**COMMAND AND CONTROL OPTIMIZATION**

A close-up of a hole in a metal frame

Description automatically generated

Large scale combat operations main command post (lsco mcp)

Statement of Work

CPT G

14NOV2023

Approval Sheet

APPROVED BY: CPT G, Project Manager\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_14NOV2023\_\_\_\_\_\_\_\_\_\_  
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APPROVED BY: Mrs. Red, Knowledge Manager\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_14NOV2023\_\_\_\_\_\_\_\_\_  
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# 1.0 Introduction

This STATEMENT OF WORK (SOW) is made and entered into by the US Army Joint Readiness Training Center Commander (BG Gardner) and Command and Control Optimization (C2O) on 14 November 2023.

This document is not intended to serve as a requirements document, a design document, a project plan/schedule, or a ‘to do list’ of all tasks that must be undertaken to complete the project.

## 1.1 Background

How do Battalion Main Command Posts evolve to be mobile, redundant, and survivable with existing equipment on hand? The last twenty years of warfighting in Counterinsurgency Operations (COIN) does not directly translate to Large Scale Combat Operations (LSCO) conflicts with near-peer adversaries. LSCO focuses on massing combat power to attrit enemy forces and acquire territory to deny enemy advantage across the five domains of warfare: land, sea, air, space, and cyberspace. The process of military acquisitions is slow. Years even. If the threat of near-peer adversaries exists today, the military cannot delay fulfilling emerging requirements. Solutions to this problem set must be addressed with already appropriated equipment and capabilities.

## 1.2 Project Scope

* Minimum of eight MCP layout prototypes tested
* Construct prototypes based on LSCO warfare capability analysis
* Eight separate Light Infantry Battalions will conduct the prototyping and testing
* Final design validation authorized by Forces Command (FORSCOM) through chain of command
* Construction plans, list of required materials, photographs, and step-by-step assembly instructions are published in an easy to digest and readily implementable format
* Testing results, best practices and lessons learned final compilation published by Combined Arms Lessons Learned (CALL) and Combined Arms Center (CAC) for widest dissemination
* Mobile, redundant, and survivable MCP accepted design made available across total force
* Ten months allotted for testing, prototyping, data, and results capturing
* Two months allotted for final layout design product creation
* Two months allotted for final approval through chain of command
* Must not hinder unit deployability or readiness
* Budget for materials will adhere to existing preapproved budgets
  + Additional funds may be requested at two points – four and eight months from project initiation
* Changes in scope of requirements must be approved by JRTC Commander
  + Approved changes in scope will result in revision to timeline and budget
* Air and space assets will be made available for image capture at least once a month from existing U.S. government organizations
* Electronic Warfare equipment and personnel will be made available for Electromagnetic emissions data capture at least once a month from Fort Johnson, LA organizations
* LSCO MCP Project will adhere to Command Post functions from Army Technical Publication 6-0.5 Command Post Organization and Operations
* Army Battle Command System (ABCS) communication and warfighting systems must be utilized
* A key development complete Infantry Captain will serve as subject matter expert on LSCO MCP Project Team for insight and compliance regulation and as a Military Liaison

## Project Goals

* Retain warfighting capabilities – Do not decrease communication, synchronization, nor warfighting function capabilities by more than 25% per Warfighting function during each monthly prototype test.
* Reduce Electronic Warfare (EW) threat – The Electromagnetic (EM) fingerprint must be reduced by 25% (Volts per meter (V/m) for Radio Frequency (RF) Radiation, milliGauss (mG) for Magnetic Fields, and V/m for Electric Fields) or masked through terrain and emissions control during each monthly prototype test.
* Flexible and modularity to fit needs of Commander – Minimize complexity and increase layout option combinations through modularity of fabricated products. Reduce footprint of TOCs by 40 square feet during each monthly prototype test.
* Redundant capabilities – Communications systems must have backups for disruption mitigation during each monthly prototype test.
* Doctrine change for Light Infantry – Supply lessons learned and best practices to impact the total fighting force by April 2025.
* Circumvent acquisitions process – Use existing equipment to fulfill this emerging requirement without engaging in years long appropriations. Rethink the problem and use what we have on hand right now.
* Increase efficiency of displacement and establishment – Mobility equals survivability. Create checklists for tear-down and set-up of MCP with published time expectations by April 2025.
* Practical “How-to” guide products – Organizational change takes time. Ensure the means to do so are readily at hand by April 2025.

## 1.4 Project Objectives

|  |  |
| --- | --- |
| **Objective** | **Measurement** |
| Configuration Management | Version control photographs, documents, and test output dated and input into Microsoft Team weekly |
| Knowledge Management | Information and data kept in totality, organized in Microsoft Team by descending dated folders weekly |
| Timeline Management | Project Management team monitors timeline adherence every Tuesday and Thursday |
| Up to date photographs | Photographs uploaded daily |
| Stakeholder Interviews | Three interviews conducted weekly with stakeholders from preapproved list of interviewees and questions |
| Prototype evolution history cataloged | Last step prior to next prototype construction iteration is data capture uploaded onto Microsoft Team |
| MCP site establishment and displacement timed | Collect start and end times for intermediately operationally capable (IOC), and fully operationally capable (FOC) |
| EM testing | Each prototype is tested by EW team for EM signature at three intervals: site arrival, IOC, and FOC |
| Notional Opposing Force Testing | Each prototype iteration is reconnaissance and penetration tested by notional opposing force to test survivability during a 24-hour period |
| Satellite, fixed wing, and rotary wing imagery of known testing sites | Each prototype iteration is photographed by satellite, fixed wing, and rotary wing systems to test concealment during a 24-hour period |
| Forced EM emission control | Each prototype iteration is ordered to reduce EM fingerprint by 80% to test command and control capabilities with reduced systems during a 24-hour period |
| Outside Expert Analysis Input | Each prototype iteration is evaluated by a combat veteran who has graduated Command General Staff College and is versed on LSCO. Analysis captured and published to Microsoft Team at completion of each iteration |
| Project status touchpoints | Conducting monthly on first Monday of each month via Microsoft Teams |

## 1.5 Project Clients and End Users

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Project Clients** | | | | |
| Designers | | Administrators | | Contractor |
| Military Liaison | | Photographer | | Logistician |
| Knowledge Manager | | Pilot | | Electromagnetic Analyzer |
| Writer | | Editor | | Distinguished Visitors |
| ABCS Integration Specialist | | Legal | | Satellite Team |
| ABCS Systems Troubleshooting SME | | Safety Regulation Compliance Officer | | Environmental Compliance Officer |
| Security Background Adjudicator | | COMSEC Custodian | | LSCO Warfighting Researchers |
| Communications and Electronics Shop Manager | | Communications and Electronics Shop Staff | | Center for Army Lessons Learned |
| Infantry Instructors | | Secretary of the Army | | Joint Chiefs of Staff |
| Secretary of Defense | | US Congress | | US Senate |
| US President | | Congress Appropriations Committee | | Congress Armed Services Committee |
| Congress Budget Committee | | Congress Veterans Affairs Committee | | Mission Command Center of Excellence |
| Maneuver Center of Excellence | | Cyber Center of Excellence | | Fires Center of Excellence |
| Intelligence Center of Excellence | | Maneuver Support Center of Excellence | | Medical Department Center of Excellence |
| Sustainment Center of Excellence | | Government Regulators | | Combined Arms Center |
| Security Specialist | | Account Manager | | Practical Application Analyst |
| Chief Information Officer | | Chief Operations Officer | | Chief Fires Officer |
| Chief Intelligence Officer | | Contract Manager | | Support Specialist |
| Supply Specialist | | Test Manager | | Technical Writer |
| Steering Committee | | Federal Reserve | | Subject Matter Experts |
| **End Users** | | | | |
| 2IBCT/82D ABN DIV Command and Staff | | | | |
| 3IBCT/25TH IN DIV Command and Staff | | | | |
| 75TH RANGER REG Command and Staff | | | | |
| 2IBCT/101ST ABN DIV Command and Staff | | | | |
| 1IBCT/11TH ABN DIV Command and Staff | | | | |
| 1IBCT/82D ABN DIV Command and Staff | | | | |
| 7TH SF GROUP Command and Staff | | | | |
| 1IBCT/10TH MTN DIV Command and Staff | | | | |
| JRTC Command and Staff | | | | |
| FORSCOM Command and Staff | | | | |
| TRADOC Command and Staff | | | | |
| **External Clients** | | | | |
| Vehicle Mechanic | Railyard Workers | | Office Landlord | |
| Utility Companies | GCSS-A Suppliers | | Materials Deliverer | |
| Bulk Fuel Deliverer | Conference Hall Manager | | Conference Hall Staff | |
| US Taxpayers | DoD Vendors | | Main Stream Media | |
| Social Media | Military Social Media Influencers | | Foreign Military Partners | |
| NATO | Army Times | | Military Times | |
| Marine Corps | Air Force | | Navy | |
| Space Force | CIA | | Paramilitary Contracting Companies | |

## 1.6 Responsibilities

|  |  |
| --- | --- |
| **Team Member/**  **Involved Client** | **Responsibilities** |
| Designers | LSCO MCP designs and redesigns, blueprints, material requirement list |
| Administrators | Office administration, correspondence, budget compliance and invoice transactions, contract management |
| Contractor | LSCO MCP design and redesign construction, revision input based on material limitations |
| Military Liaison | Chain of command interactions, Army Regulation compliance, military correspondence, warfighting expertise |
| Photographer | Aerial and close photos of Battalion MCPs, upload digital photos onto MS Teams |
| Logistician | Logistical support for classes of supply and materials coordination |
| Knowledge Manager | Technological support for electronics, COMSEC coordination, software licensing, electronics repair coordination |
| Pilot | Fly UH-60 Blackhawk helicopter near Battalion MCPs with photographer as passenger |
| Electromagnetic Analyzer | EM Emissions data collection, reports, and visual representation |
| Writer | Contract creation, document creation, Army Regulation creation, and final product guides creation |
| Editor | Contract proofreading, document proofreading, Army Regulation proofreading, and final product guides proofreading |
| Satellite Team | Space photos of Battalion MCPs, upload digital photos onto MS Teams |
| Legal | Legal support and compliance recommendations |
| ABCS Integration Specialist | Technical expertise of ABCS |
| ABCS Systems Troubleshooting SME | Technical expertise of ABCS and troubleshooting |
| Safety Regulation Compliance Officer | Safety Regulation support and compliance recommendations |
| Environmental Compliance Officer | Environmental Regulation support and compliance recommendations |
| Security Background Adjudicator | Background checks, granting security clearances, issuing government IDs, and monitor security risk indicators |
| COMSEC Custodian | Draw COMSEC from NSA, issue COMSEC to Knowledge Manager |
| LSCO Warfighting Researchers | Russo-Ukraine LSCO warfighting research, presentations, and lessons on capabilities and limitations of adversaries |
| Communications and Electronics Shop Manager | ABCS systems repair team management and coordination |
| Communications and Electronics Shop Staff | ABCS systems repair |
| Center for Army Lessons Learned | Edit LSCO MCP doctrine and submit for publication |
| Security Specialist | Ensure COMSEC compliance, security clearance compliance, classification compliance, and overall security |
| Account Manager | Grant access to military systems and create user accounts |
| Practical Application Analyst | Analyze effectiveness of prototype testing |
| Contract Manager | Manage contracts, coordinate payroll, submit non-disclosure agreements for Project Team |
| Support Specialist | Military Liaisons for testing units |
| Test Manager | Coordinate, schedule, manage, and compile results of prototype testing |
| Technical Writer | Technical Army Regulation creation |
| Steering Committee | Approval and course correction guidance |
| Subject Matter Experts | Expertise of fields |
| 2IBCT/82D ABN DIV Command and Staff | Provide Battalion MCPs and personnel for testing during JRTC rotation, provide feedback on MCP design effectiveness |
| 3IBCT/25TH IN DIV Command and Staff | Provide Battalion MCPs and personnel for testing during JRTC rotation, provide feedback on MCP design effectiveness |
| 75TH RANGER REG Command and Staff | Provide Battalion MCPs and personnel for testing during JRTC rotation, provide feedback on MCP design effectiveness |
| 2IBCT/101ST ABN DIV Command and Staff | Provide Battalion MCPs and personnel for testing during JRTC rotation, provide feedback on MCP design effectiveness |
| 1IBCT/11TH ABN DIV Command and Staff | Provide Battalion MCPs and personnel for testing during JRTC rotation, provide feedback on MCP design effectiveness |
| 1IBCT/82D ABN DIV Command and Staff | Provide Battalion MCPs and personnel for testing during JRTC rotation, provide feedback on MCP design effectiveness |
| 7TH SF GROUP Command and Staff | Provide Battalion MCPs and personnel for testing during JRTC rotation, provide feedback on MCP design effectiveness |
| 1IBCT/10TH MTN DIV Command and Staff | Provide Battalion MCPs and personnel for testing during JRTC rotation, provide feedback on MCP design effectiveness |
| JRTC Command and Staff | Initial SOW approval, change of scope approvals, chain of command approval and recommendation, overall support of LSCO MCP Project for resourcing |
| FORSCOM Command and Staff | Approve Battalion MCP design and drive doctrine change announcements for wide dissemination |
| TRADOC Command and Staff | Adopt new Battalion MCP design and incorporate into training |

## 1.7 Revision History

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date Modified** | **Author** | **Reason for Change** |
| 0 | 13NOV2023 | CPT G | Initial Submission |

# 2.0 Business Requirements

## 2.1 Project Deliverables

* Scope and Contracts Accepted
* Shaping and Strategy Brief
* Prototype Materials Acquired
* First Prototype Tested
* FORSCOM Visit
* Stakeholder Touchpoint #1
* Refined Concept Created
* Last Prototype Tested
* FORSCOM Approval
* Stakeholder Touchpoint #2
* Doctrine Published

## 2.2 Other Project Activities

* Staff/Team Appointments
  + Contracts and Agreements Finalized
* Near-Peer Competitor MCP Analysis
  + Russo-Ukraine Conflict Lessons Learned
* Preliminary Design
  + Concept Sketches
  + Initial Design Complete
* Initial Prototype Constructed
* MCP Layout Prototypes Tested
  + 2IBCT/82D ABN DIV
  + 3IBCT/25TH IN DIV
  + 75TH RANGER REG
  + 2IBCT/101ST ABN DIV
  + 1IBCT/11TH ABN DIV
  + 1IBCT/82D ABN DIV
  + 7TH SG GROUP
  + 1IBCT/10TH MTN DIV
* Aerial Image Capture
* EM Emissions Data Capture
* Project Status Presentation
* Layout and Design Final Plans
  + Final Data Compilation
  + Results Summary
  + Writing/Document Creation
  + Proofreading/Quality Control

## 2.3 Project Standards

### 2.3.1 Internal

|  |  |  |
| --- | --- | --- |
| **Publication** | **Title** | **Date** |
| ADP 4-0 | Sustainment | 31 July 2012 |
| ADP 5-0 | The Operations Process | 17 May 2012 |
| ADP 6-0 | Mission Command | 17 May 2012 |
| ADRP 1-0.2 | Terms and Military Symbols | 16 November 2016 |
| ADRP 3-0 | Operations | 11 November 2016 |
| ADRP 3-09 | Fires | 31 August 2012 |
| ADRP 3-37 | Protection | 31 August 2012 |
| ADRP 4-0 | Sustainment | 31 July 2012 |
| ADRP 5-0 | The Operations Process | 17 May 2012 |
| ADRP 6-0 | Mission Command | 17 May 2012 |
| AR 380-10 | Foreign Disclosure and Contacts with Foreign Representatives | 14 July 2015 |
| ATP 2-01 | Plan Requirements and Assess Collection | 19 August 2014 |
| ATP 2-01.3 | Intelligence Preparation of the Battlefield and Battlespace | 10 November 2014 |
| ATP 3-11.50 | Battlefield Obscuration | 15 May 2014 |
| ATP 3-37.10 | Base Camps | 27 January 2017 |
| ATP 3-37.34 | Survivability Operations | 28 June 2013 |
| ATP 3-60 | Targeting | 07 May 2015 |
| ATP 3-90.5 | Combined Arms Battalion | 05 February 2016 |
| ATP 3-90.90 | Army Tactical Standard Operating Procedures | 01 November 2011 |
| ATP 3-91 | Division Operations | 17 October 2014 |
| ATP 3-92 | Corps Operations | 07 April 2016 |
| ATP 3-93 | Theater Army Operations | 26 November 2014 |
| ATP 5-0.1 | Army Design Methodology | 01 July 2015 |
| ATP 5-19 | Risk Management | 14 April 2014 |
| ATP 6-01.1 | Techniques for Effective Knowledge Management | 06 March 2015 |
| ATP 6-02.53 | Techniques for Tactical Radio Operations | 07 January 2016 |
| ATP 6-02.60 | Techniques for the Warfighter Information Network-Tactical | 03 February 2016 |
| ATP 6-0.5 | Command Post Organization and Operations | 01 March 2017 |
| DA PAM 750-3 | Soldiers’ Guide for Field Maintenance Operations | 18 September 2013 |
| FM 1-0 | Human Resources Support | 01 April 2014 |
| FM 3-13 | Information Operations | 06 December 2016 |
| FM 3-34 | Engineer Operations | 02 April 2014 |
| FM 3-52 | Airspace Control | 20 October 2016 |
| FM 3-55 | Information Collection | 03 May 2013 |
| FM 3-57 | Civil Affairs Operations | 31 October 2011 |
| FM 3-90-1 | Offense and Defense Volume 1 | 22 March 2013 |
| FM 3-90-2 | Reconnaissance, Security, and Tactical Enabling Tasks Volume 2 | 22 March 2013 |
| FM 3-94 | Theater Army, Corps, and Division Operations | 21 April 2014 |
| FM 3-96 | Brigade Combat Team | 08 October 2015 |
| FM 4-95 | Logistics Operations | 01 April 2014 |
| FM 6-0 | Commander and Staff Organization and Operations | 05 May 2014 |
| FM 6-02 | Signal Support to Operations | 22 January 2014 |
| FM 6-99 | U.S. Army Report and Message Formats | 19 August 2013 |
| FM 27-10 | The Law of Land Warfare | 18 July 1956 |

### 2.3.2 External

|  |  |  |
| --- | --- | --- |
| **Publication** | **Title** | **Date** |
| DOD | Dictionary of Military and Associated Terms | February 2017 |
| JP 2-01.3 | Joint Intelligence Preparation of the Operational Environment | 21 May 2014 |
| JP 3-0 | Joint Operations | 27 January 2017 |
| JP 3-01 | Countering Air and Missile Threats | 23 March 2012 |
| JP 3-09.3 | Close Air Support | 25 November 2014 |
| JP 3-13 | Information Operations | 27 November 2012 |
| JP 3-16 | Multinational Operations | 16 July 2013 |
| JP 3-31 | Command and Control for Joint Land Operations | 24 February 2014 |
| JP 3-33 | Joint Task Force Headquarters | 30 July 2012 |
| JP 3-57 | Civil-Military Operations | 11 September 2013 |
| Project Management Book of Knowledge | | |
| Project Management Institute Knowledge and Process Groups | | |

## 2.4 Funding Source/Project Sponsor

JRTC is the funding source for this project.

## 2.5 Project Conceptual Estimate

The LSCO MCP Project encompasses 86 weeks of effort from foundational conceptualization and contracts to Command Post Doctrine Publication. 14 Personnel including a Military Liaison will provide the means for LSCO MCP mobility, redundancy, and survivability. The anticipated cost is $519,150 after Army specific equipment requirements are returned.

### 2.5.1 Project Scale

The LSCO MCP Project is a large undertaking requiring 14 personnel with a total investment of 7800 hours over 20 months.

### 2.5.2 Project Critical Resources

|  |  |  |
| --- | --- | --- |
| **Personnel Role** | **Technology** | **Logistics** |
| Designer | Projectors | Materials Delivery |
| Administrative | Computers | Fuel |
| Army Captain | Printers | **Materials** |
| Writer | Scanners | .75” x 4’ x 8’ plywood |
| Project Manager | Cloud Data Storage | 2” x 4” x 8’ wood studs |
| **Contractors** | \*1523 Radios | Screws and Hardware |
| Legal | \*TSM Radios | Power Tools |
| **Indirect** | \*JBC-P | Tables |
| Office Rent | \*OE-254 | Acetate |
| Office Supplies | \*Power Amplifiers | Maps |
| Utilities | \*KGV-72 |  |
| Software Licenses | \*SKL |  |

### 2.5.3 Project Effort and Duration

|  |  |
| --- | --- |
| **Effort** | **Duration** |
| **Gathered Prototype Data** | **1,280 hours** |
| **Design Approval Authorization Memorandum** | **160 hours** |
| **Construction Plans** | **160 hours** |
| **List of Required Materials (subsequent production)** | **120 hours** |
| **Prototype Photographs** | **320 hours** |
| **Step-by-Step Assembly Instructions** | **160 hours** |
| **Testing Results Edited and Published by CALL** | **480 hours** |
| **Best Practices Edited and Published by CALL** | **480 hours** |
| **Technical Circulation Published with Complete Approved Design** | **480 hours** |
| **Compile and Organize Results** | **320 hours** |
| **Comprehensive Design with Data Backed Results in Presentation Format** | **160 hours** |
| **FORSCOM Approval** | **320 hours** |
| **Overlay Training Schedule with Testing Schedule** | **40 hours** |
| **Expense Report** | **80 hours** |
| **Scope Change Request** | **80 hours** |
| **Revision of Timeline and Budget** | **80 hours** |
| **Additional Funds** | **80 hours** |
| **Aerial Photographs** | **320 hours** |
| **Satellite Photographs** | **320 hours** |
| **Map Overlay with EM Emissions Results** | **320 hours** |
| **Memorandum of Completion** | **80 hours** |
| **Memorandum of Understanding** | **80 hours** |
| **Service Member Orders for Project Team Member** | **2,880 hours** |

### 2.5.4 Personnel Resource Estimates

|  |  |
| --- | --- |
| **Personnel Role** | **Number Required** |
| Designer | 2 |
| Administrative | 2 |
| Contractor | 1 |
| Army Captain / Military Liaison | 1 |
| Logistician | 1 |
| Photographer | 1 |
| Knowledge Management | 1 |
| Pilot | 1 |
| Electromagnetic Analyzer | 1 |
| Writer | 1 |
| Editor | 1 |
| Project Manager | 1 |

### 2.5.5 Project Cost

|  |  |
| --- | --- |
| **Personnel Role** | **Cost** |
| Designer | ($25/hr) \* (740 hours) = $18,500 |
| Administrative | ($20/hr) \* (1300 hours) = $26,000 |
| Contractor | ($30/hr) \* (520 hours) = $15,600 |
| Army Captain / Military Liaison | ($35/hr) \* (1160 hours) = $40,600 |
| Logistician | ($20/hr) \* (280 hours) = $5,600 |
| Photographer | ($20/hr) \* (440 hours) = $8,800 |
| Knowledge Management | ($30/hr) \* (1000 hours) = $30,000 |
| Pilot | ($35/hr) \* (160 hours) = $5,600 |
| Electromagnetic Analyzer | ($35/hr) \* (160 hours) = $5,600 |
| Writer | ($20/hr) \* (600 hours) = $12,000 |
| Editor | ($25/hr) \* (440 hours) = $11,000 |
| Project Developer | ($25/hr) \* (1200 hours) = $30,000 |
| Project Manager | ($40/hr) \* (1000 hours) = $40,000 |
|  | **Total Personnel Role Cost = $249,300** |

|  |  |
| --- | --- |
| **Technology** | **Cost** |
| Projectors | $600 |
| Computers | $14,000 |
| Printers | $600 |
| Scanners | $500 |
| Cloud Data Storage | $900 |
| \*1523 Radios | \*$6,000 |
| \*TSM Radios | \*$10,000 |
| \*JBC-P | \*$5,600 |
| \*AFATDS | \*$2,000 |
| \*DCGS | \*$2,000 |
| \*OE-254 | \*$2,200 |
| \*Power Amplifiers | \*$6,400 |
| \*KGV-72 | \*$900 |
| \*SKL | \*$7,000 |
| \*DAGR | \*$2,400 |
| \*WINTAK | \*$4,600 |
| \*CPCE Small Server | \*$8,800 |
| Electromagnetic Surveys | $32,000 |
|  | **Total Technology Cost = $106,500** |
|  | **\*\*$57,900 Refundable when Army Equipment returned to unit** |

|  |  |
| --- | --- |
| **Logistics** | **Cost** |
| Materials Delivery | $900 |
| Distinguished Visitor Travel | $12,000 |
| Distinguished Visitor Per Diem | $1,500 |
| Conference Hall Rental | $2,000 |
| Fuel | $18,000 |
|  | **Total Logistics Cost = $34,400** |

|  |  |
| --- | --- |
| **Materials** | **Cost** |
| .75” x 4’ x 8’ plywood | $5,000 |
| 2” x 4” x 8’ wood studs | $900 |
| Screws and Hardware | $1,200 |
| 2” x 2” x 12’ 18 gauge L Steel | $3,500 |
| Wood Glue | $100 |
| Polyurethane Sealant | $400 |
| Power Tools | $6,600 |
| Tables | $2,500 |
| Acetate | $200 |
| Maps | $150 |
|  | **Total Materials Cost = $20,550** |

|  |  |
| --- | --- |
| **Contractors** | **Cost** |
| Vehicle Mechanic | $4,000 |
| Railyard Workers | $8,000 |
| ABCS Integration Specialist | $3,500 |
| Legal | $7,500 |
|  | **Total Contractor Cost = $23,000** |

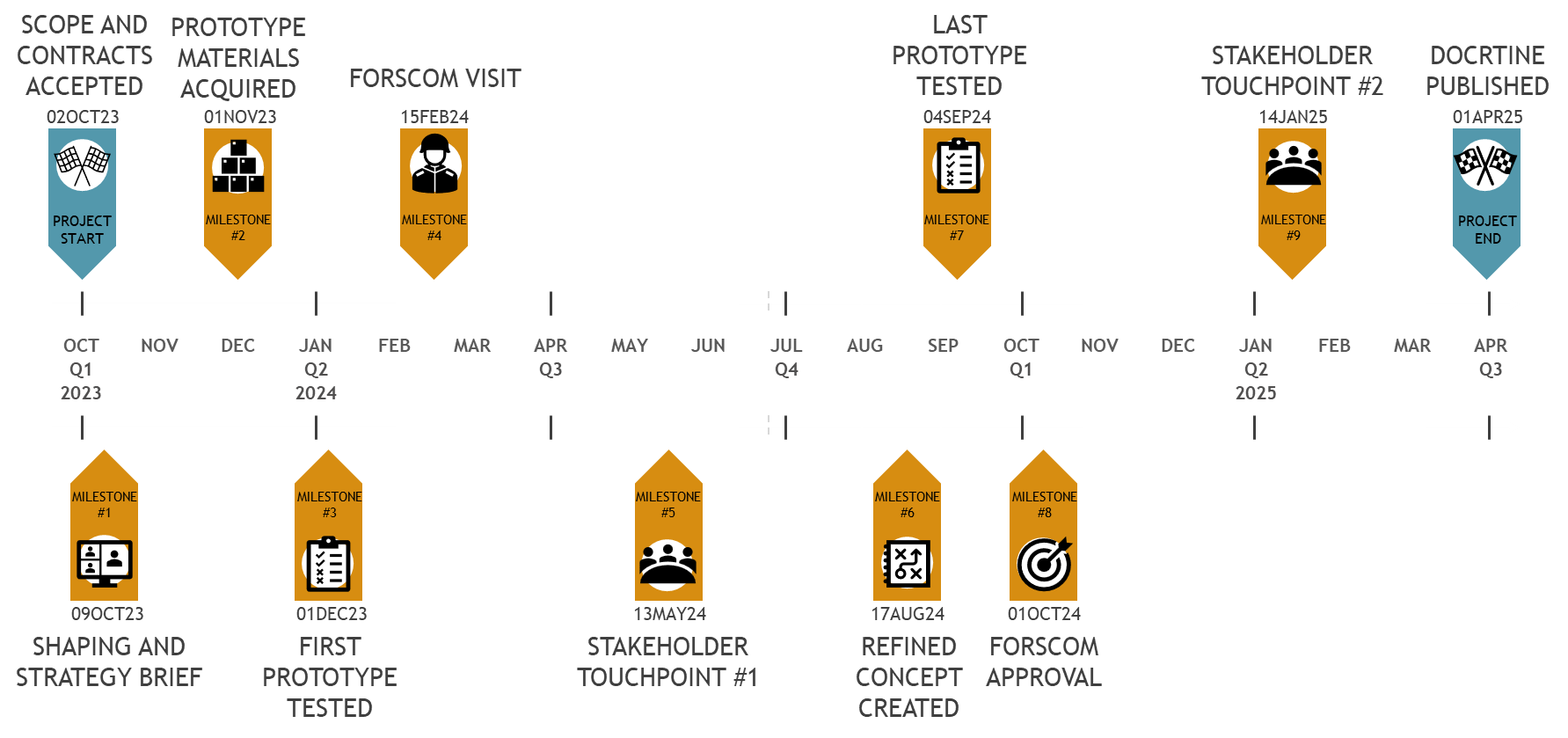
|  |  |
| --- | --- |
| **Indirect** | **Cost** |
| Office Rent | $27,000 |
| Office Supplies | $12,600 |
| Utilities | $16,200 |
| Vehicle Maintenance | $18,000 |
| Software Licenses | $5,000 |
|  | **Total Indirect Cost = $78,800** |

|  |  |
| --- | --- |
| **Other** | **Cost** |
| Satellite Imagery | $16,000 |
| PM Team Travel | $36,000 |
| PM Team Per Diem | $4,500 |
| Helicopter | $8,000 |
|  | **Total Other Cost = $64,500** |

## 

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| **Categories** | **Total Cost** |
| Personnel Role | $249,300 |
| Technology | $106,500 |
| Logistics | $34,400 |
| Materials | $20,550 |
| Contractors | $23,000 |
| Indirect | $78,800 |
| Other | $64,500 |
| **Total** | **$577,050** |
| **\*\*Refundable** | **\*\*$57,900** |
| **Adjusted Total** | **$519,150** |

## 2.6 Schedule Requirements/Constraints

2.7 Resource Requirements/Constraints

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| --- | --- |
| **Constraint** | **Description** |
| Published timeline with milestone suspense dates | Schedule with milestone suspense dates deliverables must be completed |
| Approved budget covers projected and unforeseen costs | FY23, FY24, and FY25 budgets account for project costs with knowledge $57,900 is refundable upon return of Army ABCS equipment |
| Scope requirements must be met | Scope statement requirements and deliverables must be completed to expectation of quality for successful project completion |
| Quality of working prototype and final product design | Stakeholders, FORSCOM, and Chain of Command have approval authority on product design |
| LSCO requirement comprehension due diligence | For the Project Team to have a full understanding of the scope requirements and deliverables, a weeklong familiarization course on LSCO and Lessons Learned in the Russo-Ukraine Conflict will be taught |
| Contracted team member number | The number of personnel approved to work on the Project Team cannot change |
| Army Regulations | Army Regulations must be understood and adhered to for smooth incorporation of final design into total force |
| State and Federal Legal Restrictions | Staff Judge Advocate Legal Representative must review products prior to publication to ensure compliance with Local, State, Federal, and UCMJ Laws, Regulations, and Policies |
| Material storage space | Storage space for materials, tools, and prototype designs with protection from water is required |
| Construction space | Construction space for prototype fabrication with protection from water and electrical outlets is required |
| Procurement through Army supply channels | Utilizing the Army's class of supply system, GCSS-A, materials are procured and delivered on schedule |
| Knowledge Management and software licenses through Army | Software licenses and cloud data storage must conform with Army IT and User Acceptable Policy |
| Chain of Command Approval | Chain of Command must be utilized for change requests, touchpoint approval, and final approval |

2.8 Project Assumptions and Alternatives

### 2.8.1 Assumptions

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| **Assumption** | **Description** |
| Scope is accepted by 02OCT23 Suspense | Project Manager and Stakeholder Approval Authority have completed and agreed upon Scope Statement NLT 02OCT23 |
| Contracts are accepted by 02OCT23 Suspense | Project Manager and Stakeholder Approval Authority have completed and signed Contracts for Team Members and Subcontractors NLT 02OCT23 |
| Prototype design is approved prior to materials order processed | Designer has gained approval of completed schematics fulfilling requirements and completed materials list |
| Materials are available and arrive on schedule | Utilizing the Army's class of supply system, GCSS-A, materials are procured and delivered on schedule |
| Approved budget covers projected and unforeseen costs | FY23, FY24, and FY25 budgets account for project costs with knowledge $57,900 is refundable upon return of Army ABCS equipment |
| CALL and CAC personnel are readily available for doctrine screening | CALL and CAC editors need to be scheduled for availability to streamline doctrine publication |
| Suite of ABCS systems integrate without issue | The full suite of ABCS requires subject matter expert troubleshooting if issues with integration arise |
| Subcontracted portions of project are completed on schedule | Subcontractor and Project Team Member contracts specify suspense dates or periods |
| Personnel turnover is mitigated by continuity of project team | Army and DoD personnel changeover due to Permanent Change of Station (PCS) or Federal Contracts outside the scope of this project will occur resulting in a lack of expertise |
| Scope agreement remains without creep of requirements | Agreed upon Scope statement revisions must be processed through the appropriate Scope change request channel and approval authority |
| Knowledge Management and software licenses are streamlined | Software licenses and cloud data storage must conform with Army IT and User Acceptable Policy |
| Price of materials remains within 3% variance of today's prices | FY23, FY24, and FY25 budgets account for project costs with a 3% variance incorporated to account for product price increase each year |
| ABCS Army Equipment will be readily available for loan over duration of project | The full suite of ABCS Army Equipment to provide the Commander's Operations Picture (COP) will be temporarily purchased from 3/10th MTN BDE |
| ABCS Army Equipment maintenance contracts are still in place | The full suite of ABCS Army Equipment requires maintenance and Subject Matter Expert troubleshooting from CECOM and the FSR program |
| COVID-19 will not hinder project schedule | COVID-19 restrictions will hinder project completion dramatically |
| Project Team Members will be in position for duration of project | Project Team Member Contracts will specify duration of project timeline and Non-Disclosure Agreements |
| Final products will be approved | Chain of Command must be utilized for change requests, touchpoint approval, and final approval |
| Laptops, phones, printers, projectors, other technology remain in good condition | OS versions and patched software must conform with Army IT and User Acceptable Policy |
| Inclement weather will not cause unmanageable schedule delays | Inclement weather for long durations will hinder project completion dramatically |
| Project Benefits will fulfill expectations | Project Benefit analysis produced deliverable products that must fulfill outlined expectations for project success |
| Team Member health and safety | Lack of injury and illness will ensure timeliness of project completion |
| Project classification remains Unclassified | Overall classification of LSCO MCP Project will remain Unclassified |
| Geopolitical climate will not accelerate project completion date | The US Military is not currently engaged in a LSCO conflict, change in this status could accelerate expectations for deliverables required |
| Training is available and adequate | This project incorporates joint operations where personnel require training to fulfill their portion of the project |
| ABCS Components capabilities are scalable | ABCS components regularly require firmware and software updates; the capabilities need to be scalable for emerging LSCO requirements |
| Adversaries unable to exploit published results | The US Military is not currently engaged in a LSCO conflict, change in this status could accelerate expectations for deliverables required |

### 2.8.2 Project Alternatives

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| **Alternative** | **Description** |
| Do Nothing | Trial and error approach to adapt and overcome adversaries on the battlefield |
| Independent Testing | FORSCOM tasks Divisions to independently test and compile findings without central project team focus |
| Adopt Foreign Partner Revisions | Survey foreign partners and NATO to adopt consensus methodology |
| Adopt Alternative US Military Branch Revisions | Survey US Marine Corps and US Air Force to adopt consensus methodology |
| Crowdsource | Pose the problem online |
| Veteran Organization Mastery Program | Survey combat veterans for way ahead given problem statement utilizing veteran organizations |

## Risk

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| **Risk** | **Description** | **Trigger** |
| Chain of Command becomes disengaged with Project over time | Delays in decisions, input, or direction will result in schedule delays due to approval postponement | Communication Plan Distribution emails, lack of reply from direct request for information |
| Conflict between stakeholders disrupts project causing delays | Delays in decisions, input, or direction will result in schedule delays due to approval postponement | Meetings and personal interactions, verbal arguments or suspected sabotage |
| Chain of Command turnover disrupts project causing delays | Delays in decisions, input, or direction will result in schedule delays due to approval postponement | Meetings and personal interactions, lack of reply from direct request for information |
| Scope creep inflates scope requirements and deliverables or expectations | Scope change outside the appropriate windows will cause delays in processing time and Chain of Command approval time | Scope Change Requests, additional requests made outside specified change request windows |
| Schedule and timeliness estimates are inaccurate | Must initiate change request process during appropriate windows | Administrative Emails, 5% variance off schedule |
| Activities are missing from Scope driving change requests and clarity | Revision to timeline and available resources, budget, and number of Project Team Members | Scope Change Requests, additional activity requests made outside specified change request windows |
| Cost forecasts are inaccurate or change prior to material order | An additional revision to the budget will delay the schedule for at least 2 months | Scope Change Requests, additional fund requests made |
| Change management overload outside the scheduled change request windows | Progress of Project will reduce causing delay | Scope Change Requests, additional requests made outside specified change request windows |
| Stakeholder conflict over proposed changes, lack of a shared vision of end result | Delays in decisions, input, or direction will result in schedule delays due to approval postponement | Communication Plan Distribution emails, written arguments or suspected sabotage |
| Inaccurate change priorities driven by unclear intent | An additional revision to the prototype and further testing delaying the schedule for at least 6 months | Chain of Command Approval, additional requests made outside specified change request windows |
| Low quality of change requests, lack of directed input | An additional revision to the prototype and further testing delaying the schedule for at least 6 months | Scope Change Requests, additional requests made outside specified change request windows |
| Change request conflicts with requirements, contradiction from agreed SOW | Progress of Project will reduce causing delay | Scope Change Requests, additional requests made outside specified change request windows |
| Stakeholders become disengaged with Project over time | Delays in decisions, input, or direction will result in schedule delays due to approval postponement | Communication Plan Distribution emails, lack of reply from direct request for information |
| Stakeholders have inaccurate expectations outside those defined in SOW | Scope creep and potential for perception of project failure | SOW, additional requests made outside specified change request windows |
| Stakeholder turnover | Delays in decisions, input, or direction will result in schedule delays due to approval postponement | Administrative Emails, lack of reply from direct request for information |
| Stakeholders fail to support Project | Lack of resource allocation for project completion | Communication Plan Distribution emails, written arguments or suspected sabotage |
| Process inputs are low quality or lack clarity | Lack of resource allocation for project completion | Stakeholder feedback, additional requests made outside specified change request windows |
| Project Team misunderstands requirements and deliverables | Delay to schedule for corrective training and reproduction of materials | Stakeholder feedback, additional requests made outside specified change request windows |
| Under communication causing misunderstandings and missed suspenses | Delay to schedule for corrective training and reproduction of materials | Knowledge Manager emails, request for information emails with common knowledge and 3 suspenses missed |
| Supporting units have inaccurate expectations on their role and what personnel / equipment they need to provide | Resource allocation delay | Military Liaison emails, one missed suspense or equipment/personnel not present |
| Impacted individuals are not kept informed as process unfolds | Delay to schedule for corrective training and reproduction of materials | Communication Plan Distribution emails, lack of reply from direct request for information |
| Resource shortfalls | Lack of available resources will cause schedule delay and budget overrun | GCSS-A and Logistician emails, materials not delivered on schedule |
| Learning curves lead to schedule delays | Delay to schedule for corrective training and reproduction of materials | Training complete personnel feedback, poor feedback on training effectiveness |
| Training not available for Project Team | Delay to schedule for corrective training and reproduction of materials | Administrative Emails, missed training window suspense |
| Training is inadequate for Project Team | Delay to schedule for corrective training and reproduction of materials | Training complete personnel feedback, poor feedback on training effectiveness |
| Team Members with negative attitudes towards the Project cause friction points | Delay to schedule for corrective training and reproduction of materials | Meetings and personal interactions, verbal or written arguments or snide comments |
| Low Project Team motivation driving completion delay | Delay to schedule for corrective training and reproduction of materials | Meetings and personal interactions, verbal or written arguments or snide comments |
| Design not feasible | An additional revision to the prototype and further testing delaying the schedule for at least 2 months | Designer and Chain of Command Emails, Military Liaison or chain of command checkpoints failed |
| Design lacks flexibility and modularity | An additional revision to the prototype and further testing delaying the schedule for at least 2 months | Designer and Chain of Command Emails, Military Liaison or chain of command checkpoints failed |
| Design falls short of purpose outlined in SOW | Revision to design causing delay of schedule and budget overrun | SOW, Military Liaison or chain of command checkpoints failed |
| ABCS Army Equipment has security vulnerabilities | Underutilized ABCS systems will produce inaccurate results of EM signature, Aerial layout, and COP | Military Liaison and CECOM FSR / LAR emails, confirmed data or classification breach |
| Information security incidents | Possible quarantine of data or network resulting in schedule delay and loss of information | Knowledge Manager and NEC emails, confirmed data or classification breach |
| System, power, cloud data storage, internet access outages | Possible loss of data or workspace resulting in schedule delay and loss of information | Knowledge Manager, NEC, and DES emails, upon occurrence |
| Legacy ABCS Army Equipment lack documentation or user manuals | Underutilized ABCS systems will produce inaccurate results of EM signature, Aerial layout, and COP | Military Liaison emails, upon notification from Military Liaison or ABCS specialists |
| Legacy ABCS Army Equipment are out of contractual support for troubleshooting and repair | Underutilized ABCS systems will produce inaccurate results of EM signature, Aerial layout, and COP | Military Liaison and CECOM FSR / LAR emails, upon notification from Military Liaison or ABCS specialists |
| Components or products are not maintainable | Delay to schedule and revision of budget as third-party vendor options researched and contracted | Military Liaison and CECOM FSR / LAR emails, upon notification from Military Liaison or ABCS specialists |
| Project Management tool problems and issues | Delay of days for troubleshooting | Meetings and Milestones, weekly objectives show 5% variance from schedule |
| Delays to required infrastructure, red tape from large organization of Army | Delays in decisions, input, or direction will result in schedule delays due to approval postponement | Military Liaison emails, weekly objectives show 5% variance from schedule |
| Failure to integrate with systems or organization | Delay of days for troubleshooting | Knowledge Manager and NEC emails, weekly objectives show 5% variance from schedule |
| Project disrupts operations of supporting unit reducing deployability | Violation of SOW and DoD directives | Military Liaison emails, notification from Military Liaison or chain of command |
| Requirements fail to align with National Defense Strategy | An additional revision to the prototype and further testing delaying the schedule for at least 6 months | Military Liaison emails, notification from Military Liaison or chain of command |
| Requirements have compliance and regulatory issues | Changes to Law or Regulations could limit resources, equipment available | Military Liaison and Staff Judge Advocate emails, notification from Military Liaison, JAG, or chain of command |
| Requirements are low quality, ambiguous, or incomplete | An additional revision to the prototype and further testing delaying the schedule for at least 6 months | SOW, additional requests made outside specified change request windows |
| Decision delays from Chain of Command impact Project schedule | Delays in decisions, input, or direction will result in schedule delays due to approval postponement | Chain of Command Approval, weekly objectives show 5% variance from schedule |
| Decisions are low quality, ambiguous, or incomplete | An additional revision to the prototype and further testing delaying the schedule for at least 6 months | Chain of Command Approval, weekly objectives show 5% variance from schedule |
| Failure to negotiate reasonable costs for contracts | An additional revision to the budget will delay the schedule for at least 2 months | Contracts, 02OCT23 suspense not me |
| Unacceptable Contract Terms | Project cannot be initiated until Scope Statement complete and agreed upon causing delay | Contracts, 02OCT23 suspense not me |
| Loss of intellectual property from cloud data issues, ransomware, or adversary intervention | Access denial to historical products will cause catastrophic project delays | Knowledge Manager and NEC emails, upon occurrence |
| Project Team lack authority or security clearances to complete work | Project Team cannot touch Military equipment or be granted access to installations and networks without proper access | Administrative Emails, immediate notification from security adjudicator |
| Delays to Stakeholder approvals impact the Project schedule | An additional revision to the prototype and further testing delaying the schedule for at least 6 months | Chain of Command Approval, weekly objectives show 5% variance from schedule |
| Delays to financial approvals impact the Project schedule | An additional revision to the budget will delay the schedule for at least 2 months | Budget and Logistician emails, weekly objectives show 5% variance from schedule |
| Delays to procurement processes impact the Project schedule | Lack of available resources will cause schedule delay and budget overrun | GCSS-A and Logistician emails, weekly objectives show 5% variance from schedule |
| Delays to training impact the Project schedule | Project Team must train on Military needs or scope requirements won't be fulfilled | GANTT Chart and Milestone Chart, weekly objectives show 5% variance from schedule |
| Legal And Regulatory change impacts Project schedule and processes | Changes to Law or Regulations could limit resources, equipment available | Military Liaison and Staff Judge Advocate emails, notification from Military Liaison, JAG, or chain of command |
| Unforeseeable acts Of God impact Project schedule | A myriad of potential impacts to schedule delay, budget overrun, personnel turnover | News, ALERTS, and Chain of Command guidance, upon occurrence |
| Technical change impacts Project schedule | Updates to MTOE equipment for Light Infantry Battalion will result in the need of further testing and schedule delay | NEC policy changes, upon occurrence |
| Failure to follow Project Management methodology | Critical steps in the PM methodology will be overlooked resulting in sub-par deliverables | Meetings and Milestones, deviation from PMBOK outside Agile sessions |
| Stakeholders reject the prototype | An additional revision to the prototype and further testing delaying the schedule for at least 6 months | Chain of Command Approval, upon occurrence |
| Project reduces innovative spirit when needs arise | By undertaking project and completing a "how to" guide for LSCO MCP layout, the force's innovations are limited | CALL submissions, lack of problem solving submissions |
| Stakeholders reject the final product | An additional revision to the prototype and further testing delaying the schedule for at least 6 months | Chain of Command Approval, upon occurrence |

# 3.0 Project Success Criteria

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| **Measure of Success** | **Expectation** |
| Scope | The project will be successful if the scope statement clearly defines requirements with SMART objectives |
| Schedule | The project will be successful if the project is finished within the allotted time period |
| Budget | The project will be successful if the project is finished within the specified budget |
| Standards | The project will be successful if the project complies with internal and external standards |

# Attachments

|  |  |
| --- | --- |
| **Attachment** | **File Name** |
| Work Breakdown Structure (WBS) | 04\_WBS |
| Project Schedule | 06.1\_Gantt Chart |
| Communication Plan | 08\_Communication Plan |