

**STATEMENT OF WORK
for the
MISSILE DEFENSE DATA CENTER**

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FIGURE

Figure 1 - MDDC Program Phases and Milestones - BASIC 4

**STATEMENT OF WORK
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1.0 SCOPE

1.1 **OBJECTIVE.** This Statement of Work (SOW) describes the Contractor's requirement to operate, maintain, and modernize the Missile Defense Data Center (MDDC) information system to serve missile defense acquisition and technology programs' data management needs.

1.2 **BACKGROUND.** The Sensors Directorate of the U.S. Army Space and Missile Defense Command (USASMDC) executes the MDDC Program for the Ballistic Missile Defense Organization (BMDO). The BMDO sponsors the MDDC to serve the data storage, management and dissemination needs of major defense acquisition programs (MDAPs) and technology programs that collect, produce or use data and documents from BMDO demonstrations, experiments, models & simulations, or tests. These MDAPs and technology programs are the users of the MDDC. The BMDO is integrating data centers and users into a Virtual Data Center (VDC) to exchange data and documents through a secure wide area network. The MDDC works with users to determine their data storage, processing and dissemination needs, and also works with BMDO and other data centers to develop and test the VDC to provide capabilities users need to accomplish their mission more effectively and efficiently.

2.0 APPLICABLE DOCUMENTS

Applicable documents for this effort are for reference only. They are listed in Appendix A.

3.0 GENERAL REQUIREMENTS

The MDDC Program is pursuing the following goals:

- Provide users high quality data products and responsive data management services.
- Eliminate labor- and mail-intensive duplication and distribution of data and documents for each test.
- Promote a seamless electronic environment with users' information systems and participate in their Integrated Product and Process Development (IPPD).
- Modernize the MDDC using an Open System Approach to reduce life-cycle cost and increase effectiveness and efficiency.
- Develop and integrate, with users, BMDO and the other data centers, a VDC to provide accurate, timely and cost effective data management across BMDO.
- Enable MDAPs to shorten weapon system deployment times through more timely data analysis, data distribution, modeling & simulation, and technology validation.
- Increase combat capability by data standardization and information exchange to maximize weapon system interoperability.

3.1 **TASK ORDERS.** All work performed under this contract shall be pursuant to Task Orders issued in accordance with the provisions set forth in contract Section B-35. Task Orders will be issued to activate tasks and provide the specific requirements and deliverable time schedule.

3.2 GOVERNMENT FURNISHED PROPERTY, INFORMATION AND SERVICES (GFP/I/S). The government will furnish MDDC property for operation and maintenance by the Contractor. The government will furnish the MDDC information for administration by the Contractor. The government will also furnish out-plant data communications services to the MDDC Operation Site facility for the contractor to operate and maintain the in-plant cabling and interfaces with the MDDC information systems. The lists of government furnished property and information (GFP/I) are included in the contract as set forth in Part III, Section J. The Contractor's GFP/I accounting system shall provide complete and accurate information for inspections and future acquisitions by the government.

3.3 OVERALL REQUIREMENT. The Contractor shall operate and maintain the MDDC information systems with an availability of not less than 97% during MDDC Business Hours set forth in contract Section H-10. Task Orders may be issued covering the following areas:

- Plan, organize, direct, control, coordinate, and report contract execution, cost and schedule.
- Accept, analyze, catalog, digitize, store, manage, protect, retrieve, copy, and distribute data and documents collected, produced and submitted by users.
- Administer the data, databases and documents in the MDDC.
- Participate on users' Integrated Product Teams (IPTs).
- Assist users in data management planning.
- Advise users on existing data and as to the status of data in the MDDC.
- Use IPTs to develop and test the processes and the database and interface designs to be employed to accept, store and retrieve the user's data in the MDDC.
- Facilitate access, retrieval, reduction, analysis, and visualization of data by users in the MDDC or via the VDC.
- Furnish a current MDDC User Handbook.
- Catalog new data and documents received in the MDDC in not more than ten (10) work days.
- Satisfy users' requests for data and documents that are archived in the MDDC in not more than fifteen (15) calendar days from the user's request for the data or document. For data that has not yet been received by the MDDC, satisfy users' requests in not more than eleven (11) calendar days after receiving the data or document in the MDDC.
- The Quality of data products delivered to users shall correctly meet the user's requirements at least 95% for all requests, and user identified discrepancies shall be corrected in not more than five (5) work days.
- Obtain copies of follow-on data analysis reports from agencies who receive data for these analyses from the MDDC, and notify the user who archived the data.
- Participate on BMDO Data Center Standards Committee (DCSC), Phenomenology Science and Analysis Group (PSAG), and VDC IPTs.
- Collaborate with other scientific and engineering data centers.
- Integrate the MDDC with the VDC and provide VDC capabilities and support.
- Ensure accessibility and availability of data and documents in the MDDC.
- Ensure MDDC interoperability with users.
- Ensure MDDC user satisfaction.

3.4 POTENTIAL IMPROVEMENTS AND UPGRADES. Tasks may encompass investigation, engineering and implementation of approved MDDC process improvements and system upgrades pursuant to Task Orders. These process improvements and system upgrades may include, but are not limited to:

- Web-pages on the USASMDC; Program Executive Office, Air and Missile Defense (PEO AMD); and Joint Program Office, National Missile Defense (JPO NMD) INTRANETS.
- An electronic Data Dictionary System (DDS) that includes a database of the metadata from data and document catalogs.
- A Government/Contractor electronic data interchange system (or Contractor Integrated Technical Information System [CITIS]).
- A Government/Contractor electronic test data requirements planning system.
- A Government/Contractor electronic test data tracking and control system.
- A Government/Contractor electronic test data acceptance system.
- A compact disk (CD) test data exchange.
- Servers to exchange mission data among a user's IPT members via secure networks (complementary to the Joint Engineering Data Management Information and Control System [JEDMICS]).
- Portable and scaleable data reduction, analysis and visualization software tools for distributed processing among users' platforms, the MDDC platforms, and the VDC.
- The Open System Specification of the MDDC System Architecture:
 - + The Data Center Reference Model.
 - + The Data Center Process Flow Diagrams and Specifications.
 - + The Data Center Control Flow Diagrams and Specifications.
 - + The Data Center Information Model.
- The Open Standards for user's data, databases, and interfaces in the MDDC Technical Architecture.

3.5 PHASES AND MILESTONES. The MDDC Program will provide the detailed requirements and deliverable schedules for specific time periods called phases. These phases are designed to satisfy validated requirements and manage program risk. Each phase will end with a Milestone Review for the MDDC Program as shown in Figure 1. The MDDC Program will make decisions on whether to continue or redirect the Contractor's activities based on the current situation.

3.5.1 Initial Transition Phase. Pursuant to a MDDC Program Task Order the Contractor shall work and train with Teledyne Brown Engineering (TBE), the incumbent, on the operation and maintenance of the MDDC information systems; the administration of data, databases and documents in the MDDC; and the approved processes for supporting users. The Contractor shall be responsible for physical and functional configuration audits to verify the baseline configuration of the MDDC information systems. The Contractor shall be responsible for a physical inventory of the GFP/I with TBE and for the transfer of accountability. The Contractor shall be responsible to learn the approved processes and to demonstrate readiness to operate and maintain the systems; administer the data, databases and documents; and support

users. The configuration of the MDDC systems shall not be changed during the transition phase. User Task Orders will not be issued during this phase.

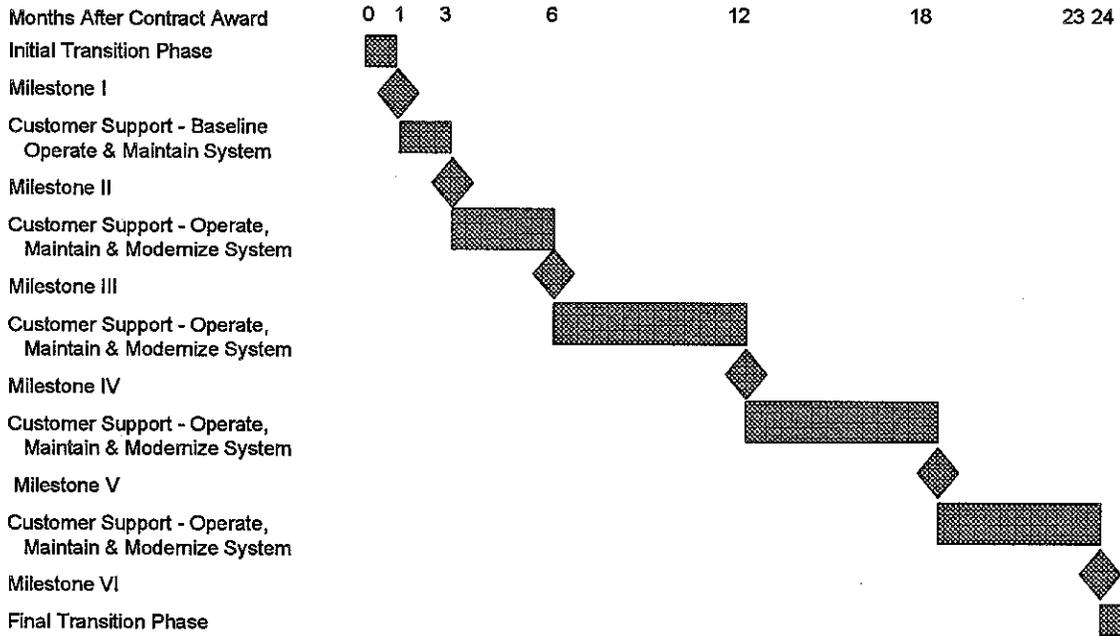


Figure 1 - MDDC Program Phases and Milestones - BASIC Contract

3.5.2 Baseline Phase. Pursuant to the MDDC Program Task Order the Contractor shall measure performance metrics to establish a baseline. The Contractor shall be responsible to operate and maintain the MDDC information systems; administer the data, databases and documents in the MDDC; and support users using approved processes. The configuration of the MDDC systems shall not be changed during the baseline phase. The Contractor shall be responsible to implement an internal management control system and a GFP/I accounting system. The Contractor shall be responsible to implement Quality Assurance practices. The Contractor shall be responsible to develop process improvements, engineer system upgrade plans, and perform economic analyses and trade studies. User Task Orders may be issued during the baseline phase.

3.5.3 User Support - Operate, Maintain & Modernize System Phases. Pursuant to MDDC Program Task Orders the Contractor shall measure performance metrics. The Contractor shall be responsible to operate and maintain the MDDC information systems; administer the data, databases and documents in the MDDC; and support users. An Open System Approach shall be used to establish the MDDC System Architecture and Technical Architecture. The Contractor shall be responsible for Configuration Management of the MDDC system and Quality Assurance practices. The Contractor shall be responsible to develop process improvements, engineer system upgrade plans, and perform economic analyses and trade studies. The Contractor shall implement approved process improvements and system upgrade plans to improve MDDC system capabilities and increase user satisfaction. User Task Orders will be issued.

3.5.4 Final Transition Phase. Pursuant to a MDDC Program Task Order the Contractor shall work with and train the follow-on contractor on the operation and maintenance of the MDDC information systems; the administration of data, databases and documents in the MDDC; and the approved processes, System Architecture and Technical Architecture for supporting users. The Contractor shall assist the follow-on contractor with physical and functional configuration audits. The Contractor shall perform a physical inventory of the GFP/I with the follow-on contractor and transfer accountability. User Task Orders will be closed out during this phase.

3.6 YEAR 2000 (Y2K) COMPLIANCE. The MDDC information systems shall be able to accurately process date and time data (such as calculating, comparing, and sequencing) from, into, and between the twentieth and twenty-first centuries, including leap year calculations, when used in accordance with the item documentation provided by the vendors. The MDDC systems shall accurately process date and time data with other Data Center sites, the VDC, and users' information systems connected to them during the century change and in the twenty-first century.

3.6.1 The Contractor shall accomplish and document tests necessary to ensure that each information technology item developed or procured under this contract, to include hardware, software, firmware, and middleware whether acting alone or combined as a system, is Year 2000 compliant as defined in FAR Part 39.

3.6.2 The Contractor shall accomplish and document modifications and tests necessary to ensure that Government Furnished property previously provided, or maintained in the future under this contract, to include hardware, software, firmware, and middleware whether acting alone or combined as a system, is Year 2000 compliant as defined in FAR Part 39.

4.0 MDDC PROGRAM REQUIREMENTS

MDDC Program Task Orders may encompass the following areas:

4.1 CONTRACT MANAGEMENT. This area involves planning, organizing, directing, controlling, coordinating, and reporting contract execution cost, performance and schedule. This entails providing the MDDC Program with sufficient data to monitor the work performed and the equipment and software modified, procured or developed under the contract. This entails maintenance and use of the Contract Work Breakdown Structure (CWBS) and definitions, integrated Program Plan, and Integrated Master Schedule to describe the technical approach, organizational resources, and management controls the Contractor will use to meet the requirements for contract work. Contract Management may include, but is not limited to the following:

- Account for GFP/I and conduct inventories.
- Deliver monthly Progress Reports and Funds Manhour and Expenditure Report (FMER).
- Conduct in-progress performance reviews and Milestone Reviews.

4.2 DATA USER SUPPORT. This area involves the provision of services to receive and satisfy users' requests for data and documents in the MDDC. This encompasses the support services for the MDDC to be the *single point of contact* for *local* users to access and retrieve data and documents in the MDDC and on the VDC. Data user support includes, but will not be limited to the following:

- Support and assist users with on-line data access, retrieval, reduction and analysis in the MDDC or via the VDC.
- Support and assist users with on-line access and retrieval of documents by users in the MDDC or via the VDC.
- Obtain copies of follow-on data analysis reports from agencies who obtain data from the MDDC, and notify the user who archived the data.
- Provide VDC support for users.
- Collaborate with other engineering and technical data centers.

4.3 SCIENTIFIC SUPPORT. This area involves the provision of subject matter expertise to advise and support data users in accessing (locating), retrieving, analyzing and visualizing the data in the MDDC that are potentially pertinent to the user's mission or objective. Scientific support includes, but will not be limited to:

- Advise users on existing data and as to the status of data in the MDDC.
- Advise users as to the potential applicability of data and documents in the MDDC for the their particular mission.
- Support and advise users with data analysis, reduction, and visualization in the MDDC.
- Participate on the BMDO PSAG.

4.4 DATA ADMINISTRATION. This area involves provision of services to plan, organize, coordinate, and protect data the users collect or produce in standardized form for rapid access and retrieval (random access). It encompasses deconflicting and implementing DoD, BMDO and Army Data Administration policies in the MDDC. It encompasses relational and object-oriented database management. This function includes, but will not be limited to the following:

- Formulate the data standards and policies in the MDDC.
- Administer and protect the data and databases in the MDDC with secure handling, processing and distribution.
- Standardize data elements and subelements.
- Develop and maintain the MDDC Information Model.
- Develop, test, and document databases for on-line access and retrieval in the MDDC and on the VDC. Develop and deliver the Database Design Description (DBDD) and Software Product Specification (SPS) pursuant to Task Orders.
- Load users' data into databases.
- Integrate and test MDDC databases with the VDC.
- Develop and test an electronic data and document catalog system in the MDDC.
- Integrate and test the electronic catalog system with the VDC.
- Backup the data, databases and metadata in the MDDC and provide for Continuity of Operations (COOP) with other data centers.
- Participate on the BMDO DCSC.
- Retire data as directed.

4.5 DOCUMENT MANAGEMENT. This area involves planning, organizing, digitizing, and protecting documents that complement or clarify the data in the MDDC. It encompasses

deconflicting and implementing DoD, BMDO and Army Records Management policies in the MDDC. It encompasses electronic document management in the MDDC. Document management includes, but is not limited to the following:

- Formulate the document standards and policies in the MDDC.
- Manage the documents in the MDDC with secure handling, processing and distribution.
- Update the MDDC Users Handbook in accordance with direction in Task Orders.
- Develop and test an electronic MDDC Users Handbook.
- Accept, catalog, digitize, protect, and manage documents produced by users.
- Develop and test an electronic document management system for on-line access and retrieval in the MDDC and on the VDC.
- Backup the electronic documents in the MDDC and provide for COOP with other Data Centers.
- Retire documents as directed.

4.6 SYSTEM ENGINEERING. This area involves provision of the services to integrate and modernize the MDDC information systems to support users' data management requirements. This encompasses user requirements analysis and flowdown, system architectures and implementations, trade studies, and engineering designs for potential process improvements and MDDC system upgrades that improve internal functions; user and VDC interface functions; and client/server or distributed object processing. Using MIL-STD-973 as a guide, the Contractor shall implement a Configuration Management (CM) system. System Engineering includes, but will not be limited to the following:

- Develop and maintain the MDDC System Architecture of Open System Specifications encompassing the MDDC Reference Model, Process Flow Diagrams and Specifications, Control Flow Diagrams and Specifications, and Information Model. Develop and deliver the System/Subsystem Design Description (SSDD) pursuant to Task Orders.
- Develop and maintain the MDDC Technical Architecture of Open System Standards for interfaces with users and the VDC. Develop and deliver the Interface Design Description (IDD) pursuant to Task Orders.
- CM of hardware configuration items (HWCI) in the MDDC.
- Develop and maintain interfaces with missile ranges and sensors that collect data for users.
- Develop and maintain interfaces with programs and contractors that analyze data for users.
- Advise users on MDDC systems capabilities and determine users' requirements for MDDC process improvements and system upgrades.
- Participate on users' IPTs.
- Develop and test potential process improvements in the MDDC.
- Engineer system upgrades in the MDDC for government approval.
- Integrate and test approved system upgrades in the MDDC.
- Participate on VDC IPTs.
- Integrate and test the MDDC systems with the VDC.
- Ensure MDDC interoperability with users' systems.



4.7 INFORMATION TECHNOLOGY PROCUREMENT. This area involves procurement of information technology for the MDDC information systems by the Contractor pursuant to Task Orders and government approved MDDC information system upgrade plans. In order to reduce life-cycle cost, the Contractor shall: (1) first, use or modify Government off the shelf (GOTS) hardware and software; (2) second, procure or modify Commercial off the shelf (COTS) hardware and software; and (3) third, when GOTS or COTS are not adequate or available to accomplish the mission, the Contractor shall develop, build, program and test such hardware and software and integrate it with the MDDC systems and the VDC.

4.8 SOFTWARE ENGINEERING. Using MIL-STD-498 as a guide, the Contractor shall develop a Software Development Plan (SDP) which describes the Contractor's software architecture, data architecture, and software engineering processes, including GOTS/COTS selection and integration processes. The software architecture shall be an open architecture that supports a process of continually evolving a stable baseline to take advantage of new technologies as they mature as well as the introduction of new capabilities. The design, development, integration, test, documentation, and delivery of all software provided under this contract (e.g. software tools, system software, database management system (DBMS) software, mission applications, etc.) shall be in accordance with the SDP. Software Engineering activities include, but will not be limited to the following:

- CM of computer software configuration items (CSCI) in the MDDC.
- Modify or develop, test and document software tools for data storage, access and retrieval and for data reduction, analysis and visualization that are suitable for use on the hardware in the MDDC, or for distributed object processing on users' platforms, the MDDC platforms, or the VDC. Develop and deliver the Software Design Description (SDD) and SPS pursuant to Task Orders.
- Develop, program, test, and document mission applications software for the MDDC and the VDC.
- Integrate and test MDDC software with the VDC.
- Ensure MDDC software interoperability with users' hardware and software.

4.9 SOFTWARE OPERATION AND MAINTENANCE. This area involves the installation, testing, operation, modification, maintenance, programming, and documentation of software in the MDDC information systems by the Contractor. This encompasses software for internal functions; for user and VDC interface functions; and for client/server or distributed object processing on user's platforms, MDDC platforms, and the VDC. Software operation and maintenance includes, but is not limited to the software and interfaces used to accept, analyze, catalog, digitize, store, process, retrieve, copy, distribute, and exchange data or documents in the MDDC. A Software Center Operator Manual (SCOM) and Software Input/Output Manual (SIOM) shall be developed and delivered pursuant to Task Orders.

4.9.1 Vendor Software Service. The Contractor shall procure vendor services or maintenance agreements for software in the MDDC pursuant to Task Orders.

**APPENDIX A
APPLICABLE DOCUMENTS**

Copies of these documents are in the MDDC Bidders Library located in the USASMDC Technical Library.

1. Missile Defense Data Center (MDDC) Task Order Guide, 6 April 1998, Attachment 2, Section J of the RFP.
2. Department of Defense (DoD) Contract Security Classification Specification, 6 April 1998, Attachment 5, Section J of the RFP.
3. Teledyne Brown Engineering (TBE) *MDDC HOLDINGS AS OF October 07, 1997* (3 sheets)
4. TBE *MDDC User's Handbook*, 26 September 1997
5. TBE *MDDC Network Support Plan*, 26 September 1997
6. TBE *MDDC System Development Plan*, October 1997
7. TBE *MDDC Operations Security (OPSEC) Plan Supplement (U)* October 1997, to Systems Engineering and Technical Assistance Contract OPSEC Plan, dated 26 November 1996
8. TBE *MDDC Data Archive Manual*, October 1997
9. TBE *MDDC Data Delivery Manual*, October 1997
10. TBE MDDC website: <http://www.tbe.com/mddc/>
11. TBE *FY97 CUSTOMER LIST* (2 pages)
12. TBE Building 7 Floor Plan
13. MDDC Performance Management Review Briefing, March 1998
14. Sample MDDC Monthly Activity Report
15. *Midcourse Space Experiment (MSX) Cooperative Targets Data Analysis Center and Missile Defense Data Center (MDDC) Interface Control Document (ICD)*, May 1997
16. *MSX Early Midcourse Data Analysis Center and MDDC ICD*, May 1997
17. *MSX Mission Operations Center and MDDC ICD*, May 1997
18. *MSX UVISI Data Processing Center to MDDC ICD*, May 1997
19. Memorandum of Understanding between MSX Cooperative Targets Data Analysis Center (CTDAC) and The Missile Defense Data Center (MDDC), undated.
20. Strategic Defense Initiative Organization Directive No. 3240, *Management of Experiment Data*, February 1991

21. Fiscal Year (FY) 1998 Program Management Agreement (PMA) Number 3352, between the Ballistic Missile Defense Organization (BMDO) and USASMDC, Tasks 7, 17 and 27 (combined), minus all funding information.
22. DRAFT BMDO Modeling, Simulation, and Networks Directorate Data Center Program Plan (DCPP), October 17, 1997
23. DRAFT BMDO Directive No. 3240, *Management of Scientific and Technical Data/ Information*
24. DRAFT BMDO Directive No. 3240-H, *Management of Scientific and Technical Data/ Information Handbook*
25. BMDO VDC *Prototype Demonstration Briefing*
26. BMDO VDC *Operational Concept Document (OCD)*, DRAFT Version
27. DoD *Joint Technical Architecture (JTA)*, Version 1.0, 22 August 1996, also available from the DoD JTA website at: <http://www-jta.itsi.disa.mil/>

APPENDIX B
ACRONYMS

BMDO Ballistic Missile Defense Organization
CALC Continuous Acquisition Lifecycle Support
CD Compact Disk
CDRL Contract Data Requirements List
CFSR Cost Funds Status Report
CITIS Contractor Integrated Technical Information System
COOP Continuity of Operations
COTS Commercial off the Shelf
CTDAC Cooperative Targets Data Analysis Center
CWBS Contract Work Breakdown Structure
DCPP Data Center Program Plan
DCSC Data Center Standards Committee
DDS Data Dictionary System
DoD Department of Defense
FY Fiscal Year
GFP/I Government-furnished Property and Information
GOTS Government off the Shelf
ICD Interface Control Document
IPPD Integrated Product and Process Development
IPT Integrated Product Team
JEDMICS Joint Engineering Data Management Information and Control System

JPO NMD Joint Program Office, National Missile Defense
JTA Joint Technical Architecture
MDAP Major Defense Acquisition Program
MDDC Missile Defense Data Center
MSX Midcourse Space Experiment
OCD Operational Concept Document
OPSEC Operational Security
OSD Office of the Secretary of Defense
PEO AMD Program Executive Officer, Air and Missile Defense
PMA Program Management Agreement
PSAG Phenomenology Science Advisory Group
RFP Request For Proposals
SOW Statement of Work
TBE Teledyne Brown Engineering
USASMDC U.S. Army Space and Missile Defense Command
UVISI Ultraviolet and Visible
VDC Virtual Data Center
Y2K Year 2000