

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

Due: July 1, 2017

Institution:

Virginia Military Institute

Institution UNITID:

211

Individual responsible for plan

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

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 (2018-2024)								Narrative	Narrative
	Biennium 2018-2020 (7/1/18-6/30/20)				Biennium 2020-2022 (7/1/20-6/30/22)					
	Strategies (Short Title)	VP Goal	Cost: Incremental, Savings, Reallocation							
			2018-2019			2019-2020				
Total Amount			Amount From Tuition Revenue	Total Amount	Amount From Tuition Revenue					
1	Increase T&R Faculty Salaries	3	Incremental:	\$0	\$0	\$0	\$0	Continue to use incremental and private funds, as available, to address faculty compensation inequities.	Continue to use incremental and private funds, as available, to address faculty compensation inequities.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$130,000	\$0	\$270,000	\$0			
4	Right Sizing	2	Incremental:	\$149,000	\$149,000	\$241,000	\$241,000	Add two positions - one each in Physical Education and Biology. "Buy back" one privately-funded position in History. Anticipate using approximately \$36K in reallocated funds and \$149K in incremental funds.	Add two positions - one each in Computer and Information Sciences and Applied Mathematics. "Buy back" two privately-funded positions in English, Rhetoric, and Humanistic Studies and International Studies and Political Science. Anticipate using approximately \$119K in reallocated funds and \$241K in incremental funds.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$36,000	\$0	\$119,000	\$0			
5	Math that Matters: Contextualizing Mathematics in a Computational World	2	Incremental:	\$171,000	\$171,000	\$103,000	\$103,000	Improve the common core math requirement by developing a new, two-course math sequence that will include technology-driven mathematical topics and basic programming skills. Funding through a combination of new E&G funds, private funds, and reallocation.	Improve the common core math requirement by developing a new, two-course math sequence that will include technology-driven mathematical topics and basic programming skills. Funding through a combination of new E&G funds, private funds, and reallocation.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$25,000	\$0	\$35,000	\$0			
6	Financial Aid	1	Incremental:	\$0	\$0	\$0	\$0	Continue to seek and identify new sources of both internal and external financial aid to better serve low-and-middle income in-state cadets. VMI's new fund-raising campaign includes a goal to raise more private funds for needy cadets.	Continue to seek and identify new sources of both internal and external financial aid to better serve low-and-middle income in-state cadets. VMI's new fund-raising campaign includes a goal to raise more private funds for needy cadets.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$0	\$0	\$0	\$0			
8	Center for Undergraduate Research (V-CUR)	4	Incremental:	\$0	\$0	\$0	\$0	Anticipate continuing program with private funding.	Anticipate continuing program with private funding.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$0	\$0	\$0	\$0			
9	Math Education and Resource Center (MERC)	2	Incremental:	\$0	\$0	\$0	\$0	Anticipate continuing program with private funding.	Anticipate continuing program with private funding.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$0	\$0	\$0	\$0			
11	Technology Enhanced Instruction	3	Incremental:	\$0	\$0	\$0	\$0	VMI will continue to enhance STEM instructional and research laboratories using a combination of State Equipment Trust Funding, local funds, and E&G funds.	VMI will continue to enhance STEM instructional and research laboratories using a combination of State Equipment Trust Funding, local funds, and E&G funds.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$140,000	\$0	\$140,000	\$0			
12	"New Directions" Grant Program	3	Incremental:	\$0	\$0	\$0	\$0	Anticipate continuing program with private funding.	Anticipate continuing program with private funding.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$0	\$0	\$0	\$0			
13	Engineering Graduate Program Research Agreements	4	Incremental:	\$0	\$0	\$0	\$0	Maintain active relationships between the VMI engineering programs and those at VCU and Virginia Tech while looking at opportunities for expanded participation.	Maintain active relationships between the VMI engineering programs and those at VCU and Virginia Tech while looking at opportunities for expanded participation.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$0	\$0	\$0	\$0			
14	Articulation Agreements	4	Incremental:	\$0	\$0	\$0	\$0	Maintain the articulation agreements and institutionalize their use in promoting advanced academic study.	Maintain the articulation agreements and institutionalize their use in promoting advanced academic study.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$0	\$0	\$0	\$0			
15	Increasing STEM Majors	4	Incremental:	\$0	\$0	\$0	\$0	Maintain the principles of the Core Curriculum. Curricula supporting a baseline STEM education, and continue enrollment practices and academic support programs in order to support 50% enrollment in STEM majors.	Maintain the principles of the Core Curriculum. Curricula supporting a baseline STEM education, and continue enrollment practices and academic support programs in order to support 50% enrollment in STEM majors.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$0	\$0	\$0	\$0			
16	Learning Services	2	Incremental:	\$0	\$0	\$0	\$0	Anticipate continuing program with private funding.	Anticipate continuing program with private funding.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$0	\$0	\$0	\$0			
17	Sponsored Programs Administrator (SPA)	4	Incremental:	\$0	\$0	\$0	\$0	No additional positions anticipated.	No additional positions anticipated.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$0	\$0	\$0	\$0			
18	Year Round Facility Use	3	Incremental:	\$0	\$0	\$0	\$0	Continue all programs that contribute to extensive year-round use of VMI facilities.	Continue all programs that contribute to extensive year-round use of VMI facilities.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$0	\$0	\$0	\$0			
19	Shared Resources	3	Incremental:	\$0	\$0	\$0	\$0	Continue to develop existing cooperative relationships and seek new opportunities.	Continue to develop existing cooperative relationships and seek new opportunities.	
			Savings:	\$0	\$0	\$0	\$0			
			Reallocation:	\$0	\$0	\$0	\$0			
20	Increased Degree Completion for Virginia Residents	2	Incremental:	\$0	\$0	\$0	\$0	Continue existing readmission and IB/AP/CI policies. Promote local visibility of the two VMI summer semesters.	Continue existing readmission and IB/AP/CI policies. Promote local visibility of the two VMI summer semesters.	
			Savings:	\$0	\$0	\$0	\$0			

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Priority Ranking	ACADEMIC AND SUPPORT SERVICE STRATEGIES FOR SIX-YEAR PERIOD (2018-2024)								Narrative	Narrative		
	Biennium 2018-2020 (7/1/18-6/30/20)				Biennium 2020-2022 (7/1/20-6/30/22)						Information for 2018-19 and/or for Biennium 2020-2022 (7/1/20-6/30/22)	Information for 2019-20 and/or for Biennium 2022-2024 (7/1/22-6/30/24)
	Strategies (Short Title)	VP Goal	Cost: Incremental, Savings, Reallocation									
			2018-2019		2019-2020							
		Total Amount	Amount From Tuition Revenue	Total Amount	Amount From Tuition Revenue							
			Reallocation: \$0	\$0	\$0	\$0						
21	Military Commissioning	4	Incremental:	\$0	\$0	\$0	\$0	Continue existing strategies for increasing commissioning percentage.	Continue existing strategies for increasing commissioning percentage.			
			Savings:	\$0	\$0	\$0	\$0					
			Reallocation:	\$0	\$0	\$0	\$0					
22	STEM Conferences	4	Incremental:	\$0	\$0	\$0	\$0	The annual series of STEM conferences will continue through the 2018-2020 biennium.	The annual series of STEM conferences will continue through the 2018-2020 biennium.			
			Savings:	\$0	\$0	\$0	\$0					
			Reallocation:	\$0	\$0	\$0	\$0					
23	Efficiency Reforms	3	Incremental:	\$0	\$0	\$0	\$0	Continue existing efficiency reforms and identify and implement additional reforms.	Continue existing efficiency reforms and identify and implement additional reforms.			
			Savings:	\$0	\$0	\$0	\$0					
			Reallocation:	\$0	\$0	\$0	\$0					
24	Commonwealth Cyber Fusion and Collegiate Cyber Cup Competition	3	Incremental:	\$0	\$0	\$0	\$0	VMI hosted the inaugural Commonwealth Cyber Fusion and Collegiate Cyber Cup competition in February 2017, co-chaired by Governor McAuliffe and Senator Mark Warner. The Institute anticipates that this event will become an annual commitment.	VMI anticipates hosting this event annually.			
			Savings:	\$0	\$0	\$0	\$0					
			Reallocation:	\$0	\$0	\$0	\$0					
			Incremental:	\$0	\$0	\$0	\$0					
			Savings:	\$0	\$0	\$0	\$0					
			Reallocation:	\$0	\$0	\$0	\$0					
Total 2018-2020 Costs												
Incremental (included in Financial Plan line 61)			\$320,000	\$320,000	\$344,000	\$344,000						
Savings			\$0	\$0	\$0	\$0						
Reallocation			\$331,000	\$0	\$564,000	\$0						

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	Biennium 2018-2020 (7/1/18-6/30/20)				Cost: Incremental, Savings, Reallocation						Information for 2018-19 and/or for Biennium 2020-2022 (7/1/20-6/30/22)	Information for 2019-20 and/or for Biennium 2022-2024 (7/1/22-6/30/24)
	Strategies (Short Title)	VP Goal	2018-2019		2019-2020							
			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)											
Items	2018-2019		2019-2020		2016-17		2017-18		Amount From Tuition Revenue			
	Total Amount	Amount From Tuition Revenue	Total Amount	Amount From Tuition Revenue	Salary Increase Rate and Tuition Amount	Total Amount	Total Amount	Amount From Tuition Revenue				
Total Incremental Cost from Academic Plan¹	\$320,000	\$320,000	\$344,000	\$344,000								
1 Increase T&R Faculty Salaries ²	\$193,657	\$193,657	\$391,188	\$391,188	\$0	\$339,212	\$231,827					
T&R Faculty Salary Increase Rate ³	2.00%	2.00%	2.00%	2.00%	0.00%	2.00%	0.00%					
2 Increase Admin. Faculty Salaries ²	\$82,784	\$82,784	\$166,811	\$166,811	\$0	\$187,084	\$126,680					
Admin. Faculty Salary Increase Rate	1.50%	1.50%	1.50%	1.50%	0.00%	3.00%	0.00%					
Increase Classified Staff Salaries ²	\$0	\$0	\$0	\$0	\$0	\$238,685	\$153,776					
Classified Salary Increase Rate	0.00%	0.00%	0.00%	0.00%	0.00%	3.00%	0.00%					
2 Increase Part-Time/Wage Employee Rates ²	\$41,835	\$41,835	\$84,297	\$84,297	\$0	\$103,129	\$103,129					
Part-Time/Wage Employee Increase Rate	1.50%	1.50%	1.50%	1.50%	0.00%	3.00%	0.00%					
4 Increase Number of Full-Time T&R Faculty ⁴ (FTE)	3	3	3	3								
2 Classified Staff Bonus	\$100,332	\$100,332	\$100,332	\$100,332								
7 Utility Cost Increase	\$190,463	\$190,463	\$390,448	\$390,448								
3 Fringe/health insurance benefits increase	\$65,655	\$65,655	\$132,525	\$132,525								
10 O&M Unavoidable Cost Increases	\$364,471	\$364,471	\$780,763	\$780,763								
25 Academic Program Enhancements	\$100,000	\$100,000	\$100,000	\$100,000								
26 Net change in Contingencies/Transfers	-\$344,000	-\$344,000	\$456,000	\$456,000								
27 Net change in vacancy/turnover savings	\$422,000	\$422,000	\$422,000	\$422,000								
28 Net change in indirect cost recoveries	-\$189,806	-\$189,806	-\$236,894	-\$236,894								
Total Additional Funding Need	\$1,347,391	\$1,347,391	\$3,131,470	\$3,131,470								

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.

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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	\$8,461	\$9,469,263	\$8,884	5.0%	\$10,050,942	\$9,284	4.5%	\$10,352,346	\$9,702	4.5%	\$10,819,264
Undergraduate, Out-of-State	\$32,770	\$22,158,910	\$34,572	5.5%	\$22,481,443	\$36,300	5.0%	\$23,525,518	\$37,934	4.5%	\$24,895,132
Graduate, In-State	\$0	\$0	\$0	%	\$0	\$0	%	\$0	\$0	%	\$0
Graduate, Out-of-State	\$0	\$0	\$0	%	\$0	\$0	%	\$0	\$0	%	\$0
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	\$0	%	\$0	\$0	%	\$0
Medicine, Out-of-State	\$0	\$0	\$0	%	\$0	\$0	%	\$0	\$0	%	\$0
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	\$0	\$0	\$0	%	\$0	\$0	%	\$0	\$0	%	\$0
Veterinary Medicine, Out-of-State	\$0	\$0	\$0	%	\$0	\$0	%	\$0	\$0	%	\$0
Other NGF		\$286,783			\$282,488			\$284,244			\$286,053
Total E&G Revenue - Gross		\$31,914,956			\$32,814,873			\$34,162,108			\$36,000,449
Total E&G Revenue - Net of Financial Aid		\$28,246,979			\$28,564,873			\$29,912,108			\$31,750,449
E&G Revenue Used for Faculty Salary Increases		\$0			\$339,212			\$232,388			\$237,037
Average T&R Faculty Salary Increase Rate		0.00%			3.00%			2.00%			2.00%
Auxiliary Program											
Mandatory Non-E&G Fees											
Undergraduate	\$9,031		\$9,330	3.3%		\$9,580	2.7%		\$9,826	2.6%	
Graduate	\$0		\$0	%		\$0	%		\$0	%	
Law	\$0		\$0	%		\$0	%		\$0	%	
Medicine	\$0		\$0	%		\$0	%		\$0	%	
Dentistry	\$0		\$0	%		\$0	%		\$0	%	
PharmD	\$0		\$0	%		\$0	%		\$0	%	
Veterinary Medicine	\$0		\$0	%		\$0	%		\$0	%	
Total Auxiliary Revenue (ALL including room and board)		\$21,552,119			\$22,436,522			\$22,827,817			\$23,572,266
Total Tuition and Fees											
Undergraduate, In-State	\$17,492		\$18,214	4.1%		\$18,864	3.6%		\$19,528	3.5%	
Undergraduate, Out-of-State	\$41,801		\$43,902	5.0%		\$45,880	4.5%		\$47,760	4.1%	
Graduate, In-State	\$0		\$0	%		\$0	%		\$0	%	
Graduate, Out-of-State	\$0		\$0	%		\$0	%		\$0	%	
Law, In-State	\$0		\$0	%		\$0	%		\$0	%	
Law, Out-of-State	\$0		\$0	%		\$0	%		\$0	%	
Medicine, In-State	\$0		\$0	%		\$0	%		\$0	%	
Medicine, Out-of-State	\$0		\$0	%		\$0	%		\$0	%	
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	\$0		\$0	%		\$0	%		\$0	%	
Veterinary Medicine, Out-of-State	\$0		\$0	%		\$0	%		\$0	%	
Student Financial Aid (Program 108)		\$3,667,977			\$4,250,000			\$4,250,000			\$4,250,000
Sponsored Programs (Program 110)		\$200,000			\$200,000			\$200,000			\$200,000
Unique Military Activities		\$4,250,588			\$4,438,868			\$4,533,223			\$4,698,869
Workforce Development		\$0			\$0			\$0			\$0
Other (Specify)		\$0			\$0			\$0			\$0

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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	\$8,795,689	\$1,167,853	13.3%	\$1,167,853
Undergraduate, Out-of-State	\$21,525,012	\$2,944,395	13.7%	\$2,944,395
Graduate, In-State	\$0	\$0	%	\$0
Graduate, Out-of-State	\$0	\$0	%	\$0
First Professional, In-State	\$0	\$0	%	\$0
First Professional, Out-of-State	\$0	\$0	%	\$0
Total	\$30,320,701	\$4,112,248	13.6%	\$4,112,248
In-State Sub-Total	\$8,795,689	\$1,167,853	13.3%	\$1,167,853

***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	\$9,469,263	\$0	%	\$1,015,562
Undergraduate, Out-of-State	\$22,158,910	\$3,667,977	16.6%	\$2,652,415
Graduate, In-State	\$0	\$0	%	\$0
Graduate, Out-of-State	\$0	\$0	%	\$0
First Professional, In-State	\$0	\$0	%	\$0
First Professional, Out-of-State	\$0	\$0	%	\$0
Total	\$31,628,173	\$3,667,977	11.6%	\$3,667,977
Total from Finance-T&F worksheet	\$31,914,956	\$3,667,977	11.5%	
In-State Sub-Total	\$9,469,263	\$0	%	\$1,015,562

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	\$10,050,942	\$0	%	\$1,190,000
Undergraduate, Out-of-State	\$22,481,443	\$4,250,000	18.9%	\$3,060,000
Graduate, In-State	\$0	\$0	%	\$0
Graduate, Out-of-State	\$0	\$0	%	\$0
First Professional, In-State	\$0	\$0	%	\$0
First Professional, Out-of-State	\$0	\$0	%	\$0
Total	\$32,532,385	\$4,250,000	13.1%	\$4,250,000
Total from Finance-T&F worksheet	\$32,814,873	\$4,250,000	13.0%	
In-State Sub-Total	\$10,050,942	\$0	%	\$1,190,000
Additional In-State	\$581,679	\$0	%	\$174,438

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	\$10,352,346	\$0	%	\$1,190,000
Undergraduate, Out-of-State	\$23,525,518	\$4,250,000	18.1%	\$3,060,000
Graduate, In-State	\$0	\$0	%	\$0
Graduate, Out-of-State	\$0	\$0	%	\$0
First Professional, In-State	\$0	\$0	%	\$0
First Professional, Out-of-State	\$0	\$0	%	\$0
Total	\$33,877,864	\$4,250,000	12.5%	\$4,250,000
Total from Finance-T&F worksheet	\$34,162,108	\$4,250,000	12.4%	
In-State Sub-Total	\$10,352,346	\$0	%	\$1,190,000
Additional In-State	\$301,404	\$0	%	\$0
Additional In-State from Financial Plan		\$0	%	

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	\$10,819,264	\$0	%	\$1,190,000
Undergraduate, Out-of-State	\$24,895,132	\$4,250,000	17.1%	\$3,060,000
Graduate, In-State	\$0	\$0	%	\$0
Graduate, Out-of-State	\$0	\$0	%	\$0
First Professional, In-State	\$0	\$0	%	\$0
First Professional, Out-of-State	\$0	\$0	%	\$0
Total	\$35,714,396	\$4,250,000	11.9%	\$4,250,000
Total from Finance-T&F worksheet	\$36,000,449	\$4,250,000	11.8%	
In-State Sub-Total	\$10,819,264	\$0	%	\$1,190,000
Additional In-State	\$466,918	\$0	%	\$0
Additional In-State from Financial Plan		\$0	%	

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Virginia Military Institute

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 affiliated 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	0	0
Value of funds from persons or nongovernmental entities to support intellectual property research	\$0	\$0
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	0
Patent Type - Utility	0	0
Total	0	0

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

Institution Name

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.

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	\$30,431.48	\$2,810.12	\$33,241.60
	State and Local Government	\$6,617.30		\$6,617.30
	Institution Funds			\$0.00
	Business	\$37,663.76		\$37,663.76
	Nonprofit Organizations	\$28,453.82	\$42,934.00	\$71,387.82
	All Other Sources			\$0.00
	Total	\$103,166.36	\$45,744.12	\$148,910.48
		<i>* S&E - Science and Engineering</i>		

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	Category					
		Grants		Contracts			Sub-agreements
		No.	\$ Value	No.	\$ Value	No.	\$ Value
4.3	Engineering						
	Physical Science	2	\$31,868.99	2	\$18,342.50	1	\$38,126.83
	Environmental Science						
	Computer Science			2	\$21,321.40		
	Life Sciences	3	\$85,343.51	1	\$250.00		
	Psych/Social						
	Other Science	1	\$3,000.00				
	Non-Science and Engineering (non-S&E)	6	\$132,782.00				
	Total	12	\$252,994.50	5	\$39,913.90	1	\$38,126.83

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.

VA PLAN Strategy Reference	Section C: General Questions	Yes	No	Number/Amount	Comments
4.1	Does your institution offer an innovation/ entrepreneurship/career-themed student living-learning community?		X		
4.1	Does your institution offer startup incubation/accelerator programs?		X		
4.2	Does your institution offer maker-space?		X		
4.2	Does your institution have an entrepreneurship center?		X		
4.2	Does your institution have Executive(s)-in-Residence?	X			
4.1	Number of students paid through externally funded grants or contracts.			7	
4.1	Number of entrepreneurship degrees/ courses/programs (credit and noncredit) offered?			2	EC 340 and Entrepreneurship Club
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.			30	
4.1	Number of academic units that have courses/programs requiring a capstone project, experiential learning activities, or internships.			14	All Departments require capstone projects

4.2	Number of intellectual property licenses executed.			0	
4.2	Amount of licensing revenue resulting from intellectual property licenses executed.			\$0.00	
4.2	Number of university start-ups from faculty intellectual property.			0	
4.5	Number of jobs created as a result of university start-ups during the last fiscal year.			0	
4.5	Average wages of alumni living (in-state).			\$69,445.00	Degrees of Value, Mark Schneider, College Measures' Economic Success Metrics - Median Wages at Year 8 among Graduates of Four-Year Institutions
4.4	Number of outside organizations/businesses served, for example but not limited to companies working with your career center, companies sponsoring research, etc.			942	
4.4	Number of units offering K-12 STEM outreach programs.			4	CLE & Applied Math, Chemistry, Electrical Engineering
4.4	Count or estimate of K-12 STEM outreach program participants.			1580	STEM & Math Conf, VA STEAM Camp, Legacy Day, Lex Science Fair, VA Science Fair, Hour of Code
4.4	Number of units offering other outreach/extension/public service programs related to STEM-H.			3	CLE & Applied Math, Chemistry, Electrical Engineering
4.4	Count or estimate of other outreach/extension/public service program participants.			884	Math, Evn. VA, CyberFusion, Legacy Day, Rocket Demonstrations
4.3	Number of Small Business Innovation Research Grants (SBIR and STTR).			0	
4.3	Dollar value of Small Business Innovation Research Grants (SBIR and STTR).			\$0.00	
4.3	Number of Commonwealth Research and Commercialization Fund awards (CRCF).			0	
4.3	Dollar value of CRCF awards.			\$0.00	
4.1	Does your institution's tenure policy support commercialization? If yes, please provide brief explanation in comments section.	X			If commercialization fell under the category of "scholarly engagement" within the faculty member's academic discipline, it would apply toward their tenure application.
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		\$100,000.00	New Directions in Teaching and Research
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		

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.			
4.1	Number of training programs leading to workforce certifications and licensures.			
4.1	Number of students who earned industry recognized credentials stemming from training programs.			
4.1	Number of industry-recognized credentials obtained, including certifications and licenses.			
4.1	Number of Career/Technical Education certificates, diplomas and degrees awarded that meets regional workforce needs.			

Part II: Word Document

Item A. Institutional Mission

Background and History

Established by the Virginia General Assembly in 1839, the Virginia Military Institute is a four-year state-supported college whose student body is organized as a military corps under the command of the Superintendent and is constituted as the guard of the Institute. As a wholly undergraduate military college, VMI meets society's need for educated citizens and leaders and contributes significantly to the diversity of the Commonwealth's system of state-supported and independent institutions of higher education.

VMI has shaped leaders, heroes, and individuals whose daily lives reflect the integrity, fairness, and appreciation for the value of work that are instilled here. Its alumni include a Nobel Prize winner, eleven Rhodes Scholars, seven Medal of Honor recipients, a Pulitzer Prize Winner, a Supreme Court Justice, 39 college presidents and 266 generals and flag officers. VMI is associated with such distinguished soldiers as "Stonewall" Jackson and George C. Marshall as well as more than thirty thousand former cadets who have excelled in either civilian or military life.

Mission

The Virginia Military Institute believes that the measure of a college lies in the quality and performance of its graduates and their contributions to society. Therefore, it is the mission of the Virginia Military Institute to produce educated, honorable men and women, prepared for the varied work of civil life, imbued with love of learning, confident in the functions and attitudes of leadership, possessing a high sense of public service, advocates of the American Democracy and free enterprise system, and ready as citizen-soldiers to defend their country in time of national peril.

To accomplish this result, the Virginia Military Institute shall provide to qualified young men and women undergraduate education of highest quality – embracing engineering, science, and the arts – conducted in, and facilitated by, the unique VMI system of military discipline.

Cadet life at VMI is defined by the Institute's Honor Code. Cadets live by the Honor Code and are responsible for all aspects of its governance. They are also charged with maintaining the military structures and protocols of life in Barracks. Since all cadets reside on Post throughout their four years at VMI, Barracks is the focal point of cadet life and an important laboratory for building and exercising leadership and teamwork skills.

The combination of VMI's rigorous academic program with its disciplined military organization and system distinguish the Institute from most institutions of higher education in the United States. Our comprehensive institutional mission is to educate the cadet intellectually, physically, morally and ethically through challenging and integrated curricular and co-curricular experiences. The Virginia Military Institute maintains a clear educational focus and a well-established niche in the higher education marketplace. We aspire to become neither a large institution nor a research institution.

We believe that this institution offers cadets not only an excellent academic education but also many additional benefits: a disciplined approach to overcoming obstacles, an understanding of the principles of leadership and of working in an organizational setting, and the experience of living in an environment that greatly values personal integrity, ethical inquiry and physical well-being. Because of these many benefits, the VMI graduate is an educated and honorable citizen-soldier.

Vision 2039 – Major Strategic Directions

General J.H. Binford Peay, III, United States Army (Retired), VMI Class of 1962, was appointed the Fourteenth Superintendent of the Virginia Military Institute on 1 July 2003. Following receipt of strategic guidance from the Board of Visitors, Commonwealth of Virginia, and the Institute's accreditation agencies, the Superintendent appointed focus groups comprised of staff, faculty, cadets, alumni, parents, and other friends of the Institute to study, discuss, and make recommendations in four program areas: Academics, Military, Athletics, and Physical and Cultural Environment. The four focus groups made several hundred individual recommendations.

With the assistance of his senior staff, the Superintendent analyzed the focus group recommendations, blending them with his strategic guidance and his personal assessment to produce *Vision 2039*, a document whose name was chosen to celebrate the coming bi-centennial anniversary of the founding of the Institute. *Vision 2039* was promulgated as a means to focus effort and resources, to define a desired end state, and to express the Superintendent's plans and intentions to all Institute stakeholders. The theme of "Commonality, Synchronization, and Integration" prevails throughout the document. *Vision 2039* builds upon the rich traditions and history of VMI, concentrates on effectively executing today, and moves VMI forward to the future.

The Fourteen Simplified Descriptors of *Vision 2039*:

- I. A Military Institute and a Military Environment---Delivering a unique education.
- II. Academic Reputation – The Premier Undergraduate College in America.
- III. Renowned Honor System – #1 in the Nation.
- IV. Partnerships with the Best USA Graduate Schools.
- V. Balance of Arts, Sciences, and Engineering with greater than 50% in hard science and engineering.
- VI. Corps of 1500 that is diverse and includes at least 10% Female Cadets.

- VII. Greater than 55% Virginia Cadets.
- VIII. Service to the Nation with 70% Corps Commissioning (with growth in Guard and Reserve) – “Citizen Soldier”.
- IX. Every Cadet an Athlete – Winning Sports Teams – The VMI way.
- X. Leadership Development System – Program unsurpassed.
- XI. Physical Plant – Historic, beautiful, modern, and technologically enhanced.
- XII. Organizationally streamlined, efficient and communicative.
- XIII. Proud, Disciplined, Civil Cadets----and Graduates.
- XIV. One Cohesive Team – Alumni, Agencies, BOV, the Institute, Parents and Friends.

Vision 2039 was enthusiastically received by the VMI community and stakeholders, with strong endorsement from the Governor, the VMI Board of Visitors, and VMI’s three Alumni Agencies. The Fourteen Simplified Descriptors of *Vision 2039*, along with over 100 implementing strategies, have been integrated into a comprehensive strategic planning document for the Institute.

Summary

VMI seeks to enroll young men and women of exceptional talent, curiosity, and character in an academic community in which innovative teaching and active learning are complemented by an intensive military regimen. The VMI experience builds personal and intellectual discipline as well as a resolute sense of duty to others, preparing cadets for the responsibilities of citizenship and leadership in the increasingly interconnected world of the twenty-first century. VMI aims to shape educated and honorable citizen-soldiers whose lives are marked by integrity, fairness, and a dedication to the value of work. Because they are products of such a purposeful college experience, VMI graduates have distinguished themselves in their communities and in nearly every profession, including the military, for more than 168 years.

VMI does not plan to make any changes to its institutional mission during the next six-year period through FY 2024.

Item B. Strategies

Part I of VMI's Academic and Financial Plan includes a total of 28 strategies and/or funding initiatives that have been assigned a priority. Twenty of these are strategies that are listed by short title in the Academic and Financial Plan and are described in more detail in the following pages.

Each strategy includes a short title, the priority number assigned, and summarizes progress to date for those strategies identified in the 2015/2016 Six Year Plan. It also notes how additional General Fund support, savings, and reallocations were used to further the strategies.

#1: Increase T&R Faculty Salaries

An important factor in maintaining VMI's reputation for academic excellence, and in meeting the Vision 2039 objective of becoming a "Premier Undergraduate College in America," is a vibrant, active, and enthusiastic faculty. As VMI seeks to recruit and retain the best faculty – Ph.D. level men and women who are excellent teachers, productive scholars, active in their professions, and engaged in the lives of cadets – it is imperative that the Institute offer competitive salaries.

In recent years, VMI has had difficulty in filling vacant faculty positions with the top applicants, which led the Dean in Spring 2012 to charge the Faculty Compensation Committee (FCC) with evaluating the adequacy of the VMI faculty compensation model for determining faculty salaries. The FCC was also charged with comparing VMI salaries to other Virginia colleges and universities, to professional discipline indices, and to selected peer groups. The FCC found that, when compared to the 14 Virginia public colleges and universities, VMI's average faculty salary ranked 11th. When compared to 23 of 25 SCHEV peer group schools for which information was available, VMI's average faculty salary ranked 23rd.

Based on these results, the FCC recommended adopting salary data from a peer group of 119 institutions similar to VMI from the College and University Professional Association for Human Resources (CUPA-HR) salary survey. The CUPA-HR data was applied using the VMI salary algorithm to provide target faculty salaries at the 60th percentile of the discipline and rank database of the 119 institution CUPA-HR peer group with target salaries adjusted by time in rank. This would raise the projected starting salaries for new faculty in all disciplines as well as raise target salaries for current faculty at all levels. At the time, many salaries were below the 10th percentile and none approached the 50th percentile of the combined sample. Based on feedback provided by the Superintendent, the FCC further refined the peer group to a final grouping of 64 institutions, which was presented to the Board of Visitors in January 2014. The target salaries determined using the VMI CUPA-HR peer group were used as the basis for targeted salary adjustments in FY 2014 (\$50K in E&G funds and \$450K in private funds) and FY 2015 (\$100K in E&G funds). VMI is now pursuing a strategy of using privately funded faculty chairs to reallocate E&G funds formerly used to fund the chair holder's faculty position to be used to provide targeted faculty salary adjustments. The first of these chairs is anticipated to be in place in FY 2017 and will provide approximately \$135,000 for salary adjustments.

2017 Update:

Based on the American Association for University Professors (AAUP) 2016-17 faculty salary survey, VMI's average faculty salary ranks 9th when compared to the 13 Virginia public colleges and universities that participated in the survey. When compared to the 25 SCHEV peer group schools, VMI's average faculty salary ranked 21st. In Fall 2016, the Superintendent established the goal of raising VMI's average faculty salary into the top five amongst Virginia public colleges and universities. Approximately \$2.5 million in new funding is required to achieve this goal. A new Institute Compensation Committee (ICC)

was established in the 2016-17 AY, chaired by the Dean and comprised of faculty and administrative staff, to address compensation issues, including faculty compensation. The ICC proposed a new relative market value model that establishes target salaries for all faculty based on their academic discipline and years of service. It uses the CUPA-HR salary survey to determine the average salary for each academic discipline at VMI, and adjusts the average based on the funding required in order to raise VMI's average faculty salary into the top five amongst Virginia public colleges and universities.

For FY 2018, VMI will provide all faculty with a three percent, state-initiated salary increase. Additionally, approximately \$30K will be used for promotion salary increases, approximately \$40K will be used to provide three faculty with distinguished chair/professorship salary supplements, and approximately \$130K in private funding for two chairs will be used to fund faculty positions and reallocate E&G funds for salary adjustments.

#4: “Right-Sizing”

With the addition of the Third Barracks at the start of the 2009-10 AY, the Corps of Cadets increased from approximately 1,200 to 1,500. However, there was no increase to the size of the faculty to accommodate the increased number of students. As a result, the Institute increased its use of adjunct faculty. The "Right-Size" Initiative identified 14 new full-time faculty positions by FY 2018 to support a Corps of 1,500. Subsequently, the Corps of Cadets continued to grow, and currently numbers approximately 1,700. As a result, a new “Right-Size II” study was completed in the fall of 2015 to determine if additional faculty are required to support this continued growth. Unlike the original study, which used adjunct demand to determine where new full-time faculty positions would be required, the new study examined faculty teaching loads across all departments. The VMI Applied Mathematics Department analyzed three years (12-13 AY to 14-15 AY) of teaching load information to develop a model that can be used to:

- identify teaching load imbalances between departments;
- model the possible impacts of faculty hires/position shifts as well as changes in student enrollment; and
- examine the results of these changes.

While the focus of Right-Size Study II was on faculty teaching load, the Institute also evaluated the number of Core Curriculum courses being taught by adjuncts as opposed to full-time faculty. Therefore, the addition of some term faculty (i.e., predominantly teaching, non-tenure track positions) will help achieve the secondary goal of reducing the reliance on adjunct faculty, and exposing freshmen to full-time faculty in their Core Curriculum courses. Based on the results of this study, an additional ten full-time faculty positions (two tenure track and eight term positions) are required to support a Corps of Cadets of 1,700 in addition to the 14 positions identified in the original Right-Size initiative for a total of 24 new positions.

The cost of these positions will be covered through a combination of new funding, reallocation of resources (adjunct faculty funds and “turnover” savings from replacing retiring faculty) and private funds. All privately funded positions will eventually be “bought back” (i.e. converted to E&G), including seven full-time faculty positions currently funded by private grants.

2017 Update:

In FY 2018, two new full-time, tenure track positions were added – one each in the departments of Computer and Information Sciences and Psychology. Additionally, one privately funded position in the English, Rhetoric, and Humanistic Studies Department was converted to E&G funding. The cost of these new positions and of converting the one privately funded position is approximately \$265,000 all of which was supported by reallocation from “turnover” savings. With these additions, 16 of the 24 positions identified in the Right-Size Studies are in place, six of which are privately funded. VMI is on track to have all 24 positions in place by FY 2022.

#5: Math that Matters: Contextualizing Mathematics in a Computational World

In order to prepare today's graduates to succeed in a world where rapidly changing technology is transforming how individuals relate to and function within their environment, the Institute considers it a priority to ensure that all cadets become literate in the language of math, and computational technology and its application in solving real-world problems. Most STEM majors at VMI are exposed to programming and mathematical problem-solving through the course work in their curriculum, but approximately 50-60 percent of cadets could benefit significantly from additional course work in these areas. Therefore, this initiative focuses on improving the common core math requirement by developing a new, two-course math sequence that will include technology-driven mathematical topics and basic computational skills.

This innovative curriculum will emphasize the contextualization of mathematics within a cadet's discipline by incorporating contemporary pedagogical methods (e.g. problem-based learning) and modern problem-solving tools into one powerful educational package. This new pedagogical paradigm will better prepare VMI graduates to: (a) think critically and solve complex problems within their disciplines that require significant computational, data analytic, and critical thinking skills, (b) better understand the nuances of how technology informs and affects interactions with the environment, and (c) better negotiate the technological-mathematical terrain that pervades the modern world.

Stated simply, the idea is to have cadets, particularly non-STEM majors, engage with math in ways that are meaningful and useful for solving domain-specific problems using computers. Active problem-based projects will be designed and used to apply mathematical skills to realistic math problems including statistics and modeling. In addition, basic computational thinking skills will be developed using software, like Microsoft Excel, in order to teach cadets to solve the problems and understand the capacity and the limitations of both the model and technology. These projects will be developed through collaborations between the Applied Mathematics Department and other departments whose cadets will be required to take this new math core sequence.

VMI will undergo reaffirmation of accreditation by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) in 2017. The concept of quality enhancement is at the heart of the SACSCOC philosophy of accreditation, and each institution that seeks reaffirmation of accreditation is required to develop a Quality Enhancement Plan (QEP). Math that Matters was submitted as the QEP for the Institute in September 2016. It will undergo the approval process through June 2017.

2017 Update:

VMI was successful in its decennial bid for reaffirmation of accreditation by the Southern Association of Schools-Commission on Colleges (SACSCOC). In March 2016, the Institute submitted the Compliance Certification, which was reviewed by a SACSCOC Off-Site Review Committee in April 2016. VMI received the Off-Site Committee's report

in May 2016, which included nine findings of non-compliance - an excellent result. In September 2016, VMI submitted a Focused Report in response to the Off-Site Committee's report, addressing the nine findings. In October 2016, the SACSCOC On-Site Review Committee reviewed VMI's Compliance Certification, Focused Report, and QEP on the VMI Post. Their findings were minimal, with no recommendations for all but one of the SACSCOC Principles, CR 3.7.1., Faculty Qualifications. Notably, VMI's QEP received no recommendations, a result that nearly 60% of institutions fail to achieve.

In response to the On-Site Committee's findings, VMI submitted a Response Report in February 2017. In June 2017, the SACSCOC Board of Trustees reviewed the Response Report and determined that actions taken in response to the on-site committee's findings achieved compliance with CR 3.7.1. In sum, the Institute was reaffirmed without additional reporting requirements.

Implementing the "Math that Matters" strategy within the VMI Core Curriculum is progressing well. The strategy is built around a contextualized curriculum or "modules." Development of these modules has begun and, as of this writing, nine modules are complete and seven are in-progress. A Summer Institute has been scheduled where another six modules will be developed. This activity should round out the majority of the curriculum. Additionally, in spring 2017, VMI hosted a guest speaker, Dr. Brett Jones, a professor of educational psychology at Virginia Tech and leading expert in academic motivation, a key element of the Plan's curriculum design, implementation, and evaluation.

Several components of the course sequence are in the early stages of development. These include the process for layering assessment onto the courses, piloting of modules prior to course launch, development of a textbook to accompany the course and scheduling the 2018 Summer Boot Camp where Applied Math faculty will be trained on this new pedagogical approach.

VMI's next major SACSCOC report, the 5th Year Report, is due in 2021 and will provide an update on the progress of the QEP, as well as demonstrate continued compliance with a fraction of the Standards.

#6: Financial Aid

Background

In 2016-17, VMI awarded over \$25 million in grants and scholarships to include Federal (Pell Grant and Supplemental Educational Opportunity Grant), State (VSFAP-VGAP, COMM, and State Cadetship), ROTC (Army, Navy, Marine Corps and Air Force) and institutional aid. Private and institutional aid accounted for over \$12 million and ROTC scholarships for over \$10.7 million (approximately 26% of cadets qualified for ROTC scholarships in 2016-17).

VMI projects an enrollment for Fall 2017 of 1725 cadets consisting of approximately 1086 in-state cadets (63%) and 639 out-of-state cadets (37%). As of 21 June 2017, 39.4% of in-state cadets (428/1086) and 60.3% of out-of-state cadets (385/639) have established demonstrated need.

The annual percentage of in-state cadets and out-of-state cadets qualifying for need-based aid is approximately 40%-45% and 60%-65% respectively.

Policies and Commitment

VMI strives to meet 100% of the demonstrated need of in-state cadets with grants and loans for those who meet the March 1st application deadline and as funds are available. The Institute continues to maintain a “need-blind” admissions policy ensuring that no qualified applicant is denied admission based on his or her ability to pay. See Part II Item C of VMI’s Six-Year Plan for a description of its Financial Aid Plan to include addressing the impact of tuition and fee increases on low-income and middle-income cadets and their families.

VMI’s Vision 2039 includes a goal of commissioning 70 percent of graduates into the Armed Forces so VMI continues to emphasize and support cadet efforts to participate in ROTC scholarship and other military-based aid programs.

2017 Update:

Financial aid resources provided to “needy” in-state cadets included \$1,016,240 of State General Funds (VSFAP-Virginia State Financial Aid Program) in the 2016-17 AY; the total projected for the 2017-18 AY will also be \$1,016,240.

Of the 214 in-state cadets who graduated in 2017 (1 July 2016 to 30 June 2017) 115 or 54% graduated with Federal loans (Direct Subsidized/Unsubsidized and Perkins Loans). Their average debt was \$18,463.

#8: VMI's Center for Undergraduate Research (V-CUR)

The VMI Center for Undergraduate Research (V-CUR) was established to more fully integrate student scholarly inquiry into the VMI experience. The program was originally founded on the premise that the most meaningful academic experiences of college students come through one-on-one interactions with faculty mentors outside the traditional classroom environment. Through the growth of V-CUR, cadets presenting research at regional and national venues, VMI's co-hosting of national and regional undergraduate research conferences, and publications about V-CUR in the Council on Undergraduate Research Quarterly, have made a significant contribution toward the Vision 2039 goal of improving VMI's academic reputation as a premier undergraduate college in America.

V-CUR provides grants for student summer research projects. The Center is privately funded at about \$180,000 annually. VMI faculty are engaged in externally funded research with approximately \$350,000 of funding received annually in support of these projects. As a result of these projects, the VMI faculty make approximately 100 scholarly presentations at conferences in the U.S. and abroad each year.

2017 Update:

V-CUR's annual funding has increased by \$10,000 to \$190,000 from a private grant, which is expected to continue for the foreseeable future. The majority of this funding supports the Summer Undergraduate Research Institute (SURI), which in turn supports approximately 50 cadets engaged in undergraduate research with a faculty mentor each summer. VMI faculty remain engaged in both internally and externally funded research.

The additional \$10,000 in annual funding supports a new SURI subprogram called AIM - Applied Industrial Mathematics. Under the AIM program, cadet teams and faculty advisors are joined with a sponsor, such as a (usually local) business, industry, or government agency and use applied mathematics to solve a problem presented by the sponsor. This partnership is beneficial to all involved. In developing mathematical solutions for the sponsor, the cadet participants are exposed to the practical applications of mathematics and computer science in a "real world" setting, and they acquire knowledge that will aid them in their senior capstone project and later in life, to include contact with employers.

#9: Math Education and Resource Center (MERC)

The Math Education and Resource Center (MERC) was created to specifically address cadets' performance in mathematics with a particular emphasis on incoming freshmen. As VMI continues its efforts to maintain its goal of 50 percent of all graduates coming from STEM majors, it is essential that students who are poorly prepared in mathematics as they leave the public secondary schools receive instruction and coaching to find success in college-level mathematics, especially math required for technical disciplines.

The MERC is directed by a full-time mathematics faculty member who also teaches two sections of mathematics courses. The director is well versed in mathematics pedagogy, possessing a background in Mathematics Education. The director has the ability to assist the department in introducing more historical dialogue into the mathematics curriculum. The MERC employs both professional and cadet tutors who work with cadets one-on-one to develop mathematics skills, to understand strategies useful in solving mathematics problems, to guide efforts in completing course assignments, and to prepare for tests and final exams.

With the support of a private funding grant of \$666,000 covering a five-year period, the MERC began offering services through the Open Mathematics Laboratory (OML) in Spring 2011 and was fully implemented by Fall 2012. As a result of the rapidly increasing demand by cadets for the OML's services during the first year and a half of operations, the OML was moved to a new space in the Preston Library four-times larger than its original space for the start of the 2012-13 AY. An operating budget was established for the MERC, and a full-time tutor supervisor position was established, both supported by E&G funds. State funding may be required to replace the private funding grant when the end of the term approaches.

2017 Update:

The level of success with the Mathematics Education and Resource Center (MERC) and the Open Math Lab (OML) has remained high during the transition year maintaining a professional level of mathematical involvement in the community, and the OML utilization numbers increased during the spring semester once the regular operation hours resumed.

In the 2016-17 AY, there were approximately 1884 independent OML cadet visits, with approximately 2560 hours of tutoring provided. The average OML visit lasted for 1.35 hours and there were approximately 300 unique cadet visitors during the fall semester and 165 unique cadet visitors during the spring semester. The OML succeeded in helping cadets who had a midterm grade of A or B maintain their grade throughout the semester and also helped to improve the final grade of those cadets who had earned a midterm grade of D.

The major accomplishments for the MERC/OML include extending the number of cadet tutor hours, providing specialized hours for probability and statistics tutoring, and hosting the American Mathematics Competition (AMC) for 8th, 10th and 12th grade students. The

main challenge for the OML had been the limited tutoring budget. With an expanded budget, the OML can promote more mathematics faculty to provide specialized tutoring hours, or have on-call tutors when it is particularly busy.

The initial private grant funding for the MERC/OML ended in the spring of 2017, and it was approved for an additional five years with an increased operating budget of \$440,000. (The original 5-year grant of \$666,000 included \$425,000 for the Director position, \$12,000 for start-up equipment, and only \$229,000 for operations.) The new grant also includes funding to support implementation of a new survey software system to better track cadet interaction with the OML, which is especially helpful for assessment and improvement.

#11: Technology Enhanced Instruction

VMI's integrated academic and military life program requires cadets to live on campus and to meet specific accountability requirements throughout the day. Accountability requires that cadets attend all of their classes. To accommodate the military demands of the VMI experience, classes are scheduled between the hours of 8 a.m. and 4 p.m. – the academic day. Consequently, enrollment in VMI courses reflects actual attendance and all classes are taught during the prescribed academic day. This model is inherent to VMI's mission and it does not facilitate independent distance learning.

Classrooms and Labs

VMI maintains 92 Smart classrooms and maintains e-instructional resources in nearly all other classrooms. These facilities are fully supported by VMI's Information Technology (IT) Department, which also maintains nine general-purpose computer laboratories to provide cadet access to specialty software applications. The engineering departments employ computer aided design (CAD) and other design and manipulation software applications for instruction and research. The Mechanical Engineering (ME) Department uses a computational fluid dynamics laboratory, and all VMI science and engineering instructional and research laboratories are equipped with state-of-the-art technology, including capabilities that are not readily available elsewhere in Virginia. The capabilities in many of these laboratories were acquired by NSF, DOD, DOE, private industry, and foundation funding.

VMI Statement on Faculty Expectations

Faculty are encouraged and expected to use appropriate technology in the development of their courses as stated in the VMI Statement on Faculty Expectations. Approximately 50 percent of the Institute's courses use the course management software, *Angel*, including VMI's capstone courses, *Civilization & Cultures*, required for all cadets. In addition, course instructors are encouraged to develop websites to accompany their courses and many distribute and collect information through drives on the VMI network and through electronic reserves in Preston Library. For many courses, but specifically for all *Civilizations & Cultures* courses, *ePortfolio* is a required, integral component that is used for both teaching and reflective learning fostered by the use of technology.

Discipline-Specific Technology

Academic departments have integrated technology specific to their disciplines. For instance, the natural sciences, math, and engineering departments all maintain state-of-the-art instructional and/or research facilities (many that are not common to undergraduate institutions). There are numerous examples of the use of technology, including an open source textbook available in electronic form and used in the core sequence of Calculus; the Mathematics Education and Resource Center use of the SMART board E70 (which is like a giant iPad) for tutoring and workshops; and the use of circuit-modeling computer aided design by the Electrical and Computer Engineering (ECE) program in approximately 40

percent of its courses. The ME and ECE programs have used labs with computer-numerically-controlled (CNC) subtractive rapid prototype capabilities for over a decade and continue to acquire specialized instructional technology equipment. ME employs a vast array of computational tools including Solid Modeling software, Finite Element Analysis and Computational Fluid Dynamics for instructional use and research. In addition, the department maintains 3D printing facilities, a computer numerically controlled plasma cutting machine and machine tools that enable physical prototypes of computer generated designs to be created. ECE uses a variety of discipline-specific software programs for design, fabrication, and characterization across the multiple sub-disciplines of the program, including a software suite and a prototyping platform for microcontroller design, and characterization software for semiconductor devices. ECE also uses multiple 3D printer and laser cutting technologies.

Information Technology Support

VMI's IT Department provides technical support for student-owned computers with a Help Desk in Barracks. The VMI Post has 100% WIFI coverage and cadets also have access to wired data ports in many academic buildings, including Preston Library, and in their rooms in Barracks. VMI is an active participant in RANA (Rockbridge Area Network Authority) and provides up to 1,500 Mbps of Internet bandwidth to meet the demand of its 1,700 cadets.

2017 Update:

VMI continues to enhance its science and engineering instructional and research laboratories and ensure they are equipped with state-of-the-art technology. During FY 2017, VMI invested approximately \$700,000 in laboratory equipment using a combination of State Equipment Trust Funding, local funds, and E&G funds. Funding allocations were based on the recommendations of the Committee for Enhanced Learning Environments, which was established to develop a strategic plan for enriching the opportunities for VMI cadets and faculty to engage in innovative educational experiences.

The number of smart classrooms at VMI has increased from 88 to 92, and the number of general-purpose computer laboratories has increased from seven to nine. Approximately 67 percent of the Institute's courses now use the course management software *Angel*, and Internet bandwidth has been upgraded from 1,000Mbps to 1,500Mbps.

#12: “New Directions” Grant Program

Committed to excellence in teaching and scholarly endeavors, the VMI faculty actively pursues funding to support innovations. However, the competition for external grant monies has become fierce as granting agencies are overloaded with funding requests, and proposals describing new research or pedagogical directions are often not funded without significant preliminary data. Strong, well-developed proposals sent to national funding agencies are routinely declined on the first attempt. As a result, the implementation of ideas that would enhance the academic program is delayed by a year or more, and critical momentum is lost.

In light of the current difficulties in obtaining external funding, the New Directions in Teaching and Research grants program was launched in FY 2012 through a private funding source. This program fills a critical need for monies to enable faculty to implement new ideas and, when appropriate, to gather data to strengthen proposals for external support.

The program promotes innovation and collaboration in teaching and research, and funds are awarded annually through a competitive proposal review process with individual awards ranging from \$10,000 to a single award of \$100,000. Successful proposals include the potential for continuing longer-term funding through alternative private sources, but may ultimately result in requests for state funding where projects directly serve the Commonwealth's interests.

2017 Update:

Since the inception of the “New Directions” program in 2011, 13 awards have been made totaling \$563,300. These funds have been used to purchase equipment to be used in new areas of research, and to support new academic initiatives. These initiatives include creating an electronic calculus textbook, developing a new Exercise Science Minor, and establishing an international environmental biological research collaboration with the Federal University of the Amazon.

#13: Engineering Graduate Program Research Agreements

VMI has developed some and is pursuing other agreements with Virginia Commonwealth University (VCU) and Virginia Tech engineering departments. These agreements will share laboratory facilities and provide internship and research opportunities for undergraduate and graduate students.

An agreement with the VCU College of Engineering established a summer research program involving VMI rising seniors coordinated with collaborative research between VCU and VMI faculty. Initially limited to the Mechanical Engineering Department at each institution, the VMI Physics & Astronomy and the VMI Chemistry Department have also participated in various aspects of this agreement.

An agreement with Virginia Tech involves the Institute's environmental engineering programs. VMI graduates who attend Virginia Tech for graduate school in environmental engineering use the VMI Environmental Engineering Laboratory to pursue their graduate research work under the direction of a VMI faculty member as their graduate advisor.

2017 Update:

The current collaborative research programs with the VCU College of Engineering and Virginia Tech are ongoing and active. A draft agreement between the VMI Department of Physics & Astronomy and the VCU Department of Physics similar to the existing agreement between VMI and the VCU College of Engineering has been reviewed by VMI's Strategic Partnerships Committee and will be returned to VCU's Physics Department for review and consideration.

#14: Articulation Agreements

VMI has developed articulation agreements with 14 Virginia universities to create incentives for cadets to graduate and pursue advanced professional and graduate degrees and certificates, and the Institute is pursuing additional agreements with other Virginia universities. This program is directed at attracting qualified students and improving retention and allows students the opportunity to plan their academic progress from community college to four-year college to graduate school.

2017 Update:

All 14 MOUs with Virginia universities remain in effect. While this narrative focuses on agreements with Virginia institutions, VMI has 25 partnerships with graduate schools nationally.

#15: Increasing STEM Majors

The VMI Core Curriculum, which defines coursework required of all VMI students, includes a two-semester sequence in a laboratory science (eight credit-hours in Biology, Chemistry, or Physics) and a two semester sequence in mathematics (six credit-hours), regardless of the major. As a result, every VMI graduate has a basic background in science and mathematics.

Revisions to curricula in several majors have been implemented since the 2011-12 AY to respond to cadet interests with the intent of attracting additional majors and improving retention. The Biology Department established a concentration in Ecology, Conservation, and Organismal Sciences (ECOS) for cadets who wish to explore field-based and organismal disciplines of biology, including plant and animal biology, conservation, and ecology.

The Computer Science program was transformed into a Computer and Information Sciences program designed to produce graduates prepared for careers influenced strongly by a firm understanding of the role of technology and its place in military, for-profit and not-for-profit career environments.

Beginning in the fall of 2014 (Class of 2018), the Psychology Department eliminated the B.A. degree in Psychology and offers only a B.S. degree. The B.S. Psychology curriculum has a strong foundation in science and research methods, and has firmly established the VMI Psychology program as a STEM major.

In addition to curricular changes, an Enrollment Management Committee was established in the 2012-13 AY to develop policies and procedures to address the unequal distribution across majors at VMI in order to achieve a better balance of STEM and non-STEM majors.

2017 Update:

One of the recently adopted curricular and enrollment management initiatives has been targeting new cadet admissions at 60% STEM majors and 40% non-STEM majors. Bringing in new classes at 60/40 allows for the historical 10% attrition from STEM majors over four years in order to maintain the balance of at least 50/50.

Transformation of the Computer and Information Sciences (CIS) Department continued, significantly increasing the demand for this program within the Corps. During the 2016-17 AY, a new multi-disciplined, Cyber Security minor was implemented.

In February 2017, the CIS Department and VMI also hosted the inaugural Commonwealth Cyber Fusion and Virginia Collegiate Cyber Cup Competition for co-chairs Governor Terry McAuliffe and Senator Mark Warner. VMI is also scheduled to host this event in February 2018.

As a result of the transition from an emphasis on computer programming to Computer and Information Sciences and Cyber Security, enrollment in the Computer Science major has increased from 46 in the fall of 2012 to 91 in the fall of 2016 – almost a 100 percent increase. In order to accommodate this demand, a fifth full-time, tenure track position was added starting in August 2017.

Additionally, VMI continues to enhance the teaching and research capabilities of the STEM department labs by investing in state-of-the-art equipment as described earlier in the “Technology Enhanced Instruction” strategy.

Based on Fall 2016 enrollment figures, the continued emphasis on increasing STEM majors is showing positive results as 58 percent of cadets were enrolled in STEM majors.

#16: Learning Services Program

VMI expanded its Learning Services program to address student performance at all levels. Learning services had been provided to all cadets seeking assistance, but the scope of these services and their reach was limited by staffing.

Learning Services focuses attention on cadets in both general and specific ways. General learning services programs involve skills and strategies that are characteristics of successful college students. These include services that enable cadets to read-to-learn, take useful class and study notes, efficiently manage their time, prepare for tests and exams to optimize success, and apply effective test-taking strategies. Specific learning services involve close engagement between cadets and learning services staff to augment course instruction and cadet-faculty interaction through activities such as small group study sessions, weekly academic success programs, monthly workshops, and individual consultations.

A Director of Learning Services was hired at the start of the 2011-12 AY, and she has developed a network of programs and services designed to facilitate cadets' academic success throughout their cadetship. These programs help cadets develop essential skills, such as time management, effective study habits, and how to work with faculty. Helping first year cadets make the transition from high school to college-level academic work is of particular emphasis in these programs. This emphasis led to the development of a program called the "First Year Initiative," which was initially piloted during Fall 2012 through a \$23,000 "New Directions" grant (described earlier), and has been subsequently supported by an annual budget of \$2,000 from E&G funds so that the pilot program may continue.

A private funding grant of \$750,000 covering a period of five years starting in 2012 supported expansion of the Learning Services program and an increased staff. The program has expanded services to assist all cadets in achieving higher levels of academic success. The program provides particular support to cadets enrolled in high-need majors, such as science and engineering, and in traditionally difficult courses such as the core curriculum world history sequence and introductory language courses. As the program matures and the end of the private funding term approaches, state funding may be required for the program to continue.

2017 Update:

In August 2016, a new Director of Learning Services was hired to establish a new mission for the Learning Services Program of facilitating cadets' academic success and timely progress toward a degree. Toward this mission, the Program:

- Provides advisors the information and training necessary for them to guide their advisees;
- Coordinates course-specific group study sessions;
- Identifies and coordinates need-specific learning skills programs to be offered to the Corps;

- Serves as Dean's representative to the S2 (cadet academic staff) by meeting regularly to train and coordinate with them as they lead their peers in learning and support programs.

Additionally, the new Director has worked to enhance the Group Study Session (GSS) program by offering course-specific peer tutoring to cadets enrolled in traditionally difficult courses, such as the core curriculum world history sequence and introductory language courses as well as major-specific courses taken by upper class cadets. The Baldrige Reading & Study Strategies program was offered to interested cadets during the Spring 2017 semester and will be offered again to future cadets attending the Summer Transition Program. In addition, the Learning Services Program will offer a Strategic Planning Workshop each semester to provide cadets with the framework of a comprehensive academic strategy that will assist them in having a highly productive VMI experience. Programs and services are designed to facilitate cadets' academic success throughout their cadetship.

A private funding grant of \$164,300 covering a period of five years starting in 2017 will continue to support cadet facilitator staffing and faculty support for the GSS program. The grant amount is considerably less than the initial five-year grant primarily because the Director position, originally funded by the grant, is now supported by E&G funds. Additionally, the "First Year Initiative" program, as well as some other programs previously offered by Learning Services, were discontinued as they did not fit within the revised mission.

#17: Sponsored Programs Administrator

VMI established a privately funded Sponsored Programs Administrator position in 2003 to assist faculty in competing for extramural grants to support research and academic initiatives. The impact this position had on providing resources for the academic program is evidenced by the fact that the average amount of extramural funds expended per year since the establishment of this position increased from \$169,002 over fiscal years 1999-2003 to \$465,910 over fiscal years 2004-2010 – a 176% increase. This position was converted to E&G funding in FY 2014.

2017 Update:

Sponsored Programs activity continues and with sponsored programs spending of approximately \$400,000 annually. With the Sponsored Programs Administrator position having been institutionalized and converted to E&G funding, all required actions in support of this strategy have been completed, and it will be removed from the Six-Year Plan going forward.

#18: Year-Round Facility Use

VMI Post

The VMI Post is a relatively small campus and includes the following:

- Barracks and Mess Hall that provide housing and food service for approximately 1,700 VMI cadets. All cadets are required to live in the Barracks and eat in the Mess Hall. The Barracks includes a barber shop, tailor shop, book store, military store, post office, commercial-scale laundry, armory, and café.
- Eight academic buildings including Preston Library. The academic buildings provide faculty and administrative support offices, instructional and research laboratories, classrooms, student study areas, and spaces for other academic support functions.
- Administrative offices located in the main administrative building and a few smaller structures such as converted residences.
- Athletic program venues and offices.
- A conference center.
- A physical plant.

Academic Program

The VMI academic program schedule includes the following:

- Two regular semesters, each lasting 15 weeks – 14 weeks of instruction and one week of final exams. All cadets must enroll full time for each semester and must complete at least 24 credit-hours of academic work each academic year. During the regular semesters, class enrollment is limited to VMI cadets and, by special agreement, Washington & Lee University students. VMI's ROTC programs also enroll students from Mary Baldwin College, Southern Virginia University, and Washington & Lee University.
- Two summer semesters each lasting five weeks. Summer sessions are open enrollment and serve the educational interests of Rockbridge County and surrounding area residents. Approximately 70 different courses are typically offered during the summer semesters. Over the past five years, total summer semester enrollment has averaged near 600.
- A summer transition semester for incoming freshmen of four weeks. Approximately 50 percent of the incoming freshman class of about 500 participate in the Summer Transition Program (STP) and take one course in biology, English, history, mathematics, or chemistry. All summer transition students are required to live in Barracks and eat in the Mess Hall.

Academic and Extracurricular Program Demands

Incoming freshmen participate in initial military training exercises two weeks prior to the beginning of the fall semester and the cadre of upper-class cadets who conduct the training

return from summer break one week earlier. For these cadets, this extends the fall semester to 18 weeks. During the summer, VMI also hosts numerous academic and athletic camps (resident and day camps), conferences and symposia, the Summer Undergraduate Research Institute, the College Orientation Workshop for at-risk youth, and other programs. Faculty use the winter, spring, and Thanksgiving breaks as uninterrupted periods for focused scholarly work and research. Consequently, VMI facilities are in constant year-round use.

Nearly one-third of VMI cadets are NCAA athletes and another one-third participate in organized club sports. VMI also hosts ROTC programs for all branches of the U.S. Armed Forces and all VMI cadets are required to participate in ROTC during their four years at VMI. The ROTC programs impose additional physical training requirements on cadets. This interest in and emphasis on athletics and physical fitness creates a heavy demand on practice and competition venues.

Cadet Life

The unique nature of cadet life ensures high use of VMI facilities. Cadets are required to attend all classes, march in formation to breakfast and dinner, and participate in physical and military training activities. Consequently, classrooms are full, all beds in Barracks are occupied, the Mess Hall is fully utilized, and nearly all other facilities operate at or near full capacity. Academic buildings experience significant use in the evenings as cadet study and undergraduate research space. Facilities use is expected to remain substantial, with some increasing burden, into the foreseeable future.

2017 Update:

Year-round use of VMI facilities remains substantial. Facility use during the regular academic year remains unchanged as the demands of the academic program, extracurricular programs and cadet life have remained unchanged. VMI continues to offer a summer program and the Summer Transition Program for new cadets. Enrollments remain high. Other summer programs, such as athletic camps (resident and day camps), conferences and symposia, the Summer Undergraduate Research Institute, and the College Orientation Workshop for at-risk youth, remain active.

#19: Shared Resources

In addition to the Engineering Graduate Program Research Agreements previously described, VMI is involved in several resource-sharing programs with other colleges and universities in the region.

Collaborative Programs with Washington and Lee University

Washington & Lee University (WLU) and VMI campuses share a common boundary. This close physical proximity enables the institutions to collaborate in several meaningful ways. For example, VMI has established a student chapter of Engineers Without Borders (EWB) which prompted WLU to establish an EWB club. Through a formal agreement, the VMI chapter and WLU club have completely integrated their activities. VMI and WLU also maintain an agreement to allow their students to enroll in courses at both institutions, which is particularly attractive to WLU students seeking engineering courses.

Shepherd Higher Education Poverty Consortium

VMI joined WLU, Berea College, Furman University, Middlebury College, Lynchburg College, University of Notre Dame, University of Arkansas Little Rock, and the College of Wooster in forming a national consortium to develop a curriculum and internship experiences that allow students to understand issues related to poverty in the United States. As partners forming the Shepherd Higher Education Poverty Consortium, these institutions promote civic engagement and research that improves local communities. VMI and WLU each offer classes consistent with the goals of the consortium with enrollment open to students from both institutions. The Consortium has continued to grow, and now also includes Baylor University, Bucknell University, Center College, The Cleveland Clinic Lerner College, Elon University, Hendrix College, John Carroll University, Marymount University, and Millsaps College.

ROTC Programs

VMI's offers ROTC programs for all four branches of the U.S. Armed Forces. Mary Baldwin College, Southern Virginia University, and WLU students interested in participating in an ROTC program do so by enrolling in the service branch of their choice at VMI. The ROTC programs are important to these students in that they provide substantial scholarship opportunities to help them meet tuition and other educational expenses. VMI waives tuition for non-VMI students who enroll in a VMI-sponsored ROTC program. About 50 non-VMI students typically enroll in VMI ROTC programs each year.

Open Enrollment Summer Semesters

The two VMI summer semesters are open enrollment and serve the educational interests of Rockbridge County and surrounding area residents as well as cadets. Approximately 70

different courses are typically offered during the summer semesters. Total enrollment is approximately 600, of which about four percent are not VMI students.

Transfer Credit

VMI accepts International Baccalaureate, Advanced Placement and Cambridge Examination credits and transfer credit from other accredited colleges and universities. The Institute also allows cadets who are within 10 credits of completing their VMI degree requirements to do so at other institutions. These policies serve the needs of cadets, allowing them to seek a wider range of course offerings by effectively expanding VMI's academic resources.

VMI Preston Library Programs

VMI's Preston Library collaborates at the local, regional, state, and national levels in multiple ways. It maintains formal, reciprocal borrowing agreements with Washington & Lee University, Southern Virginia University, and the Rockbridge Regional Library. At the state level, since 1994, Preston Library has participated in VIVA, the Virtual Library of Virginia. Through this participation, the Library is able to obtain access to large scholarly collections and resources due to beneficial consortial purchasing agreements. Preston Library adheres to the VIVA Interlibrary Loan Guidelines that require cooperation with other VIVA institutions to share VMI collections using express mail (books) and electronic document delivery (articles). At the regional and national level, Preston Library is a member of Lyrasis and OCLC, which provide online cataloging and Interlibrary Loan services as well as consortial pricing for some online databases. The Library also participates as a selective depository library in the Library Programs Service of the Government Printing Office.

2017 Update:

VMI disestablished its student chapter of EWB and established an independent club called Keydets Without Borders (KWB) with a similar mission. However, due to scheduling conflicts with WLU's trimester schedule and VMI's two-semester schedule, the two schools have not been able to collaborate on study abroad missions in recent years. However, the two schools are in continued discussions on a new collaboration for study abroad missions organized through the local Rotary chapter. Additionally, VMI's Civil and Environmental Engineering Department is exploring a collaboration with WLU that would provide WLU students access to VMI's material science laboratories to facilitate their participation in the American Society of Civil Engineers' annual National Concrete Canoe Competition.

All other aspects of this strategy remain in effect. Membership in the Shepherd Higher Education Poverty Consortium continues to grow, and the Consortium now includes the following members in addition to members listed above: Birmingham-Southern College, Juniata College, Niagara University, Ohio University, and the University of Vermont.

#20: Increased Degree Completion for Virginia Residents

Cadets who matriculate and then leave the Institute are allowed to reapply for admission within two years, with liberal exceptions for cadets who deploy to meet military commitments. For qualifying transfer students who are willing to conform to the rigors of VMI life, VMI does accept transfer credit from other colleges and universities and from community colleges. VMI also accepts International Baccalaureate, Advanced Placement and Cambridge Examination credits. Transfer students must complete a minimum of six semesters in residence at VMI. To provide scholarship opportunities for all students, including transfer students, VMI's ROTC programs offer three-, two-, and one-year academic scholarships and other incentives for students seeking a commission in the U.S. Armed Forces.

VMI offers two summer semesters and multiple study abroad opportunities that are open enrollment and serve the educational interests of Rockbridge County and surrounding area residents as well as cadets. Approximately 70 different courses are typically offered during the summer semesters. Total enrollment of all summer programs is approximately 600, of which about four percent are not VMI cadets.

2017 Update:

All aspects of this strategy remain in effect.

#21: Military Commissioning

Background

VMI possesses a proud tradition of educating citizen-soldiers, ready to defend the country in time of national peril. Toward this end, the Institute encourages all qualified cadets to pursue commissions in the Active Duty, National Guard, and other Reserve components of the U.S. Armed Forces. In addition, curriculum requirements for graduation include four years of ROTC instruction, regardless of a cadet's intention to seek a commission. This instruction provides valuable leadership training and positions the cadet to seek a commission should his or her plans change.

Financial Aid Component

As part of its efforts to assist cadets with financial aid opportunities and increase the number accepting commissions, VMI encourages cadets to seek military financial assistance. In addition to those who matriculate with a four-year ROTC scholarship, VMI assists cadets with seeking three-year, two-year, and one-year scholarships. The number of cadets commissioned at graduation is significantly influenced by the number of ROTC scholarships awarded. Over the past five years, over 80 percent of cadets accepting commissions received ROTC scholarships.

Commitment to Maintenance of Effort

VMI is committed to maintaining a high commissioning percentage as a part of its Vision 2039 Strategic Plan. Since the inception of Vision 2039, the percentage of graduates accepting commissions has risen markedly from less than 40 percent in 2003 to over 50 percent for the 2017 graduating class.

The Commonwealth benefits significantly from individuals who accept commissions, complete their service obligations, and return to the state to pursue employment in the professions of their choice. These young officers return to become productive members of the state's workforce with a level of maturity and leadership acumen unsurpassed by their peers. The cadets benefit in that many receive scholarship assistance while in college and all are gainfully employed upon graduation. Likewise, their time in the service offers them invaluable training that is attractive to employers.

2017 Update:

As noted above, the commissioning percentage for the class of 2017 was over 50%. The commissioning percentage for the class of 2016 was 49%. The five-year average for the classes of 2013 through 2017 is approximately 48%, up a percentage point over the last reported five-year average.

#22: STEM Conference Series

VMI's Center for Leadership and Ethics developed a series of annual conferences to address STEM education issues. The first conference was held in Fall 2012. The Center's conference series is a public-private partnership.

The mission of the VMI STEM Education conference series is to invest in teachers as learners and professionals in order to impact students. VMI's affordable STEM conferences provide practical, hands-on workshops offering ideas and activities that educators can immediately bring back to the classroom. Each year, the conference has a concentration on a particular aspect of STEM. The 2014, 2015 and 2016 conferences were sold out with attendance capped at 300 to ensure small, hands-on workshops. Participant surveys have given the conferences a 95 – 98% satisfaction rating.

Participating teachers and administrators are from across the state of Virginia. The current focus is on grades 3 – 8, as those educators have the opportunity to instill students with a confidence in their math abilities and an appreciation for science that can lead to their pursuit of STEM classes in high school and in college majors. By giving teachers the tools and knowledge they need to encourage their students in STEM, this conference leverages direct contact with 300 teachers into impacting approximately 6,000 students (average of 20 students per class).

The inaugural 2012 conference focused on “Mathematics as the Gateway to STEM Success” since one of the fundamental reasons students fall short in STEM classes and careers is they lack an understanding of and interest in mathematics. Over 580 individuals registered for this conference, the vast majority being K-12 administrators and teachers and high school students.

With lessons learned from the first conference, the 2013 conference, “Science with the Future in Mind,” limited attendance to teachers and administrators, drawing over 280 participants and featured workshops such as Unlocking the Mysteries of the Human Brain; the Science of Scent; Collisions, Catalysts, & Activated Complexes; and many others. Author Steve Spangler was a featured speaker.

Engineering was the principal emphasis of the 2014 STEM conference, with participation focused on teachers and administrators in grades 3 – 8, and emphasis placed on hands-on workshops with easily replicable lesson plans. Speakers included robotics expert and *Mythbusters* television host Grant Imahara and biomedical engineer Nicole Hastings. Titled “Engineering Ingenuity: Math and Science Concepts in Action,” the conference drew nearly 300 educators from across the Commonwealth.

The 2015 conference theme was “Hands-on STEM: Technology and Integrated Project Based Learning,” emphasizing the “T” for technology in STEM education, while continuing to offer programming covering math, science and engineering. The keynote speaker was Dr. Jeff Goldstein, Center Director for the National Center for Earth and Space Science Education, a nationally recognized science educator and astrophysicist. Two other

plenary speakers were Dayna Laur, an expert in project-based learning, and Dr. Arthur Benjamin, Smallwood Family Professor of Mathematics at Harvey Mudd College, a professional magician, and one of the world's fastest mental calculators.

2017 Update:

The fifth annual STEM conference held in October 2016 was entitled “Math: The Roots of STEM” and offered more than 50 workshops. It also featured two prominent speakers: Christine McKinley and Dr. Tim Chartier. McKinley is a licensed mechanical engineer and host of the History channel’s series “Brad Meltzer’s Decoded” and author of *Physics for Rock Stars: Making the Laws of the Universe Work for You*. Dr. Chartier is Professor of Mathematics and Computer Science at Davidson College and specializes in sports data analytics. He is also the author of *Math Bytes: Google Bombs, Chocolate-Covered Pi, and Other Cool Bits in Computing* and is a professional mime.

The 2017 VMI STEM Education Conference will emphasize science and is scheduled for October 3-4. The keynote speaker is Leland Melvin, former NASA Astronaut, scientist and engineer. Virginia Secretary of Education, Dr. Dietra Trent, has been invited as the closing keynote speaker.

#23: Efficiency Reforms

Energy Savings

VMI strives to keep both energy use and energy costs down through a variety of measures. Examples include upgrades to lighting and lighting controls in multiple facilities making them more energy efficient, installation of sub-metering capabilities across Post to allow for more accurate monitoring of energy use and to assist in identifying inefficient facilities and systems, and the use of the sub-metering system in various academic endeavors in order to increase energy awareness in the VMI community. VMI models and pre-buys most of its natural gas in advance, avoiding winter price spikes and curtailment penalties. VMI recently established a central HVAC operations center to allow for central monitoring and control of building temperatures and facilitate the use of automated energy reduction measures when facilities are not in use.

Managing Vacancies

VMI's policy is to require the Superintendent's approval to fill any vacant position to ensure that the position continues to be essential to VMI's mission and operation. Justification is provided in writing as part of the process before any vacant position is filled.

VASCUPP Cooperative Contracts

Cooperative Procurement

As a member of the Virginia Association of College and University Purchasing Professionals (VASCUPP), VMI contributes to and enjoys access to hundreds of cooperative contracts that provide volume pricing for goods and services. This volume pricing is much more favorable than VMI could procure with stand-alone contracts. In addition, the ability to use these cooperative contracts eliminates the need to administratively procure and manage many contracts allowing the VMI Procurement Services Office to function with limited staffing. If VMI did not have access to these contracts, there would be an immediate need for one or possibly two additional procurement professional positions at an estimated annual cost of \$60,000 to \$120,000.

VMI is also a member of the Virginia Higher Education Procurement Cooperative (VHEPC). Its purpose is to aggregate and leverage procurement requirements and resources resulting in a greater financial advantage from cooperative procurement. Current member institutions include George Mason, Old Dominion, University of Virginia, Virginia Tech, Virginia Commonwealth, College of William & Mary, James Madison, Radford, Virginia Military Institute, UVa Wise, Longwood, Mary Washington, and the Virginia Community College System. The VHEPC's focus is directed to commonly used goods and services unique to higher education and builds upon the strong foundation put in place through the Virginia Association of Schools, Colleges and University Purchasing Professionals (VASCUPP). The VHEPC has demonstrated that collaborative procurement has resulted in price reductions leading to increased savings by combining annual spend

and resource allocation, ultimately producing economies that reduce the resources (time, people, effort) required by a single institution. VMI has followed the recommendation of the Joint Legislative Action Review Committee (JLARC) by instituting mandatory use contracts that maximizes value-added standardization.

Capital Projects

Recently Cocks Hall and Cormack Hall have been remodeled to achieve LEED certification, which certifies that the buildings are more energy-efficient than similar buildings. The recently constructed Corps Physical Training Facility also achieved LEED certification, and utilizes a state-of-the-art cooling and ventilation system projected to consume 30% less energy than a conventional system.

2017 Update:

VMI continues to strive to keep both energy use and energy costs down. The Institute is currently working to integrate multiple building environmental control systems into a single platform to improve monitoring of building environments, facilitate identification and correction of abnormal energy usage, and thereby reduce energy consumption. VMI is also working with an Energy Performance Contractor to consider implementation of energy and water conservation projects that will reduce energy and water consumption in nearly every building on the Post.

#24: Commonwealth Cyber Fusion and Collegiate Cyber Cup Competition

In February 2017, VMI hosted the inaugural Commonwealth Cyber Fusion and Virginia Collegiate Cyber Cup Competition for co-chairs Governor Terry McAuliffe and Senator Mark Warner. Eleven colleges participated with 110 competitor and observer students, and the event included a cyber job fair, speakers and faculty roundtables.

The keynote speaker was Rick Gordon, Managing Partner at Mach37, a market-centric cybersecurity accelerator based in Herndon, Virginia. A panel discussion “Countering Cyber Threats: Government and Private Sector Responsibilities,” was moderated by Dr. Spencer Bakich, VMI Professor and director of its National Security Program. Featured panelists were Teresa Carlson, Vice President, Worldwide Public Sector at Amazon Web Services, and Dr. Aaron Brantley, Assistant Professor of Social Sciences at West Point and the Army Cyber Institute.

The competition portion of the event was hosted by The Virginia Cyber Range.

The second annual Commonwealth Cyber Fusion 2018 is scheduled for February 23 – 24, 2018 and will once again be co-chaired by the Governor’s office and Senator Mark Warner.

ITEM C. Financial Aid

VMI's Financial Aid Plan to support access for low- and middle-income students, including the projected mix of grants and loans, is described in the following pages.

**VIRGINIA MILITARY INSTITUTE
FINANCIAL AID PLAN**

Award Package Guidelines

Virginia Military Institute’s 2017-18 AY “packaging guidelines” funds up to 70% of the demonstrated need for non-Virginia cadets and 100% of the need for Virginia cadets who meet the March 1st application deadline and as funds are available. For both groups, loans (Federal Direct – Subsidized) are used to meet need. The maximum amount of subsidized loan is used based on the cadet’s year in college (\$3,500 1st year, \$4,500 2nd year, and \$5,500 thereafter up to the aggregate limit for dependent students of \$31,000 of which \$23,000 may be subsidized or need-based). In addition, for non-Virginian’s, Perkins Loans are also available for packaging. Perkins Loans may be offered to non-Virginians with demonstrated need at \$2,000-\$4,000/award. This long-standing need-based loan program is scheduled to be canceled effective, September 30, 2017. Packaging guidelines are reviewed annually to ensure consistency in financial aid awards, to ensure compliance with policies and procedures, and to mitigate, if possible, tuition and fee increases.

Low-Income and Middle-Income

VMI uses SCHEV guidelines which for 2017 define low-income families as a family of four with total family income of \$49,200 or less and middle-income as those with family income of \$49,200 to \$98,400. The low-income threshold represents less than 200% of the Virginia poverty level for a family of four while middle-income represents 200% up to 400% of the poverty level for a family of four. High-income families are defined as those with total family income greater than \$98,400 for a family of four, which is 400% greater than the Virginia poverty level.

Low-income	Total family income less than \$49,200
Middle-income	Total family income between \$49,200 and \$98,400
High-Income	Total family income greater than \$98,400

For the 2016-17 AY, 686 of the 1030 Virginia cadets enrolled applied for financial aid with 104 (9.8% of 1030) reporting total family income of \$49,200 or less and defined as low-income; another 169 (16.4% of 1030) reported total family income of \$49,200 to \$98,400 and defined as middle-income; the remaining 413 who applied for aid reported total family income above \$98,400.

For the 2016-17 AY, 494 Virginia cadets demonstrated financial need or 48.0% of the Virginia cadets enrolled. Of the 104 low-income cadets, all qualified for need-based financial aid. In addition, of the remaining Virginia cadets, all of the 169 middle-income and 227 of the 413 high-income cadets who applied for financial aid qualified for need-based aid.

Steps to Mitigate Impact of Tuition and Fee Increases

VMI takes many steps to mitigate the impact of tuition and fee increases on low-income and middle-income cadets. In addition to Federal and State need-based aid programs, VMI provides significant institutional resources to fund need-based scholarship aid for Virginia cadets. *VMI institutional aid funds the majority of need-based scholarship aid provided to all cadets.* VMI continues to use a significant portion of its restricted and unrestricted endowment to provide assistance to cadets who without such aid may not be able to attend the Institute.

Need-based grant and scholarship dollars were distributed as follows:

<u>Source</u>	<u>Low-income</u>	<u>Middle-income</u>	<u>High-income</u>
Federal	84.0%	16.1%	0
State	48.3%	37.1%	14.6%
VMI	27.4%	45.4%	27.2%

Total need-based institutional funds (\$6,207,390) exceed Federal and state funds combined (\$2,042,841), with over 72% of institutional need-based aid awarded to cadets from low-income and middle-income families.

Use of Loans

Of the 104 Virginia cadets defined as “low-income” 73 or 70.2% used a Federal subsidized loan with an average loan of \$4,029 for those who borrowed.

Of the 169 Virginia cadets defined as “middle-income,” 120 or 71.0% used a Federal subsidized loan with an average loan of \$4,422 for those who borrowed.

Of the 413 Virginia cadets defined as “high-income” and who applied for financial aid 128 or 31.0% used a Federal subsidized loan with an average loan of \$4,115 for those who borrowed. Many in the “high-income” category would not be eligible for the subsidized or need-based loan.

Those Virginia cadets defined as “low-income” rely less on loans than the other two groups as VMI is able to provide significant grant/scholarship aid to minimize loans.

<u>Loan Type</u>	<u>Low-income</u>	<u>Middle-income</u>	<u>High-income</u>
Subsidized	\$290,092	\$530,653	\$ 526,769
Unsubsidized	70,455	272,657	1,028,191
PLUS	<u>17,114</u>	<u>179,366</u>	<u>995,510</u>
Total:	\$377,661	\$982,676	\$2,550,470

Use of Tuition Revenue for Financial Aid

VMI uses a portion of its tuition revenue to fund need-based financial aid. In the 2016-2017 AY, tuition revenue used for need-based aid totaled \$1,015,562 for in-state cadets and \$2,652,415 for out-of-state cadets for a total of \$3,667,977. The total aid awarded represented 11.6% of total tuition revenue.

Tuition revenue used for in-state cadets is less than for out-of-state cadets due primarily to the following factors:

1. The State provides need-based aid for in-state cadets (\$1,016,240 in FY 2017)
2. VMI has significant private endowments that provide scholarships to needy in-state cadets
3. Approximately 40%-45% of in-state cadets qualify for need-based aid versus 60%-65% of out-of-state cadets
4. Out-of-state cadet tuition is almost four times greater than in-state tuition (\$32,770 versus \$8,461 for FY 2017); out-of-state tuition revenue comprised 70.1% of the total E&G tuition revenue in FY 2017 although out-of-state cadets comprised only 39% of the total Corps

Out-of-state cadet tuition in FY 2017 represented about 165% of the total cost of education, significantly exceeding the State minimum requirement of 100%. In-state tuition represented only about 43% of the total cost of education. Tuition revenue from out-of-state cadets has helped to mitigate the shortfall in State general funds in meeting its goal of funding 67% of the cost of education for in-state cadets. Out-of-state tuition revenue is significantly helping to minimize in-state tuition increases that would otherwise be necessary to make up this shortfall in State general funds.

To attract and retain out-of-state cadets, it is important that VMI provide sufficient financial aid to help meet their demonstrated need. VMI strives to meet 70% of this need and the use of tuition revenue is essential.

Item D. Evaluation of Previous Six-Year Plan

VMI has made significant progress in all of the strategies identified in its 2015/2016 Six Year Plan. The specific progress made in each of the strategies is described in “Item B. Strategies” under the 2017 Update portion of the narrative. This includes an explanation of how additional General Fund support, savings, and reallocations were used to further the strategies.

ITEM E. Tuition Rate Increases

FY 2017-2018

VMI's 5.0% in-state tuition rate increase for 2017-18 is below the 5.5% included in the 2016 Six-Year Plan Update. Several factors contributed to this increase. For FY 2018, VMI is projecting a decline of approximately 15 out-of-state cadets and an increase of approximately 45 in-state cadets. While overall enrollment is projected to increase slightly, this decline in out-of-state cadets is projected to reduce tuition revenue in excess of \$118,000 due to the out-of-state tuition differential. Another factor is the \$543,000 (approx. 5%) State E&G general fund reduction. A third factor is that VMI must fund its share (approx. 60%) of the 3% salary increase and 8.7% employer health insurance cost increase. Finally, VMI completed a State mandated biennial recalculation of its indirect cost rate which resulted in a lower rate, thereby resulting in a smaller recovery from the Auxiliary program to the E&G program. While this reduced recovery negatively impacted the E&G program, it allowed us to minimize increases in the auxiliary fee (all fees are mandatory at VMI) to 3.3%, resulting in an overall tuition and fee increase of only 3.7%.

FY 2018-2019 and 2019-2020

VMI's projects a 4.5% in-state tuition rate increase for both 2018-19 and 2019-20. Several factors contribute to these increases.

For FY 2019, VMI is projecting an overall enrollment decline of approximately 20 cadets compared to FY 2018. We expect FY 2020 enrollment to return to about 1,714, but still below the 1,725 projected for FY 2018. VMI enrollment fluctuates slightly each year primarily based on varying attrition rates, particularly for new cadets during their first year.

Another factor is full funding of the proposed 2% salary increase for teaching and research faculty, 1.5% salary increase for administrative faculty, and 1.5% bonus for classified employees. Salary compression is a significant factor at VMI, which impacts the ability to both attract and retain qualified employees at all levels.

The reduced indirect cost rate mentioned above for FY 2018 will continue to impact FY 2019 thereby resulting in a smaller recovery from the Auxiliary program to the E&G program. This reduced recovery has allowed us to minimize projected increases in the auxiliary fees (all fees are mandatory at VMI) to 3.0% for FY 2019 and FY 2020, resulting in an overall tuition and fee increases of only 3.37% and 3.35% respectively.

These increases assume no increase in employer health insurance costs or other fringe benefit rates. For FY 2017 and FY 2018, employer health insurance costs increased 9.6% and 8.7% respectively. If these costs were to increase comparably in FY 2019 and FY 2020, this could result in the need for additional tuition rate increases of 1% or more above the projections for both years.

F. Contributions to Economic Development

VMI's contribution to local and regional economic development can be seen along two major axes. The first is in its commitment to produce graduates who are in demand for their skills and leadership abilities. Secondly, VMI's position as a significant employer in the local community drives a series of programs which provide outreach to local and regional elementary and secondary students as well as programs which impact citizens and educators from across the Commonwealth.

Cyber security is one of the nation's and Commonwealth's top priorities. In order for Virginia to continue leading in this rapidly evolving space, it needs to develop a sustainable talent pipeline capable of providing skilled, industry-ready workers to meet the increasing demand. VMI recently transformed its Computer Science Program into a Computer and Information Sciences Program and established a minor in cyber security (described in the "Increasing STEM Majors" strategy). Additionally, VMI hosted the 2017 Commonwealth Cyber Fusion event bringing 120 Virginia college students together for a cyber job fair, keynote speaker, and panel discussions in addition to a "Jeopardy" style team cyber security competition.

In an effort to support early interest in STEM fields, VMI supports several outreach programs targeted at Virginia elementary and secondary students who may find a career in math and science. VMI's Applied Mathematics department hosts two separate American Mathematics Competitions targeting students from 7th- 12th grades. This year over 725 students participated in the competitions. VMI hosted the Virginia State Science and Engineering Fair, with participants from 12 regions across Virginia. In all, over 250 high school students and 70 educators and professionals from the Commonwealth came together to celebrate Virginia's successes in STEM fields.

Reaching more broadly, VMI's Center for Leadership and Ethics held the 5th annual STEM Education Conference. Three hundred educators and administrator from Virginia's elementary and middle schools joined to share ideas, best practices and educational opportunities. Returning to their respective schools, the ideas and inspiration shared at the STEM Education Conference impacted over 6000 students in Virginia.

In addition to support of current students of all ages, VMI has also hosted the Environment Virginia Symposium for many years. Almost 600 environmental professionals gathered in 2017 to enjoy the mutual exchange of ideas, best practices and knowledge. In addition to Continuing Education opportunities and networking, the Symposium offers career and recruitment opportunities for new and emerging "green" jobs throughout the Commonwealth.

ITEM G. Capital Outlay

Pre-planning will be completed in June 2017 for VMI's new Corps Physical Training Facilities (CPTF) Phase 3 (Aquatic Center). The project scope is for a new 60,000 square foot facility that will replace the current aging and undersized pool located in the Coker Hall Annex. Demand for access to the pool during the academic day and on nights and weekends has grown significantly with the growth in the Corps from 1300 to 1750 cadets. Physical Education uses the pool daily to teach basic swimming to all cadets, and to support a series of advanced swimming and lifesaving electives. ROTC uses the pool to train and certify contracted cadets for participation in advanced military training programs. The Commandant's staff has cadet club activities such as the scuba club, triathlon club, etc. that use the pool on nights and weekends. It is also used to support NCAA intercollegiate practices and competition.

Total project cost is anticipated to be approximately \$40 million. With a significant amount of private funds already committed to the project, VMI is planning to request the balance of the project funding in the 2018 Capital Outlay Budget.

The cost for operating the new Aquatic Center facility will be partially offset by the closure of the existing pool facility. The overall impact on cadet tuition and fees is yet to be determined.

ITEM H. Restructuring

Areas, issues, or specific items of additional authority that would be requested through legislation and/or renegotiated management agreements include:

Travel and Lodging Exceptions; Small Purchase Credit Card Exceptions; Authority to Invest Education and General and Nongeneral Funds; and Additional Accounts Receivable and Disbursement Authorities.

ITEM I. Enrollment Projections

SCHEV Biennial Enrollment Projections 2017

VMI's enrollment projections reflect the following considerations:

1. VMI is a wholly undergraduate institution that accepts only full-time students who must live in the Barracks and eat in the Mess Hall.
2. Guided by its Vision 2039 Strategic Plan, VMI maintains enrollment targets of 55 percent Virginians and 45 percent non-Virginians with an average enrollment for the year of about 1670 cadets. These targets reflect VMI's unique mission, diversity of the Corps, Barracks and Mess Hall capacity, and important financial considerations.
3. Since 2003, VMI has expanded the size of the Corps from approximately 1,300 to approximately 1,700, or 31% with growth of in-state cadets from 653 to 1,045 or 60%. The percentage of in-state cadets in the Corps grew from 50.3% in FY 2003 to 61% in FY 2017. In-state enrollment is projected to comprise approximately 63% of the Corps in FY 2018.

The growth in the percentage of in-state cadets since 2003 reflects several factors to include implementation of VMI's Vision 2039 target of 55% Virginians, improvement in the in-state admission yields (the percentage of in-state cadets accepted for admissions and who enrolled grew from about 67% to 73%), improved retention, and economic factors. These factors resulted in a greater proportion of in-state cadets than targeted.

4. VMI's enrollment projections for FY 2018 to FY 2024 reflect a leveling of the percentage of in-state cadets to approximately 63%. This exceeds VMI's Vision 2039 target of 55% in-state enrollment primarily due to increasing difficulty in attracting out-of-state cadets and an increasing number of qualified in-state applicants.
5. VMI is committed to meeting 100% of the demonstrated financial need of in-state cadets through grants and loans to help ensure access and affordability.

Note: Approximately 40%-45% of VMI's in-state cadets qualify for need-based aid. For FY 2017, 115 or 54% of the 214 in-state cadets who graduated had loans; the average loan was \$18,463.

6. The continuing sluggish economy has contributed to the State's inability to meet its target of funding 67% of the cost of education of in-state students. This underfunding for VMI approximates \$4.1 million in FY 2017 and is a major factor why VMI must increase tuition and fees in the years ahead.

7. VMI's out-of-state cadets pay almost four times the tuition rate that in-state cadets pay in FY 2018 (\$34,572 versus \$8,884). Tuition as a percentage of the average cost of education is about 165% for an out-of-state cadet and 43% for an in-state cadet. The enrollment of out-of-state cadets helps to mitigate in-state tuition increases and generally helps to keep in-state tuition affordable. Out-of-state cadets are projected to comprise 37% of the Corps in FY 2018, but they are projected to bring in 69% of total tuition revenue for the Educational and General Program.
8. VMI is one of only six Senior Military Colleges serving the nation. Consequently, it attracts a significant number of ROTC Scholarship students who do not receive appointments to the federal service academies. ROTC scholarship recipients comprise approximately 26% of the Corps in FY 2017 with about 48% of these recipients from out-of-state. These recipients are drawn from a national pool of applicants and VMI needs to maintain flexibility in its in-state/out-of-state mix to accommodate these ROTC scholarship recipients.
9. Enrolling qualified out-of-state students contributes to the mission and diversity of VMI. The General Assembly has recognized the national role of the Institute and granted it an exemption from limits on out-of-state enrollments. Given the traditional role VMI plays in providing service to the national security, it is imperative that VMI maintain this national perspective.
10. VMI's maintains an aggressive goal of graduating over 50 percent of the Corps in STEM programs. Currently, the percentage of STEM majors is approximately 58% and the Institute needs to maintain ultimate flexibility in order to formulate the appropriate academic profile for incoming classes. Increasing STEM graduates is one of the priorities of the HEOA. As ranked by U.S. News and World Reports, VMI's engineering programs have been among the top programs in the nation on a consistent basis.
11. VMI maintains an ambitious goal of 150-200 in female cadet enrollment. Reaching this goal without compromising the academic profile also requires flexibility in the in-state/out-of-state mix.
12. VMI remains committed to increasing enrollment of underrepresented populations. Strategies include retaining female and minority recruiters within the Admissions office, routinely visiting Virginia localities with low associate and baccalaureate attainment rates, expanding the network of alumni focused on minority recruitment, continuing the 30-year commitment to the four-week College Orientation Workshop for at risk youth, maintaining partnerships with access organizations, and arranging formal presentations to JROTC units.

13. VMI is committed to supporting as many of the goals of the HEOA and Virginia Plan as possible, consistent with its mission and conditions. Staff will continue to review and monitor the Institute's enrollment projections in the years ahead and make adjustments as appropriate.