Incremental:	$1,500,000	$1,500,000	$2,500,000	$2,000,000		The university will continually seek opportunities to employ more efficient and effective business practices that contain costs and ensure the effectiveness of the university's efforts.	The university will continually seek opportunities to employ more efficient and effective business practices that contain costs and ensure the effectiveness of the university's efforts.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$0		$500,000				
15	Reallocation of Existing Resources to Support University Priorities *(100% NGF)*	3	Incremental:	$0	$0	$0	$0		To the extent possible, the university will reallocate existing resources to support strategic university priorities including academic advancements, support for faculty startup packages, and enhancing faculty compensation.	To the extent possible, the university will reallocate existing resources to support strategic university priorities including academic advancements, support for faculty startup packages, and enhancing faculty compensation.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$700,000	$0	$1,400,000	$0			
5	Advance Strategic Research Opportunities and Enhance Entrepreneurial and Innovation Ecosystem *(100% General Fund Request)*	3,4	Incremental:	$5,000,000	$0	$10,000,000	$0		$5 million of General Fund support in 2018-19 will allow the university to support infrastructure and faculty additions that enhance the university's competitive position for securing new external research investment. State investment into emerging research opportunities will result in significant advances in knowledge and contribute to the economic development of the Commonwealth.	$10 million of General Fund support in 2019-20 will allow the university to support infrastructure and faculty additions that enhance the university's competitive position for securing new external research investment. State investment into emerging research opportunities will result in significant advances in knowledge and contribute to the economic development of the Commonwealth.
			Savings:	$0	$0	$0	$0			
			Reallocation:	$0	$0	$0	$0			
13	Increase Support for Unique Military Activities *(100% General Fund Request)*	2,4	Incremental:	$451,082	$0	$451,082	$0		Virginia Tech's development of the Commonwealth's next generation of great leaders and citizens is reliant upon adequate support of the Unique Military Activities program. General Fund support of $451,082 will provide equitable funding to Virginia Tech's program, supporting adequate staffing and operational needs for delivering civilian and	Virginia Tech's development of the Commonwealth's next generation of great leaders and citizens is reliant upon adequate support of the Unique Military Activities program. General Fund support of $451,082 will provide equitable funding to Virginia Tech's program, supporting adequate staffing and operational needs for delivering
			Savings:	$0	$0	$0	$0			

Six-Year Plans - Part I (2017): 2018-20 through 2022-24
Virginia Tech

ACADEMIC AND FINANCIAL PLAN

Instructions: In the column entitled "Academic and Support Service Strategies for Six-Year Period (2018-2024)," please provide titles to identify strategies (for the three biennia of this six-year period) associated with goals in the Virginia Plan. *Please use this title to identify a more detailed description of the strategy in the separate Word document (Part II - Narrative)* .

Priority Ranking	ACADEMIC AND SUPPORT SERVICE STRATEGIES FOR SIX-YEAR PERIOD (2016-2022)								
	Biennium 2018-2020 (7/1/18-6/30/20)							Biennium 2020-2022 (7/1/20-6/30/22)	Biennium 2022-2024 (7/1/22-6/30/24)
	Strategies (Short Title)	VP Goal	Cost: Incremental, Savings, Reallocation	2018-2019		2019-2020		Strategies	Strategies
				Total Amount	Amount From Tuition Revenue	Total Amount	Amount From Tuition Revenue		
			Reallocation:	$0	$0	$0	$0	military leadership programs.	civilian and military leadership programs.
	Total 2018-2020 Costs								
	Incremental (Included in Financial Plan line 61)			$42,130,828	$31,088,306	$59,755,332	$36,204,593		
	Savings			$0	$0	$0	$0		
	Reallocation			$700,000	$0	$3,900,000	$0		

Six-Year Plans - Part I (2017): 2018-20 through 2022-24
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ACADEMIC AND FINANCIAL PLAN

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Priority Ranking	ACADEMIC AND SUPPORT SERVICE STRATEGIES FOR SIX-YEAR PERIOD (2016-2022)								
	Biennium 2018-2020 (7/1/18-6/30/20)							Biennium 2020-2022 (7/1/20-6/30/22)	Biennium 2022-2024 (7/1/22-6/30/24)
	Strategies (Short Title)	VP Goal	Cost: Incremental, Savings, Reallocation	2018-2019		2019-2020		Strategies	Strategies
				Total Amount	Amount From Tuition Revenue	Total Amount	Amount From Tuition Revenue		

Six-Year Financial Plan for Educational and General Programs, Incremental Operating Budget Need
2018-2020 Biennium
(Assuming No Additional General Fund)

		2018-2019		2019-2020		2016-17	2017-18	
	Items	**Total Amount**	**Amount From Tuition Revenue**	**Total Amount**	**Amount From Tuition Revenue**	**Salary Increase Rate and Tuition Amount**	**Total Amount**	**Amount From Tuition Revenue**
	Total Incremental Cost from Academic Plan[1]	$42,130,828	$31,088,306	$59,755,332	$36,204,593			
1	Increase T&R Faculty Salaries[2] - Merit-Based (60% NGF Share of 4% annual increase needed to reach 60th %tile over 6 years)	$3,420,956	$3,420,956	$9,873,405	$9,873,405	$4,777,783	$5,119,705	$0
	T&R Faculty Salary Increase Rate[3] (60% NGF Share of 4% annual increase needed to reach 60th %tile over 6 years)	2.40%	2.40%	2.40%	2.40%	2.00%	2.00%	0.00%
1	Increase Admin. Faculty Salaries[2] - Merit-Based (60% NGF Share of 4% annual increase)	$1,188,745	$1,188,745	$3,430,902	$3,430,902	$1,689,902	$1,779,892	$0
	Admin. Faculty Salary Increase Rate (60% NGF Share of 4% annual increase)	2.40%	2.40%	2.40%	2.40%	2.00%	2.00%	0.00%
	Increase Classified Staff Salaries[2]	$0	$0	$0	$0	$0	$1,433,320	$0
	Classified Salary Increase Rate	0.00%	0.00%	0.00%	0.00%	0.00%	3.00%	0.00%
2	Increase University Staff Salaries[2] - Merit-Based (60% NGF Share of 3% annual increase)	$523,342	$523,342	$1,505,213	$1,505,213	$958,766	$1,563,382	$0
	University Staff Salary Increase Rate (60% NGF Share of 3% annual increase)	1.80%	1.80%	1.80%	1.80%	2.00%	3.00%	0.00%
	Increase Number of Full-Time T&R Faculty[4] ($) *(Traditional Fund Split, 60% NGF)*	$0	$0	$0	$0			
	Increase Number of Full-Time T&R Faculty[4] (FTE)	0	0	0	0			
	Increase Number of Full-Time Admin. Faculty[4] ($)	$0	$0	$0	$0			
	Increase Number of Full-Time Admin. Faculty[4] (FTE)	0	0	0	0			
	Increase Number of Part-Time Faculty[4] ($)	$0	$0	$0	$0			
	Increase Number of Part-Time Faculty[4] (FTE)	0	0	0	0			
	Increase Number of Classified Staff [4]($)	$0	$0	$0	$0			
	Increase Number of Classified Staff [4](FTE)	0	0	0	0			
	Increase Number of University Staff [4]($)	$0	$0	$0	$0			
	Increase Number of University Staff [4](FTE)	0	0	0	0			
16	Library Enhancement[4]($) (Inflation)	$250,000	$250,000	$500,000	$500,000			
	Library Enhancement[4](FTE)	0	0	0	0			
	Technology Enhancement[4]($)	$0	$0	$0	$0			
	Technology Enhancement[4](FTE)	0	0	0	0			
18	O&M for New Facilities[4]($)	$846,484	$846,484	$2,422,896	$2,422,896			
	O&M for New Facilities[4](FTE)	0	0	0	0			
17	Fixed Cost Increases	$850,000	$850,000	$1,700,000	$1,700,000			
	NGF share of state authorized salary increase/bonus	$0	$0	$0	$0			
	Fringe/health insurance benefits increase	$0	$0	$0	$0			
	VRS increase	$0	$0	$0	$0			
20	Annualization of 2017-18 Salary Increase	$824,692	$494,815	$824,692	$494,815			
8	Additional In-State Student Financial Aid From Tuition Revenue	$175,000	$175,000	$275,000	$275,000			
	Others (Specify, insert lines below)	$0	$0	$0	$0			
19	Unavoidable Cost Increase Placeholder	$3,399,701	$3,399,701	$5,694,499	$5,694,499			
	Safety and Security Enhancement	$0	$0	$0	$0			
	Total Additional Funding Need	**$53,609,748**	**$42,237,349**	**$85,981,939**	**$62,101,323**			

Notes:
(1) Please ensure that these items are not double counted if they are already included in the incremental cost of the academic plan.
(2) If planned, enter the cost of any institution-wide increase.
(3) Enter planned annual faculty salary increase rate. Any salary increase entered here will be counted when calculating the gap to reach the 60th percentile in the future.
(4) Enter number of FTE change over the FY2018 level in appropriate columns.

Six-Year Plans - Part I (2017): 2018-20 through 2022-24
Virginia Tech

Six-Year Financial Plan for Tuition and Fee Increases and Nongeneral Fund Revenue Estimates

Items	2016-2017 (Estimated)		2017-2018 (Estimated)			2018-2019 (Planned)			2019-2020 (Planned)		
	Student Charge	Total Revenue	Student Charge	Rate Increase	Total Revenue	Student Charge	Rate Increase	Total Revenue	Student Charge	Rate Increase	Total Revenue
E&G Programs											
Undergraduate, In-State	$10,941	$195,985,233	$11,263	2.9%	$205,104,260	$11,590	2.9%	$215,388,090	$11,926	2.9%	$223,203,357
Undergraduate, Out-of-State	$28,064	$191,111,702	$29,047	3.5%	$208,167,661	$29,889	2.9%	$224,789,599	$30,756	2.9%	$233,626,548
Graduate, In-State	$12,621	$18,632,110	$13,105	3.8%	$20,666,961	$13,485	2.9%	$21,941,709	$13,876	2.9%	$23,223,369
Graduate, Out-of-State	$25,853	$34,637,827	$26,843	3.8%	$36,564,805	$27,621	2.9%	$38,974,465	$28,422	2.9%	$41,389,240
Law, In-State	$0	$0	$0	%	$0	$0	%	$0	$0	%	$0
Law, Out-of-State	$0	$0	$0	%	$0	$0	%	$0	$0	%	$0
Medicine, In-State	$0	$0	$0	%	$0	$52,268	N/A	$2,863,329	$54,097	3.5%	$2,917,953
Medicine, Out-of-State	$0	$0	$0	%	$0	$52,268	N/A	$4,537,276	$54,097	3.5%	$4,604,894
Dentistry, In-State	$0	$0	$0	%	$0	$0	%	$0	$0	%	$0
Dentistry, Out-of-State	$0	$0	$0	%	$0	$0	%	$0	$0	%	$0
PharmD, In-State	$0	$0	$0	%	$0	$0	%	$0	$0	%	$0
PharmD, Out-of-State	$0	$0	$0	%	$0	$0	%	$0	$0	%	$0
Veterinary Medicine, In-State	$21,706	$6,667,886	$22,230	2.4%	$6,738,265	$22,675	2.0%	$6,873,030	$23,128	2.0%	$7,010,491
Veterinary Medicine, Out-of-State	$48,842	$7,659,198	$50,029	2.4%	$7,719,715	$51,030	2.0%	$7,874,110	$52,050	2.0%	$8,031,592
Other NGF		$68,496,379			$67,185,878			$73,888,326			$73,888,326
Total E&G Revenue - Gross		$523,190,335			$552,147,544			$597,129,934			$617,895,770
Total E&G Revenue - Net of Financial Aid		$521,835,715			$547,379,544			$588,861,934			$607,627,770
E&G Revenue Used for Faculty Salary Increases		$6,467,685			$6,899,597			$4,609,701			$13,304,307
Average T&R Faculty Salary Increase Rate		2.00%			2.00%			4.00%			4.00%
Auxiliary Program											
Mandatory Non-E&G Fees											
Undergraduate	$1,911		$1,967	2.9%		$2,024	2.9%		$2,083	2.9%	
Graduate	$1,911		$1,967	2.9%		$2,024	2.9%		$2,083	2.9%	
Law	$0		$0	%		$0	%		$0	%	
Medicine	$0		$0	%		$0	%		$0	%	
Dentistry	$0		$0	%		$0	%		$0	%	
PharmD	$0		$0	%		$0	%		$0	%	
Veterinary Medicine	$1,911		$1,967	2.9%		$2,024	2.9%		$2,083	2.9%	
Total Auxiliary Revenue (**ALL** including room and board)		$325,648,508			$333,952,282			$345,334,979			$356,475,967
Total Tuition and Fees											
Undergraduate, In-State	$12,852		$13,230	2.9%		$13,614	2.9%		$14,009	2.9%	
Undergraduate, Out-of-State	$29,975		$31,014	3.5%		$31,913	2.9%		$32,839	2.9%	
Graduate, In-State	$14,532		$15,072	3.7%		$15,509	2.9%		$15,959	2.9%	
Graduate, Out-of-State	$27,764		$28,810	3.8%		$29,645	2.9%		$30,505	2.9%	
Law, In-State	$0		$0	%		$0	%		$0	%	
Law, Out-of-State	$0		$0	%		$0	%		$0	%	
Medicine, In-State	$0		$0	%		$52,268	%		$54,097	3.5%	
Medicine, Out-of-State	$0		$0	%		$52,268	%		$54,097	3.5%	
Dentistry, In-State	$0		$0	%		$0	%		$0	%	
Dentistry, Out-of-State	$0		$0	%		$0	%		$0	%	
PharmD, In-State	$0		$0	%		$0	%		$0	%	
PharmD, Out-of-State	$0		$0	%		$0	%		$0	%	
Veterinary Medicine, In-State	$23,617		$24,197	2.5%		$24,699	2.1%		$25,211	2.1%	
Veterinary Medicine, Out-of-State	$50,753		$51,996	2.4%		$53,054	2.0%		$54,133	2.0%	

Student Financial Aid (Program 108)		$1,354,620			$4,768,000			$8,268,000			$10,268,000
Sponsored Programs (Program 110)		$298,475,730			$337,064,294			$347,429,394			$357,847,496
Unique Military Activities		$0			$0			$0			$0
Workforce Development		$0			$0			$0			$0
Other (Federal Work Study, Surplus)		$0			$0			$0			$0

Six-Year Plans - Part I (2017): 2018-20 through 2022-24
Virginia Tech
FINANCIAL AID PLAN

Note: If you do not have actual amounts for *Tuition Revenue for Financial Aid* by student category, please provide an estimate. If values are not distributed for *Tuition Revenue for Financial Aid* , a distribution may be calculated for your institution.

Allocation of Tuition Revenue Used for Student Financial Aid

2015-16 (Actual)

T&F Used for Financial Aid	Gross Tuition Revenue	Tuition Revenue for Financial Aid (Program 108)	% Revenue for Financial Aid	Distribution of Financial Aid
Undergraduate, In-State	$184,205,648	$291,250	0.2%	$291,250
Undergraduate, Out-of-State	$176,853,876	$929,000	0.5%	$929,000
Graduate, In-State	$17,355,145	$142,727	0.8%	$142,727
Graduate, Out-of-State	$31,106,941	$2,342	0.0%	$2,342
First Professional, In-State	$6,795,840	$0	%	$0
First Professional, Out-of-State	$7,832,710	$0	%	$0
Total	$424,150,160	$1,365,319	0.3%	$1,365,319
In-State Sub-Total	$208,356,633	$433,977	0.2%	$433,977

***2016-17 (Estimated) Please see footnote below**

T&F Used for Financial Aid	Gross Tuition Revenue	Tuition Revenue for Financial Aid (Program 108)	% Revenue for Financial Aid	Distribution of Financial Aid
Undergraduate, In-State	$195,985,233	$83,957	0.0%	$81,065
Undergraduate, Out-of-State	$191,111,702	$1,180,318	0.6%	$1,176,318
Graduate, In-State	$18,632,110	$86,218	0.5%	$88,981
Graduate, Out-of-State	$34,637,827	$4,127	0.0%	$266,917
First Professional, In-State	$6,667,886	$0	%	$0
First Professional, Out-of-State	$7,659,198	$0	%	$0
Total	$454,693,956	$1,354,620	0.3%	$1,613,281
Total from Finance-T&F worksheet	$523,190,335	$1,354,620	0.3%	
In-State Sub-Total	$221,285,229	$170,175	0.1%	$170,046

2017-18 (Planned)

T&F Used for Financial Aid	Gross Tuition Revenue	Tuition Revenue for Financial Aid (Program 108)	% Revenue for Financial Aid	Distribution of Financial Aid
Undergraduate, In-State	$205,104,260	$457,500	0.2%	$457,500
Undergraduate, Out-of-State	$208,167,661	$4,280,500	2.1%	$4,280,500
Graduate, In-State	$20,666,961	$30,000	0.1%	$30,000
Graduate, Out-of-State	$36,564,805	$0	%	$0
First Professional, In-State	$6,738,265	$0	%	$0
First Professional, Out-of-State	$7,719,715	$0	%	$0
Total	$484,961,666	$4,768,000	1.0%	$4,768,000
Total from Finance-T&F worksheet	$552,147,544	$4,768,000	0.9%	
In-State Sub-Total	$232,509,485	$487,500	0.2%	$487,500
Additional In-State	$11,224,256	$317,325	2.8%	$317,454

2018-19 (Planned)

T&F Used for Financial Aid	Gross Tuition Revenue	Tuition Revenue for Financial Aid (Program 108)	% Revenue for Financial Aid	Distribution of Financial Aid
Undergraduate, In-State	$215,388,090	$632,500	0.3%	$632,500
Undergraduate, Out-of-State	$224,789,599	$7,605,500	3.4%	$7,605,500
Graduate, In-State	$21,941,709	$30,000	0.1%	$30,000
Graduate, Out-of-State	$38,974,465	$0	%	$0
First Professional, In-State	$9,736,360	$0	%	$0
First Professional, Out-of-State	$12,411,385	$0	%	$0
Total	$523,241,608	$8,268,000	1.6%	$8,268,000
Total from Finance-T&F worksheet	$597,129,934	$8,268,000	1.4%	
In-State Sub-Total	$247,066,158	$662,500	0.3%	$662,500
Additional In-State	$14,556,673	$175,000	1.2%	$175,000
Additional In-State from Financial Plan		$175,000	1.2%	

2019-20 (Planned)

T&F Used for Financial Aid	Gross Tuition Revenue	Tuition Revenue for Financial Aid (Program 108)	% Revenue for Financial Aid	Distribution of Financial Aid
Undergraduate, In-State	$223,203,357	$732,500	0.3%	$732,500
Undergraduate, Out-of-State	$233,626,548	$9,505,500	4.1%	$9,505,500
Graduate, In-State	$23,223,369	$30,000	0.1%	$30,000
Graduate, Out-of-State	$41,389,240	$0	%	$0
First Professional, In-State	$9,928,444	$0	%	$0
First Professional, Out-of-State	$12,636,486	$0	%	$0
Total	$544,007,444	$10,268,000	1.9%	$10,268,000
Total from Finance-T&F worksheet	$617,895,770	$10,268,000	1.7%	
In-State Sub-Total	$256,355,170	$762,500	0.3%	$762,500
Additional In-State	$9,289,011	$100,000	1.1%	$100,000
Additional In-State from Financial Plan		$100,000	1.1%	

** Please note that the totals reported here will be compared with those reported by the financial aid office on the institution's annual S1/S2 report. Since the six-year plan is estimated and the S1/S2 is "actual," the numbers do not have to match perfectly but these totals should reconcile to within a reasonable tolerance level. Please be sure that all institutional offices reporting tuition/fee revenue used for aid have the same understanding of what is to be reported for this category of aid.*

Note: Virginia Tech utilizes limited "T&F Used for Financial Aid" to fund targeted institutional initiatives. Most institutional student financial aid is provided through need-based unfunded scholarships.

Six-Year Plans - Part I (2017): FY2016-2017
Virginia Tech
INTELLECTUAL PROPERTY ASSIGNMENTS AND EXTERNALLY SPONSORED RESEARCH

Background

The intellectual property (IP) worksheet captures report information for the most recently ended fiscal year as required by § 23.1-102 subdivision 2 of the Code of Virginia. Assignment of IP interests to persons or nongovernmental entities and the value of externally sponsored research funds received during the year from a person or nongovernmental entity by the institution, any foundation supporting the IP research performed by the institution, or any entity affifliated with the institution are captured by the worksheet. Information is sought on research that yields IP regardless of the project's intent. Information is sought about IP transferred as a result of either basic or applied research. The worksheet is structured to capture separate aggregate data on entities that have a principal place of business in Virginia and those with a principal place of business outside of Virginia.

Data Collection

Special Note: The information requested below pertains to the institution as well as any affiliated entity.

FY 2016-2017	Principal Place of Business in VA	Principal Place of Business outside VA
Number of assignments of intellectual property interests to persons or nongovernmental entities	6	39
Value of funds from persons or nongovernmental entities to support intellectual property research	$373,018	$25,814,735
Number of patents (by type) developed in whole or part from external projects funded by persons or nongovernmental entities:		
Patent Type - Design	0	0
Patent Type - Plant	0	1
Patent Type - Utility	2	28
Total	2	29

Definitions

Assignment: A transfer of ownership of Intellectual Property from one entity to another, including exclusive and royalty bearing licenses.

Design Patent: A patent that may be granted to anyone who invents a new, original, and ornamental design for an article of manufacture.

Intellectual Property: Creations of the mind – creative works or ideas embodied in a form that can be shared or can enable others to recreate, emulate, or manufacture them.

Nongovernmental Entities: An entity not associated with any federal, national or local government.

Patent: A property right granted by the Government of the United States of America to an inventor "to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States" for a limited time in exchange for public disclosure of the invention when the patent is granted.

Plant Patent: A patent that may be granted to anyone who invents or discovers and asexually reproduces any distinct and new variety of plant.

Sponsored Research: Research that is supported and compensated by a sponsoring agency.

Utility Patent: A patent that may be granted to anyone who invents or discovers any new, useful, and nonobvious process, machine, article of manufacture, or composition of matter, or any new and useful improvement thereof.

Value of Funds: Total value of all monetary and in-kind support provided by an external sponsor of Intellectual Property research.

Six-Year Plans - Part I (2017): FY2016-2017
Virginia Tech
ECONOMIC DEVELOPMENT: CONTRIBUTIONS (HB515)

Requirement: *As per § 23.1-306 (A) of the Code of Virginia each such plan and amendment to or affirmation of such plan shall include a report of the institution's active contributions to efforts to stimulate the economic development of the Commonwealth, the area in which the institution is located, and, for those institutions subject to a management agreement set forth in Article 4 (§ 23.1-1004 et seq.) of Chapter 10, the areas that lag behind the Commonwealth in terms of income, employment, and other factors.*

Special Note: After a thorough review of existing documents and surveys, a workgroup comprised of mostly institutional members recommended that the following metrics be used to satisfy this reporting requirement. The reporting period is FY17. The metrics serve as a menu of items that institutions should respond to as applicable and available to them. Please leave fields blank, if information is unavailable.

Section A: Provide information for research and development (R&D) expenditures by source of fund with a breakdown by Science and Engineering (S&E) specific and non-S&E.

		$s in Millions		
VA PLAN Strategy Reference	Section A: Research and Development (R&D) Expenditures by Source of Fund Source of Funds	*S&E	Non S&E	Total
4.3	Federal Government	$ 190,975	$ 4,884	**$ 195,859**
	State and Local Government	58,363	154	**58,517**
	Institution Funds	215,338	3,984	**219,322**
	Business	40,005	344	**40,349**
	Nonprofit Organizations	3,656	73	**3,729**
	All Other Sources	3,996	1	**3,997**
	Total	**$ 512,333**	**$ 9,440**	**$ 521,773**
	** S&E - Science and Engineering*			

Section B: Provide number and dollar value of grants, contracts and sub-agreements by discipline. If your institution prefers to report by industry, please modify table accordingly.

VA PLAN Strategy Reference	Section B: Grants, Contracts and Sub-Agreements by Discipline Discipline	Fund Source ($s in millions) Total
	Computer Science	$ 27,386
	Engineering	228,281
	Geosciences	4,385
	Life Sciences	221,801
	Mathematics	2,901
	Physical Sciences	15,547
	Psychology	3,535
	Social Sciences	7,799
	Other Sciences	698
	Non-Science and Engineering (non-S&E)	9,440
	Total	**$ 521,773**

Section C: For the following items, provide responses in appropriate fields. Insert an X for yes/no responses. Use Number/Amount field for other information. A Comments field has been provided for any special information your institution may want to provide.

VT#	VA PLAN Strategy Reference	Section C: General Questions	Yes	No	Number/Amount	Comments
1	4.1	Does your institution offer an innovation/ entrepreneurship/career-themed student living-learning community?	X			
2	4.1	Does your institution offer startup incubation/accelerator programs?	X			
3	4.2	Does your institution offer maker-space?	X			
4	4.2	Does your institution have an entrepreneurship center?	X			
5	4.2	Does your institution have Executive(s)-in-Residence?	X			
6	4.1	Number of students paid through externally funded grants or contracts.			1320	
7	4.1	Number of entrepreneurship degrees/ courses/programs (credit and noncredit) offered?			N/A	Not a defined course attribute
8	4.1	Number of entrepreneurship degrees/ courses/programs (credit and noncredit) offered?			N/A	Not a defined course attribute
9	4.1	Pertaining to question above, number of participants of these degrees/courses/programs? Include degree programs with concentrations in entrepreneurship separately as well as special trainings for students and faculty.			N/A	Not a defined course attribute
10	4.1	Number of academic units that have courses/programs requiring a capstone project, experiential learning activities, or internships.			48	83% of all departments offering undergraduate degrees
11	4.2	Number of intellectual property licenses executed.			45	14 Exclusive Licenses 20 Nonexclusive Licenses 11 Options
12	4.2	Amount of licensing revenue resulting from intellectual property licenses executed.			$1,315,000	
13	4.2	Number of university start-ups from faculty intellectual property.			4	
14	4.5	Number of jobs created as a result of university start-ups during the last fiscal year.			29	
15	4.5	Average wages of alumni living (in-state).			$37,819	Using SCHEV WG01: 2011-12 Four-Year Bachelor Degree Average
16	4.4	Number of outside organizations/businesses served, for example but not limited to companies working with your career center, companies sponsoring research, etc.			N/A	Not answerable as defined
17	4.4	Number of units offering K-12 STEM outreach programs.			44	

18	4.4	Count or estimate of K-12 STEM outreach program participants.			2027	
19	4.4	Number of units offering other outreach/extension/public service programs related to STEM-H.			N/A	Not well defined
20	4.4	Count or estimate of other outreach/extension/public service program participants.			N/A	Not well defined
21	4.3	Number of Small Business Innovation Research Grants (SBIR and STTR).			3	Faculty, student, and alumni
22	4.3	Dollar value of Small Business Innovation Research Grants (SBIR and STTR).			$149,650	Faculty, student, and alumni
23	4.3	Number of Commonwealth Research and Commercialization Fund awards (CRCF).			5	Faculty, student, and alumni
24	4.3	Dollar value of CRCF awards.			$296,650	Faculty, student, and alumni
25	4.1	Does your institution's tenure policy support commercialization? If yes, please provide brief explanation in comments section.	X			Tenure requirements include citation of "Economic contributions and entrepreneurship", including start-up businesses, commercialization of discoveries, and other evidence of entrepreneurship.
26	4.2	Does your institution offer a seed fund and/or proof of concept fund? If yes, provide dollar amount available in FY17 in the number/amount field.		X		University is exploring.
27	4.1	Does your institution offer continuing education programs to industry? If yes , please provide dollar value or headcount for such programs in the number/amount field.	X		1,411 participants, $660,020 gross revenue	

Section D: These items are VCCS specific. Please provide responses in appropriate fields. A Comments field has been provided for any special information the VCCS may want to provide.

VA PLAN Strategy Reference	Section D: General Questions - VCCS Specific	Number	Value	Comments
4.1	Number and value of federal, state or private grant resources to support development of, or access to, training programs leading to workforce credentials, certifications and licensures.			N/A
4.1	Number of training programs leading to workforce certifications and licensures.			N/A
4.1	Number of students who earned industry recognized credentials stemming from training programs.			N/A
4.1	Number of industry-recognized credentials obtained, including certifications and licenses.			N/A
4.1	Number of Career/Technical Education certificates, diplomas and degrees awarded that meets regional workforce needs.			N/A

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 are 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:** Virginia Tech is regularly ranked among the best institutions in the world. We owe this success to our outstanding faculty who are committed to excellence in education, research, and outreach. We know that the highest quality employees in our organization are constantly being sought out by peer institutions, industry, and research centers around the world. Attracting and retaining the caliber of faculty needed to maintain and improve upon our successes is becoming increasingly difficult. While compensation is only one factor that contributes to the university's ability to attract and retain the best faculty, it is 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: 17th 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 up with the market and mitigating turnover. In the absence of a statewide compensation process, the university will make limited progress with nongeneral fund revenue alone.

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. The need to competitively compensate the hard-working support staff at the university is a key factor in ensuring a highly productive and innovative organization. Consistent with the plan instructions, this initiative includes university staff only. In the absence of a statewide compensation process, the university will make limited progress with nongeneral fund revenue alone.

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 3,443 students since 2004. Despite this growth, demand continues to grow for a Virginia Tech education. A record of more than 27,000 students applied to be in the university's fall 2017 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. By collaborating with the Commonwealth, the university can expand resident undergraduate enrollment to qualified students from all corners of the Commonwealth and ensure a high-quality education for our residents.

4. **Develop "Destination Areas": Invest in Strategic Market-Centered Instruction and Research Clusters:** The university will invest in world-leading instruction and research clusters including Adaptive Brain and Behavior, Data Analytics and Decision Sciences, Global Systems Science, Integrated Security, and Intelligent Infrastructure for Human-Centered Communities. These Destination Areas are focused on addressing complex (regional, national and global) problems that intersect with Virginia Tech's core strengths, while engaging industry, supporting faculty, and preparing our students to be the next generation of leaders and doers. The university will grow high-demand degree attainment, research, and other economic development opportunities through investment in these areas. This is the core of our effort to advance Virginia Tech as a contemporary land-grant university. This initiative envisions the traditional state fund split, in addition to the reallocation of existing university resources. Without General Fund support, the university will move forward with partial implementation.

5. **Advance Strategic Research Opportunities and Enhance Entrepreneurial and Innovation Ecosystem:** Virginia Tech is the Commonwealth's largest research institution and brings significant research, economic development, and innovation into Virginia's economy. Virginia Tech, as the 44th largest research program in the United States, is advancing transdisciplinary knowledge in areas such as neuroscience, water, energy, cybersecurity, autonomous transportation, resiliency and nanoscience. With the continued support of the Commonwealth, research and innovation activities will increase with national and international recognition of the state as the place to partner with industry. Conducting and translating new research discoveries into potential commercial opportunities for Virginia Businesses will grow the Virginia economy and attract new private investment into the state. Providing students with opportunities to work directly with cutting-edge industries and to exercise their own entrepreneurial ideas will prepare them for leadership in the new economy. The university envisions continued growth in research areas of existing success, including:
    i. Health Sciences, specifically neuroscience
    ii. Autonomous vehicle systems
    iii. Cybersecurity

   State support is critical to advance discovery and economic development opportunities across the Commonwealth. Direct support of university research will provide the infrastructure and research capacity to compete for federal funding opportunities and

maintain competitive research programs to compete with other states and develop new partnerships with industry and other institutions within the state. The Virginia Research Investment Fund will support commercialization activities to advance economic development by creating new jobs in the areas of neuroscience and cybersecurity research. Each of these fund sources is critical to attracting talent to Virginia and creating new economic development in the Commonwealth.

6. **Establish a Learning Systems Innovation and Effectiveness Initiative:** Working collaboratively with the colleges and other university organizations, Learning Systems Innovation and Effectiveness will oversee efforts to implement an outcomes-based approach to shaping the university's educational programs. This will use market data from sources such as Burning Glass to ensure that degree programs meet the needs of the commonwealth's employers for a trained workforce. Efforts will also connect undergraduate and graduate student's success with external organizations and employers to develop new and innovative ways to deliver career preparatory curriculum across all university units. This unit will help the campus create new paths and new ways for students to find their connection after graduation in the world by working with existing structures including internships, service projects, summer and winter sessions, career placement services, and the new business engagement center. It will also work with campus leaders to evolve and modernize the curricula to better connect Virginia Tech students to the professional world that 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:** Virginia Tech in its land grand mission 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 mitigating tuition increases and reducing the unmet need of Virginia residents. Fulfilling those responsibilities are the university's 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. A primary goal of new investments in student financial aid is the reduction of net price for Virginians in the first through third income quintiles, ensuring that low- and middle-income students have access to financial aid that lower financial obstacles to attendance. 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 Virginian's, 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 program that offers educational opportunities to more students than ever before. The newly developed targeted 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. Development of a premier Mechanical Engineering Technology pathway program in Southside Virginia through an articulation agreement with Danville Community College that provides Virginia Tech faculty to deliver Mechanical Engineering courses to students intending to transfer to Virginia Tech. This would include STEM mentorship/internship programs for local middle and high school students, Virginia Tech collegiate faculty located at the Institute for Advanced Learning and Research, and significant partnership with manufacturing industries in the commonwealth including Goodyear, Kyocera, HAAS automation, and many others.
iii. Establishment of a Life Sciences pathway in Roanoke in collaboration with Virginia Western Community College, building 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. <u>Enhance Degree Completion and Instructional Sharing with Other Institutions:</u> 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. Virginia Tech plans to pilot an initiative incorporating personalized instruction and learning in high-enrollment gateway courses through the use of machine-assisted learning to support better course completion rates and thereby enhance timely degree completion. This approach will be developed in partnership with other institutions and made available to Virginia high schools to prepare students for the growing workforce in data analytics. The university envisions partnerships with industry leaders in data analytics, both adding real-world value to the pedagogy and providing industry exposure to students through internships and job placement opportunities.

Excellent student advising services are essential to 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 continue 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 and leveraging: (1) Lower costs for students who take seat based courses in Blacksburg over the summer/winter sessions, (2) expanding summer/winter undergraduate research programs to provide meaningful, resume building employment for students, (3) expanding course offerings to meet the needs of students seeking to advance their plans of study toward early degree completion and (4) increasing 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 can cost millions of dollars. However, this is a necessary cost as advanced facilities and equipment are essential for faculty to successfully compete for research funding from the federal government and other private sources. The university must be able to provide start-up packages to faculty to support equipment and infrastructure purchases, both individual and shared, that position them to successfully operate their instructional and research responsibilities, or risk not being competitive with offers from institutions in other states. The university is expanding the number of faculty to appropriately serve enrollment growth, and startup resources are a significant factor in the competitive market. 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 start-up resources.

11. **Increase Graduate Enrollment in Strategic Areas:** The university will 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 that leads to innovation, technological development and entrepreneurship vital for the continued success of the Virginia economy. Enrollment growth and externally-sponsored research revenue will be utilized to support the instructional needs of this initiative.

12. **Integrate the Virginia Tech Carilion School of Medicine (VTSCOM) into the University as the Ninth College:** The university is working towards integrating the Virginia Tech Carilion School of Medicine into the university starting in Fall 2018. No General Fund support is requested for this stage of the integration.

13. **Increase Support for Unique Military Activities:** As one of the nation's senior military colleges, the Corps of Cadets at Virginia Tech is producing the next generation of Virginia's leaders. The university seeks support for the Unique Military Activities program that is equivalent to per student funding at other public military program within the Commonwealth. As such, this is a General Fund request.

14. **Advance Institutional Efficiencies and Effectiveness to Support Cost Containment Efforts:** Improvement of the university's processes and infrastructure requires investments in cost containment efforts that will reduce expenses, address capacity needs, and modernize instructional and other university facilities. These investments will allow the university to address issues such as student health, safety, environmental sustainability, and at the same time answer to the changing regulatory environment, all while managing future capacity and costs. 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 to reallocate existing resources to support university strategic priorities including academic advancements, support for faculty startup packages, and addressing critical university 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 continue providing access to information on cutting-edge research in a variety of subject areas to students and faculty while minimizing the negative impacts of increasing costs of subscription based resources and information platforms. Expanding research programs of the institution also require access to new resources, journals and other databases not in 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 the delivery of institutional services. This is a university-funded initiative.

18. **Address Operation and Maintenance of New Facilities:** With new facilities coming on-line during the planning period, including the Undergraduate Science Laboratory Building and the Health Sciences & Technology Building, 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 the maximum facility service life and the prevention of building deficiencies. This is a university-funded initiative.

19. **Unavoidable Cost Increase Placeholder:** In addition to known cost drivers in the university's plan, the university assumes that unknown and unavoidable costs will rise over time. These could include unfunded mandates, software contract escalation, health and safety cost increases, maintenance expenses, and other unforeseen cost drivers. Figures in the plan represent the university's nongeneral fund share of projected cost increases in the 2018-20 biennium.

20. **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 help support student access, enrollment, retention and graduation goals. Virginia Tech 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 §23-31 of the Code of Virginia, and as required by the university's management agreement.

A key innovation in meeting this need at Virginia Tech is the Funds for the Future program, which ensures a predictable tuition rate for returning students through grants to help mitigate the impact of tuition increases. These grants are awarded based on family income and financial need. 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 is being retooled to better support low and middle-income students with the greatest financial need. The university also supports other, smaller programs that assist financially needy undergraduate 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. Fifty-three percent of the Virginia residents in the 2016 graduating class at Virginia Tech borrowed to finance their education at an average of $26,273 each, as compared to the national average (2015) of sixty-eight percent and $30,100, respectively.

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 2016-18 biennium for Access, Affordability, Quality, and Increased Degrees allowed the university to expand Virginia resident undergraduate enrollment and continue the slowing trend of tuition increases. Earmarked state support for the university's Cybersecurity Range has allowed the university to expand cybersecurity opportunity to students across the Commonwealth. Though the university's General Fund support will fall in 2017-18, reallocations of existing resources has allowed the university to maintain progress towards the plan while keeping in-state undergraduate tuition increases at the level projected in the 2016 submission. Significant increases in fixed costs such as and health and retirement costs have limited some planned growth; however, the institution has been able to make significant advancements including:

Enrollment:

- In fall 2016, Virginia Tech set enrollment records with 4,291 Virginia freshmen
- Total enrollment included 18,640 Virginia undergraduates, also a record.
- In 2016-17, the university continued its successful Winter Session, which offers 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.

Student Outcomes:

- Demonstrating the university's commitment to both access and completion, the Virginia Tech freshman admission rate is 74 percent and the university's six-year graduation rate is 84 percent.
- Time-to-degree is down to just 4.09 years on average, even when including programs with required 5th year components.
- The university admitted 1,012 transfer students in Fall 2016; 738 from the Virginia Community College System.

- More than 80% of all transfer students to Virginia Tech graduate within four years.
- Payscale.com reports an average salary of $57,300 for early career graduates and $100,000 for mid-career alumni of Virginia Tech.

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 $45 million in externally sponsored research, continues to play a key role in the revitalization of the Roanoke and Southwest Virginia economy. Virginia Tech has a cooperative relationship with the Virginia Tech Carilion School of Medicine established in 2010.
- The Virginia Tech Carilion partnership has led to the creation of a Health Science and Technology Innovation district in Roanoke.
- Virginia Tech's Marc Edwards led a team of university students and researchers to continue to help mitigate the impacts of the lead-in-water and legionella contamination in Flint, Michigan.
- Partnership with Google on "Project Wing" to test first ever drone product delivery, utilizing Virginia Tech's status as one of only six FAA approved aerial vehicle test sites.

Recognition:

- U.S. News & World Report ranked several graduate programs in the top 10 nationwide (#7 Evening MBA program, #7 Civil Engineering, #6 Environmental Health Engineering, #6 Industrial/Manufacturing/Systems Engineering)
- Money magazine lists Virginia Tech as "leader in using technology to teach, have fun" in July 2016.
- Princeton Review ranks Virginia Tech #1 in two categories:
  - "Best Quality of Life" of students, and
  - "Their Students Love These Colleges"

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 is committed to providing access and opportunity to the citizens of Virginia. Tuition for resident undergraduates increased 2.9% in 2017-18, consistent with the Six-Year plan submitted in 2016, even though General Fund support was reduced by $8.6 million. Moving forward, the university hopes to minimize tuition increases to the 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 salary increase, as outlined in the plan. Additionally, the university is focused on controlling costs, restructuring areas of campus, and reallocating existing resources to support new initiatives without relying solely upon new revenue.

The university believes that a foundational responsibility of a land-grant institution is affording access to resident undergraduates, achieved through controlling tuition increases to the extent possible. Though the academic plan presented in this submission would traditionally drive the tuition rate significantly higher, the rate placeholders utilized in this plan reflect the university's continued efforts to address the shared interest of the university and the Commonwealth to mitigate increases to Virginia undergraduates.

Enrollment growth is currently assisting with lessening the impact of new costs on tuition levels. While the right mix of enrollment growth will support university costs to some extent, the growth of Virginia resident undergraduates presents a financial challenge to the university, and the growth of nonresident undergraduates is currently limited by the Appropriation Act. The Commonwealth has supported new Virginia undergraduate enrollment in recent years which helped to expand access to more Virginians. Continued partnership can ensure that the university is able to grow resident enrollment to address the needs of Virginia's families and support economic expansion in the Commonwealth. Additional flexibility in the number of out-of-state students will also help the university continue to meet the growing needs of the state and reduce the 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 are partnered with Tech Center, a 100-acre $450 million private-led project bringing new retail, residential, and office development to Center City Newport News. This community is at the heart of Hampton Roads, a region dealing with unaccustomed economic distress. Developed in collaboration with the award-winning Virginia Tech Corporate Research Center, Tech Center includes a 50-acre research park anchored by federal research

facilities like the Department of Energy's Jefferson National Lab and NASA-Langley, as well as leading firms like Canon.

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

Virginia Tech's research in cyber security is one area of institutional strength with great relevance to industry. Virginia Tech is the first institution in the Commonwealth to be designated an NSA Center for Academic Excellence in Cyber Operations. It also operates a number of federally sponsored Industry/University Cooperative Research Centers that provide opportunities for industry leaders such as CACI, Northrup Grumman, Raytheon, and SAIC to connect with university researchers in areas including security and software engineering, broadband wireless access and applications, and high-performance configurable computing.

We leverage such research expertise to help the Commonwealth meet critical talent needs. For example, working with eight other public institutions of higher education across Virginia, Virginia Tech is leading an effort to create a state-of-the-art platform for cybersecurity education. The Virginia Cyber Range will provide advanced cybersecurity training exercises for high school and college students, revolutionize cybersecurity education within the commonwealth, and position Virginia to become a leading source of critical cybersecurity expertise for the nation.

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

Virginia Tech has formed the College Access Collaborative to strengthen the university's existing commitment to increase access to higher education. Currently, Virginia Tech serves the Commonwealth of Virginia by partnering with communities that typically graduate a lower number of college-bound high school students. The Collaborative's outreach efforts are led by dedicated personnel with resources that will leverage current efforts and form new partnerships across the state. Such partnerships will involve a multipronged approach to provide support, outreach, and resources to students, parents, teachers, and counselors within identified schools. The Collaborative will provide a variety of services and activities, including seminars and advising on college preparation, teacher and counselor professional development workshops and mentorship, and student and parent visits to Virginia Tech.

d. Business management/consulting assistance.

The Virginia Tech Catalyst program, funded in part by the US Economic Development Administration, brings together students, faculty, and regional companies for the purpose of research commercialization and proof of concept. Students and faculty from all of Virginia Tech's colleges work collaboratively in several different ways.

Companies and professors interested in technology commercialization in need of market analysis can turn to the 4094 Technology Commercialization class, cross-listed between

Management, Industrial Design, and Engineering. Outcomes from those classes have included the pursuit of new markets and novel applications for new or existing technologies.

Companies can pose direct challenges to students around product and market discovery. During the course of these challenges, students work with one another to create innovative solutions that are then pitched to the companies at the end of the challenges. One such recent project for a management consulting company resulted in two student ideas being pitched to federal government funders.

Companies may also engage in short to long-term research with select faculty and graduate students to move their technologies towards commercialization. For example, one local company who produces products for the Unmanned Aerial Systems industry cluster is engaged with two engineering faculty and one graduate student to test performance of a new product application. Upon completion of this research, the company is ready to take this particular technology to market, which will in turn lead to investment and jobs in the region.

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 Session.

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.

The Virginia agriculture industry represents a significant portion of commerce for the commonwealth. Virginia Tech's Cooperative Extension/Agriculture Experiment Station agency provides critical production and operation research to advance and protect these industries. The focus of the renewal of the Livestock and Poultry Research Facilities project is five specific animal programs that are in need of improved facilities to sustain and advance the commonwealth's industries. The specific sectors include sheep, poultry, swine, equine and beef cattle.

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 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 2018–2024 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 twelve 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 facilitates 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 and 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
- Explore expansion of capital budgeting authority to achieve cost-savings in small-scale facilities, 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.

Further restructuring is important to remain competitive with private institutions and other states who have implemented similar strategies in the years since Virginia first underwent restructuring. As global competition increases, this will only become more important.