



# Status Update

October 1, 2021

---

# CONTENTS

CCAM STATUS UPDATE .....	2
Executive Summary.....	2
Overview .....	4
Business Development.....	5
New Member Recruitment.....	5
Strategic Collaborations .....	6
Workforce Development .....	7
Pursuit of Federal Funding .....	7
Outlook .....	9
Commonwealth Support.....	11
HB1800 (Chapter 552), Item 135, L.5. Requirements .....	12
(i) MOUs with university partners .....	12
(ii) Funds disbursed to university and private sector partners of CCAM .....	12
(iii) Other agreements entered into with public and private sectors.....	13
(iv) Federal Award Program Development.....	13
(v) Additional information requested.....	14
APPENDIX.....	15
Financial Schedules .....	16
Update on University Commitments .....	20

## CCAM STATUS UPDATE

This update is being submitted as required by HB1800 (Chapter 552), Item 135, L.5.:

L.5. "CCAM shall submit a report on October 1 of each year to the Secretary of Finance, Chairs of the House Appropriations and Senate Finance and Appropriations Committees, and VIPA containing a status update of all new incentive programs, including but not limited to the following: (i) MOUs it has entered into with each university partner; (ii) funds disbursed to both university and private sector partners of CCAM, as well as any other recipients; (iii) any other agreements CCAM has entered into with representatives of the public and private sectors that may impact current and future incentive fund disbursements; (iv) all efforts and costs associated with obtaining federal research grants; and (v) any additional information requested by the Secretary of Finance, or the Chairs of the House Appropriations and Senate Finance and Appropriations Committees."

Elements requested in L.5. are outlined on page 12. In addition to those items requested, a brief overview has been provided below to communicate CCAM's progress over the past year.

### Executive Summary

#### Financial Update: CCAM finances are currently stable with Commonwealth Support

- CCAM has made good progress over the past year in improving operational performance while responding to significant market challenges.
- Prior to COVID-19, CCAM was on a good trajectory in its operating plan, but the changing economic landscape in the industrial sector negatively impacted operations as industry research revenue retracted.
- Commonwealth support has provided runway for CCAM to execute the new strategic plan.
- Services performed by research personnel are CCAM's primary driver for revenue and cash. Amidst an incredibly competitive labor market, CCAM has needed multiple recruiting sources to continue to identify key strategic hires. CCAM needs to hire 4 engineers to backfill attrition.
- [REDACTED]
- CCAM is completing its audit of its 2nd full fiscal year aligned with the Commonwealth. Final report for FY2021 audit results are expected later this year pending the finalization of the building, with an expected designation of an unqualified opinion. Audited financial statements will be provided once received by CCAM.
- CCAM applied for, received and was forgiven of \$713K of SBA-PPP funds.
- Although the transaction for the building purchase has not yet been completed, DGS is currently working with CCAM to facilitate use of bond proceeds of the Virginia Public Building Authority for the Commonwealth's acquisition of the CCAM building.
- This support from the Commonwealth will provide long-term relief from oversized building costs, significantly reducing CCAM's cost structure and enabling a path to sustainability. [REDACTED]
- [REDACTED]
- Debt repayment: [REDACTED] per month [REDACTED] per year) continues to be paid to Virginia Tobacco Commission.
- Bank of America Line of Credit renewed through September 2022, interest is current and loan has switched from LIBOR to BSBY based. Note that CCAM is not incurring additional debt, solely renewing the existing loan.

### **CCAM Industry Membership: Change in strategy and industry diversification creating larger pipeline**

- BWX Technologies (Lynchburg) was welcomed as new paying member. Air Turbine Tools and Creaform signed as new Affiliate Members. Though not dues paying members, these two companies are contributing a combined \$350K in tooling and software capabilities. Three additional offers are currently under review with prospective paying members.
- Through business development efforts, strategic collaborations and workforce development programs, CCAM's potential new membership pipeline now includes fifteen manufacturers from diverse industry segments. Commonwealth support provided for attracting new members companies will be leveraged to bring new member companies in the fold.
- The prospective new member pipeline has grown significantly, including small and medium-sized VA-based companies, and in one case, the possibility of attracting a new pharma business to VA from the EU.

### **Federal Funding: Gaining traction in federal award program development**

- Since the beginning of FY2021 campaigns have resulted in > \$1.2M in federal funding awards, including a \$750K ONR grant focused on intelligent repair for DOD sustainment.
- While the above award volume shows progress, the long cycle time for obtaining significant federal funds (\$3-4M/yr) requires continued support to drive sustained success.
- CCAM hired a consultant to assist in identification, alignment and access to the relevant DOD decision makers. This consultant is a former Army Research Lab Chief and DARPA program manager. His team also includes a former Chief Innovation officer from Boeing.
- Strategy is in place to meet with several DOD decision-makers in October. DOD needs identified will be key in designing new CCAM proposal campaigns.
- As these campaigns are developed, CCAM will leverage key technologies available at member universities to jointly pursue larger federal programs.
- CCAM has recently hired a Principal Engineer with experience in winning federal funding, who will be a key performer in terms of strategy and proposal writing.
- Hiring a consultant, adding key staff, campaign development and proposal submissions have all been enabled by the current Commonwealth support for accelerating CCAM's efforts to attract federal funds.

### **Capability Development: New technology for use in member projects and in attracting federal funds**

- CCAM collaborated with Virginia State University to acquire an industrial grade CT scanner via a Department of Defense grant. The scanner is owned by VSU, hosted at CCAM, and available for use by CCAM industry and university members.
- Rolls Royce donated a large 5-axis machining center that has been relocated from the Crosspointe facility to CCAM. This needed equipment will extend CCAM machining capabilities for industry and university members.
- Siemens and CCAM have developed a robotic Directed Energy Deposition (DED) cell used in additive manufacturing and repair. This technology is available for member funded projects and will be a key asset in pursuing federal funding.

## Overview

CCAM has made good progress over the past year in improving operational performance while responding to significant market challenges. Execution on the vision articulated by new leadership is well underway and a solid foundation for growth is in place. Commonwealth support and partnerships with several Commonwealth agencies, the higher educational system and industry have positioned CCAM for growth. With continued Commonwealth support and execution of CCAM's defined strategy, line of sight exists for increased industry memberships, federal funding and significant impact on the advanced manufacturing ecosystem in Virginia.

Several challenges were in front of CCAM a year ago. The industrial membership base at CCAM was heavily focused on aerospace companies and their related supply chains. This particular segment was hit harder than other manufacturing segments by COVID-19. The downturn resulted in a number of aerospace companies pulling back resources at CCAM. This aerospace-heavy focus also led to a limited pipeline of potential new industry members, which hampered CCAM's ability to quickly respond to market pressures. This was compounded by the fact that CCAM had long been burdened with oversized building lease and operating costs. Finally, obtaining federal funding - which correctly had been identified as a key element to CCAM sustainability - had been planned and executed poorly, resulting in federal funding revenues that were an order of magnitude lower than projected.

Refocusing the strategy on the intelligent factory capabilities at CCAM, as laid out in the previous October 1 report, has been an instrumental piece in responding to market pressures associated with the COVID-19 pandemic. The detailed plan outlined in the January status update focused on 4 key elements to drive CCAM sustainability and impact: diversifying our member company industry base beyond aerospace, developing a federal funding pipeline, enhancing collaboration with Universities as well as Virginia government organizations, and a means to relieve the over weighted building costs. Each of these key points are being addressed through internal execution of strategy at CCAM and targeted legislative support – not the least of which was a creative solution by the legislature to repurpose a bond for the purchase of the CCAM building by the Commonwealth – thereby addressing the need to provide relief on building costs [REDACTED].

While there is still much to do to reach the goals outlined in the October 2020 and January 2021 reports, CCAM is now well-positioned to remain on track to achieve those goals with level Commonwealth funding support through the next biennial funding cycle. The prospective new member pipeline has grown significantly, including small and medium-sized VA-based companies, and in one case, the possibility of helping attract a new pharma business to VA from the EU. This pipeline also represents improved industrial sector diversity for CCAM, providing a higher level of potential resiliency to market segment cycles. Federal funding campaigns have ramped up and a highly DOD-networked consultant has been added to the team. Though significant federal funding ramp up typically takes 18-24 months, an initial sign that CCAM is making progress has occurred: CCAM has won its 1<sup>st</sup> significant grant in line with the intelligent factory strategy developed over the last year (a \$750K ONR grant focused on intelligent repair for DOD sustainment). Additionally, university and government collaborations have been focused on significant opportunities to jointly pursue federal funding, as large (> \$1M) programs are being pursued by CCAM in collaboration with VCU, VT, UVA and GENEDGE. The Commonwealth-CCAM partnership in

executing this new strategy has the organization moving down the right path to sustainability and positive impact.

## Business Development

### New Member Recruitment

From turbine blades to razor blades, CCAM's new digital factory/Industry 4.0 strategy, has accelerated CCAM's potential member company pipeline – a key element for growth and resiliency. Execution of that strategy is paramount to achieving the articulated impact, and leadership at CCAM is fully focused on that execution.

Since February 2021, CCAM re-tasked Lorin Sodell and Betsey Odell to reenergize business development efforts at CCAM. Lorin Sodell is now Director of Business Development and Advanced Manufacturing Education at CCAM. He has 36 years of manufacturing experience and is on the Region 4 board of GO Virginia; he also serves on various council positions, which has shaped his leadership experience within Central Virginia, the U.S., and in Europe. Together with Betsey Odell, CCAM's Director of Development, their approach to business development has resulted in a positive turnaround from the previous year's status. A year ago, the potential new member pipeline was bare. Applying a new approach and utilizing their network and understanding of the governmental, educational, and industrial landscape in Virginia has driven greater interaction and collaboration with several organizations, leading to a more robust pipeline of potential CCAM members that naturally support VA-based manufacturers. The result: **CCAM has grown a more diverse and larger pipeline of potential CCAM members in eight months than the former team had in the previous thirty-six months.**

This new leadership approach taps an array of strategic partnerships not solely reliant on CCAM members and employees but also government organizations, such as VIPA/CIT, GENEDGE, VEDP, Virginia Gateway Region, Hopewell Prince George Chamber, Crater Planning District, nonmember colleges and universities, as well as Federal manufacturing institutes like America Makes, ARM, CESMII and our own Prince George County. Partnering with these organizations has enabled CCAM to identify local companies that could benefit from CCAM's capabilities to help them improve their manufacturing capabilities in state.

As of this reporting, CCAM has welcomed two new affiliate members (imaged), Air Turbine Tools and Creaform. CCAM expects to add two to three paying members between Q4 2021 and Q1 2022. These potential members include: a consumer, surgical, and industrial blade manufacturer for consumer goods and health care; a European pharmaceutical printing company; and an agricultural hemp grower. Two of these manufacturers are located in Virginia and the European company has plans to relocate. CCAM is utilizing the Commonwealth's incentive funds combined with digital factory/Industry 4.0 strategy and its leadership to attract **a new pipeline of CCAM members and increase the advanced manufacturing footprint in Virginia.**

With the Commonwealth of Virginia's assistance, CCAM is able to market to and benefit more companies than we would have otherwise. We are tracking well to the plan laid out in the January 2021 status report, turning the corner in the last twelve months such that the outlook of business development growth is now very tangible. There is a path forward to reach \$400,000 in new member dues over FY22, with continued steady growth in out-years. Our business development team, armed with a new strategy, leadership, collaboration and pipeline, has the pieces in place to generate significant growth and resulting impact.



manufacturers Innovative high-speed spindles for machining. Their products are both vibration and noise-free to enhance user (and co-bot) experience, improve productivity, and lower cost

- They will have a Demo in lobby of CCAM
  - Central VA FAME students will have access to Demos
- CCAM staff is invited to exhibit with Air Turbine to promote CCAM capacities at Major Industry events:











**Contributions of >\$200,000 in products & software**

Creafom develops, manufactures and sells 3D portable technologies and offers innovative solutions such as 3D scanning, reverse engineering, quality control, non-destructive testing, product development and numerical simulation (FEA/CFD)

Its products and services are intended for industries such as the automotive, aerospace, consumer products, heavy industries, health care, manufacturing, oil & gas, power generation and research & education

**Outstanding opportunities for collaboration with Organizing University Members including outfitting of on-campus laboratories**



**Affiliate CCAM member**  
**\$150,000 equipment contribution**

Figure 1: New CCAM Affiliate Members whose Product Technologies will Enable New Collaboration Opportunities for Local Industry, as well as Strengthening Program Campaigns for Federal Funding.

## Strategic Collaborations

Strategic collaboration with universities and industry has led to both additional capabilities and new member prospects to add value in the digital factory/Industry 4.0 domain. CCAM has active innovation projects with its Organizing University partners which has not only increased federal funding alliances but increased collaborations with potential industry members. Examples on the latter include:

- Collaboration with Virginia State University to acquire, via a federal Department of Defense grant, an industrial grade CT scanner. The scanner is owned by VSU and hosted at CCAM. Now installed and running in CCAM's VSU lab, students and industry partners can enhance their research capability with CCAM. To date CCAM staff and students from both VSU and VCU have been trained to use the CT scanner. **This equipment enables detailed digital quality inspection capabilities, which enhance CCAM's ability to pursue federal programs in the intelligent factory space** – in addition to driving additional revenue for work on projects for industrial partners. **At CCAM, VSU students access the equipment and learn related high-tech skills applied to real-world problems.**
- CCAM has also been supported by key industry members Rolls Royce and Siemens, **with the donation of a large 5-axis machining center from RR and the development with Siemens of a robotic Directed Energy Deposition (DED) cell used in additive manufacturing and repair.** These pieces of equipment are available for member use on funded projects and will be **key assets in pursuing federal funding.**
- CCAM also participated in the Go Virginia Future Workforce for Industry 4.0 Partner Discovery meeting at Virginia Tech. Industry 4.0 technology and workforce education issues were presented as critical to Region 2 and for Virginia. During this meeting, CCAM had the opportunity to engage with six companies who could benefit from a membership at CCAM.

## Workforce Development

Lorin Sodell and Betsey Odell were instrumental in the development of a Central VA Federation for Advanced Manufacturing Education (FAME) chapter. FAME is part of The Manufacturing Institute, the workforce arm of the National Association of Manufacturers. FAME USA has over thirty six chapters in fourteen states in the U.S. and serves over four hundred manufacturers. It is a work/study apprenticeship type model where students are recruited (many directly from graduating high school) to become global-best advanced manufacturing technicians. This is a program which has been largely funded by GO Virginia and vetted by existing workforce leaders and educational programs to fulfil a gap in workforce development through strong technical training, integration of manufacturing core competencies, intensive professional practices, and intentional hands-on experience to build the future of the modern manufacturing industry, all the while paying and training them as an employee. Current industry partners include Amsted Rail, AMPAC fine chemicals, Blueprint Automation, Civica, Coesia, EPT Connectors, Niagara Bottling, Phlow, and Sabra Dipping. This is an industry led program operating with Richard Bland College of William and Mary and supported by CCAM. CCAM was responsible for attracting the partnered manufacturers. Graduates are expected to earn a high wage salary after completing the 2-year program, and they will have earned an Associates of Science degree from RBC to transferable credits to continue with their higher education if they do not continue to work with their sponsoring company. Trainees complete their technical courses at CCAM. There they are exposed to Fortune 100 Companies, Virginia based-companies, and engineers, and have access to high tech, state of the art, innovative, manufacturing environment.

Through BD efforts, strategic collaborations and workforce development programs, **CCAM's potential new membership pipeline now includes fifteen manufacturers from diverse industry segment backgrounds.**

## Pursuit of Federal Funding

Federal funding is a key element in the strategy for CCAM's long-term sustainability. As described in detail in the January 2021 report:

- 1) **Multiyear funding of large federal programs provides a stabilizing effect on the year to year funding variation that is typical of industry funding.** This is particularly true during economic downturns like the one we are currently experiencing firsthand.
- 2) **Federal funding provides significant resources in developing state-of-the-art capabilities today that will retain and attract industry members in the future.** The current NIST intelligent manufacturing cell program is a good example – ██████████ learned of the program and is seeking to budget funds to start their own program with CCAM in Jan 2022.
- 3) In addition to year-over-year funding stability, federal funding can significantly impact overall profitability on industry research.

The report also outlines CCAM's "flywheel" concept for generating multiple, large federal funding campaigns. **The concept allows new target campaigns to be developed from existing ones by changing any of either the Team, Technology, Customer, or Application ("spinning" the flywheel).** A specific element of an existing campaign can be swapped to pivot a new campaign to target a different source of funding. For example, replace Cold Spray Additive with Laser Powder Bed Fusion Additive as a manufacturing process technology and then develop a follow-on campaign to the same DOD program manager, proposing a new project with the same team and application space. Alternatively, replace a team member (i.e. ██████████ instead of ██████████) and adapt that program to an ██████ application.

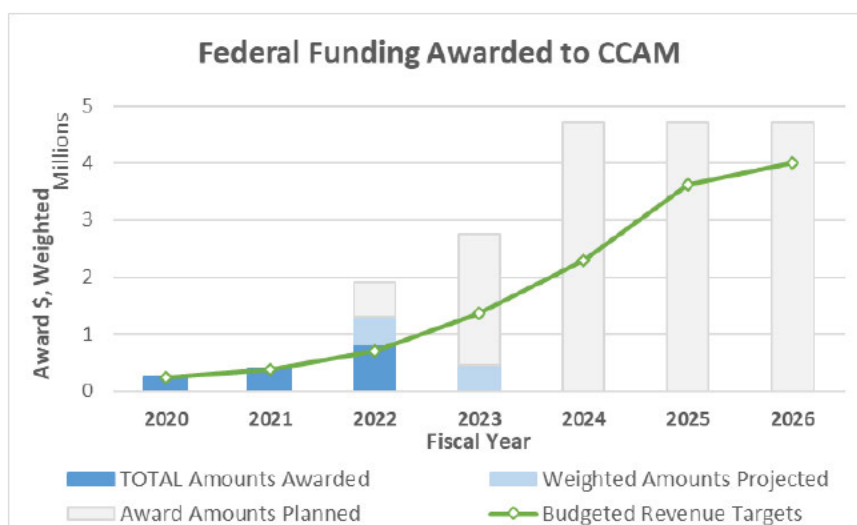


In this way **we can also bring in University research to propose new programs that include the university capabilities.** It is much more compelling to propose a system-level concept to the DOD than it is to propose a particular research project. For example, one can market a new approach for computational design and discovery of high temperature materials. However, you can sell a much larger, compelling program that showcases the ability to develop, manufacture and test a demonstrator using new hypersonic materials that includes full collaboration of industry and university partners, including UVA. CCAM is in the right position to create these campaigns and has already developed some momentum with this approach in discussing new potential programs with our university partners that we can jointly pursue. A recent example: during CCAM's recent visit to Virginia Tech, a number of synergistic opportunities were identified for such joint programs. Additionally, this past year we have seen the CCAM-Universities joint innovation projects with increased focus on federal funding. It takes continued joint efforts after the project is completed to leverage that toward federal funding success. CCAM and University partners recognize that to achieve this, collaborations need to continue both during the projects and, just as importantly, after the projects have finished. For example, in July UVA and CCAM researchers developed and submitted a white paper to an ARPA-e call focused on thermionic power generators. Atomically precise nano-electronics, like the proposed power generators, are urgently needed for pursuing next-generation technologies. This white paper was not selected, however, aspects of the proposed project are being targeted for a CCAM-UVA project to develop a test bed structure that will enhance the previous white paper and improve the probability of success in future federal program pursuits. The ability to pivot federal proposal campaigns as new customer information is obtained is a key element toward sustained success. Often, a concept can go through 2-3 iterations as it develops into a viable federal program.

A key element in developing the programs we wish to pursue is understanding the needs of DOD decision makers and getting access to pitch relevant programs. Utilizing Commonwealth funds provided to CCAM for the purpose of accelerating our efforts in pursuing federal funding, CCAM hired a consultant beginning in July 2021 to assist in identification, alignment and access to the relevant DOD decision makers. This consulting group is headed by a former Army Research Lab (ARL) Chief and DARPA program manager who previously initiated several of the current DOD efforts in Additive Manufacturing. Also on his team is the former Chief Innovation officer from Boeing, who also previously worked at DARPA and knows the Federal Funding machinery well. Through these connections, CCAM has already submitted 3 proposals that we would have otherwise not likely pursued. The consulting team is currently lining up meetings with many of the relevant DOD program managers. Winning awards in a consistent manner requires the alignment of CCAM's campaign activities with the federal funding cycle. This cycle is typically an 18 to 24-month process, thus significant federal funding ramp up typically takes time to get started and grow. Nonetheless, an initial sign that CCAM is making progress has occurred: CCAM has won its 1<sup>st</sup> significant grant in line with the intelligent factory strategy developed over the last year (a \$750K ONR grant focused on intelligent repair for DOD sustainment). This and other, smaller DOD and DOE programs that CCAM has been awarded enables us to begin to execute our flywheel process in step with the federal funding cycle. CCAM has also recently hired a Principle Engineer with a history of writing successful DOD grant proposals, winning ~ \$1 M/yr in a relevant technical space. He also has experience winning SBIR contracts, which adds to CCAM's federal campaign outreach.

## Outlook

Efforts to grow federal funding for CCAM have expanded significantly over the past fiscal year and are on track to meet or FY22 revenue targets<sup>1</sup>. CCAM was able to meet both award and revenue targets for FY2021, which were still low relative to future needs. However, two months into FY2022, CCAM has already secured approximately 50% (>\$800K) of the federal award amounts estimated (\$1.9M) necessary to meet revenue targets, and probability-weighted award projections top \$2M within the next twelve months. Revenue from current and new awards is currently forecast to exceed revenue targets (\$700K) in FY2022 by over 30% (>\$1M).



Recent award successes can be attributed to continued cultivation of sponsor agency confidence for CCAM competence as well as by building new relationships with key collaborator partners. Key awards are listed in Table 1 below:

*Table 1 - Federal Awards to CCAM (FY2021 to present)*

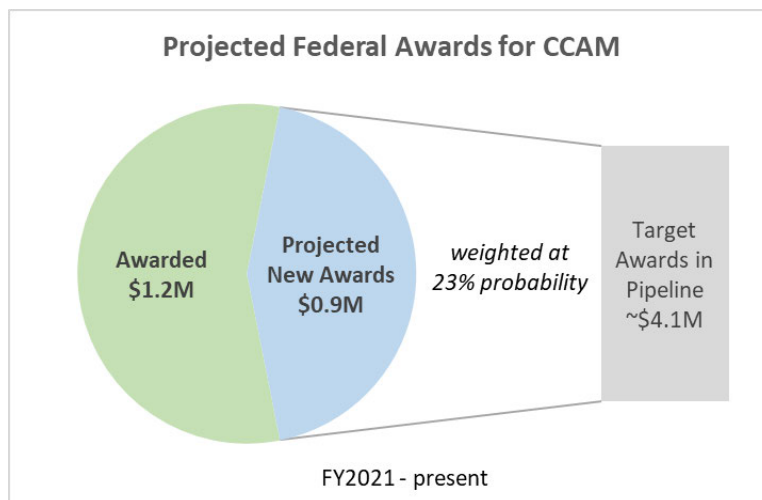
Agency/ Program	Project	Prime	CCAM Award \$
NSF NRI	Making Collaborative Robots Easier to Program	VCU	\$289K
ARPA-E ULTIMATE	High Entropy Rare-earth Oxide (HERO) Coatings for Refractory Alloys	UVA	\$113K
ONR BAA	Application of Digital Thread Technologies to Develop an Intelligent Additive Manufacturing Ecosystem for Part Repair & Replacement	CCAM	\$750K
CESMII	Information modeling for Additive Manufacturing	CCAM	\$63K
DOE HPC	Integrated Process & Materials Modeling for Development of Additive Manufacturing of Refractory Materials for Critical Applications	CCAM	\$0 <sup>2</sup>

<sup>1</sup> CCAM has transitioned financial budgets and targets from a calendar year basis to a fiscal year basis that matches the Commonwealth's fiscal year (July 1 to June 30). Accordingly, fiscal year targets are shifted six months relative to the calendar year targets; for budget categories such as federal revenue that will require significant year-on-year growth, the fiscal year targets will be different from figures reported in the past.

<sup>2</sup> This award provides resources from DOE national laboratories for high performance computing and are planned to be matched with partner contributions and Innovation Funding to perform the research.

The new approach to securing federal funding has begun to bear fruit: the focus on growing existing relationships as well as on building new ones, both with collaborator partners and sponsors, has led to significant growth in the number and quality of opportunities to secure federal funding. Examples of key initiatives, each greatly strengthened through partnerships, include:

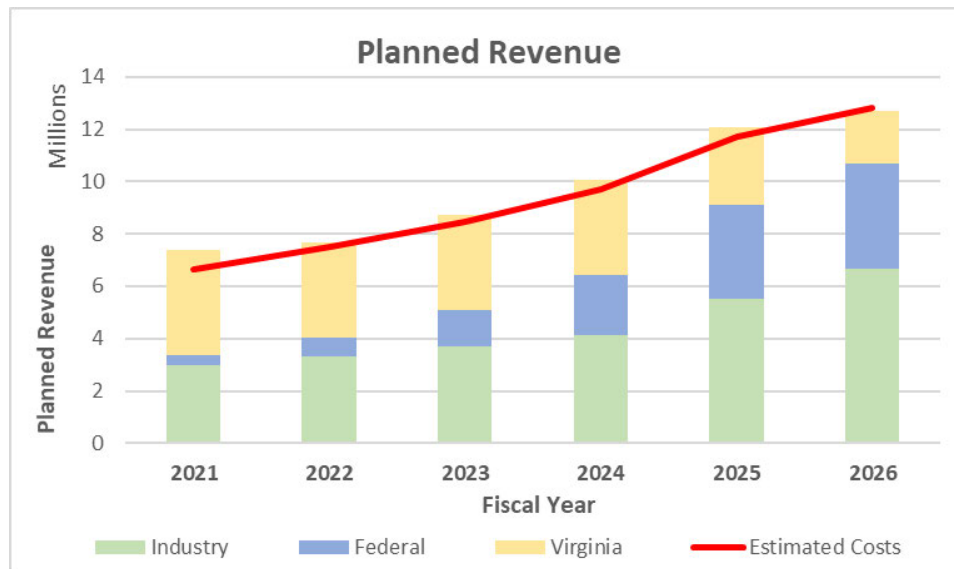
- **Focus on existing sponsor objectives and relationships:** a program that builds upon the current NIST Reference Testbed project has been proposed for \$149K (1 year).
- **At the suggestion of several key industry partners,** CCAM led submission of a proposal to NIST to develop roadmaps for the Manufacturing USA network for \$196K/1 year.
- **Consultant-identified opportunity matching CCAM capabilities & strategy:** CCAM and partner Virginia Tech submitted three white papers to the Army HTMDEC totaling \$1.2M.
- **CCAM partner GENEDGE** is preparing a proposal for congressional appropriation that would lead to a \$10M award with the Commonwealth to develop and implement a holistic approach to the adoption of new Industry 4.0 technologies by small and medium sized businesses.
- **CCAM partner University of Virginia** is leading a proposal for a congressional appropriation that would lead to a \$10M award to develop new materials processing development capabilities for hypersonic applications.



New methods of opportunity tracking have been implemented, and software tools and processes are being investigated to provide more robust and efficient management of these efforts. At the time of writing this report, CCAM is actively engaged in, or leading, 18 federal funding proposal opportunities (not including numerous proposals initiated and led by university partners with CCAM support) and is tracking an additional 26 calls for proposal or federal business development efforts.

## Commonwealth Support

The effects of COVID-19 have had a significant impact on CCAM's finances. Last fall under new leadership, mitigation plans were put in place and executed quickly, saving approximately \$1M in costs through CY2021, but additional funding was needed to execute the new strategy. The Commonwealth provided such support, which has stabilized finances at CCAM and enabled the groundwork to position CCAM for growth. Given the lead time for both new member pipeline development and federal funding incubation and growth, continued, level funding support is needed over the next biennial funding cycle. It is the goal that CCAM will be in a strong enough position two years from now to taper its request for financial assistance from the Commonwealth as state funds are gradually replaced by industrial and federal sources.



*Note: Values in prior year reporting represented calendar years.*

As noted above, executing the strategy put in place requires flat funding over the FY2023/4 biennial funding cycle. CCAM therefore requests to maintain the current funding over the next two years for the following:

- Continue CCAM's current operational budget allocation from the Commonwealth for \$925k. While CCAM continues ramp up of federal and new member funding sources, this is critical in smoothing revenue inconsistency during periods of staffing shortage and potential member revenue fluctuation.
- Continuation of the \$1.1M industry grant. These funds have proven to be a vital component in driving additional revenue through existing members while attracting new ones.
- Continuation of the \$600K university grant for joint projects and follow-on efforts, including road mapping activities, marketing and proposal development, to continue momentum and leverage previous project activities for the pursuit of CCAM/University jointly funded federal programs.
- Continuation of the \$1M appropriation to support federal award program development. CCAM is gaining traction in the federal space and this funding is key to furthering that growth. Obtaining federal funding via pre-marketed campaigns typically takes 18 to 24 months to be fully engaged in the federal funding cycle, thus continued support is needed while we incubate and grow federal funding.

## HB1800 (Chapter 552), Item 135, L.5. Requirements

### (i) MOUs with university partners

One MOU, signed January 2019, between CCAM and its Organizing University Members was included in CCAM’s Operating Plan submitted to VEDP in July 2019. This referenced university placement of Research Professors and Graduate Research Assistants at CCAM, and university commitments for innovation funding. There UVA, VCU, VSU and VT each committed to placement of Research Professor at CCAM. An MOU was since established between CCAM and ODU in December 2019 to satisfy their “placement” of a Research Professor (see Appendix).

### (ii) Funds disbursed to university and private sector partners of CCAM






#### Item 135, L.2. – Private Sector Incentive Grants

To date, all of the \$1,100,000 made available for private sector incentives in FY2021 has been deployed in research match funding and new CCAM membership. The additional deployment of funds shown beyond the \$1.1M below includes use of remaining private sector funds from FY2020 (\$84K) and items (\$76K) scoped within the current fiscal year (FY2022) as of the time of this report. A summary of deployed funds is provided in the table below, and their details submitted to VIPA.

Industry Member	Grant Funding	Detail
[REDACTED]	\$ 75,000	New Membership Signed (Year 2)
	\$ 19,000	Project D-431
[REDACTED]	\$ 150,000	New Membership Signed (Years 1 & 2)
[REDACTED]	\$ 100,000	Project D-414
	\$ 143,155	Project D-416
[REDACTED]	\$ 125,304	Project D-356
	\$ 119,300	Project D-357
	\$ 90,262	Project D-381
	\$ 19,761	Project D-384
	\$ 42,838	Project D-385
	\$ 134,924	Project D-402
	\$ 155,440	Project D-406
	[REDACTED]	
[REDACTED]	\$ 45,123	Project D-399
	\$ 40,124	Project D-426
<b>\$ 1,260,231</b>		

**Item 135, L.3. – University Research Grants**

For FY2021, \$539,625 of the \$600,000 available for university research grants was deployed at CCAM in the execution of innovation projects in partnership with CCAM Organizing University Members. A one-to-one match has been made by universities to fund their portion of research on their campuses. A summary of designated funds is provided in the table below, and details have been submitted to VIPA.

University Member	Grant Funding	Detail
 UNIVERSITY OF VIRGINIA	\$ 250,000	Projects E-052, E-053, E-054
 VCU VIRGINIA COMMONWEALTH UNIVERSITY	\$ 50,000	Projects E-063
 VIRGINIA TECH.	\$ 108,819	Projects E-057, E-058, E-059
 VIRGINIA STATE UNIVERSITY	\$ 130,806	Project E-055, E-056, E-060
 OLD DOMINION UNIVERSITY	\$ -	FY21 project not yet scoped
<b>\$ 539,625</b>		

**(iii) Other agreements entered into with public and private sectors**

CCAM has not entered into any agreements with representatives of the public or private sectors that would impact current and future incentive fund disbursements.

**(iv) Federal Award Program Development**

In late FY2021, \$400,000 was made available to support CCAM’s growth in federal funding. To date, CCAM has targeted use of these resources as shown below.

Category	Grant Funding	Detail
Business Development	\$ 72,000	Contracted a consulting firm to connect CCAM with key program managers within federal agencies to support targeted proposal campaign development.
Proposal Development	\$ 116,632	Concept paper & proposal ideation, development and submission.
Process/Infrastructure	\$ 9,900	Federal award administrative process consulting, CMMC compliance preparation (requirement of some federal award programs).
<b>\$ 198,532</b>		

In FY2022, we plan to utilize the FY21/22 allocated funds to accelerate our federal funding growth through the following means:

- Fund staff for federal campaign generation, marketing presentations development and visits to relevant government program managers to understand needs and pitch programs, as well as write proposals.
- Purchase and implement new integrated proposal and financial software that is compliant with federal government contractor requirements.
- Hire an additional staff member that is experienced at winning federal programs, and a program or contracts manager required to manage part of the administration activities as we scale up our federal programs.
- Federal program rate recovery – initially, CCAM’s federally hourly rates will be below cost as we create the required structure to get approved, audited federal rates are in line with our actual costs.
- Travel to conferences (I.e. the Defense Manufacturing Conference) to promote CCAM and network with relevant DOD and Industry players.

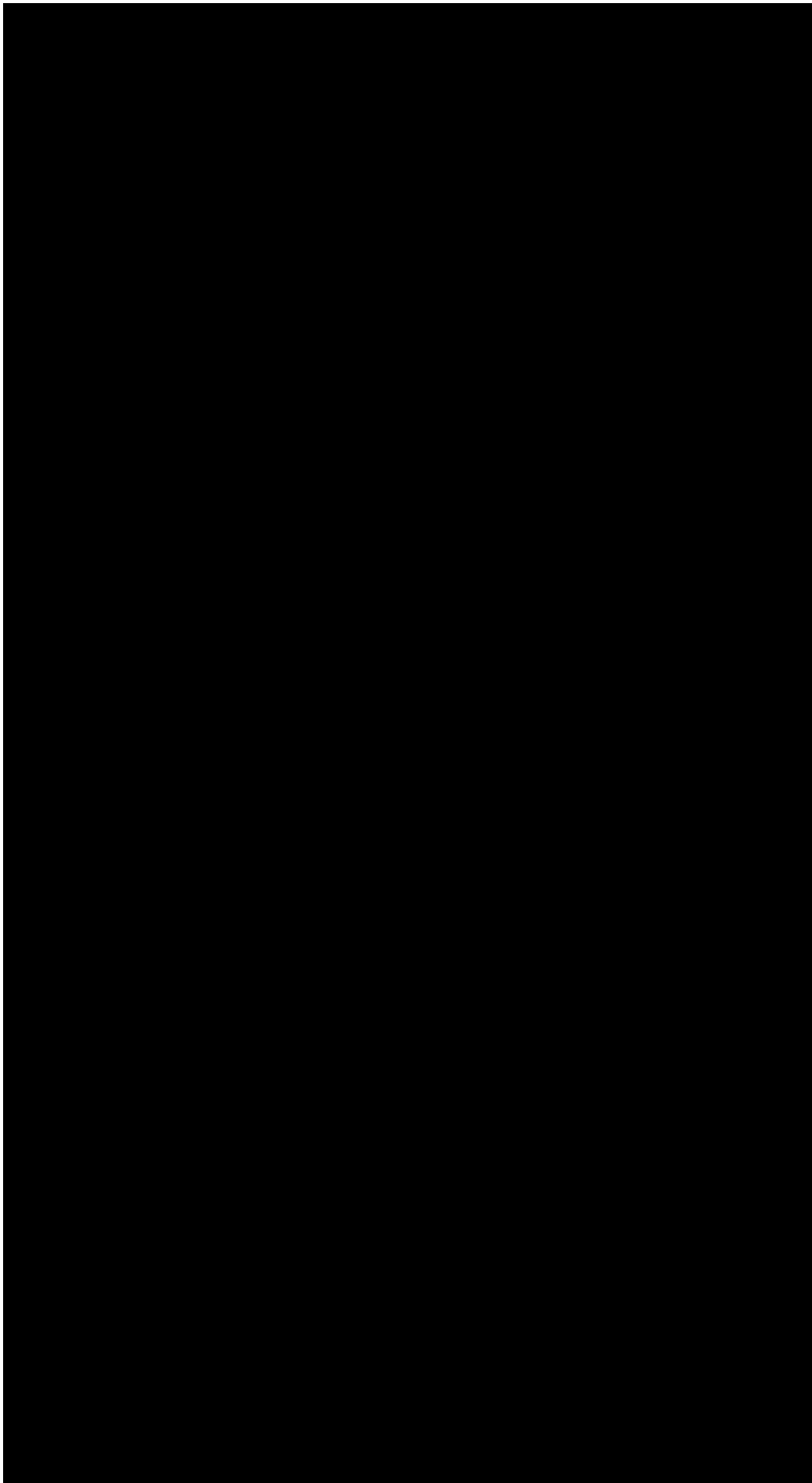
**(v) Additional information requested**

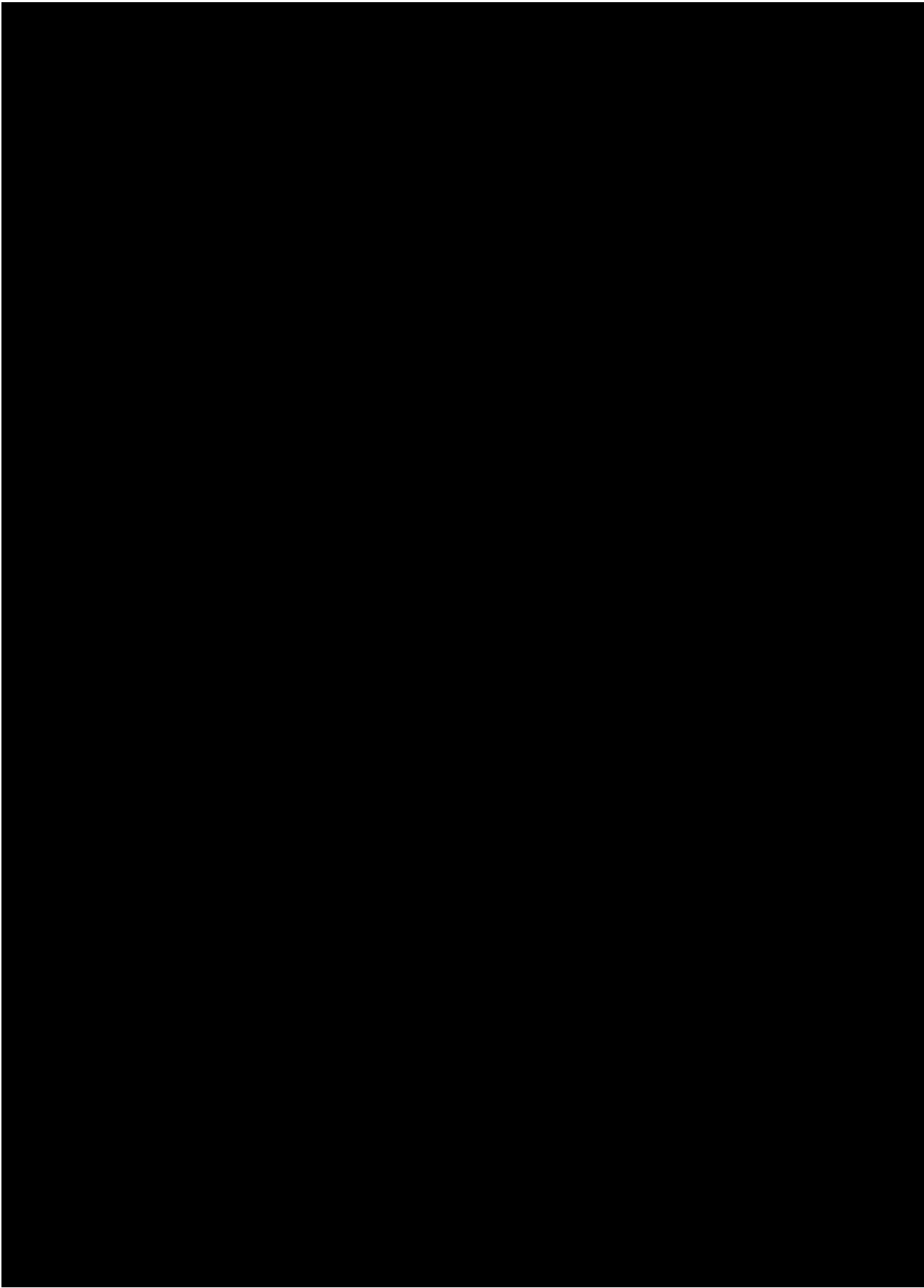
No additional information has been requested at this time.

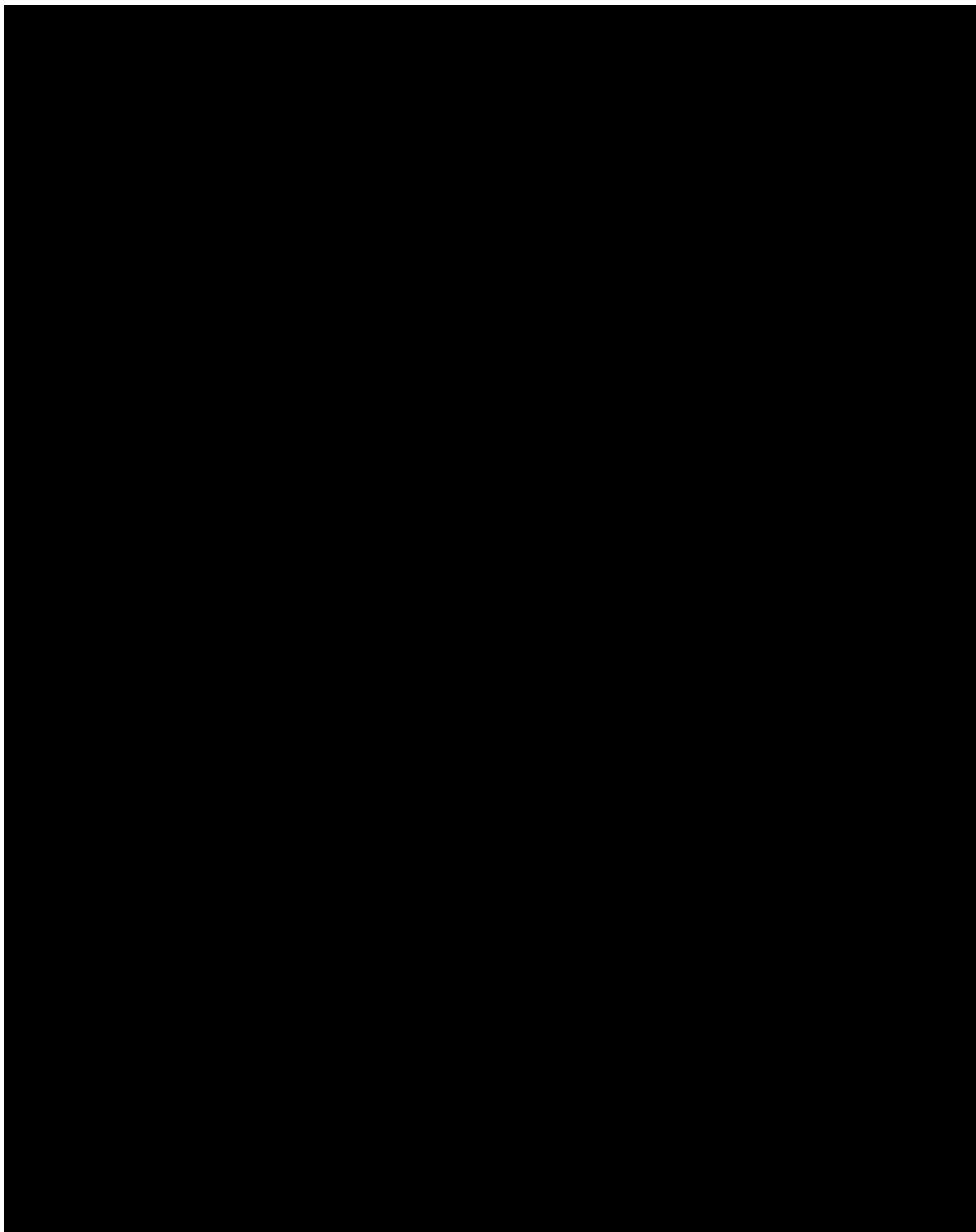
## APPENDIX

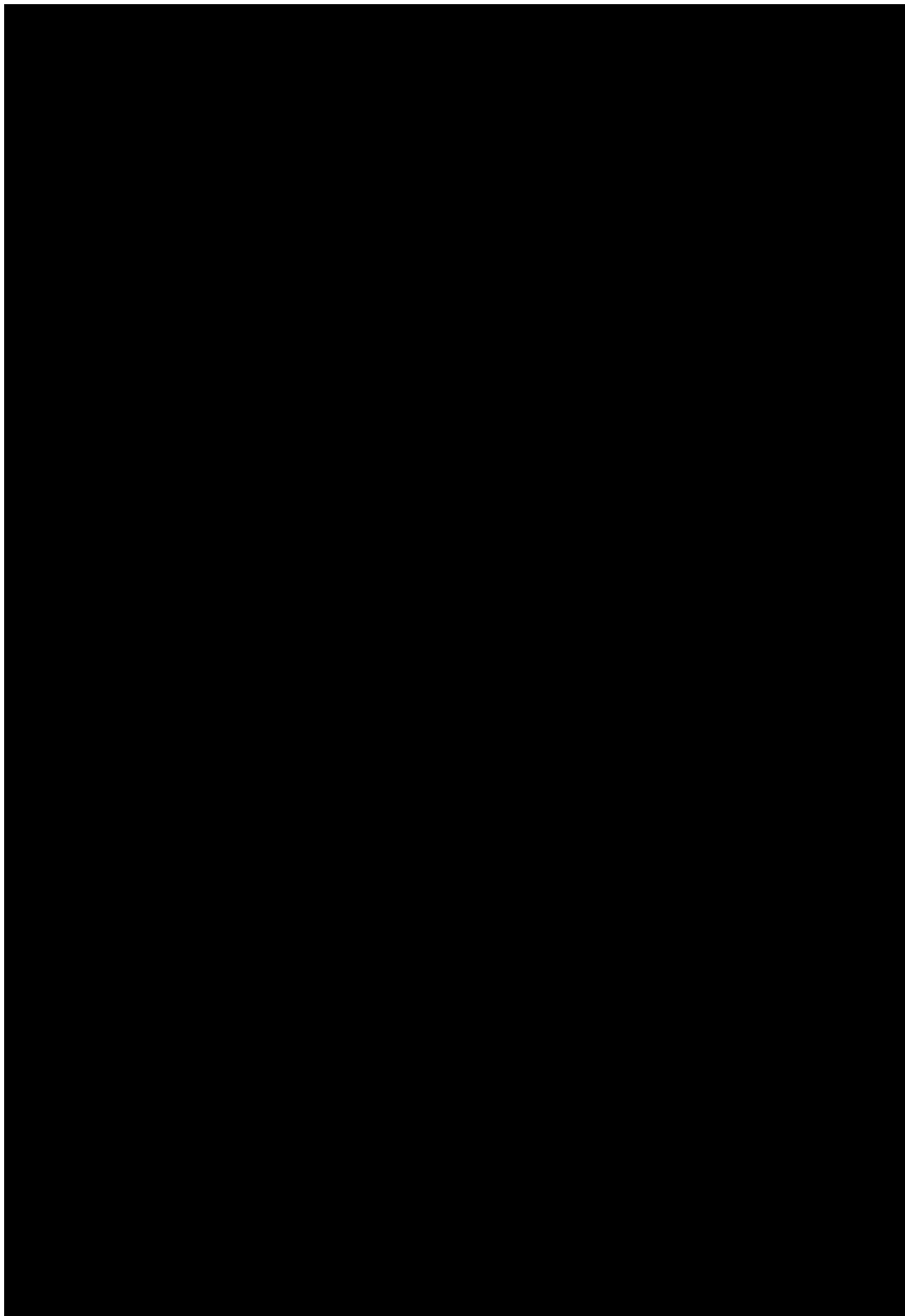


**Financial Schedules**














## Update on University Commitments

As outlined in the “Plan to Operationalize & Implement University Member Enhanced Engagement” the university members committed to activities designed to strengthen CCAM-University engagement in 3 primary areas: CCAM Research Professors, graduate research assistants (GRAs), and Innovation Projects. Specifically, the commitments are as outlined below:

- Identify & hire four (4) Research Professors associated with CCAM Strategic Focus Areas and aligned with research strengths of the university partners.
- Identify & hire nine (9) Graduate Research Assistants to be primarily working at CCAM.
- Create an Innovation Fund (\$600K per year total from Universities, matched by state funding) to seed research activities at the Member Universities that are aligned with CCAM Industry Member needs and have potential for external funding.

The heat map below shows the status of each of these activities for fiscal year 2021.

University	Research Fellow Positions	GRA(s)	Innovation Funds	
 VCU	██████████ on staff as of Summer 2019; still active	Two GRAs on site at CCAM	One project (\$50K)	
 UNIVERSITY OF VIRGINIA	██████████ hired and on staff on Jan 2 <sup>nd</sup> , 2019; still active	Two GRAs on site at CCAM	Three projects underway (\$250K)	
 YSU	Budgeted and seeking candidates	One GRA on site at CCAM Fall 2020 Grant-funded interns on site at CCAM	Three projects (\$131K – well above the \$50k commitment)	
 VIRGINIA TECH.	Job description written and in process of posting as of Aug 2021	Developing plan with CCAM as of Aug 2021 Grant-funded interns on site at CCAM	Three projects (\$109K)	
 OLD DOMINION UNIVERSITY ID E A FUSION	CCAM/ODU have agreed to flexible resourcing	CCAM to Visit to ODU in October	CCAM to Visit to ODU in October	
	Plan Not in Place	Beginning Stages	Final Stages	Complete