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The Army Combat Cloth Face Cover

June 2022

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Department of Defense Management

Naval Postgraduate School

Prepared for the Naval Postgraduate School, Monterey, CA 93943.

ACQUISITION RESEARCH PROGRAM
DEPARTMENT OF DEFENSE MANAGEMENT
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ABSTRACT

This project defines specific procurement and contracting strategies that were available for the expeditious requisition of the Army Combat Cloth Face Cover (CCFC) program based on Department of Defense (DoD) acquisition policies and the Federal Acquisition Regulation. Selected primary documentation of DoD and U.S. Army regulation, detailed acquisition documentation, DoD and Army directives, data from other federal organizations, and published research data were used to identify the acquisition process, responsibilities, and authorities of the Army. The analysis defines multiple acquisition approaches within the Adaptive Acquisition Framework (AAF), including Major Capability Acquisition, Middle Tier of Acquisition, and Urgent Capability acquisition approaches. Furthermore, the analysis determined that the most expeditious approach for the CCFC effort was using the Urgent Capability Acquisition pathway under the emergency authorization. The AAF urgent acquisition approach that the Army agencies utilized should be applied to other similar rapid requirements or future unplanned rapid acquisitions to help generate a more streamlined acquisition approach that will not only focus on quality from a safety perspective, but also meet an aggressive schedule.

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ABOUT THE AUTHORS

LTC Jamiah "Miah" Edwards graduated from Missouri State University with a degree in Business Administration and a minor in Entrepreneurship. She has served in a variety of leadership positions as a Logistics Officer. She is currently an Acquisition Corps officer with Advanced certification in Program Management. Her acquisition assignments include: Assistant Program Manager for Program Executive Office (PEO) Soldier, PEO Soldier Theater Lead (Iraq/Afghanistan/Kuwait), PEO Soldier Department of the Army Systems Coordinator (DASC), PEO Missiles and Space DASC, and Executive Officer for the Deputy Assistant Secretary of the Army for Research and Technology. She is a certified Lean Six Sigma Black Belt. LTC Edwards attended the University of North Carolina (Chapel Hill)– Institute for Defense and Business Strategic Studies Fellows Program where she received a Strategic Studies additional skill identifier. LTC Edwards biggest hobby is CrossFit which promotes a physical exercise philosophy combined with a competitive fitness sport. She also enjoys spending time with her family being amazed by her three children as they continue to grow. After graduation in June, she will be reporting to New Cumberland, PA to command the Defense Contracting Management Agency located there.

CPT Elena Melillo was born and raised in Khabarovsk, Russia. In 2006, she immigrated to the US after graduating from college with the Bachelor of Science in Commerce. In 2012, Elena earned a commission in the US Army as a Signal Officer through the Officer Candidate School. She held multiple assignments OCONUS including Hawaii, Alaska, and Germany. In 2017, CPT Melillo transitioned to the Acquisitions career field and served as a Contract Management Officer at the Joint Base Lewis-McChord, WA. CPT Melillo is currently pursuing her MBA at the Naval Postgraduate School in Monterey, CA. She is married to Michael Melillo and has two children, Anastasia and Alexander.

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LIST OF ACRONYMS AND ABBREVIATIONS

AAE	Army Acquisition Executive
AAF	Adaptive Acquisition Framework
AAP	Army Acquisition Process
ACC	Army Contracting Command
AFC	Army Futures Command
AMC	Army Materiel Command
AP	Acquisition Plan
AR	Army Regulation
ARAP	Army Rapid Acquisition Process
ASA(ALT)	Assistant Secretary of the Army (Acquisition, Logistics and Technology)
BPA	Blanket Purchase Agreement
CCDC-SC	U.S. Army Combat Capabilities Development Command Soldier Center
CCFC	Combat Cloth Face Cover
CDC	Center for Disease Control
CG	Commanding General
COA	Course Of Action
CON	Contracting
COTS	Commercial Off-the-Shelf
CSA	Chief of Staff of the Army
COVID-19	Coronavirus Disease 2019
CTA	Common Table of Allowances
DAE	Defense Acquisition Executive
DAS	Director of the Army Staff
DAU	Defense Acquisition University
DEVCOM	U.S. Army Combat Capabilities Development Command
DLA	Defense Logistics Agency

DoD	Department of Defense
DR	Directed Requirement
FAR	Federal Acquisition Regulation
GPC	Government Purchase Card
HPCON	Health Protection Condition
HQDA	Headquarters Department of the Army
IPT	Integrated Product Team
JCIDS	Joint Capabilities Integration and Development System
M&D	Materials and Development
MDA	Milestone Decision Authority
MCA	Major Capability Acquisition
MR	Market Research
MTA	Middle Tier of Acquisition
NCD	Natick Contracting Division
OCP	Operational Camouflage Pattern
OT	Other Transactions
OTA	Other Transaction Authority
OSD	Office of the Secretary of Defense
PD	Purchase Description
PdM	Product Manager
PdM AW	Product Manager Air Warrior
PdM SCIE	Product Manager Soldier, Clothing, and Individual Equipment
PdM SPE	Product Manager Soldier Protective Equipment
PEO	Program Executive Office or Officer
PM	Program, Project Manager; Program Management
RDTE	Research, Development, Technology, and Evaluation
RFI	Rapid Fielding Initiative
SAMP	Simplified Acquisition Management Plan

SAP	Simplified Acquisition Procedures
SAT	Simplified Acquisition Threshold
SECDEF	Secretary of Defense
SME	Subject Matter Expert
SOW	Statement of Work
TDP	Technical Design Package

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I. INTRODUCTION

The Army Combat Cloth Face Covering (CCFC) effort was initiated in response to the secretary of defense (SECDEF) memorandum signed April 5, 2020, subject: "Department of Defense Guidance on the Use of Cloth Face Coverings (Appendix A)." In the memorandum, "The SECDEF committed to implement all measures necessary to mitigate risks due to the spread of the Coronavirus Disease 2019 (COVID-19)." COVID-19 is an infectious disease that is caused by the SARS-CoV-2 virus and that spread worldwide during the global pandemic that originated in China late December 2019. By April 11, 2020, all 50 states reported confirmed cases of COVID-19, with the total number of cases exceeding 400,500 and the death toll surpassing 20,000, the highest number of confirmed fatalities of any country (CDC, 2020). The memorandum signed by the SECDEF directed that "all individuals on DoD property, installations, and facilities should wear a face covering when they were unable to maintain the proper social distance in public areas or work centers" (Office of the Secretary of Defense, 2020).

Around this time, many of the states issued a "shelter-in-place" order to prevent the further spread of COVID-19 throughout the country. This mandate required people to remain at home unless they had essential activities or work. It also barred people from gathering both inside and outside their homes. To mitigate risks further; the Center for Disease Control (CDC) recommended that people maintain a social distance of 6 feet or more when they were required to be around others. Additionally, because there were certain instances when social distancing is impossible, the CDC recommended that individuals wear cloth face masks or coverings in public settings. The memorandum signed by the SECDEF (Office of the Secretary of Defense, 2020) was written in hopes of mitigating the rapid spread of COVID-19 by requiring all individuals on DoD property to wear masks where social distance could not be maintained.

During the staffing process for the memorandum, the director of the Army Staff (DAS) communicated to the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) (ASA[ALT]), the commander, U.S. Army Materiel Command (AMC), and the Headquarters Department of the Army, Deputy Chief of Staff G-4 to identify

contracting sources that could manufacture face coverings on an accelerated timeline that would not affect the ability for industry to produce medical-quality N95 masks required by doctors and first responders (Myhre et al., 2020). ASA(ALT) in turn tasked Program Executive Office (PEO) Soldier to immediately identify and contract face coverings that met the CDC's standard (CDC, 2020). PEO Soldier directed Project Manager Soldier Survivability (PM SSV) to work with the U.S. Army Combat Capabilities Development Command-Soldier Center (CCDC-SC) and industry to create and manufacture protective face coverings from non-treated materials to be distributed immediately to Soldiers and individuals as necessary (Myhre et al., 2020).

A. PURPOSE

The Army's Combat Cloth Face Mask effort used a simplified acquisition approach to acquire the face masks. The acquisition of face masks seems simplistic, but if our research can help generate a more streamlined approach that will not only focus on quality from a safety perspective but also meet an aggressive schedule, then the same "simplified process" can be applied to future unplanned rapid acquisitions.

Another purpose of this study is to assess the acquisition strategy for the Army's Combat Cloth Face Cover program at Program Executive Office Soldier in Fiscal Year 2020 and determine whether the pursued acquisition process was the most efficient approach in terms of cost, schedule, and performance. This research identifies and assesses the Army's CCFC emergency acquisition approach, policies, and procedures utilized to acquire the face coverings for issue to the Soldiers. It studies the Army's acquisition process that was used by Program Executive Officer-Soldier. The analysis provides insights into accelerated acquisition approaches and provides recommendation on how to improve the acquisition processes for similar requirements in the future. The analysis also highlights how the accelerated processes could potentially conflict with the traditional acquisition approaches prescribed throughout Army policies and regulations.

Furthermore, there is a lack of documented analyses of acquisition programs within the DoD and their assessment in terms of timeliness when delivering capabilities to the warfighter. This is an issue since it is important to understand how efficient the defense acquisition programs are in breaching the capability gaps within the DoD to

measure their success. Additionally, the DoD must focus on the acquisition process that supports the warfighters function in an expeditious manner such as accelerated contracting actions. To address this problem the DoD acquisition leaders, specifically within the Department of the Army, need to understand the Army's acquisition approach, policies, and procedures when trying to deliver warfighting capabilities.

The Department of the Army should continue to analyze its rapid capability functions to identify potential advantages and disadvantages with acquisition strategies used. In this report, we evaluate if the expedited procurement process selected for the Army Combat Cloth Face Cover program was the best acquisition decision compared to the commercial acquisition processes that existed during the time of procurement, which will in turn influence the acquisition processes for similar requirements in the future. The current acquisition framework in the Federal Acquisition Regulation (FAR) allows several avenues to expeditiously acquisition goods and services, which vary depending on the necessary timeline. For example, FAR Part 12, Acquisition of Commercial Items, encourages acquisition of commercial goods and services through practices that resemble private sector creating a more streamlined way of procurement and reducing administrative burden on the Government (Acquisition.gov, 2021). In addition, FAR provides acquisition flexibility through contracting approaches that may be used during emergency or disaster declaration such as FAR Part 18, Emergency Acquisitions (FAR 18).

The Adaptive Acquisition Framework (AAF) illustrated in Figure 1 describes pathways for decision authorities and program managers. It allows them to "tailor program strategies and oversight, phase content, create the timing and scope of decision reviews, and provide decision levels based on the characteristics of the capability being acquired necessary to deliver better solutions faster" (Defense Acquisition University, 2021). According to the AAF its goal, "is to empower innovation and common-sense decision making through the decision-making process, while also maintaining discipline in our practices and procedures" (Defense Acquisition University, 2021). Using this set of principles, the Army CCFC requirement used the urgent acquisition pathway under the COVID-19 Emergency Assistance Act in procuring both the near-term and long-term solution within PEO Soldier and the U.S. Army CCDC-SC utilizing the simplified

acquisition process while using contracting flexibility within the FAR. Each solution is defined below, including the traditional acquisition approach.

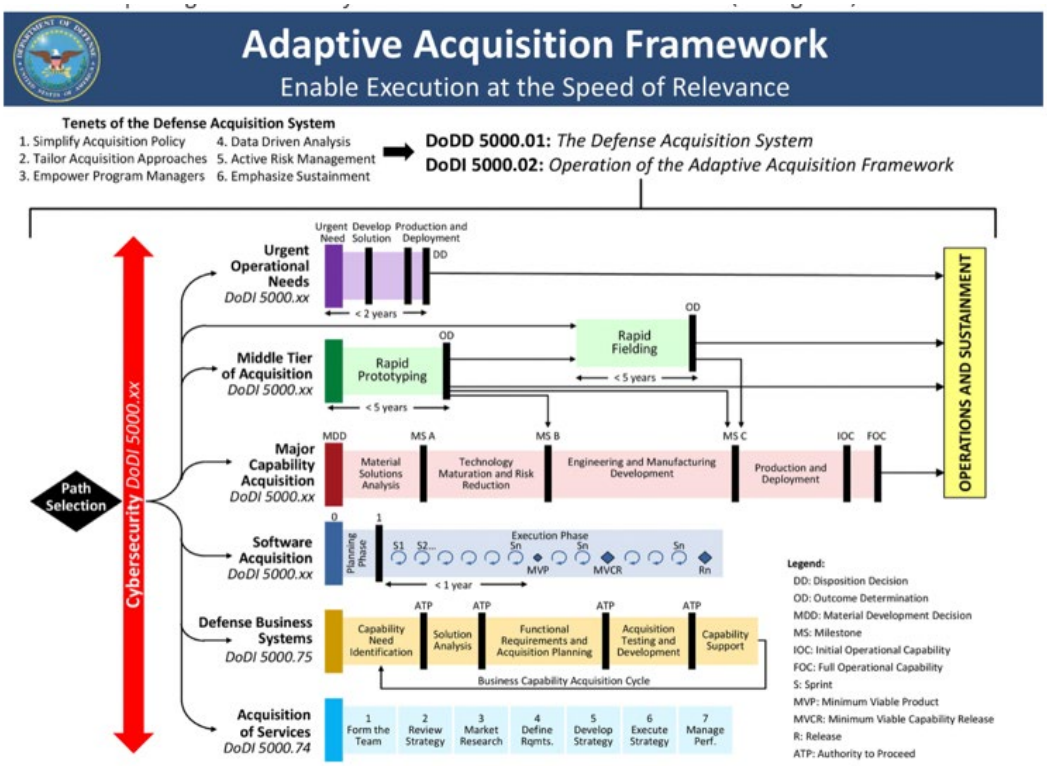

Figure 1. Pathways for Decision Authorities and Program Managers. Source: Defense Acquisition University (2021).

1. Acquisition Life-Cycle Management Approach

The DoD acquisition process, commonly referred to as the "Big A" acquisition process, has three primary processes, as illustrated in Figure 2. The primary objective of the Joint Capabilities Integration and Development System (JCIDS) is to provide the requirement; this is managed and executed by the capability developer. The Defense Acquisition System provides the acquisition process of a defense program that is managed by the materiel developer, also known as the Product Manager. The Planning, Programming, Budgeting, and Execution Process (PPBE) is the internal method used to allocate resources to a requirement, the funding aspect of the triad. A successful program requires continual synchronization throughout a program's life cycle. This acquisition approach is knowledge-based with milestones, phases, and reviews for each stage of the product's development and procurement.

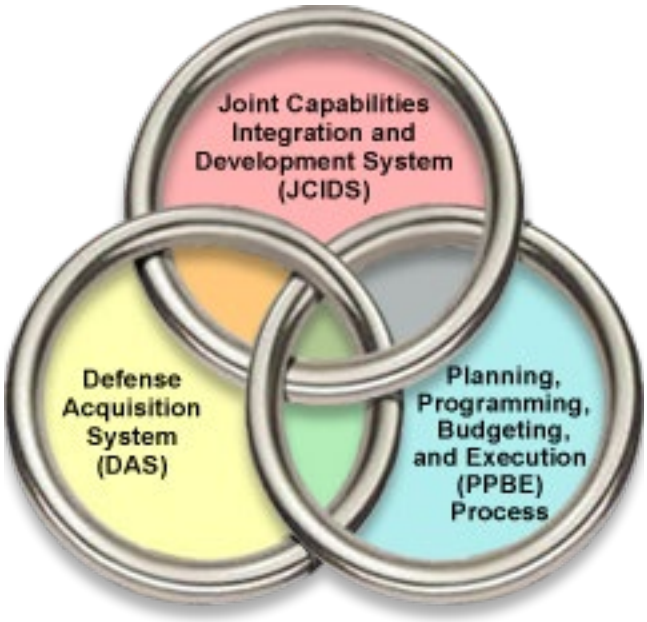

Figure 2. Acquisition Process Overview
Source: Acquisition Management (2021).

2. Available Contracting Methods

When pursuing an urgent requirement such as the acquisition of face coverings the DoD contracting agencies have a variety of contract vehicles available at their disposal. To provide a better understanding of all applicable methods the Defense Acquisition University introduced the contracting cone that outlines "the full spectrum of available FAR and Non-FAR contract strategies" (Defense Acquisition University, 2021). The contracting cone, displayed in Figure 3, enables the selection of the right strategy based on environment, constraints, and desired end state.

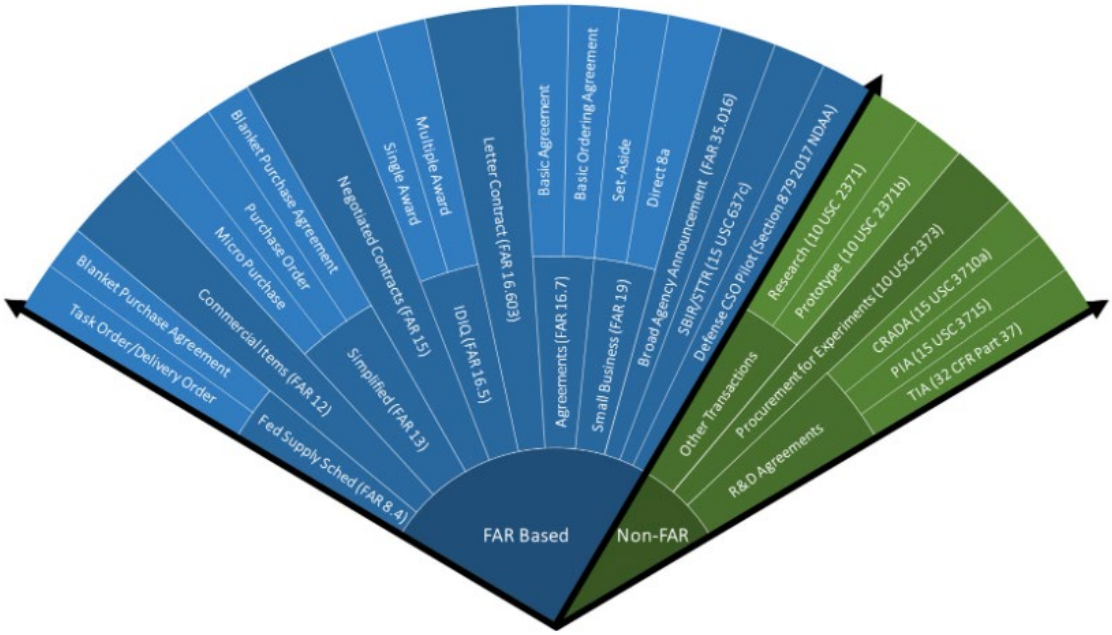

Figure 3. Contracting Cone
Source: Defense Acquisition University (2021).

Among FAR-based contracting approaches the following methods are applicable to satisfy the urgency of the CCFC requirement:

- Emergency Acquisitions under FAR Part 18 including direct 8(a) awards and small business set-asides under FAR Part 19
- Simplified Acquisitions Procedures under FAR Part 13
- Acquisition of Commercial Products and Commercial Services under FAR Part 12
- Contracting by Negotiation under FAR Part 15

Some of the main non-FAR-based contracting approaches include Other Transaction Authority (OTA) for requirements that involve certain prototypes and research and development and a contracting method of procurement for experiments (Defense Acquisition University, 2021).

A more detailed description and application of these FAR-based and non-FAR-based contracting solutions are presented below:

a. Emergency Acquisitions

- Under certain circumstances, FAR Part 18 presents many procurement adaptabilities available to the DoD contracting agencies. As such, "the agencies may limit the number of sources and utilize other than the full and open competition when unusual and compelling urgency exists" (Federal Acquisition Regulation, 2021). Emergency acquisition in accordance with FAR Part 18 allows several methods for acquiring goods and services that can be used under specified conditions including Generally available flexibilities
- "Emergency acquisition flexibilities that are available only under prescribed circumstances." (Federal Acquisition Regulation, 2021).

FAR Part 18 addresses several acquisition flexibilities that are available to contracting officers (Figure 4). Such flexibilities are provided with respect to "any acquisition of supplies or services by or for an executive agency that, as determined by the head of an executive agency, may be used when the President issues an emergence declaration" (Federal Acquisition Regulation, 2021). Executing under the authority of Emergency Acquisitions, PEO Soldier was tasked with developing several sources synchronously to develop a short-term solution and a long-term viable solution. In using this approach, PEO Soldier and the U.S. Army CCDC-SC divided their roles of responsibilities by simultaneously focusing on an interim and a long-term enterprise solution for the CCFC.

Emergency acquisitions and rapid acquisitions are not interchangeable. As stated above emergency acquisitions gives the flexibilities that allows the rapid acquisition process (RAP) in accordance with the Adaptive Acquisition Framework (AAF). "The RAP is meant to shorten the project decision/initiation time and is specifically designed to deal with initiatives throughout the fiscal year as they arise resulting in a sequential distribution of RAP funding over the course of that entire execution year" (Rapid Acquisitions, 2021). Additionally, within the AAF, the Middle Tier of Acquisition (MTA) pathway is used to "rapidly develop fieldable prototypes within an acquisition program to demonstrate new capabilities and/or rapidly field production quantities of systems with proven technologies that require minimal development" (AAF, 2020).

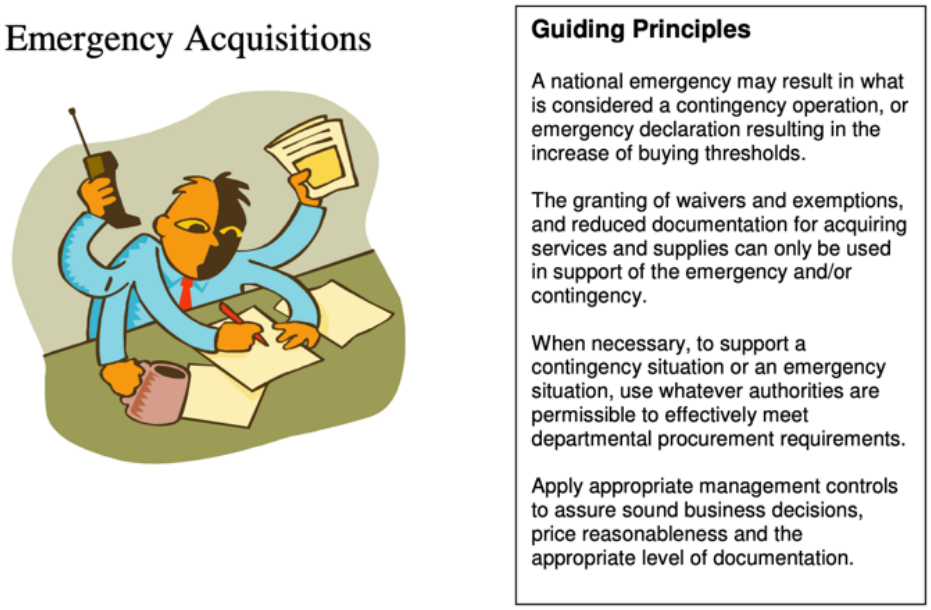

Figure 4. Emergency Acquisitions.
Source: Emergency Acquisitions Guiding Principles (2021).

Emergency acquisitions flexibilities also allow the agencies to "award directly to eligible 8(a) participants on either a sole source or competitive basis under the Small Business Administration 8(a) Program" (Federal Acquisition Regulation, 2021). While contemplating an award to a single source the following conditions must be met: "the small business is responsible, the contract can be awarded at a fair market price, and the anticipated total value does not exceed the designated threshold for manufacturing requirements or threshold for all other requirements (an Indian tribe or an Alaska Native Corporation are excepted from this rule)" (Federal Acquisition Regulation, 2021). The applications for direct awards under the 8(a) program per FAR Part 19 include a wide range of common supplies and services from solutions and technologies, software, research, and development, to advisory and assistance and engineering services (Federal Acquisition Regulation, 2021). As of March 17, 2020, such "sole source 8(a) awards valued at $100 million or less can be awarded without a justification and approval" which significantly reduces the overall time of procurement (Class Deviation 2020-O0009).

b. Simplified Acquisition Procedures

"Organizations shall use simplified acquisition procedures to the maximum extent practicable for all purchases of supplies or services not exceeding the simplified acquisition threshold (including purchases at or below the micro-purchase threshold)" (Federal Acquisition Regulation, 2021). Simplified acquisition procedures (SAP) as defined in FAR Part 13 are designed for "the purchase of relatively simple supply or service requirements and seek to reduce the amount of work the government must undertake to evaluate an offer and to reduce the administrative burden and time or awarding procurements below a certain dollar threshold" (Defense Acquisition University, 2021). "The threshold increases when the head of the agency determines the supplies or services are to be used to facilitate defense against or recovery from cyber, nuclear, biological, chemical, or radiological attack; to facilitate provision of international disaster assistance; or to support response to an emergency or major disaster" (Federal Acquisition Regulation, 2021). COVID-19 was considered a national emergency, in which the SAT was raised from $250,000 to $750,000 for acquisitions in the United States in a response to a declared emergency or major disaster (Class Deviation 2018-O0018). The SAT increase allowed the DoD to facilitate expeditious support with the common supplies and services required to combat the spread of the disease.

FAR Part 13 utilizes three main contracting strategies:

- Blanket Purchase Agreement (BPA)
- Purchase Order
- Micro-Purchase

A BPA is a simplified method used to meet "anticipated and repetitive requirements for supplies and services below the SAT that are not available from required sources of supply," such as GSA schedule contracts (Federal Acquisition Regulation, 2021). Streamlined BPA ordering procedures reduce procurement lead time for the agency and are easy to establish. Thus, this contracting method can be used to address the urgency of the requirement. The main limiting factor to the use of BPAs is that the orders under these agreements cannot exceed the SAT. During the early stages of

the COVID-19 global pandemic, various DoD contracting agencies were tasked to procure individual face coverings amongst other personal protective equipment (PPE) through agile and innovative responses. One of the examples of that effort was the ability of the Air Force Installation Contracting Center to quickly procure cloth face masks by establishing 20 BPAs in multiple regions in less than 4 days from the receipt of the SECDEF's guidance (Aragon, 2020).

Purchase Orders, as a contracting method under SAP, are widely used to acquire "supplies and services below the SAT and can be applied to all types of commercial supplies and services including construction, technologies, and research and development" (Federal Acquisition Regulation, 2021). Just like the BPAs, Purchase Orders streamline acquisition procedures reducing lead time to awards and administrative costs.

Micro-purchase is a contracting approach that "utilizes a Government Purchase Card (GPC) for the procurement of commercial supplies and services below the micro-purchase threshold" (Federal Acquisition Regulation, 2021). To address the immediate implementation of SECDEF's guidance on PPE individual organizations within the DoD can utilize the advantages of an increased micro-purchase threshold to purchase COVID-19-related materials and services as it would provide a more rapid form of procurement via GPC. Under FAR Part 2 the micro-purchase threshold is established at $10,000, however, due to a response to an emergency or major disaster declared under the Robert T. Stafford Disaster Relief and Emergency Assistance Act the micro-purchase threshold increases to $20,000 for acquisitions in the United States and is considered a preferred means to purchase and pay for micro-purchases like face masks and other PPE (Class Deviation 2018-O0018).

c. Acquisition of Commercial Products and Commercial Services

FAR Part 12, Acquisition of Commercial Products and Commercial Services, "prescribes policies and procedures unique to the acquisition of commercial products, including commercial components, and commercial services" (Acquisition.gov, 2021). This regulation gives the authority to agency leads "to acquire commercial products, commercial services, or non-developmental items when they are available to meet the

needs of the agency" (Acquisition.gov, 2021). According to FAR 12.102(f), "contracting officers may treat any acquisition of supplies or services that, as determined by the head of the agency, are to be used to facilitate defense against or recovery from cyber, nuclear, biological, chemical, or radiological attack, as an acquisition of commercial products or commercial services" (Acquisition.gov, 2021).

The use of commercial off-the-shelf (COTS) goods and services allows the Government agencies to take advantage of existing technological advances, cost savings, and rapid procurement that come from the competitive nature of the commercial marketplace. COTS, as a preferred solution under FAR Part 12, can be a beneficial way of procurement as it reduces cost, time of development, process technology inserts faster, and lowers life-cycle costs by utilizing the current commercial industrial base (Federal Acquisition Regulation, 2021).

d. Contracting by Negotiation

Negotiated acquisitions include competitive and non-competitive acquisitions in accordance with FAR Part 15 and are used for contracts exceeding the SAT offering maximum adaptability in procuring capabilities for major acquisition programs. Additionally, negotiated contracting provides the ability to "uniquely negotiate terms and conditions, and pricing arrangements that can improve the outcome" (Defense Acquisition University, 2021). Contrary to the previously described approaches, contracting by negotiation is more regimented and traditionally leads to a longer procurement lead time affecting the quick delivery of capability. Although the unique terms and conditions can be negotiated, the procedures are labor-intensive increasing the burden and administrative costs on the Government (Defense Acquisition University, 2021)

e. Other Transaction Authority (OTA)

Other Transactions (OT) is a non-FAR-based contracting approach for technologically advanced requirements that involve certain prototypes and research and development activities. This method applies to "processes, concepts, end items, and systems from non-traditional defense contractors" allowing the Government agencies

access to innovative solutions (Defense Acquisition University, 2021). OT agreements may leverage commercial business practices outside the FAR removing barriers to entry such as cost accounting system compliance, and intellectual property rights requirements encouraging the contractors with cutting edge technology to do business with the Government. OTA, as a contracting approach, commonly applies to research and development activities and prototypes advancing new technologies and is used as a measure of flexibility removing obstacles to reach non-traditional defense contractors with innovative solutions (Defense Acquisition University, 2021).

In conclusion, both FAR-based and non-FAR-based contracting approaches presented in the Defense Acquisition University (DAU) contracting cone can be successfully utilized by the Government agencies and applied across multiple AAF acquisition pathways including urgent acquisitions for the rapid procurement of time-sensitive requirements. This provides the DoD agencies with acquisition flexibility to choose from the variety of the existing acquisition pathways and contracting methods to accomplish their efforts. Particularly to the Army CCFC requirement, the agencies utilized the urgent acquisition approach for both short and long-term solutions coupled with several FAR-based contracting methods which included procurement under the Emergency Acquisitions under FAR Part 18 and Simplified Acquisitions Procedures under FAR part 13. The Army approach is explained in detail in the Background chapter.

B. REPORT OUTLINE

A review of the literature included selected primary documentation of DoD and Army regulation, detailed acquisition documentation, DoD and Army directives, data from other federal organizations, and published research data to identify the acquisition process, responsibilities, and authorities of the U.S. Army.

To ensure that the scope of the research is met, this research focuses on those documents that are pertinent to the Army acquisition process and excludes the other services. This research analyzed the following non-Army specific documentation to determine a framework in which the Army regulations fit:

- Simplified Acquisition Management Plan for Army Combat Cloth Face Cover
- Army Regulation 70-1, Army Acquisition Policy
- Federal Acquisition Regulation (FAR); Part 12 (Acquisition of Commercial Products and Commercial Services), Part 13 (Simplified Acquisition Procedures), Part 15 (Contracting by Negotiation) and Part 18 (Emergency Acquisition Process)
- Non-FAR part Other Transaction Authority (OTA)

C. RESEARCH PURPOSE

The basis of this research was to develop a case study necessary to explore alternative options for acquisition approaches. The major capability acquisition pathway typically takes years from conception to turn into a materiel item. The urgent acquisition pathway supports rapid acquisition of capabilities. The CCFC program used an expedited acquisition to meet a directed requirement. This research analyzes different contracting and procurement strategies for meeting the needs of the Army.

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II. BACKGROUND

> The Department of Defense (DoD) is committed to taking every precaution to ensure the health and wellbeing of our Service members, DoD civilian employees, families, and the Nation in response to the Coronavirus Disease 2019 (COVID-19) pandemic. DoD supports, and will continue to implement, all measures necessary to mitigate risks to the spread of the disease, consistent with the Department's priorities to protect our people, safeguard our national security capabilities, and support the government's whole-of-nation response.
>
> —Office of the Secretary of Defense (2020)

The secretary of defense, Mark T. Esper, enacted a directive for all DoD personnel to wear a face covering when they could not maintain a social distance of 6 feet. The face covering effort was executed to provide protective face coverings to Soldiers performing in operational and training settings and civilians, contractors, and other individuals on DoD property, installations, and facilities (Myhre et al., 2020). The initial face covers had varying designs, levels of protection, manufacturing complexity, and durability. The U.S. Army CCDC-SC designed and developed Army face coverings based on the guidelines from the CDC and DoD to "wear cloth face coverings when social distancing protocols could not be met" (CCDC Soldier Center Public Affairs, 2021). In the interim until a materiel solution was created, "the Army provided disposable or reusable solid color masks to Soldiers who were also been permitted to use other cloth items as face coverings, such as neck gaiters, bandanas, and scarves" (Army G-4, 2020).

The CCFC program was not a joint program, but the SECDEF directive was applicable to all the Services; therefore, all technical, test, and user evaluation information was shared with all the services.

> The Face Covering effort is not considered a new start program. Research, Development, Test and Evaluation (RDTE) efforts to test any proposed long-term solution prototypes was funded using the Product Manager Soldier, Clothing, and Individual Equipment (PM SCIE) RDTE funding line and production was funded through the Operations and Maintenance funding line. (Myhre et al., 2020)

A. SUMMARIZED ACQUISITION STRATEGY

PM SSV under PEO Soldier was tasked with the procurement of CCFC. According to the organization's mission PM SSV "develops and fields innovative Soldier protection equipment, functional uniforms, and individual equipment that enhance mission effectiveness, and improved individual parachute systems. PM SSV consists of Product Manager Soldier Clothing & Individual Equipment (PdM SCIE) and the Rapid Fielding Initiative (RFI) Team responsible for fielding Soldier protection capabilities and individual equipment to the force" (Soldier Survivability PM SSV, 2021).

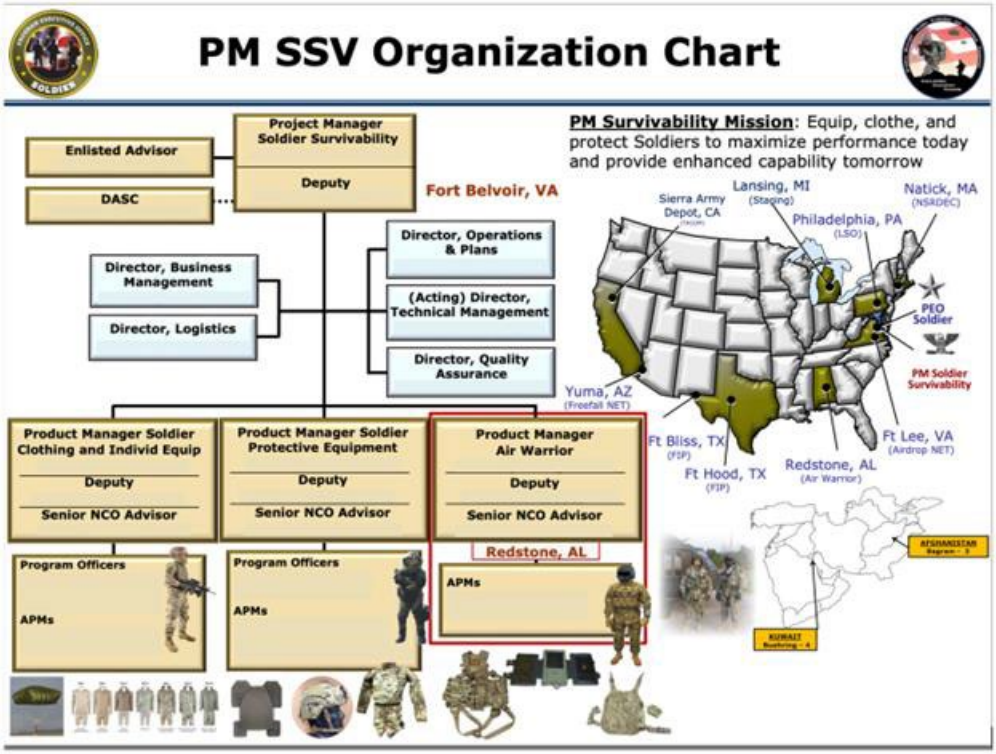

Figure 5. Project Manager Soldier Survivability Organization Chart. Source: Program Executive Office Soldier (2021).

In relation to the CCFC requirement, PM SSV's goal was to put a contract in place within 10 days for initial production of face coverings and subsequent transition of the contract to the Defense Logistics Agency (DLA) to support production and distribution of face coverings across the Army.

1. Interim Solution

According to the Simplified Acquisition Management Plan (SAMP) for the Cloth Face Coverings, this effort was not a traditional program (Myhre et al., 2020). To ensure expediency in providing protective equipment during the global pandemic, the Army acquisitions agencies pursued two efforts simultaneously: the interim solution under Simplified Acquisition Threshold (SAT) and enterprise-level solution for the big Army. The urgency of this requirement was a vital factor; therefore, documentation required to support a traditional acquisition was being waived.

In response to the SECDEF's directive for all individuals to wear face coverings on DoD installations, PEO Soldier directed PM SSV to work with the CCDC-SC and industry (including mandatory sources) to design and manufacture protective face coverings from non-treated materials to be immediately distributed to Soldiers and individuals as necessary. When executing this directive, acquisition personnel were further required to ensure that the manufacturing of coverings to support the SECDEF directive did not impinge on industry's ability to produce medical-quality N95 masks required by doctors and first responders.

Subsequently, PEO Soldier identified Milliken as a vendor who had an anti-microbial fabric in inventory and the ability to rapidly subcontract production. PM SCIE coordinated with the Natick Contracting Division (NCD) to initiate a SAT contract to allow for a streamlined award to Milliken to produce 180,000 face coverings. The Milliken SAT contract would be for an interim solution face covering while CCDC-SC personnel continued to develop and test prototype coverings to define a long-term solution in the event it was required. The briefing charts CCDC-SC prepared to outline proposed long-term solutions (traditional acquisition approach, expedited acquisition approach, or the commercial off-the-shelf approach).

On April 9, 2020, on behalf of PM SCIE, Natick Contracting Division published a Statement of Work (SOW) for rapid acquisition of face coverings based on an initial government design. According to the SAMP and the SOW, Phase 1 consisted of the manufacture of up to 180,000 2-ply protective face coverings in black fabric capable of covering the mouth and nose without being manually held in place. On behalf of PM

SCIE, NCD awarded a SAT contract on April 10, 2020, to Milliken for immediate production (Myhre et al., 2020).

The total value of the initial contract award to Milliken was $748,800 for the delivery of 180,000 face coverings priced at $4.16 per unit. First delivery was scheduled no later than April 30, 2020, with final completion of all quantities at the end of the contract on June 19, 2020. The Delivery Schedule is outlined in Table 1 (Myhre et al., 2020).

Table 1. Phase 1 Delivery Schedule.
Source: Myhre et al. (2020).

Production Vender	Milliken Delivery Schedule Quantity (End of Week)							
	30-Apr-20	8-May-20	15-May-20	22-May-20	29-May-20	5-Jun-20	12-Jun-20	19-Jun-20
American Apparel	10,000	15,000	20,000	20,000	25,000	25,000	30,000	35,000
Cumulative Total	10,000	25,000	45,000	65,000	90,000	115,000	145,000	180,000

The business strategy for the interim solution was to facilitate the emergency nature of this effort; therefore, PM SCIE solicited the known vendor that had the identified fabric (BioSmart) available in inventory to fulfill the urgent need of face coverings to combat COVID-19. The industrial base capability was sufficient to meet the production and sustainment requirements of the Face Covering effort beyond the initial SAT contract and was not dependent on procurements by DoD to maintain viability.

There were no cost, schedule, and performance parameters yet associated with the emergency Face Covering effort; however, the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) did provide the following guidance:

> QUICKLY develop a face mask similar to the one shown above which allows Soldiers to be protected, breathe easily (to include during running), preclude inadvertent touching of mouth or nose, yet can endure military environments and offer additional protection features. Additionally, masks need to be easily cleaned with a replaceable filter. Ensure all Soldiers wear their eye protection continuously (clear or sun) …A final item might include a wipe packet which could be fitting to the sleeve pocket so, should you need to blow your nose or wipe your face, you have a clean item with which to do so. (Myhre et al., 2020)

Risk was managed through the Face Covering program Integrated Product Team (IPT). IPT members consist of stakeholder representatives from PM SCIE (Soldier

Clothing and Footwear Team), CCDC-SC (engineering support), PM SSV Logistics Management Directorate (fielding support), and Maneuver Capabilities Development Integration Directorate. Additional stakeholders include: Headquarters Department of the Army (HQDA) G-4, the Director of the Army Staff, ASA(ALT), HQDA G-8, and the Secretary of Defense. Regular meetings were held to monitor and manage identified risks; determine whether additional risks had developed and ensure the execution of risk mitigation strategies (Myhre et al., 2020).

2. Enterprise Solution

Phase 2 of the CCFC program was contracted by DLA Troop Support Clothing and Textiles through multiple follow-on contracts once PM SCIE transferred the Technical Design Package (TDP) and all supporting documentation from NCD. Subsequently, DLA awarded several contracts to responsible vendors. According to the DLA Troop Support acquisition manager for special purpose clothing, the largest contract, valued at $86 million, was awarded as a direct award under the 8(a) program to Aurora Industries LLC, Alaska Native Corporation. Since the vendor is the SBA certified 8(a) program participant, DLA contracting agency was able to take advantage of acquisition flexibilities under FAR part 18, Emergency Acquisitions, by awarding the requirement as a sole source (Federal Procurement Data System – Next Generation, 2020).

Under this indefinite-delivery indefinite-quantity contract, DLA can purchase up to 23 million face coverings at less than $4 each by ordering the masks in cases of 1,000. Bulk purchasing by DLA ensures military customers will receive face coverings at a lower price than if masks were purchased individually. DLA's initial issue goal is to provide rapid distribution of multiple types of cloth face coverings for nearly 3 million active duty, guard, reserve, and government civilians (Muhammad, 2020). Additionally, DLA offers face coverings for purchase to DoD, state, and local agencies through FedMall, DLA's official commerce and supplier portal supporting the Procure-to-Pay business process and supplies the initial training installations with two masks per soldier during the initial clothing issue (Reece, 2020).

B. PURCHASE DESCRIPTION

Within the CCFC requirement, the specification was described as a purchase description that covered the requirements for face covers intended for wear by military personnel. The face cover was classified as a non-regulatory Food and Drug Administration product and was not tested by any regulatory agency for a specialized level of protection. The masks were to be produced in three (3) types, nine (9) classes for patterns and colors, and one (1) size fits all to accommodate the variety of missions conducted by the military service members and government civilians (Purchase Description, 2020).

1. Face Mask Classification

The face covering is available in three types, and nine classes, one size fits all, as shown in Figures 6–9.

Types

Figure 6. Type I/Type II Face Mask.
Source: Myhre et al. (2020).

Type I Face Covering (pleated face cloth panel)
Type II Face Covering (double layer body and lining)
Type III Face Covering (flame resistant cloth)

Classes

1. Class 1 - Tan 499 (Nylon/Cotton Ripstop)
2. Class 2 - Black 557 (Nylon/Cotton Ripstop)
3. Class 3 - Operational Camouflage Pattern (OCP) (Nylon/Cotton Ripstop)
4. Class 4 - Tan 499 (Polyester/Cotton Plain Weave)
5. Class 5 - Black 557 (Polyester/Cotton Plain Weave)
6. Class 6 - Operational Camouflage Pattern (OCP) (Polyester/Cotton Plain Weave)
7. Class 7 - Operational Camouflage Pattern (OCP) (Flame Resistant cloth)
8. Class 8 - Coyote 498 (Nylon/Cotton Ripstop)
9. Class 9 - Coyote 498 (Polyester/Cotton Plain Weave)

*Purchase Description data listed above were derived from Purchase Description document Number GL-PD-20-05 Face Cover created by Natick Contracting Division on October 21, 2020.

FACE COVERING TYPE I

COMPONENTS	DESIGN FEATURES
2 ply of non-treated fabric	Adjustable (w/barrel lock) elastic cord strap for securing mask to face
Shear cut aluminum nose bridge	Inner pocket to add filter material
1 continuous length of elastic cord	Simple pleated surgical like design
Hardware: barrel lock with keeper	

Figure 7. Face Covering Type I.
Source: CCDC Soldier Center Public Affairs (2021).

FACE COVERING TYPE II

COMPONENTS	DESIGN FEATURES
2 ply of non-treated fabric	Adjustable (w/barrel lock) elastic cord strap for securing mask to face
Shaped aluminum wire nose bridge	Simplified construction for ease of manufacturing
1 continuous length of elastic cord	
Hardware: barrel lock with keeper	

Figure 8. Face Covering Type II.
Source: CCDC Soldier Center Public Affairs (2021).

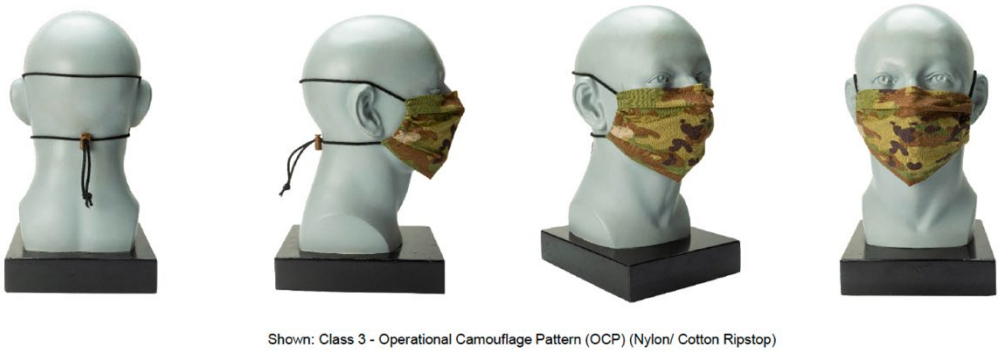

Figure 9. Face Covering Type II. Source: CCDC Soldier Center Public Affairs (2021).

2. Specifications

The Army face coverings were developed in accordance with the Military Details (MIL-DTLs) and Commercial Item Descriptions authorized for use by the General Services Administration in preference to the Military Specification. "The following specifications, standards, and handbooks formed a part of the CCFC purchase description:

COMMERCIAL ITEM DESCRIPTIONS

A-A-50199 - Thread, Polyester Core, Cotton or Polyester-Covered

DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-DTL-32075 - Label: For Clothing, Equipage, and Tentage, (General Use)
MIL-DTL-43701 - Cord, Elastic, Nylon or Polyester" (Purchase Description, 2020).

3. Product Design System Attributes

> Face covering designs and material requirements were selected with the highest Soldier acceptance for form, fit, and function, and without interferences to other head-borne protection systems and ancillary components. Two cloth materials, nylon/cotton blend and polyester/cotton blend, were selected based on the suitability of fabrics from past and current Soldier-related clothing development efforts. Covering base material can be printed with multiple Class designs (OCP, Tan 499, Black). CCDC Soldier Center Public Affairs (2021)

Both types of face coverings have adjustable nose bridges for achieving a snug fit and an elastic cable with a barrel lock used to properly secure the face mask to the face. Face covering is reusable by laundering. Soldiers can easily self-release the face cover via the barrel lock hardware. The fabric has a smooth hand for comfort on face.

4. Other Design for Production Factors.

Material selection factors considered sourcing readily available materials from industry with the ease of production and manufacturing (see Figure 6 and Figure 7). Basic material requirements, introduced in Table 2 and Table 3, provide requirement characteristics for the face coverings. According to the basic material requirements such materials "shall have no finishes (pure form) and shall meet certain requirements when tested as specified. The three cloths available for face coverings include nylon/cotton blend, polyester/cotton blend, and an inherently flame-resistant fabric. The colors are Tan 499, Black 557, Operational Camouflage Pattern (OCP), and Coyote 498, for specific classes of face covers as specified in Table 2 and Table 3" (Purchase Description, 2020).

Table 2. Basic Material Requirement.
Source: Myhre et al. (2020).

Characteristic	Requirement Classes 1, 2, 3, & 8	Requirement Classes 4, 5, 6 & 9	Requirement Class 7
Fiber identification quantitative, percent	57% T420 High Tenacity Nylon 43% Cotton	65 (±3) % Polyester 35 (±3) % Cotton	65% Rayon/ 25% Para-aramid/ 10% Nylon
Weave	Ripstop	Plain weave	Ripstop
Weight, oz./square yard	5.3 - 5.6	4.0-5.0	5.5 - 8.5
Construction, yarns per inch, (min.)			
Warp	75	95	----
Filling	45	45	----
Breaking strength, lbs. (min.)			
Warp	175	115	100
Filling	100	70	80
Tearing strength, pounds (min.)			
Warp	10	3	4
Filling	8	2.5	4
Dimensional stability, after 5 launderings percent (max.)			
Warp direction	5	5	5
Filling direction	5	5	5
Air Permeability (cu.ft/min./sq.ft.) (min.)	25	65	10
pH	5.0 - 8.5	5.0 - 8.5	5.0 - 8.5

Material selection involved determinations through extensive material characterizations and textile testing to down select to these materials that are not chemically treated and will provide the highest level of safety for the warfighters.

Table 3. Basic Material Requirements (continued from Table 2). Source: Myhre et al. (2020).

Characteristic	Requirement Classes 1, 2, 3, & 8	Requirement Classes 4, 5, 6 & 9	Requirement Class 7
Flame Resistance	N/A	N/A	
Before laundering			
After flame, seconds (max.)			
Warp			2
Filling			2
After glow, seconds (max.)			
Warp			10
Filling			10
Char length, inches (max.)			
Warp			4.5
Filling			4.5
Melt/drip (max.)			none
After 100 laundering cycles	N/A	N/A	
After flame, seconds (max.)			
Warp			2
Filling			2
After glow, seconds (max.)			
Warp			10
Filling			10
Char length, inches (max.)			
Warp			4.5
Filling			4.5
Melt/drip (max,)			none

The face covering effort was executed to provide durable protective face coverings to Soldiers, civilians, contractors, and other individuals operating on DoD property in response to SECDEF directive. PEO Soldier was directed to identify contracting solutions capable of manufacturing face coverings on an expedited timeline with minimal guidance or existing requirements package. To pursue this effort, the PEO implemented a two-phased approach. While developing the interim solution, the agency simultaneously worked on a long-term enterprise-level solution for the Army. The goal was to begin distribution of CCFC within days from the receipt of the directive.

This chapter analyzed acquisition strategy pursued by PM SSV, the interim and long-term solutions to pursue CCFC effort, and the purchase description which dictated detailed requirement characteristics. The next chapter will provide a review and critique of the available literature applicable to the research of the CCFC effort.

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III. LITERATURE REVIEW

1. Directive

The Department of Defense issued a memorandum for the use of cloth face masks. This memorandum (Appendix A) provides guidance from SECDEF in April 2020 in response to the COVID-19 virus. The focus of this directive is to implement measures needed to reduce the medical risk of spreading the COVID-19 virus by mandating all DoD employees to social distance and use cloth face coverings when on DoD property. According to Secretary of Defense Mark Esper,

> The Department of Defense (DoD) is committed to taking every precaution to ensure the health and wellbeing of our Service members, DoD civilian employees, families, and the Nation in response to the Coronavirus Disease 2019 (COVID-19) pandemic. DoD supports, and will continue to implement, all measures necessary to mitigate risks to the spread of the disease, consistent with the Department's priorities to protect our people, safeguard our national security capabilities, and support the government's whole-of-nation response. (Office of the Secretary of Defense, 2020)

The memorandum started the acquisition process for the Army Combat Cloth Face Mask. This memorandum was broad and provided flexibility to each respective military department to issue guidance on wear for service members. Moreover, it could be seen as a catalyst for the U.S. Army to acquire face masks in an expeditious manner. Due to the nature of the memorandum, no procedures, explanations, or detailed insights on how to execute the task were provided. Therefore, the DoD agencies took initiative to develop a suitable solution rapidly. One of the examples of the rapid procurement was presented by PM SCIE under PEO Soldier which developed a phase 1, interim solution, while simultaneously working on phase 2, a long-term enterprise-level solution for the Army as described in the previous chapter.

2. Mask Requirement

"COVID-19 is one of the deadliest threats our nation has ever faced. As we have done throughout our history, the military will rise to this challenge. It is imperative that we do all we can to ensure the health and safety of our force, our families, and our

communities so we can prevail in this fight," Defense Secretary Lloyd Austin stated during his mask mandate speech in February 2021. This statement mandated that masks be worn on DoD installations—whether indoors or outdoors—to limit the spread of COVID-19, with few exceptions.

3. Acquisition Approaches

Flowing from the DoD directive was the Army Combat Cloth Face Cover Simplified Acquisition Management Plan (also known as SAMP) that was used to ensure compliance with the SECDEF directive and provide Soldiers performing in operational and training settings and civilian, contractors, and other individuals on DoD property, installations, and facilities with protective face covering. The Army face mask effort followed an urgent acquisition program approach to provide protective equipment during the global pandemic. The data from the SAMP documented the procedures that were followed to develop the face coverings in response to the national and global emergency to combat COVID-19. This document came directly from Program Executive Officer Soldier, the lead from Assistant Secretary of the Army (Acquisition, Logistics, and Technology) for acquisitioning face coverings. The SAMP described the acquisition process that was used to rapidly acquire the Army's face mask, PEO Soldier was tasked to procure up to 180,000 face masks. The Government agencies involved in the procurement of CCFC had to act quickly in the absence of the officially published directed requirement to adopt the most expeditious acquisition pathway to reach their objectives. The Milliken S.A.T. contract would be another interim solution face covering while U.S. Amy CCDC-SC personnel continued to develop and test prototype coverings to define a long-term solution. The SAMP (Appendix B) describes the acquisition approach used to acquire the Army face mask rapidly. It methodically goes through cooperative opportunities, program management, business strategy, risk management, cost and performance management, systems engineering, and test and evaluation strategy that sums up the entire life cycle of the mask. This document catalogs the process that was used to acquire the Army Face mask. This document went step-by-step of the Army's acquisition approach, described the management framework, and provided a vehicle for obtaining required statutory and regulatory approvals and document waivers.

Market research identified mandatory source partners with manufacturing capability as well as the contracting office to initiate a contracting vehicle that would allow for immediate award to vendors capable of producing coverings using non-treated materials in acceptable colors (Myhre et al., 2021). PEO Soldier established that Milliken as a vendor had an anti-microbial fabric inventory and the ability to rapidly subcontract production (Myhre et al., 2021).

The Army Uniform Board recommended issuing the CCFCs to Soldiers at Initial Entry Training as part of their clothing bag, the U.S. Army Chief of Staff approved the issuance for two CCFCs to each new Soldier entering the Army (Army G-4, 2020). The CCFC was slated to take less than a year for the rapid acquisition timeline from inception to issuance. This article also discussed the different interim solutions that the Army used prior to issuing the CCFC in the second quarter of FY2021, such as providing disposable or reusable, solid color masks, neck gaiters, bandanas, and scarves. "It normally takes 18–24 months for DLA to have the item available for order once the technical description, design, and components are approved and submitted" (Army G-4, 2020.). The online qualitative article incorporates the overall direction that the Army Uniform Board recommended to the U.S. Army Chief of Staff, who approved the issuance of the face mask as part of the Soldiers Initial Entry Training by the Defense Logistics Agency as well as making masks available for purchase at the Army & Air Force Exchange Services. The significance of this article is that it highlights the interim solution that the Army used to provide a viable temporary solution that supports the CDC guidance.

Aragon (2020) discusses the Air Force's acquisition process in contracting their protective cloth masks for their Airmen and families. This report discusses the Air Force Installation Contracting Center's rapid approach to defining requirements and ensuring commonality and mask standardization across all units by ensuring that the same statement of work, justification, and approval, blanket purchase agreement shells, and ordering guidelines are used throughout the organization. Using this method, the Air Force was able to secure a personal protective equipment contract for the entire enterprise in 4 days using 20 blanket purchase agreements (BPAs). "As change agents and mission-focused business leaders, our ability to execute 20 BPAs in less than four days was predicated on our capacity to seamlessly work together as one team while simultaneously

engaging various vendors—both stateside and overseas—throughout the process" (Argon, 2020). Small businesses have received over $1.2 million in contracts for face masks. This process significantly reduced the acquisition timeline that the Air Force used and was able to get masks to Airmen in record speed compared to the Army's 1-year process. The only thing Argon (2020) doesn't discuss is when the actual face masks went into the hands of the Airmen and their families.

Tate (2017) conducted an exploratory case study to "increase knowledge and understanding of the deficiencies of the Army Rapid Acquisition Process (ARAP) through the lens of a broad cross-section of Army acquisition functional area professionals. Since 2001, the Army has spent billions of dollars to develop, test, and procure equipment through the Army Rapid Acquisition Process (ARAP), a process at times used in place of the traditional Army Acquisition Process (AAP) when immediacy and customization are a priority" (Tate, 2017).

> The ARAP was implemented to increase efficiency in delivering adequate equipment to soldiers. The ARAP has been criticized in the literature for its lack of efficiency and effectiveness in the field. Tate stated that the current Army Rapid Acquisition Process needs to be improved. Improved processes may also assist in delivering equipment to soldiers in a timelier manner, ultimately assisting in defending the United States and protecting soldiers' lives. (Tate, 2017)

The report's findings, coupled with the recommendations, provided great insight into influencing the acquisition process.

"Militaries face increasing budget pressures, high operations tempos, a blitzing pace of technology, and adversaries that often meet or beat government capabilities using commercial off-the-shelf (COTS) technologies" (Hawkins & Gravier, 2019). The COTS products and services while integrated into the defense systems to streamline acquisition still face challenges. (Hawkins & Gravier, 2019). The purpose of the journal titled, "Integrating COTS technology in defense systems: A knowledge-based framework for improved performance is to offer a knowledge-based conceptual framework for understanding COTS technology integration in the defense sector" (Hawkins & Gravier, 2019). Hawkins and Gravier identified "three forces that threaten the innovative capability of the U.S. military: fiscal reality of exploding national debt across nearly all

developed nations, the shift in market dominance away from the military, and the advancing of technology in a record pace" (Hawkins & Gravier, 2019). COTS has been defined as "products sold, leased, or licensed to the public, [for which a] supplier is a commercial entity in the business of making a profit, integrators use the product without modification, [the] supplier retains intellectual property rights, [the] supplier provides product support and evolution, [and the] commercial market drives product evolution" (Hawkins & Gravier, 2019). The authors list several benefits for faster incorporation of COTS products and services that facilitates "faster development time, reduced cost, and higher quality compared to custom development" (Hawkins & Gravier, 2019).

4. Criticisms

Shortly after the Department of the Army acquisitioned their first Army Combat Cloth Face Cover contract, criticisms regarding price and timeline ensued. "The Army spent almost a year making face masks. That doesn't bode well*"* is an online publication published by *Popular Mechanics* aimed to ascertain the slow acquisition of the CCFC compared to the COTS solution. The article's main point is to shine a spotlight on the perceived slow acquisition and dissemination of the Army CCFC compared to a COTS solution. Mizokami's (2020) research aims to ascertain the slow acquisition of the CCFC compared to the COTS solution. From inception to issuance, the CCFC went through a rapid acquisition process of 1 year in comparison with the typical 18–24 months. As stated by Mizokami, "the CCFC is a face mask in the Army's Operational Camouflage Pattern (OCP), allowing it to match the appearance of the standard OCP combat uniform. It consists of a piece of OCP cloth, an elastic headband, and a second drawstring band, and that's pretty much it" (Mizokami, 2020). The author continued by stating "it's not clear why the U.S. Army, the most powerful fighting force in the world, required nearly a year to develop a mask that would have taken the civilian sector mere days—if not hours—to develop. The only special features the covering has that civilian masks lack is the use of the OCP pattern and a military-style initialism (CCFC)" (Mizokami, 2020). The article discusses several other acquisition programs, such as the M2 Bradley infantry fighting vehicle and the M9 Handgun, in which the Army's acquisition process was

exceptionally slow. The article also highlighted a perceived weakness in the Army's acquisition process but lacked sufficient data to support the author's views.

"The System worked as designed' is bad news" by Caroline Baxter (2021) discusses the slow and perceived pricey acquisition of the Army CCFC. The article published by Defense News further perpetuates the common theme that even the Army's expedited procurement activities are slow.

Figure 10. The Army's $43 Million Face Mask.
Source: Baxter (2021).

> It took a full year for the service to design, approve and distribute a face mask—called a Combat Cloth Face Covering, or CCFC—for its soldiers, an effort that required an additional $43.5 million in contracts to provide temporary solutions. That comes out to about $45 per mask, if you assume every active-duty, National Guard and Reserve soldier received one. A pack of 20 N95 masks at Home Depot costs about $20. (Baxter, 2021)

Baxter (2021) continued by stating that when the Army must spend a year and "millions of dollars to replicate something of such a low level you can buy it at CVS, it calls into question whether the services can really counter the cutting-edge future threats their civilian leadership tells them are right around the corner. And that question has staggering consequences for the viability of the Defense Department's latest organizational principle: great power competition" (Baxter, 2021).

"The Army touted its efforts to speed the acquisition process, going from inception to issuance of the mask in less than a year" (Garland, 2021). This article contains a discussion of the discrepancies between the military acquisition of face masks

and the commercial sector. After conducting further research on the article by reaching out to the author, it was discovered that the data was pulled from USAspending.gov.

> The $43.5 million was not for the CCFC, but was the total contracted for disposable and other cloth face masks from January 2020 to December 2020. In other words, while waiting for the CCFC to be developed, the Army procured commercially available alternatives. It is also likely not all those masks were designated for the U.S. Army but may have been provided to partner forces or allies overseas or stockpiled for emergency use or to assist other agencies. My data does not have enough granularity on that, but we know some of that was happening at the time. Additionally, what I wasn't told until a month after my story ran, is that the Army's Combat Development Command also produced 10,000 Combat Cloth Face Covering Type I masks in April and May 2020—in-house—to be sent to Fort Benning, Ga., months before it began contracting for them through DLA. (C. Garland, personal communication, 2021, October 15)

This chapter highlighted the different aspects and perceptions that the public perceived shortly after the Department of the Army issued a directive to acquisition the Army Combat Cloth Face Cover contract. Criticism regarding the price and the timeline ensued. The Department of the Army assessed several acquisition approaches that were capable in accelerating the acquisition timeline. The Department of the Army should continue to analyze its rapid capability functions to identify potential advantages and disadvantages with acquisition strategies used. Evaluating if the Army CCFC expedited procurement process selected was the best acquisition decision compared to the commercial acquisition processes that existed during the time of procurement will influence the acquisition processes for similar requirements in the future as can be seen in the next chapter, the case study.

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IV. CASE STUDY

It was the early morning on April 3, 2020, when LTC Jessica Allen entered her office. COVID-19 still in its initial stages, began its spread in the U.S., and cases of infection were rising daily. There were so many unknowns during this turbulent time for the country. Allen knew that it was just a matter of days until the Secretary of Defense (SECDEF) provides further guidance for the DoD personnel in response to the global pandemic.

LTC Allen is serving her second year at PEO Soldier as the PM Soldier Survivability (SSV) and is very fond of her position. For now, she still had an opportunity to work from the office and collaborate with her teammates face-to-face. As she was having her morning latte and catching up on the latest news and emails suddenly her office phone rang. On the line was her boss, Major General Jones, who served as the Program Executive Officer Soldier. "Drop what you are working on right now, we have an urgent matter to address," said MG Jones and called LTC Allen and her team to his office for an important meeting. Allen was able to gather her team members at once and rushed to the general's office. Once all requested personnel were gathered, MG Jones continued: "PEO Soldier just received an urgent requirement from the Army Futures Command to develop combat cloth face coverings suitable for military use and to deliver it as quickly as possible to the lowest levels of the Army. In the face of the global pandemic, our Warfighters need our immediate support. Now, this is where I need your help. LTC Allen, I put you in charge of developing courses of action (COAs) in support of this effort. Ensure you gather all the necessary resources and manpower to accomplish this project. Remember, this is not just your team's effort. Multiple key stakeholders are involved in this requirement and want to see it succeed. I will send you all documentation I have gathered so far and expect you to present the possible COAs by the close of business tomorrow. Good luck!"

When LTC Allen returned to her desk, her inbox already had some additional information along with a few important documents regarding the face coverings effort that required her attention. While looking through the newly received files, the PM began

to ponder possible COAs. Her experience and expertise from working on various acquisitions projects in the past led her to several possible ways to pursue both phases of this effort:

Phase 1 – Interim Solution: Procurement of the first 180,000 cloth face coverings.

Within the Adaptive Acquisition Framework (AAF) LTC Allen could use the following pathway: Urgent Capability Acquisition. Urgent Capability Acquisition pathway, displayed in Figure 11 was created to streamline acquisition processes to provide warfighters "involved in conflict or preparing for imminent contingency operations with the necessary capabilities to overcome emerging threats" (DoDD 5000.71, 2020). "The Urgent acquisition pathway enables capability development in a few weeks followed by production and deployment in months" (DoDD 5000.71, 2020).

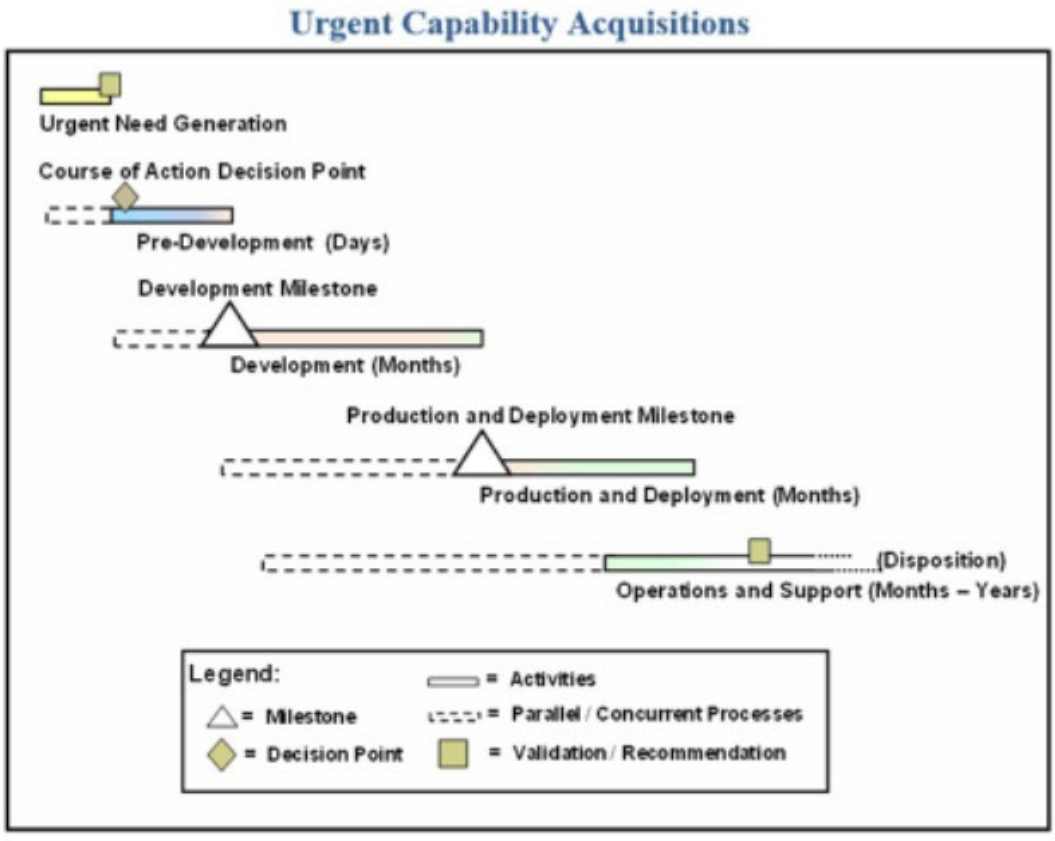

Figure 11. Urgent Capability Acquisitions: AAF.
Source: Defense Acquisition University (2021).

Phase 2 – Enterprise-level Solution: Establishing long-term support through DLA for procurement and distribution for the Army. Both the MTA and MCA were options for Phase 2.

Middle Tier of Acquisitions (MTA): This pathway, displayed in Figure 12, is intended to "fill the gap for technologically matured capabilities that can be rapidly prototyped or fielded in less than five years" (Defense Acquisition University, 2021).

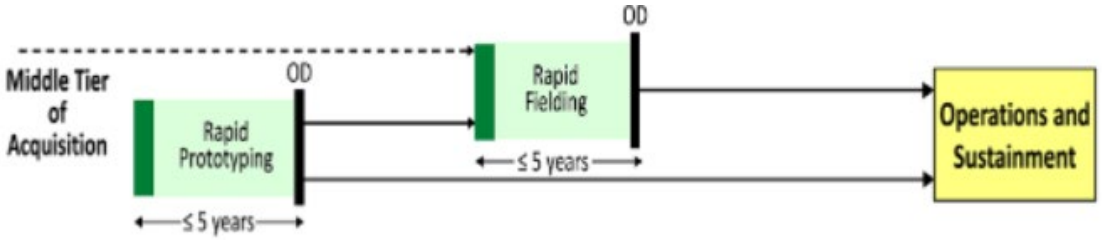

Figure 12. Middle Tier of Acquisition: Adaptive Acquisition Framework. Source: Defense Acquisition University (2021).

Major Capability Acquisitions (MCA): Although this pathway is used for major programs that provide the enduring capability to warfighters and follow a structured Joint Capabilities Integration and Development System (JCIDC) driven approach, the PEO can enter this pathway directly at milestone C, production, and deployment, since the face covering requirement has been already developed and the prototype is available. The MCA pathway is described in Figure 13 below.

Figure 13. Major Capability Acquisition: Adaptive Acquisition Framework. Source: Defense Acquisition University (2021).

Among the documents available to LTC Allen were the SECDEF's memorandum which provided guidance on the use of cloth face coverings and applicability, project constraints that her team had to take into consideration, and finally, a list of key stakeholders involved in this effort.

A. SECRETARY OF DEFENSE GUIDANCE ON COMBAT CLOTH FACE COVERINGS

On 5 April 2020, the SECDEF signed a memorandum in which he issued guidance on the use of cloth face coverings as one of the measures of protection in response to the COVID-19 global pandemic (Appendix A). The memorandum directed that "all individuals on DoD property, installations, and facilities will wear cloth face coverings when they cannot maintain 6 feet of social distance in public areas or work centers" (SECDEF, 2020). "Program Executive Office Soldier (PEO Soldier) was directed by the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) to identify contracting sources that could manufacture face coverings on an expedited timeline" (Office of the Secretary of Defense, 2020).

B. PROJECT CONSTRAINTS

(1) Schedule

Since the cloth face covering had to be developed and distributed in the shortest time possible, an immediate interim solution, as well as simultaneous development of a long-term enterprise-level solution was required.

(2) Cost

The price for cloth face covering must be fair and reasonable and comparable with the current market cost estimates of cloth masks available to the general public.

(3) Performance (Material and design)

The protective face covering must be designed and manufactured from non-treated materials suitable for the Soldiers and Department of the Army civilians operating in garrison and while conducting operations in enduring military environments. Additionally, the face covering must be manufactured from an anti-microbial, 2-ply fabric capable of covering the mouth and nose without being manually held in place in black and Operational Camouflage Pattern (OCP) patterns (Myhre et al., 2020).

(4) Other Considerations

When executing the CCFC requirement, acquisition personnel were further required to ensure the manufacturing of face coverings to support the Secretary of Defense directive did not impinge on the ability of the industry to produce medical quality N95 masks required by doctors and first responders. This guidance was documented in the Simplified Acquisition Management Plan (SAMP) and directed PM to seek a more durable and reusable face covering that could be manufactured without hindering the production capability of the industry (Myhre et al., 2020).

C. KEY STAKEHOLDERS' ROLES AND RESPONSIBILITIES

In response to the SECDEF's directive for all individuals to wear face coverings on DoD installations, the PEO Soldier directed PM Soldier Survivability (PM SSV) to work with the U.S. Army Combat Capabilities Development Command Soldier Center (CCDC-SC) and industry (to include mandatory sources) to design and manufacture protective face coverings from non-treated materials to be immediately distributed to Soldiers and individuals as necessary.

The cloth face covering was the Army's coordinated effort and involved several key players:

- PEO Soldier
- U.S. Army Combat Capabilities Development Command (DEVCOM) Soldier Center
- Headquarters Department of the Army (HQDA)
- Army Futures Command (AFC)
- Aberdeen Proving Ground Natick Contracting Division
- Defense Logistics Agency (DLA) Troop Support
- Army Public Health Command
- Industry

D. UNITED STATES ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND SOLDIER CENTER (CCDC-SC)

Located in Natick, Massachusetts, The U.S. Army Combat Capabilities Development Command (DEVCOM) Soldier Center focuses on Soldier-related research, development, testing, and evaluation requirements which include a variety of efforts from

life support and clothing to precision airdrop and laser-protection systems. The center is comprised of a diverse workforce who work directly with Soldiers to better understand the needs, make necessary improvements to already fielded products and develop new technologies.

In relation to the Combat Cloth Face Covering effort, the DEVCOM Soldier Center's primary responsibility was to develop a prototype rapidly. With this in mind, the Soldier Center quickly designed prototypes conforming to the military standards for protection against COVID-19.

The CCDC Soldier Center "quickly developed six prototypes for face coverings, tested the prototypes, and chose one prototype that was highly rated by Soldiers for immediate development. CCDC SC also selected a second prototype that has been further developed, coordinated with PEO Soldier, and later became a permanent Army solution" (Benson, 2020).

> During the pandemic, we must ensure that our Soldiers remain ready for any mission and that they are protected" said Douglas Tamilio, director of the CCDC SC. "Our Soldier protection and human factors expertise, combined with our testing and prototyping capabilities, enabled us to quickly develop an Army acceptable solution to the urgent requirement for face coverings. (Benson, 2020)

Program Executive Office Soldier (PEO Soldier): PM Soldier Survivability (PM SSV): PM SSV under PEO Soldier was tasked with the procurement of CCFC. According to the organization's mission PM SSV "develops and fields innovative Soldier protection equipment, functional uniforms, and individual equipment that enhance mission effectiveness, and improved individual parachute systems. PM SSV consists of Product Manager Soldier Clothing & Individual Equipment (PdM SCIE)…and the Rapid Fielding Initiative (RFI) Team responsible for fielding Soldier protection capabilities and individual equipment to the force" (Soldier Survivability PM SSV, 2021).

In relation to the CCFC requirement, PM SSV's goal was to put a contract in place within 10 days for the initial production of face coverings and subsequent transition of the contract to the DLA to support the production and distribution of face coverings

across the Army. The detailed timeline of the key events is provided in the chart below under the Questions covered during the interview section.

E. SOLUTION OPTIONS

LTC Allan began a painful process of deciding how to best move forward in presenting all viable options to MG Jones. She gathered her team and carefully examined all information and resources presented to her. Her team had to think through a viable interim solution as well as develop a long-term enterprise solution that could be applied across the entire force.

LTC Allen was also aware of various contracting approaches that her team could use to address each acquisition pathway. She quickly referred to the Defense Acquisition University (DAU) Contracting Cone and considered the following FAR-based and Non-FAR-based methods:

- Emergency Acquisitions under FAR Part 18 including direct 8(a) awards and small business set-asides under FAR Part 19
- Simplified Acquisitions Procedures under FAR Part 13
- Acquisition of Commercial Products and Commercial Services under FAR Part 12
- Contracting by Negotiation under FAR Part 15

One of the main non-FAR-based contracting approaches included Other Transaction Authority (OTA) for requirements that involved certain prototypes and research and development and a contracting method of procurement for experiments (Defense Acquisition University, 2021).

1. Emergency Acquisitions

Under certain circumstances, FAR Part 18 presents several acquisition flexibilities for the DoD contracting agencies. As such, "agencies may limit the number of sources and utilize other than the full and open competition when unusual and compelling urgency exists" (Figure 14; FAR 18). The flexibilities provided by the emergency acquisitions are suitable for the rapid acquisition process (RAP) as well as MTA in accordance with the AAF (AAF, 2020). Additionally, Emergency acquisitions flexibilities also allow the agencies to award directly to eligible 8(a) participants on either

a sole source or competitive basis under the Small Business Administration 8(a) Program (FAR 18.114).

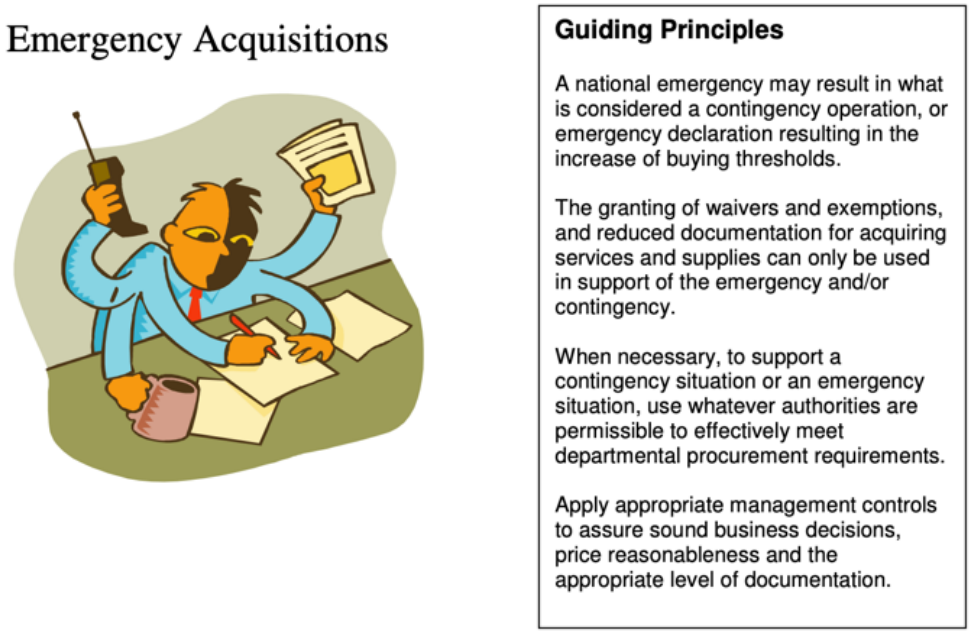

Figure 14. Emergency Acquisitions.
Source: Emergency Acquisitions Guiding Principles (2021).

2. Simplified Acquisition Procedures

The agencies are encouraged to utilize streamlined procurement methods, also known as "simplified acquisition procedures or SAP when purchasing certain commercial goods or services at or below the simplified acquisition threshold (SAT) (FAR Part 13.201(b)). This contracting method reduces the workload for the government during the offer evaluation process. Because COVID-19 was considered a National Emergency, the SAT was raised from $250,000 to $800,000 for acquisitions in the United States in a response to a declared emergency or major disaster (FAR Part 2.101). This increase allows the DoD to facilitate expeditious support with the common supplies and services required to combat the spread of the disease.

FAR Part 13 utilizes three main contracting strategies:

- Blanket Purchase Agreement (BPA): BPA is a simplified method used to meet "anticipated and repetitive requirements for supplies and services below the SAT" (Federal Acquisition Regulation, 2021). Streamlined BPA

ordering procedures reduce procurement lead time making this contracting method suitable for the urgent requirements.

- Purchase Order: As a contracting method under SAP, Purchase Orders are widely used to acquire supplies and services below the SAT and can be applied to all types of commercial supplies and services.
- Micro-Purchase: This contracting approach utilizes a Government Purchase Card (GPC) for the immediate procurement of commercial supplies and services below the micro-purchase threshold (Federal Acquisition Regulation, 2021). Under FAR Part 2 the micro-purchase threshold is established at $10,000, however, due to a response to a declared emergency or major disaster, the micro-purchase threshold increases to $20,000 for acquisitions in the United States and is considered a preferred means to purchase and pay for micro-purchases like face masks and other PPE (Class Deviation 2018-O0018).

3. Acquisition of Commercial Products and Commercial Services

The use of commercial-off-the-shelf (COTS) goods and services allows the Government agencies to take advantage of existing technological advances, cost savings, and rapid procurement that come from the competitive nature of the commercial marketplace. COTS, as a preferred solution under FAR Part 12, can be a beneficial way of procurement as it reduces cost, time of development, allows "faster insertion of technology, and lowers life-cycle costs by taking advantage of the more readily available and up-to-date commercial industrial base" (Federal Acquisition Regulation, 2021).

4. Contracting by Negotiation

Negotiated acquisitions include competitive and non-competitive acquisitions in accordance with FAR Part 15. This approach is used for contracts exceeding the SAT providing maximum flexibility in acquiring capabilities for major acquisition programs. Contrary to the previously described approaches, contracting by negotiation is more regimented and traditionally leads to a longer procurement lead time to award affecting the quick delivery of capability (Defense Acquisition University, 2021).

5. Other Transaction Authority (OTA)

Other Transactions (OT) is one of the non-FAR-based contracting approaches for technologically advanced requirements that involve certain prototypes and research and development activities. "OT agreements may leverage commercial business practices

outside the FAR removing barriers to entry such as cost accounting system compliance, and intellectual property rights requirements encouraging the contractors with cutting edge technology to do business with the Government" (Defense Acquisition University, 2021).

Both FAR-based and non-FAR-based contracting approaches presented in the DAU Contracting Cone can be successfully utilized by the PEO Soldier and applied across multiple AAF acquisition pathways including urgent acquisitions for the rapid procurement of time-sensitive requirements.

It appears several contracting approaches would be suitable to address both phases of the acquisition strategy. The PM and her team had to examine them all and apply the most suitable method/methods to each of the phases. After all, there was an immediate need for face coverings for warfighters. LTC Allen had to decide which option would be the most suitable, expeditious, and cost-effective for both the interim and long-term solutions. Which option should she recommend to MG Jones?

V. SAMPLE ANALYSIS

On February 9, 2021, Defense News published an article that caught PEO Soldier's attention. The headline read "The system worked as designed is bad news," by Caroline Baxter, heavily criticized the Army for handling the rollout of the official cloth face covering for the troops:

> It took a full year for the service to design, approve and distribute a face mask — called a Combat Cloth Face Covering, or CCFC — for its soldiers, an effort that required an additional $43.5 million in contracts to provide temporary solutions. That comes out to about $45 per mask, if you assume every active-duty, National Guard and Reserve soldier received one. A pack of 20 N95 masks at Home Depot costs about $20. And yet, the Army congratulated itself on the "expedited" timeline, compared to the 18- to 24-month procurement cycle such an effort would normally take. (Baxter, 2021)

To better understand the approach Army used to accomplish the CCFC requirement, it is important to analyze factors that contributed to the selected acquisition strategy. Perhaps, the press failed to consider several important elements prematurely casting their judgment.

A. MASKS ARE HERE TO STAY.

In its January 6, 2022, press release, the DoD moved to Health Protection Condition Charlie (HPCON Charlie) due to the increase in COVID-19 cases over the past several weeks. This change prompted certain measures to be put in place including a mask mandate in all indoor settings by service members, DoD civilian employees, onsite contractor personnel, and visitors, regardless of vaccination status. The reinstated face covering mandate is not the first one of its nature. Specifically, the DoD has gone back and forth on masking policy at least three times within the past year. Many entities, including the CDC, point to the fact that the masks are here to stay regardless of vaccination status. From the defense acquisition perspective, this means that the demand for various types of face coverings will continue to grow. Therefore, the acquisition strategy for the CCFC requirement must be capable of withstanding possible spikes in

demand and future variations of types and styles and must be sustainable in the long-term.

B. CCFC BACKGROUND.

On April 5, 2020, the SECDEF signed a memorandum in which he issued guidance on use of cloth face coverings as one of the measures of protection in response to the COVID-19 global pandemic. The memorandum directed that "all individuals on DoD property, installations, and facilities must wear cloth face coverings when they cannot maintain 6 feet of social distance in public areas or work centers" (Office of the Secretary of Defense, 2020). "Program Executive Office Soldier (PEO Soldier) was directed by the Assistant Secretary of the Army (Acquisition, Logistics and Technology) to identify contracting sources that could manufacture face coverings on an expedited timeline" (Office of the Secretary of Defense, 2020).

This chapter focuses on key questions that help identify the pursued acquisition strategy to adhere to the secretary's guidance regarding face coverings. The goal is to determine whether the practiced acquisition process was the most effective approach in terms of cost, schedule, and performance. This analysis is built on the research of open-source documents, files made available by the PEO Soldier, and communication with the media and members of the program office.

C. MAIN PLAYERS' ROLES AND RESPONSIBILITIES

1. The U.S. Army Combat Capabilities Development Command Soldier Center (CCDC-SC)

Located in Natick, Massachusetts, The U.S. Army Combat Capabilities Development Command (DEVCOM) Soldier Center focuses on Soldier-related research, development, testing, and evaluation requirements which include a variety of efforts from life support and clothing to precision airdrop and laser-protection systems.

The center is comprised of a diverse workforce that work directly with Soldiers to better understand the needs, make necessary improvements to already fielded products, and develop new technologies.

In relation to the CCFC effort, the DEVCOM Soldier Center's primary responsibility was to develop a prototype rapidly. With this in mind, the Soldier Center designed prototypes conforming to the military standards for protection against COVID-19 (CDC Guidance): "The CCDC Soldier Center quickly developed six prototypes for face coverings, tested the prototypes, and chose one prototype that was highly rated by Soldiers for immediate development" (Benson, 2020). No official test report was created due to the limited amount of time to produce the prototype. CCDC SC also selected a second prototype that undergone additional development through coordination with PEO Soldier with the goal of becoming a long-term solution for the Army (Benson, 2020).

> During the pandemic, we must ensure that our Soldiers remain ready for any mission and that they are protected" said Douglas Tamilio, director of the CCDC SC. Our Soldier protection and human factors expertise, combined with our testing and prototyping capabilities, enabled us to quickly develop an Army acceptable solution to the urgent requirement for face coverings. (Benson, 2020)

2. Program Executive Office Soldier: PM Soldier Survivability

> PM SSV under PEO Soldier was tasked with the procurement of CCFC. According to the organization's mission PM SSV develops and fields innovative Soldier protection equipment, functional uniforms, and individual equipment that enhance mission effectiveness, and improved individual parachute systems. PM SSV consists of Product Manager Soldier Clothing & Individual Equipment (PdM SCIE) and the Rapid Fielding Initiative (RFI) Team responsible for fielding Soldier protection capabilities and individual equipment to the force. (Soldier Survivability PM SSV, 2021)

For the CCFC requirement, PM SSV's goal was to put a contract in place within 10 days for initial production of face coverings and subsequent transition of the contract to the Defense Logistics Agency (DLA) to support production and distribution of face coverings across the Army. The detailed timeline of the key events is provided in the chart below under the Questions covered during the interview section.

D. INTERIM SOLUTION

According to the Simplified Acquisition Management Plan (SAMP), this effort was not a traditional program. To ensure expediency in providing protective equipment during the global pandemic, the Army acquisitions agencies pursued two efforts

simultaneously: the interim solution under Simplified Acquisition Threshold (SAT) and the enterprise-level solution for the big Army. The urgency of this requirement was a vital factor; therefore, documentation required to support a traditional acquisition was being waived.

In response to the SECDEF's directive for all individuals to wear face coverings on DoD installations, the PEO Soldier directed PM SSV to work with the CCDC-SC and industry (including mandatory sources) to design and manufacture protective face coverings from non-treated materials to be immediately distributed to Soldiers and individuals as necessary. When executing this directive, acquisition personnel were further required to ensure that the manufacture of coverings to support the secretary of defense directive did not impinge on the ability of industry to produce medical-quality N95 masks required by doctors and first responders.

Subsequently, the PEO Soldier identified Milliken as a vendor that had an anti-microbial fabric in inventory and the ability to rapidly subcontract production. PM SCIE coordinated with the Natick Contracting Division (NCD) to initiate a SAT contract to allow for a streamlined award to Milliken to produce 180,000 face coverings. The Milliken SAT contract would be for an interim solution face covering while CCDC-SC personnel continued to develop and test prototype coverings to define a long-term solution in the event it was required. The briefing charts CCDC-SC prepared to outline proposed long-term solutions.

On April 9, 2020, on behalf of PM SCIE, Natick Contracting Division published a SOW for rapid acquisition of face coverings based on an initial government design. According to the SAMP and the SOW, Phase 1 consisted of the manufacture of up to 180,000 2-ply protective face coverings in black fabric capable of covering the mouth and nose without being manually held in place. On behalf of PM SCIE, NCD awarded a SAT contract on April 10, 2020, to Milliken for immediate production (Myhre et al., 2020). The total value of the initial contract award to Milliken was $748,800 for the delivery of 180,000 face coverings priced at $4.16 per unit. First delivery was scheduled no later than April 30, 2020, with final completion of all quantities at the end of the

contract on June 19, 2020. The Delivery Schedule is outlined in Table 4 (Myhre et al., 2020).

Table 4. Milliken Delivery Schedule (Case Study).
Source: Myhre et al. (2020).

Production Vender	Milliken Delivery Schedule Quantity (End of Week)							
	30-Apr-20	8-May-20	15-May-20	22-May-20	29-May-20	5-Jun-20	12-Jun-20	19-Jun-20
American Apparel	10,000	15,000	20,000	20,000	25,000	25,000	30,000	35,000
Cumulative Total	10,000	25,000	45,000	65,000	90,000	115,000	145,000	180,000

The business strategy for the interim solution was to facilitate the emergency nature of this effort; therefore, PM SCIE solicited the known vendor that had the identified fabric (BioSmart) available in inventory to fulfill the urgent need of face coverings to combat COVID-19. The industrial base capability was sufficient to meet the production and sustainment requirements of the Face Covering effort beyond the initial SAT contract and was not dependent on procurements by DoD to maintain viability.

There were no cost, schedule, and performance parameters yet associated with the emergency Face Covering effort; however, the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) did provide the following guidance:

> QUICKLY develop a face mask similar to the one shown above which allows Soldiers to be protected, breathe easily (to include during running), preclude inadvertent touching of mouth or nose, yet can endure military environments and offer additional protection features. Additionally, masks need to be easily cleaned with a replaceable filter. Ensure all Soldiers wear their eye protection continuously (clear or sun). … A final item might include a wipe packet which could be fitting to the sleeve pocket so, should you need to blow your nose or wipe your face, you have a clean item with which to do so. (Myhre et al., 2020)

Risk was managed through the Face Covering program IPT. Regular meetings were held to monitor and manage identified risks, determine whether additional risks had developed, and ensure the execution of risk mitigation strategies (Myhre et al., 2020). Figure 15 depicts an overall schedule for the CCFC effort from its initiation to the development and distribution of face coverings in both interim and long-term solutions.

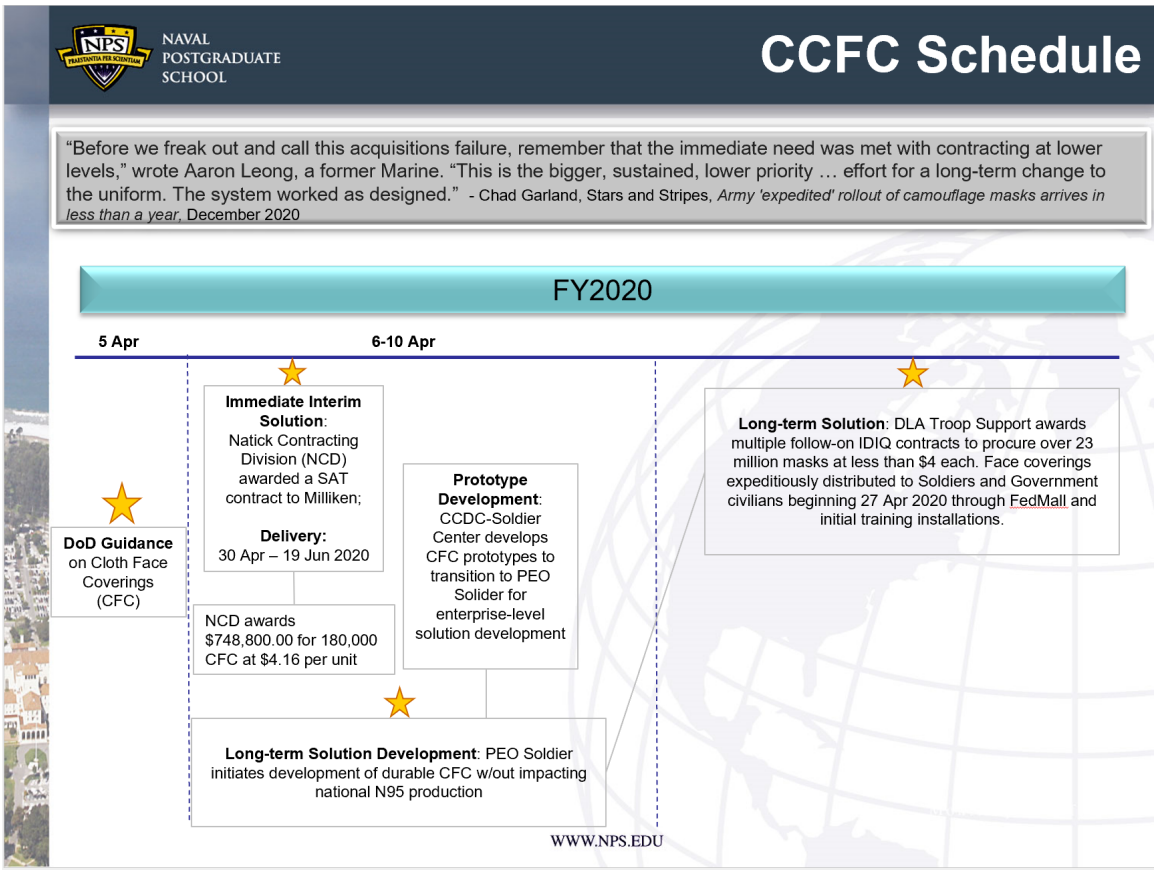

Figure 15. Army Combat Cloth Face Cover Schedule

E. CONVERSATION WITH U.S. ARMY CCDC-SC (DECEMBER 22, 2021).

1. Key Participants

To better understand the entire CCFC effort the researchers contacted subject matter experts (SME) from the U.S. Army CCDC-SC. The following is a summary what we learned of the events that took place since the dissemination of the SECDEF guidance on face coverings for the DoD on April 5, 2020.

The CCFC requirement did not utilize a traditional acquisition life-cycle management approach even though it was a project at the PEO Soldier–level under the PM Soldier Survivability (PM SSV). The requirement involved the CCDC-SC which is commonly referred to as DEVCOM Soldier Center. The Soldier Center's main task was to develop a concept and the initial prototype for the cloth face covering. Once a design was developed and a prototype down-selected, it became a part of a Technical Data Package (TDP), which was used in the selection of an appropriate procurement approach.

To better understand the complexity of the requirement, it is important to distinguish the tasks that were completed by the center and tasks accomplished by the PM. This acquisition was not considered a program or project of record. It was a response to the SECDEF's updated guidance, which urged the CCDC-SC to quickly design face covering prototypes that complied with the DoD standards and met CDC requirements for protection against COVID-19.

2. SME Questions

The research team asked a series of important questions that shed light on how the designated acquisition organizations pursued the effort to achieve expedient results.

1. *What was the original schedule to meet this requirement (emergency acquisition and long-term enterprise solution)?*

Summary of what was learned from this question (the researchers paraphrased): The Department of the Army gave a Directed Requirement (DR) through the Army Futures Command (AFC) Commanding General (CG) to develop a cloth face covering that was suitable for military application by Soldiers in the day-to-day activities and interoperable with other military gear. It is important to note that the DR was established by the Army Acquisition Policy as the source document to begin experimentation and prototype efforts prior to initiating a program of record and to move at an accelerated pace instead of treating an effort as a traditional program of record (Army Regulation 70-1, p. 23). This directive allowed the Soldier Center initiate design and prototyping activities immediately once it was received. DEVCOM Soldier Center had to design a prototype of the face cover that would meet the AFC CG's intent of military application. Once the completed prototype was down selected, it transitioned to PEO Soldier, the organization responsible for procurement activities.

After the receipt of the DR on April 3, 2020, the Soldier Center adjusted their work hours directing personnel to develop and present a ready prototype within 1 week. Initial criteria were simple: the face covering had to have modern appearance and come in black or OCP patterns. With the given aggressive timeline, the team was able to accomplish this task. Once the concept design was developed, it transitioned into a final

design stage where it was down selected and converted into a TDP, which then went on a contract (personal communication with author, December 12, 2021).

2. *What caused the program delay (if any)?*

Summary of what was learned from this question (the researchers paraphrased): The DEVCOM Soldier Center team was looking for a fabric that had specific characteristics suitable for face covering for Soldiers. According to the Soldier Center, finding the right material was the biggest constraint of this acquisition. The team knew that face covering material had to have certain level of thickness, stretch, formability, treatment, and fabric finish. The face covering was classified as a community face cover, and not N-95 protection-level mask. It was not intended to be used as a single wear but rather become a durable standard item of issue for DoD personnel. It had to be a covering solution that while worn daily could help decrease the spread of the virus. Although a large selection of standard fabrics was available on the market at that time, the DEVCOM wanted to utilize the material that was already in use by the military since it had been previously tested and found suitable for Service Members. Additionally, the intent was to not take away from already limited supplies of the market.

When prototyping began, the material was needed right away. Finding an untreated fabric with pure finish in bulk quantities and that was safe for military use was a constraint. While focusing on developing a face cover solution for the big Army, the Soldier Center also pursued in-house production to supply their own installation as well as provide masks for several training brigades in Fort Benning, GA. The CCFC prototype development timeline is outlined in Figure 16:

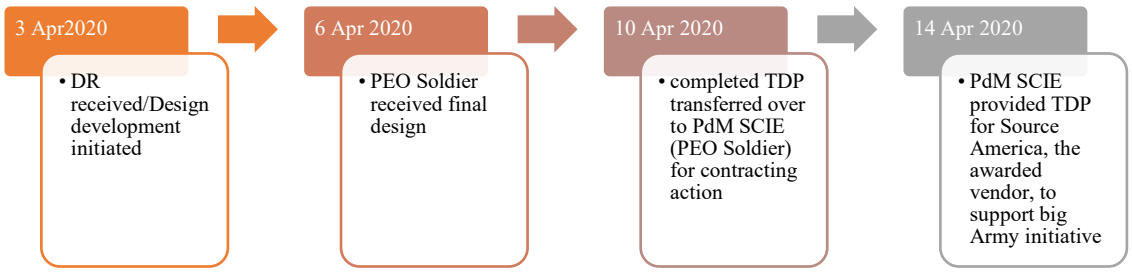

Figure 16. CCFC Prototype Development Timeline

The face covering prototype was required in one week. Since the receipt of the Directed Requirement on April 3, 2020, the team started working on the prototype development April 4–6. On April 6, DEVCOM contacted PEO Soldier with the final design. The TDP was completed on April 10 and provided to PEO Solider, the TDP data used went into the schematics and purchase description. With TDP in hand, PEO Soldier was able to award the first contract in 10 days from the receipt of the prototype. On April 14, 2020, the Product Manager Soldier Clothing & Individual Equipment (PdM SCIE) had a TDP ready for Source America, a contractor who was awarded a contract in support of the big Army's CCFC initiative. Cloth face covering under the CCFC program was meant to become a standard issue item for the Army Soldiers, which would be added to the Common Table of Allowances (CTA) 50–900, Clothing and Individual Equipment.

Concurrently with the Directed Requirement from AFC CG, Soldier Center continued to pursue independent full-scale production of cloth face coverings to field the training units in Ft. Benning. Soldier Center continued with in-house production activity to field those units within weeks. This required a synchronized and coordinated effort of the whole team. By April 19, 2020, the center produced its first 500 masks that were laundered and shipped to Ft. Benning units. By May 22, 2020, the center produced and issued 10,000 additional face covers for the training brigades and 2,000 for the Department of the Army civilians and contractors who worked on post at Natick. The material for these masks came from a local vendor (NYCO – Nylon-Cotton Material) and was purchased via Government Purchase Card (GPC) (personal communication with author, December 12, 2021).

3. *What was the Requiring Activity's guidance on the face covering pattern?*

Summary of what was learned from this question (the researchers paraphrased): Initially, the requirement was to include OCP pattern only. However, additional colors and patterns were anticipated. Therefore, once the design was refined, the requiring activity included additional color options. Coyote brown, tan, and black colors became the options that are now assigned to the National Stock Number (NSN) (personal communication with author, December 12, 2021).

4. *Did you have the right personnel (experience, longevity, training, etc.) in place?*

Summary of what was learned from this question (the researchers paraphrased): The DEVCOM Soldier Center was able to have right people in the correct positions. The project office was comprised of personnel with multi-discipline backgrounds and experience (material-science, engineering, textile chemist, equipment and product specialist, clothing designers). The office had to create a Purchase Description (PD) along with other important documentation that could be translated into a contracting action. The acquisition and contracting staff were involved in the creation of a concept, while preparing acquisition documents necessary for the contract award and administration. During the user testing, some Soldiers were selected to test and evaluate face covering suitability as well as conduct human factor evaluation. Another important factor in the team's success was the support provided by the strong leaders (personal communication with author, December 12, 2021).

5. *Market Research (MR) Questions*

a. *How much time did your team spend on MR? What tools/methods were used?*

Summary of what was learned from this question (the researchers paraphrased): There was no previous study conducted on this or similar effort. Although it was not a very complex product as far as accessories and design, the availability of the appropriate material was the team's initial constraint. Due to the urgency of this requirement, the MR was limited to 1 business week to allow quick turnaround and transition to a design of a prototype phase (personal communication with author, December 12, 2021).

b. *Would you be able to provide MR, Acquisition Strategy, and Source Selection documentation?*

Summary of what was learned from this question (the researchers paraphrased): DEVCOM Soldier Center pursued a non-traditional, hybrid-type approach to this acquisition. The requirement was not a sole source effort; it was competitive. During the initial stages of the CCFC program, the requirement was awarded as a Materials and Development (M&D) contract to Source America, a company that served as a prime contractor. Subsequently, Source America subcontracted this effort to an Ability One vendor. The initial M&D contract specified quantities and thresholds. Later, the contracting office put an IDIQ-type contract in place with the Ability One firm to support the fielding of the big Army face covering. Eventually, the contract administration was transferred to the DLA Troop Support where military units can now place face covering orders via FedMall (personal communication with author, December 12, 2021).

Procurement objectives were the following:

- Concept design
- Prototype for soldier touch points
- Prototype for the M&D
- Finalize the TDP
- PDM for the in-house production
- Final designs for issue

6. *Were there any unidentified risks that affected this acquisition in terms of cost, schedule, performance?*

Summary of what was learned from this question (the researchers paraphrased): CCFC was not a sophisticated requirement and did not require a formal risk mitigation plan. Material availability was the main constraint during the initial stages of the project and was considered as risk. Considering the aggressive timeline and uncertainty in the beginning of the pandemic, the team's focus was the development of a realistic and affordable solution for the DoD. To achieve this, the office created multiple schedules: in-house production timeline for the training brigades at Ft. Benning, and a separate schedule to support the big Army initiative (personal communication with author, December 12, 2021).

7. *Would you say the enterprise solution was effective in a time-constrained environment?*

It was the Army's coordinated effort between several key players: DEVCOM Soldier Center, PEO Soldier, HQDA, AFC, Aberdeen Proving Ground Natick Contracting Division, DLA Troop Support, and Army Public Health Command. Additionally, this project included researchers, designers, textile technologists, chemists, scientists, and the industry. The industry was eager to take part in the development of the face covering solution for DoD, communicating with the team frequently and effectively to accomplish this effort. Overall, every stakeholder involved used this opportunity to pull together their knowledge and efforts to produce a quality solution as fast as possible, capable of providing a level of protection for our troops in response to the global pandemic.

This was an effective solution and a good news story for the Army. Although it did take time to develop a long-term solution, the Army was able to put necessary measures in place to ensure the SECDEF's policy was adhered to from the day it was enacted. From the use of GPC (initial surge of demand), through the interim SAT solution for cloth face coverings, and the long-term solution with the DLA for the big Army purchasing, the Army was able to support the new face covering guidance while protecting the Soldiers, DA Civilians, and the contractors (personal communication with author, December 12, 2021).

8. *Do you think the CCFC program would be successful if this requirement utilized a more traditional approach?*

Using a rapid acquisition process was necessary to go after this effort. This was a directed requirement with an extremely shortened time constraint. Using a non-traditional acquisition approach was more appropriate to accomplish the CG's intent: directed requirement from GO (which shortened the time of procurement and amount of red tape) - expedited market research - prototype – down select - put it on a contract. This approach should be applied to other similar type rapid requirements. If the Army needed to come up with the next generation uniform that meets environmental operational conditions, rapid acquisition mindset is essential to getting it done fast (personal communication with author, December 12, 2021).

3. Correspondence With the Press

Chad Garland, a Marine Corps veteran who covered the U.S. military in the Middle East, Afghanistan, and sometimes elsewhere for *Stars and Stripes,* was one of the initial reporters to cover the Army CCFC program roll-out. In his article, *Army 'expedited' rollout of camouflage masks arrives in less than a year (Garland, 2020),* Garland also claimed $43.5 million in spending on the CCFC effort. The research team reached out to Garland directly asking him to provide an explanation for his calculations. To which Chad Garland responded in the following email:

> The $43.5 million was not for the CCFC, but was the total contracted for disposable and other cloth face masks from January 2020 to December 2020. In other words, while waiting for the CCFC to be developed, the Army procured commercially available alternatives. It is also likely not all overseas stockpiled for emergency use or to assist other agencies. My data does not have enough granularity on that, but we know some of that was happening at the time. (C. Garland, personal communication, 2021, October 15)

As for the source, Garland continued, "My source was public federal contracting data from USAspending.gov. … Basically, I searched for contracts designated for face masks or face coverings; downloaded, cleaned up and refined the data; then totaled the contract amounts." (C. Garland, personal communication, 2021, October 15)

He continued, "What I wasn't told until a month after my story ran, is that the Army's Combat Development Command also procured 10,000 Combat Cloth Face Covering Type I masks in April and May 2020—in-house—to be sent to Fort Benning, GA, months before it began contracting for them through DLA." (C. Garland, personal communication, 2021, October 15)

This correspondence with the research team provides a better understanding of the origin of the sources the media used in their analysis. Although Garland conducted thorough research from available open-source documents, via USAspending.gov, he was unable to access other important sources of information, such as PM SSV, PEO Soldier, and DLA Troop Support personnel to understand the internal processes associated with this procurement and efforts put in to provide a timely solution to an urgent need.

Displayed in Figure 17 is a graphical storyboard representation of the entire CCFC effort that summarizes the entire effort.

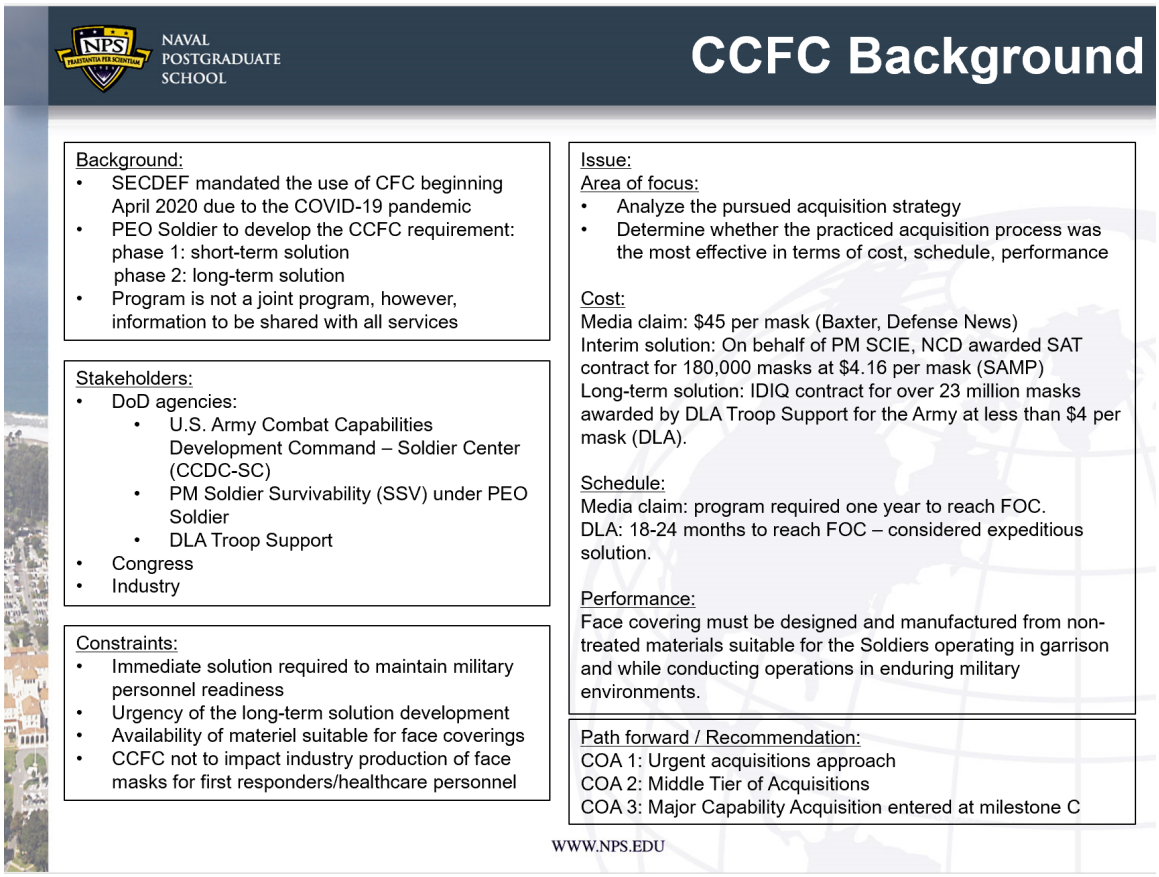

Figure 17. Combat Cloth Face Cover Background and Path Forward

VI. CONCLUSION/RECOMMENDATIONS/FUTURE AREAS OF RESEARCH

A. CONCLUSION

While analyzing the acquisitions approach used in the development of the CCFC this research focused on confirming whether the approach was suitable to meet the urgent timeline to support the needs of the Warfighter. While the traditional acquisition life-cycle approach is the preferred pathway for the development of a new product, it takes time from its conception to the item production. As the traditional acquisition approach adheres to a series of milestones, phases, and regulatory reviews and requirements for each stage of the product's development, it can make the product timeline expand far beyond the initial product timeline creating schedule overruns and negatively impacting the Warfighter's readiness.

To adhere to the aggressive timeline requested in the SECDEF's memorandum in response to the spreading COVID-19 pandemic, the Army acquisitions community chose to utilize a revamped method using the emergency acquisitions approach capable of achieving a materiel item production in less than 1 year. When examining the official acquisitions documents and data, it is evident that the PEO Soldier and other agencies involved in the CCFC effort successfully capitalized on flexibilities that were only available under the prescribed circumstances per FAR Part 18 to streamline the standard procurement processes. With the emergency acquisitions authorization in mind, the agencies tasked with this effort effectively achieved simultaneous development, production, and fielding of the face coverings via a short-term and long-term solutions.

After a thorough analysis of multiple acquisition approaches within the AAF including Major Capability Acquisition, Middle Tier of Acquisition, and Urgent Capability Acquisition approaches, we concluded that the most expeditious approach to go after the CCFC effort was the Urgent Capability Acquisition as the best suitable pathway to provide the face coverings during the global pandemic in the fastest time possible under the emergency authorization. Our team's recommendation is to continue

the utilization of the urgent acquisition approach and all suitable contracting methods for expeditious procurement for similar emergency requirements in the future.

B. RECOMMENDATION

The traditional acquisition life-cycle approach such as Major Capability Acquisition, is the dominant pathway for acquisitioning new products to the battlefield. However, to meet the aggressive timeline during the national emergency the CCFC effort used the urgent capability acquisition approach combined with FAR Part 18, Emergency Acquisitions, to develop, procure, and expeditiously deliver a materiel item within 1 year to the entire force, with the initial issue of 10,000 face masks fielded to training brigades only 19 days after the directive was given. The AAF urgent acquisition approach the Army agencies utilized should be applied to other similar rapid requirements. This mindset should permeate throughout the acquisition community in order to embrace a more adaptive and flexible acquisition framework.

C. FUTURE AREAS OF RESEARCH

Since the inception of AAF, the acquisition pathways such as MTA and Urgent Capability acquisition have gained popularity in the Army acquisition community in recent years. Specifically, within the AAF, the MTA pathway is used for RDT&E and prototyping within the acquisition programs to "demonstrate new capabilities and rapidly field production quantities of technologically matured systems that require minimal development" (AAF, 2020). Traditionally, the MTA pathway is used for more complex, highly technical, and innovative requirements that demonstrate already matured technology. This pathway is intended to fill the gap for technologically matured capabilities that can be rapidly prototyped or fielded in less than 5 years. "Urgent Capability Acquisition pathway streamlines acquisition processes to provide warfighters involved in conflict or preparing for imminent contingency operations with the necessary capabilities to overcome emerging threats" (AAF, 2020). This acquisition pathway enables capability development in a few weeks followed by production and deployment in months. (DoDD 5000.71, 2020).

Urgent capability acquisition pathway is also suitable for less complicated requirements. In fact, the Army CCFC effort, being a more simplistic requirement, successfully utilized this approach to produce a desirable outcome within the essential project constraints of schedule, cost, and performance, without interrupting the ability of the industry to produce medical quality N95 masks required by doctors and first responders. Therefore, in an environment of increasing threat and uncertainty such as a national emergency during COVID-19, where an identified capability gap must be closed expeditiously, the utilization of urgent capability acquisition pathway is critical to the warfighters' success.

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APPENDIX A. DEPARTMENT OF DEFENSE GUIDANCE ON THE USE OF CLOTH FACE COVERINGS

SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

APR 0 5 2020

MEMORANDUM FOR CHIEF MANAGEMENT OFFICER OF THE DEPARTMENT OF DEFENSE
SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
CHIEF OF THE NATIONAL GUARD BUREAU
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
DIRECTOR OF COST ASSESSMENT AND PROGRAM EVALUATION
INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE
DIRECTOR OF OPERATIONAL TEST AND EVALUATION
CHIEF INFORMATION OFFICER OF THE DEPARTMENT OF DEFENSE
ASSISTANT SECRETARY OF DEFENSE FOR LEGISLATIVE AFFAIRS
ASSISTANT TO THE SECRETARY OF DEFENSE FOR PUBLIC AFFAIRS
DIRECTOR OF NET ASSESSMENT
DIRECTORS OF DEFENSE AGENCIES
DIRECTORS OF DOD FIELD ACTIVITIES

SUBJECT: Department of Defense Guidance on the Use of Cloth Face Coverings

The Department of Defense (DoD) is committed to taking every precaution to ensure the health and wellbeing of our Service members, DoD civilian employees, families, and the Nation in response to the Coronavirus Disease 2019 (COVID-19) pandemic. DoD supports, and will continue to implement, all measures necessary to mitigate risks to the spread of the disease, consistent with the Department's priorities to protect our people, safeguard our national security capabilities, and support the government's whole-of-nation response.

The Centers for Disease Control and Prevention (CDC) recommends wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain, especially in areas of significant community-based transmission. Military personnel, DoD civilian employees, their family members, and DoD contractors are strongly encouraged to follow CDC guidelines on the use of cloth face coverings in public settings or where other social distancing measures are difficult to maintain.

Effective immediately, to the extent practical, all individuals on DoD property, installations, and facilities will wear cloth face coverings when they cannot maintain six feet of social distance in public areas or work centers (this does not include in a Service member's or Service family member's personal residence on a military installation). This includes all:

- Military Personnel

- DoD Civilian Employees
- Family Members
- DoD Contractors
- All other individuals on DoD property, installations, and facilities

Exceptions to this requirement may be approved by local commanders or supervisors, and then submitted up the chain of command for situational awareness. Security checkpoints may require the lowering of face covers to verify identification.

The Under Secretary of Defense for Personnel and Readiness will issue updated force health protection guidance on DoD implementation. The Military Departments will issue guidance on wear for Service members. As an interim measure, all individuals are encouraged to fashion face coverings from household items or common materials, such as clean T-shirts or other clean cloths that can cover the nose and mouth area. Medical personal protective equipment such as N95 respirators or surgical masks will not be issued for this purpose as these will be reserved for the appropriate personnel.

The Department will continue to implement force protective measures to mitigate the spread of COVID-19 to our total force and their families, and the American people. The latest DoD policies can be found at https://www.defense.gov/Explore/Spotlight/Coronavirus.

Mark T. Esper

APPENDIX B. CLOTH FACE COVERINGS (FACE MASKS) SIMPLIFIED ACQUISITION MANAGEMENT PLAN

Cloth Face Coverings (Face Masks)

SIMPLIFIED ACQUISITION MANAGEMENT PLAN (SAMP)

April 2020

DISTRIBUTION D. Distribution authorized to Department of Defense and U.S. DoD contractors only for Administrative or Operational Use effective June 2014. Other requests for this document will be referred to Project Manager Soldier Survivability, Building 325, Fort Belvoir, VA 22060.

SIMPLIFIED ACQUISITON MANAGEMENT PLAN
FOR THE
Cloth Face Coverings (Face Masks)
April 2020

SUBMITTED BY:

MYHRE.JEFFREY.J OHN.1153626878 Digitally signed by MYHRE.JEFFREY.JOHN.1153626878 Date: 2020.04.16 14:44:08 -04'00'

JEFFREY J. MYHRE — Date
Deputy Product Manager
Soldier Clothing and Individual Equipment

CONCURRENCE:

ALLEN.JONATHAN. EARL.1115218715 Digitally signed by ALLEN.JONATHAN.EARL.1115218715 Date: 2020.04.22 10:03:58 -04'00'

JONATHAN E. ALLEN — Date
LTC, LG
Product Manager, Soldier Clothing and
Individual Equipment

APPROVAL:

THOMAS.STEPH EN.1064915483 Digitally signed by THOMAS.STEPHEN.1064915483 Date: 2020.04.22 18:47:57 -04'00'

STEPHEN THOMAS — Date
COL, AC/IN
Project Manager, Soldier Survivability

Table of Contents

1. Executive Summary.

The Face Covering effort was initiated in response to the Secretary of Defense memorandum staffed 4 April 2020 and subsequently signed 5 April 2020, subject: Department of Defense Guidance on the Use of Cloth Face Coverings (Annex A).

In the subject memorandum, the Secretary of Defense committed to implement all measures necessary to mitigate risks to the spread of the Coronavirus Disease 2019 (COVID-19). COVID-19 is the global pandemic that originated in China in late December 2019 and quickly spread worldwide. The first COVID-19 casualty in China occurred on 11 January 2020 and the first confirmed diagnosis of COVID-19 in the United States was reported on 20 January 2020. By 10 April 2020 all 50 states have reported confirmed cases of COVID-19 with the total number of cases exceeding 400,500 in the United States and U.S. deaths nearing 17,000.

In an attempt to reduce the spread of COVID-19, most States have issued "shelter in place" orders that require U.S. citizens to only leave their homes to conduct essential business (e.g., grocery shopping, medical appointments, etc.). To further mitigate risks of spreading the disease, the Centers for Disease Control and Prevention (CDC) recommend that people maintain a social distance (no fewer than 6 feet) when required to be in the company of others. Finally, because there are instances that social distancing proves difficult or impossible, the CDC recommends citizens wear cloth face coverings in public settings where social distancing is difficult to maintain. The memorandum staffed and signed by the Secretary of Defense directed that effective immediately, all individuals on DoD property, installations, and facilities wear cloth face coverings when they cannot maintain a distance of six feet in public areas or work centers.

During the staffing of this directive, the Director of the Army Staff (DAS) communicated to the Assistant Secretary of the Army (Acquisition, Logistics and Technology) (ASA(ALT), the Commander, U.S. Army Materiel Command (AMC), and the Headquarters Department of the Army, Deputy Chief of Staff G-4 to plan to procure cloth face coverings that would not pull from medical supplies. Subsequently, the ASA(ALT) directed the Program Executive Officer, Soldier (PEO Solider) to identify contracting sources that could manufacture face coverings immediately.

This effort is not a traditional program and to ensure expediency in providing protective equipment during this global pandemic, documentation required to support a traditional acquisition is being waived. The Face Coverings are not an Information Technology system nor will they interface with IT systems. The Project Manager Soldier Survivability (PM SSV) coordinated with the Army Test and Evaluation Command (ATEC) and the U.S. Army Public Health Command (USAPHC) to obtain a safety confirmation and Health Hazard Assessment (HHA), respectively. A safety confirmation is required to field assets to Soldiers and the HHA is required to allow for type classification in the event face coverings will be added to the Common Table of Allowances (CTA) 50-900, Clothing and Individual Equipment.

This Simplified Acquisition Management Plan (SAMP) is intended to document the processes that were undertaken to address this directed requirement in response to the national and global emergency to combat COVID-19.

2. Mission/Requirements.

The Face Covering effort was executed to ensure compliance with the Secretary of Defense directive and to provide Soldiers performing in operational and training settings and civilians, contractors, and other individuals on DoD property, installations, and facilities with protective face coverings. For Soldiers, the Face Covering must be wearable and not interfere with other head protection items (i.e., helmet, eye protection). When executing this directive, acquisition personnel were further required to ensure the manufacturing of coverings to support the Secretary of Defense directive did not impinge on the ability of industry to produce medical quality N95 masks required by doctors and first responders.

Face coverings vary in design, level of protection, durability, and manufacturing complexity. The Joint Chemical, Biological and Defense office is procuring disposal face coverings for the Army, while PM SCIE sought a more durable face covering that could be manufactured without impinging on the production of N95 masks.

3. Program Summary.

In response to the Secretary of Defense directive for all individuals to wear face coverings on DoD installations, the PEO Soldier directed PM SSV to work with the U.S. Army Combat Capabilities Development Command – Soldier Center (CCDC-SC) and industry (to include mandatory sources) to design and manufacture protective face coverings from non-treated materials to be immediately distributed to Soldiers and individuals as necessary.

To facilitate this effort, the Product Manager Soldier Clothing and Individual Equipment (PM SCIE), immediately identified mandatory source partners with manufacturing capability as well as the contracting office to initiate a contracting vehicle to allow for immediate award to vendors capable of producing coverings using non-treated materials in acceptable colors. PM SCIE requested industry provide information on interim solutions while CCDC-SC personnel began to develop and test prototype coverings to define the Army's long-term solution.

Subsequently, the PEO Soldier identified Milliken as a vendor who had an anti-microbial fabric in inventory and the ability to rapidly subcontract production. PM SCIE coordinated with the Natick Contracting Division (NCD) to initiate a Simplified Acquisition Threshold (SAT) contract to allow for a streamlined award to Milliken for the production of 180,000 face coverings.

The Milliken SAT contract would be for an interim solution face covering while CCDC-SC personnel continued to develop and test prototype coverings to define a long-term

solution in the event it was required. The briefing charts CCDC-SC prepared to outline proposed long-term solutions are in Annex B.

On 9 April 2020, PM SCIE published a Statement of Work (SOW) (Annex C) for rapid acquisition of face coverings based on an initial Government design. Phase 1 consisted of the manufacturing of up to 180,000 2-ply protective face coverings in black fabric capable of covering the mouth and nose without being manually held in place.

On behalf of PM SCIE, NCD awarded a SAT contract on 10 April 2020 to Milliken for immediate production.

The total value of the initial contract award to Milliken was $748,800.00 for the delivery of 180,000 face coverings priced at $4.16 per unit.

First delivery was scheduled NLT 30 April 2020 with final completion of all quantities at the end of the contract (19 June 2020). The Delivery Schedule is outlined in the table below.

TABLE 1. MILLIKEN DELIVERY SCHEDULE

Production Vender	Milliken Delivery Schedule Quantity (End of Week)							
	30-Apr-20	8-May-20	15-May-20	22-May-20	29-May-20	5-Jun-20	12-Jun-20	19-Jun-20
American Apparel	10,000	15,000	20,000	20,000	25,000	25,000	30,000	35,000
Cumulative Total	10,000	25,000	45,000	65,000	90,000	115,000	145,000	180,000

4. Cooperative Opportunities.

In accordance with 10 U.SC. 2350a, the Secretary of Defense may enter into a memorandum of understanding (or other formal agreement) with one or more countries or organizations to include the North Atlantic Treaty Organization (NATO), a NATO organization, a member nation of NATO, a major non-NATO ally, or any other friendly foreign country for the purpose of conducting cooperative research and development projects on defense equipment and munitions. There are no cooperative opportunities associated with the Face Covering effort.

The Face Covering effort is not a joint program; however, the Secretary of Defense directive does apply to all Services; therefore all technical, test and user evaluation information will be shared with all the services and interested agencies.

5. Program Management.

The Face Covering effort resulted from of a Secretary of Defense directive during a National Emergency, the COVID-19 Global Pandemic. The Face Covering effort is not considered a new start program. Research, Development, Test and Evaluation (RDTE) efforts to test any proposed long-term solution prototypes will be funded using the PM SCIE 6.5 RDTE funding line: 654601S60, Clothing & Equipment. Production assets will be funded using the PM SCIE Operations & Maintenance, Army (OMA) funding line: 121018000, Central Issue Facilities/Initial Issue: Org Cl& Eq.

PM SCIE is responsible for the total life cycle management of the Face Covering effort. PM SCIE will manage this effort through an Integrated Product Team (IPT). IPT members consist of stakeholder representatives from PM SCIE (Soldier Clothing and Footwear Team), CCDC-SC (engineering support), PM SSV Logistics Management Directorate (fielding support), and the Maneuver Capabilities Development Integration Directorate (MCDID). Other Face Covering program stakeholders include: HQDA G-4, the Director of the Army Staff (DAS), ASA(ALT), HQDA G-8, and the Secretary of Defense. PM SCIE will provide regular updates to inform PM SSV and PEO Soldier of the status of deliveries through completion as well as the transition of a final Army design.

The face covering does not have a dedicated manning profile; however, the table below outlines the primary manpower and functional competencies required for the successful execution of the program.

TABLE 2. PROGRAM MANNING REQUIREMENTS

PROGRAM MANNING REQUIREMENTS					
Position	Role	Manning Type	Seniority Level	DAWIA Level	Fill Status
Assistant Product Manager (APM)	Product Management	Military	Captain/Major	II	Filled
Project Acquisition Support	Advisor to APM	DA Civilian	GS-13	II	Filled
Quality Engineer	Advisor to APM	DA Civilian	GS 13	III	Filled
CCDC-SC Matrix Engineer	Lead Program Engineer / Advisor to APM	DA Civilian	GS 13	III	Filled

The Berry Amendment (10 U.S.C. §2533a) states that funds appropriated to the Department of Defense may not be used for the procurement of clothing, tents, tarpaulins, or covers; cotton and other natural fiber products, woven silk or woven silk blends, spun silk yarn for cartridge cloth, synthetic fabric or coated synthetic fabric (including all textile fibers and yarns that are for use in such fabrics), canvas products,

or wool (whether in the form of fiber or yarn or contained in fabrics, materials, or manufactured articles); or any item of individual equipment manufactured from or containing such fibers, yarns, fabrics, or materials if the item is not grown, reprocessed, reused, or produced in the United States. Because of the emergency nature of this effort, the covering fabric delivered under the Milliken contract is currently not Berry Amendment compliant; however the contract requires the contractor to provide updates on its efforts to bring this specific covering into Berry Compliance; and the Government will take delivery of these coverings under this contract during this interim.

The interim solution is being developed using a Government drawing/photo. Patterns for the long-term solution are being developed by CCDC-SC, thus will be Government owned. Depending on the long-term need for face coverings, PM SCIE may transition the technical data package to the Defense Logistics Agency-Troop Support (DLA-TS) to support competitive contract awards to support sustainment requirements, if necessary.

6. Business Strategy.

To facilitate the emergency nature of this effort, PM SCIE solicited the known vendor that had the identified fabric (BioSmart) available in inventory to fulfill the urgent need of face coverings to combat COVID-19.

The industrial base capability is sufficient to meet the production and sustainment requirements of the Face Covering effort beyond the initial SAT contract. This industrial base is not dependent on procurements by DoD to maintain viability.

7. Risk Management.

Risk will be managed through the Face Covering program IPT. Regular meetings will be held to monitor and manage identified risks, determine if additional risks have developed and to ensure the execution of mitigation strategies to reduce risk. Identified risks for the Face Covering effort are identified in the Risk Table below. Figure 1 depicts the associated Initial Risk Cube while Figure 2 represents the Residual Risk Cube once mitigation measures are applied.

Risk Table

Program Mgt Area	Residual Risk (L,I)	Risk Conditions
1. Schedule	1/3	Risk: If Milliken's sub contractor(s) are not capable of meeting the delivery schedule then deliveries will be delayed which may put Soldiers at higher risk of contracting COVID-19. Mitigation: Award subcontracts to multiple vendors; maintain continual communication with Milliken through COR to asses potential of risk being realized and to facilitate the on-ramping of additional sub contractors if necessary.
2. Demand	2/3	Risk: If the demand for face masks increase or becomes enduring requirement beyond Summer 2020, then sufficient face masks will not be available to protect Soldiers. Mitigation: Closely monitor COVID-19 trends, ensure swift transition of technical data to DLA-TS, communicate anticipated needs with contracting and funding sources.
3. Safety	3/3	Risk: If anti-microbial fabric being used to manufacture the interim face mask solution is determined to be unsafe and can potentially pose health problems making it un-issuable to Soldiers, then delivery of face masks to Soldiers may be delayed putting Soldiers at risk of contracting COVID-19 for a longer period of time. Mitigation: Identify additional funding and prepare to requisition face masks from DLA-TS who is in the process of testing and awarding face masks to support the immediate demand of the other Armed Forces Services.

Figure 1
Initial Risk Rating

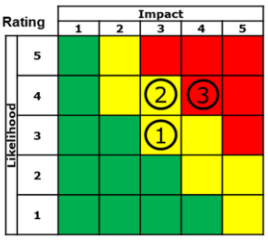

Figure 2
Residual Risk Rating

Based on this risk assessment, the overall programmatic risk is MEDIUM for the Face Covering effort.

8. Cost and Performance Management.

There are no cost, schedule and performance parameters yet associated with emergency Face Covering effort; however, the Assistant Secretary of the Army (Acquisition, Logistics, and Technology) did provide the following guidance:

> *"QUICKLY develop face mask similar to the one shown above which allows Soldiers to be protected, breath easily (to include during running), preclude inadvertent touching of mouth or nose, yet can endure military environments and offer additional protection features (discuss separately). Easily cleaned with replaceable filter. Ensure all Soldiers wear their eye protection continuously (clear or sun). Issue and wear military gloves as part of the uniforms (not necessary unless you have a wound which might let the virus through but which will make it more assured that you would not touch your face without*

recognizing you are doing it). A final item might be including a wipe packet which could be fitting to the sleeve pocket so, should you need to blow your nose or wipe your face, you have a clean item with which to do so."

9. Systems Engineering (SE).

PM SCIE will maintain technical oversight of the face covering by means of technical planning and assessments along with risk management to achieve the requirements identified by senior Army and DoD leadership. The final accountability and responsibility for the design and performance, to include acceptability of the contractors' products and processes, resides with PM SCIE. PM SCIE oversees a multi-disciplinary matrixed team of engineers, subject matter experts, acquisition, quality, and logistics support personnel. The program's lead engineer maintains oversight for the technical program execution and program oversight.

Configuration control of the product description developed by CCDC-SC to support the potential long-term face covering requirements will be managed by the CCDC-SC Configuration Management Team. Proposed configuration changes could be identified through:

- Advancements in technology
- Reported system deficiencies or other issues submitted from the field through Product Quality Deficiency Reports

10. Test and Evaluation Strategy.

CCDC-SC will produce a prototype covering for the long-term solution, test safety of covering and perform human factor evaluations / Soldier touch points to confirm long-term covering design and patterns.

PM SCIE will obtain a subsequent Safety Release from the U.S. Army Test and Evaluation Command (ATEC) prior to the fielding of the long-term face covering

11. Product Support Concept/Life Cycle Sustainment Plan.

The required sustainment for Face Coverings are unknown at this time; however, if the need to sustain Face Coverings is realized, the U.S. Army Tank-Automotive and Armaments Command (TACOM) Integrated Logistical Support Center (ILSC) Central Management Office (CMO) will sustain the Face Coverings and issue to Soldiers through Central Issue Facilities (CIFs) in accordance with the Common Table of Allowance (CTA) 50-900, Clothing and Individual Equipment. The source of supply for all emerging sustainment requirements is DLA-TS.

There is no additional Government furnished property or equipment associated with the Face Covering effort.

This life cycle sustainment approach has no impact on national technology or the face covering industrial base.

8

Annex A

Department of Defense Guidance on the Use of Cloth Face Coverings

DOD-GUIDANCE-O
N-THE-USE-OF-CLOT

9

Annex B

CCDC-SC Face Covering Designs / Options


Mask Designs 5 APRIL 2020 - DPPT.P


COVID-19_Mask_Options-Draft(rev2-C

Annex C

Face Covering Statement of Work

3. STATEMENT OF WORK

C.1 GENERAL.

C.1.1 Scope. This Statement of Work (SOW) includes tasks for manufacturing and delivery of the PEO Soldier COVID-19 Protective Face Mask. This contract requires deliveryof a Level II, Protective Face Mask that include BioSmart material in accordance with the required schedule.

C.1.2 Deliverable. The supplier shall provide 180,000 face masts that meet the stated requirements of this contract in the schedule set forth in the requirement of this document and the attached photo. A more specified design document is being developed.

C.1.3 Background. The global COVID-19 pandemic has necessitated the immediate requirement for effective facial coverings to protect our Army workforce members from the spread of the virus. Therefore, PEO Soldier seeks timely delivery of the required facemasks as stated in this contract.

C.2.0 Applicable Documents. N/A

C.3.0 Requirements: The Contractor shall make full delivery of all the required masks IAW Design #2 per Attachment 0001, using black BioSmart fabric with initial delivery NLT 30 April 2020 and weekly thereafter until the end of the contract deliver (19 June 2020).

3.1 Delivery of the masks shall be made to Lansing, MI (See Attachment 0002 – Shipping Instructions)
3.2 The contractor shall provide masks in Black fabric.
3.3 Berry Amendment Compliance: The mask fabric to be delivered under this contract is currently not Berry Amendment compliant. The Contractor shall provide updates on its efforts to bring this specific mask into Berry Compliance; and the Government will take delivery of these masks under this contract during this interim.

C4.0 Technical Representative. A Contracting Officer Representative (COR) will be assigned to the contract. The COR will give official guidance on technical matters, but does NOT have authority to alter any terms or conditions of the contract. Only a Contracting Officer (KO) may alter the terms and conditions of the contract. The Technical Representative/COR for this effort is Mr. Jeff Myhre; jeffrey.j.myhre.civ@mail.mil.

C5.0 Data Rights. Technical data requested would be provided with "Government Purpose Rights" unless otherwise asserted in accordance with the Contractor's Data Rights Assertion table per DFARS 252.227-7013. The Government reserves the right to challenge asserted data restrictions.

Section E - Inspection and

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	Origin	Government	Origin	Government
0002	Destination	Government	Destination	Government

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	DODAAC / CAGE
0001	30-APR-2020	10,000	PM SOLDIER EQUIPMENT STAGING/NET FACILIT MR. JIM GUSTAFSON 7100 MILLET HWY LANSING MI 48917 (517) 316-4072 FOB: Destination	W912H7
0001	08-MAY-2020	15,000	(SAME AS PREVIOUS LOCATION) FOB: Destination	W912H7
0001	15-MAY-2020	20,000	(SAME AS PREVIOUS LOCATION) FOB: Destination	W912H7
0001	22-MAY-2020	20,000	(SAME AS PREVIOUS LOCATION) FOB: Destination	W912H7
0001	29-MAY-2020	25,000	(SAME AS PREVIOUS LOCATION) FOB: Destination	W912H7
0001	05-JUN-2020	25,000	(SAME AS PREVIOUS LOCATION) FOB: Destination	W912H7
0001	12-JUN-2020	30,000	(SAME AS PREVIOUS LOCATION) FOB: Destination	W912H7
0001	19-JUN-2020	35,000	(SAME AS PREVIOUS LOCATION) FOB: Destination	W912H7
0002	31-JUL-2020	1	PM-SCIE SUSAN MCLENDON 5981 13TH STREET, BUILDING 1155 FT. BELVOIR VA 22060 7038058502 FOB: Destination	W5K9Z9

13

G.1. Place of Performance - Cutting, Sewing, and Shipping Processes

American Apparel Inc. (Cage code: 1CEY4)
800 Cedar Bluff Road Centre, AL 35960

Ship from American Apparel to Lansing, MI.

DCMA to inspect for general condition and count and sign off on the mask shipments.

G.2. The Management Control Number (MSN) and NSLIN assigned for the Protective Mask is asfollows:
Description: MASK, PROTECTIVE
MCN: 841501F053092
NSLIN: DA150C

A-1

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APPENDIX A – Acronyms

ACRONYM LIST	
Acronym	**Definition**
AC/IN	Acquisition Corps/Infantry
ACAT	Acquisition Category
APM	Assistant Product Manager
AMC	Army Materiel Command
ASA(ALT)	Assistant Secretary of the Army (Acquisition, Logistics, and Technology)
ATEC	Army Test and Evaluation Command
CDC	Center for Disease Control and Prevention
CIF	Central Issue Facility
CMO	Central Management Office
COVID-19	Coronavirus Disease - 2019
CTA	Common Table of Allowances
DAS	Director of Army Staff
DLA	Defense Logistics Agency
DLA-TS	Defense Logistics Agency Troop Support
DoD	Department of Defense
GFM	Government Furnished Material
HHA	Health Hazard Assessment
HQDA	Headquarters Department of the Army
IPT	Integrated Process Team
LG	Logistics
M&D	Manufacturing & Development
MCDID	Maneuver Capability Development Integration Directorate
NATO	North Atlantic Treaty Organization
NCD	Natick Contracting Division
OCIE	Organizational Clothing and Individual Equipment
OMA	Operation and Maintenance, Army
PEO	Program Executive Office(r)
PM SCIE	Product Manager Soldier Clothing and Individual Equipment
PM SSV	Project Manager Soldier Survivability
RDT&E	Research, Development, Test and Evaluation
SAMP	Simplified Acquisition Management Plan
SAT	Simplified Acquisition Threshold
SE	Systems Engineering
SOW	Statement of Work
USAPHC	US Army Public Health Command

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