			Date Printed: 07/27/2009		
	nt and Operations Contract	Task Order Number:	Mod:		
Facility Engineering and	Support Services Task Order	FDOC-TO4-09			
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD4	46C		
GFY: 09	Multiyear: No	SOW Ref: 1.5.4.8			
Title: Architectural and Engin	eering Support				
Mission Directorates Supported:	Final Aeronautics ${f X}$ Exploration	External External	X Space Ops		
Programs Supported:	Aeronautics X Constellation SpaceComm X Station Other Desc:Exploration	n Science X Shuttle X Other			
	Sched		-		
	art Date: /01/2000	Estimated Completion Date: 09/30/2009			
01,	/01/2009	09/30/	/2009		
	Approv	vals	1		
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Snook, Bryan	(281) 244-0192	12/04/2008		
Task Order TMR	Macha, Mitchell	(281) 483-7059	12/04/2008		
Task Order Division	Lindner, Daniel	(281) 483-3885	12/05/2008		
FDOC Representative	Beuchaw, Karen	(281) 283-4363	12/16/2008		
Task Order Monitor	Snook, Bryan	(281) 244-0192	12/17/2008		
NASA Resource Analyst	Webley, Grant	(281) 483-3906	12/18/2008		
COTR	Lowery, James	(281) 483-1064	12/18/2008		
NASA Contracts Officer	Carpentier, John	(281) 244-7254	12/18/2008		
CO's Signature		C	Date		
Task Order T 1.0 Gene 2.0 Task 3.0 SRM0 4.0 Secu	esources Summary Text eral Scope of Work Description				

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task Order Number: FDOC-TO4-09		Revision:			
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2009 Totals:	Original				(b		(4)			

Total Value: **\$ (b) (4)**

1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

- ? OTF Technology Development
- ? MOFD Equipment Replacement Support
- ? MCCx Client Development Support
- ? Future Network System Development Support
- ? MOFD Process Automation Support
- ? Support for third party application development in the OTF (Ames, etc)
- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

1.20BJECTIVE

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

2.) Support prototype projects, assessments, and presentations as requested.

3.) Provide Weekly status reports.

4.) Conduct trade studies and engineering analyses as requested.

5.) Provide support for MOFD ER Projects as assigned.

6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

2.2NASA INPUT REQUIREMENTS

All DD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

1. As required to meet 2.1 Established within Panel forum

2.4MATERIAL/TRAVEL

11 FTE OTF Support. Travel Support not to exceed 20K.

1.5 FTE SCAN Data Standards support. CCSDS travel is not to exceed 24K. Track CCSDS support separately.

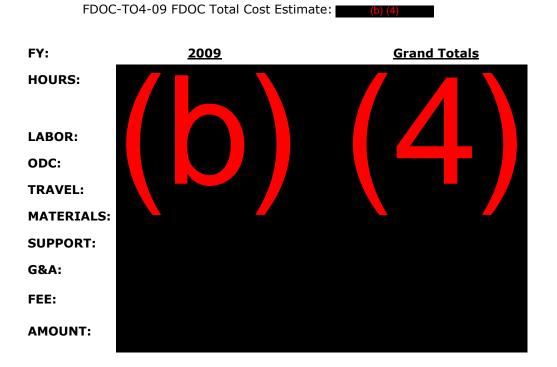
3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

Facilities Development and Operations Contract	Task Order Number:	Mod:
FDOC Cost Estimate	FDOC-TO4-09	



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO4-09	

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

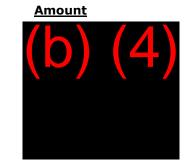
PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

282938.09.09.10 439432.07.03.05.01 575376.07.01.02.01.48 609524.09.03.01.01.48

WBS Total:



			Date Printed: 06/02/2010		
Facilities Developme	nt and Operations Contract	Task Order Number:	Mod:		
	Support Services Task Order	FDOC-TO4-10	2		
Contractor: Lockheed Martir	n Corporation	Contract Number: NNJ09HD	46C		
GFY: 10	Multiyear: No	SOW Ref: 1.5.4.8			
Title: Architectural and Engin	neering Support				
Mission Directorates		External C Science	V. Course Cours		
Supported:	Aeronautics X Exploration	External Science	X Space Ops		
Programs Supported:	Aeronautics X Constellation	n 🔽 Science 🛛 🗙 Shuttle			
	X SpaceComm X Station	X Other			
	Other Desc: Exploration				
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	Sched				
	art Date:)/01/2009	Estimated Completion Date: 09/30/2010			
ΞĻ			/2010		
	Approv	vals			
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Wolfer, Eric	(281) 483-6709	03/03/2010		
Task Order TMR	Bishop, Larry	(281) 483-7740	03/03/2010		
Task Order Division	Sims, John	(281) 483-2344	03/04/2010		
FDOC Representative	Beuchaw, Karen	(281) 283-4363	03/16/2010		
Task Order Monitor	Wolfer, Eric	(281) 483-6709	04/05/2010		
NASA Resource Analyst	Webley, Grant	(281) 483-3906	04/06/2010		
COTR	Lowery, James	(281) 483-1064	04/06/2010		
NASA Contracts Officer	Carpentier, John	(281) 244-7254	04/07/2010		
CO's Signature	- Aint	D	ate 4-7-10		
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Contents:					
Title - Signa	iture Page				
	esources Summary				
Task Order					
	eral Scope of Work				
	Description				
3.0 SRM					
	irity Requirements				
Estimated N	ASA Resources Summary				

F		Development and Operations Contract DOC Cost Estimate Summary	Task Order Number: FDOC-TO4-10	Revision: 2
Fiscal Year	Mod	Labor Labor \$ ODC \$ Travel \$ Material \$	Support G&A \$	Fee \$ Total \$
2010	Original			Δ <u>μμαστατικά το μ</u> αστάδου ματάλασα. Γ
2010	1			
2010	2			
Fotals:				

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO4-10	2

1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

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- ? MOFD Equipment Replacement Support
- ? MCCx Client Development Support
- ? Future Network System Development Support
- ? MOFD Process Automation Support
- ? Support for third party application development in the OTF (Ames, etc)
- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

1.20BJECTIVE

Identify key areas for change and facilitate budget and schedule activities to:

1.) Improve system performance, usability and accessibility

- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.

2.) Long-range view of requirements, technology, performance and systems obsolescence.

3.) Defining and managing a long term system architecture that meets MOD requirements.

4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed. 2.0 <u>TASK DESCRIPTION</u>

2.1DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

2.2NASA INPUT REQUIREMENTS

All DD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

3.25 FTE Cx OTF Support. Travel Support not to exceed 10K.

- 3.95 FTE ISS OTF Support. Travel Support not to exceed 5K.
- 3.8 FTE SSP OTF Support. Travel Support not to exceed 5K.

1.5 FTE SCAN Data Standards support. Travel support not to exceed 24K.

Mod 1: \$100K material procurements

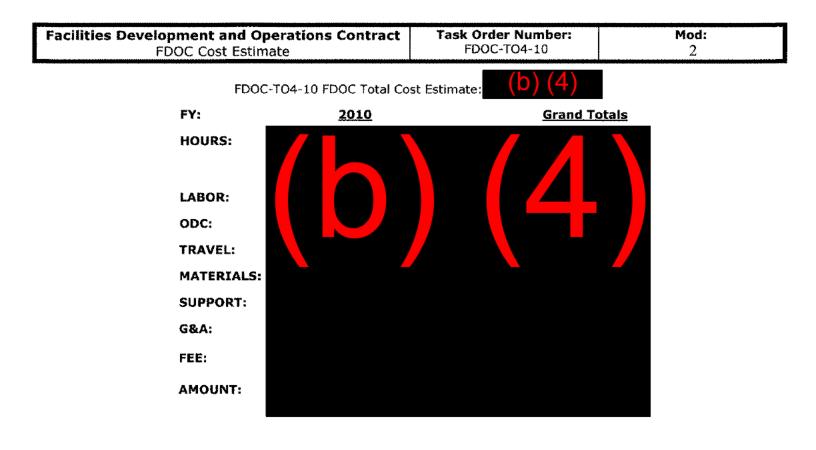
Mod 2: \$115K material procurements

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.



4			
	Facilities Development and Operations Contract	Task Order Number:	Mod:
	Estimated NASA Resources Summary	FDOC-TO4-10	2

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>

WBS Total:

RESOURCE ANALYST COMMENTS



			Date Printed: 07/27/2009
	opment and Operations Contract ng and Support Services Task Order	Task Order Number: FDOC-TO7-09	Mod: 2
Contractor: Lockheed	Martin Corporation	Contract Number: NNJ09HD	946C
GFY: 09	Multiyear: No	SOW Ref: 3.3.4	
Title: Systems Engine	ering Support for Reconfiguration of MCC	in Support of Constellation	
Mission Directorates Supported:	First Aeronautics ${f X}$ Exploration	n External Science	Space Ops
Programs Supported	Le Aeronautics X Constellation SpaceComm Station Other Desc:	n Science Shuttle	
 	Sched Start Date:	lule Estimated Con	nnlation Nates
	01/01/2009		
	Аррго	vals	
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Blue, Regina	(281) 483-4229	06/01/2009
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/02/2009
Task Order Division	Lindner, Daniel	(281) 483-3885	07/02/2009
FDOC Representative	Beuchaw, Karen	(281) 283-4363	07/13/2009
Task Order Monitor	Blue, Regina	(281) 483-4229	07/16/2009
NASA Resource Analys	t Webley, Grant	(281) 483-3906	07/17/2009
COTR	Lowery, James	(281) 483-1064	07/17/2009
NASA Contracts Officer	r Carpentier, John	(281) 244-7254	07/17/2009
CO's Signature			Date
Estim Task 1. 2. 3. 4.	- Signature Page hated Resources Summary Order Text 0 General Scope of Work 0 Task Description 0 SRMQA 0 Security Requirements hated NASA Resources Summary		

Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task C Num FDOC-T	ber:	Revision: 2		
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2009	Original									
2009	1									
2009	2									
fotals:										

Total Value

1.1PURPOSE

The purpose of this Task Order (TO) is to provide systems engineering services to define, evaluate, and recommend functional, hardware, and software architectures for the Mission Control Center System (MCCS) and Constellation Training Facility (CxTF) reconfiguration needs in support of Constellation Mission Operations. Management of the work under this task order will be done under the auspices of the NASA led Mission Operations Reconfiguration System (MORS) project manager. This task will provide reconfiguration products and support to the NASA-led development of the MORS facility in the areas of project planning, systems engineering, software development, design, integration, testing, and verification. In the Cx Program (CxP), reconfiguration is defined as the end-to-end process that creates, registers, audits, transfers, receives, integrates, deploys, and applies data, software, and documentation for the purpose of configuring systems that support the CxP. Reconfiguration processes are applicable for all project phases and mission activities. The MORS Project is currently in the system definition review (SDR) phase of development (Phase A).

PP&C Modification: (START Date: 4/1/2009)

This Task Order (TO) is also to provide cost engineering support to identify high risk mission critical components, assess cost/schedule/technical viability of requirements and interfaces, support review of system trades focusing on new platforms and system services, and provide cost and schedules risk assessments to the project.

Material Procurement Modification (6/1/2009)

This Task Order (TO) modification is for material procurement. The content of the procurement purchase will be identified in a TIRF.

1.20BJECTIVE

The focus of these services is on the examination of the proposed system architecture and design and the flow down to all functional elements of the system, requirements, and supporting architectures that enable reconfiguration of the MCCS to support Constellation testing, training, and flight operations as well as provide reconfiguration products for the CxTF needs. The requisite products and services must comply with CxP specifications. In addition, the services provided under this TO are intended to clarify and optimize the engineering and management processes associated with deployment of capabilities for MCCS reconfiguration and CxTF training activities.

This TO involves application of best practices in systems engineering for the purposes of streamlining and optimizing MCCS and CxTF reconfiguration needs to support Constellation. There are two areas of emphasis. The first is on the logical decomposition of processes using the baselined derivation and assessment of common infrastructure for MORS reconfiguration processing and Control Center and Training Facility space operations. The second is on demonstrating end-to-end exchange of command and telemetry between a NASA provided Constellation vehicle simulation and control center assets in a test bed environment.

It is expected that the Contractor will participate with the MORS Team and the CxP information and reconfiguration communities of interest as necessary to derive and deliver the products and services that are required to meet the objectives of this TO.

The work under this TO is expected to significantly contribute to the following products that pertain to reconfiguration of MCCS and CxTF training needs for Constellation mission operations:

- 1) MORS Statements of Capability (i.e. Level-A requirements)
- 2) MORS Statements of Functionality and Performance (i.e. Level-B requirements)
- 3) MORS Functional and System Architectures
- 4) MORS Interface Control Documents/Interface Requirements Documents
- 5) MORS Project Schedule
- 6) MORS Test bed
- 7) MORS System Engineering Management Plan
- 8) MORS Validation and Verification (V&V) Plan
- 9) MORS Risks & Mitigation/Strategy Plan

Products 1-5 document the basis and specifications, schedules, and interface requirements for the recommended functional, hardware, and software architectures that support MCCS reconfiguration and CxTF training for the CxP. Product 6 is a tool for demonstrating the viability of the recommended architectures. Product 7 documents the

process of identifying and defining a consistent systems engineering approach. Product 8 documents is the process of that software being developed will satisfy functional and other requirements (validation) and each step in the process of building the software yields the right products (verification). Product 9 documents MORS methodology/strategy on risk mitigations.

PP&C Modification: (START DATE: 4/1/2009)

The focus of these services also includes examination of the proposed system architecture and design and the flow down to all functional elements of the system, requirements, and supporting architectures to facilitate and develop cost, schedule, and risk assessments. This TO also involves the application of best practices in cost engineering for the purposes of streamlining and optimizing a robust and efficient MORS.

The added work under this TO is expected to significantly contribute to the following products that pertain to cost engineering for the MORS:

Product 10 documents the full cost analysis performed against the MORS that includes, but is not limited to ensuring technical baselines are coordinated with the cost estimates; developing specialized cost estimating relationships for specific subsystem components and identifying areas for further evaluation/improvement Product 11 documents the cost evaluation of MORS system functionality prototyping efforts.

10) MORS Cost Analysis Data Requirements (CADRe) Document

11) MORS Prototype Cost Evaluation and Report

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

The Contractor is expected to support the following activities, and provide associated products as indicated:

The Contractor shall...

1) Participate in MORS meetings, including but not limited to, Project management reviews, MORS prototype working groups, requirements working groups, and architecture formulation working groups.

2) Participate in forums sponsored by the Mission Operations Project (MOP) and various CxP communities of interest for the purpose of updating, clarifying, and optimizing processes and system definitions for MCCS & CxTF reconfiguration needs in support of Constellation.

3) Contribute to the generation of MORS design and requirement documentation by providing textual and graphical submission of input in accordance with MORS engineering and management processes.

4) Assess, make recommendations to, and maintain the MORS project schedule as required.

5) Assess, make recommendations to, and maintain the MORS risks and mitigation plans on a monthly basis.

6) Assess and make recommendations to the FY Operating Plan (FY Op Plan) and Planning, Programming, Budgeting, and Execution (PPB&E).

7) Draft, modify, maintain, and publish project documentation as required.

8) Provide a Weekly Activity Report (WAR) to the MORS Project Manager per the MORS PMP and to the COTR of the contract.

9) Assess, make recommendations to, and maintain the documentation of the MORS system architecture. Elements of the system architecture to be assessed, maintained, and documented shall include, but are not limited to:

- a. Identification of all hardware and software configuration items
- b. Identification of facility resources
- c. Identification of internal and external interfaces
- d. Functional architecture diagrams

The Contractor is expected to contribute to the following MORS documents from the perspective of accomplishing the MCCS & the Constellation Training Facility's (CxTF) reconfiguration objectives as described in this TO:

- a. Level A Requirements Document
- b. Level B Requirements Document
- c. Functional Architecture Document

- d. Interface Requirements Documents
- e. Systems Engineering Management Plan
- f. Risk Mitigation Plan
- g. Requirements Management Plan
- h. Validation & Verification Plan

10) Provide insight, technical expertise, and logistical support for the establishment of a MORS test bed in the Operations Technology Facility (OTF).

11) Provide guidance for development of project-level configuration management processes, particularly with respect to the execution of project-level change requests (including requirement, architecture, and design modifications).

12) Maintain and, as directed by the MORS Project Manager or his/her designee, modify the MORS Level A, B, and C Requirements in accordance with governing processes and tools.

a. Requires knowledge of CxP CM tools (i.e., Cradle)

13) Maintain and, as directed by the MORS Project Manager or his/her designee, modify the MORS-specific implementation of Systems Lifecycle Process in accordance with the governing processes.

14) Perform analysis of MOP SRD changes.

15) Perform a program integration function by gathering data from external sources such as other Constellation projects and Constellation Level II & III and assessing the relevance and applicability of the data for use in the MORS.

16) Execute Information Technology (IT) planning in accordance with the governing processes.

17) Support the formulation of computational platform specification and procurement with a goal of commonality with Mission Operations platforms

18) Assess products and make recommendations to Constellation Program Mission Operations Project (MOP) working groups in support of MORS development activities as directed by the task order manager.

19) Assess and make recommendations to the MORS Test and Verification Plan, reconciling any differences between the FDOC Facility and Systems Test and Verification Plan and the Constellation Program Mission Operations Project Master Integrated Verification Plan (MIVP).

20) Assess and make recommendations for verification of MORS requirements for Level A, B, and C requirements as well as validation of Level A requirements.

21) Create Test and Verification Procedures identified by the NASA Project Manager or his/her designee in accordance with governing processes.

22) Provide a Systems Test and Verification Report in accordance with governing processes and maintain a schedule to track activities associated with this activity.

23) Maintain and, as necessary modify, a mutually agreed-to Interface Control Documents with the MCCS in accordance the governing processes and maintain a schedule to track activities associated with this activity.

24) Maintain and, as necessary modify, a mutually agreed-to Interface Control Documents with the CxTF in accordance the governing processes and maintain a schedule to track activities associated with this activity.

25) Assess and make recommendations on the dispositions of the MORS SDR comments and RIDs.

26) Assess and make recommendations on the dispositions of the MORS PDR comments and RIDs.

These tasks may include consultation support and material acquisition services as necessary to derive, assess, and demonstrate the viability of the recommendations for MCCS and CxTF reconfiguration in support of Constellation.

The effort expected to successfully accomplish this TO is as follows:

	FTE	Months	Hours
Original	-5	9.0	6960
SE&I Modification	4	7.5	4640
PP&C Modification	1	7.5	1160

The effort expected to successfully accomplish the PP&C modification to this TO is (1 FTE for remainder of FY09).

The effort expected to successfully accomplish the SE&I modification to this TO is (4 FTE for remainder of FY09). NOTE: This is a 7-month only assignment.

Generally, the skills that are expected to ensure successful fulfillment of this task order include in-depth knowledge of general systems engineering and integration techniques and best practices. General knowledge of current control center architectures and functionality is necessary. Familiarity with web-based solutions, particularly those incorporating semantic technologies, is highly desired. The emphasis is on systems engineering, rather than expertise in reconfiguration for control center operations. Knowledge of reconfiguration processing for control center space operations is considered highly beneficial rather than critical.

Additionally, the MORS project requires unique skills set and knowledge with the CxP and programmatic reconfiguration activities. Since the methodology in performing recon services is divergent from previous Programs, simply having experience with ISS and/or SSP reconfiguration activities is insufficient to maintain MORS? forward schedule of SDR in Feb-Mar and PDR in Aug-Oct of FY09. As the MORS project is proceeding through Phase A and Phase B life cycle activities (requirements definition/decomposition and design definition), it is a requirement that MORS? personnel possess a sufficient experience base in project development/maturation activities so as to research, trade, and develop a Mission Operations? reconfiguration system that meets stringent long term programmatic cost, schedule, and performance criteria. More specifically, the MORS project includes (but is not limited to) the following skills set to ensure attainment of existing FY09 schedule milestones and long term programmatic requirements/needs:

a) Web applications design, including web system design and human computer interface skills

- b) Knowledge of relational database design/architecture
- c) Software systems engineering with emphasis on interface design
- d) Telemetry processing design methodologies (i.e., digital telemetry)
- e) Space application design (i.e., tele-command)
- f) Software platform designs (i.e., Linux or UNIX platforms, including shell script development)
- g) Working experience with implementation of workflow applications/activities

h) Architecture framework modeling and design applications (i.e., System Architect and DOD Architecture Framework (DODAF))

i) Mission monitoring tools and application designs (i.e., System of Registries (SOR), Command and Control Telemetry Repository (CCTR), and the CxP Integrated Build Management System (IBMS)

j) Experience in hazard/safety analysis of ground systems utilized in support of manned spaceflight operations
 k) Training support tool application design

I) Strong knowledge of existing CxP, Level II, projects and project goals including System of Registries design, Command and Control Telemetry Repository (CCTR) design, and the CxP Integrated Build Management System (IBMS) design

The tasks specified in this task order require the Contractor to interact with the MORS Team and various Constellation forums. It is necessary that the Contractor examine strategies and specifications within these domains. Much of this information is Controlled, But Unclassified (SBU), in the realm of future acquisitions. Consequently, all Contractor personnel who support this TO must submit non-disclosure statements and be prohibited from participating in the proposal for acquisition of any future contracts that involve work related to this task order.

NASA recognizes the following dependencies to successful accomplishment of this TO and will facilitate provision of these needs to the Contractor:

a) Availability of representatives from information and reconfiguration communities of interest to acquire Constellation requirements

b) Availability of representatives from mission operations domains to ensure compatible formulation of MORS baselines

c) MORS Project engineering and management procedures and guidance

d) NASA/JSC provided office space with standard personal computer and network access for general and administrative use.

PP&C Modification: (START Date: 4/1/2009)

26) Provide cost engineering support for systems engineering activities / trades to assess optimization of the cost/performance trade space.

27) Provide support to assist MORS in software cost engineering activities as the project progresses through Phase A through C milestones.

28) Identify high risk mission critical components and assess their impact to MORS cost and schedule. This effort will support enumeration of cost/schedule and technical risks and provide insight into the system engineering environment and related functional prototyping and trade studies pursuant to cost avoidance strategies.

29) Provide enumeration of cost/schedule and technical risks involving:

- a. System artifacts,
- b. Subsystem data tree and composition
- c. Notional functional, data & software architectures (MOP ADD)
- d. Refining scope, defining products and services required by data consumers (ops concept)
- e.Higher risk ? new system capability

30) Data fusion / association, configuration management, product distribution.

31) Support software development cost management activities and measure requirements jitter and complexity.

32) Maintaining the MORS technical baseline and CADRe document and provide update at each project milestone.

33) Support development of an integrated MORS cost estimate to PMR 10 activities. This shall include:

- a. Basis of Estimate (BOE) review
- b. Cost risk analysis
- c. Ensuring technical baselines are incorporated into the estimates
- d. Developing format for cost estimate deliverables.

34) Provide engineering execution metrics that include Earned value, schedule risk analysis and reporting.

SE&I Modification: (PERFORMANCE PERIOD: 2/9/2009 ? 9/30/2009 ONLY)

1) Provide Cradle management to include implementation of MORS Level A and Level B Requirements in the Cradle ensuring proper linkages and traceability to the MS SRD document.

- 2) Provide Windchill and ICE Environment Management
- 3) Provide MORS RID tool management
- 4) Provide Update MORS logistics documentation, as applicable and/or required.

2.2NASA INPUT REQUIREMENTS

The support provided under this TO shall be in compliance with the following NASA specifications:

- NASA Policy Directive (NPD) 2820.1C, NASA Software Policy

- NASA Procedural Requirements (NPR) 7120.5D, Space Flight Program and Project Management Requirements
- NASA Procedural Requirements (NPR) 7150.2, NASA Software Engineering Requirements
- NASA Procedural Requirements (NPR) 7123.1, NASA Systems Engineering Procedural Requirements
- Mission Operations Directorate (MOD) Information Technology (I/T) Management Plan, JSC-62818

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

1. As necessary to fulfill 2.1	Per MORS scheduling processes	Supportive teamwork
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2.4MATERIAL/TRAVEL

The following material budget is included: \$16,000.

MODIFICATION #2:

Modification #2 to this task order adds \$53,000 to the existing material budget.

TOTAL MATERIAL BUDGET FOR THIS TO IS \$69,000.

This material budget is planned for acquisition of software development tools and commercial products that are identified as necessary to establish prototype MCCS and CxTF reconfiguration capabilities by way of a MORS testbed within the Operations Technology Facility (OTF). These include, but are not limited to, C, .net, or Java development environments; database management systems; Ontology editors and data stores; XML parsers and supporting utilities; and any peripheral utilities.

The following travel budget is included: \$10,000.

This travel budget is planned to accommodate 3 two-person trips within the continental United States. Travel is expected to be distributed evenly, in quarters, throughout the period of performance.

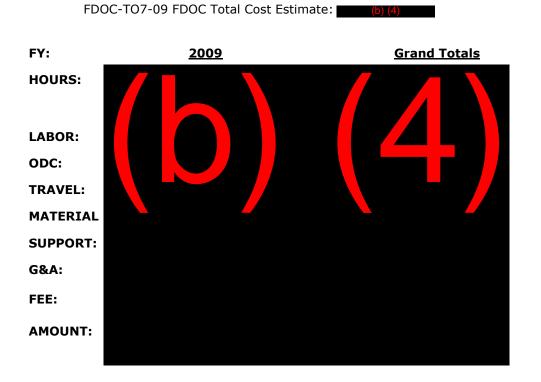
3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this Task Order (TO) shall be in accordance with SOW sections 3.3.4, Safety and Health Management, and 1.3.2.4, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

4.0 SECURITY REQUIREMENTS

The work performed under this Task Order (TO) shall be in accordance with SOW section 3.3.4, Security Management and JSC security guidelines.

Facilities Development and Operations Contract	Task Order Number:	Mod:
FDOC Cost Estimate	FDOC-TO7-09	2



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO7-09	2

NASA RESOURCES GENERAL INFORMATON

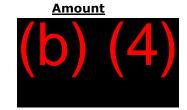
FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u> 282938.02.10.10 282938.02.10.10

WBS Total:



(D)

		Date Printed: 06/01/2
nt and Operations Contract Support Services Task Order	Task Order Number: FDOC-TO0-10	Mod: 1
Corporation	Contract Number: NNJ09HD	46C
Multiyear: No	SOW Ref: 3.3.2	nanana ang sa
Document (PRD)		
r.	External C Science	X Space Ops
Aeronautics X Constellation	Science X Shuttle	
Sched	ule	
Start Date: 10/01/2009		
Approv	als	
Point of Contact	Phone	Date Approved
Hervey, Jewel	(281) 483-0359	05/03/2010
Macha, Mitchell	(281) 483-7059	05/05/2010
		05/05/2010
		05/14/2010
and the second se		05/24/2010
		06/01/2010
		06/01/2010
	(281) 244-7254	06/01/2010
Hanta .	E	Date 4-1-10
0		
ture Page		
ASA Resources Summary		
	I Support Services Task Order Corporation Multiyear: No Document (PRD) C X Exploration Aeronautics X Constellation SpaceComm X Station Other Desc: Schedu art Date: //01/2009 Point of Contact Hervey, Jewel Macha, Mitchell Lindner, Daniel Beuchaw, Karen Hervey, Jewel Webley, Grant Lowery, James Carpentier, John Curpentier, John C	Support Services Task Order FDOC-TOO-10 Corporation Contract Number: NNJ09HD Multiyear: No SOW Ref: 3.3.2 Document (PRD) Image: Source Science Sciene

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		evelopment and Operations Contract DOC Cost Estimate Summary	Task Order Number: FDOC-T00-10	Revision: 1
Fiscal	Mod	Labor Labor \$ ODC \$ Travel \$ Mater	ial Support S G&A S	Fee \$ Total
		Hours \$		
Year 2010	Original			
Year			(4)	

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO0-10	1

1.1PURPOSE

Technical Description: Provide book management support of the Space Shuttle, the International Space Station and the Constellation Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Shuttle, Station and Constellation program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

2.2NASA INPUT REQUIREMENTS

Program Requirements Document Change Requests (JSC form 50) supporting SSP-20000 Flight Vol. 1,2,3; Launch & Landing Vol. 1,2,3; and SSP-5400 ISS Orbital Vol. 1,2

Electronic book maintenance for SSP-20000 Flight Vol. 1,2,3 and SSP-5400 ISS Orbital Vol. 1

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

1. 1 PRD CR per mo/EP	Shuttle Manifest driven	
2. 1 PRD CR per mo/EP	Multi-Increment Manifest Document (MIM) SSP 50110	
3. PRD Document Updates	PIP Annex delivery +1 month	

2.4MATERIAL/TRAVEL

4 trips (2 SSP, 1 ISS, 1 Cx). Purpose: Attend multi-center requirement issues resolution meeting.

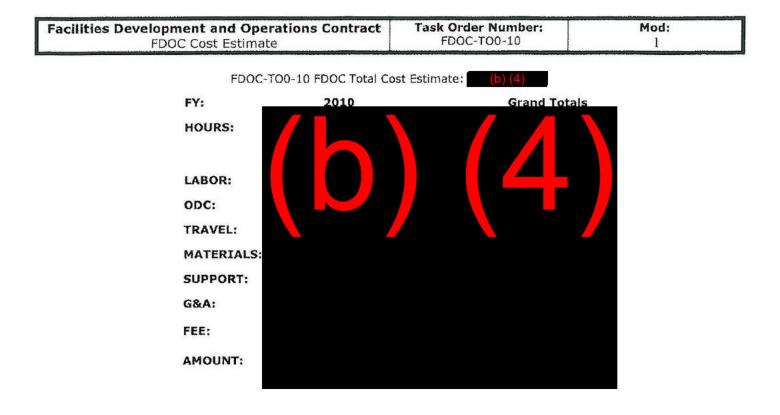
Labor: 1.956FTEs (46% ISS/42% SSP/12% Cx)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO0-10	1

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

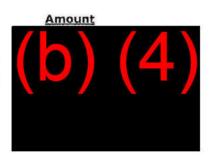
PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS 282938.10.01.10

575376.07.01.02.01.49 609524.07.01.02.07.08

WBS Total:



			Date Printed: 06/02/201
	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	d Support Services Task Order	FDOC-TO4-10	2
Contractor: Lockheed Martin	n Corporation	Contract Number: NNJ09HD	D46C
GFY: 10	Multiyear: No	SOW Ref: 1.5.4.8	
Title: Architectural and Engli	neering Support		
Mission Directorates Supported:	Aeronautics X Exploration	External Escience	X Space Ops
Programs Supported:	Aeronautics X Constellation	C Science X Shuttle	
	X SpaceComm X Station	X Other	
	Other Desc: Exploration		
	Schedu	le	
St	art Date:		npletion Date:
)/01/2009		0/2010
	Approva	als	
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Wolfer, Eric	(281) 483-6709	03/03/2010
Task Order TMR	Bishop, Larry	(281) 483-7740	03/03/2010
Task Order Division	Sims, John	(281) 483-2344	03/04/2010
FDOC Representative	Beuchaw, Karen	(281) 283-4363	03/16/2010
Task Order Monitor	Wolfer, Eric	(281) 483-6709	04/05/2010
NASA Resource Analyst	Webley, Grant	(281) 483-3906	04/06/2010
COTR	Lowery, James	(281) 483-1064	04/06/2010
NASA Contracts Officer	Carpentier, John	(281) 244-7254	04/07/2010
CO's Signature	TRINA		Date 4-7-10
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Contents:			
Title - Signa	ture Page		
	esources Summary		
Task Order	Text		
1.0 Gene	eral Scope of Work		
	Description		
3.0 SRM			
	rity Requirements		
Estimated N	ASA Resources Summary		

		Development and Operations Contract DOC Cost Estimate Summary	Task Order Number: FDOC-TO4-10	Revision: 2
Fiscal Year	Mod	Labor Labor \$ ODC \$ Travel \$ Material Hours \$	Support G&A \$	Fee \$ Total \$
2010	Original			
2010	1			
2010	2			
otals:				
	he FDOC to	otal estimated cost is (b) (4) and the Contracting (Officer's signature ap	proves a total valu

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO4-10	2

1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

- ? OTF Technology Development
- ? MOFD Equipment Replacement Support
- ? MCCx Client Development Support
- ? Future Network System Development Support
- ? MOFD Process Automation Support
- ? Support for third party application development in the OTF (Ames, etc)
- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

1.20BJECTIVE

- Identify key areas for change and facilitate budget and schedule activities to:
- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed. 2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.

6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

2.2NASA INPUT REQUIREMENTS

All DD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

3.25 FTE Cx OTF Support. Travel Support not to exceed 10K.

3.95 FTE ISS OTF Support. Travel Support not to exceed 5K.

3.8 FTE SSP OTF Support. Travel Support not to exceed 5K.

1.5 FTE SCAN Data Standards support. Travel support not to exceed 24K.

Mod 1: \$100K material procurements

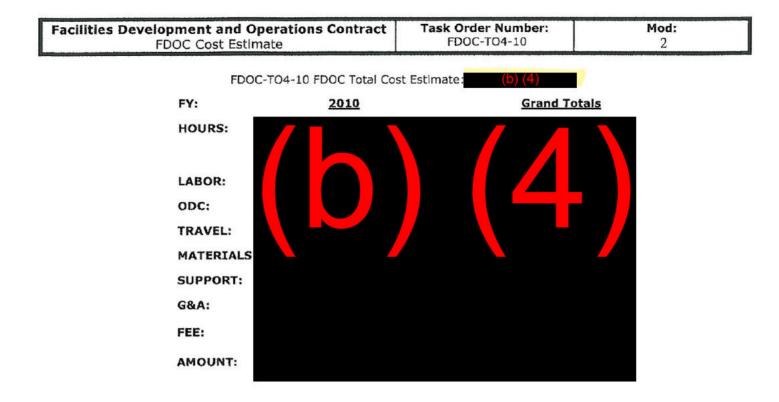
Mod 2: \$115K material procurements

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.



Facilities Development and Operations Contract Estimated NASA Resources Summary	Task Order Number: FDOC-TO4-10	Mod: 2
NASA RESOURCES GENERAL INFORMATON		
EACTORY: None Specified	DCL A. A	long Constitued

FACTORY: None Specified IN POP BASELINE: NO PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

Amount

(b) (4)

WBS Total:

RESOURCE ANALYST COMMENTS

			Date Printed: 06/02/2
	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	d Support Services Task Order	FDOC-TO4-10	3
Contractory Lockbood Marti	- Comparation	Contract Newsbirm MNI2001	10460
Contractor: Lockheed Marti	n corporation	Contract Number: NNJ09H	10460
GFY: 10	Multiyear: No	SOW Ref: 1.5.4.8	
Title: Architectural and Engi	neering Support		
Mission Directorates Supported:	Aeronautics X Exploration	External C Science	X Space Ops
Programs Supported:	Aeronautics X Constellation	Science X Shuttle	***************************************
	X SpaceComm X Station	X Other	
	Other Desc: Exploration		
	Schedu	le	
Start Date:			mpletion Date:
10	0/01/2009		0/2010
	Approva	als	
Title	Point of Contact	Phone	Date Approved
Fask Order Monitor	Snook, Bryan	(281) 244-0192	04/30/2010
ask Order TMR	Bishop, Larry	(281) 483-7740	04/30/2010
ask Order Division	Sims, John	(281) 483-2344	04/30/2010
DOC Representative	Beuchaw, Karen	(281) 283-4363	05/10/2010
ask Order Monitor	Snook, Bryan	(281) 244-0192	05/10/2010
ASA Resource Analyst	Webley, Grant	(281) 483-3906	05/11/2010
COTR	Lowery, James	(281) 483-1064	05/11/2010
IASA Contracts Officer	Carpentier, John	(281) 244-7254	05/24/2010
O's Signature	& Ant		Date 5-24-10
Contents:			
Title - Signa	ture Page		
	esources Summary		
Task Order			
	eral Scope of Work		
	Description		
3.0 SRM			
	rity Requirements		
Estimated N	ASA Resources Summary		

Facilities Development and Operations Contract FDOC Cost Estimate Summary		Task Order Number: FDOC-TO4-10	Revision: 3	
Fiscal Year	Mod	Labor Labor \$ ODC \$ Travel \$ Material	Support G&A \$	Fee \$ Total \$
2010	Original			
2010	1			
2010	2			
2010	3			
'otals:				
f otals: otal Valu		4)		

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO4-10	3

1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

? OTF Technology Development

- ? MOFD Equipment Replacement Support
- ? MCCx Client Development Support
- ? Future Network System Development Support
- ? MOFD Process Automation Support
- ? Support for third party application development in the OTF (Ames, etc)
- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

1.20BJECTIVE

- Identify key areas for change and facilitate budget and schedule activities to:
- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed. 2.0 <u>TASK DESCRIPTION</u>

2.1DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

2.) Support prototype projects, assessments, and presentations as requested.

3.) Provide Weekly status reports.

4.) Conduct trade studies and engineering analyses as requested.

5.) Provide support for MOFD ER Projects as assigned.

6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

MOD 3: All the above work is still in scope for this TO; however, schedules will be adjusted accordingly, due to the Cx funding reduction.

2.2NASA INPUT REQUIREMENTS

All DD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

* (see Mod 3 below) 3.25 FTE Cx OTF Support. Travel Support not to exceed 10K.

3.95 FTE ISS OTF Support. Travel Support not to exceed 5K.

3.8 FTE SSP OTF Support. Travel Support not to exceed 5K.

1.5 FTE SCAN Data Standards support. Travel support not to exceed 24K.

Mod 1: \$100K material procurements

Mod 2: \$115K material procurements

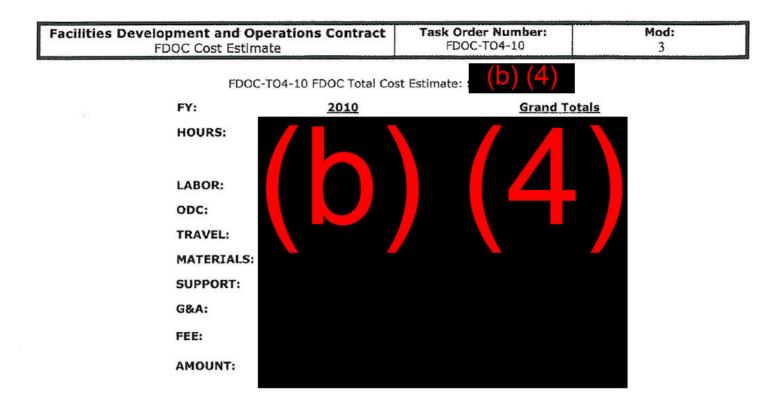
Mod 3: 0.62 FTE reduction to Cx per mgmt direction (Cx now 2.63 FTE).

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number: FDOC-TO4-10	Mod:	
Estimated NASA Resources Summary	1000-104-10	3	

Amount

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

4

WBS INFORMATION:

WBS 282938.07.21.02.03.10 439432.07.03.05.01 575376.07.01.02.02.08 609524.09.03.02.03.08

WBS Total:

RESOURCE ANALYST COMMENTS

Date Printed: 09/20/2010

Facilities Developmer	nt and Operations Contract	Task Order Number:	Mod:
	Support Services Task Order	FDOC-TO6-10	1
			<u>'en en e</u>
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C
GFY: 10	Multiyear: No	SOW Ref: 3.3.1	
Title: Systems Security Engir	neering and Integration Support		
Mission Directorates		n 🗖 External 🗖 Science	V. C C.
Supported:	Aeronautics Aeronautics	n 🗖 External 🔲 Science	X Space Ops
Programs Supported:	Aeronautics X Constellatio	n 🗖 Science 🗖 Shuttle	
	\Box SpaceComm X Station	Other	
	Other Desc:		
	Sched	hulo	
Sta	art Date:	Estimated Com	pletion Date:
	/01/2009	09/30/	
	Appro	vale	
	Арріо		
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Snook, Bryan	(281) 244-0192	04/30/2010
Task Order TMR	Macha, Mitchell	(281) 483-7059	04/30/2010
Task Order Division	Lindner, Daniel	(281) 483-3885	04/30/2010
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/26/2010
Task Order Monitor	Snook, Bryan	(281) 244-0192	09/14/2010
NASA Resource Analyst	Webley, Grant	(281) 483-3906	09/17/2010
COTR	Lowery, James	(281) 483-1064	09/20/2010
NASA Contracts Officer	Carpentier, John	(281) 244-7254	09/20/2010
CO's Signature	Flotte	D	ate <u>9-20-10</u>
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	esources Summary		
Task Order			
	eral Scope of Work		
	Description		
3.0 SRM(
	rity Requirements		
	ASA Resources Summary		

		evelopment and Operations Contract DOC Cost Estimate Summary	Task Order Number: FDOC-TO6-10	Revision: 1
Fiscal Year	Mod	Labor Labor S ODC S Travel S Material S Hours	Support \$ G&A \$	Fee \$ Total \$
2010	Original			
2010	1		4)	
fotals:				

NOTE: The FDOC total estimated cost is (b) (4) because Rev. 1 does not reflect any re-baselining based on Cx reductions, however, the Contracting Officer's signature on Rev. 1 approves a total spending authority of (b) (4)

Mod:

1

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide security- engineering, analysis, and documentation and required support for Program level ground system security requirements, coordination, assessments, and incident response.

1.20BJECTIVE

Provide IT Security services for all Program level ground system security requirements development, engineering, prototyping, capabilities implementation, coordination, assessments and incident response.

- IT Security scope includes Information Technology (IT) Security, COMSec (Communications Security) and Physical Security for MOFD systems. Mission systems definition includes, CxTF, MCCS, SSTF, SMS, Support Systems and other systems identified by MOFD and included in the Facility Development and Operations Contract, identified in FDOC CWBS 1.4 ?Facility Operations? and

- Scope of systems security is identified in Federal, NASA Agency, JSC, and MOFD security documents.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Provide Program level ground system security support for the ISS and Constellation MOP programs. Personnel will provide security interface both internal to MOFD and external to MOFD regarding all aspects of IT and COMSEC security, and will act on behalf of MOFD.

Provide Security Services for MOFD Mission Systems and interfaces for current and future manned/commercial spaceflight including security impacts, mission systems engineering, modifications, requirements, design, interoperability with other systems, security process coordination, assessments and incident response. This support includes IT security and COMSEC security support including the COMSEC Responsible COMSEC Officer (RCO) position.

IT Security services, status reporting and technical direction will be coordinated through the MOFD Mission Systems ISSO (Information System Security Officer)

Personnel must have Secret Clearances, as required.

Personnel must have the ability to:

1.) Communicate technical information in both written and oral formats with target audiences ranging from detailed technical communities to senior management.

2.) Provide leadership in prototyping proposed security controls in both OTF and GSDE systems.

2.) Review and interpret proposed requirement.

3.) Determine budget, operational and security impacts to the Mission Systems.

4.) AnalyzeRFC's (internet standards "Request for Comments") and standards issued by organizations such as US Government, IEEE, CCSDS, etc. and develop requirements based on analysis.

5.) Prototype proposals/requirements and and validate capabilities. Such as protection of the commanding, telemetry and voice capabilities for the following configurations: Ground-to-Space and Space-to-Space.

2.2NASA INPUT REQUIREMENTS

All NASA programmatic requirement documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

- 1.) Federal IT security guidelines and requirements identified in FIPS and NIST documents.
- 2.) NASA IT security guidelines and requirements
- 3.) NASA physical security guidelines and requirements as identified in NASA 1600 series documents.
- 4.) NASA and JSC systems engineering guidelines documents.
- 5.) GSCB, NACAIT and Systems Security Engineering (formerly SART) documents
- 6.) MOFD Level A's and B's and implementation documents

7.) Mission Security Concepts of operations

Working knowledge:

1.) Network, systems, and security engineering, including ground to ground, ground to space, space to space, and associated system interface technologies)

- 2.) Command and Control: Shuttle & Station
- 3.) Command capabilities protection mechanisms: Shuttle & Station
- 4.) International Partner interfaces to NASA, MSFC and MCCS and how those interfaces are protected.
- 5.) Comsec facility and interfaces.
- 6.) FEP and FEP-R: Shuttle & Station.
- 7.) Ground-to-Ground comm

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

3.5 FTE: 1.5-ISS. 2.0-Cx. (See MOD 1 Adjustment below)

Travel support not to exceed limits as prescribed in Technical Directives.

Travel includes trips with domestic and international destinations in support of NASA programmatic requirements.

MOD 1 : Reduces Cx support by 0.68 FTE and increses ISS support by 1.15 FTE's.

3.97 FTE: 2.65-ISS. 1.32-Cx. Cx Travel support not to exceed \$3000. The hours identified in the ISS and Cx Technical Directives are incorrect and the FTE profiles identified above in the this MOD 1 are to be adhered to. The ISS Technical Directive travel is correct and should not be exceeded. The ISS and Cx Technical Directive descriptions are correct.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

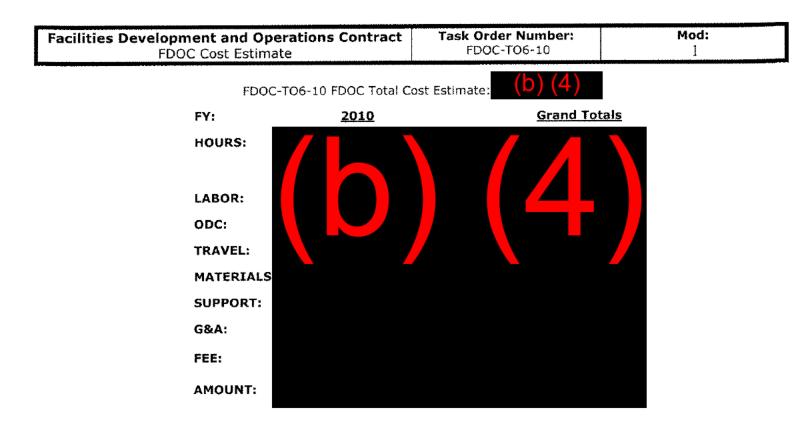
4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW 1.3.2.1, Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.

Date	Printed:	09/20	/2010

FDOC TE	CHNICAL DIRECTION FORM

		FDOC I	ECHNICAL	DIRECTION	FUKM			
Tech Direction Title: Cor	nstellation - N	MOP IT Se	curity				TD#: TD00:	t
Task Order Title: System	is Security E	ngineering	and Integra	tion Support			TO#: FDOC	-TO6-10
Technical Direction Des approved task):	cription (m	ust be wil	thin the tec	hnical scope a	ind authorize	ed resourc	ces of the o	currently
 Provide security engineering support for Constellation MOP Programmatic Ground Segments . Attend appropriate meetings in support of Constellation MOP requirements development. Perform Security analysis reviews and evaluations of proposed Cx control systems and systems external to the Cx Control Center, including the telecommunications systems providing connectivity between all Cx systems. Perform security analysis review, evaluation and comments/redlines to proposed Cx documentation. Develop required MOFD Constellation MOP program process and procedures as required. Provide reviews and updates to Cx MOP planned security incident procedures, reporting, coordination and follow-up. Document and provide security protection development support to the Cx MOP program, including but not limited to, security risk analysis, security requirements, security plans, security products and implementation and security test support. Generate and maintain documentation including program process and procedures, external organization agreement and protocols, interface control documents (ICD), security plans, technical interface meeting (TIM), working groups, development schedules, and security protection documentation. Review and provide comment/updates to documents for the Consultative Committee for Space Data systems as applicable to the NASA Cx MOP program and provide candidates as appropriate for prototyping for proof of concept of 								ow-up. ited to, est ement and as
CCSDS standards.		The	him of total	af all TD anote	ia abarra an	the EDO	~ aget actin	anta
This cost data is for infor FY Hours	Labor	ODC	Travel	Materials	Support	G&A	Fee	Amount
<u>FY</u> <u>Hours</u> 2010		<u>obc</u>	Tavel	$\frac{(b)}{(4)}$	Support	<u>Gun</u>	<u></u>	<u>Atmount</u>
2010				(F) (G)				
Tech Direction Title: ISS	- IT Security	v					FD#: TD002	2
Task Order Title: System			and Integra	tion Support			ro#: FDOC	-TO6-10
 Technical Direction Description (must be within the technical scope and authorized resources of the currently approved task): 1.a.) Provide security-engineering support for International Space Station (ISS) control center and telecommunications capabilities. 1.b.) Provide security-engineering support for ISS International Partners as requested. 2.) Perform Security analysis review and evaluation of NASA and International Partner control systems and telecommunication networks providing connectivity. 3.) Provide review and evaluation for NASA and International Partners ground systems documentaiton and space flight documentation as required for Interface to the ground systems. 4.) Generate and maintain documents including program process and procedures, external organization agreements and protocols, Interface control documents (ICD), security plans, technical interface meeting (TIM), ground segment schedules, and security Protection documentation as required by JSC/MOD and NASA/GSCB. 5.) Provide oversight of ISS ComSec Facility operations, maintenance and upgrades. 6.) Review and provide comment/updates to documents for the Consultative Committee for Space Data systems as applicable to the NASA ISS program and provide candidates as appropriate for prototyping for proof of concept of CCSDS 								
applicable to the NASA ISS standards.	nment/updal i program an	tes to docu d provide	uments for th candidates a	ne Consultative s appropriate fo	Committee for or prototyping	for proof o	of concept o	f CCSDS
applicable to the NASA ISS standards. This cost data is for infor	nment/updat program an mation only	tes to docu d provide . The com	uments for th candidates a ubined total	e Consultative s appropriate fo of all TD costs	Committee for prototyping is shown on	for proof of the FDOC	of concept o	f CCSDS
applicable to the NASA ISS standards.	nment/updal i program an	tes to docu d provide	uments for th candidates a	ne Consultative s appropriate fo	Committee for or prototyping	for proof o	of concept o	f CCSDS



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO6-10	1

NASA RESOURCES GENERAL INFORMATON

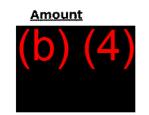
FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

282938.01.21.01.10.10 609524.09.03.02.03.09



			Date Printed: 05/19/2010	
Facilities Developmen	t and Operations Contract	Task Order Number:	Mod:	
Facility Engineering and	Support Services Task Order	FDOC-T011-10	1	
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD4	16C	
GFY: 10	Multiyear: No	SOW Ref: 3.3		
	upport for Mission Operation Projec	t in Support of Constellation		
Mission Directorates	X Exploration	External Escience	Space Ops	
Supported:	Aeronautics		space ops	
Programs Supported:	Aeronautics X Constellation	Science Shuttle		
	SpaceComm 🗍 Station	C Other		
	Other Desc:			
	Schedu	lle		
	rt Date:	Estimated Com	pletion Date:	
	/01/2009	09/30/2010		
	Approva	als		
Title	Point of Contact	Phone	Date Approved	
Task Order Monitor	Ward, Dawn	(281) 483-6145	05/11/2010	
Task Order TMR	Macha, Mitchell	(281) 483-7059	05/03/2010	
Task Order Division	Lindner, Daniel	(281) 483-3885	05/03/2010	
FDOC Representative	Beuchaw, Karen	(281) 283-4363	05/10/2010	
Task Order Monitor	Ward, Dawn	(281) 483-6145	05/17/2010	
NASA Resource Analyst	Webley, Grant	(281) 483-3906	05/17/2010	
COTR	Lowery, James	(281) 483-1064	05/17/2010	
NASA Contracts Officer	Carpentier, John	(281) 244-7254	05/18/2010	
CO's Signature	ARCi	Da	ate <u>5 - 19 - 10</u>	
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	al Scope of Work		· · · · · ·	
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3.0 SRMQ				
	ity Requirements			
Estimated NA	SA Resources Summary			

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task Order Number: FDOC-T011-10	Revision: 1		
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$ G&A \$	Fee \$ Total \$
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otal Value	e: <mark>(b) (</mark> 4	4)					/	

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-T011-10	1

1.1PURPOSE

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Constellation Mission Operations.

1.20BJECTIVE

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the Constellation Program (CxP) baseline and aid the MOP Elements (i.e. MCCS, CxTF, MORS) in remaining current with the MOP baseline.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate Cx programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, CARD, C3I IOS) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Baseline Access - grant and control access to technical baseline data. This includes placing the data in a authorized but accessible location and providing the instruction needed to allow users efficient access.

b.) Ensure technical baseline compliance to Programmatic constraints

1. MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the CxP-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

c.) Scheduling of technical baseline

Generate and maintain CxP-to-MOP-to-Element dependencies schedules and provide scheduling data inputs to the MOP Integrated Master Schedule. Review and update Element schedule data to the IMS.

d.) Technical Baseline Risk Management

Risk Management for those Risks that are a result of threats to the Technical baseline. Includes maintenance of the Risks in IRMA

2.) Provide Cradle Support

a) Provide Level II ASET participation for determining Cradle schema change impacts to the MOP, advocating MOP needs and proposed schema updates, representing MOP interests in ASET technical forums.

b) Perform Level III (i.e. MOP) Cradle management, including production and CM of Cradle developed MOP products (e.g. System requirements, Operations Concepts, Architecture Designs, Interface requirements;) schema tailoring and administration for MS segment of Cradle.

c) Create and maintain (including linkages and data item descriptions) data in Cradle used to define the MOP technical baseline.

d) Support MOP Elements (i.e. MCCS, CxTF, MORS) in development and maintenance of Cradle schema, publication templates, and data promotion.

3.) Provide Technical Forum Support

a.) Provide technical support to the CxP and MOP/ MOD forums (e.g. MOFD CCB, MEICB, ICP, CxRWG, MWG) that

make system engineering evaluations and decisions.

b.) Provide technical and administrative support to the MOP Working Group (MWG.)

4.) Provide Interface Definition Support

a.)Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

MOD 1 reduce FTEs to accommodate MOP funding reduction

2.2NASA INPUT REQUIREMENTS

- Access to Cradle tool and training

- Access to all MOP-level requirements and design documentation

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4 MATERIAL/TRAVEL

No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.

3 FTE are required to perform this task

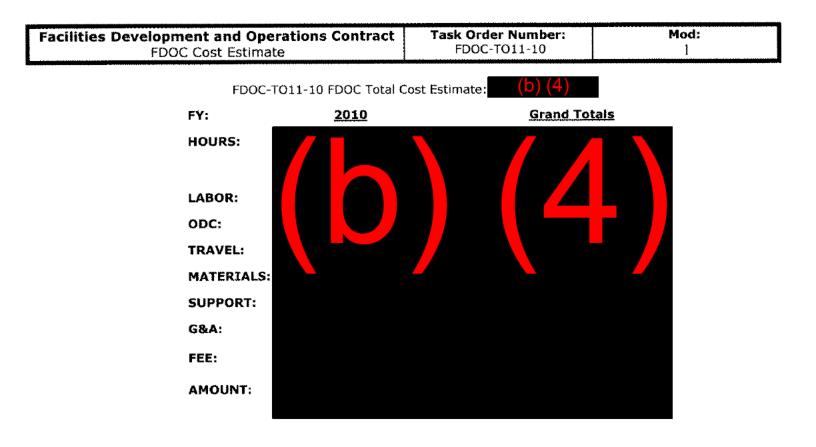
reduce to 2.449 FTEs to accommodate MOP funding reduction

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

4.0 SECURITY REQUIREMENTS

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO11-10	1

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

282938.01.21.01.11.10

Amount



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Facilities Development and Operations Contract Task Order Number: Mod:							
Facility Engineering and	d Support Services Task Order	FDOC-TO0-11					
Contractor: Lockheed Marti	n Corporation	Contract Number: NNJ09HD	46C				
GFY: 11 Multiyear: No SOW Ref: 3.3.2							
Title: Program Requirements	s Document (PRD)						
Mission Directorates	X Space Ops						
Supported:	Aeronautics	External Science	A Space Ups				
Programs Supported:	Aeronautics Constellation	Science X Shuttle					
a second Beneralization and the second second second	SpaceComm X Station	Other					
	Other Desc:						
	Schedu	le					
St	art Date:	Estimated Corr	pletion Date:				
10	0/01/2010	09/30,					
	Approva	als					
		1					
Title	Point of Contact	Phone	Date Approved				
Task Order Monitor	Hervey, Jewel	(281) 483-0359	08/06/2010				
Task Order TMR	Macha, Mitchell	(281) 483-7059	08/06/2010				
Task Order Division	Lindner, Daniel	(281) 483-3885	08/06/2010				
FDOC Representative	Beuchaw, Karen	(281) 283-4363	09/10/2010				
Task Order Monitor	Hervey, Jewel	(281) 483-0359	09/10/2010				
NASA Resource Analyst	Stewart, Bradley	(281) 483-0356	09/30/2010				
COTR	Lowery, James	(281) 483-1064	09/30/2010				
NASA Contracts Officer	Carpentier, John	(281) 244-7254	09/30/2010				
CO's Signature	fizik,	D	late 10-1-10				
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	Description						
3.0 SRM							
	irity Requirements						
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	oment and Operations Contract ost Estimate Summary	Task Order Number: FDOC-T00-11	Revision:
Fiscal Mod Labo Year 2011 Original 4000		Support \$ G&A \$	Fee \$ Total \$
Totals: NOTE: The FDOC total estim	nated cost (b) (4) and the Contracting Office	er's signature approve	es a total valu <mark>e o () (b</mark>)

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Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO0-11	

1.1PURPOSE

Technical Description: Provide book management support of the Space Shuttle and the International Space Station Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Shuttle and Station program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

2.2NASA INPUT REQUIREMENTS

Program Requirements Document Change Requests (JSC form 50) supporting SSP Ops Flight PRD, Volumes I,II; Launch & Landing Vol. I,II,III; and ISS Orbital Volume I,II

Electronic book maintenance for SSP Ops Flight PRD, Volumes I,II; Launch & Landing Vol. I,II,III; and ISS Orbital Volume I,II

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

1. 1 PRD CR per mo/EP	Shuttle Manifest driven	
2. 1 PRD CR per mo/EP	Multi-Increment Manifest Document (MIM) SSP 50110	
3. PRD Document Updates	PIP Annex delivery +1 month	

2.4MATERIAL/TRAVEL

2 trips (1 SSP, 1 ISS). Purpose: Attend multi-center requirement issues resolution meetings.

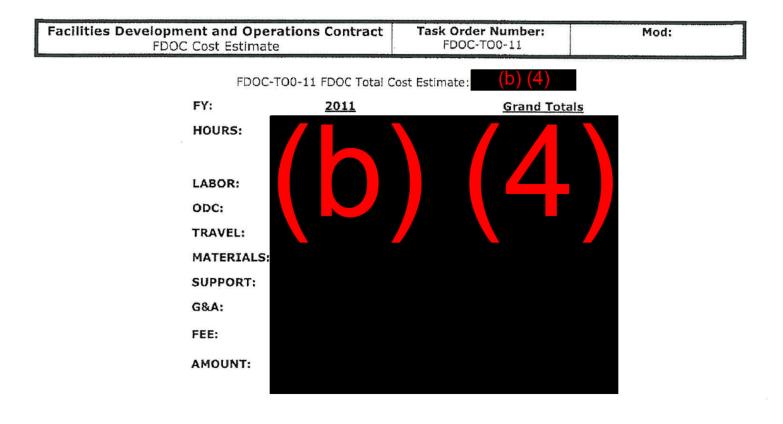
Labor: 1 FTE (October - July 20th, SSP - 25%; ISS - 75%: July 21st, - September, ISS 100%)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO0-11	

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

Amount



			Date Printed: 10/01/2010
	nt and Operations Contract I Support Services Task Order	Task Order Number: FDOC-TO01-11	Mod:
Contractor: Lockheed Martir	n Corporation	Contract Number: NNJ09HD	946C
GFY: 11	Multiyear: No	SOW Ref: 3.3.1.2	
Title: Network and Commun	ications Analysis and Integration Tea	am (NACAIT)	
Mission Directorates Supported:	Aeronautics	External Escience	X Space Ops
Programs Supported:	Aeronautics Constellation SpaceComm X Station Other Desc:	Science Shuttle	
	Schedu		
Start Date: Estimated Completion Date: 10/01/2010 09/30/2011			
	Approva	als	Γ
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Hervey, Jewel	(281) 483-0359	08/05/2010
Task Order TMR	Macha, Mitchell	(281) 483-7059	08/06/2010
Task Order Division	Lindner, Daniel	(281) 483-3885	08/06/2010
FDOC Representative	Beuchaw, Karen	(281) 283-4363	09/10/2010
Task Order Monitor	Hervey, Jewel	(281) 483-0359	09/10/2010
NASA Resource Analyst	Stewart, Bradley	(281) 483-0356	09/30/2010
COTR	Lowery, James	(281) 483-1064	09/30/2010
NASA Contracts Officer	Carpentier, John	(281) 244-7254	09/30/2010
CO's Signature	Casta		Date 10-1-10
Task Order 1.0 Gen 2.0 Task 3.0 SRM 4.0 Secu	Resources Summary Text eral Scope of Work & Description		

		velopment and Operations Contract C Cost Estimate Summary	Task Order Number: FDOC-T001-11	Revision:
Fiscal	012020307277862240000	Labor Labor S ODC S Travel S Material: Hours \$	Support S G&A S	Fee \$ Total \$
2011	Original	(b) (4)	
Totals:			•/	

Facilities Development and Operations Contract	Task Order Number:	Mod:	
Task Order Text	FDOC-TO01-11		

1.1PURPOSE

Technical Description: Provide Support to the International Space Station Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS ground-to-ground communications requirements. 1.20BJECTIVE

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station program tasks delegated to MOD to execute on behalf of the ISS program. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

-Determine communication needs for ISS operational support among all elements that support the ISS Programs -Gather and consolidate communications requirements into draft versions of the NPRD

-Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS Program on implementation and actual need of communication services

-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS Program communications requirements

-Document final, approved version of ISS communications requirements in the NPRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)

-Provide coordination point of contact for NISN for communications schedules

-Develop end-to-end data flow diagrams for the ISS Program

-Support other ISS operational communications related tasks as required by NASA

2.2NASA INPUT REQUIREMENTS

Network Program Requirement Document (NPRD) - SSP - 54001

International Space Station Operational Communication Overview (IOCO)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

1. Multi-Increment Manifest	As needed per the manifest	
Document (MIM) SSP 50110		

2.4MATERIAL/TRAVEL

7 trips (Domestic - 6, International - 1)

Purpose: Attend multi-agency and center requirements definition and problem resolving meeting.

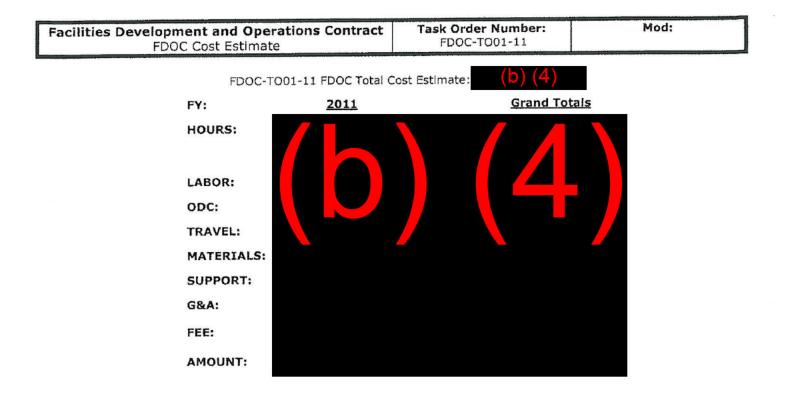
Labor: 1 FTE (ISS)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.



Facilities Development and Operations Contract Estimated NASA Resources Summary	Task Order Number: FDOC-TO01-11	Mod:
NASA RESOURCES GENERAL INFORMATON FACTORY: None Specified IN POP BASELINE: NO	PSLA: INCREMENTALLY	None Specified FUNDED: NO
WBS INFORMATION:		

111-91-11

WBS

Amount



			Date Printed: 10/01/201
	nt and Operations Contract I Support Services Task Order	Task Order Number: FDOC-TO2-11	Mod:
Contractor: Lockheed Martir	Corporation	Contract Number: NNJ09HE	046C
GFY: 11	Multiyear: No	SOW Ref: 3.3.3	
Title: Human Space Flight Ne	etwork Operations Integration		
Mission Directorates Supported:	Aeronautics X Exploration	External Science	X Space Ops
Programs Supported:	Aeronautics X Constellation X SpaceComm X Station Other Desc:	Science X Shuttle X Other	
	Schedu	ile	
	art Date: //01/2010		npletion Date: 0/2011
	Approv	als	
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Hervey, Jewel	(281) 483-0359	08/06/2010
Task Order TMR	Macha, Mitchell	(281) 483-7059	08/13/2010
Task Order Division	Lindner, Daniel	(281) 483-3885	08/13/2010
FDOC Representative	Beuchaw, Karen	(281) 283-4363	09/13/2010
Task Order Monitor	Hervey, Jewel	(281) 483-0359	09/14/2010
NASA Resource Analyst	Stewart, Bradley	(281) 483-0356	09/30/2010
COTR	Lowery, James	(281) 483-1064	09/30/2010
NASA Contracts Officer	Carpentier, John	(281) 244-7254	09/30/2010
CO's Signature	ant		Date 10-1-10
Task Order 1 1.0 Gene 2.0 Task 3.0 SRM0 4.0 Secu	esources Summary Text eral Scope of Work Description		

	relopment and Operations Contract C Cost Estimate Summary	Task Order Number: FDOC-TO2-11	Revision:
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Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO2-11	

1.1PURPOSE

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the Wide Area Network, the NASA Ground Networks, and the NASA Space Network support.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but are not limited to, the following:

-Support in the preparation of the Certificate of Flight Readiness (CoFR).

-Assist the NSG and NACAIT in planning the integrated implementation of

space communications data services required to support HSF missions.

-Evaluate required endorsement codes within te CoFR implementation plan

-Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated service

-Identify problem areas in providing the services with options for workarounds in the event of service interruption.

-Support all HSF Readiness Reviews

-Provide voice, video, and data assessments for mission services implementation

-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, intergrating, and getting approval for Shuttle, Station, and Constellation communications requirements

2.2NASA INPUT REQUIREMENTS

Network Operations Directive (NOD)

^{2.3}CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

1. Engineering and Operations	As needed per the manifest	
Assessments		
2. Flight Readiness Assessments	As needed per the manifest	
Network Interface to MCC	As needed per the manifest	
Assessments		

2.4MATERIAL/TRAVEL

23 trips (22 domestic, 1 international)

Purpose: Attend Technical Interchange meetings and operational readiness reviews.

Labor: 4.0 FTEs (SCAN)

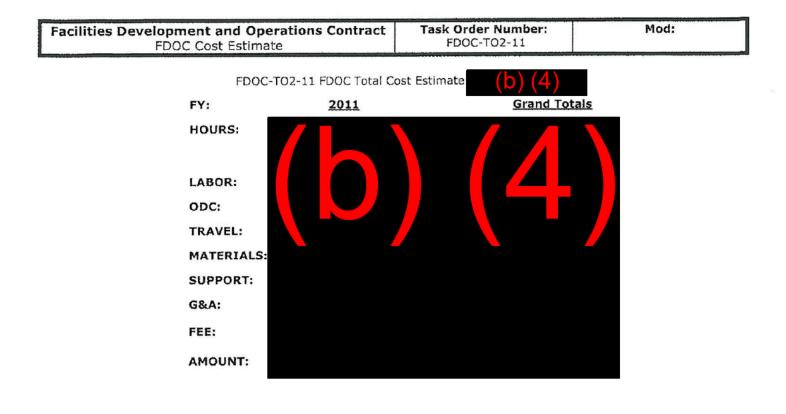
Travel: \$50,000

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.



	and Operations Contract esources Summary	Task Order Number: FDOC-T02-11	Mod:
NASA RESOURCES GENERA	L INFORMATON		
FACTORY: None Specified		PSLA: None Specified	
IN POP BASELINE: NO		INCREMENTALLY FUNDED: NO	
WBS INFORMATION:			
	WBS	Amount	

WBS Total:

(b) (4)

			Date Printed: 10/01/201
Facilities Development and Operations Contract		Task Order Number:	Mod:
Facility Engineering and Support Services Task Order		FDOC-TO4-11	
Contractor: Lockheed Martin Corporation		Contract Number: NNJ09HD	946C
GFY: 11	Multiyear: No	SOW Ref: 1.5.4.8	
Title: Architectural and Engi	neering Support		
Mission Directorates	T	Ventir inter	
Supported:	Aeronautics X Exploration	External Science	X Space Ops
Programs Supported:	Aeronautics X Constellation	Science X Shuttle	
	X SpaceComm X Station	X Other	
	Other Desc: Exploration		
	Schedu	ila	
St	art Date:	Estimated Con	pletion Date:
	0/01/2010	09/30/2011	
	Approva	als	
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Snook, Bryan	(281) 244-0192 (281) 483-7059	08/13/2010
Task Order TMR	Macha, Mitchell		08/13/2010
Task Order Division	Lindner, Daniel	(281) 483-3885 (281) 283-4363	08/16/2010
FDOC Representative	Beuchaw, Karen		09/20/2010
Task Order Monitor	Snook, Bryan	(281) 244-0192	09/28/2010
NASA Resource Analyst	Stewart, Bradley	(281) 483-0356 (281) 483-1064	09/30/2010
COTR NASA Contracts Officer	Lowery, James Carpentier, John	(281) 244-7254	09/30/2010 09/30/2010
	Carpentier, John		Date 10-1-10
CO's Signature	and the second s	L	Jate (0-1-10
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	esources Summary		
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	eral Scope of Work		
	Description		
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Estimated N	NON RESOURCES SUMMARY		

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	ng Officer's signature app

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO4-11	

1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

- ? OTF Technology Development
- ? MOFD Equipment Replacement Support
- ? MCCx Client Development Support
- ? Future Network System Development Support
- ? MOFD Process Automation Support
- ? Support for third party application development in the OTF (Ames, etc)
- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

1.20BJECTIVE

- Identify key areas for change and facilitate budget and schedule activities to:
- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed. 2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

2.) Support prototype projects, assessments, and presentations as requested.

3.) Provide Weekly status reports.

4.) Conduct trade studies and engineering analyses as requested.

5.) Provide support for MOFD ER Projects as assigned.

6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

MOD 3: All the above work is still in scope for this TO; however, schedules will be adjusted accordingly, due to the Cx funding reduction.

2.2NASA INPUT REQUIREMENTS

All DD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Total ISS, SSP & NCF FTE combined for FY11 - 10

Materials not to exceed 150K (SSP/ISS).(10/1/10 - 9/30/11) 4.5 FTE ISS OTF Support. Travel Support not to exceed 9K.(10/1/10 - 9/30/11) 3.6 FTE SSP OTF Support. Travel Support not to exceed 5K. (10/1/10 - 7/20/11) 0..9 FTE ISS OTF Support. (7/21/10 - 9/30/11)

1.0 FTE SCAN Data Standards support. Travel support not to exceed 20K and materials not to exceed 5K.

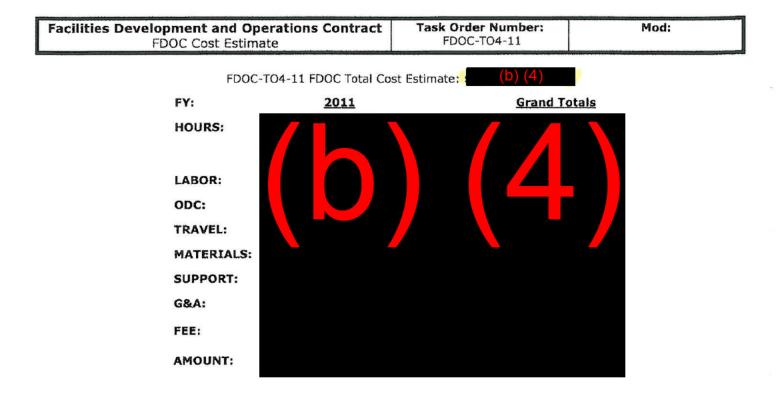
NASA Capabilities Forum (NCF) support covers ISS & SSP programs support functions as needed.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, OUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.



Facilities Development and Operations Contract Estimated NASA Resources Summary	Task Order Number: Mod: FDOC-T04-11		
NASA RESOURCES GENERAL INFORMATON			
FACTORY: None Specified	PSLA:	None Specified	
IN POP BASELINE: NO	INCREMENTALLY FUNDED: NO		
WBS INFORMATION:			
WBS	Amount		

WBS Total:

(b) (4)

			Date Printed: 10/01/201
	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-TO5-11	
			21 V-122 22
Contractor: Lockheed Martin	n Corporation	Contract Number: NNJ09HC	D46C
		COW Defe	
GFY: 11	Multiyear: No	SOW Ref:	
Title: System Engineering ar	nd Integration Support		
Mission Directorates	X Exploration	External C Science	X Space Ops
Supported:	Aeronautics		
Programs Supported:	Aeronautics X Constellation	Science X Shuttle	
	\square SpaceComm X Station	Other	
	Other Desc:		
	Schedu	lle	-
St	art Date:		npletion Date:
10	0/01/2010	09/30/2011	
	Approv	als	T
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Bauer, Angela	(281) 483-1398	08/18/2010
Task Order TMR	Macha, Mitchell	(281) 483-7059	08/23/2010
Task Order Division	Lindner, Daniel	(281) 483-3885	08/23/2010
FDOC Representative	Beuchaw, Karen	(281) 283-4363	09/21/2010
Task Order Monitor	Bauer, Angela	(281) 483-1398	09/21/2010
NASA Resource Analyst	Stewart, Bradley	(281) 483-0356	09/30/2010
COTR	Lowery, James	(281) 483-1064	09/30/2010
NASA Contracts Officer	Carpentier, John	(281) 244-7254	09/30/2010
CO's Signature	ant		Date 10-1-10
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Contents:			
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	Resources Summary		
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	eral Scope of Work		
	Description		
3.0 SRM			
	urity Requirements		
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Facilit		nent and Operations Contract at Estimate Summary	Task Order Number: FDOC-TO5-11	Revision:
Fiscal Mc Year	od Labor Hours	Labor \$ ODC \$ Travel \$ Mater \$	ial Support G&A \$	Fee \$ Total \$
2011 Orig	inal	(b)	(4)	
fotals:				

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO5-11	

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA?s ongoing control center space operations engineering projects.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of a Cx Mission class development cycle or ER development cycle). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

 Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.
 Assist DD customer communities in identifying operational requirements and assessing those requirements

against existing and planned facility capabilities to determine change requirements and impacts. 3.) Monitor Program (e.g. ISS, SSP, and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, USA, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing operational concepts (e.g. SSP, ISS, and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$40K for travel - \$20k Cx, \$10K ISS, 10K User Apps (\$7K ISS, 3K SSP). \$100k material for engineering assessments.

Hours: MCCS/MCC21 ISS? 5 FTE SSP ? 4 FTE (10/1/10 to 7/20/2011) ISS ? 1.0 FTE (7/21/11 to 9/30/2011)

MCC21 Cx ? 10.0 FTE

User Apps

SSP ? 0.7 (10/1/10 to 7/20/2011)

ISS ? 0.3 (7/21/11 to 9/30/2011)

ISS ? 2.0

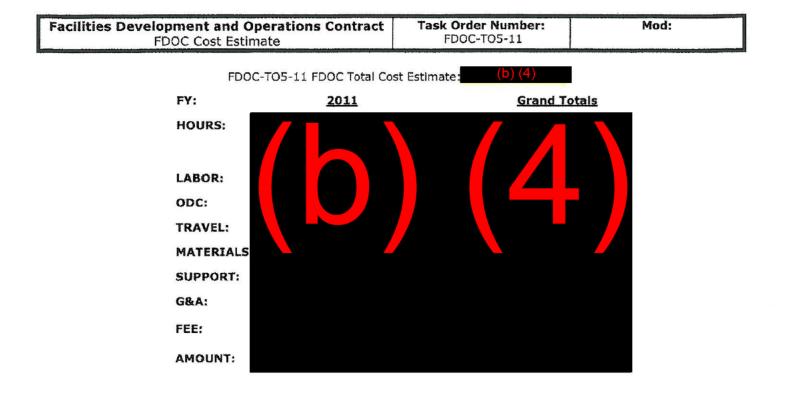
3.0 SAFETY, RELIABILITY, MAINTAINABILITY, OUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

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Facilities Development and Operations Contract Estimated NASA Resources Summary	Task Order Number: FDOC-T05-11	Mod:
NASA RESOURCES GENERAL INFORMATON		
FACTORY: None Specified	PSLA: N	lone Specified
IN POP BASELINE: NO	NO INCREMENTALLY FUNDED: NO	
WBS INFORMATION:		
11/20		

WBS

Amount







		Date P	rinted: 08/16/20
C	pment and Operations ontract and Support Services Task Order	Task Order Number: FDOC-TO5-11	Mod: 1
Contractor: Lockheed Ma	artin Corporation	Contract Number: N	NJ09HD46C
GFY: 11	Multiyear: No	SOW Ref:	
Title: System Engineering	and Integration Support		
Mission Directorates Supported:	Aeronautics X Exploration	External Science	X Space Ops
Programs Supported:	Aeronautics X Constellation SpaceComm X Station Other Desc:	Science X Shuttle	
	Schedule		
	a rt Date: /01/2010	Estimated Com 09/30/	Constraints and the second states of the second states and the sec
	Approvals		
Title	Point of Contact	Phone	Date Approved
Fask Order Monitor	Melendrez, Amy	(281) 244-1134	06/24/2011
Fask Order TMR	Macha, Mitchell	(281) 483-7059	07/21/2011
Task Order Division	Lindner, Daniel	(281) 483-3885	07/22/2011
DOC Representative	Beuchaw, Karen	(281) 283-4363	07/26/2011
Fask Order Monitor	Melendrez, Amy	(281) 244-1134	07/27/2011
NASA Resource Analyst	Webley, Grant	(281) 483-3906	07/27/2011
COTR	Lowery, James	(281) 483-1064	07/27/2011
VASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	
CO's Signature	This Waden	Date 🕺	116/11
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Estimated Task Orde 1.0 Ge 2.0 Ta 3.0 SF	eneral Scope of Work sk Description		
	NASA Resources Summary		

Facilities Development and Operations Contract FDOC Cost Estimate Summary	Number:	Revision:
Fiscal Mod Labor Labors ODC Travel Material Year Hours S \$ \$	FDOC-TO5-11 Support G&A S	Fee \$ Total \$
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Facilities Development and Operations Contract Task Order Text	Task Order Number: FDOC-TO5-11	Mod: 1	

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1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA?s ongoing control center space operations engineering projects.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of a Cx Mission class development cycle or ER development cycle). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (e.g. ISS, SSP, and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.
4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, USA, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing operational concepts (e.g. SSP, ISS, and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$40K for travel - \$20k Cx, \$10K ISS, 10K User Apps (\$7K ISS, 3K SSP). \$100k material for





engineering assessments.

Hours: MCCS/MCC21 ISS? 5 FTE SSP ? 4 FTE (10/1/10 to 8/12/2011) ISS ? 1.0 FTE (8/13/11 to 9/30/2011)

MCC21 Cx ? 10.0 FTE

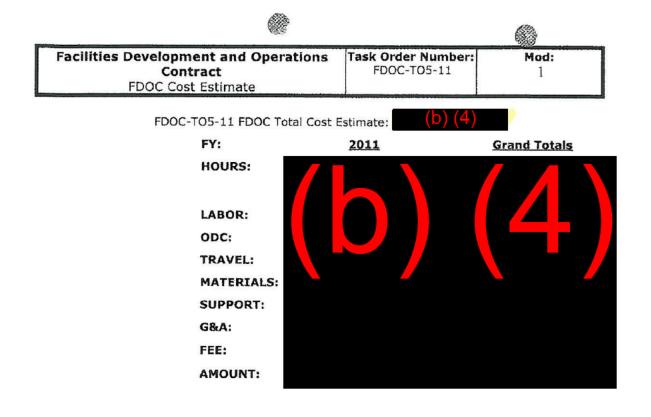
User Apps SSP ? 0.7 (10/1/10 to 8/12/2011) ISS ? 0.3 (8/13/11 to 9/30/2011) ISS ? 2.0

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



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Facilities Development and Operations Contract Estimated NASA Resources Summary	Task Order Number: FDOC-TO5-11	Mod: 1
NASA RESOURCES GENERAL INFORMATON	The second s	

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

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WBS INFORMATION:

WBS

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WBS Total:

Amount



			Date Printed: 09/16/201
	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-TO5-11	2
Contractor: Lockheed Martir	Corporation	Contract Number: NNJ09HD	946C
GFY: 11	Multiyear: No	SOW Ref:	
Title: Custom Engineering on	d Intracration Connect		
Title: System Engineering an			
Mission Directorates Supported:	X Exploration	External Science	X Space Ops
	Aeronautics	Science X Shuttle	
Programs Supported:	Aeronautics X Constellation		
	SpaceComm X Station	Ther Other	
	Other Desc:		
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			/2011
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Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Melendrez, Amy	(281) 244-1134	08/26/2011
Task Order TMR	Macha, Mitchell	(281) 483-7059	08/26/2011
Task Order Division	Sims, John	(281) 483-2344	08/26/2011
FDOC Representative	Beuchaw, Karen	(281) 283-4363	09/08/2011
Task Order Monitor	Melendrez, Amy	(281) 244-1134	09/13/2011
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	09/15/2011
COTR	Lowery, James	(281) 483-1064	09/15/2011
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/16/2011
CO's Signature	Mala]	Date _ 9/14/11
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	esources Summary		
Task Order			
1.0 Gene	ral Scope of Work		
	Description		
3.0 SRM0			
	rity Requirements		
Estimated N	ASA Resources Summary		

I		Development and Operations Contract DOC Cost Estimate Summary	Task Order Number: FDOC-TO5-11	Revision: 2
Fiscal Year	Mod	Labor Labor \$ ODC \$ Travel \$ Material Hours \$	Support G&A s	Fee \$ Total \$
2011	Original			
2011	1			
2011	2			
`otals:				
otal Valu	e: (b) (4	4)		

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO5-11	2

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA?s ongoing control center space operations engineering projects.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of a Cx Mission class development cycle or ER development cycle). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (e.g. ISS, SSP, and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, USA, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing operational concepts (e.g. SSP, ISS, and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

This revision adds the UA FOX Project Manager LOE support.

\$40K for travel - \$20k Cx, \$10K ISS, 10K User Apps (\$7K ISS, 3K SSP). \$100k material for engineering assessments.

Hours: MCCS/MCC21 ISS? 5 FTE SSP ? 4 FTE (10/1/10 to 8/12/2011) ISS ? 1.0 FTE (8/13/11 to 9/30/2011)

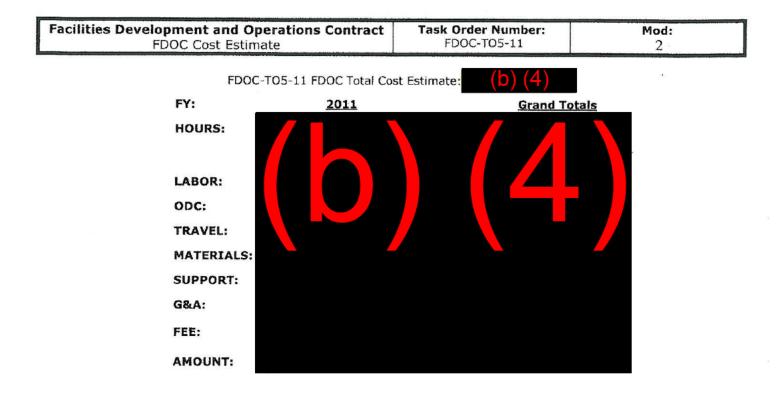
MCC21 Cx ? 10.0 FTE User Apps SSP ? 0.7 (10/1/10 to 8/12/2011) ISS ? 0.3 (8/13/11 to 9/30/2011) ISS ? 2.0 ISS - 0.23 FTE support 7/11/11 thru 9/30/11 - FOX PM

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-T05-11	2

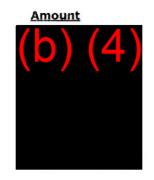
NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS 282938.07.21.02.01.10 575376.07.01.02.02.03 575376.07.01.02.02.03 609524.09.03.02.03.01 609524.09.03.02.03.07



		and a state of the second state	Date Printed: 10/01/201
	nt and Operations Contract Support Services Task Order	Task Order Number: FDOC-TO6-11	Mod:
Facility Engineering and	Support Services Task Order		
Contractor: Lockheed Martir	Corporation	Contract Number: NNJ09HD	046C
GFY: 11	Multiyear: No	SOW Ref: 3.3.1	
Title: Systems Security Engin	neering and Integration Support		
Mission Directorates Supported:	Aeronautics X Exploration	External EScience	X Space Ops
Programs Supported:	Aeronautics X Constellation SpaceComm X Station Other Desc:	Science X Shuttle	
	Schedu	le	
	art Date: /01/2010	Estimated Completion Date: 09/30/2011	
	Approva	als	1
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Snook, Bryan	(281) 244-0192	08/13/2010
Task Order TMR	Macha, Mitchell	(281) 483-7059	08/13/2010
Task Order Division	Lindner, Daniel	(281) 483-3885	08/16/2010
FDOC Representative	Beuchaw, Karen	(281) 283-4363	09/17/2010
Task Order Monitor	Snook, Bryan	(281) 244-0192	09/28/2010
NASA Resource Analyst	Stewart, Bradley	(281) 483-0356	09/30/2010
COTR	Lowery, James	(281) 483-1064	09/30/2010
NASA Contracts Officer	Carpentier, John	(281) 244-7254	09/30/2010
CO's Signature	anti		Date 10-1-10
Task Order 1.0 Gene 2.0 Task 3.0 SRM 4.0 Secu	esources Summary Text eral Scope of Work Description		

		and and the second s
Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO6-11	

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide security- engineering, analysis, and documentation and required support for Program level ground system security requirements, coordination, assessments, and incident response.

1.20BJECTIVE

Provide IT Security services for all Program level ground system security requirements development, engineering, prototyping, capabilities implementation, coordination, assessments and incident response.

- IT Security scope includes Information Technology (IT) Security, COMSec (Communications Security) and Physical Security for MOFD systems. Mission systems definition includes, CxTF, MCCS, SSTF, SMS, Support Systems and other systems identified by MOFD and included in the Facility Development and Operations Contract, identified in FDOC CWBS 1.4 ?Facility Operations? and

- Scope of systems security is identified in Federal, NASA Agency, JSC, and MOFD security documents.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK Provide Program level ground system security support for the ISS and Constellation MOP programs. Personnel will provide security interface both internal to MOFD and external to MOFD regarding all aspects of IT and COMSEC security, and will act on behalf of MOFD.

Provide Security Services for MOFD Mission Systems and interfaces for current and future manned/commercial spaceflight including security impacts, mission systems engineering, modifications, requirements, design, interoperability with other systems, security process coordination, assessments and incident response. This support includes IT security and COMSEC security support including the COMSEC Responsible COMSEC Officer (RCO) position.

IT Security services, status reporting and technical direction will be coordinated through the MOFD Mission Systems ISSO (Information System Security Officer)

Personnel must have Secret Clearances, as required.

Personnel must have the ability to:

1.) Communicate technical information in both written and oral formats with target audiences ranging from detailed technical communities to senior management.

2.) Provide leadership in prototyping proposed security controls in both OTF and GSDE systems.

2.) Review and interpret proposed requirement.

3.) Determine budget, operational and security impacts to the Mission Systems.

4.) AnalyzeRFC's (internet standards "Request for Comments") and standards issued by organizations such as US Government, IEEE, CCSDS, etc. and develop requirements based on analysis.

5.) Prototype proposals/requirements and and validate capabilities. Such as protection of the commanding, telemetry and voice capabilities for the following configurations: Ground-to-Space and Space-to-Space.

2.2NASA INPUT REQUIREMENTS

All NASA programmatic requirement documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

1.) Federal IT security guidelines and requirements identified in FIPS and NIST documents.

- 2.) NASA IT security guidelines and requirements
- 3.) NASA physical security guidelines and requirements as identified in NASA 1600 series documents.
- NASA and JSC systems engineering guidelines documents.
- 5.) GSCB, NACAIT and Systems Security Engineering (formerly SART) documents
- 6.) MOFD Level A's and B's and implementation documents
- 7.) Mission Security Concepts of operations

Working knowledge:

1.) Network, systems, and security engineering, including ground to ground, ground to space, space to space, and associated system interface technologies)

2.) Command and Control: Shuttle & Station

- 3.) Command capabilities protection mechanisms: Shuttle & Station
- 4.) International Partner interfaces to NASA, MSFC and MCCS and how those interfaces are protected.
- 5.) Comsec facility and interfaces.
- 6.) FEP and FEP-R: Shuttle & Station.
- 7.) Ground-to-Ground comm

2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

FDOC TECHNICAL DIRECTION FORM	ate Printed: 10/01/2010
Tech Direction Title: ISS - IT Security	TD#: TD001
Task Order Title: Systems Security Engineering and Integration Support	TO#: FDOC-TO6-11
Technical Direction Description (must be within the technical scope and authorized resou approved task):	rces of the currently
 1.a.) Provide security-engineering support for International Space Station (ISS) control center and capabilities. 1.b.) Provide security-engineering support for ISS International Partners as requested. 2.) Perform Security analysis review and evaluation of NASA and International Partner control systemetelecommunication networks providing connectivity. 3.) Provide review and evaluation for NASA and International Partners ground systems documentation as required for interface to the ground systems. 4.) Generate and maintain documents including program process and procedures, external organization or of the security Protection documents (ICD), security plans, technical interface meeting (TIM), group and security Protection documentation as required by JSC/MOD and NASA/GSCB. 5.) Provide oversight of ISS ComSec Facility operations, maintenance and upgrades. 6.) Review and provide comment/updates to documents for the Consultative Committee for Space If applicable to the NASA ISS program and provide candidates as appropriate for prototyping for proostandards. This cost data is for information only. The combined total of all TD costs is shown on the FDC <u>FY</u> Hours Labor ODC Travel Materials Support G&A (b) (4) 	ems and ton and space flight ation agreements and und segment schedules, Data systems as f of concept of CCSDS DC cost estimate.
	TD#: TD002
Tech Direction Title: Cx IT Security	10#.10002
Task Order Title: Systems Security Engineering and Integration Support	TO#: FDOC-T06-11
Technical Direction Description (must be within the technical scope and authorized resoure approved task): 1.)Provide security engineering support for Constellation MOP Programmatic Ground Segments . 2.)Attend appropriate meetings in support of Constellation MOP requirements development. 3.)Perform Security analysis reviews and evaluations of proposed Cx control systems and systems of Control Center, including the telecommunications systems providing connectivity between all Cx systems 4.)Perform security analysis review, evaluation and comments/redlines to proposed Cx documentat 5.)Develop required MOFD Constellation MOP program process and procedures as required. 6.)Provide reviews and updates to Cx MOP planned security incident procedures, reporting, coordinated 7.)Document and provide security protection development support to the Cx MOP program, includint security risk analysis, security requirements, security plans, security products and implementation as support. 8.)Generate and maintain documentation including program process and procedures, external organ protocols, interface control documents (ICD), security plans, technical interface meeting (TIM), wor development schedules, and security protection documents for the Consultative Committee for Space D 9.)Review and provide comment/updates to documents for the Consultative Committee for Space D 9.)Review and provide comment/updates to documents for the Consultative Committee for Space D 9.)Review and provide comment/updates to documents for the Consultative Committee for Space D 9.)Review and provide comment/updates to documents for the Consultative Committee for Space D 9.)Review and provide comment/updates to documents for the Consultative Committee for Space D 9.)Review and provide comment/updates to documents for the Consultative for prototyping for process standards.	external to the Cx stems. ion. ation and follow-up. ng but not limited to, and security test nization agreement and king groups, bata systems as proof of concept of
This cost data is for information only. The combined total of all TD costs is shown on the FDC	DC cost estimate.
<u>FY</u> Hours Labor ODC Travel Materials Support G&A 2011 (b) (4)	<u>Fee</u> <u>Amount</u>
2011 (b) (4)	

Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO6-11	

NASA RESOURCES GENERAL INFORMATON

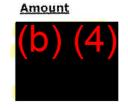
FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

282938.01.21.01.10.10 609524.09.03.02.03.09



			Date Printed: 10/01/2010
	nt and Operations Contract I Support Services Task Order	Task Order Number: FDOC-TO8-11	Mod:
Contractor: Lockheed Martir	Corporation	Contract Number: NNJ09H	D46C
Concrate Contractor Field			
GFY: 11	Multiyear: No	SOW Ref: 3.3.7	
Title: Alternate Facility Mana	ger		
Mission Directorates Supported:	Aeronautics	External CScience	X Space Ops
Programs Supported:	CAeronautics Constellation SpaceComm X Station Other Desc:	Science X Shuttle	
	Schedu		
	art Date: 0/01/2010		mpletion Date: 0/2011
	Approv	als	1
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Melendrez, Amy	(281) 244-1134	08/10/2010
Task Order TMR	Macha, Mitchell	(281) 483-7059	08/17/2010
Task Order Division	Lindner, Daniel	(281) 483-3885	08/17/2010
FDOC Representative	Beuchaw, Karen	(281) 283-4363	09/17/2010
Task Order Monitor	Melendrez, Amy	(281) 244-1134	09/27/2010
NASA Resource Analyst	Stewart, Bradley	(281) 483-0356	09/30/2010
COTR	Lowery, James	(281) 483-1064	09/30/2010
NASA Contracts Officer	Carpentier, John	(281) 244-7254	09/30/2010
CO's Signature	anti		Date 10-1-10
Task Order 1.0 Gen 2.0 Task 3.0 SRM 4.0 Sect	Resources Summary Text eral Scope of Work < Description		

	FDOC-TO8-11
Fiscal Mod Labor Labor \$ 0 Year Hours	DC \$ Travel \$ Material Support \$ G&A \$ Fee \$ Total \$
2011 Original	(b) (4)
Fotals:	

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO8-11	
1.0 GENERAL SCOPE OF WORK		
1.1PURPOSE		
Provide assistance to or act as the Facility Manager. 1.20BJECTIVE		
Ensure that safety, operations and facility support issue 2.0 TASK DESCRIPTION	is are resolved in a timely manne	er.
2.1DESCRIPTION OF WORK		
Tasks include, but not limited to, the following:		
The Alternate Facility Manager's safety related duties ar - Assist in the preparation of report for Special Assistan - Back-up for Facility Manager at FOIG Monthly Safety M - Back-up to Facility Manager as AED Coordinator - Assist in resolution of Facility Mishaps - Assist with Voluntary Protection Program (VPP) action - Act as Fire Warden - Participate In and resolve safety issues found Monthly - Assist with Environmental Management System (EMS) - Assist the Facility Manager In role of Safety and Healti	ce to Director (SAD) Monthly Tel Meeting s Building Inspections and Hazmat database updates	econ
 Assist Facility Manager with periodic review of Emerge 	ency Action Plan (EAP)	
The Alternate Facility Manager's facility operations dutie - Approve Fire System Outages and Testing - Assist Facility Manager in coordinating and monitoring - Assist Facility Manager in planning Open House and Ir - Become familiar with and assist Facility Manager in m facilities and other facilities. - Assist Facility Manager in the planning of daily PAO, E - Ensure guides are available for all tours - Act as tour guide - Act as back-up to Facility Manager in approving Form - Approve Friends and Family Visits (ERVBs) - Respond to Hot and Cold Calls - Respond to Building Issues - Assist Facility Manager in writing and maintaining Hur Conditioning - Support the resolution of Space Center Houston Issue - Support the resolution of National Historical Monumer - Assist the Facility Manager in working all aspects of Si The Alternate Eacility Manager in working all aspects of Si	fire drills hspection Day anaging Memorandums of Under ducational Outreach, Space Cent 722A's (official visitors) ricane Shutdown Procedures For is t Issues I historical site survey teams huttle retirement	er Houston and VIP visits
The Alternate Facility Manager's facility support duties a - Assist the Facility Manager with the annual Major Faci by COD) - Assist the Facility Manager with the Major Facilities In - Develop and Submit MCRR, CoF and WAD Projects - Respond to Physical Security Issues (Card readers, do - Attend Pre-Construction Briefings and Walkthroughs - Attend contractor project meetings and provide status - Review contractor facility plans and report impacts to - Provide overall facility support including, but not limit. This effort includes activities such as analysis and integ - Support continuous improvement efforts to improve o	lities Utilization Report (headqua ventory (headquarters requireme oors, personnel, etc.) s to the Facility Manager the Facility Manager ed to, support of maintenance, o ration verall efficiency of facility operat	ent coordinated by COD) perations, and engineering.
activities such as process improvements and design rev - Evaluate floor-space utilization requests for present as - Assist the Facility Manager with filming coordination	nd future occupants	

2.2NASA INPUT REQUIREMENTS

None required.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Labor: 2 FTEs with facility/program split as follows:

10/1/2010 - 7/20/2011 1 FTE - MCCS 49% ISS, 51% SSP 1 FTE - SSTF 49% ISS, SMTF 51% SSP

7/21/2011 - 9/30/2011 1 FTE - MCCS 100% ISS 1 FTE - SSTF 100% ISS

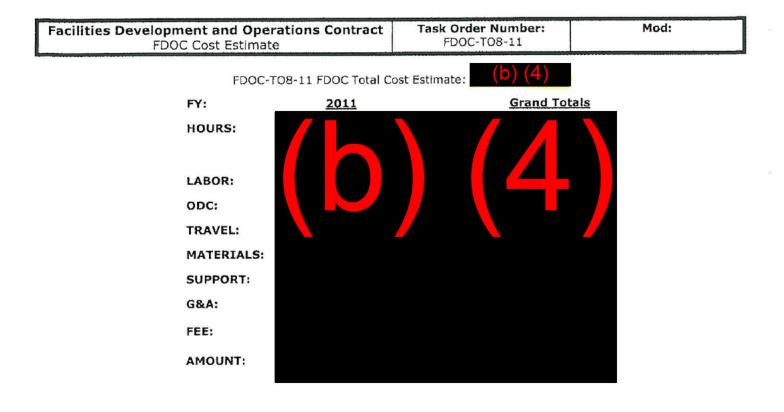
Alternate Facility Manager may require travel to support Facility-related safety training and/or benchmarking activities. Travel plan not to exceed \$2000.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities	Develo	pmen	t and	Ope	rations	Contract
Es	timated	NASA	Resou	rces	Summa	ry

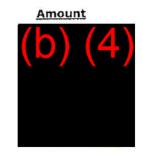
NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO PSLA: None Specified INCREMENTALLY FUNDED: YES

WBS INFORMATION:

WBS 575376.07.01.02.02.03 575376.07.01.02.02.05 609524.09.03.02.03.01 609524.09.03.02.03.05

WBS Total:



Task Order Number:

FDOC-T08-11

			Date Printed: 10/01/2010
Facilities Developmer	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-TO9-11	
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	946C
GFY: 11	Multiyear: No	SOW Ref: 3.3.1	
Title: Ground Segment Contr	ol Board Technical Support		
Mission Directorates	Exploration	External Science	X Space Ops
Supported:	Aeronautics		
Programs Supported:	Aeronautics Constellation	Science 🗔 Shuttle	
	SpaceComm ${f X}$ Station	Other	
	Other Desc:		
	Schedu		
	art Date:	Estimated Con	
10	/01/2010	09/30	/2011
	Approv	als	
			Data Annual
Title	Point of Contact	(281) 483-7057	Date Approved 08/03/2010
Task Order Monitor	Gowda, Shashi	(281) 483-7059	08/06/2010
Task Order TMR	Macha, Mitchell	(281) 483-2344	08/06/2010
Task Order Division	Sims, John Beuchaw, Karen	(281) 283-4363	09/10/2010
FDOC Representative	Gowda, Shashi	(281) 483-7057	09/28/2010
Task Order Monitor	Stewart, Bradley	(281) 483-0356	09/30/2010
NASA Resource Analyst	Lowery, James	(281) 483-1064	09/30/2010
COTR NASA Contracts Officer	Carpentier, John	(281) 244-7254	09/30/2010
CO's Signature	an		Date (0-1-10
CO's Signature			
	0.30***********		
Contents: Title - Signa	ture Daga		
	esources Summary		
Task Order			
	eral Scope of Work		
	Description		
3.0 SRM			
	rity Requirements		
	ASA Resources Summary		

Facilities	s Development and Operations Contract FDOC Cost Estimate Summary	Task Order Number: FDOC-TO9-11	Revision:
Fiscal Mod Year	Labor Labor 5 ODC 5 Travel \$ Materi Hours \$	al Support \$ G&A \$	Fee \$ Total \$
2011 Origina	<u>(b)</u>	(4)	

Facilities Development and Operations Contract Task Order Text	Task Order Number: FDOC-TO9-11	Mod:
1.0 GENERAL SCOPE OF WORK		
1.1PURPOSE		
Provide technical support to the Ground Segment Contro	ol Board (GSCB)	
1.20BJECTIVE		
Ensure all GSCB activities are supported		
2.0 TASK DESCRIPTION		
2.1DESCRIPTION OF WORK The Contractor shall provide technical systems engineer	ing and operational support to the	e Ground Segment Control
The Contractor shall provide technical systems engineer	leatings (TIMs)	e Ground Degment control
Board (GSCB) and international Technical Interchange M	leetings (1115).	
Tasks include:		
? International Ground Systems Specification (IGSS) bo	ok management	
? Support Multi-lateral GSCB and TIMs at IP locations		
? Review and provide comments on IP ground segment	requirements	
2 CSCB angineering support		
? Software Review Control Panel (SRCP) support for GSC	CB-related topics and Schedule Is	sues/Change Forms (SIFs)
2 Support for IP End-to-End test coordination		
? Administration support, including: IP telecon set up; G	SCB, TIMs, and telecon agenda c	levelopment and
coordination; Minutes and protocol development and dis	tribution; IP escort coordination;	IP badging
? IP Network requirements and implementation coordination	ation	

2.2NASA INPUT REQUIREMENTS

All NASA Programmatic requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

Per negotiated schedule 1. As Identified to fulfill 2.1 2.4MATERIAL/TRAVEL

Labor: 3 FTEs 100% ISS

International trips not exceed 20K.

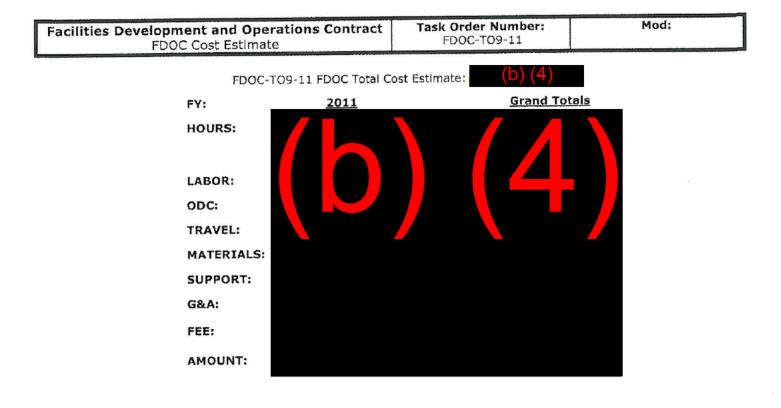
Domestic trips not to exceed 12K.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract Estimated NASA Resources Summary	Task Order Number: FDOC-TO9-11	Mod:
NASA RESOURCES GENERAL INFORMATON		
FACTORY: None Specified		lone Specified
IN POP BASELINE: NO	INCREMENTALLY FUNDED: NO	
WBS INFORMATION:		

WBS

Amount



			Date Printed: 10/01/20
	nt and Operations Contract I Support Services Task Order	Task Order Number: FDOC-TO10-11	Mod:
Contractor: Lockheed Martin Corporation		Contract Number: NNJ09	HD46C
GFY: 11	Multiyear: No	SOW Ref: 3.3.6	
	h		
Title: COMSEC Operations			
Mission Directorates Supported:	Aeronautics	n 🗖 External 🗖 Science	• X Space Ops
Programs Supported:	CAeronautics Constellation	C Science X Shuttle	
	SpaceComm X Station Other Desc:	C Other	
	Schedu	le	
Start Date: 10/01/2010		Estimated Completion Date: 09/30/2011	
	Approv	als	
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Melendrez, Amy	(281) 244-1134	08/10/2010
Task Order TMR	Macha, Mitchell	(281) 483-7059	08/10/2010
Task Order Division	Lindner, Daniel	(281) 483-3885	08/10/2010
FDOC Representative	Beuchaw, Karen	(281) 283-4363	09/13/2010
Task Order Monitor	Melendrez, Amy	(281) 244-1134	09/27/2010
NASA Resource Analyst	Stewart, Bradley	(281) 483-0356	09/30/2010
COTR	Lowery, James	(281) 483-1064	09/30/2010
NASA Contracts Officer	Carpentier, John	(281) 244-7254	09/30/2010
CO's Signature	anti		Date 10 - 1 - 10
Task Order 1.0 Gen 2.0 Task 3.0 SRM 4.0 Sect	Resources Summary Text eral Scope of Work < Description		

1		evelopment and Operations Contract OOC Cost Estimate Summary	Task Order Number: FDOC-TO10-11	Revision:
Fiscal Year	Mod	Labor Labor \$ ODC \$ Travel \$ Material Hours \$	Support \$ G&A \$	Fee \$ Total \$
2011	Original	(h) (A	4)	
Fotals :			т)	

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO10-11	

1.1PURPOSE

Provide 24/7 operations and maintenance support for the MCCS COMSEC.

1.20BJECTIVE

Provide COMSEC support for all MCCS encryption/ and other Federal and DoD requirements for secure communications.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

The Contractor shall comply with Federal and DoD requirements for secure communications, utilizing the COMSEC system. These systems shall provide for classified and sensitive but unclassified (SBU) communications using administrative and physical controls. Refer to Attachment J-2, Applicable Documents. The Contractor shall assist with the maintenance and administration of the NASA COMSEC account for secure

The Contractor shall assist with the maintenance and administration of the NASA COMSEC account for secure communications.

The Contractor shall provide encryption key management services, in accordance with secure communications requirements.

The Contractor shall provide for proper handling, storage, and destruction of classified, SBU and COMSEC materials and documentation.

The Contractor shall maintain the classified messaging capability, including associated encryption key management services, storage of classified and sensitive documentation, and the interfaces to the classified point to point circuits.

The Contractor shall provide support for the daily operations and maintenance of the Secret Internet Protocol Router System (SIPRNET).

The Contractor shall provide support for the daily operations and maintenance of the Space Shuttle and International Space Station Command Encryption Systems.

2.2NASA INPUT REQUIREMENTS

All NASA programmatic requirement documents apply. Specific Federal secure communications documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

1. NSTISSI 4005 ? Safeguarding and Control of Communications Security Material.

2. NSTISSI 4000 ? Cryptographic Equipment Maintenance and Training.

3. NSTISSI 3005 ? Safeguarding and Control of Data Encryption Standard (DES) Equipment and Associated

Unclassified Communications Security Aids.

- 4. NSTISSI 4001 ? Controlled COMSEC Items (CCI).
- 5. NSTISSI 4004 ? Routine Destruction and Emergency Protection of COMSEC Material.
- 6. NSTISSI 7000 ? TEMPEST Countermeasures for Facilities
- 7. NSTISSAM TEMPEST/2-95 ? Red/Black Installation Guidance
- 8. FIPS Pub. 140-2 ? Security Requirements for Cryptographic Modules.
- 9. Special Publication 800-21 ? Guideline for Implementing Cryptography in the Federal Government.
- 10. FIPS Pub. 197 ? Advanced Encryption Standard (AES), specifies the AES algorithm.
- 11. FIPS Pub. 46-3 ? Data Encryption Standard (DES)
- 12. FIPS Pub. 81 ? DES Modes of Operation
- 13. FIPS Pub. 74 ? Guidelines for Implementing and Using DES

14. NASA/USAF Interagency Agreement for COMSEC, Attachment F-1, COMSEC Maintenance Support Plan, dated 6/83.

- 15. NSTS-22241 ? COMSEC Key Control Agreement.
- 16. COMSEC Maintenance Support Plan, Attachment F-1
- 17. NASA Policy and Requirement (NPR) 2810 (Current Revision)
- 18. NASA Communications Security (COMSEC) Classification Guide.
- 19. NASA Center Office of Records (COR) COMSEC Standard Operating Procedures (CSOP) Complete Set

Working knowledge:

1. Operations of the Space Shuttle Command Encryption System, ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

2. Maintenance and associated Installation of the Space Shuttle Command Encryption System, ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

3.) MCCS Comsec facility and interfaces to MCCS.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Labor:

10/1/2011 - 7/20/2011 10 FTE, 51% ISS/49% SSP

7/21/2011 - 9/30/2011 8 FTE, 100% ISS

Travel: Travel will be required to support COMSEC requirements. COMSEC travel should not to exceed \$6K. This travel budget is planned to accommodate:

- 2 domestic trips for BCC/HOSC activation and Hurricane support. Each trip is a 1 week duration for 2 people.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW 1.3.2.1, Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.

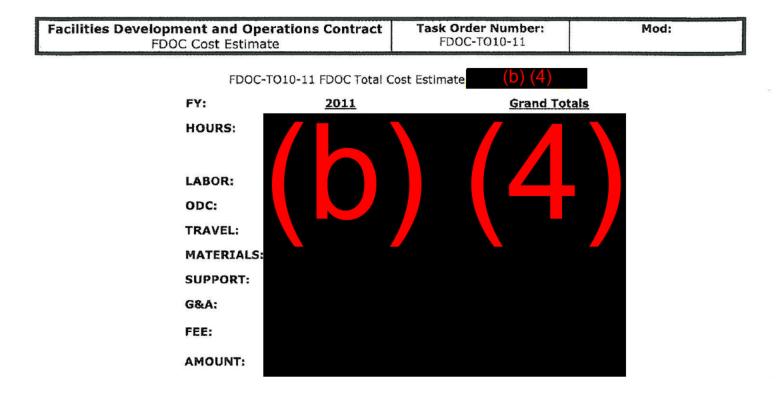
Facilities Development and Operations Contract Estimated NASA Resources Summary	Task Order Number: FDOC-T010-11	Mod:
VASA RESOURCES GENERAL INFORMATON FACTORY: None Specified IN POP BASELINE: NO	PSLA: INCREMENTALLY	None Specified FUNDED: NO
WBS INFORMATION:		

WBS

Amount

WBS Total:





			Date Printed: 10/01/2010
Facilities Developmer	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-TO11-11	
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	946C
GFY: 11	Multiyear: No	SOW Ref: 3.3	
<u>viii 12</u>			
Title: Systems Engineering S	upport for Mission Operation Projec	t in Support of Constellation	
Mission Directorates	1	1992	Space Ops
Supported:	Aeronautics X Exploration	La External 1.2 Science	1 Space Ops
Programs Supported:	Aeronautics X Constellation	Science Shuttle	
Fiogrania Supported.	SpaceComm I Station	Other	
	Other Desc:		
	Schedu	le	
Sta	art Date:	Estimated Con	npletion Date:
	/01/2010		/2011
	Approv	ale	
	Approve		[
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Ward, Dawn	(281) 483-6145	08/05/2010
Task Order TMR	Macha, Mitchell	(281) 483-7059	08/10/2010
Task Order Division	Lindner, Daniel	(281) 483-3885	08/10/2010
FDOC Representative	Beuchaw, Karen	(281) 283-4363	09/10/2010
Task Order Monitor	Ward, Dawn	(281) 483-6145	10/01/2010
NASA Resource Analyst	Webley, Grant	(281) 483-3906	10/01/2010
COTR	Lowery, James	(281) 483-1064	10/01/2010
NASA Contracts Officer	Carpentier, John	(281) 244-7254	10/01/2010
CO's Signature	1anti		Date 10-1-10
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Contents:			
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Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO11-11	

1.1PURPOSE

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Constellation Mission Operations.

1.20BJECTIVE

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the Constellation Program (CxP) baseline and ald the MOP Elements (i.e. MCCS, CxTF, MORS) in remaining current with the MOP baseline.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate Cx programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, CARD, C3I IOS) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Baseline Access - grant and control access to technical baseline data. This includes placing the data in a authorized but accessible location and providing the instruction needed to allow users efficient access.

b.) Ensure technical baseline compliance to Programmatic constraints

1. MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the CxP-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

c.) Scheduling of technical baseline

Generate and maintain CxP-to-MOP-to-Element dependencies schedules and provide scheduling data inputs to the MOP Integrated Master Schedule. Review and update Element schedule data to the IMS.

d.) Technical Baseline Risk Management

Risk Management for those Risks that are a result of threats to the Technical baseline. Includes maintenance of the Risks in IRMA

2.) Provide Cradle Support

a) Provide Level II ASET participation for determining Cradle schema change impacts to the MOP, advocating MOP needs and proposed schema updates, representing MOP interests in ASET technical forums.

b) Perform Level III (i.e. MOP) Cradle management, including production and CM of Cradle developed MOP products (e.g. System requirements, Operations Concepts, Architecture Designs, Interface requirements;) schema tailoring and administration for MS segment of Cradle.

c) Create and maintain (including linkages and data item descriptions) data in Cradle used to define the MOP technical baseline.

d) Support MOP Elements (i.e. MCCS, CxTF, MORS) in development and maintenance of Cradle schema, publication templates, and data promotion.

3.) Provide Technical Forum Support

a.) Provide technical support to the CxP and MOP/ MOD forums (e.g. MOFD CCB, MEICB, ICP, CxRWG, MWG) that

make system engineering evaluations and decisions.

b.) Provide technical and administrative support to the MOP Working Group (MWG.)

4.) Provide Interface Definition Support

a.)Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

2.2NASA INPUT REQUIREMENTS

- Access to Cradle tool and training

- Access to all MOP-level requirements and design documentation

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.

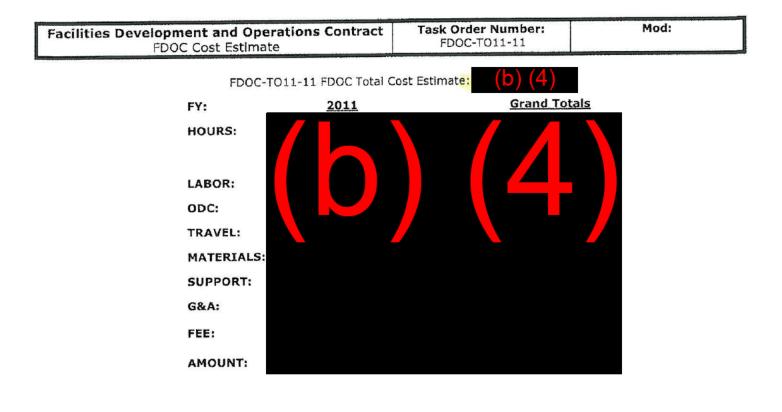
LOE support is 2.5 FTE - Cx funding.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

4.0 SECURITY REQUIREMENTS

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract Estimated NASA Resources Summary	Task Order Number: FDOC-TO11-11	Mod:
NASA RESOURCES GENERAL INFORMATON FACTORY: None Specified IN POP BASELINE: NO	PSLA: 1 INCREMENTALLY	None Specified FUNDED: NO

WBS INFORMATION:

WBS

Amount

WBS Total:



			Date Printed: 07/20/2011
	and Operations Contract	Task Order Number:	Mod:
Facility Engineering and Su	pport Services Task Order	FDOC-T001-12	2
Contractor: Lockheed Martin Co	rporation	Contract Number: NNJ09HD	46C
5	5		
GFY: 12	Multiyear: No	SOW Ref: 3.3.1.2	
			1
Title: Network and Communicat	ons Analysis and Integration Te	am (NACAIT)	
Mission Directorates	Exploration	External Science	X Space Ops
Supported:	Aeronautics		A Space Ops
Programs Supported:	Aeronautics Constellation	Science Shuttle	
	\square SpaceComm $f X$ Station	X Other	
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Start	Date:	Estimated Con	noletion Date:
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	Арргоч		T
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Hervey, Jewel	(281) 483-0359	07/13/2011
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/14/2011
Task Order Division	Lindner, Daniel	(281) 483-3885	07/14/2011
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/15/2011
Task Order Monitor	Hervey, Jewel	(281) 483-0359	
JSC Resources Analyst	Webley, Grant	(281) 483-3906	
COTR	Lowery, James	(281) 483-1064	
JSC Contracts Officer	Maclean, Cynthia	(281) 244-5903	
CO's Signature			Date
Contents:			
Title - Signatur			
	ources Summary		
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3.0 SRMQA	y Requirements		
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Estimated NAS	A RESources Summary		

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Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material	\$Support \$	G&A \$	Fee \$	Total \$
2012	Original					(b) (4)				
otals:										

Facilities Development and Operations Contract Task Order Text	Task Order Number: FDOC-T001-12	Mod:
Task order reac		

1.1PURPOSE

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS and MPCV ground-to-ground communications requirements.

1.20BJECTIVE

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station and MPCV program tasks delegated to MOD to execute on behalf of the ISS and MPCV programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

-Determine communication needs for ISS and MPCV operational support among all elements that support the ISS Program

-Gather and consolidate communications requirements into draft versions of the NPRD and INPRD

-Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS and MPCV Programs on implementation and actual need of communication services

-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS and MPCV Program communications requirements

-Document final, approved version of ISS and MPCV communications requirements in the NPRD and INPRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)

-Provide coordination point of contact for NISN for communications schedules

-Develop end-to-end data flow diagrams for the ISS and MPCV Programs

-Support other ISS and MPCV operational communications related tasks as required by NASA

2.2NASA INPUT REQUIREMENTS

International Space Station Operational Communication Overview (IOCO)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

4 trips ISS (Domestic - 1, International - 1), MPCV (Domestic - 2)

Purpose: Attend multi-agency and center requirements definition and problem resolving meeting.

Labor: 1 FTE (.91 ISS, 0.09 MPCV)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

			Date Printed: 08/10/2012
Facilities Development	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-TO4-12	1
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Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C
CONTRACTOR: LOCKNEED MALLIN			
OF04-10	Multiyear: No	SOW Ref: 1.5.4.8	
GFY: 12	HILLYCOL. NO	AN AN AN APPENDIX TITLE IST	
Title: Architectural and Engin	eering Support		
Mission Directorates	T 2		V
Supported:	Aeronautics	n 💭 External 🔲 Science	X Space Ops
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	Other Desc:		
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	Approv	rals	
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Wolfer, Eric	(281) 483-6709	07/19/2012
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/20/2012
Task Order Division	MCDONALD, BRIAN	(281) .24-0010	07/20/2012
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/01/2012
Task Order Monitor	Wolfer, Eric	(281) 483-6709	08/08/2012
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	08/10/2012
COTR	Lowery, James	(281) 483-1064	08/10/2012
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	08/10/2012
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2012	Original		

Facilities Development and Operations Contract	Task Order Number:	Mad:
Task Order Text	FDOC-TO4-12	1

1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas.

- ? OTF Technology Development
- ? MOFD Equipment Replacement Support
- ? MCCx Client Development Support
- ? Future Network System Development Support
- ? MOFD Process Automation Support
- ? Support for third party application development in the OTF (Ames, etc)
- ? IT Plan Management and Planning
- ? Support for CCSDS Standards Development

1.20BJECTIVE

- Identify key areas for change and facilitate budget and schedule activities to:
- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.

- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed. 2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

2.2NASA INPUT REQUIREMENTS

All DD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Materials not to exceed 250K ISS (original)

Materials not to exceed 241K ISS (Rev 1)

Total materials not to exceed 491K (Rev 1)

9.0 FTE ISS OTF Support. Travel Support not to exceed 15K.

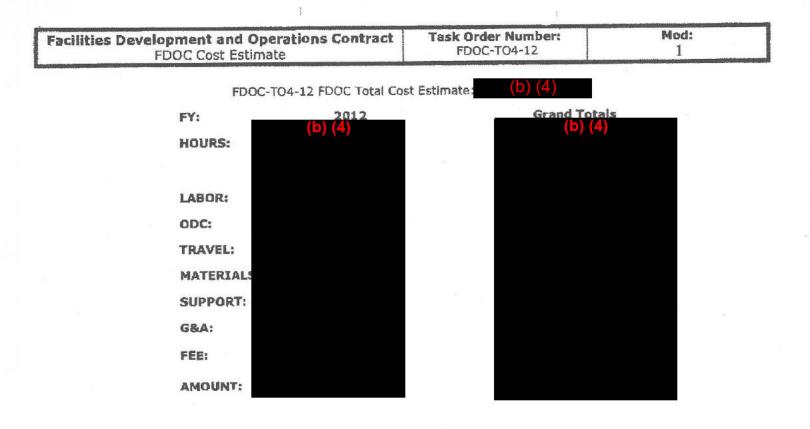
1.0 FTE SCAN Data Standards support. Travel support not to exceed 20K and materials not to exceed 5K.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.



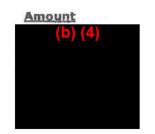
Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO4-12	1

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS 439432.07.03.05.01 609524.09.03.02.09.06



WBS Total:

1

RESOURCE ANALYST COMMENTS

(4) DPRF in-process.

1	5		Date Printed: 07/20/2011	
	nt and Operations Contract	Task Order Number:	Mod:	
Facility Engineering and	Support Services Task Order	FDOC-TO0-12		
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD4	46C	
GFY: 12	Multiyear: No	SOW Ref: 3.3.2	е. 	
Title: Program Requirements	Document (PRD)	2		
Mission Directorates Supported:	Aeronautics	External Science	X Space Ops	
Programs Supported:	Aeronautics Constellation	Science Shuttle		
	SpaceComm X Station	X Other		
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	0/01/2011	Estimated Completion Date: 09/30/2012		
	Approv			
Title	Point of Contact	Phone	Date Approved	
Task Order Monitor	Hervey, Jewel	(281) 483-0359	07/13/2011	
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/14/2011	
Task Order Division	Lindner, Daniel	(281) 483-3885	07/14/2011	
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/15/2011	
Task Order Monitor	Hervey, Jewel	(281) 483-0359		
JSC Resources Analyst	Webley, Grant	(281) 483-3906		
COTR	Lowery, James	(281) 483-1064		
JSC Contracts Officer	Maclean, Cynthia	(281) 244-5903		
CO's Signature		D	ate	
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Facilities Development and Operations Contract FDOC Cost Estimate Summary				Task Order FDOC-T	1	Revi				
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$		\$Support \$	G&A \$	Fee \$	Total \$
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Facilities Development and Operations Contract Task Order Text	Task Order Number: FDOC-TO0-12	Mod:
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1.1PURPOSE

Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

2.2NASA INPUT REQUIREMENTS

Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II Electronic book maintenance for ISS Orbital Volume I,II

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

1 trip (ISS). Purpose: Attend multi-center requirement issues resolution meetings.

Labor: 1 FTE (ISS)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, OUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REOUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

Date Printed: 02/14/2012

	t and Operations Contract	Task Order Number:	Mod:					
Facility Engineering and	Support Services Task Order	FDOC-TO0-12	1					
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	946C					
GFY: 12	Multiyear: No	SOW Ref: 3.3.2						
Title: Program Requirements	Document (PRD)	а 						
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Programs Supported:	Aeronautics	n 🖹 Science 📲 Shuttle						
	SpaceComm X Station	X Other						
	Other Desc:MPCV							
	Schedu		polation Data:					
	/01/2011	Estimated Completion Date: 09/30/2012						
Approvals								
Title	Point of Contact	Phone	Date Approved					
Task Order Monitor	Hervey, Jewel	(281) 483-0359	01/23/2012					
Task Order TMR	Macha, Mitchell	(281) 483-7059	01/23/2012					
Task Order Division	Lindner, Daniel	(281) 483-3885	01/23/2012					
FDOC Representative	Beuchaw, Karen	(281) 283-4363	01/25/2012					
Task Order Monitor	Hervey, Jewel	(281) 483-0359	01/25/2012					
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	02/07/2012					
COTR	Lowery, James	(281) 483-1064	02/13/2012					
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	02/14/2012					
CO's Signature (imr	thin Maclean		Date 2/14/12					
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3.0 SRM								
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Estimated NASA Resources Summary								

		Date Fit	inted: 07/25/2012
Facilities Develo	pment and Operations	Task Order Number:	Mod:
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Facility Engineering	and Support Services Task		
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Contractor: Lockheed M	artin Corporation	Contract Number: NN	109HD46C
GFY: 12	Multiyear: No	SOW Ref: 3.3.4	
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Programs Supported:	□ Aeronautics □ Constellation □	□ Science □ Shuttle	
-	SpaceComm X Station	└ Other	
	Other Desc:		
	Schedule		
C)	art Date:	Estimated Comp	letion Date:
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	Approvals		T
	1	1	1
Title	Doint of Contact	Phone	Date Annroved
Title	Point of Contact	Phone (281) 244-0279	Date Approved
Task Order Monitor	Leblanc, Troy	(281) 244-0279	07/09/2012
Task Order Monitor Task Order TMR	Leblanc, Troy Macha, Mitchell	(281) 244-0279 (281) 483-7059	07/09/2012 07/10/2012
Task Order Monitor Task Order TMR Task Order Division	Leblanc, Troy Macha, Mitchell Lindner, Daniel	(281) 244-0279 (281) 483-7059 (281) 483-3885	07/09/2012 07/10/2012 07/10/2012
Task Order Monitor Task Order TMR Task Order Division FDOC Representative	Leblanc, Troy Macha, Mitchell Lindner, Daniel Beuchaw, Karen	(281) 244-0279 (281) 483-7059 (281) 483-3885 (281) 283-4363	07/09/2012 07/10/2012 07/10/2012 07/17/2012
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor	Leblanc, Troy Macha, Mitchell Lindner, Daniel Beuchaw, Karen Leblanc, Troy	(281) 244-0279 (281) 483-7059 (281) 483-3885 (281) 283-4363 (281) 244-0279	07/09/2012 07/10/2012 07/10/2012 07/17/2012 07/10/2012
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst	Leblanc, Troy Macha, Mitchell Lindner, Daniel Beuchaw, Karen Leblanc, Troy Hewett, Benjamin	(281) 244-0279 (281) 483-7059 (281) 483-3885 (281) 283-4363 (281) 244-0279 (281) 244-6604	07/09/2012 07/10/2012 07/10/2012 07/17/2012 07/10/2012 07/10/2012
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR	Leblanc, Troy Macha, Mitchell Lindner, Daniel Beuchaw, Karen Leblanc, Troy Hewett, Benjamin Lowery, James	(281) 244-0279 (281) 483-7059 (281) 483-3885 (281) 283-4363 (281) 244-0279 (281) 244-6604 (281) 483-1064	07/09/2012 07/10/2012 07/10/2012 07/17/2012 07/10/2012
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer,	Leblanc, Troy Macha, Mitchell Lindner, Daniel Beuchaw, Karen Leblanc, Troy Hewett, Benjamin Lowery, James Maclean, Cynthia	(281) 244-0279 (281) 483-7059 (281) 483-3885 (281) 283-4363 (281) 244-0279 (281) 244-6604 (281) 483-1064 (281) 244-5903	07/09/2012 07/10/2012 07/10/2012 07/17/2012 07/10/2012 07/20/2012 07/23/2012
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer	Leblanc, Troy Macha, Mitchell Lindner, Daniel Beuchaw, Karen Leblanc, Troy Hewett, Benjamin Lowery, James	(281) 244-0279 (281) 483-7059 (281) 483-3885 (281) 283-4363 (281) 244-0279 (281) 244-6604 (281) 483-1064 (281) 244-5903	07/09/2012 07/10/2012 07/10/2012 07/17/2012 07/10/2012 07/10/2012
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Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer, CO's Signature Contents: Title - Si Estimate Task Ord 1.0 G 2.0 T	Leblanc, Troy Macha, Mitchell Lindner, Daniel Beuchaw, Karen Leblanc, Troy Hewett, Benjamin Lowery, James Maclean, Cynthia Maclean, Cynthia	(281) 244-0279 (281) 483-7059 (281) 483-3885 (281) 283-4363 (281) 244-0279 (281) 244-6604 (281) 483-1064 (281) 244-5903	07/09/2012 07/10/2012 07/10/2012 07/17/2012 07/10/2012 07/20/2012 07/23/2012
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Facilities Development and Operations Contract FDOC Cost Estimate Summary			Number: 1 FDOC-TO3-12		
Year		Labor Labors ODC movel Material	Support G8A	Tees Total s	
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2012	1				
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GENERAL SCOPE OF WORK 1.0

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA?s ongoing control center space operations engineering projects for User Applications.

1

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-toend architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) 1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for User Applications.

3.) Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the User Application capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.

12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MSCP, UAWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support UAS activities by supplying information as requested on UAS.

17.) Provide materials support as required to support this activity.

18,) Cost for the support effort will need to be collected and reported according to the Operating Plan.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$16K for travel:

ISS ? 4 FTE UA(allocated out of UA earmark)

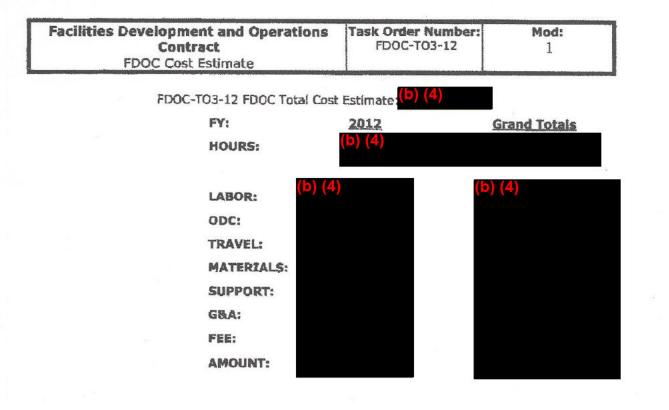
Mod 1 ISS - 253 hrs Jul thru Sept FOX Project Support.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number: FDOC-T03-12	Mod:
Estimated NASA Resources Summary		

NASA RESOURCES GENERAL INFORMATON

> FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

609524.09.03.02.05.06



WBS Total:

			Date Printed: 09/06/2012		
Facilities Developmen	t and Operations Contract	Task Order Number:	Mod:		
Facility Engineering and	Support Services Task Order	FDOC-TO0-13			
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	946C		
GFY: 13	Multiyear: No	SOW Ref: 3.3.2			
Title: Program Requirements	Document (PRD)				
Mission Directorates					
Supported:	Aeronautics Exploration	External Science	X Space Ops		
Programs Supported:	Aeronautics Constellation				
	SpaceComm X Station	X Other			
	Other Desc:MPCV/SLS/GSDC				
	Other Deschvir C V/SLS/OSDC		and the second		
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Start Date: Estimated Completion Date:					
10/01/2012 09/30/2013					
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Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Hervey, Jewel	(281) 483-0359	07/03/2012		
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/09/2012		
Task Order Division	Lindner, Daniel	(281) 483-3885	07/09/2012		
FDOC Representative Task Order Monitor	Beuchaw, Karen Hervey, Jewel	(281) 283-4363 (281) 483-0359	08/17/2012 08/17/2012		
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	08/29/2012		
COTR	Lowery, James	(281) 483-1064	08/29/2012		
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/06/2012		
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	Description				
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	ASA Resources Summary				

Facilities Development and Operations Contract FDOC Cost Estimate Summary			evelopment and Operations Contract Task Order Re DOC Cost Estimate Summary FDOC-T00-13		
Fiscal Year	Mod	Labor Labor \$ ODC \$ Travel Material	Support G&A \$	Fee \$ Total \$	
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1.1PURPOSE

Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS, and GSDO program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

2.2NASA INPUT REQUIREMENTS

Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II and MPCV

Electronic book maintenance for ISS Orbital Volume I, II and MPCV

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

1 trip (ISS). Purpose: Attend multi-center requirement issues resolution meetings.

Labor: 1 FTE (.82 ISS and .18 MPCV)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

Date Printed: 10/10/2				
	nt and Operations Contract I Support Services Task Order	Task Order Number: FDOC-TO0-13	Mod: 1	
Contractor: Lockheed Martin	n Corporation	Contract Number: NNJ09HD	46C	
GFY: 13	Multiyear: No	SOW Ref: 3.3.2		
Title: Program Requirements	Document (PRD)			
Mission Directorates Supported:	Aeronautics	on 🎵 External 🎵 Science	X Space Ops	
Programs Supported:	Constellati	on T Science T Shuttle X Other 00		
	Schee			
	art Date:)/01/2012	Estimated Con 09/30		
	Appro	vals		
Title	Point of Contact	Phone	Date Approved	
Task Order Monitor	Hervey, Jewel	(281) 483-0359	09/14/2012	
Task Order TMR	Macha, Mitchell	(281) 483-7059	09/18/2012	
Task Order Division	Lindner, Daniel	(281) 483-3885	09/18/2012	
FDOC Representative	Beuchaw, Karen	(281) 283-4363	09/13/2012	
Fask Order Monitor	Hervey, Jewel	(281) 483-0359	09/19/2012	
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	09/26/2012	
COTR	Lowery, James	(281) 483-1064	09/27/2012	
NASA Contracts Officer	n Maclean, Cynthia	(281) 244-5903	10/10/2012	
CO's Signature	4 Made	E	Date 10/10/12	
Task Order 1.0 Gene 2.0 Task 3.0 SRM	esources Summary Text eral Scope of Work Description			
	ASA Resources Summary			

Total \$
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1.1PURPOSE

Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS, and GSDO program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

2.2NASA INPUT REQUIREMENTS

Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II and MPCV Electronic book maintenance for ISS Orbital Volume I,II and MPCV

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4 MATERIAL/TRAVEL

1 trip (ISS). Purpose: Attend multi-center requirement issues resolution meetings.

Labor: 1 FTE (.72 ISS and .28 MPCV)

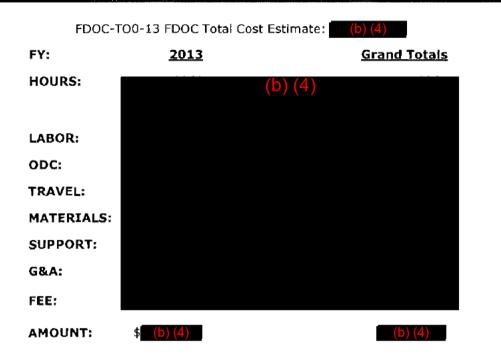
3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security quidelines.

Mod: 1



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO0-13	1

NASA RESOURCES GENERAL INFORMATON

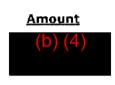
FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

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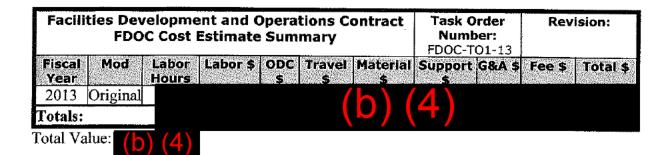


WBS Total:

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Date Printed: 09/07/2012

Facilities Developmen	t and Operations Contract	Task Order Number:	Mod:			
Facility Engineering and	Support Services Task Order	FDOC-TO1-13				
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C			
GFY: 13	Multiyear: No	SOW Ref: 3.3.1.2				
Title: Network and Communic	ations Analysis and Integration T	eam (NACAIT)				
Mission Directorates	Exploration Exploration	on External Science	X Space Ops			
Supported:	Aeronautics					
Programs Supported:	Aeronautics 🔽 Constellation					
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	rt Date:	Estimated Com				
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	Appro	vals				
Title	Point of Contact	Phone	Date Approved			
Task Order Monitor	Hervey, Jewel	(281) 483-0359	07/03/2012			
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/09/2012			
Task Order Division	Lindner, Daniel	(281) 483-3885	07/09/2012			
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/17/2012			
Task Order Monitor	Hervey, Jewel	(281) 483-0359	08/17/2012			
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	08/29/2012			
COTR	Lowery, James	(281) 483-1064	08/29/2012			
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/07/2012			
CO's Signature	up Macleon	C	Date 9/7/12			
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Estimated Re	sources Summary					
Task Order T						
	ral Scope of Work					
	Description					
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	ity Requirements					
Estimated NASA Resources Summary						



1.1PURPOSE

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.

1.20BJECTIVE

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS and GSDO program tasks delegated to MOD to execute on behalf of the ISS, MPCV, SLS and GSDO programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

-Determine communication needs for ISS, MPCV, SLS and GSDO operational support among all elements that support the ISS, MPCV, SLS and GSDO Programs

-Gather and consolidate communications requirements into draft versions of the NPRD and MSRD

-Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, MPCV, SLS and GSDO Programs on implementation and actual need of communication services

-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements

-Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the NPRD and MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)

-Provide coordination point of contact for NISN for communications schedules

-Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs -Support other ISS, MPCV, SLS, and GSDO operational communications related tasks as required by NASA

2.2NASA INPUT REQUIREMENTS

International Space Station Operational Communication Overview (IOCO)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

6 trips ISS (Domestic - 1, International - 1), MPCV (Domestic - 4) Purpose: Attend multi-agency and center requirements definition and problem resolving meeting.

Labor: 1 FTE (.78 ISS, 0.22 MPCV)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

			Date Printed: 10/10/2012			
	t and Operations Contract	Task Order Number:	Mod:			
Facility Engineering and	Support Services Task Order	FDOC-TO1-13	1			
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD4	46C			
GFY: 13	Multiyear: No	SOW Ref: 3.3.1.2				
Title: Network and Communic	cations Analysis and Integration Te	am (NACAIT)				
Mission Directorates Supported:		3000000/	X Space Ops			
Programs Supported:	Aeronautics Constellation	n 🗖 Science 🗖 Shuttle				
	\sum SpaceComm ${f X}$ Station	${f X}$ Other				
	Other Desc:MPCV, SLS, GSD	00				
	Schedu					
Sta	rt Date:	Estimated Com	pletion Date:			
10	/01/2012	09/30/2013				
Approvals						
Title	Point of Contact	Phone	Date Approved			
Task Order Monitor	Hervey, Jewel	(281) 483-0359	09/14/2012			
Task Order TMR	Macha, Mitchell	(281) 483-7059	09/18/2012			
Task Order Division	Lindner, Daniel	(281) 483-3885	09/18/2012			
FDOC Representative	Beuchaw, Karen	(281) 283-4363	09/13/2012			
Task Order Monitor	Hervey, Jewel	(281) 483-0359	09/19/2012			
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	09/26/2012			
COTR	Lowery, James	(281) 483-1064	09/27/2012			
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	10/10/2012			
CO's Signature	2. Madean	Di	ate 10/10/12			
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Task Order 1	-					
1.0 Gene	ral Scope of Work					
	Description					
3.0 SRM(
	rity Requirements					
Estimated N	ASA Resources Summary					

Facilities Development and Operations Contract FDOC Cost Estimate Summary				Task Order Number: FDOC-T01-13	Revision:			
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$ G&A \$	Fee \$ Total \$
2013	Original							
2013	1						4	
Fotals:								

1.1PURPOSE

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.

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-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements

-Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the NPRD and MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)

-Provide coordination point of contact for NISN for communications schedules

-Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs

-Support other ISS, MPCV, SLS, and GSDO operational communications related tasks as required by NASA

2.2NASA INPUT REQUIREMENTS

International Space Station Operational Communication Overview (IOCO)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2,4MATERIAL/TRAVEL

6 trips ISS (Domestic - 1, International - 1), MPCV (Domestic - 4) Purpose: Attend multi-agency and center requirements definition and problem resolving meeting.

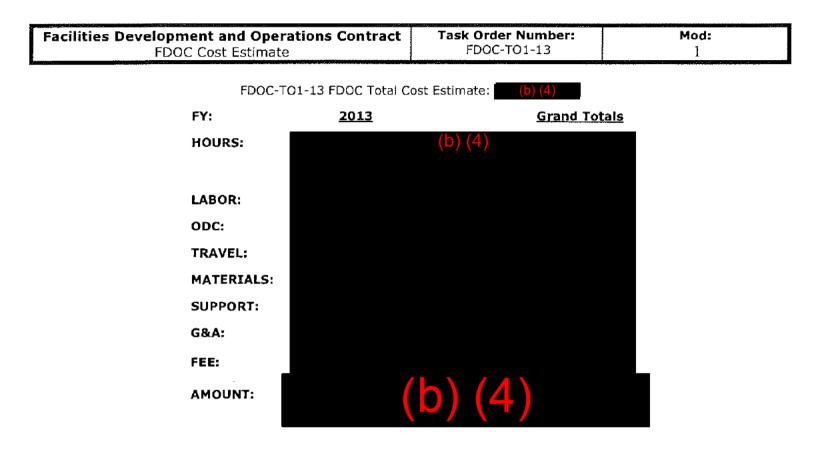
Labor: 1 FTE (.74 ISS, 0.26 MPCV)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.



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Facilities Development and Operations Contract	
Estimated NASA Resources Summary	

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

609524.07.01.02.07.07 747797.07.01.01.10.02



WBS Total:

\$ (b) (4)

			Date Printed: 09/25/2012
Facilities Developmen	nt and Operations Contract	Task Order Number:	Mod:
	Support Services Task Order	FDOC-TO2-13	
······································			•
Contractor: Lockheed Martir	Corporation	Contract Number: NNJ09H	D46C
GFY: 13	Multiyear: No	SOW Ref: 3.3.3	
Title: Human Space Flight Ne	twork Operations Integration		
Mission Directorates	Aeronautics Exploration	on F External F Science	X Space Ops
Supported:			
Programs Supported:	Aeronautics Constellation		
	${f X}$ SpaceComm ${f X}$ Station	${f X}$ Other	
	Other Desc:MPCV, SLS, GS	DO	-
	Sched	lule	ina ang kanalang kanalang kanalan kana Kanalan
Sta	art Date:		mpletion Date:
10	/01/2012		0/2013
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Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Hervey, Jewel	(281) 483-0359	07/03/2012
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/09/2012
Task Order Division	Lindner, Daniel	(281) 483-3885	07/09/2012
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/17/2012
Task Order Monitor	Hervey, Jewel	(281) 483-0359	08/21/2012
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	09/21/2012
COTR	Lowery, James	(281) 483-1064	09/21/2012
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/25/2012
CO's Signature 🥢	mithia Maclean		Date 9/25/12
	<i>y</i>		na se antinente en la construction de la construction de la construction de la construction de la construction
Contents:			
Title - Signa	ture Page		
Estimated R	esources Summary		
Task Order			
1.0 Gene	eral Scope of Work		
	Description		
3.0 SRM			
	rity Requirements		
Estimated N	ASA Resources Summary		·

Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task O Num FDOC-		Revi	sion:	
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2013	Original				/		(1)			
'otals: otal Valu	e: (b) (4)	Y MONG KARAN				U)	(4)			

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1.1PURPOSE

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

Task Order Number:

FDOC-TO2-13

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but are not limited to, the following:

-Support in the preparation of the Certificate of Flight Readiness (CoFR).

-Assist the NSG and NACAIT in planning the integrated implementation of

space communications data services required to support HSF missions.

-Evaluate required endorsement codes within te CoFR implementation plan

-Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated service

-Identify problem areas in providing the services with options for workarounds in the event of service interruption.

-Support all HSF Readiness Reviews

-Provide voice, video, and data assessments for mission services implementation

-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

2.2NASA INPUT REQUIREMENTS

Network Operations Directive (NOD)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Purpose: Attend Technical Interchange meetings and operational readiness reviews.

Labor: 2.0 FTE (MPCV) 1.0 FTE (ISS)

Travel: \$20,000 - 12 trips (9 MPCV, 3 ISS).

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

			Date Printed: 01/15/2013		
Facilities Developme	nt and Operations Contract	Task Order Number:	Mod:		
	I Support Services Task Order	FDOC-TO2-13	1		
	······································				
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C		
GFY: 13	Multiyear: No	SOW Ref: 3.3.3			
	etwork Operations Integration				
Mission Directorates	Aeronautics Exploration	n 🔽 External 📕 Science	X Space Ops		
Supported:	•				
Programs Supported:	Aeronautics Constellatio				
	${f X}$ SpaceComm ${f X}$ Station	${f X}$ Other			
	Other Desc:MPCV, SLS, GSD	00			
	Schedu	ule			
Start Date: Estimated Completion Date:					
10)/01/2012	09/30/2013			
	Approv	als			
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Hervey, Jewel	(281) 483-0359	11/06/2012		
Task Order TMR	Macha, Mitchell	(281) 483-7059	11/06/2012		
Task Order Division	Lindner, Daniel	(281) 483-3885	11/16/2012		
FDOC Representative	Beuchaw, Karen	(281) 283-4363	11/21/2012		
Task Order Monitor	Hervey, Jewel	(281) 483-0359	11/20/2012		
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	01/10/2013		
COTR	Lowery, James	(281) 483-1064	01/15/2013		
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	01/15/2013		
CO's Signature	this Maclan	C	Date 1/15/2013		
Contents:			,		
Title - Signa	ture Page				
	lesources Summary				
Task Order					
1.0 Gen	eral Scope of Work				
	Description				
3.0 SRM	QA				
4.0 Secu	irity Requirements				
Estimated N	IASA Resources Summary				

	Facilities Development and Operations Contract FDOC Cost Estimate Summary				Task Order Number: FDOC-T02-13	Revision: 1
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$ Travel \$ Material	Support \$ G&A \$	Fee \$ Total \$
2013	Original					
2013	1				4)	
Totals:						
Total Value	(b) (4)					

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Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO2-13	1

1.1PURPOSE

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but are not limited to, the following:

-Support in the preparation of the Certificate of Flight Readiness (CoFR).

-Assist the NSG and NACAIT in planning the integrated implementation of

space communications data services required to support HSF missions.

-Evaluate required endorsement codes within te CoFR implementation plan

-Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated service

-Identify problem areas in providing the services with options for workarounds in the event of service interruption.

-Support all HSF Readiness Reviews

-Provide voice, video, and data assessments for mission services implementation

-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

2.2NASA INPUT REQUIREMENTS

Network Operations Directive (NOD)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Purpose: Attend Technical Interchange meetings and operational readiness reviews.

Labor: 1.93 FTE (MPCV) 1.00 FTE (ISS) 0.07 FTE (SCaN)

Travel: \$20,000 - 12 trips (9 MPCV, 3 ISS).

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 1.3.2.2, Safety and Health Management, and 1.3.2.4, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security and JSC security guidelines.

Facilities Development and Operations Contract	Task Order Number:	Mod;
Estimated NASA Resources Summary	FDOC-TO2-13	1

NASA RESOURCES GENERAL INFORMATON

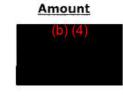
FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

240296.07.10.01 609524.07.01.02.07.30 747797.07.06.30.10.01



WBS Total:



NNJ09HD46C Task/Delivery Order Cost Analysis FDOC-TO 02-13-REV. 1

Introduction

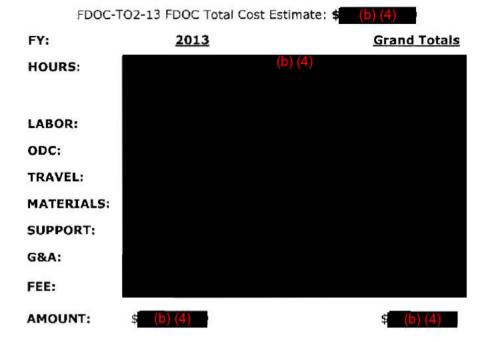
The Facilities Development and Operations Contract (FDOC) specifies technical, managerial, and administrative work needed to ensure the availability, integrity, and reliability of mission operations facilities supporting NASA human space flight programs requiring mission operations support. The objective of this contract is to consolidate efforts across the facilities covered under FDOC in order to maximize synergy for hardware and software development, modification, sustaining, maintenance, reconfiguration, and operations for the purpose of reducing cost without compromising facility functionality and performance.

FDOC utilizes the Space Program Integrated Contract Environment (SPICE) to process, review. and approve T/DOs. A print-screen can be found in each T/DO file showing the applicable T/DO's final approvals.

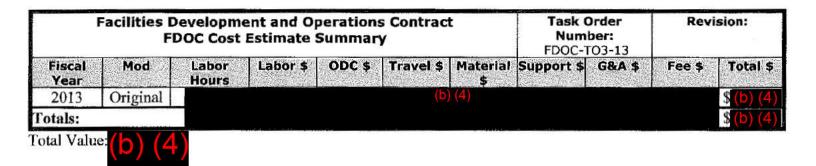
This effort is to issue a task/delivery order under existing requirements in FDOC and was therefore not competed. The NTE value for IDIQ delivery orders under the 4.75-year base period of performance is \$96.472,550. The maximum number of available LOE hours is 1,508.636.

There is no change to cost or requirements. This mod is to update the funding split between MPCV and ISS. There is no change to the overall cost or EP support required.

enthia Maclen 1/15/13 tha Maclean, Contracting Officer Date



			Date Printed: 09/25/2012	
Facilities Developmer	nt and Operations Contract	Task Order Number:	Mod:	
Facility Engineering and	Support Services Task Order	FDOC-TO3-13		
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Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD46C		
GFY: 13	Multiyear: No	SOW Ref: 3.3.4		
Title: UA - System Engineerir	ng and Integration Support			
Mission Directorates		n 🔽 External 🔽 Science	V	
Supported:	Aeronautics	n External Science	X Space Ops	
Programs Supported:		n 🔽 Science 🔽 Shuttle	· · · · · · · · · · · · · · · · · · ·	
	SpaceComm X Station	Other		
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Sta	art Date:	Estimated Com	nletion Date:	
10/01/2012 09/30/2013				
	Approv	als	and the second secon	
Title	Point of Contact	Phone	Date Approved	
Task Order Monitor	Leblanc, Troy	(281) 244-0279	07/09/2012	
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/10/2012	
Task Order Division	Lindner, Daniel	(281) 483-3885	07/10/2012	
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/17/2012	
Task Order Monitor	Leblanc, Troy	(281) 244-0279	08/28/2012	
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	09/21/2012	
COTR	Lowery, James	(281) 483-1064	09/21/2012	
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/25/2012	
CO's Signature	nthea Madlen	D	ate $9/2 = 1/2$	
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Contents:				
Title - Signa	ture Page			
	esources Summary			
Task Order				
1.0 Gene	eral Scope of Work			
	Description			
3.0 SRM(
	rity Requirements			
Estimated N	ASA Resources Summary			



1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for User Applications.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

Assist DD customer communities in identifying operational requirements and assessing those requirements
against existing and planned facility capabilities to determine change requirements and impacts for User Applications.
 Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for
requirements and changes which will affect the User Application capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.

12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MSCP, UAWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support UAS activities by supplying information as requested on UAS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$16K for travel:

ISS ? 5.5 FTE UA (allocated out of UA earmark)

1.5 FTE FOX support

1.0 FTE Special Project PM support

3.0 FTE MSIO Engineering Support

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

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			Date Printed: 04/05/201	
	nt and Operations Contract	Task Order Number:	Mod:	
Facility Engineering and	Support Services Task Order	FDOC-T03-13	1	
Contractor: Lockheed Martir	Corporation	Contract Number: NNJ09HD4	460	
GFY: 13	Multiyear: No	SOW Ref: 3.3.4		
Title: UA - System Engineeri	ng and Integration Support			
Mission Directorates Supported:	Aeronautics Exploratio		X Space Ops	
Programs Supported:	Aeronautics Constellatio SpaceComm X Station Other Desc:	n 🗖 Science 🗖 Shuttle D Other		
	Sched	ule		
	art Date: //01/2012	Estimated Completion Date: 09/30/2013		
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Title	Point of Contact	Phone	Date Approved	
Task Order Monitor	Leblanc, Troy	(281) 244-0279	03/14/2013	
Task Order TMR	Macha, Mitchell	(281) 483-7059	03/14/2013	
Task Order Division	Leblanc, Troy	(281) 244-0279	03/14/2013	
FDOC Representative	Beuchaw, Karen	(281) 283-4363	03/29/2013	
Task Order Monitor	Leblanc, Troy	(281) 244-0279	04/04/2013	
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	04/04/2013	
COTR	Lowery, James	(281) 483-1064	04/04/2013	
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	04/05/2013	
CO's Signature	then Macleon	<u> </u>	ate <u>4/5/13</u>	
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Contents:				
Title - Signa				
	esources Summary			
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	2.0 Task Description			
2.0 Task 3.0 SRM 4.0 Secu	eral Scope of Work Description			

I		evelopment and Operations Contract DOC Cost Estimate Summary	Task Order Number: FDOC-TO3-13	Revision: 1
Fiscal Year	Mod	Labor Labor \$ ODC \$ Travel \$ Material	Support \$ G&A \$	Fee \$ Total \$
2013	Original			
2013	1			
otals:			- /	

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves the same.

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for User Applications.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for User Applications.3.) Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the User Application capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.

12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MSCP, UAWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support UAS activities by supplying information as requested on UAS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2,4MATERIAL/TRAVEL

\$16K for travel:

ISS ? 5.0 FTE UA (allocated out of UA earmark)

1.5 FTE FOX support

0.5 FTE Cloud Project support (Mod 1)

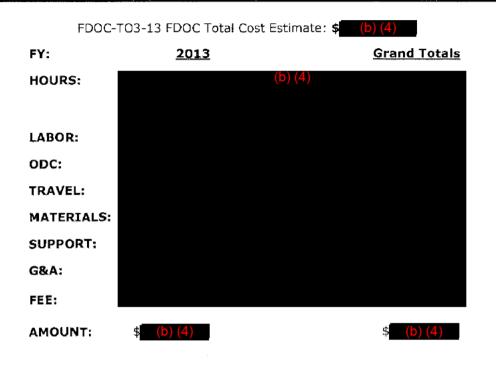
3.0 FTE MSIO Engineering Support

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO3-13	1

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

609524.09.03.02.05.36

<u>Amount</u>
(b) (4)

(b) (4)

\$

WBS Total:

			Date Printed: 01/15/201.		
Facilities Developme	nt and Operations Contract	Task Order Number:	Mod:		
Facility Engineering and	Support Services Task Order	FDOC-TO4-13	1		
Contractor: Lockheed Martin Corporation		Contract Number: NNJ09HD	46C		
GFY: 13	Multiyear: No	SOW Ref: 1.5.4.8			
Title: Architectural and Engir	eering Support				
Mission Directorates	Exploratio	n 🥅 External 🔲 Science	X Space Ops		
Supported:	Aeronautics				
Programs Supported:	Aeronautics 📕 Constellatio	n 🔽 Science 🖵 Shuttle			
	$\overline{\mathbb{M}}$ SpaceComm $ {f X}$ Station	C Other			
	Other Desc:				
	Schedu	ule			
	art Date:	Estimated Com			
10	/01/2012	09/30	/2013		
	Approv	rals			
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Wolfer, Eric	(281) 483-6709	11/07/2012		
Task Order TMR	Macha, Mitchell	(281) 483-7059	11/16/2012		
Task Order Division	Lindner, Daniel	(281) 483-3885	11/20/2012		
FDOC Representative	Beuchaw, Karen	(281) 283-4363	12/04/2012		
Task Order Monitor	Wolfer, Eric	(281) 483-6709	12/04/2012		
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	01/10/2013		
COTR	Lowery, James	(281) 483-1064	01/15/2013		
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	01/15/2013		
CO's Signature	rithear Madean		Date <u> 5 (2</u>		
V					
Contents:					
Title - Signa					
	esources Summary				
Task Order Text					
	1.0 General Scope of Work 2.0 Task Description				
2.0 Task 3.0 SRM					
	QA rity Requirements				
	ASA Resources Summary				
Louinateu N	non resources summary				

Facilities Development and Operations Contract FDOC Cost Estimate Summary		DOC Cost Estimate Summary Num	Task OrderRevision:Number:1FDOC-T04-13	
Fiscal Year	Mod	Labor Labor \$ ODC \$ Travel \$ Material Support Hours \$ \$	G&A \$	Fee \$ Total \$
2013	Original			
2013	1			
Totals: Total Valu	e: (b) (4)			

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1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas:

- OTF Technology Development
- MOFD Equipment Replacement Support
- MCCx Client Development Support
- Future Network System Development Support
- MOFD Process Automation Support
- Support for third party application development in the OTF (Ames, etc)
- IT Plan Management and Planning
- Support for CCSDS Standards Development

1.20BJECTIVE

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.

2.) Long-range view of requirements, technology, performance and systems obsolescence.

3.) Defining and managing a long term system architecture that meets MOD requirements.

4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed. **2.0 TASK DESCRIPTION**

2.1DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

2.2NASA INPUT REQUIREMENTS

All DD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4 MATERIAL/TRAVEL

9.0 FTE ISS OTF Support. Travel Support not to exceed 15K.

1.0 FTE SCAN Data Standards support.

SCAN-CCSDS Travel support not to exceed 20K, OTF not to exceed 15K.

Materials not to exceed 5K - SCAN CCSDS, 417K - OTF (mod 1)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

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Facilities Developmen	nt and Operations Contract	Task Order Number:	Mod:		
Facility Engineering and Support Services Task Order		FDOC-TO4-13	2		
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Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C		
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GFY: 13	Multiyear: No	SOW Ref: 1.5.4.8			
Title: Architectural and Engin	eering Support				
Mission Directorates			V		
Supported:	Aeronautics Exploration	External 🗖 Science	X Space Ops		
Programs Supported:	Aeronautics Constellation	Science Shuttle	· · · · · · · · · · · · · · · · · · ·		
	SpaceComm X Station	Other			
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Sta	art Date:	Estimated Con	pletion Date:		
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Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Wolfer, Eric	(281) 483-6709	07/15/2013		
Task Order TMR	ALLCORN, JON	(281) 244-8402	07/15/2013		
Task Order Division	Lindner, Daniel	(281) 483-3885	07/15/2013		
FDOC Representative	Beuchaw, Karen	(281) 283-4363	07/22/2013		
Task Order Monitor	Wolfer, Eric	(281) 483-6709	07/22/2013		
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/13/2013		
COTR	Lowery, James	(281) 483-1064	08/15/2013		
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	08/26/2013		
CO's Signature	nthea Mailea	E	Date 8/2.6/13		
Contents:					
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	esources Summary				
Task Order Text					
	1.0 General Scope of Work				
	2.0 Task Description				
3.0 SRM					
	rity Requirements				
Estimated N	ASA Resources Summary				

		Development and Operations Contract DOC Cost Estimate Summary	Task Order Number: FDOC-T04-13	Revision: 2
Fiscal Year	Mod	Labor Labor \$ ODC \$ Travel \$ Mat	erial Support G&A \$ \$	Fee S Total \$
2013	Original			
2013	1			
2013	2			
otals:				

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves the same.

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO4-13	2

1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas:

- OTF Technology Development
- MOFD Equipment Replacement Support
- MCCx Client Development Support
- Future Network System Development Support
- MOFD Process Automation Support
- Support for third party application development in the OTF (Ames, etc)
- IT Plan Management and Planning
- Support for CCSDS Standards Development

1.20BJECTIVE

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.

2.) Long-range view of requirements, technology, performance and systems obsolescence.

- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed. 2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

2.2NASA INPUT REQUIREMENTS

All DD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

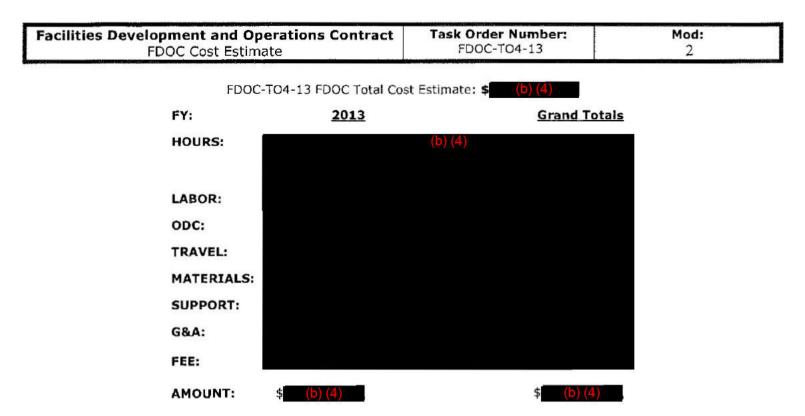
9.0 FTE ISS OTF Support. Travel Support not to exceed 15K. 0.57 FTE SCAN Data Standards support. (MOD 2: reduction from 1.0 FTE) SCAN-CCSDS Travel support not to exceed 20K, OTF not to exceed 15K. Materials not to exceed 5K - SCAN CCSDS, 417K - OTF (mod 1)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.



			Date Printed: 06/26/201.
Facilities Developmer	nt and Operations Contract	Task Order Number:	Mod:
-	Support Services Task Order	FDOC-TO5-13	4
			P
Contractor: Lockheed Martin	1 Corporation	Contract Number: NNJ09HD	46C
GFY: 13	Multiyear: No	SOW Ref: 3.3.4	
Title: System Engineering an	d Integration Support		
Mission Directorates	E Exploratio	n 🗖 External 🗖 Science	X Space Ops
Supported:	Aeronautics Exploration		A Space Ups
Programs Supported:	Aeronautics 🔽 Constellation	n 🗖 Science 🗖 Shuttle	
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	Other Desc: MPCV/SLS		
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	Approv	'als	
T (4) -		Dhana	
Title Task Order Monitor	Point of Contact Melendrez, Amy	Phone (281) 244-1134	Date Approved 06/11/2013
Task Order Monitor Task Order TMR	ALLCORN, JON	(281) 244-1134 (281) 244-8402	06/11/2013 06/11/2013
Task Order TMR Task Order Division	Lindner, Daniel	(281) 244-8402 (281) 483-3885	06/11/2013
FDOC Representative	Beuchaw, Karen	(281) 283-4363	06/18/2013
Task Order Monitor	Melendrez, Amy	(281) 244-1134	06/18/2013
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	06/18/2013
COTR	Lowery, James	(281) 483-1064	06/19/2013
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	06/26/2013
CO's Signature			Date $(1/2)/1/2$
Contents:			
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	lesources Summary		
Task Order 1	-		
	eral Scope of Work		
	Description		
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	irity Requirements		
	IASA Resources Summary		

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task Order Number: FDOC-TO5-13		Revision: 4		
Fiscal Year	Mod	Labor Labor \$	ODC \$	Travel \$	Material S	Support S	G&A \$	Fee \$	Total \$
2013	Original	-							
2013	1								
2013	2	ek.							
2013	3	-							
2013	4								
`otals:									

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves the same.

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Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO5-13	4

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA?s ongoing control center space operations engineering projects.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2,1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

19.) Support Sentinel design, development, and accreditation activities (requires security clearance)

20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)

21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.

22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests. 23.) Support MPCV/SLS ICD and Ops Concept development activities.

24.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team. (Mod 1)

25) Provide EFT-1 ISP support (approx 160 hours) (Mod 3)

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$40K (ISS) for travel: 10K MCCS, 30K MCC21. Not to exceed (NTE) \$2.5K travel (MPCV) tri-prgram (Mod 1). \$196k material for purchase labor (ISS) \$215k material (ISS) (Mod 2)

Hours: MCCS/MCC21 1.0 FTE MCCS (ISS) 12.5 FTE MCC21 (ISS)(Mod 2, Mod 3, Mod4) 0.5 FTE MOFD CCB Directive support (ISS) 1.56 FTE (MPCV) (Mod 3) 1.32 FTE Boeing Support (CST-100) (Mod 1, Mod 2, Mod 3) 0.25 FTE MOD led tri-program assessment support (MPCV) (NTE 43.5K) (Mod 1)

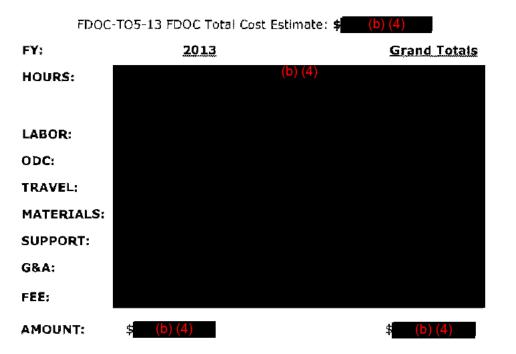
3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

Facilities Development and Operations Contract	Task Order Number:	Mod:
FDOC Cost Estimate	FDOC-TO5-13	4
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Facilities Development and Ope	erations Contract	Task Order Number:	Mod:
Estimated NASA Resources	s Summary	FDOC-TO5-13	4

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

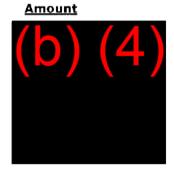
PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

609524.09.03.02.03.09.03 609524.09.03.02.03.36.04 747797.07.02.01.10.02 804911.02.05.1680.13

WBS Total:



			Date Printed: 11/13/2012		
Facilities Developmen	t and Operations Contract	Task Order Number:	Mod:		
Facility Engineering and	Support Services Task Order	FDOC-TO5-13	1		
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	946C		
GFY: 13	Multiyear: No	SOW Ref: 3.3.4			
Title: System Engineering and	d Integration Support				
Mission Directorates		External Science	X Space Ops		
Supported:	Aeronautics	i jus external aus science	A Space Ops		
Programs Supported:	Aeronautics Constellation	Science Shuttle			
	$ar{\square}$ SpaceComm $ {f X}$ Station	${f X}$ Other			
	Other Desc:MPCV/SLS				
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Ct	schedu rt Date:		plation Data:		
	(01/2012	Estimated Completion Date: 09/30/2013			
	Approv				
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Melendrez, Amy	(281) 244-1134	10/22/2012		
Task Order TMR	Macha, Mitchell	(281) 483-7059	10/22/2012		
Task Order Division	Lindner, Daniel	(281) 483-3885	10/22/2012		
FDOC Representative	Beuchaw, Karen	(281) 283-4363	10/31/2012		
Task Order Monitor	Melendrez, Amy	(281) 244-1134	10/31/2012		
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	11/09/2012		
COTR	Lowery, James	(281) 483-1064	11/09/2012		
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	11/13/2012		
CO's Signature	this Maclean	C	Date <u>11/13/12</u>		
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	ral Scope of Work				
	Description				
3.0 SRM0					
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Estimated N/	ASA Resources Summary				

Facilities Development and Operations Contract FDOC Cost Estimate Summary				Task (Num FDOC-1	ber:	Rev	ision: 1		
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$ Material	Support \$	G&A \$	Fee \$	Total \$
2013	Original								
2013	1					4)			
Totals:									
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Task Order Number: FDOC-T05-13

Mod:

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1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA?s ongoing control center space operations engineering projects.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

19.) Support Sentinel design, development, and accreditation activities (requires security clearance)

20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)

- 21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.
- 22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests. 23.) Support MPCV/SLS ICD and Ops Concept development activities.

24.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team. (Mod 1)

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$40K (ISS) for travel: 10K MCCS, 30K MCC21. Not to exceed (NTE) \$2.5K travel (MPCV) tri-prgram (Mod 1). \$196k material for purchase labor (ISS) Hours: MCCS/MCC21 1.0 FTE MCCS (ISS) 21.5 FTE MCC21 (ISS) 0.5 FTE MOFD CCB Directive support (ISS) 2.0 FTE (MPCV) 0.45 FTE Boeing Support (CST-100) (NTE 78.9K) (Mod 1) 0.25 FTE MOD led tri-program assessment support (MPCV) (NTE 43.5K) (Mod 1)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security auidelines.

			Date Printed: 08/26/201.
	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-TO5-13	5
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD4	46C
GFY: 13	Multiyear: No	SOW Ref: 3.3.4	
Title: System Engineering an	d Integration Support		
Mission Directorates	Exploration	n External Escience	V CHILDREN
Supported:	Aeronautics	1 External # Science	X Space Ops
Programs Supported:	Aeronautics Constellation	Science Shuttle	
2	\square SpaceComm $\mathbf X$ Station	X Other	
	Other Desc: MPCV/SLS		
	gi ta parte da la companya da la com		
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	art Date: /01/2012	Estimated Com 09/30/	
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	Approv	als T	
Title	Deink of Contest	Dhama	Dete furnish
Title Task Order Monitor	Point of Contact Melendrez, Amy	Phone (281) 244-1134	Date Approved 08/13/2013
Task Order TMR	ALLCORN, JON	(281) 244-8402	08/13/2013
Task Order Division	Lindner, Daniel	(281) 483-3885	08/14/2013
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/15/2013
Task Order Monitor	Melendrez, Amy	(281) 244-1134	08/15/2013
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/16/2013
COTR	Lowery, James	(281) 483-1064	08/16/2013
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	08/26/2013
CO's Signature	this Machen	D.	ate 8/26/13
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	eral Scope of Work		
	Description		
3.0 SRM0			
4.0 Secu	rity Requirements		
Estimated N	ASA Resources Summary		

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task Order Number: FDOC-TO5-13		Revision: 5		
Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
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4									
5									
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Facilities Development and Operations Contract	Task Order Number:	Mod;
Task Order Text	FDOC-TO5-13	5

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA?s ongoing control center space operations engineering projects.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

19.) Support Sentinel design, development, and accreditation activities (requires security clearance)

20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)

21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.

22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests. 23.) Support MPCV/SLS ICD and Ops Concept development activities.

24.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team. (Mod 1)

25) Provide EFT-1 ISP support (approx 160 hours) (Mod 3)

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$40K (ISS) for travel: 10K MCCS, 30K MCC21. Not to exceed (NTE) \$2.5K travel (MPCV) tri-prgram (Mod 1). \$196k material for purchase labor (MPCV) (Mod 5) \$215k material (ISS) (Mod 2)

Hours: MCCS/MCC21 1.0 FTE MCCS (ISS) 12.5 FTE MCC21 (ISS)(Mod 2, Mod 3, Mod4) 0.5 FTE MOFD CCB Directive support (ISS) 1.56 FTE (MPCV) (Mod 3) 1.32 FTE Boeing Support (CST-100) (Mod 1, Mod 2, Mod 3) 0.25 FTE MOD led tri-program assessment support (MPCV) (NTE 43.5K) (Mod 1)

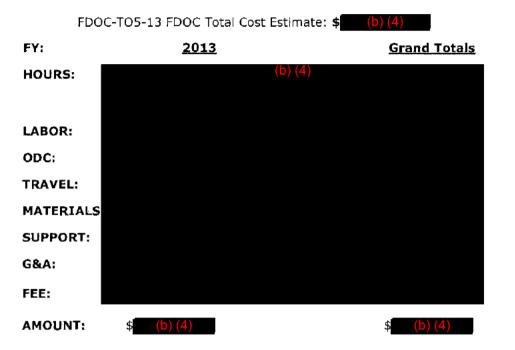
3.0 SAFETY, RELIABILITY, MAINTAINABILITY, OUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

Facilities Development and Operations Contract	Task Order Number:	Mod:
FDOC Cost Estimate	FDOC-TO5-13	5
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Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO5-13	5

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u> <u>Amount</u> (b) (4) 609524.09.03.02.03.09.03 609524.09.03.02.03.36.04 747797.07.02.01.10.02 804911.02.05.1680.13

WBS Total:



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			Date Printed: 09/25/2012
	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-TO5-13	
Contractor: Lockheed Martin	1 Corporation	Contract Number: NNJ09H	D46C
GFY: 13	Multiyear: No	SOW Ref: 3.3.4	
Title: System Engineering an	d Integration Support		
Mission Directorates	Exploratio	on 🚺 External 🚺 Science	X Space Ops
Supported:	Aeronautics		TH OPPONE
Programs Supported:	Aeronautics	Science Shuttle	
Programs Supported.	Constellation		
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Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Melendrez, Amy	(281) 244-1134	07/11/2012
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/11/2012
Task Order Division	Lindner, Daniel	(281) 483-3885	07/11/2012
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/17/2012
Task Order Monitor	Melendrez, Amy	(281) 244-1134	08/23/2012
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	09/21/2012
COTR	Lowery, James	(281) 483-1064	09/21/2012
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/25/2012
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	eral Scope of Work		
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3.0 SRM			
	urity Requirements		
Estimated N	ASA Resources Summary		

Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task Order Number: FDOC-TO5-13		Revision:		
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2013	Original				(\mathbf{b}	(Λ)			
Fotals:										
otal Valu	te: (b) (4)									

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA?s ongoing control center space operations engineering projects.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

19.) Support Sentinel design, development, and accreditation activities (requires security clearance)

20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)

21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.

22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.

23.) Support MPCV/SLS ICD and Ops Concept development activities.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$40K (ISS) for travel: 10K MCCS, 30K MCC21. \$196k material for purchase labor (ISS) Hours: MCCS/MCC21 1 FTE MCCS (ISS) 21.5 FTE MCC21 (ISS) 0.5 FTE MOFD CCB Directive support (ISS)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

Date	Printed:	09/25	5/2012

Facilities Developmen	it and Operations Contract	Task Order Number:	Mod:			
Facility Engineering and	Support Services Task Order	FDOC-T06-13				
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C			
GFY: 13	Multiyear: No	SOW Ref: 3.3.1				
Title: Systems Security Engin	eering and Integration Support					
Mission Directorates Supported:	Aeronautics	External CScience	X Space Ops			
Programs Supported:	Aeronautics	Science Shuttle				
	SpaceComm X Station Other Desc:	C Other				
	Schedu	le	<u> 1997 - Ali Robert Mandelander, en </u>			
	rt Date:	Estimated Completion Date:				
10/	/01/2012	09/30	/2013			
Approvals						
Title	Point of Contact	Phone (201) 402 (200)	Date Approved			
Task Order Monitor	Wolfer, Eric	(281) 483-6709	07/12/2012			
Task Order TMR Task Order Division	Macha, Mitchell Lindner, Daniel	(281) 483-7059 (281) 483-3885	07/12/2012			
FDOC Representative	Beuchaw, Karen	(281) 283-4363	07/12/2012			
Task Order Monitor	Wolfer, Eric	(281) 483-6709	08/17/2012 08/28/2012			
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	09/21/2012			
COTR	Lowery, James	(281) 244-0004	09/21/2012			
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/25/2012			
The second se	ithia Madlan		Date $9/25/(2)$			
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1.0 Gene	ral Scope of Work					
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Estimated N/	ASA Resources Summary					

Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task Order Number: FDOC-TO6-13		Revision:		
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2013	Original					(b)	(/)			
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1.1PURPOSE

Provide security- engineering, analysis, and documentation and required support for Program level ground system security requirements, coordination, assessments, and incident response.

1.20BJECTIVE

Provide IT Security services for all Program level ground system security requirements development, engineering, prototyping, capabilities implementation, coordination, assessments and incident response.

- IT Security scope includes Information Technology (IT) Security, COMSec (Communications Security) and Physical Security for MOFD systems. Mission systems definition includes, TS, MCCS, SSTF, SMS, Support Systems and other systems identified by MOFD and included in the Facility Development and Operations Contract, identified in FDOC CWBS 1.4 ?Facility Operations? and

- Scope of systems security is identified in Federal, NASA Agency, JSC, and MOFD security documents.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Provide Program level ground system security support for the ISS program. Personnel will provide security interface both internal to MOFD and external to MOFD regarding all aspects of IT and COMSEC security, and will act on behalf of MOFD.

Provide Security Services for MOFD Mission Systems and interfaces for current and future manned/commercial spaceflight including security impacts, mission systems engineering, modifications, requirements, design, interoperability with other systems, security process coordination, assessments and incident response. This support includes IT security and COMSEC security support including the COMSEC Responsible COMSEC Officer (RCO) position.

IT Security services, status reporting and technical direction will be coordinated through the MOFD Mission Systems ISSO (Information System Security Officer)

Personnel must have Secret Clearances, as required.

Personnel must have the ability to:

1.) Communicate technical information in both written and oral formats with target audiences ranging from detailed technical communities to senior management.

2.) Provide leadership in prototyping proposed security controls in both OTF and GSDE systems.

- 2.) Review and interpret proposed requirement.
- 3.) Determine budget, operational and security impacts to the Mission Systems.

4.) AnalyzeRFC's (internet standards "Request for Comments") and standards issued by organizations such as US Government, IEEE, CCSDS, etc. and develop requirements based on analysis.

5.) Prototype proposals/requirements and and validate capabilities. Such as protection of the commanding, telemetry and voice capabilities for the following configurations: Ground-to-Space and Space-to-Space.

2.2NASA INPUT REQUIREMENTS

All NASA programmatic requirement documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

- 1.) Federal IT security guidelines and requirements identified in FIPS and NIST documents.
- 2.) NASA IT security guidelines and requirements
- 3.) NASA physical security guidelines and requirements as identified in NASA 1600 series documents.
- 4.) NASA and JSC systems engineering guidelines documents.
- 5.) GSCB, NACAIT and Systems Security Engineering (formerly SART) documents
- 6.) MOFD Level A's and B's and implementation documents
- 7.) Mission Security Concepts of operations

Working knowledge:

1.) Network, systems, and security engineering, including ground to ground, ground to space, space to space, and associated system interface technologies)

- 2.) Command and Control: Shuttle & Station
- 3.) Command capabilities protection mechanisms: Shuttle & Station
- 4.) International Partner interfaces to NASA, MSFC and MCCS and how those interfaces are protected.
- 5.) Comsec facility and interfaces.
- 6.) FEP and FEP-R: Shuttle & Station.
- 7.) Ground-to-Ground comm

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

4.0 FTE as defined below:

3.7 FTE - ISS

0.3 FTE - MPCV

Travel not to exceed \$5.5K(ISS)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

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Work performed under this task shall be in accordance with SOW 1.3.2.1, Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.

			Date Printed: 05/07		
	nt and Operations Contract d Support Services Task Order	Task Order Number: FDOC-T011-13	Mod: 1		
Tacincy Engineering an	d Support Services Task Order		L		
Contractor: Lockheed Marti	in Corporation	Contract Number: NNJ09HD4	16C		
GFY: 13	Multiyear: No	SOW Ref: 3.3			
Title: Systems Engineering Mission Directorates	Support for Mission Operation Project				
Supported:	F Aeronautics F Exploration	📕 External 📕 Science	X Space Ops		
Programs Supported:	Aeronautics Constellation	Science Shuttle			
5 11	SpaceComm 🚺 Station	X Other			
	Other Desc:MPCV				
	Sched	ule			
St	art Date:	Estimated Com	pletion Date:		
10/01/2012 09/30/2013					
	Approv	als			
Title Task Order Monitor	ALLCORN, JON	Phone (281) 244-8402	Date Approved 04/23/2013		
ask Order TMR	Macha, Mitchell	(281) 483-7059	04/11/2013		
ask Order Division	Lindner, Daniel	(281) 483-3885	04/15/2013		
DOC Representative	Beuchaw, Karen	(281) 283-4363	04/23/2013		
ask Order Monitor	ALLCORN, JON	(281) 244-8402	04/25/2013		
IASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	05/02/2013		
COTR	Lowery, James	(281) 483-1064	05/06/2013		
IASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	5/15/2017		
		D	ate $5/15/13$		
IASA Contracts Officer		(281) 244-5903	5/15/		

F	Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task Order Number: FDOC-T011-13	Revision: 1
Fiscal Year 2013 2013	Mod Original	Labor Hours	Labor \$	ODC \$	Travel \$ Ma	terial \$	Support \$ G&A \$	Fee \$ Total \$
Totals: NOTE: Th (b) (4)	e FDOC tot	al estimated	1 cost is (b	o) (4) and	d the Contract	ting Of	ficer's signature appro	oves a total value of

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-T011-13	1

1.1PURPOSE

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.

1.20BJECTIVE

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects(e.g. MCC-21, TS-21, UA-21) for applicability to the MOP baseline. In addition, support is needed for development and baselining of the Mission Systems (MS) to GSDO and MS to Space Launch System (SLS) Interface Requirements Documents (IRDs) and Interface Control Docuemnts (ICDs.)

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate MPCV programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, CARD, C3I IOS) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Develop and Maintain Interface documentation - For the MS to GSDO IRD/ ICD this includes development of the document, conduct of intergration working groups with GSDO, baseline and configuratioon management of the IRD/ ICD, development of the interface design, issue resolution, and document production.

For the MS to SLS ICD, this includes support to the lead prgogram (SLS) in the form of working group attendance, issue resolution, provision of document updates, and development of interface design.

b.) MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

2.) Provide Cradle Support

a) Develop document inputs in Cradle-compatable format for the MS to GSDO IRD/ ICD.

3.) Provide Technical Forum Support

a.) Provide technical support to the MPCV and MOP/ MOD forums (e.g. MOFD CCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on MS to GSDO IRD/ ICD.

2.2NASA INPUT REQUIREMENTS

- Access to all MOP-level requirements and design documentation

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE

PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.

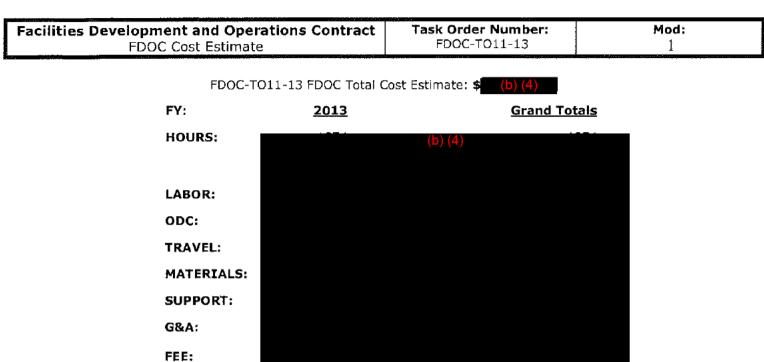
LOE support is 1.0 FTE October 2012 through September 2013. - MPCV funding (Mod1)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

4.0 SECURITY REQUIREMENTS

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



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AMOUNT:

(b)(4)

Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-T011-13	1

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

747797.07.01.02.10.01

Amount		
(b) (4))	

WBS Total:

Date Printed: 09/07/2012

Facilities Developmer	nt and Operations Contract	Task Order Number:	Mod:			
Facility Engineering and	Support Services Task Order	FDOC-TO4-13				
Contractor: Lockheed Martin	L Corporation	Contract Number: NNJ09HD)46C			
GFY: 13	Multiyear: No	SOW Ref: 1.5.4.8				
Title: Architectural and Engin	neering Support					
Mission Directorates Supported:		tion External Science	X Space Ops			
Programs Supported:	Supported:					
	SpaceComm X Station	F Other				
	Other Desc:	· • ····				
	Sche	dule				
Start Date: Estimated Completion Date:						
10/01/2012 09/30/2013						
	Appro	ovals				
Title	Delich of Combo et					
Title Task Order Monitor	Point of Contact Wolfer, Eric	(281) 492-6700	Date Approved			
Task Order TMR	Macha, Mitchell	(281) 483-6709 (281) 483-7059	07/12/2012			
Task Order Division	Lindner, Daniel	(281) 483-7059	07/12/2012			
FDOC Representative	Beuchaw, Karen	(281) 483-3885	07/12/2012			
Task Order Monitor	Wolfer, Eric	(281) 283-4363	08/17/2012			
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	08/28/2012			
COTR	Lowery, James	(281) 483-1064	08/30/2012 08/31/2012			
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/07/2012			
	nathia Madean		Date $9/7/2012$			
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	esources Summary					
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	eral Scope of Work					
	Description					
3.0 SRMC						
	rity Requirements					
	ASA Resources Summary					

Facilities Development and Operations Cont FDOC Cost Estimate Summary	Task Order Number: FDOC-T04-13	Revision:
Fiscal Mod Labor Labor \$ ODC Travel Material 2013 Original Totals: () () () Totals: () (4) () () ()	erial Support G&A \$	Fee \$ Total \$

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1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Operations Facility Division (MOFD) Operations and Information Technology Office (DD12) and the Operations Technology Facility (OTF).

The Operation Technology Facility (OTF) is a NASA-managed MOFD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in Mission Operation Facility Division (MOFD) facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MOFD goals.

This includes monitoring, assessing, and functioning as a member of MOFD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MOFD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas:

- OTF Technology Development
- MOFD Equipment Replacement Support
- MCCx Client Development Support
- Future Network System Development Support
- MOFD Process Automation Support
- Support for third party application development in the OTF (Ames, etc)
- IT Plan Management and Planning
- Support for CCSDS Standards Development

1.20BJECTIVE

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MOFD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MOFD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MOFD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MOFD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

2.) Support prototype projects, assessments, and presentations as requested.

- 3.) Provide Weekly status reports.
- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MOFD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation,

development, authoring, and chairing of working groups.

2.2NASA INPUT REQUIREMENTS

All DD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

9.0 FTE ISS OTF Support. Travel Support not to exceed 15K. 1.0 FTE SCAN Data Standards support.

SCAN-CCSDS Travel support not to exceed 20K, OTF not to exceed 15K.

Materials not to exceed 5K - SCAN CCSDS, 450K - OTF

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 1.3.2.1, Security Management and JSC security guidelines.

		······	Date Printed: 03/28/2013			
Facilities Developmen	t and Operations Contract	Task Order Number:	Mod:			
Facility Engineering and	Support Services Task Order	FDOC-TO5-13	2			
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C			
GFY: 13	Multiyear: No	SOW Ref: 3.3.4				
Title: System Engineering and	I Integration Support					
Mission Directorates	Evolution	External Science	X Space Ops			
Supported:	Aeronautics	External Model Science	A Space Ops			
Programs Supported:	Aeronautics Constellation	Science Shuttle				
	\sum SpaceComm X Station	X Other				
	Other Desc:MPCV/SLS					
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	01/2012	Estimated Completion Date: 09/30/2013				
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	Approv	ais	I			
Title	Point of Contact	Phone	Date Approved			
Task Order Monitor	Melendrez, Amy	(281) 244-1134	03/07/2013			
Task Order TMR	Macha, Mitchell	(281) 483-7059	03/08/2013			
Task Order Division	Lindner, Daniel	(281) 483-3885	03/08/2013			
FDOC Representative	Beuchaw, Karen	(281) 283-4363	03/20/2013			
Task Order Monitor	Melendrez, Amy	(281) 244-1134	03/20/2013			
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	03/21/2013			
COTR	Lowery, James	(281) 483-1064	03/21/2013			
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	0,3/28/2013			
CO's Signature	L Made		Date 3 2913			
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	ral Scope of Work					
	Description					
3.0 SRM0						
	rity Requirements ASA Resources Summary					
Estimated INA	ASA RESOURCES Summary					

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Num	Order ber: TO5-13	Revision: 2	
Fiscal Year	Mod	Labor Hours	Labor \$ C	DC \$ Travel \$	Material	Support	G&A \$	Fee \$ Total \$
2013	Original				N /	A \		
2013	1							
2013	2							
'otals:	antia sultan			<u> </u>	/ /			

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves the same.

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA?s ongoing control center space operations engineering projects.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

19.) Support Sentinel design, development, and accreditation activities (requires security clearance)

20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)

21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.

22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.

23.) Support MPCV/SLS ICD and Ops Concept development activities.

24.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team. (Mod 1)

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$40K (ISS) for travel: 10K MCCS, 30K MCC21. Not to exceed (NTE) \$2.5K travel (MPCV) tri-prgram (Mod 1). \$196k material for purchase labor (ISS) \$215k material (ISS) (Mod 2)

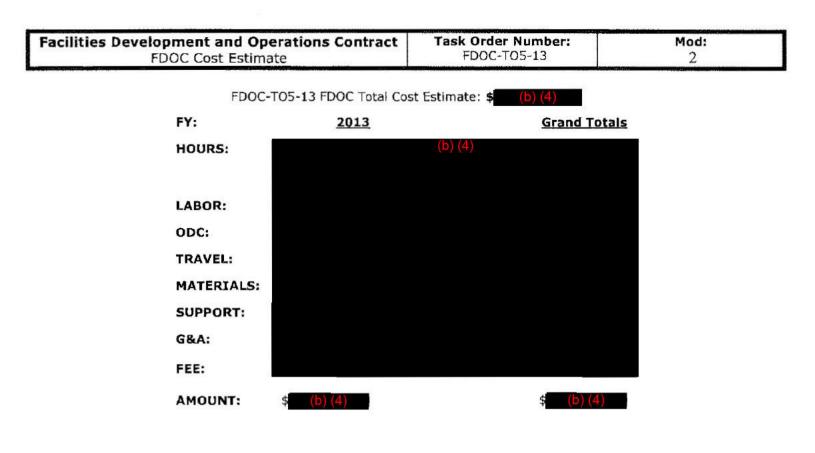
Hours: MCCS/MCC21 1.0 FTE MCCS (ISS) 19.5 FTE MCC21 (ISS)(Mod 2) 0.5 FTE MOFD CCB Directive support (ISS) 2.0 FTE (MPCV) 0.32 FTE Boeing Support (CST-100) (NTE 78.9K) (Mod 1, Mod 2) 0.25 FTE MOD led tri-program assessment support (MPCV) (NTE 43.5K) (Mod 1)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO5-13	2

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

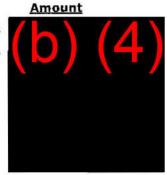
PSLA: None Specified **INCREMENTALLY FUNDED: NO**

WBS INFORMATION:

WBS

609524.09.03.02.03.09.03 609524.09.03.02.03.36.04 747797.07.02.01.10.02 804911.02.05.1680.13

WBS Total:



			Date Printed: 05/07/2013		
Facilities Development	and Operations Contract	Task Order Number:	Mod:		
Facility Engineering and S	Support Services Task Order	FDOC-T05-13	3		
Contractor: Lockheed Martin (Corporation	Contract Number: NNJ09HD4	6C		
GFY: 13	Multiyear: No	SOW Ref: 3.3.4			
Title: System Engineering and	Integration Support				
Mission Directorates Supported:		🖵 External 🔽 Science	X Space Ops		
Programs Supported:	Aeronautics Constellation	Science Shuttle			
riograms Supported.	SpaceComm X Station	X Other			
	Other Desc:MPCV/SLS	A other			
	Other Desc: MFC V/SLS				
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	Approv				
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Melendrez, Amy	(281) 244-1134	04/03/2013		
Task Order TMR	Macha, Mitchell	(281) 483-7059	04/04/2013		
Task Order Division	Lindner, Daniel	(281) 483-3885	04/04/2013		
FDOC Representative	Beuchaw, Karen	(281) 283-4363	04/23/2013		
Task Order Monitor	Melendrez, Amy	(281) 244-1134	04/23/2013		
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	04/23/2013		
COTR	Lowery, James	(281) 483-1064	05/06/2013		
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	5/2/13		
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2.0 Task [Description				
3.0 SRMQ					
	ity Requirements				
Estimated NA	SA Resources Summary				

Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task Num FDOC-		Revision: 3		
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2013	Original				/ -	<u> </u>		1		
2013	1									
2013	2							i 📕		
2013	3							· //		
otals:				4		/	<u> </u>	/		

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA?s ongoing control center space operations engineering projects.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MOFD CCB, MCWG, and other MOFD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MOFD CB and MOFD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

- 17.) Provide materials support as required to support this activity.
- 18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

19.) Support Sentinel design, development, and accreditation activities (requires security clearance)

20.) Provide analysis and recommendations of MCC-21 security architecture, design, test, and associated efforts in support of DD customer interests (requires security clearance)

21.) Provide design, development, and implementation expertise in support of the MCC-21 high end video solution.

22.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.

23.) Support MPCV/SLS ICD and Ops Concept development activities.

24.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team. (Mod 1)

25) Provide EFT-1 ISP support (approx 160 hours) (Mod 3)

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$40K (ISS) for travel: 10K MCCS, 30K MCC21. Not to exceed (NTE) \$2.5K travel (MPCV) tri-prgram (Mod 1). \$196k material for purchase labor (ISS) \$215k material (ISS) (Mod 2)

Hours: MCCS/MCC21 1.0 FTE MCCS (ISS) 14.5 FTE MCC21 (ISS)(Mod 2, Mod 3) 0.5 FTE MOFD CCB Directive support (ISS) 1.56 FTE (MPCV) (Mod 3) 1.32 FTE Boeing Support (CST-100) (Mod 1, Mod 2, Mod 3) 0.25 FTE MOD led tri-program assessment support (MPCV) (NTE 43.5K) (Mod 1)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

			Date Printed: 09/07/2012
Facilities Developmer	nt and Operations Contract	Task Order Number:	Mod:
-	Support Services Task Order	FDOC-TO8-13	
· · · · · · · · · · · · · · · · · · ·			
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	946C
GFY: 13	Multiyear: No	SOW Ref: 3.3.7	
Title: Alternate Facility Mana	ger		
Mission Directorates	F. Synleystin	n 🗍 External 📕 Science	X Space Ops
Supported:	Aeronautics	n 🥵 External 🧯 Science	A Space Ops
Programs Supported:	Aeronautics Constellatio	n Science Shuttle	
	SpaceComm X Station	Other	
	Other Desc:		
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Sta	art Date:	Estimated Con	pletion Date:
10	/01/2012	09/30	
<u> ////////////////////////////////////</u>	Approv	/als	<u> 1997 - Andrea Statistica (h. 1997)</u>
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Bauer, Angela	(281) 483-1398	06/29/2012
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/09/2012
Task Order Division	Lindner, Daniel	(281) 483-3885	07/09/2012
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/17/2012
Task Order Monitor	Bauer, Angela	(281) 483-1398	08/28/2012
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	08/30/2012
COTR	Lowery, James	(281) 483-1064	08/31/2012
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/07/2012
CO's Signature	this Macleon	E	Date 9/7/12
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Estimated R	esources Summary		
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	eral Scope of Work		
	Description		
3.0 SRM0			
	rity Requirements		
Estimated N	ASA Resources Summary		

Facilities Development and Operations Contract FDOC Cost Estimate Summary							Task Order Number: FDOC-T08-13		Revision:	
Fiscal Year 2013	Mod Original	Labor Hours		ODC Tra	avel M \$	aterial \$	Support \$	G&A \$	Fee \$	Total \$
Fotals:	lue (b)	(4)			(<u>) (</u>	(4)			

1.1PURPOSE

Provide assistance to or act as the Facility Manager.

1.20BJECTIVE

Ensure that safety, operations and facility support issues are resolved in a timely manner.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

The Alternate Facility Manager's safety related duties are to:

- Assist in the preparation of report for Special Assistance to Director (SAD) Monthly Telecon
- Back-up for Facility Manager at FOIG Monthly Safety Meeting
- Back-up to Facility Manager as AED Coordinator
- Assist in resolution of Facility Mishaps
- Assist with Voluntary Protection Program (VPP) actions
- Act as Fire Warden
- Participate in and resolve safety issues found Monthly Building Inspections
- Assist with Environmental Management System (EMS) and Hazmat database updates
- Assist the Facility Manager in role of Safety and Health Representative
- Assist Facility Manager with periodic review of Emergency Action Plan (EAP)

The Alternate Facility Manager's facility operations duties are to:

- Approve Fire System Outages and Testing
- Assist Facility Manager in coordinating and monitoring fire drills
- Assist Facility Manager in planning Open House and Inspection Day
- Become familiar with and assist Facility Manager in managing Memorandums of
- Understanding (MOU) between DD facilities and other facilities.
- Assist Facility Manager in the planning of daily PAO, Educational Outreach, Space Center Houston and VIP visits
- Ensure guides are available for all tours
- Act as tour guide
- Act as back-up to Facility Manager in approving Form 722A's (official visitors)
- Approve Friends and Family Visits (ERVBs)
- Respond to Hot and Cold Calls
- Respond to Building Issues

- Assist Facility Manager in writing and maintaining Hurricane Shutdown Procedures For Computer Equipment And Air Conditioning

- Support the resolution of Space Center Houston Issues
- Support the resolution of National Historical Monument Issues
- Assist the Facility Manager with visits by museum and historical site survey teams
- Assist the Facility Manager in working all aspects of Shuttle retirement

The Alternate Facility Manager's facility support duties are to:

- Assist the Facility Manager with the annual Major Facilities Utilization Report (headquarters requirement coordinated by COD)

- Assist the Facility Manager with the Major Facilities Inventory (headquarters requirement coordinated by COD)

- Develop and Submit MCRR, CoF and WAD Projects
- Respond to Physical Security Issues (Card readers, doors, personnel, etc.)
- Attend Pre-Construction Briefings and Walkthroughs
- Attend contractor project meetings and provide status to the Facility Manager
- Review contractor facility plans and report impacts to the Facility Manager
- Provide overall facility support including, but not limited to, support of maintenance,

operations, and engineering. This effort includes activities such as analysis and integration

- Support continuous improvement efforts to improve overall efficiency of facility operations.
- This effort includes activities such as process improvements and design reviews
- Evaluate floor-space utilization requests for present and future occupants
- Assist the Facility Manager with filming coordination

2.2NASA INPUT REQUIREMENTS

None required.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Labor: 2 FTEs with facility split as follows:

1 FTE - ISS - MCCS

1 FTE - ISS - TS

Alternate Facility Manager may require travel to support Facility-related safety training and/or benchmarking activities. Travel plan not to exceed \$2K.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

Date Printed: 09/07/2012

	nt and Operations Contract	Task Order Number:	Mod:			
Facility Engineering and	Support Services Task Order	FDOC-TO9-13				
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C			
CEV. 12	Multivoor No	COW Date 2 2 1				
GFY: 13	Multiyear: No	SOW Ref: 3.3.1				
Title: Ground Segment Contro	ol Board Technical Support					
Mission Directorates Supported:	Aeronautics	on 🗖 External 🗖 Science	X Space Ops			
Programs Supported:	Aeronautics Constellation	Science Shuttle				
	SpaceComm X Station Other Desc:	C Other				
	Sched	Jule				
	art Date:	Estimated Completion Date:				
10/	/01/2012	09/30	/2013			
	Approv	vals				
	Delat of Contract					
Title Task Order Monitor	Point of Contact Gowda, Shashi	Phone (281) 483-7057	Date Approved 07/02/2012			
Task Order TMR	Macha, Mitchell	(281) 483-7057	07/10/2012			
Task Order Division	Lindner, Daniel	(281) 483-3885	07/10/2012			
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/17/2012			
Task Order Monitor	Gowda, Shashi	(281) 283-4365	08/28/2012			
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	08/30/2012			
COTR	Lowery, James	(281) 244-0004 (281) 483-1064	08/31/2012			
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/07/2012			
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	ral Scope of Work					
	Description					
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	rity Requirements					
Estimated N/	ASA Resources Summary					

Facilities Development and Operations Contract FDOC Cost Estimate Summary							Task (Num FDOC-T	ber:	Revision:	
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Totals: Fotal Va	alue (b)	(4)	<u></u>				(+)			

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1.1PURPOSE

Provide technical support to the Ground Segment Control Board (GSCB)

- 1.20BJECTIVE
 - Ensure all GSCB activities are supported

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

The Contractor shall provide technical systems engineering and operational support to the Ground Segment Control Board (GSCB) and international Technical Interchange Meetings (TIMs).

Tasks include:

- International Ground Systems Specification (IGSS) book management
- Support Multi-lateral GSCB and TIMs at IP locations
- Review and provide comments on IP ground segment requirements
- GSCB engineering support

- Software Review Control Panel (SRCP) support for GSCB-related topics and Schedule Issues/Change Forms (SIFs)

- Support for IP End-to-End test coordination

- Administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging

- IP Network requirements and implementation coordination

2.2NASA INPUT REQUIREMENTS

All NASA Programmatic requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

1. As Identified to fulfill 2.1 Per negotiated schedule

2.4MATERIAL/TRAVEL

Labor: 1.5 FTEs 100% ISS

International trips not exceed 10K.

Domestic trips not to exceed 6K.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

			Date Printed: 09/07/2012		
Facilities Developmen	t and Operations Contract	Task Order Number:	Mod:		
	Support Services Task Order	FDOC-T010-13			
<u> </u>					
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	946C		
GFY: 13	Multiyear: No	SOW Ref: 3.3.6			
Title: COMSEC Operations					
Mission Directorates			V		
Supported:	Aeronautics Exploration	n 🔽 External 🔽 Science	X Space Ops		
Programs Supported:	Aeronautics Constellatio	n Science Shuttle			
	SpaceComm X Station	C Other			
	Other Desc:	P Other			
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Sta	rt Date:	Estimated Con	pletion Date:		
10/01/2012 09/30/2013					
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	T	T			
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Bauer, Angela	(281) 483-1398	06/29/2012		
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/09/2012		
Task Order Division	Lindner, Daniel	(281) 483-3885	07/09/2012		
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/17/2012		
Task Order Monitor	Bauer, Angela	(281) 483-1398	08/28/2012		
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	08/30/2012		
COTR	Lowery, James	(281) 483-1064	08/31/2012		
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/07/2012		
CO's Signature ('anni	this Maclean	1	Date 9/7/12		
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Task Order T	ext				
	ral Scope of Work				
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	rity Requirements				
Estimated N/	ASA Resources Summary				

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1.1PURPOSE

Provide 24/7 operations and maintenance support for the MCCS COMSEC.

1.20BJECTIVE

Provide COMSEC support for all MCCS encryption/ and other Federal and DoD requirements for secure communications.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

The Contractor shall comply with Federal and DoD requirements for secure communications, utilizing the COMSEC system. These systems shall provide for classified and sensitive but unclassified (SBU) communications using administrative and physical controls. Refer to Attachment J-2, Applicable Documents.

The Contractor shall assist with the maintenance and administration of the NASA COMSEC account for secure communications.

The Contractor shall provide encryption key management services, in accordance with secure communications requirements.

The Contractor shall provide for proper handling, storage, and destruction of classified, SBU and COMSEC materials and documentation.

The Contractor shall maintain the classified messaging capability, including associated encryption key management services, storage of classified and sensitive documentation, and the interfaces to the classified point to point circuits.

The Contractor shall provide support for the daily operations and maintenance of the Secret Internet Protocol Router System (SIPRNET).

The Contractor shall provide support for the daily operations and maintenance of the Space Shuttle and International Space Station Command Encryption Systems.

2.2NASA INPUT REQUIREMENTS

All NASA programmatic requirement documents apply. Specific Federal secure communications documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

1. NSTISSI 4005 ? Safeguarding and Control of Communications Security Material.

2. NSTISSI 4000 ? Cryptographic Equipment Maintenance and Training.

3. NSTISSI 3005 ? Safeguarding and Control of Data Encryption Standard (DES) Equipment and Associated Unclassified Communications Security Aids.

- 4. NSTISSI 4001 ? Controlled COMSEC Items (CCI).
- 5. NSTISSI 4004 ? Routine Destruction and Emergency Protection of COMSEC Material.
- 6. NSTISSI 7000 ? TEMPEST Countermeasures for Facilities
- 7. NSTISSAM TEMPEST/2-95 ? Red/Black Installation Guidance
- 8. FIPS Pub. 140-2 ? Security Requirements for Cryptographic Modules.
- 9. Special Publication 800-21 ? Guideline for Implementing Cryptography in the Federal Government.
- 10. FIPS Pub. 197 ? Advanced Encryption Standard (AES), specifies the AES algorithm.
- 11. FIPS Pub. 46-3 ? Data Encryption Standard (DES)
- 12. FIPS Pub. 81 ? DES Modes of Operation
- 13. FIPS Pub. 74 ? Guidelines for Implementing and Using DES
- 14. NASA/USAF Interagency Agreement for COMSEC, Attachment F-1, COMSEC Maintenance Support Plan, dated 6/83.
- 15. NSTS-22241 ? COMSEC Key Control Agreement.
- 16. COMSEC Maintenance Support Plan, Attachment F-1
- 17. NASA Policy and Requirement (NPR) 2810 (Current Revision)
- 18. NASA Communications Security (COMSEC) Classification Guide.
- 19. NASA Center Office of Records (COR) COMSEC Standard Operating Procedures (CSOP) Complete Set

Working knowledge:

1. ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

2. Maintenance and associated Installation of the ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

3.) MCCS Comsec facility and interfaces to MCCS. 2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Labor:

8 FTE - ISS

Travel: Travel will be required to support COMSEC requirements. COMSEC travel should not to exceed \$6K. This travel budget is planned to accommodate:

- 2 domestic trips for BCC/HOSC activation and Hurricane support. Each trip is a 1 week duration for 2 people.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW 1.3.2.1, Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.

			Date Printed: 09/07/201			
	t and Operations Contract Support Services Task Order	Task Order Number: FDOC-TO11-13	Mod:			
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD4	16C			
GFY: 13	Multiyear: No	SOW Ref: 3.3				
Title: Systems Engineering Si	upport for Mission Operation Project	t in Support of MPCV				
Mission Directorates Supported:	Aeronautics	External 🗔 Science	X Space Ops			
Programs Supported:	Aeronautics Constellation SpaceComm Station Other Desc:MPCV	n Science Shuttle X Other				
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	rt Date: /01/2012	Estimated Completion Date: 09/30/2013				
	Approv	als	and a second the second se			
Title	Point of Contact	Phone	Date Approved			
Task Order Monitor	Ward, Dawn	(281) 483-6145	07/11/2012			
Task Order TMR	Macha, Mitchell	(281) 483-7059	07/11/2012			
Task Order Division	Lindner, Daniel	(281) 483-3885	07/11/2012			
FDOC Representative	Beuchaw, Karen	(281) 283-4363	08/17/2012			
Task Order Monitor	Ward, Dawn	(281) 483-6145	08/28/2012			
NASA Resource Analyst	Hewett, Benjamin	(281) 244-6604	08/30/2012			
COTR	Lowery, James	(281) 483-1064	08/31/2012			
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	09/07/2012			
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Facilities Developm FDOC Cost				ontract	Task Order Number: FDOC-TO11-13		Revision:	
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1.1PURPOSE

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.

1.20BJECTIVE

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects(e.g. MCC-21, TS-21, UA-21) for applicability to the MOP baseline.

2.0 TASK DESCRIPTION 2.1DESCRIPTION OF WORK

1.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate MPCV programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, CARD, C3I IOS) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

b.) MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

2.) Provide Cradle Support

a) Determine Cradle schema change impacts to the MOP, advocate MOP needs and propose schema updates that represent MOP?s interests.

3.) Provide Technical Forum Support

a.) Provide technical support to the MPCV and MOP/ MOD forums (e.g. MOFD CCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on designated IRDs.

2.2NASA INPUT REQUIREMENTS

Access to Cradle tool and training

- Access to all MOP-level requirements and design documentation 2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS 2.4MATERIAL/TRAVEL No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.

LOE support is 1.0 FTE October 2012 through March 2013; 0.5 FTE April 2013 through September 2013. - MPCV funding.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

4.0 SECURITY REQUIREMENTS

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

			Date Printed: 08/16/2013
-	t and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-TO1-14	
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD)46C
GFY: 14	Multiyear: No	SOW Ref: 3.3.1.2	
Title: Network and Communica	ations Analysis and Integration Tea	am (NACAIT)	
Mission Directorates	F Exploration	n 🔽 External 🖵 Science	¥ 0 0
Supported:	Aeronautics	1 External / Science	X Space Ops
Programs Supported:	Aeronautics Constellation	n 🗖 Science 🗍 Shuttle	
	SpaceComm X Station	X Other	
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	rt Date:	Estimated Con	
1	01/2013)/2014
	Approva	als	
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Hervey, Jewel	(281) 483-0359	06/20/2013
Task Order TMR	ALLCORN, JON	(281) 244-8402	07/10/2013
Task Order Division	Lindner, Daniel	(281) 483-3885	07/10/2013
FDOC Representative	Beuchaw, Karen	(281) 283-4363	07/22/2013
Task Order Monitor	Hervey, Jewel	(281) 483-0359	08/07/2013
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/12/2013
COTR NASA Contracts Officer	Lowery, James Maclean, Cynthia	(281) 483-1064 (281) 244-5903	08/12/2013
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Fiscal YearMod LaborLabor \$ODC \$Travel \$Material S2014OriginalImage: Control of the second secon	Support \$ G&A \$	Fee \$ Total \$

1.1PURPOSE

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.

1.20BJECTIVE

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS and GSDO program tasks delegated to MOD to execute on behalf of the ISS, MPCV, SLS and GSDO programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

-Determine communication needs for ISS, MPCV, SLS and GSDO operational support among all elements that support the ISS, MPCV, SLS and GSDO Programs

-Gather and consolidate communications requirements into draft versions of the MSRD

-Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, MPCV, SLS and GSDO Programs on implementation and actual need of communication services

-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements

-Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)

-Provide coordination point of contact for NISN for communications schedules

-Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs

-Support other ISS, MPCV, SLS, and GSDO operational communications-related tasks as required by NASA

2.2NASA INPUT REQUIREMENTS

International Space Station Operational Communication Overview (IOCO)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

6 trips ISS (Domestic - 1, International - 1), MPCV (Domestic - 4) Purpose: Attend multi-agency and center requirements definition and problem resolving meeting.

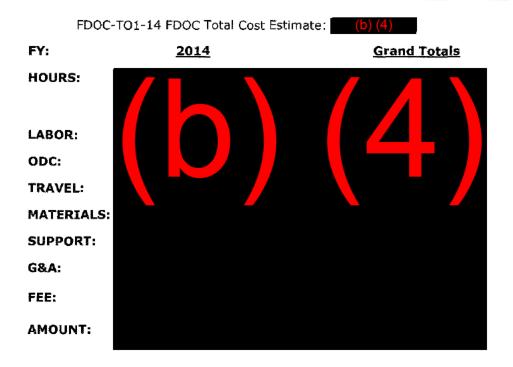
Labor: 1 FTE (.76 ISS, 0.24 MPCV)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, OUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.



Date Printed: 08/12/2013 **Facilities Development and Operations Contract** Task Order Number: Mod: FDOC-TO2-14 Facility Engineering and Support Services Task Order Contract Number: NNJ09HD46C Contractor: Lockheed Martin Corporation SOW Ref: 3.3.3 Multiyear: No GFY: 14 Title: Human Space Flight Network Operations Integration **Mission Directorates** Aeronautics Exploration External X Space Ops Supported: Shuttle TAeronautics T Constellation T Science Programs Supported: X SpaceComm X Station ${f X}$ Other Other Desc: MPCV, SLS, GSDO Schedule Estimated Completion Date: Start Date: 09/30/2014 10/01/2013 Approvals Phone Date Approved Point of Contact Title Hervey, Jewel (281) 483-0359 06/20/2013 Task Order Monitor (281) 244-8402 07/10/2013 ALLCORN, JON Task Order TMR (281) 483-3885 07/10/2013 Task Order Division Lindner, Daniel (281) 283-4363 07/22/2013 FDOC Representative Beuchaw, Karen (281) 483-0359 08/07/2013 Task Order Monitor Hervey, Jewel (281) 244-0513 08/07/2013 VICENCIO, CARLITO NASA Resource Analyst (281) 483-1064 08/08/2013 Lowery, James COTR NASA Contracts Officer (281) 244-5903 08/12/2013 Maclean, Cynthia Cunthia Maclean 8/12/13 Date CO's Signature Contents: Title - Signature Page Estimated Resources Summary Task Order Text 1.0 General Scope of Work 2.0 Task Description 3.0 SRMOA 4.0 Security Requirements Estimated NASA Resources Summary

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task Order Revision: Number: FDOC-TO2-14		
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Task Order Number: FDOC-TO2-14

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

Tasks include, but are not limited to, the following:

-Support in the preparation of the Certificate of Flight Readiness (CoFR).

-Assist the NSG and NACAIT in planning the integrated implementation of

space communications data services required to support HSF missions.

-Evaluate required endorsement codes within the CoFR implementation plan

-Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated services

-Identify problem areas in providing the services with options for workarounds in the event of service interruption. -Support all HSF Readiness Reviews

-Provide voice, video, and data assessments for mission services implementation

-Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

2.2NASA INPUT REQUIREMENTS

Network Operations Directive (NOD)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Purpose: Attend Technical Interchange meetings and operational readiness reviews.

Labor: 1.92 FTE (MPCV) 1.08 FTE (ISS)

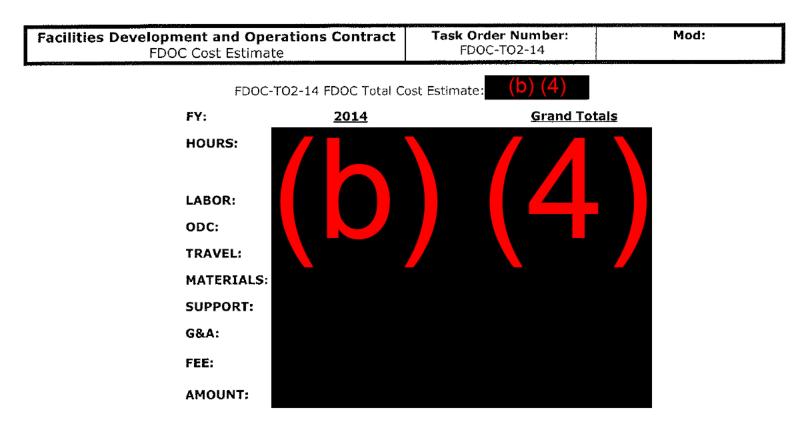
Travel: \$20,000 - 12 trips (9 MPCV, 3 ISS).

SAFETY, RELIABILITY, MAINTAINABILITY, OUALITY ASSURANCE 3.0

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

SECURITY REQUIREMENTS 4.0

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.



08/04/2014

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	and Operations Contract	Task Order Number:	Mod:		
Facility Engineering and S	upport Services Task Order	FDOC-TO2-14	1		
Contractor: Lockheed Martin C	orporation	Contract Number: NNJ09HD	46C		
GFY: 14	Multiyear: No	SOW Ref: 3.3.3			
Title: Human Space Flight Netw	ork Operations Integration				
Mission Directorates Supported:	Aeronautics Exploration	External Science	X Space Ops		
Programs Supported:	Aeronautics 🗖 Constellation	Science Shuttle			
	${f X}$ SpaceComm ${f X}$ Station	X Other			
	Other Desc:MPCV, SLS, GSD	0			
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Start	Date:	Estimated Com	pletion Date:		
	1/2013	09/30,			
	Approv	als			
			[
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Hervey, Jewel	(281) 483-0359	06/19/2014		
Task Order TMR	ALLCORN, JON	(281) 244-8402	07/01/2014		
Task Order Division	Lindner, Daniel	(281) 483-3885	07/11/2014		
FDOC Representative	Beuchaw, Karen	(281) 283-4461	07/21/2014		
Task Order Monitor	Hervey, Jewel	(281) 483-0359	07/23/2014		
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	07/23/2014		
COTR	Lowery, James	(281) 483-1064	07/23/2014		
NASA Contracts Officer	BOLDEN, JANNETTE	(281) 244-5854	08/04/2014		
CO's Signature	Balden	D	ate <u>8/4/14</u>		
					
Contents:					
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Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2014	Original					1 1				
2014	1						4)			
otals:							• /			

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO2-14	1

1.1PURPOSE

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but are not limited to, the following:

-Support in the preparation of the Certificate of Flight Readiness (CoFR).

-Assist the NSG and NACAIT in planning the integrated implementation of

space communications data services required to support HSF missions.

-Evaluate required endorsement codes within the CoFR implementation plan

-Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated services

-Identify problem areas in providing the services with options for workarounds in the event of service interruption. -Support all HSF Readiness Reviews

-Provide voice, video, and data assessments for mission services implementation

-Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

2.2NASA INPUT REQUIREMENTS

Network Operations Directive (NOD)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Purpose: Attend Technical Interchange meetings and operational readiness reviews.

Labor: 1.92 FTE (MPCV) 1.08 FTE (ISS)

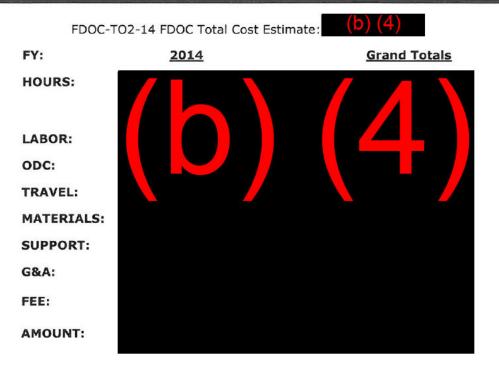
Travel: 15 trips (12 MPCV, 3 ISS).

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.



			Date Printed: 08/08/201.
	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-TO3-14	
Contractor: Lockheed Martin	1 Corporation	Contract Number: NNJ09HD)46C
GFY: 14	Multiyear: No	SOW Ref: 3.3.4	
Title: UA - System Engineerii	ng and Integration Support		
Mission Directorates		<u> </u>	▼ 7
Supported:	Aeronautics Exploration	n 🔽 External 🔽 Science	X Space Ops
Programs Supported:	Aeronautics Constellation	n 🚺 Science 🚺 Shuttle	
	\square SpaceComm $\mathbf X$ Station	Other	
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Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Wolfer, Eric	(281) 483-6709	06/27/2013
Task Order TMR	ALLCORN, JON	(281) 244-8402	06/27/2013
Task Order Division	Lindner, Daniel	(281) 483-3885	06/28/2013
FDOC Representative	Beuchaw, Karen	(281) 283-4363	07/22/2013
Task Order Monitor	Wolfer, Eric	(281) 483-6709	08/02/2013
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/02/2013
COTR	Lowery, James	(281) 483-1064	08/02/2013
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	08/08/2013
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Contents:			
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2.0 Task	Description		
3.0 SRM(
	rity Requirements		
Estimated N	ASA Resources Summary		

Facilities Development and Operations Contract FDOC Cost Estimate Summary			Task Order Number: FDOC-TO3-14		Revision:			
Fiscal Year	Mod	Labor Hours	Labor \$	Travel \$	the second second second	Support \$	G&A \$	Fee \$ Total \$
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Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO3-14	

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for User Applications.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

 Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for User Applications.
 Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the User Application capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.

12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MSD CCB, ITCP, UAWG, and other MSD Panels and Working Groups). Status changes and issues as required.

14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration,

and distribution methods and respond to actions from the MSD CCB and MSD Panels and Working Groups as required. 16.) Support UAS activities by supplying information as requested on UAS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4 MATERIAL/TRAVEL

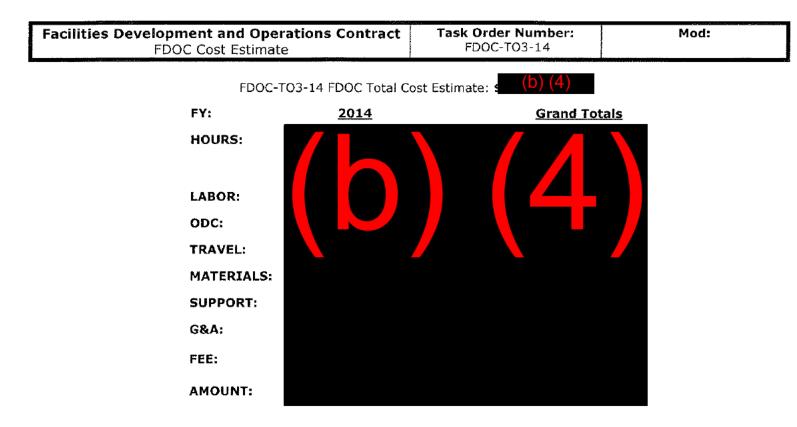
ISS ? 4.0 FTE Special Projects

Travel requirements: Not to exceed \$5K (ISS)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS



			Date Printed: 08/08/201	
	nt and Operations Contract d Support Services Task Order	Task Order Number: FDOC-TO4-14	Mod:	
Contractor: Lockheed Martir	n Corporation	Contract Number: NNJ09HD	46C	
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GFY: 14	Multiyear: No	SOW Ref: 3.3.5		
Title: Architectural and Engin	eering Support		······	
Mission Directorates Supported:	Aeronautics	n 🖵 External 📕 Science	X Space Ops	
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)/01/2013	Estimated Completion Date: 09/30/2014		
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Title	Point of Contact	Phone	Date Approved	
Task Order Monitor	Wolfer, Eric	(281) 483-6709	06/27/2013	
Task Order TMR	ALLCORN, JON	(281) 244-8402	06/27/2013	
Task Order Division	Lindner, Daniel	(281) 483-3885	06/28/2013	
FDOC Representative	Beuchaw, Karen	(281) 283-4363	07/22/2013	
Task Order Monitor	Wolfer, Eric	(281) 483-6709	08/02/2013	
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/02/2013	
COTR	Lowery, James	(281) 483-1064	08/02/2013	
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	08/08/2013	
CO's Signature	uthia Maclim		Date 8/8/13	
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3.0 SRM				
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Facilities Development and Operations Contract FDOC Cost Estimate Summary			Task Order Number: FDOC-TO4-14		Revision:					
Fiscal Year	Mod	Labor Labo Hours	r \$	ODC \$	Trave	and the second second	laterial S	Support \$	G&A \$	Fee \$ Total \$
2014	Original	VIEW						(Λ)		
Totals:								(+)		

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1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Systems Division (MSD) Information Technology and Special Projects Branch(DD2) including the Operation Technology Facility (OTF).

The OTF is a NASA-managed MSD facility which supports the evaluation, development, and testing of new technologies and architectures destined for application in MSD facilities.

This Task Order is to provide system engineering, strategic engineering and planning, and architecture definition support to the OTF. This Task Order includes support for the requirements analysis and definition, strategic plan development, Space Data System standards development, IT Plan Management, prototype development, and testing of system architectures in support of MSD goals.

This includes monitoring, assessing, and functioning as a member of MSD engineering teams and forums as requested. This support is to promote reliable, robust, secure and useable MSD systems for mission operators that can accommodate the change frequency required to support the human exploration and development of space while protecting safety and mission success.

This Task also includes analysis of the Mission Control Center (MCC) architecture and the associated processes used to deliver user applications to the MCC in support of the International Space Station (ISS) flight control team. Investigate alternative architectures, approaches and processes and provide recommendations that will enable the Mission Operations Directorate (MOD) to reduce the cost and failure rates associated with the current design.

This Task includes support both prototyping and implementation of capabilities to support Equipment Replacement (ER) activities as requested to assist with the definition of cost effective architectures for systems undergoing replacement due to expiring lifetimes.

This Task Order provides engineering support in the following technical areas:

- OTF Technology Development
- MSD Equipment Replacement Support
- MCCx Client Development Support
- Future Network System Development Support
- MSD Process Automation Support
- Support for third party application development in the OTF (Ames, etc)
- IT Plan Management and Planning
- Support for CCSDS Standards Development

1.20BJECTIVE

Identify key areas for change and facilitate budget and schedule activities to:

- 1.) Improve system performance, usability and accessibility
- 2.) Reduce overall MSD facility life cycle cost
- 3.) Support development of effective Space Data Systems Standards

Monitor, assess and function as a member of MSD engineering teams and forums as requested to support OTF responsibilities for the following.

- 1.) Long term strategy and vision of MSD facilities/systems in 5, 10, & 20 year increments.
- 2.) Long-range view of requirements, technology, performance and systems obsolescence.
- 3.) Defining and managing a long term system architecture that meets MOD requirements.
- 4.) Provide development support to OTF prototyping efforts.

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed. **2.0 TASK DESCRIPTION**

2.1DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MSD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

1.a.) Define and frame problems within the facility to overall MOD perspective; integrate issues across organizations and systems; maintain balanced facility and flight operations perspective.

1.b.) Ensure all organizations and contracts perspectives are represented in architecture and process design decisions.

1.c.) Facilitate costing impact assessments for differing strategic architecture approaches for all elements.

1.d.) Foster system engineering excellence in facility and systems to facilitate continuous improvement in function, cost and performance.

2.) Support prototype projects, assessments, and presentations as requested.

3.) Provide Weekly status reports.

- 4.) Conduct trade studies and engineering analyses as requested.
- 5.) Provide support for MSD ER Projects as assigned.
- 6.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

2.2NASA INPUT REQUIREMENTS

All DD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of personnel (FTE): 8

3 FTE - OTF Administrative Support (ISS)

4 FTE - Special Projects (ISS)

1 FTE - SCAN-CCSDS Data Standards support (Track CCSDS support separately)

Travel requirements

SCAN-CCSDS Travel support not to exceed \$20K, OTF not to exceed \$10K (ISS)

Trip destination: International and domestic (CCSDS), domestic (OTF)

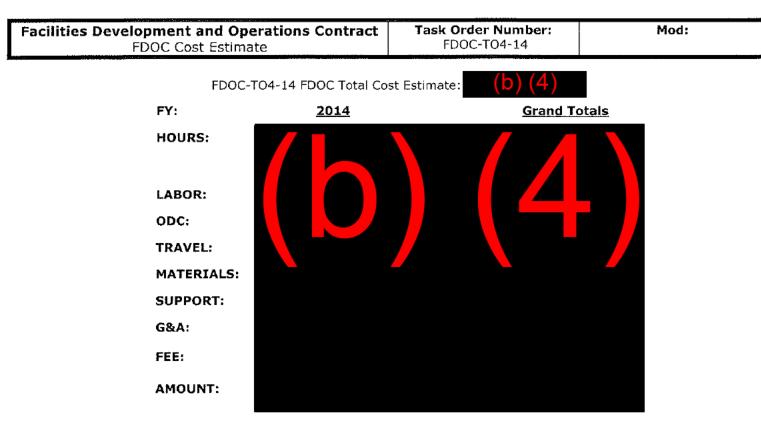
Trip purpose: Support CCSDS Data Standards Working Group and operations technology research and collaboration Trip duration: N/A

Materials not to exceed \$5K - SCAN CCSDS, \$300K ? Special Projects

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS



			Date Printed: 08/14/201	
	nt and Operations Contract I Support Services Task Order	Task Order Number: FDOC-TO5-14	Mod:	
Contractor: Lockheed Martin	1 Corporation	Contract Number: NNJ09HD4	46C	
GFY: 14	Multiyear: No	SOW Ref: 3.3.4		
Title: System Engineering ar	d Integration Support			
Mission Directorates Supported:	Aeronautics	External C Science	X Space Ops	
Programs Supported:	CAeronautics Constellation SpaceComm X Station Other Desc:MPCV/SLS/CST-	${f X}$ Other		
	Schedu			
	art Date:)/01/2013	Estimated Completion Date: 09/30/2014		
	Approv	als		
Title	Point of Contact	Phone	Date Approved	
Task Order Monitor	Melendrez, Amy	(281) 244-1134	06/18/2013	
Task Order TMR	ALLCORN, JON	(281) 244-8402	06/18/2013	
Task Order Division	Lindner, Daniel	(281) 483-3885	06/18/2013	
FDOC Representative	Beuchaw, Karen	(281) 283-4363	07/22/2013	
Task Order Monitor	Melendrez, Amy	(281) 244-1134	08/07/2013	
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/07/2013	
COTR	Lowery, James	(281) 483-1064	08/08/2013	
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	08/14/2013	
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Task Order 1.0 Gen 2.0 Task 3.0 SRM 4.0 Secu	lesources Summary Text eral Scope of Work description			

Facilities Development and Operations Contract FDOC Cost Estimate Summary			Task Order Rev Number: FDOC-T05-14			sion:				
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material S	Support \$	G&A \$	Fee \$	Total \$
2014	Original					'h) (
Totals:										
NOTE: Th	ne FDOC to	tal estimate	d cost is	(b) (4)	and the Co	ntracting (Officer's si	gnature ap	proves a to	otal value of

Facilities Development and	Operations Contract	Task Order Number:	Mod:
Task Order T	ext	FDOC-TO5-14	

1.1PURPOSE

Provide Mission Control Center Systems system engineering and sustaining support services.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests. 20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.

21.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical

Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4 MATERIAL/TRAVEL

\$5K (ISS) for travel \$200k material for purchase labor (ISS)

Personnel: 10 FTE ? MCCS (ISS) 2.5 FTE ? MCCS (MPCV)

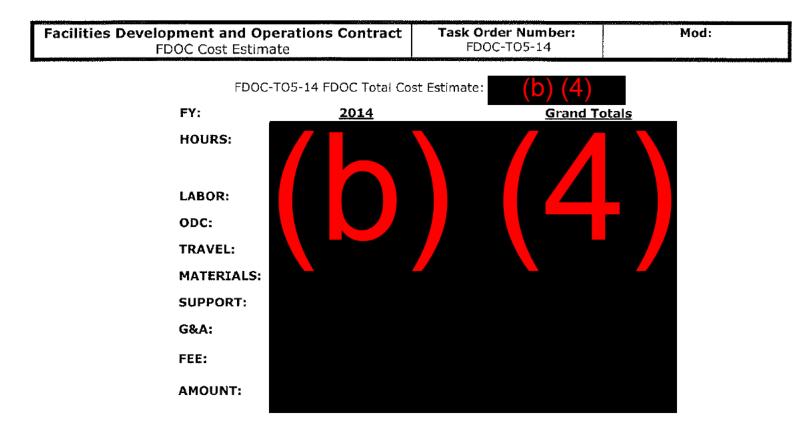
2.0 FTE ? MCCS (CST-100) equivalent thru May 2014

0.5 FTE ? MSD CCB Directive 1 Schedule support (ISS)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS



			Date Printed: 12/11/2013
	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-T05-14	3
Contractor: Lockheed Marti	Corporation	Contract Number: NNJ09HD4	460
Contractori Escriteca Planti		contract number: https://www.self.	
GFY: 14	Multiyear: No	SOW Ref: 3.3.4	
Title: System Engineering ar	nd Integration Support		
Mission Directorates Supported:		External C Science	X Space Ops
Programs Supported:	Aeronautics Constellation	Science Shuttle	
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	Other Desc:MPCV/SLS/CST-1		
	Schedu		an a
	art Date:	Estimated Com	
10	2014		
	Approv	als	
Title	Point of Contact	Dhana	Data Annual
Task Order Monitor	Melendrez, Amy	Phone (281) 244-1134	Date Approved 11/22/2013
Task Order TMR	ALLCORN, JON	(281) 244-8402	11/22/2013
Task Order Division	Lindner, Daniel	(281) 483-3885	11/22/2013
FDOC Representative	Beuchaw, Karen	(281) 283-4363	12/05/2013
Task Order Monitor	Melendrez, Amy	(281) 244-1134	12/06/2013
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	12/06/2013
COTR	Lowery, James	(281) 483-1064	12/06/2013
NASA Contracts Officer	Jannette Bolden	(281) 244-5854	12/11/2013
CO's Signature	L 130/1UM	Di	ate $\frac{12}{2}$
Contents:			
Title - Signa	ture Page		
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Task Order	Text		
	eral Scope of Work		
	Description		
3.0 SRM			
	rity Requirements		
Estimated N	ASA Resources Summary		

Facilities Development and Operations Contract FDOC Cost Estimate Summary			Task Order Number: FDOC-T05-14	Revision: 3	
Fiscal Year	Mod	Labor Labor & ODC \$ Travel \$ Material Hours	Support \$ G&A \$	Fee \$ Total \$	
2014	Original				
2014	1				
2014	2				
2014	3				
Cotals:					

NOTE: The purpose of TO5-14, Revision 3 is to reduce the number of FTEs from 10 to 4.5 (1 Engineer 3 and 4.5 Engineer 4) in support of MCC-21 requirements. The Contracting Officer' signature approves the reduction in total cost for TO5-14, Rev 3 by (b) (4) As a result of this revision, the FDOC5-14 total estimated cost is (b) (4)

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Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO5-14	3

1.1PURPOSE

Provide Mission Control Center Systems system engineering and sustaining support services.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests. 20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.

21.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$5K for travel (ISS MCC21) \$200k material for purchase labor (ISS MCC21)

Personnel: 4.5 FTE – MCCS (ISS MCC21) 2.5 FTE â€" MCCS (ISS MCCS)

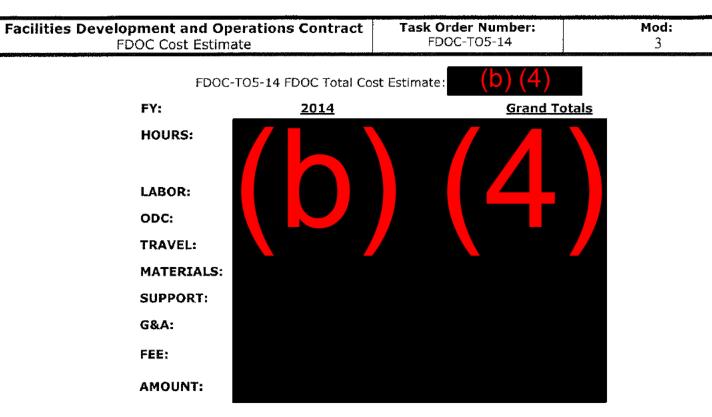
2.0 FTE – MCCS (CST-100 MCCS) equivalent thru May 2014

0.5 FTE â€" MSD CCB Directive 1 Schedule support (ISS MCC21)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO5-14	3

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>

WBS Total:

			Date Printed: 03/12/201-			
-	nt and Operations Contract I Support Services Task Order	Task Order Number:FDOC-T05-14	Mod: 4			
Contractor: Lockheed Marti	n Corporation	Contract Number: NNJ09HD4	6C			
GFY: 14	Multiyear: No	SOW Ref: 3.3.4				
Title: System Engineering ar	nd Integration Support					
Mission Directorates Supported:		External Science	X Space Ops			
Programs Supported:	F Aeronautics F Constellation	Science F Shuttle				
· · · ·	\square SpaceComm $$ X Station	${f X}$ Other				
	Other Desc:MPCV/SLS/CST-1	100				
an an an an an Anna an Anna Althur an an Anna.	Sched	ule	an a			
	art Date:	Estimated Comp				
10/01/2013 09/30/2014						
	Approv	als				
Title	Point of Contact	Phone	Date Approved			
Task Order Monitor	Cobb, Carey	(281) 244-8564	03/04/2014			
Task Order TMR	ALLCORN, JON	(281) 244-8402	03/04/2014			
Task Order Division	Lindner, Daniel	(281) 483-3885	03/04/2014			
FDOC Representative	Beuchaw, Karen	(281) 283-4461	03/10/2014			
Task Order Monitor	Cobb, Carey	(281) 244-8564	03/12/2014			
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	03/12/2014			
COTR	Lowery, James	(281) 483-1064	03/12/2014			
NASA Contracts Officer	BOLDEN, JANNETTE	(281) 244-5854				
CO's Signature / /////	iti Bolnin	Da	ite <u>3/11/14</u>			
Contents: Title - Signa Estimated R Task Order 1.0 Gene 2.0 Task 3.0 SRM 4.0 Secu	lesources Summary Text eral Scope of Work t Description					

Facilities Development and Operations Contract FDOC Cost Estimate Summary		Task Order Number: FDOC-T05-14	Revision: 4	
Fiscal Year	Mod	Labor Labor \$ ODC \$ Travel \$ Material Hours \$	Support G&A \$	Fee \$ Total \$
2014	Original			
2014	1			
2014	2			
2014	3			
2014	4			
otals:				
	ne FDOC tot	tal estimated cost i (b) (4) and the Contracting (Officer's signature ap	proves a total value

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Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO5-14	4

1.1PURPOSE

Provide Mission Control Center Systems system engineering and sustaining support services.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.

20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.

21.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

\$5K for travel (ISS MCC21) \$200k material for purchase labor (ISS MCC21)

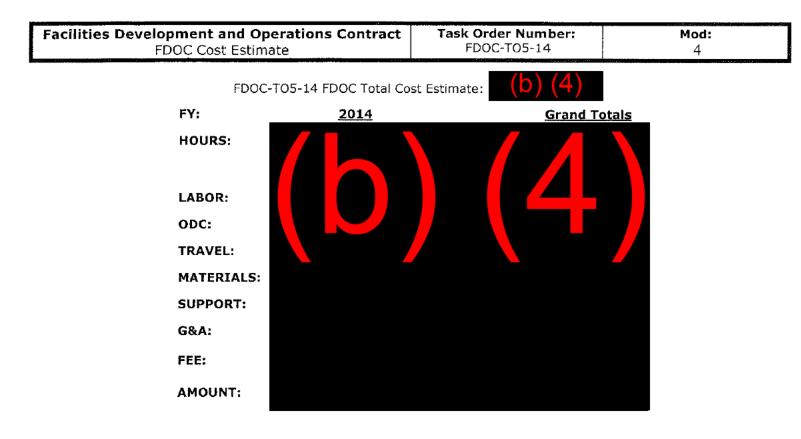
Personnel: 4.5 FTE â€" MCCS (ISS MCC21) 2.5 FTE MCCS (ISS MCCS) from 10/1/13 through 3/15/14 and reducing to 1.5 FTE from 3/16/14 through 9/30/14 1.405 FTE MCCS (CST-100 MCCS) from 10/1/13 thru 8/31/14

0.5 FTE MSD CCB Directive 1 Schedule support from 10/1/13 through 4/30/14 (ISS MCC21)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO5-14	4

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>

WBS Total:

			Date Printed: 08/14/2014			
	nt and Operations Contract	Task Order Number: FDOC-TO5-14	Mod:			
Facility Engineering and	Support Services Task Order	FD0C-105-14	5			
Contractor: Lockheed Martin	Componition	Contract Number: NNJ09HD4				
Contractor: Luckneeu Martin						
GFY: 14	Multiyear: No	SOW Ref: 3.3.4				
Title: System Engineering an	d Integration Support					
Mission Directorates Supported:	Aeronautics 🗖 Exploration	External Science	X Space Ops			
Programs Supported:	Aeronautics 🗖 Constellation	🗖 Science 🗖 Shuttle				
	$lacksquare$ SpaceComm $m{X}$ Station	${f X}$ Other				
	Other Desc:MPCV/SLS/CST-1	100				
	Schedu	ule				
Sta	art Date:	Estimated Com	pletion Date:			
10	/01/2013	09/30/2	2014			
	Approv	als				
Title	Point of Contact	Phone (201) 244 85(4	Date Approved			
Task Order Monitor Task Order TMR	Cobb, Carey ALLCORN, JON	(281) 244-8564 (281) 244-8402	07/29/2014 07/29/2014			
Task Order Division	Lindner, Daniel	(281) 483-3885	07/29/2014			
FDOC Representative	Beuchaw, Karen	(281) 283-4461	08/07/2014			
Task Order Monitor	Cobb, Carey	(281) 244-8564	08/07/2014			
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/11/2014			
COTR	Lowery, James	(281) 483-1064	08/13/2014			
NASA Contracts Officer	NEVELS, CHRYSTAL	(281) 792-7842	08/14/2014			
CO's Signature			ate			
Contents:						
Title - Signa	ture Page					
	esources Summary					
Task Order	,					
	eral Scope of Work					
	Description					
3.0 SRM						
4.0 Secu	rity Requirements					
Estimated N	ASA Resources Summary					

Facilities Development and Operations Contract FDOC Cost Estimate Summary			Task Order Number: FDOC-TO5-14	Rev	ision: 5			
Fiscal Year	Mod	Labor	Labor \$	ODC \$	Travel \$ Material	Support G&A S	Fee \$	Total \$
2014	Original							
2014	1							
2014	2							
2014	3							
2014	4							
2014	5							
Totals:								
NOTE: T	he FDOC to	otal estimat	ed cost is 3	(b) (4)	and the Contracting	g Officer s signature aj	pproves a t	otai vaiue oi

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO5-14	5

1.1PURPOSE

Provide Mission Control Center Systems system engineering and sustaining support services.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests. 20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.

21.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4 MATERIAL/TRAVEL

\$5K for travel (ISS MCC21) \$200k material for purchase labor (ISS MCC21)

Personnel: 4.5 FTE – MCCS (ISS MCC21) 2.5 FTE â€" MCCS (ISS MCCS) from 10/1/13 through 3/15/14 and reducing to 1.5 FTE from 3/16/14 through 9/30/14 1.405 FTE â€" MCCS (CST-100 MCCS) from 10/1/13 thru 9/30/14.

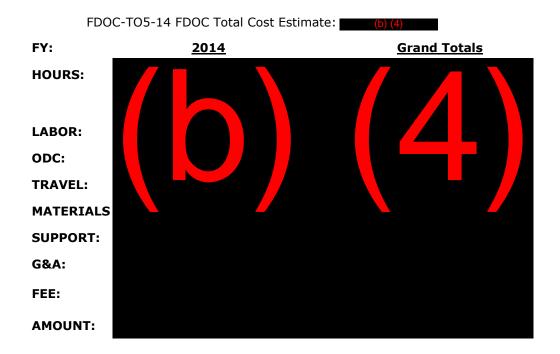
0.5 FTE â€" MSD CCB Directive 1 Schedule support from 10/1/13 through 4/30/14 (ISS MCC21)

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Task Order Number: FDOC-TO5-14 **Mod:** 5



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO5-14	5

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>

WBS Total:

			Date Printed: 08/08/201		
Facilities Developme	nt and Operations Contract	Task Order Number:	Mod:		
Facility Engineering and	Support Services Task Order	FDOC-TO6-14			
Contractor: Lockheed Martin	n Corporation	Contract Number: NNJ09HD	46C		
GFY: 14	Multiyear: No	SOW Ref: 3.3.1			
Title: Systems Security Engi	neering and Integration Support				
Mission Directorates		External Science	Vo		
Supported:	Aeronautics Exploratior	External Science	X Space Ops		
Programs Supported:	Aeronautics Constellation	Science Shuttle	<u></u>		
	SpaceComm X Station	Other			
	Other Desc:	s ··· Other			
	Schedu		andra an		
St	art Date:	Estimated Com	pletion Date:		
)/01/2013	09/30/2014			
	Approv	en e			
	Арргоч				
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Wolfer, Eric	(281) 483-6709	06/27/2013		
Task Order TMR	ALLCORN, JON	(281) 244-8402	06/27/2013		
Task Order Division	Lindner, Daniel	(281) 483-3885	06/28/2013		
FDOC Representative	Beuchaw, Karen	(281) 283-4363	07/22/2013		
Task Order Monitor	Wolfer, Eric	(281) 483-6709	08/02/2013		
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/02/2013		
COTR	Lowery, James	(281) 483-1064	08/02/2013		
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	08/08/2013		
CO's Signature 🕐	inthia Maclean		Date 8/8//3		
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Contents:					
Title - Signa	ture Dage				
	esources Summary				
Task Order					
	eral Scope of Work				
	Description				
3.0 SRM					
	urity Requirements				
	ASA Resources Summary				

Facilities Development and Operations Contract FDOC Cost Estimate Summary		Task (Num FDOC-		Revision:					
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material S	Support \$	G&A \$	Fee \$ Total :
2014	Original				(h) (<u>4</u> \		
fotals:							- /		

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO6-14	

1.1PURPOSE

Provide security- engineering, analysis, and documentation and required support for Program level ground system security requirements, coordination, assessments, and incident response.

1.20BJECTIVE

Provide IT Security services for all Program level ground system security requirements development, engineering, prototyping, capabilities implementation, coordination, assessments and incident response.

- IT Security scope includes Information Technology (IT) Security, COMSec (Communications Security) and Physical Security for MSD systems. Mission systems definition includes, TS, MCCS, SSTF, Support Systems and other systems identified by MSD and included in the Facility Development and Operations Contract, identified in FDOC CWBS 1.4 ?Facility Operations? and

- Scope of systems security is identified in Federal, NASA Agency, JSC, and MSD security documents.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Provide Program level ground system security support for the ISS program. Personnel will provide security interface both internal and external to MSD regarding all aspects of IT and COMSEC security, and will act on behalf of MSD.

Provide Security Services for MSD Mission Systems and interfaces for current and future manned/commercial spaceflight including security impacts, mission systems engineering, modifications, requirements, design, interoperability with other systems, security process coordination, assessments and incident response. This support includes IT security and COMSEC security support including the Responsible COMSEC Officer (RCO) position.

IT Security services, status reporting and technical direction will be coordinated through the MSD Mission Systems ISSO (Information System Security Officer)

Personnel must have Secret Clearances, as required.

Personnel must have the ability to:

1.) Communicate technical information in both written and oral formats with target audiences ranging from detailed technical communities to senior management.

2.) Provide leadership in prototyping proposed security controls in both OTF and MSDE systems.

2.) Review and interpret proposed requirement.

3.) Determine budget, operational and security impacts to the Mission Systems.

4.) AnalyzeRFC's (internet standards "Request for Comments") and standards issued by organizations such as US Government, IEEE, CCSDS, etc. and develop requirements based on analysis.

5.) Prototype proposals/requirements and and validate capabilities. Such as protection of the commanding, telemetry and voice capabilities for the following configurations: Ground-to-Space and Space-to-Space.

2.2NASA INPUT REQUIREMENTS

All NASA programmatic requirement documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

1.) Federal IT security guidelines and requirements identified in FIPS and NIST documents.

- 2.) NASA IT security guidelines and requirements
- 3.) NASA physical security guidelines and requirements as identified in NASA 1600 series documents.
- 4.) NASA and JSC systems engineering guidelines documents.
- 5.) GSCB, NACAIT and Systems Security Engineering (formerly SART) documents
- 6.) MSD Level A's and B's and implementation documents

7.) Mission Security Concepts of operations

Working knowledge:

1.) Network, systems, and security engineering, including ground to ground, ground to space, space to space, and associated system interface technologies)

2.) Command and Control: Shuttle & Station

- 3.) Command capabilities protection mechanisms: Shuttle & Station
- 4.) International Partner interfaces to NASA, MSFC and MCCS and how those interfaces are protected.
- 5.) Comsec facility and interfaces.
- 6.) FEP and FEP-R: Shuttle & Station.
- 7.) Ground-to-Ground comm

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

4.0 FTE as defined below: 3.66 FTE - ISS 0.34 FTE - MPCV

Travel not to exceed \$5K(ISS). Trip destination: Domestic, International. Trip purpose: Program TIMs, design reviews, and Cross Cutting Operations Technology Trips/task, Training Mission Systems Security and SART specific support

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW 2.6 Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.



Page 1 of 6

F i i i i i i			Date Printed: 03/21/20		
	nt and Operations Contract d Support Services Task Order	Task Order Number: FDOC-TO6-14	Mod: 1		
Contractor: Lockheed Mar	tin Corporation	Contract Number: NNJ09HD4	46C		
GFY: 14	Multiyear: No	SOW Ref: 3.3.1			
Title: Systems Security En	gineering and Integration Support				
Mission Directorates Supported:	Aeronautics Exploration	External Science	X Space Ops		
Programs Supported:	Aeronautics Constellation SpaceComm X Station Other Desc:	Science Shuttle			
	Scho	edule			
	a rt Date: 0/01/2013	Estimated Completion Date: 09/30/2014			
·	Appr	ovals			
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Wolfer, Eric	(281) 483-6709	03/07/2014		
Task Order TMR	ALLCORN, JON	(281) 244-8402	03/07/2014		
Task Order Division	Lindner, Daniel	(281) 483-3885	03/07/2014		
FDOC Representative	Beuchaw, Karen	(281) 283-4461	03/10/2014		
Task Order Monitor	Wolfer, Eric	(281) 483-6709	03/11/2014		
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	03/11/2014		
COTR	Lowery, James	(281) 483-1064	03/11/2014		
NASA Contracts Officer CO's Signature	BOLDEN, JANNETTE	(281) 244-5854	Date 3/21/14		
Contents:					
Title - Sign	ature Page				
	Resources Summary				
Task Order					
	neral Scope of Work				
	k Description				
3.0 SRM	1QA				
	urity Requirements				
Estimated	NASA Resources Summary				

			t Estimate		ns Contrae ry	ct	Task Order FDOC-T		Revi	sion: 1
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2014 0	Original									
2014	1						4)			
Totals:							• /			

(b) (4)

	Facilities Development and Operations Contract Task Order Text	Task Order Number: FDOC-TO6-14	Mod:
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1.1 PURPOSE

Provide security- engineering, analysis, and documentation and required support for Program level ground system security requirements, coordination, assessments, and incident response.

1.2 OBJECTIVE

Provide IT Security services for all Program level ground system security requirements development, engineering, prototyping, capabilities implementation, coordination, assessments and incident response.

- IT Security scope includes Information Technology (IT) Security, COMSec (Communications Security) and Physical Security for MSD systems. Mission systems definition includes, TS, MCCS, SSTF, Support Systems and other systems identified by MSD and included in the Facility Development and Operations Contract, identified in FDOC CWBS 1.4 "Facility Operations†and

- Scope of systems security is identified in Federal, NASA Agency, JSC, and MSD security documents.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

Provide Program level ground system security support for the ISS program. Personnel will provide security interface both internal and external to MSD regarding all aspects of IT and COMSEC security, and will act on behalf of MSD.

Provide Security Services for MSD Mission Systems and interfaces for current and future manned/commercial spaceflight including security impacts, mission systems engineering, modifications, requirements, design, interoperability with other systems, security process coordination, assessments and incident response. This support includes IT security and COMSEC security support including the Responsible COMSEC Officer (RCO) position.

IT Security services, status reporting and technical direction will be coordinated through the MSD Mission Systems ISSO (Information System Security Officer)

Personnel must have Secret Clearances, as required.

Personnel must have the ability to:

1.) Communicate technical information in both written and oral formats with target audiences ranging from detailed technical communities to senior management.

- 2.) Provide leadership in prototyping proposed security controls in both OTF and MSDE systems.
- 2.) Review and interpret proposed requirement.
- 3.) Determine budget, operational and security impacts to the Mission Systems.

4.) AnalyzeRFC's (internet standards "Request for Comments") and standards issued by organizations such as US Government, IEEE, CCSDS, etc. and develop requirements based on analysis.

5.) Prototype proposals/requirements and and validate capabilities. Such as protection of the commanding,

telemetry and voice capabilities for the following configurations: Ground-to-Space and Space-to-Space.

2.2 NASA INPUT REQUIREMENTS

All NASA programmatic requirement documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

- 1.) Federal IT security guidelines and requirements identified in FIPS and NIST documents.
- 2.) NASA IT security guidelines and requirements
- 3.) NASA physical security guidelines and requirements as identified in NASA 1600 series documents.
- 4.) NASA and JSC systems engineering guidelines documents.
- 5.) GSCB, NACAIT and Systems Security Engineering (formerly SART) documents
- 6.) MSD Level A's and B's and implementation documents
- 7.) Mission Security Concepts of operations

Working knowledge:

1.) Network, systems, and security engineering, including ground to ground, ground to space, space to space, and associated system interface technologies)

- 2.) Command and Control: Shuttle & Station
- 3.) Command capabilities protection mechanisms: Shuttle & Station
- 4.) International Partner interfaces to NASA, MSFC and MCCS and how those interfaces are protected.
- 5.) Comsec facility and interfaces.
- 6.) FEP and FEP-R: Shuttle & Station.
- 7.) Ground-to-Ground comm
- 2.3 CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS
- 2.4 MATERIAL/TRAVEL
 - 4.0 FTE as defined below: 3.66 FTE - ISS
 - 0.34 FTE MPCV

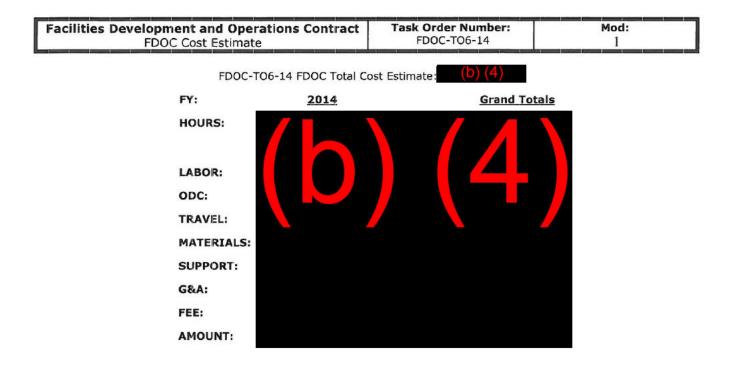
ISS Travel \$5K. Trip destination: Domestic, International. Trip purpose: Program TIMs, design reviews, and Cross Cutting Operations Technology Trips/task, Training Mission Systems Security and SART specific support MPCV Travel \$5k. Trip destination: Domestic

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW 2.6 Security Management, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.



Facilities Development and Operations Contract Estimated NASA Resources Summary	Task Order Number:Mod:FDOC-T06-141				
NASA RESOURCES GENERAL INFORMATON					
FACTORY: None Specified	PSLA:	None Specified			
IN POP BASELINE: NO	INCREMENTALLY FUNDED: NO				
WBS INFORMATION:					
WBS	Amount				

(b) (4)

WBS Total:

file://S:\BA Share2\BR\BR2 Team\Contracts\NNJ09HD46C - FDOC\FY14 TDOs\TO6-14... 3/21/2014

			Date Printed: 08/14/2013
Facilities Developmen Facility Engineering and	nt and Operations Contract Support Services Task Order	Task Order Number: FDOC-TO8-14	Mod:
Contractor: Lockheed Martir	Corporation	Contract Number: NNJ09HD	46C
GFY: 14	Multiyear: No	SOW Ref: 3.3.7	
Title: Alternate Facility Mana	ger		
Mission Directorates Supported:	Aeronautics	n 🔽 External 🔽 Science	X Space Ops
Programs Supported:	CAeronautics Constellatio SpaceComm X Station Other Desc:	n Science Shuttle	
	Sched		
	art Date:)/01/2013	Estimated Com 09/30	
	Approv	rals	
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Bauer, Angela	(281) 483-1398	06/19/2013
Task Order TMR	ALLCORN, JON	(281) 244-8402	06/19/2013
Task Order Division	Lindner, Daniel	(281) 483-3885	06/20/2013
FDOC Representative	Beuchaw, Karen	(281) 283-4363	07/22/2013
Task Order Monitor	Bauer, Angela	(281) 483-1398	07/26/2013
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	07/30/2013
COTR	Lowery, James	(281) 483-1064	08/08/2013
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	08/14/2013
CO's Signature	The Maclean	1	Date <u>8/14/2013</u>
Contents: Title - Signa Estimated F Task Order 1.0 Gen 2.0 Task 3.0 SRM 4.0 Secu	ature Page Resources Summary Text eral Scope of Work < Description		

Facilities Development and Operations Contract FDOC Cost Estimate Summary		Task Order Number: FDOC-TO8-14		Revision:						
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$		Material \$	Support \$	G&A \$	Fee \$	Total \$
2014	Original					(b) (4	4)			
Totals: NOTE: Th	e FDOC tot	al estimate	d cost is) (4) an	d the Contr	acting Of	ficer's signa	ture appro	oves a total	value of

1.1PURPOSE

Provide assistance to or act as the Facility Manager.

1.20BJECTIVE

Ensure that safety, operations and facility support issues are resolved in a timely manner.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

The Alternate Facility Manager's safety related duties are to:

- Assist in the preparation of report for Special Assistance to Director (SAD) Monthly Telecon
- Back-up for Facility Manager at FOIG Monthly Safety Meeting
- Back-up to Facility Manager as AED Coordinator
- Assist in resolution of Facility Mishaps
- Assist with Voluntary Protection Program (VPP) actions
- Act as Fire Warden
- Participate in and resolve safety issues found Monthly Building Inspections
- Assist with Environmental Management System (EMS) and Hazmat database updates
- Assist the Facility Manager in role of Safety and Health Representative
- Assist Facility Manager with periodic review of Emergency Action Plan (EAP)

The Alternate Facility Manager's facility operations duties are to:

- Approve Fire System Outages and Testing
- Assist Facility Manager in coordinating and monitoring fire drills
- Assist Facility Manager in planning Open House and Inspection Day

- Become familiar with and assist Facility Manager in managing Memorandums of Understanding (MOU) between DD facilities and other facilities.

- Assist Facility Manager in the planning of daily PAO, Educational Outreach, Space Center Houston and VIP visits
- Ensure guides are available for all tours
- Act as tour guide
- Act as back-up to Facility Manager in approving Form 722A's (official visitors)
- Approve Friends and Family Visits (ERVBs)
- Respond to Hot and Cold Calls
- Respond to Building Issues

- Assist Facility Manager in writing and maintaining Hurricane Shutdown Procedures For Computer Equipment And Air Conditioning

- Support the resolution of Space Center Houston Issues
- Support the resolution of National Historical Monument Issues
- Assist the Facility Manager with visits by museum and historical site survey teams
- Assist the Facility Manager in working all aspects of Shuttle retirement

The Alternate Facility Manager's facility support duties are to:

- Assist the Facility Manager with the annual Major Facilities Utilization Report (headquarters requirement coordinated by COD)

- Assist the Facility Manager with the Major Facilities Inventory (headquarters requirement coordinated by COD)

- Develop and Submit MCRR, CoF and WAD Projects
- Respond to Physical Security Issues (Card readers, doors, personnel, etc.)
- Attend Pre-Construction Briefings and Walkthroughs
- Attend contractor project meetings and provide status to the Facility Manager
- Review contractor facility plans and report impacts to the Facility Manager

- Provide overall facility support including, but not limited to, support of maintenance, operations, and engineering. This effort includes activities such as analysis and integration

- Support continuous improvement efforts to improve overall efficiency of facility operations. This effort includes activities such as process improvements and design reviews

- Evaluate floor-space utilization requests for present and future occupants
- Assist the Facility Manager with filming coordination

2.2NASA INPUT REQUIREMENTS

None required.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

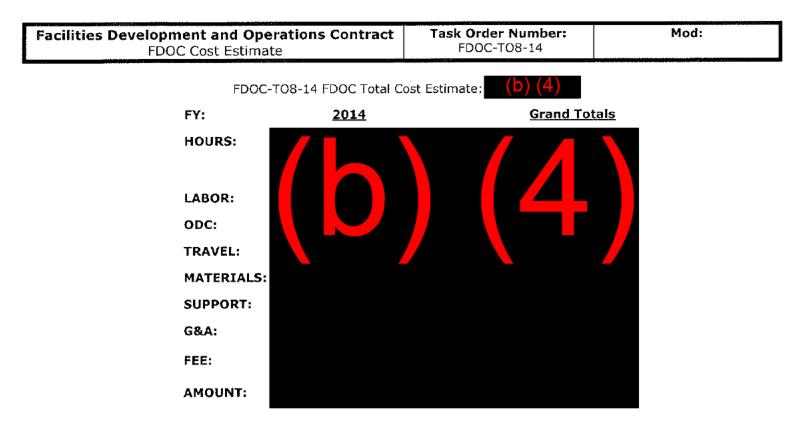
Alternate Facility Manager may require travel to support Facility-related safety training and/or benchmarking activities. Travel plan not to exceed \$2K.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



			Date Printed: 08/28/201
	nt and Operations Contract Support Services Task Order	Task Order Number: FDOC-TO9-14	Mod:
Contractor: Lockheed Martir	Corporation	Contract Number: NNJ09HD	D46C
GFY: 14	Multiyear: No	SOW Ref: 3.3.1	
Title: Ground Segment Contr	rol Board Technical Support		
Mission Directorates Supported:	Aeronautics	External C Science	X Space Ops
Programs Supported:	☐ Aeronautics ☐ Constellation ☐ SpaceComm X Station Other Desc:	Science Shuttle	un altract solublikation and the solution
	Schedu		
	art Date:)/01/2013	Estimated Con 09/30	npletion Date:)/2014
	Approv	als	1
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Gowda, Shashi	(281) 483-7057	07/08/2013
Task Order TMR	ALLCORN, JON	(281) 244-8402	07/10/2013
Task Order Division	Lindner, Daniel	(281) 483-3885	07/10/2013
FDOC Representative	Beuchaw, Karen	(281) 283-4363	07/22/2013
Task Order Monitor	Gowda, Shashi	(281) 483-7057	07/31/2013
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	07/31/2013
COTR	Lowery, James	(281) 483-1064	08/08/2013
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	08/28/2013
CO's Signature	ha Maclea		Date $\frac{8/28/13}{28/13}$
V Contents: Title - Signa Estimated R Task Order 1.0 Gene 2.0 Task 3.0 SRM 4.0 Secu	ature Page Lesources Summary Text eral Scope of Work t Description		

Facilities Development and Operations Contract FDOC Cost Estimate Summary				Task Order Number: FDOC-TO9-14	Revision:	
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$ Travel \$ Mater \$	ial Support \$ G&A \$	Fee \$ Total \$
2014 Totals:	Original	000000000		(b)	(4)	
NOTE: Th (b) (4)	ne FDOC to	al estimate	ed cost is a	(b) (4) and the Contracting	Officer's signature app	roves a total value of

1.1PURPOSE

Provide technical support to the Ground Segment Control Board (GSCB)

1.20BJECTIVE

Ensure all GSCB activities are supported

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

The Contractor shall provide technical systems engineering and operational support to the Ground Segment Control Board (GSCB) and international Technical Interchange Meetings (TIMs).

Tasks include:

- International Ground Systems Specification (IGSS) book management
- Support Multi-lateral GSCB and TIMs at IP locations
- Review and provide comments on IP ground segment requirements
- GSCB engineering support
- Software Review Control Panel (SRCP) support for GSCB-related topics and Schedule Issues/Change Forms (SIFs)
- Support for IP End-to-End test coordination

 Administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging
 IP Network requirements and implementation coordination

2.2NASA INPUT REQUIREMENTS

All NASA Programmatic requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

1. As Identified to fulfill 2.1

Per negotiated schedule

2.4 MATERIAL/TRAVEL

Labor: 1.5 FTEs 100% ISS

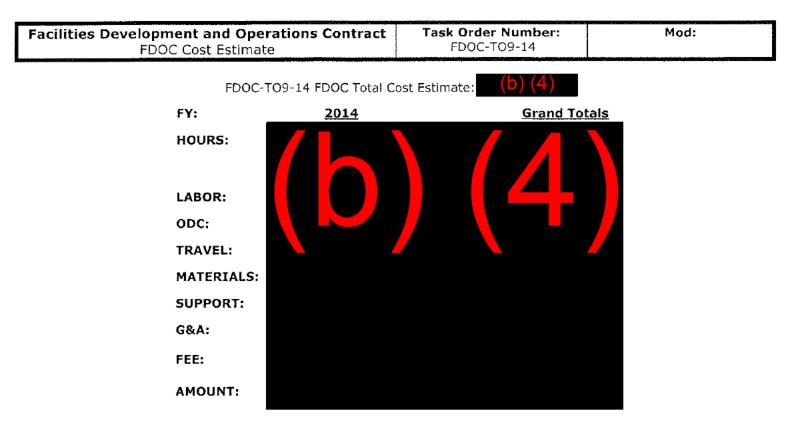
International trips not exceed \$14K. Domestic trips not to exceed \$6K.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:	
Estimated NASA Resources Summary	FDOC-TO9-14		

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

<u>Amount</u>

WBS Total:

(b) (4)

			Date Printed: 08/14/2013
Facilities Developmer	t and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-T010-14	
			·
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	946C
GFY: 14	Multiyear: No	SOW Ref: 3.3.6	
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Title: COMSEC Operations			
Mission Directorates		 , ,	▼ 7
Supported:	Aeronautics J Exploration	n External Science	X Space Ops
Programs Supported:	Aeronautics Constellation	Science Shuttle	
	SpaceComm X Station	F Other	
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	Approv	als	
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Title	Point of Contact	Phone (201) 1020	Date Approved
Task Order Monitor	Bauer, Angela	(281) 483-1398	06/19/2013
Task Order TMR	ALLCORN, JON	(281) 244-8402	06/19/2013
Task Order Division	Lindner, Daniel Beuchaw, Karen	(281) 483-3885 (281) 283-4363	06/20/2013 07/22/2013
FDOC Representative Task Order Monitor	Bauer, Angela	(281) 483-1398	07/26/2013
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	07/30/2013
COTR	Lowery, James	(281) 483-1064	08/08/2013
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	08/14/2013
	ha Maile an-	in a second s	Date $8/14/2013$
Contents: Title - Signa	turo Baao		
	esources Summary		
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	ral Scope of Work		
	Description		
3.0 SRM(QA .		
	rity Requirements		
Estimated N	ASA Resources Summary		

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Facilities Development and Operations Contract FDOC Cost Estimate Summary				Task Order Number: FDOC-TO10-14		Revision:			
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$ Total \$
2014 (Fotals:	Original					(b) (4)		

Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-TO10-14	
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1.1PURPOSE

Provide 24/7 operations and maintenance support for the MCCS COMSEC.

1.20BJECTIVE

Provide COMSEC support for all MCCS encryption/ and other Federal and DoD requirements for secure communications.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

The Contractor shall comply with Federal and DoD requirements for secure communications, utilizing the COMSEC system. These systems shall provide for classified and sensitive but unclassified (SBU) communications using administrative and physical controls. Refer to Attachment J-2, Applicable Documents. The Contractor shall assist with the maintenance and administration of the NASA COMSEC account for secure

communications.

The Contractor shall provide encryption key management services, in accordance with secure communications requirements.

The Contractor shall provide for proper handling, storage, and destruction of classified, SBU and COMSEC materials and documentation.

The Contractor shall maintain the classified messaging capability, including associated encryption key management services, storage of classified and sensitive documentation, and the interfaces to the classified point to point circuits.

The Contractor shall provide support for the daily operations and maintenance of the Secret Internet Protocol Router System (SIPRNET).

The Contractor shall provide support for the daily operations and maintenance of the Space Shuttle and International Space Station Command Encryption Systems.

2.2NASA INPUT REQUIREMENTS

All NASA programmatic requirement documents apply. Specific Federal secure communications documents apply. Change specific requirements defined by or derived from project specific change and program/project management teams apply. Included but not limited to:

- 1. NSTISSI 4005 ? Safequarding and Control of Communications Security Material.
- 2. NSTISSI 4000 ? Cryptographic Equipment Maintenance and Training.
- 3. NSTISSI 3005 ? Safeguarding and Control of Data Encryption Standard (DES) Equipment and Associated Unclassified Communications Security Aids.
- 4. NSTISSI 4001 ? Controlled COMSEC Items (CCI).
- 5. NSTISSI 4004 ? Routine Destruction and Emergency Protection of COMSEC Material.
- 6. NSTISSI 7000 ? TEMPEST Countermeasures for Facilities
- 7. NSTISSAM TEMPEST/2-95 ? Red/Black Installation Guidance
- 8. FIPS Pub. 140-2 ? Security Requirements for Cryptographic Modules.
- 9. Special Publication 800-21 ? Guideline for Implementing Cryptography in the Federal Government.
- 10. FIPS Pub. 197 ? Advanced Encryption Standard (AES), specifies the AES algorithm.
- 11. FIPS Pub. 46-3 ? Data Encryption Standard (DES)
- 12. FIPS Pub. 81 ? DES Modes of Operation
- 13. FIPS Pub. 74 ? Guidelines for Implementing and Using DES

14. NASA/USAF Interagency Agreement for COMSEC, Attachment F-1, COMSEC Maintenance Support Plan, dated 6/83.

- 15. NSTS-22241 ? COMSEC Key Control Agreement.
- 16. COMSEC Maintenance Support Plan, Attachment F-1
- 17. NASA Policy and Requirement (NPR) 2810 (Current Revision)
- 18. NASA Communications Security (COMSEC) Classification Guide.
- 19. NASA Center Office of Records (COR) COMSEC Standard Operating Procedures (CSOP) Complete Set

Working knowledge:

1. ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

2. Maintenance and associated Installation of the ISS Command Encryption System, Multifunctional Secure Gateway, Secret Internet Routing Protocol Network (SIPRNET), Red Fax and Black Fax.

3.) MCCS Comsec facility and interfaces to MCCS.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Labor:

6 FTE - ISS

Travel: Travel will be required to support COMSEC requirements. COMSEC travel should not to exceed \$4K. This travel budget is planned to accommodate:

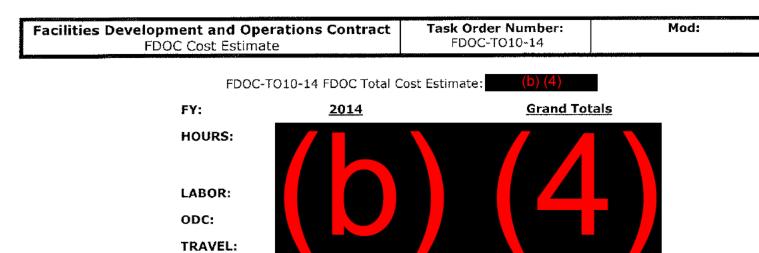
- 2 domestic trips for BCC/HOSC activation and Hurricane support. Each trip is a 1 week duration for 2 people.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, OUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW 2.6, Security, 3.3.1.1, SART, and 3.3.6, COMSEC and JSC Security Guidelines.



MATERIALS:

SUPPORT:

AMOUNT:

G&A:

FEE:

			Date Printed: 08/08/2013				
Facilities Developmen	t and Operations Contract	Task Order Number:	Mod:				
	Support Services Task Order	FDOC-T011-14					
/ <u></u>							
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	946C				
GFY: 14	Multiyear: No	SOW Ref: 3.3.4					
·····							
Title: Systems Engineering Su	upport for Mission Operation Project	t in Support of MPCV					
Mission Directorates	E Cynlowdiad	n 🖵 External 🔲 Science	X Space Ops				
Supported:	Aeronautics	n i External i Science	A Space Ops				
		F Science F Shuttle					
Programs Supported:	Aeronautics Constellation	i Science i Snuttle					
	厂 SpaceComm 厂 Station	${f X}$ Other					
	Other Desc: MPCV						
	Schedu						
Sta	rt Date:	Estimated Con	pletion Date:				
	/01/2013	09/30					
	Approv	ale					
		1					
Title	Point of Contact	Phone	Date Approved				
Task Order Monitor	Melendrez, Amy	(281) 244-1134	06/18/2013				
Task Order TMR	ALLCORN, JON	(281) 244-8402	06/18/2013				
Task Order Division	Lindner, Daniel	(281) 483-3885	06/18/2013				
FDOC Representative	Beuchaw, Karen	(281) 283-4363	07/22/2013				
Task Order Monitor	Melendrez, Amy	(281) 244-1134	08/07/2013				
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/07/2013				
COTR	Lowery, James	(281) 483-1064	08/08/2013				
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	08/08/2013				
CO's Signature	this Maclean		Date <u>8/8/(3</u>				
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Contents:							
Title - Signat	ure Page						
Estimated Re	sources Summary						
Task Order T							
	ral Scope of Work						
	2.0 Task Description						
	3.0 SRMQA						
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	ASA Resources Summary						

		evelopment and Operations Contract OC Cost Estimate Summary	Task Order Number: FDOC-T011-14	Revision:
Fiscal Year	Mod	Labor Labor S ODC Travel Material	Support \$ G&A \$	Fee \$ Total \$
2014	Original	(b) (a)	1)	
Totals:		(D) (-		

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Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-T011-14	

1.1PURPOSE

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.

1.20BJECTIVE

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects(e.g. MCC21, TS21, UA21) for applicability to the MOP baseline. In addition, support is needed for development and baselining of the Mission Systems (MS) to GSDO and MS to Space Launch System (SLS) Interface Requirements Documents (IRDs) and Interface Control Documents (ICDs.)

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate MPCV programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, C3I, ESD Con Ops) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Develop and Maintain Interface documentation - For the MS to GSDO IRD/ ICD this includes development of the document, conduct of integration working groups with GSDO, baseline and configuration management of the IRD/ ICD, development of the interface design, issue resolution, and document production.

For the MS to SLS ICD, this includes support to the lead program (SLS) in the form of working group attendance, issue resolution, provision of document updates, and development of interface design.

b.) MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

2.) Provide Cradle Support

a) Develop document inputs in Cradle-compatible format for the MS to GSDO IRD/ ICD.

3.) Provide Technical Forum Support

a.) Provide technical support to the MPCV and MOP/ MOD forums (e.g. MOPCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on MS to GSDO IRD/ ICD.

2.2NASA INPUT REQUIREMENTS

- Access to all MOP-level requirements and design documentation

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.

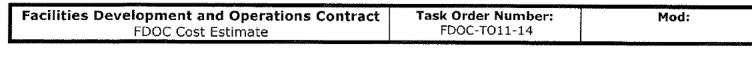
LOE support is 0.74 FTE October 2013 through September 2014. - MPCV funding

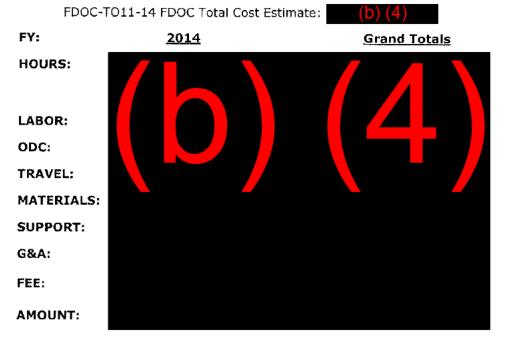
3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

4.0 SECURITY REQUIREMENTS

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.





			Date Printed: 10/23/201.
Facilities Developmen	nt and Operations Contract	Task Order Number:	Mod:
	Support Services Task Order	FDOC-TO11-14	1
Contractor: Lockheed Martir	Corporation	Contract Number: NNJ09HD	46C
GFY: 14	Multiyear: No	SOW Ref: 3.3.4	5
Title: Systems Engineering S	upport for Mission Operation Proje	ct in Support of MPCV	
Mission Directorates		n 🗖 External 📕 Science	X Space Ops
Supported:	Aeronautics		
Programs Supported:	Aeronautics Constellatio	n 🗖 Science 🗖 Shuttle	
	🔽 SpaceComm 🎵 Station	${f X}$ Other	
	Other Desc:MPCV		
	Sched		an a
Sta	art Date:	Estimated Com	pletion Date:
	/01/2013	09/30	
an an an an an Allah an Anna an an an an an an Allah an	Approv	als	
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Melendrez, Amy	(281) 244-1134	09/25/2013
Task Order TMR	ALLCORN, JON	(281) 244-8402	09/25/2013
Task Order Division	Lindner, Daniel	(281) 483-3885	09/27/2013
FDOC Representative	Beuchaw, Karen	(281) 283-4363	10/02/2013
Task Order Monitor	Melendrez, Amy	(281) 244-1134	10/18/2013
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	10/22/2013
COTR	Lowery, James	(281) 483-1064	10/22/2013
NASA Contracts Officer	Maclean, Cynthia	(281) 244-5903	10/23/2013
CO's Signature	Tia Madean	E	Date 10/23/13
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Contents:			
Title - Signa	ture Page		
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Task Order	,		
1.0 Gene	eral Scope of Work		
	Description		
3.0 SRM			
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Estimated N	ASA Resources Summary		

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Facilities Development and Operations Contract FDOC Cost Estimate Summary			Task (Num FDOC-T	ber:	Revision: 1					
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2014	Original									
2014	1						4)			
otals:										
OTE: Th	e FDOC tot	al estimate	d cost is () (4) nd	the Contra	cting Offi	cer's signatu	ire approv	es a total v	value of

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Facilities Development and Ope	rations Contract	Task Order Number:	Mod:
Task Order Text		FDOC-TO11-14	1
			and the second

1.1PURPOSE

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.

1.20BJECTIVE

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects(e.g. MCC21, TS21, UA21) for applicability to the MOP baseline. In addition, support is needed for development and baselining of the Mission Systems (MS) to GSDO and MS to Space Launch System (SLS) Interface Requirements Documents (IRDs) and Interface Control Documents (ICDs.)

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate MPCV programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, C3I, ESD Con Ops) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Develop and Maintain Interface documentation - For the MS to GSDO IRD/ ICD this includes development of the document, conduct of integration working groups with GSDO, baseline and configuration management of the IRD/ ICD, development of the interface design, issue resolution, and document production.

For the MS to SLS ICD, this includes support to the lead program (SLS) in the form of working group attendance, issue resolution, provision of document updates, and development of interface design.

b.) MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

2.) Provide Cradle Support

a) Develop document inputs in Cradle-compatible format for the MS to GSDO IRD/ ICD.

3.) Provide Technical Forum Support

a.) Provide technical support to the MPCV and MOP/ MOD forums (e.g. MOPCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on MS to GSDO IRD/ ICD.

2.2NASA INPUT REQUIREMENTS

- Access to all MOP-level requirements and design documentation

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

No material or Travel budget has been identified. If travel becomes necessary, a change request will be issued.

LOE support is 0.31 FTE October 2013 through September 2014. - MPCV funding

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

4.0 SECURITY REQUIREMENTS

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

			Date Printed: 09/03/2014		
Facilities Developmen	t and Operations Contract	Task Order Number:	Mod:		
	Support Services Task Order	FDOC-TO0-15			
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C		
GFY: 15	Multiyear: No	SOW Ref: 3.3.2.1			
		-			
Title: Program Requirements	Document (PRD)				
Mission Directorates	Aeronautics Exploration	🗖 External 🗖 Science	X Space Ops		
Supported:			A Space Ops		
Programs Supported:	🗖 Aeronautics 🛛 🗖 Constellation	🗖 Science 🛛 🗖 Shuttle			
	$oxdown$ SpaceComm $ {f X}$ Station	${f X}$ Other			
	Other Desc:MPCV/SLS/GSDC)			
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	/01/2014	Estimated Com 09/30			
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	Approv	als	I		
T :41-	Deint of Contract	Dhawa	Data Annual		
Title Taak Orden Meniter	Point of Contact	Phone (201) 402 0250	Date Approved		
Task Order Monitor Task Order TMR	Hervey, Jewel ALLCORN, JON	(281) 483-0359 (281) 244-8402	07/10/2014		
		(281) 483-3885	07/10/2014 07/11/2014		
Task Order Division FDOC Representative	Lindner, Daniel Beuchaw, Karen	(281) 283-4461	08/01/2014		
Task Order Monitor	Hervey, Jewel	(281) 483-0359	08/01/2014		
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/01/2014		
COTR	Lowery, James	(281) 483-1064	08/01/2014		
NASA Contracts Officer	NEVELS, CHRYSTAL	(281) 792-7842	00/01/2011		
	Weld		Date 09-03-2014		
		L	Jace 03-03-2014		
Contents:	b				
Title - Signat					
Task Order 1	esources Summary				
	ral Scope of Work				
	Description				
3.0 SRM	•				
	zn rity Requirements				
	ASA Resources Summary				

Facilities Development and Operations Contract FDOC Cost Estimate Summary			Task (Num FDOC-1	ber:	Revis	sion:				
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2015	Original					(b) (4)				
Totals:										(1-
NOTE: Th	e FDOC to	tal estimated	l cost is (b) (4) and	the Contra	cting Offic	cer's signati	ire approv	es a total v	value of

1.1PURPOSE

Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS, and GSDO program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

2.2NASA INPUT REQUIREMENTS

- Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II and MPCV - Electronic book maintenance for ISS Orbital Volume I,II and MPCV

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of Personnel (FTE): 1 (0.76 ISS, 0.24 MPCV)

Travel requirements Number of trips (1 person/trip): 2 Trip destination: ISS (Domestic - 2) Trip duration: 5 days Trip purpose: attend multi-center requirement issues resolution meetings

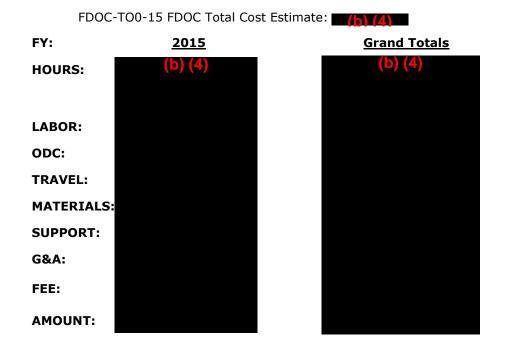
Materials support required, if any: None

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO0-15	

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified **INCREMENTALLY FUNDED: NO**

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>



		Date Pri	inted: 04/21/2015		
Facilities Develo	pment and Operations	Task Order Number:	Mod:		
C	ontract	FDOC-TO0-15	1		
Facility Engineering	and Support Services Task				
	Order				
Contractor: Lockheed M	artin Corporation	Contract Number: NN	109HD46C		
GFY: 15	Multiyear: No	SOW Ref: 3.3.2.1			
Title: Program Requirem	ents Document (PRD)				
Mission Directorates Supported:	Aeronautics 🗖 Exploration	🗖 External 🗖 Science	X Space Ops		
Programs Supported:	Aeronautics Constellation SpaceComm X Station Other Desc:MPCV/SLS/GSDO	X Other			
	Schedule				
	art Date:	Estimated Completion Date:			
10)/01/2014	09/30/2	015		
	Approvals	-			
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Hervey, Jewel	(281) 483-0359	10/29/2014		
Task Order TMR	ALLCORN, JON	(281) 244-8402	10/30/2014		
Task Order Division	Leblanc, Troy	(281) 244-0279	04/09/2015		
FDOC Representative	Beuchaw, Karen	(281) 283-4461	04/10/2015		
Task Order Monitor	Hervey, Jewel	(281) 483-0359	04/16/2015		
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	04/16/2015		
COTR	Lowery, James	(281) 483-1064	04/17/2015		
NASA Contracts Officer	NEVELS, CHRYSTAL	(281) 792-7842	04/21/2015		
CHRYST CO's Signature <u>NEVELS</u>	Out PN/ 0.9 2342 19200300 100 1 1 crewels	Date	4/21/2015		
Estimate Task Ord 1.0 G 2.0 Ta 3.0 Si 4.0 Si	gnature Page d Resources Summary er Text eneral Scope of Work ask Description RMQA ecurity Requirements d NASA Resources Summary				

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task O Numb FDOC-T	er:	Revi	sion: 1		
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support	G&A \$	Fee \$	Total \$
2015	Original			4	Ŧ	(b) (4 (b) (4				
2015	1					(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1			
Totals:										

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b)

1.1PURPOSE

Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS, and GSDO program tasks delegated to MOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

- ISS Support includes Integration of CCtCap per SSCN 014337

2.2NASA INPUT REQUIREMENTS

- Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II and MPCV

- Electronic book maintenance for ISS Orbital Volume I, II and MPCV

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL Number of Personnel (FTE): 1 (0.76 ISS, 0.24 MPCV)

Travel requirements Number of trips (1 person/trip): 2 Trip destination: ISS (Domestic - 2) Trip duration: 5 days Trip purpose: attend multi-center requirement issues resolution meetings

Materials support required, if any: None

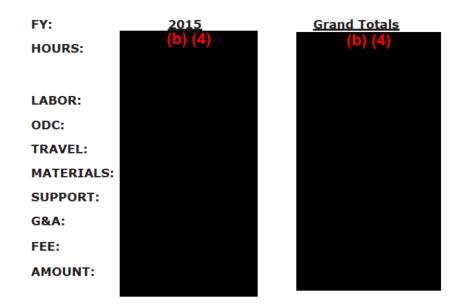
3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Facilities Development and Operations	Task Order Number:	Mod:	
Contract	FDOC-TO0-15	1	
FDOC Cost Estimate		-	

FDOC-TO0-15 FDOC Total Cost Estimate: (b) (4)



FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

<u>Amount</u>



Date	Printed:	09/03	/2014
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	nt and Operations Contract d Support Services Task Order	Task Order Number: FDOC-TO1-15	Mod:			
Contractor: Lockheed Marti	n Corporation	Contract Number: NNJ09HD4	46C			
GFY: 15	Multiyear: No	SOW Ref: 3.3.1.2				
Title: Network and Commun	ications Analysis and Integration 1	eam (NACAIT)				
Mission Directorates Supported:	Aeronautics 🗖 Exploration	n 🗖 External 🔲 Science	X Space Ops			
Programs Supported:		on 🗖 Science 🛛 🗖 Shuttle				
	\square SpaceComm $ {f X}$ Station	${f X}$ Other				
	Other Desc:MPCV, SLS, GS	00				
	Sche	lule				
	art Date:	Estimated Completion Date:				
10	0/01/2014	09/30/	2015			
	Appro	vals				
Title	Point of Contact	Phone	Date Approved			
Task Order Monitor	Hervey, Jewel	(281) 483-0359	07/10/2014			
Task Order TMR	ALLCORN, JON	(281) 244-8402	07/10/2014			
Task Order Division	Lindner, Daniel	(281) 483-3885	07/11/2014			
FDOC Representative	Beuchaw, Karen	(281) 283-4461	08/01/2014			
Task Order Monitor	Hervey, Jewel	(281) 483-0359	08/01/2014			
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/01/2014			
COTR NASA Contracts Office	Lowery, James MEVELS, CHRYSTAL	(281) 483-1064 (281) 792-7842	08/01/2014			
			09/03/2014			
CO's Signature 🏑 🖊	Webs	D	ate 09/03/2014			
Task Order 1.0 Gen 2.0 Tasl 3.0 SRM 4.0 Sect	Resources Summary Text eral Scope of Work < Description					

Facilities Development and Operations Contract FDOC Cost Estimate Summary			Task Order Number: FDOC-TO1-15		Revision:					
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2015	Original					(b) (4)				
Totals:										
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1.1PURPOSE

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.

1.20BJECTIVE

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS and GSDO program tasks delegated to MOD to execute on behalf of the ISS, MPCV, SLS and GSDO programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

-Determine communication needs for ISS, MPCV, SLS and GSDO operational support among all elements that support the ISS, MPCV, SLS and GSDO Programs

-Gather and consolidate communications requirements into draft versions of the MSRD

-Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, MPCV, SLS and GSDO Programs on implementation and actual need of communication services

-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements

-Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)

-Provide coordination point of contact for NISN for communications schedules

-Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs

-Support other ISS, MPCV, SLS, and GSDO operational communications-related tasks as required by NASA

2.2NASA INPUT REQUIREMENTS

International Space Station Operational Communication Overview (IOCO)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of Personnel (FTE): 1 (0.76 ISS, 0.24 MPCV)

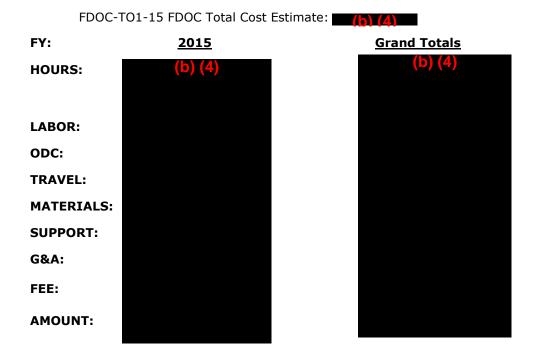
Travel requirements Number of trips (1 person/trip): 6 Trip destination: ISS (Domestic - 2, International - 0), MPCV (Domestic - 4) Trip duration: domestic trips = 5 days Trip purpose: Attend multi-agency and center requirements definition and problem resolving meetings.

Materials support required, if any: None

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO1-15	

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>



		Date Pri	inted: 04/24/2015
	pment and Operations	Task Order Number:	Mod:
	ontract	FDOC-TO1-15	1
	and Support Services Task		
	Order		
Contractor: Lockheed M	artin Corporation	Contract Number: NN	J09HD46C
GFY: 15	Multiyear: No	SOW Ref: 3.3.1.2	
Tilles Naturals and Comm			
Title: Network and Com	nunications Analysis and Integra	ation Team (NACATT)	
Mission Directorates Supported:	Aeronautics 🗖 Exploration	🗖 External 🗖 Science	X Space Ops
Programs Supported:	Aeronautics Constellation SpaceComm X Station Other Desc:MPCV, SLS, GSD0	X Other	
	Schedule		
	art Date:	Estimated Comp	
10	/01/2014	09/30/20	015
	Approvals		
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Gowda, Shashi	(281) 483-7057	04/06/2015
Task Order Monitor Task Order TMR	Carreon, Patricia	(281) 483-7052	04/08/2015
Task Order Monitor Task Order TMR Task Order Division	Carreon, Patricia Leblanc, Troy	(281) 483-7052 (281) 244-0279	04/08/2015 04/09/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative	Carreon, Patricia Leblanc, Troy Beuchaw, Karen	(281) 483-7052 (281) 244-0279 (281) 283-4461	04/08/2015 04/09/2015 04/10/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057	04/08/2015 04/09/2015 04/10/2015 04/16/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 483-1064	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015 04/17/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 483-1064 (281) 792-7842	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 483-1064 (281) 792-7842	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015 04/17/2015
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Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature CHRYS	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL NEVELS, CHRYSTAL	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 244-0513 (281) 483-1064 (281) 792-7842	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015 04/17/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature CHRYS Contents: Title - Sig	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by CHRYSTAL NEV Discuts, Government, ou Discuts, 2005.0427 (08:56:41-05:00) Date: 2015.0427 (08:56:41-05:00)	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 244-0513 (281) 483-1064 (281) 792-7842	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015 04/17/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature CHRYS Contents: Title - Sig	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Ditally signed by CHRYSTAL NEV Ditally signed by CHRYSTAL NEV NEVELS, CHRYSTAL NEV Ditally signed by CHRYSTAL NEV NEVELS, CHRYSTAL NEV Ditally signed by CHRYSTAL NE	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 244-0513 (281) 483-1064 (281) 792-7842	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015 04/17/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature CHRYS Contents: Title - Sig Estimated Task Ord	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by CHRYSTAL NEV Digitally signed by CHRYS	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 244-0513 (281) 483-1064 (281) 792-7842	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015 04/17/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature COTS Contents: Title - Sig Estimated Task Ord 1.0 G	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by CHRYSTAL NEV Discuss, occurrent, or 09.2424,1920300.100.11=cneve NEVELS Date: 2015.0427 08:56:41-05:00 Date: 201	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 244-0513 (281) 483-1064 (281) 792-7842	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015 04/17/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature CHRYS Contents: Title - Sig Estimated Task Orde 1.0 G 2.0 Ta	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by CHRYSTAL NEV Digitally signed by CHRYS	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 244-0513 (281) 483-1064 (281) 792-7842	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015 04/17/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature CHRYS Contents: Title - Sig Estimated Task Ord 1.0 Gi 2.0 Ta 3.0 Si	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by CHRYSTAL NEV Disc. US, o-US, Government, ou Disc. US, Governm	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 244-0513 (281) 483-1064 (281) 792-7842	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015 04/17/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature CHRYS Contents: Title - Sig Estimated Task Ord 1.0 Ga 2.0 Ta 3.0 Si	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by CHRYSTAL NEV Digitally signed by CHRYS	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 244-0513 (281) 483-1064 (281) 792-7842	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015 04/17/2015
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature Contents: Title - Signate Task Order 1.0 Generation 1.0 Generation	Carreon, Patricia Leblanc, Troy Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by CHRYSTAL NEV Disc. US, o-US, Government, ou Disc. US, Governm	(281) 483-7052 (281) 244-0279 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 244-0513 (281) 483-1064 (281) 792-7842	04/08/2015 04/09/2015 04/10/2015 04/16/2015 04/16/2015 04/17/2015

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task Order Number: FDOC-TO1-15		Revision: 1			
Fiscal	Mod	Labor	Labor \$	ODC	Travel	Material	Support	G&A \$	Fee \$	Total \$
Year		Hours		\$	\$	\$	\$			
2015	Original	(b) (4)								
2015	1									
Totals:										

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

1.1PURPOSE

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.

1.20BJECTIVE

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS and GSDO program tasks delegated to MOD to execute on behalf of the ISS, MPCV, SLS and GSDO programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

-Determine communication needs for ISS, MPCV, SLS and GSDO operational support among all elements that support the ISS, MPCV, SLS and GSDO Programs

-Gather and consolidate communications requirements into draft versions of the MSRD -Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, MPCV, SLS and GSDO Programs on implementation and actual need of communication services

-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements

-Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)

-Provide coordination point of contact for NISN for communications schedules -Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs -Support other ISS, MPCV, SLS, and GSDO operational communications-related tasks as required by NASA

- ISS Support includes Integration of CCtCap per SSCN 014337

2.2NASA INPUT REQUIREMENTS

International Space Station Operational Communication Overview (IOCO)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of Personnel (FTE): 1 (0.76 ISS, 0.24 MPCV)

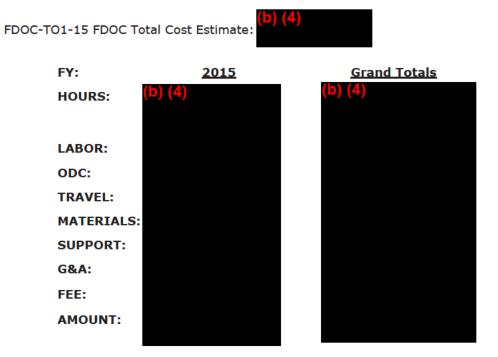
Travel requirements Number of trips (1 person/trip): 6 Trip destination: ISS (Domestic - 2, International - 0), MPCV (Domestic - 4) Trip duration: domestic trips = 5 days Trip purpose: Attend multi-agency and center requirements definition and problem resolving meetings. Materials support required, if any: None

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

	Facilities Development and Operations Contract FDOC Cost Estimate	Task Order Number: FDOC-TO1-15	Mod: 1
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FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

<u>Amount</u>



			Date Printed: 09/03/2014				
Facilities Developmen	t and Operations Contract	Task Order Number:	Mod:				
	Support Services Task Order	FDOC-TO2-15					
	· ·						
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C				
GFY: 15	Multiyear: No	SOW Ref: 3.3.3					
		•					
Title: Human Space Flight Ne	twork Operations Integration						
Mission Directorates	Aeronautics Exploration	🗖 External 🗖 Science	X Space Ops				
Supported:			A space ops				
Programs Supported:	🗖 Aeronautics 🛛 🗖 Constellation	🗖 Science 🛛 🗖 Shuttle					
	X SpaceComm X Station	${f X}$ Other					
	Other Desc:MPCV, SLS, GSD	0					
	Schedu						
Sta	rt Date:		nletion Date:				
	/01/2014	Estimated Completion Date: 09/30/2015					
	Approv	als					
Title	Point of Contact	Phone	Date Approved				
Task Order Monitor	Hervey, Jewel	(281) 483-0359	07/10/2014				
Task Order TMR	ALLCORN, JON	(281) 244-8402	07/10/2014				
Task Order Division	Lindner, Daniel	(281) 483-3885	07/11/2014				
FDOC Representative	Beuchaw, Karen	(281) 283-4461	08/01/2014				
Task Order Monitor	Hervey, Jewel	(281) 483-0359	08/01/2014				
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/01/2014				
COTR	Lowery, James	(281) 483-1064	08/01/2014				
NASA Contracts Officer	NEVELS, CHRYSTAL	(281) 792-7842	09/03/2014				
CO's Signature 🌔 🖊	CO's Signature () () () () () () () () () () () () ()						
Contents:							
Title - Signat	ture Page						
	esources Summary						
Task Order T							
1.0 Gene	ral Scope of Work						
2.0 Task Description							
3.0 SRM0							
	rity Requirements						
Estimated N/	ASA Resources Summary						

Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task Order Number: FDOC-TO2-15		Revision:		
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2015	Original					ų.	1			
Totals:										
NOTE: Th (4)	e FDOC to	tal estimated	l cost is (b)	(4) and	d the Contr	racting Off	ficer's signa	ture appro	oves a total	value of

Facilities Development and Operations Contract	Task Order Number:	Mod:	
Task Order Text	FDOC-TO2-15		

1.1PURPOSE

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but are not limited to, the following:

-Support in the preparation of the Certificate of Flight Readiness (CoFR).

-Assist the NSG and NACAIT in planning the integrated implementation of

space communications data services required to support HSF missions.

-Evaluate required endorsement codes within the CoFR implementation plan

-Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated services

-Identify problem areas in providing the services with options for workarounds in the event of service interruption. -Support all HSF Readiness Reviews

-Provide voice, video, and data assessments for mission services implementation

-Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

2.2NASA INPUT REQUIREMENTS

Network Operations Directive (NOD)

2.3CONTRACTOR SERVICES/PRODÚCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of Personnel (FTE): 3 (1.08 ISS, 1.92 MPCV)

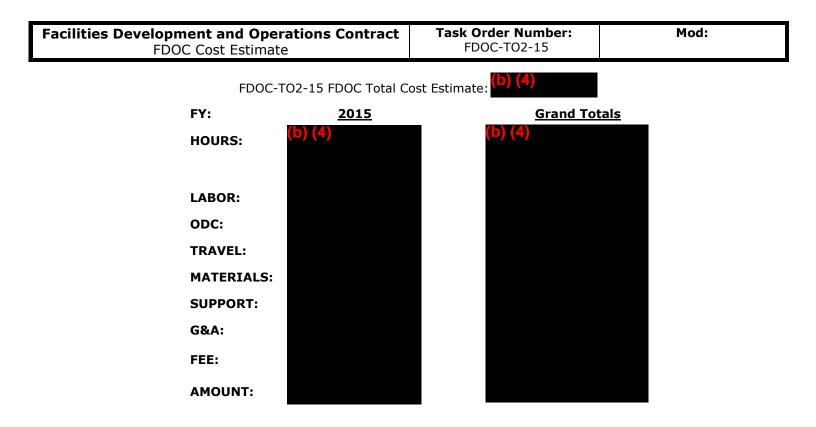
Travel requirements Number of trips (1 person/trip): 12 Trip destination: ISS (Domestic - 3), MPCV (Domestic - 9) Trip duration: 5 days Trip purpose: attend Technical Interchange Meetings and Operational Readiness Reviews

Materials support required, if any: None

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO2-15	

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified **INCREMENTALLY FUNDED: NO**

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>



		Date Pri	inted: 04/21/2015						
Facilities Develo	pment and Operations	Task Order Number:	Mod:						
C	ontract	FDOC-TO2-15	1						
Facility Engineering	and Support Services Task								
	Order								
		.							
Contractor: Lockheed M	artin Corporation	Contract Number: NN	109HD46C						
GFY: 15	Multiveer Ne	SOW Deft 2 2 2							
GF1.15	Multiyear: No	SOW Ref: 3.3.3							
Title: Human Space Fligh	nt Network Operations Integration	on							
Mission Directorates Supported:	Aeronautics Exploration	🗖 External 🗖 Science	X Space Ops						
Programs Supported: □Aeronautics □ Constellation □ Science □ Shuttle X SpaceComm X Station X Other Other Desc:MPCV, SLS, GSDO									
	Schedule								
	art Date:	Estimated Comp							
10	/01/2014	09/30/20	015						
	Approvals								
T :41 -	Deint of Contest	Dhawa	Data Annual						
Title Task Order Monitor	Point of Contact Gowda, Shashi	Phone (281) 483-7057	Date Approved 04/06/2015						
Task Order TMR	Carreon, Patricia	(281) 483-7052	04/08/2015						
Task Order Division	Leblanc, Troy	(281) 244-0279	04/09/2015						
FDOC Representative	Beuchaw, Karen	(281) 283-4461	04/10/2015						
Task Order Monitor	Gowda, Shashi	(281) 483-7057	04/16/2015						
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	04/16/2015						
COTR	Lowery, James	(281) 483-1064	04/16/2015						
NASA Contracts Officer	NEVELS, CHRYSTAL	(281) 792-7842	04/21/2015						
	CHRYSTAL Dited Science (281) /92-7842 04/21/2015 CHRYSTAL Dited Science (281) /92-7842 04/21/2015 CHRYSTAL Dited Science (281) /92-7842 04/21/2015 Dited Science (281) /92-7842 04/21/2015 Dited Science (281) /92-7842 04/21/2015 Dited Science (281) /92-7842 04/21/2015								
Contents: Title - Signature Page Estimated Resources Summary Task Order Text 1.0 General Scope of Work 2.0 Task Description 3.0 SRMQA 4.0 Security Requirements Estimated NASA Resources Summary									

Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task Order Number: FDOC-TO2-15		Revision: 1		
Fiscal Year	Mod	Labor Hours						G&A \$	Fee \$	Total \$
2015	Original	(b) (4)								
2015	1									
Totals:	Totals:									

NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Officer's signature approves a total value of (b) (4)

1.1PURPOSE

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

1.20BJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but are not limited to, the following:

-Support in the preparation of the Certificate of Flight Readiness (CoFR).

-Assist the NSG and NACAIT in planning the integrated implementation of

space communications data services required to support HSF missions.

-Evaluate required endorsement codes within the CoFR implementation plan

-Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated services

-Identify problem areas in providing the services with options for workarounds in the event of service interruption.

-Support all HSF Readiness Reviews

-Provide voice, video, and data assessments for mission services implementation -Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

- ISS Support includes Integration of CCtCap per SSCN 014337

2.2NASA INPUT REQUIREMENTS

Network Operations Directive (NOD)

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of Personnel (FTE): 3 (1.08 ISS, 1.92 MPCV)

Travel requirements Number of trips (1 person/trip): 12 Trip destination: ISS (Domestic - 3), MPCV (Domestic - 9) Trip duration: 5 days Trip purpose: attend Technical Interchange Meetings and Operational Readiness Reviews

Materials support required, if any: None

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

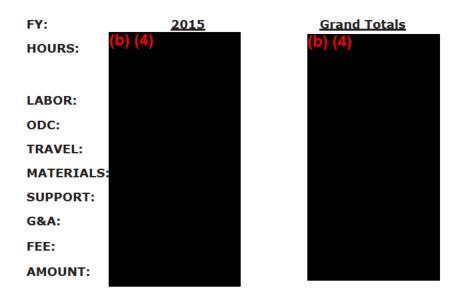
Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System

(QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Facilities Development and Operations	Task Order Number:	Mod:
Contract	FDOC-TO2-15	1
FDOC Cost Estimate		





FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

<u>Amount</u>



			Date Printed: 09/03/2014
	nt and Operations Contract Support Services Task Order	Task Order Number: FDOC-TO3-15	Mod:
Contractor: Lockheed Martir	Corporation	Contract Number: NNJ09HD4	46C
GFY: 15	Multiyear: No	SOW Ref: 3.3.4	
Title: System Engineering an	d Integration Support (Special Proj	ects)	
Mission Directorates Supported:	\square Aeronautics \square Exploration	🗖 External 🔲 Science	X Space Ops
Programs Supported:	🗖 Aeronautics 🛛 🗖 Constellation	🗖 Science 🛛 🗖 Shuttle	
	igsqcett SpaceComm $igsdown X$ Station	🗖 Other	
	Other Desc:		
	Schedu	lle	
	art Date:	Estimated Com	
10	/01/2014	09/30/	/2015
	Approv	als	
Title	Point of Contact	Phone	Date Approved
Task Order Monitor	Wolfer, Eric	(281) 483-6709	07/11/2014
Task Order TMR	ALLCORN, JON	(281) 244-8402	07/11/2014
Task Order Division	Lindner, Daniel	(281) 483-3885	07/18/2014
FDOC Representative	Beuchaw, Karen	(281) 283-4461	08/01/2014
Task Order Monitor	Wolfer, Eric	(281) 483-6709	08/01/2014
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/01/2014
COTR	Lowery, James	(281) 483-1064	08/01/2014
NASA Contracts Officer	NEVELS, CHRYSTAL	(281) 792-7842	09/03/2014
CO's Signature 🌈	Welly	C	Date 09/03/2014
Task Order 1.0 Gene 2.0 Task 3.0 SRM 4.0 Secu	esources Summary Text eral Scope of Work Description		

Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task Order Number: FDOC-TO3-15		Revision:		
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2015	Original	(b) (4)								
`otals:										
OTE: Th [4]	e FDOC to	tal estimated	l cost is (b)	(4) and	d the Conti	racting Off	ficer's signa	ture appro	oves a total	l value of

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for User Applications.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for User Applications.3.) Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the User Application capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.

12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MSD CCB, ITCP, UAWG, and other MSD Panels and Working Groups). Status changes and issues as required.

14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MSD CCB and MSD Panels and Working Groups as required. 16.) Support UAS activities by supplying information as requested on UAS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

3.0

Number of personnel (FTE): 2 FTE â€" Special Projects (ISS)

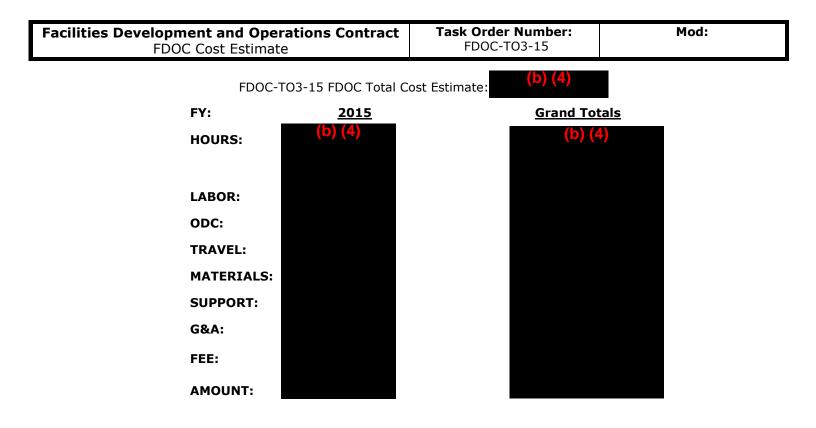
Travel requirements: Number of trips (1 person/trip): 3 Trip destination: ISS (Domestic - 3) Trip duration: 5 days Trip purpose:

Materials support required, if any: None.

SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the

work required under this task order.
 SECURITY REQUIREMENTS
 Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO3-15	

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>

WBS Total:



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			Date Printed: 12/17/2014					
	and Operations Contract	Task Order Number:	Mod:					
Facility Engineering and Su	upport Services Task Order	FDOC-TO3-15	1					
Contractor: Lockheed Martin Co	prporation	Contract Number: NNJ09HD	46C					
GFY: 15	Multiyear: No	SOW Ref: 3.3.4						
Title: System Engineering and I	ntegration Support (Special Proj	ects)						
Mission Directorates	Π Π		V					
Supported:	Aeronautics Exploration	🗀 External 🏳 Science	X Space Ops					
Dragrama Supported	Aeronautics Constellation	Science Shuttle						
Programs Supported:	_							
	SpaceComm X Station Other Desc:	Other						
	Other Desc.							
	Schedu							
	Date:	Estimated Com						
10/01	/2014	09/30/	/2015					
	Approv	als						
Title	Point of Contact	Phone	Date Approved					
Task Order Monitor	Wolfer, Eric	(281) 483-6709	11/21/2014					
Task Order TMR	ALLCORN, JON	(281) 244-8402	11/24/2014					
Task Order Division	Lindner, Daniel	(281) 483-3885	11/24/2014					
FDOC Representative	Beuchaw, Karen	(281) 283-4461	12/09/2014					
Task Order Monitor	Wolfer, Eric	(281) 483-6709	12/11/2014					
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	12/11/2014					
	Lowery, James	(281) 483-1064	12/16/2014					
NASA Contracts Officer	NEVELS, CHRYSTAL	(281) 792-7842						
co's Signature CHRYSTAL	NEVELS Digitally signed by CHRYSTAL NEVELS DN: C-US O-US Government ou-NASA ou-PN 09 2321 2000201 001 Longwidt		40/46/0044					
CO's Signature Children Strike	Date: 2014 12 17 10:24:26 06'00'		Date <u>12/16/2014</u>					
Contents:								
Title - Signatur	e Page							
Estimated Reso	ources Summary							
, Task Order Text								
1.0 General Scope of Work								
•								
2.0 Task Description								
3.0 SRMQA								
	/ Requirements							
Estimated NAS	A Resources Summary							

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task Order Number: FDOC-TO3-15		Revision: 1			
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2015	Original					(b) (4)				
2015	1									
Fotals:										
OTE: Th <mark>4)</mark>	ne FDOC to	tal estimated	d cost is	b) (4) and	d the Contr	racting Off	ficer's signa	ture appro	oves a total	value of



Task Order Number: FDOC-TO3-15 **Mod:**

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for User Applications.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts for User Applications.
 Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting DD facilities for requirements and changes which will affect the User Application capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

- 6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.
- 7.) Coordinate all change activities with the appropriate DD project manager.
- 8.) Represent the DD facility and customer interests and impacts to the various change boards.
- 9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the User Application System (UAS) Work plan.

12.) Generate and maintain a list of potential UAS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MSD CCB, ITCP, UAWG, and other MSD Panels and Working Groups). Status changes and issues as required.

14.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration,

and distribution methods and respond to actions from the MSD CCB and MSD Panels and Working Groups as required. 16.) Support UAS activities by supplying information as requested on UAS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

Number of personnel (FTE): 1.5 FTE – Special Projects (ISS)

Travel requirements: Number of trips (1 person/trip): 3 Trip destination: ISS (Domestic - 3) Trip duration: 5 days Trip purpose:

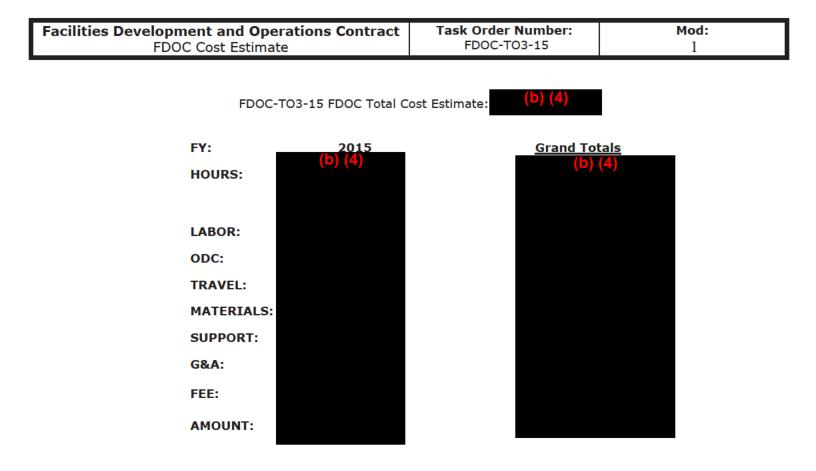
Materials support required, if any: \$100K.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO3-15	1

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>



		Date Pri	nted: 09/15/2014			
Facilities Develo	pment and Operations	Task Order Number:	Mod:			
	ontract	FDOC-TO4-15	Basic			
Facility Engineering	and Support Services Task					
	Order					
Contractor: Lockheed M	artin Corporation	Contract Number: NNI	109HD46C			
GFY: 15	Multiyear: No	SOW Ref: 3.3.5				
Title: Architectural and E	Engineering Support					
Mission Directorates	Aeronautics Exploration	External Science	X Space Ops			
Supported:						
Drograme Supported	Aeronautics	🗖 Science – 🗖 Shuttle				
riograms Supporteu.	X SpaceComm \square Station					
	Other Desc:					
	Schedule					
	art Date:	Estimated Completion Date:				
10	0/01/2014	09/30/20	015			
	Approvals					
Title	Point of Contact	Phone	Date Approved			
Task Order Monitor	Wolfer, Eric	(281) 483-6709	09/10/2014			
Task Order TMR	ALLCORN, JON	(281) 244-8402	09/10/2014			
Task Order Division	Lindner, Daniel	(281) 483-3885	09/12/2014			
FDOC Representative	Beuchaw, Karen	(281) 283-4461	09/12/2014			
Task Order Monitor	Wolfer, Eric	(281) 483-6709	09/12/2014			
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	09/15/2014			
COTR	Lowery, James	(281) 483-1064	09/15/2014			
NASA Contracts Officer		(281) 792-7842				
CO's Signature _ //	Develo	Date 9/15/	2014			
		Date _ 3/13/				
	chrystal.d.ne	vels@na Digitally signed by				
Contents:	-	DN: cn=chrystal.d.				
Title - Si	gnature Page Sa.gov	Date: 2014.09.15 1				
Estimate	d Resources Summary					
Task Ord						
1.0 G	eneral Scope of Work		I			
2.0 T	ask Description					
3.0 S	RMQA					
	RMQA					
4.0 S	RMQA ecurity Requirements					
4.0 S	RMQA					

Facili	Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task Order Number: FDOC-TO4-15		Revision:	
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2015	Original					(b) (4)		
Totals:										
	The FDC s a total v	_	estimated (b 4	cost is	(b) (4	and the	e Contract	ing Off	icer's sig	gnature

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Systems Division (MSD) Information Technology and Special Projects Branch(DD2).

This Task Order is to provide engineering support for the Space Data System standards development.

1.20BJECTIVE

Identify key areas for change and facilitate budget and schedule activities to: 1.) Support development of effective Space Data Systems Standards

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MSD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

2.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

2.2NASA INPUT REQUIREMENTS

All DD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of personnel (FTE): 0.64 FTE - SCAN-CCSDS Data Standards support (Track CCSDS support separately)

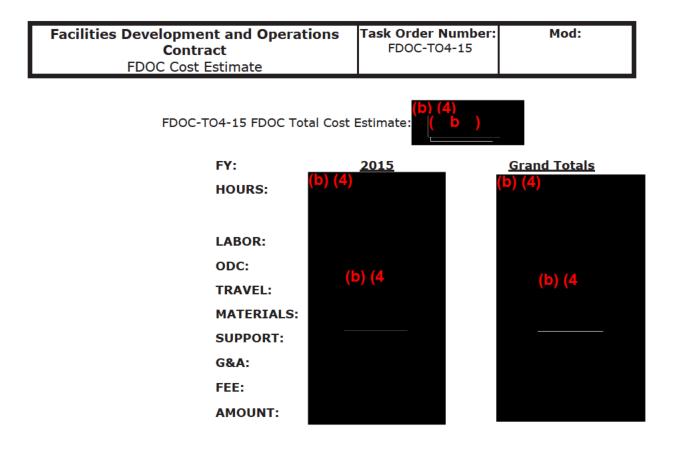
SCAN-CCSDS Travel support Trip destination: (1) International and (1) domestic Trip purpose: Support Bi-annual CCSDS Data Standards Working Group Meetings Trip duration: 5 days

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.



NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

<u>Amount</u>



Facilities Develo	pment and Operations	Task Order Number:	Mod:			
C	ontract	FDOC-TO4-15	1			
Facility Engineering	and Support Services Task					
	Order					
Contractor: Lockheed M	lartin Corporation	Contract Number: NNJ	09HD46C			
GFY: 15	Multiyear: No	SOW Ref: 3.3.5				
Title: Architectural and E	Engineering Support					
Mission Directorates Supported:	External Science	X Space Ops				
Programs Supported:	Aeronautics Constellation X SpaceComm Station Other Desc:	Science Shuttle				
	Schedule					
St	art Date:	Estimated Compl	etion Date:			
10	0/01/2014	09/30/2015				
	Approvals					
Title	Point of Contact	Phone	Date Approved			
Task Order Monitor	Wolfer, Eric	(281) 483-6709	04/09/2015			
Task Order TMR	Carreon, Patricia	(281) 483-7052	04/09/2015			
Task Order Division	Leblanc, Troy	(281) 244-0279	04/15/2015			
FDOC Representative	Beuchaw, Karen	(281) 283-4461	04/23/2015			
Task Order Monitor	Wolfer, Eric	(281) 483-6709	04/23/2015			
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	04/23/2015			
COTR	Lowery, James	(281) 483-1064	04/23/2015			
NASA Contracts Officer	NEVELS, CHRYSTAL	(281) 792-7842				
CO's Signature	STAL NEVELS Digitally signed by CHRYSTAL NEVELS Diff. C-US o-US Government cu-NAU Diff. 2015 04 24 08:49:12 Date: 2015 04 24 08:49:12 05'00'	sA OU-PW CHRYSTAL NEVELS Date 4/24	/2015			
Estimate Task Ord 1.0 G 2.0 Ta 3.0 S 4.0 S	gnature Page d Resources Summary er Text eneral Scope of Work ask Description RMQA ecurity Requirements d NASA Resources Summary					

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task O Numb FDOC-T	er:	Rev	i sion: 1		
Fiscal	Mod	Labor						G&A \$	Fee \$	Total \$
Year		Hours		\$	\$	\$				
2015	Original					(b) (4)				
2015	1									
Totals:										

NOTE: The FDOC total estimated cost is **(b) (4)** and the Contracting Officer's signature approves a total value of **(b) (4)**

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Systems Division (MSD) Information Technology and Special Projects Branch(DD2).

This Task Order is to provide engineering support for the Space Data System standards development.

1.20BJECTIVE

Identify key areas for change and facilitate budget and schedule activities to: 1.) Support development of effective Space Data Systems Standards

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

 Participate in meetings and forums as requested supporting MSD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.
 Support Space Data Systems Standards and committee assessment, formulation,

development, authoring, and chairing of working groups.

2.2NASA INPUT REQUIREMENTS

All CD requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of personnel (FTE): 0.31 FTE - SCAN-CCSDS Data Standards support (Track CCSDS support separately)

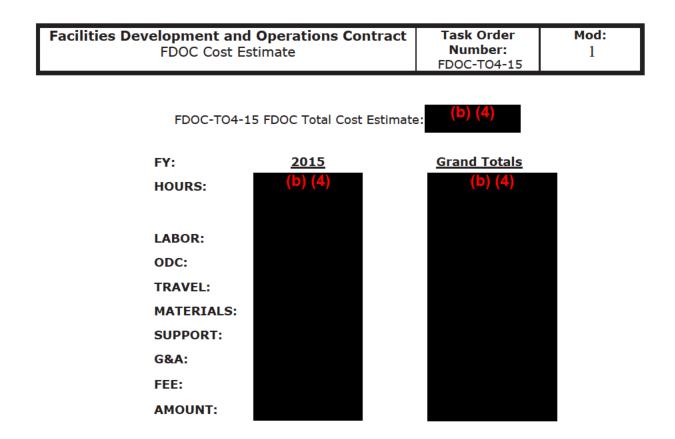
SCAN-CCSDS Travel support Trip destination: (1) International and (1) domestic Trip purpose: Support Bi-annual CCSDS Data Standards Working Group Meetings Trip duration: 5 days

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4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security and JSC security guidelines.



NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

Amount



		Date Pri	nted: 09/10/2014			
Facilities Develo	pment and Operations	Task Order Number:	Mod:			
	ontract	FDOC-TO5-15	Basic			
Facility Engineering	and Support Services Task					
	Order					
Contractor: Lockheed M	artin Corporation	Contract Number: NN	109HD46C			
GFY: 15	Multiyear: No	SOW Ref: 3.3.4				
Title: System Engineerin	g and Integration Support (MCC	S)				
Mission Directorates						
Supported:	Aeronautics Exploration	External Science	X Space Ops			
Brograms Supported:	Aeronautics Constellation					
Programs Supported.						
		X Other				
	Other Desc:MPCV/SLS/CST-1	00				
	Schedule					
Sta	art Date:	Estimated Completion Date:				
10)/01/2014	09/30/20	015			
	Approvals					
	Approvals					
Title	Approvals Point of Contact	Phone	Date Approved			
Task Order Monitor		Phone (281) 244-8564	Date Approved 07/08/2014			
Task Order Monitor Task Order TMR	Point of Contact Cobb, Carey ALLCORN, JON		07/08/2014 07/09/2014			
Task Order Monitor	Point of Contact Cobb, Carey	(281) 244-8564	07/08/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461	07/08/2014 07/09/2014 07/11/2014 08/04/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
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Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842 Date	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by chrystal.d.nevels@na DN: cn=chpyctal.d.nevels@na	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842 Date	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
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Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature ryst S@NAS Contents:	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by chrystal.d.nevels@na Dice=chrystal.d.nevels@na Dice=chrystal.d.nevels@na	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842 Date asa.gov	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature ryst S@NAS Contents:	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by chrystal.d.nevels@na DN: cn=chpyctal.d.nevels@na	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842 Date asa.gov	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signater Tyst COTS Contents: Title - Sig	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by chrystal.d.nevels@na Dice=chrystal.d.nevels@na Dice=chrystal.d.nevels@na	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842 Date asa.gov	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
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Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature Tyste IS@NAS Contents: Title - Sig Estimated Task Ord	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by chrystal.d.nevels@na DN: cn=choutal day Date: 2014.09.10 10: gnature Page d Resources Summary er Text	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842 Date asa.gov	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signater IS@NAS Contents: Title - Sig Estimater Task Ord 1.0 G	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by chrystal.d.nevels@na DN: cn=choretal doe DAte: 2014.09.10 10: gnature Page d Resources Summary er Text eneral Scope of Work	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842 Date asa.gov	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signate Prysta IS@NAS Contents: Title - Sig Estimated Task Ord 1.0 G 2.0 Ta	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by chrystal.d.nevels@na DN: cn=chystal.d.nevels@na DN: cn=chyst	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842 Date asa.gov	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature Tyste IS@NAS Contents: Title - Sig Estimated Task Ord 1.0 G 2.0 Ta 3.0 Signated	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by chrystal.d.nevels@na DN: cn=chavtal.d.nevels@na DN: cn=chavt	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842 Date asa.gov	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signater IS@NAS Contents: Title - Sig Estimater Task Ord 1.0 G 2.0 Ta 3.0 Si 4.0 Si	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by chrystal.d.nevels@na DN: cn=choretal doe DAte: 2014.09.10 10: gnature Page d Resources Summary er Text eneral Scope of Work ask Description RMQA ecurity Requirements	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842 Date asa.gov	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signater IS@NAS Contents: Title - Sig Estimater Task Ord 1.0 G 2.0 Ta 3.0 Si 4.0 Si	Point of Contact Cobb, Carey ALLCORN, JON Lindner, Daniel Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL Digitally signed by chrystal.d.nevels@na DN: cn=chavtal.d.nevels@na DN: cn=chavt	(281) 244-8564 (281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 244-8564 (281) 244-0513 (281) 483-1064 (281) 792-7842 Date asa.gov	07/08/2014 07/09/2014 07/11/2014 08/04/2014 08/04/2014 08/04/2014 08/13/2014			

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task Order Number: FDOC-TO5-15		Revision:			
Fiscal	Mod	Labor	Labor \$	ODC	Travel	Material	Support	G&A	Fee \$	Total \$
Year		Hours		\$	\$	\$	\$	\$		
2015	2015 Original (b) (4)									
Totals:	:									
	The FD s a total		estimated (cost is	(b) (and	the Contr	acting	Officer's	s signature

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide Mission Control Center Systems system engineering and sustaining support services.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-toend architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between DD facility and customer communities, DD Project Managers, and FDOC contractor personnel.

2.) Assist DD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting DD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist DD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by DD facility, DD Project Managers or DD Customer communities.

6.) Represent the DD customer interests in the planning, design and development of strategic DD facility capabilities.

7.) Coordinate all change activities with the appropriate DD project manager.

8.) Represent the DD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all DD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with MOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with DD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required. 16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the

Operating Plan.

19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the DD customer interests.

20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities. 21.) Provide support to the MOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

22) Provide Full architectural understanding of all MCCS Systems past and present. Understanding of NASAâ€[™]s strategic goals and vision for future systems, missions, and vehicle integration. For new business development (MPCV, CC) and existing business consultation (ISSP), COMM expert with knowledge in the following areas: RF communications; Modem design; FEC schemes; CCSDS Standards specifically AOS, SLE and the Encapsulation standards; IRIG 106 TLM Standards; Telemetry decommutation and calibration; Navigation and Tracking. Individual should have knowledge in the following generalized areas: Hardware and software design; systems design and implementation; prior experience of developing a comm front end for a dynamic vehicle.

23) Provide Working knowledge of the MCC systems supporting EFT-1. OS/Comet expertise including installing updates, debugging issues, and start-up and monitoring the health of the system.

24) Provide Experience with EFT-1 and OS/Comet command and telemetry system to start to migrate these functions to the MCCS (MCC21) system including regression checks (which requires working knowledge of OS/Comet).

25) Provide Support for development and evaluation of Orion and SLS SDRs, which are both in June 2015. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

26) Provide Support for development and evaluation of Orion and SLS CDRs, both CDRs are in April 2016. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon, and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

27) Provide MS-GSDO ICD and IRD and MS-SLS ICD interface updates. This includes supporting weekly meetings with GSDO (KSC) and bi-weekly meetings with SLS. End-to-end system knowledge of MPCV and SLS is required. Good technical writing skills and working knowledge of these three documents are highly desired:

[1] MPCV 70054, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Document (IRD)

 [2] MPCV 72548, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Control Document (ICD)
 [3] MS-SLS ICD

28) Provide MCCS (MCC21) system knowledge to research innovative solutions to PTF issues or new requirements of the system. As well as the ability to test delivered systems from a practical flight controller/user perspective.

29) Provide Technical meeting coordinator (DD15 Working Groups and associated splinters) and DD15 SharePoint webmaster.

30) Provide MCC21 Buildup and facility knowledge and coordination. Knowledge of the room buildup plan, maintenance team, and working relationships with IRD, COD, and DD4. Interface point for final design and implementation integration of IRD and COD solutions with DD4 and into MCCS.

31) Provide MCC21 Systems Engineering & Integration support. MCCS (MCC21) system knowledge to assist in coordination, tracking, and monitoring of FDOC products and implementations thru completion of MCC-21 Phase 2 activities. Working knowledge of CST-100, EFT-1, and MPCV/SLS designs to assist with ensuring that the design and implementation of these projects are converging (i.e., MCC-21 isn't delivering a capability that is orthogonal to another project's expectations). Must have good communications and technical writing skills as well as a working relationship with DD4 and FDOC MCC-21 project teams to ensure that the MCC design matches these systems designs

32) Provide Boeing CST-100 CDR support. This task will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. A resource is also required to interface with the Boeing Ground Segment team and also with the Boeing onboard team to ensure that the MCC design matches these systems designs. The subsystems that will require the most design work are: Command, Comm and Recon. Past Boeing CST-100 experience is highly desired.

33) Provide Boeing CST-100 implementation support. This tasks will include: participating in implementation working groups; monitoring interfaces and coordinating any necessary interface communications; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most design work are: Command, Comm, Recon, and External Interfaces. Past Boeing CST-100 and MCC21 experience is highly desired.

34) Provide Boeing CST-100 testing support and coordination.

35) Provide Recon expert capable of assisting in the design of the new recon system that will be used for all new vehicles that will be supported in the MCCS. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY15 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

36) Provide ICAN support: Weekly ICAN meeting support. The ability to develop systems engineer products required by the ICAN. The systems that are discussed in the ICAN are: Command, Comm, Recon, Voice, Video, OPS History and MCCS common services.

37) Provide CMIT support: Weekly CMIT meeting support. The ability to develop systems engineering products required by the CMIT. The systems that are discussed in the CMIT are: Command, Comm, Recon, Voice, Video, OCA, OPS History and MCCS common services.

38) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of personnel (FTE): 7 (6 ISS, 1 MPCV)

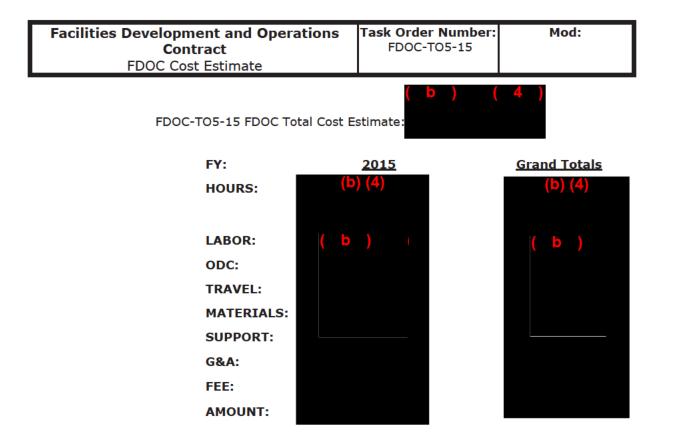
Travel requirements Number of trips (1 person/trip): 3 Trip destination: ISS (Domestic - 3, International - 0) Trip duration: 5 days Materials support required, if any: None

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

<u>Amount</u>



			Date Printed: 01/06/2015
	nt and Operations Contract	Task Order Number:	Mod:
Facility Engineering and	Support Services Task Order	FDOC-TO5-15	1
Contractor: Lockheed Martir	Corporation	Contract Number: NNJ09HD4	46C
GFY: 15	Multiyear: No	SOW Ref: 3.3.4	
Title: System Engineering an	d Integration Support (MCCS)		
Mission Directorates Supported:	Aeronautics Exploration	n 🗖 External 🗖 Science	X Space Ops
Programs Supported:	Aeronautics Constellation SpaceComm X Station Other Desc:MPCV/SLS/CST-	${f X}$ Other	
	Sched	-	vision Datas
	art Date: /01/2014	Estimated Com 09/30/	
	/01/2014		2013
	Approv	vals	
Title	Point of Contact	Phone	Data Approved
Task Order Monitor	Cobb, Carey	(281) 244-8564	Date Approved 12/03/2014
Task Order TMR	ALLCORN, JON	(281) 244-8564	12/03/2014
Task Order Division	Lindner, Daniel	(281) 244-8402 (281) 483-3885	12/05/2014
FDOC Representative	Beuchaw, Karen	(281) 283-4461	12/19/2014
Task Order Monitor	Cobb, Carey	(281) 244-8564	01/05/2015
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	01/06/2015
COTR	Lowery, James	(281) 244-0515 (281) 483-1064	01/06/2015
NASA Contracts Officer	NEVELS, CHRYSTAL	(281) 792-7842	01/06/2015
Contents: Title - Signa	TAL NEVELS Div.c=U5,0=U 0.9.2342.19200 Date: 2015.01.0	d by CHRYSTAL NEVELS J.S. Government, ou=NASA, ou=PIV, 3300.100.1.1=cnevels, cn=CHRYSTAL NEVELS 06 11:35:00 -06'00'	Date 01/06/2015
Estimated R	esources Summary		
Task Order	,		
	eral Scope of Work		
	Description		
3.0 SRM	QA		
4.0 Secu	rity Requirements		
Estimated N	ASA Resources Summary		I
Estimateu N	ASA Resources Summary		

I	Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task Order Number: FDOC-TO5-15		Revision: 1		
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	\$	Support \$	G&A \$	Fee \$	Total \$
2015	Original					(b) (4)				
2015	1									
Totals:										
NOTE: Th b) 4)	ne FDOC to	otal estimate	d cost is	(b) (4)	and the Co	ntracting (Officer's sig	gnature ap	proves a to	otal value of



Task Order Number: FDOC-TO5-15

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide Mission Control Center Systems system engineering and sustaining support services.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between CD facility and customer communities, CD Project Managers, and FDOC contractor personnel.

2.) Assist CD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting CD facilities for requirements and changes which will affect the facility capabilities.

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6.) Represent the CD customer interests in the planning, design and development of strategic CD facility capabilities.

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16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the CD customer interests. 20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.

21.) Provide support to the FOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

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26) Provide Support for development and evaluation of Orion and SLS CDRs, both CDRs are in April 2016. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon, and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

27) Provide MS-GSDO ICD and IRD and MS-SLS ICD interface updates. This includes supporting weekly meetings with GSDO (KSC) and bi-weekly meetings with SLS. End-to-end system knowledge of MPCV and SLS is required. Good technical writing skills and working knowledge of these three documents are highly desired:

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29) Provide Technical meeting coordinator (CD15 Working Groups and associated splinters) and CD15 SharePoint webmaster.

30) Provide MCC21 Buildup and facility knowledge and coordination. Knowledge of the room buildup plan, maintenance team, and working relationships with IRD, COD, and CD4. Interface point for final design and implementation integration of IRD and COD solutions with CD4 and into MCCS.

31) Provide MCC21 Systems Engineering & Integration support. MCCS (MCC21) system knowledge to assist in coordination, tracking, and monitoring of FDOC products and implementations thru completion of MCC-21 Phase 2 activities. Working knowledge of CST-100, EFT-1, and MPCV/SLS designs to assist with ensuring that the design and implementation of these projects are converging (i.e., MCC-21 isn't delivering a capability that is orthogonal to another project's expectations). Must have good communications and technical writing skills as well as a working relationship with CD4 and FDOC MCC-21 project teams to ensure that the MCC design matches these systems designs

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33) Provide Boeing CST-100 implementation support. This tasks will include: participating in implementation working groups; monitoring interfaces and coordinating any necessary interface communications; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most design work are: Command, Comm, Recon, and External Interfaces. Past Boeing CST-100 and MCC21 experience is highly desired.

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35) Provide Recon expert capable of assisting in the design of the new recon system that will be used for all new

vehicles that will be supported in the MCCS. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY15 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

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38) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of personnel (FTE): 7.5 (5 ISS, 1 MPCV, 1.5 CST-100)

Travel requirements Number of trips (1 person/trip): 3 Trip destination: ISS (Domestic - 3, International - 0) Trip duration: 5 days

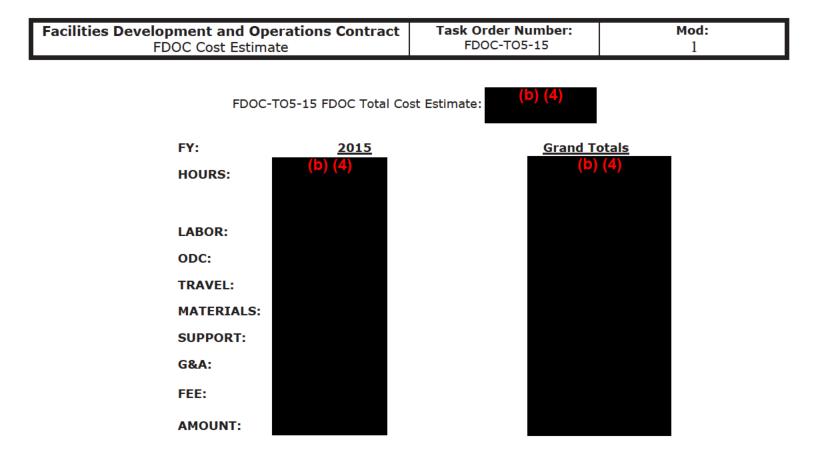
Materials support required, if any: \$160K for ISS purchased labor and \$40K for CST-100 purchased labor

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO5-15	1

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>



			Date Printed: 02/1//2015
	and Operations Contract	Task Order Number:	Mod:
Facility Engineering and S	Support Services Task Order	FDOC-TO5-15	2
Contractor: Lockheed Martin C	orporation	Contract Number: NNJ09HD4	46C
GFY: 15	Multiyear: No	SOW Ref: 3.3.4	
Title: System Engineering and	Integration Support (MCCS)		
Mission Directorates Supported:	Aeronautics Exploration	External 🗖 Science	X Space Ops
Programs Supported:	Aeronautics Constellation SpaceComm X Station Other Desc:MPCV/SLS/CST-1	X Other	
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	t Date: 01/2014	Estimated Com 09/30/	
10/0	1/2014	09/30/	/2015
	Approv	als	
Title	Point of Contact	Phone	Data Approved
Task Order Monitor	Cobb, Carey	(281) 244-8564	Date Approved 01/27/2015
Task Order TMR	ALLCORN, JON	(281) 244-8564	01/27/2015
Task Order Division	Lindner, Daniel	(281) 483-3885	01/27/2015
FDOC Representative	Beuchaw, Karen	(281) 283-4461	01/27/2015
Task Order Monitor	Cobb, Carey	(281) 244-8564	01/27/2015
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	01/27/2015
COTR			
NASA Contracts Officer	Lowery, James NEVELS, CHRYSTAL	(281) 483-1064 (281) 792-7842	01/29/2015 02/17/2015
	ALNEVELS, CHRYSTAL NE Digitally signed by CHRYSTAL NE DN: c=US, o=US. Government, o DN: c=US, 0=US. Government, o DN: c=US, 0=US, 0=	EVELS	Date
Task Order Te 1.0 Genera 2.0 Task D 3.0 SRMQA 4.0 Securit	ources Summary xt al Scope of Work pescription		

Facilities Development and Operations Contract FDOC Cost Estimate Summary				Task Order Number: FDOC-TO5-15		Revision: 2				
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	\$	Support \$	G&A \$	Fee \$	Total \$
2015	Original					(b) (4)				
2015	1									
2015	2									
otals:										
OTE: Tl 4)	he FDOC to	tal estimate	ed cost is	(b) (4)	and the Co	ntracting (Officer's sig	gnature ap	proves a to	otal value

Task Order Number: FDOC-TO5-15

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide Mission Control Center Systems system engineering and sustaining support services.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

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communications; Modem design; FEC schemes; CCSDS Standards specifically AOS, SLE and the Encapsulation standards; IRIG 106 TLM Standards; Telemetry decommutation and calibration; Navigation and Tracking. Individual should have knowledge in the following generalized areas: Hardware and software design; systems design and implementation; prior experience of developing a comm front end for a dynamic vehicle.

23) Provide Working knowledge of the MCC systems supporting EFT-1. OS/Comet expertise including installing updates, debugging issues, and start-up and monitoring the health of the system.

24) Provide Experience with EFT-1 and OS/Comet command and telemetry system to start to migrate these functions to the MCCS (MCC21) system including regression checks (which requires working knowledge of OS/Comet).

25) Provide Support for development and evaluation of Orion and SLS SDRs, which are both in June 2015. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

26) Provide Support for development and evaluation of Orion and SLS CDRs, both CDRs are in April 2016. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon, and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

27) Provide MS-GSDO ICD and IRD and MS-SLS ICD interface updates. This includes supporting weekly meetings with GSDO (KSC) and bi-weekly meetings with SLS. End-to-end system knowledge of MPCV and SLS is required. Good technical writing skills and working knowledge of these three documents are highly desired:

[1] MPCV 70054, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Document (IRD)

[2] MPCV 72548, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Control Document (ICD)

[3] MS-SLS ICD

28) Provide MCCS (MCC21) system knowledge to research innovative solutions to PTF issues or new requirements of the system. As well as the ability to test delivered systems from a practical flight controller/user perspective.

29) Provide Technical meeting coordinator (CD15 Working Groups and associated splinters) and CD15 SharePoint webmaster.

30) Provide MCC21 Buildup and facility knowledge and coordination. Knowledge of the room buildup plan, maintenance team, and working relationships with IRD, COD, and CD4. Interface point for final design and implementation integration of IRD and COD solutions with CD4 and into MCCS.

31) Provide MCC21 Systems Engineering & Integration support. MCCS (MCC21) system knowledge to assist in coordination, tracking, and monitoring of FDOC products and implementations thru completion of MCC-21 Phase 2 activities. Working knowledge of CST-100, EFT-1, and MPCV/SLS designs to assist with ensuring that the design and implementation of these projects are converging (i.e., MCC-21 isn't delivering a capability that is orthogonal to another project's expectations). Must have good communications and technical writing skills as well as a working relationship with CD4 and FDOC MCC-21 project teams to ensure that the MCC design matches these systems designs

32) Provide Boeing CST-100 CDR support. This task will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. A resource is also required to interface with the Boeing Ground Segment team and also with the Boeing onboard team to ensure that the MCC design matches these systems designs. The subsystems that will require the most design work are: Command, Comm and Recon. Past Boeing CST-100 experience is highly desired.

33) Provide Boeing CST-100 implementation support. This tasks will include: participating in implementation working groups; monitoring interfaces and coordinating any necessary interface communications; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most design work are: Command, Comm, Recon, and External Interfaces. Past Boeing CST-100 and MCC21 experience is highly desired.

34) Provide Boeing CST-100 testing support and coordination.

35) Provide Recon expert capable of assisting in the design of the new recon system that will be used for all new

vehicles that will be supported in the MCCS. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY15 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

36) Provide ICAN support: Weekly ICAN meeting support. The ability to develop systems engineer products required by the ICAN. The systems that are discussed in the ICAN are: Command, Comm, Recon, Voice, Video, OPS History and MCCS common services.

37) Provide CMIT support: Weekly CMIT meeting support. The ability to develop systems engineering products required by the CMIT. The systems that are discussed in the CMIT are: Command, Comm, Recon, Voice, Video, OCA, OPS History and MCCS common services.

38) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of personnel (FTE): 7.5 (5 ISS, 1 MPCV, 1.5 CST-100)

Travel requirements Number of trips (1 person/trip): 3 Trip destination: ISS (Domestic - 3, International - 0) Trip duration: 5 days

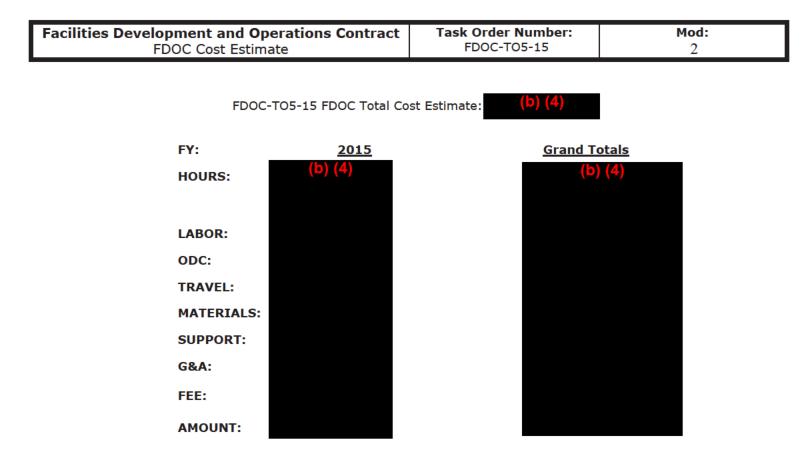
Materials support required, if any: \$120K for ISS purchased labor, \$40k for MPCV purchased labor, and \$40K for CST-100 purchased labor

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-TO5-15	2

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>

WBS Total:

(b) (4)

	Date Pri	nted: 07/09/2015
pment and Operations	Task Order Number:	Mod:
ontract	FDOC-TO5-15	3
and Support Services Task		
Order		
artin Corporation	Contract Number: NN.	J09HD46C
Multiyear: No	SOW Ref: 3.3.4	
g and Integration Support (MCC	CS)	
Aeronautics Exploration	External Science	X Space Ops
\square SpaceComm $old X$ Station	${f X}$ Other	
Schedule		
art Date:	Estimated Comp	etion Date:
0/01/2014	09/30/2	015
Approvals		
Point of Contact	Phone	Date Approved
		06/11/2015
		06/11/2015
		06/15/2015
		06/25/2015
		06/25/2015
		06/26/2015
		06/26/2015
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	(201) 403 1030	0770072013
	Date	
gnature Page d Resources Summary er Text eneral Scope of Work ask Description		
RMQA		
d NASA Resources Summary		
	and Support Services Task Order artin Corporation Multiyear: No a and Integration Support (MCC Aeronautics Exploration Aeronautics Constellation SpaceComm X Station Other Desc: MPCV/SLS/CST-10 Schedule art Date: //01/2014 Approvals Point of Contact Cobb, Carey Carreon, Patricia Leblanc, Troy Beuchaw, Karen Cobb, Carey VICENCIO, CARLITO Lowery, James BOYES, TIMOTHY gnature Page d Resources Summary er Text eneral Scope of Work ask Description RMQA ecurity Requirements	pment and Operations ontract and Support Services Task Order Task Order Number: FDOC-TO5-15 artin Corporation Contract Number: NN. Multiyear: No SOW Ref: 3.3.4 q and Integration Support (MCCS) SOW Ref: 3.3.4 Aeronautics Exploration Aeronautics Constellation SpaceComm X Station X Other Shuttle SpaceComm X Station X Other Other Other Desc: MPCV/SLS/CST-100 Approvals Point of Contact Phone Cobb, Carey (281) 244-8564 Carreon, Patricia (281) 244-8564 Cobb, Carey (281) 244-8564 Cobb, Carey (281) 244-8564 Cobb, Carey (281) 244-8564 Cobb, Carey (281) 244-0513 Lowery, James (281) 483-1064 BOYES, TIMOTHY (281) 483-1838

Facilit			ent and O Estimate			Contract	Task O Numb FDOC-T(er:	Rev	ision: 3
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
2015	Original					(b) (4	•)			
2015	1									
2015	2									
2015	3									
Totals:										

NOTE: The FDOC total estimated cost is **(b) (4)** and the Contracting Officer's signature approves a total value of **(b)**



Facilities Development and Operations	Task Order Number:	Mod:
Contract	FDOC-TO5-15	3
Task Order Text		

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide Mission Control Center Systems system engineering and sustaining support services.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-toend architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between CD facility and customer communities, CD Project Managers, and FDOC contractor personnel.

2.) Assist CD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting CD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist CD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term DD strategic architecture.

5.) Assist in any studies and assessments as needed by CD facility, CD Project Managers or CD Customer communities.

6.) Represent the CD customer interests in the planning, design and development of strategic CD facility capabilities.

7.) Coordinate all change activities with the appropriate CD project manager.

8.) Represent the CD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected DD Project Manager.

10.) Ensure all CD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with FOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with CD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required. 16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the

Operating Plan.

19.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the CD customer interests.

20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities. 21.) Provide support to the FOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

22) Provide Full architectural understanding of all MCCS Systems past and present. Understanding of NASA's strategic goals and vision for future systems, missions, and vehicle integration. For new business development (MPCV, CC) and existing business consultation (ISSP), COMM expert with knowledge in the following areas: RF communications; Modem design; FEC schemes; CCSDS Standards specifically AOS, SLE and the Encapsulation standards; IRIG 106 TLM Standards; Telemetry decommutation and calibration; Navigation and Tracking. Individual should have knowledge in the following generalized areas: Hardware and software design; systems design and implementation; prior experience of developing a comm front end for a dynamic vehicle.

23) Provide Working knowledge of the MCC systems supporting EFT-1. OS/Comet expertise including installing updates, debugging issues, and start-up and monitoring the health of the system.

24) Provide Experience with EFT-1 and OS/Comet command and telemetry system to start to migrate these functions to the MCCS (MCC21) system including regression checks (which requires working knowledge of OS/Comet).

25) Provide Support for development and evaluation of Orion and SLS SDRs, which are both in June 2015. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

26) Provide Support for development and evaluation of Orion and SLS CDRs, both CDRs are in April 2016. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon, and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

27) Provide MS-GSDO ICD and IRD and MS-SLS ICD interface updates. This includes supporting weekly meetings with GSDO (KSC) and bi-weekly meetings with SLS. End-to-end system knowledge of MPCV and SLS is required. Good technical writing skills and working knowledge of these three documents are highly desired:

[1] MPCV 70054, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Document (IRD)

 [2] MPCV 72548, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Control Document (ICD)
 [3] MS-SLS ICD

28) Provide MCCS (MCC21) system knowledge to research innovative solutions to PTF issues or new requirements of the system. As well as the ability to test delivered systems from a practical flight controller/user perspective.

29) Provide Technical meeting coordinator (CD15 Working Groups and associated splinters) and CD15 SharePoint webmaster.

30) Provide MCC21 Buildup and facility knowledge and coordination. Knowledge of the room buildup plan, maintenance team, and working relationships with IRD, COD, and CD4. Interface point for final design and implementation integration of IRD and COD solutions with CD4 and into MCCS.

31) Provide MCC21 Systems Engineering & Integration support. MCCS (MCC21) system knowledge to assist in coordination, tracking, and monitoring of FDOC products and implementations thru completion of MCC-21 Phase 2 activities. Working knowledge of CST-100, EFT-1, and MPCV/SLS designs to assist with ensuring that the design and implementation of these projects are converging (i.e., MCC-21 isn't delivering a capability that is orthogonal to another project's expectations). Must have good communications and technical writing skills as well as a working relationship with CD4 and FDOC MCC-21 project teams to ensure that the MCC design matches these systems designs

32) Provide Boeing CST-100 CDR support. This task will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. A resource is also required to interface with the Boeing Ground Segment team and also with the Boeing onboard team to ensure that the MCC design matches these systems designs. The subsystems that will require the most design work are: Command, Comm and Recon. Past Boeing CST-100 experience is highly desired.

33) Provide Boeing CST-100 implementation support. This tasks will include: participating in implementation working groups; monitoring interfaces and coordinating any necessary interface communications; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most design work are: Command, Comm, Recon, and External Interfaces. Past Boeing CST-100 and MCC21 experience is highly desired.

34) Provide Boeing CST-100 testing support and coordination.

35) Provide Recon expert capable of assisting in the design of the new recon system that will be used for all new vehicles that will be supported in the MCCS. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY15 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

36) Provide ICAN support: Weekly ICAN meeting support. The ability to develop systems engineer products required by the ICAN. The systems that are discussed in the ICAN are: Command, Comm, Recon, Voice, Video, OPS History and MCCS common services.

37) Provide CMIT support: Weekly CMIT meeting support. The ability to develop systems engineering products required by the CMIT. The systems that are discussed in the CMIT are: Command, Comm, Recon, Voice, Video, OCA, OPS History and MCCS common services.

38) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of personnel (FTE): 7.0 (4.5 ISS, 1 MPCV, 1.5 CST-100)

Travel requirements Number of trips (1 person/trip): 3 Trip destination: ISS (Domestic - 3, International - 0) Trip duration: 5 days Materials support required, if any: \$220K for ISS purchased labor, \$40k for MPCV purchased labor, and \$40K for CST-100 purchased labor

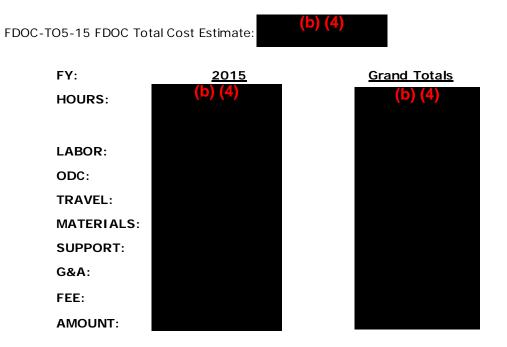
3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

Facilities Development and Operations	Task Order Number:	Mod:
Contract	FDOC-TO5-15	3
FDOC Cost Estimate		



NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

WBS Total:



	pment and Operations	Task Order Number:	Mod:		
	ontract	FDOC-TO5-15	4		
	and Support Services Task				
	Order				
Contractor: Lockheed Ma	artin Corporation	Contract Number: NN	109HD46C		
CEV. 1E	Multiyear: No	COW D-6-2-2-4			
GFY: 15	Multiyear. No	SOW Ref: 3.3.4			
Title: System Engineerin	g and Integration Support (MCC	S)			
Mission Directorates					
Supported:	Aeronautics Exploration	🗀 External 🗀 Science	X Space Ops		
Programs Supported:	Aeronautics Constellation				
	•	X Other			
	Other Desc:MPCV/SLS/CST-1	00			
	Schedule				
	art Date: /01/2014	Estimated Comp 09/30/20			
10	/01/2014	09/30/20	515		
	Approvala				
	Approvals				
Title	Point of Contact	Phone	Date Approved		
Task Order Monitor	Cobb, Carey	(281) 244-8564	07/10/2015		
Task Order TMR	Carreon, Patricia	(281) 483-7052	07/10/2015		
Task Order Division	Leblanc, Troy	(281) 244-0279	07/14/2015		
FDOC Representative	Beuchaw, Karen	(281) 283-4461	07/24/2015		
Task Order Monitor	Cobb, Carey	(281) 244-8564	07/24/2015		
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	07/28/2015		
COTR	Dake, Janna	(281) 483-6538	07/29/2015		
NASA Contracts Officer	BOYES, TIMOTHY	(281) 483-1838	08/12/2015		
ТІМОТН	Y BOYES 0.8.60verment, ou NASA, 0.8.2042,1920300.101.11 boyes 0.9.242,1920300.101.11 boyes	8/12	/15		
CO's Signature	0.9.2342.19200300.100.1.1 tboyes Date 2015.08.12 10 46 40 -05 00'	Date	/10		
Contents:					
Title - Sig	gnature Page				
Estimated	d Resources Summary				
Task Orde	er Text				
1.0 G	eneral Scope of Work				
	ask Description				
	•				
3.0 SI					
	ecurity Requirements				
Estimated	d NASA Resources Summary				

Facilities Development and Operations Contract FDOC Cost Estimate Summary				Task Order Number: FDOC-TO5-15		Revision: 4				
Fiscal	Mod	Labor	Labor \$	ODC	Travel	Material	Support	G&A	Fee \$	Total \$
Year 2015	Original	Hours		3	3	<mark>(b) (</mark> 4	.) .)	3		
2015	1	İ								
2015	2	ĺ								
2015	3									
2015	4									
Totals :										

NOTE: The FDOC total estimated cost is approves a total value of (b) (4)



and the Contracting Officer's signature

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide Mission Control Center Systems system engineering and sustaining support services.

1.20BJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA DD to the DD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-toend architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between CD facility and customer communities, CD Project Managers, and FDOC contractor personnel.

2.) Assist CD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

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10.) Ensure all CD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

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17.) Provide materials support as required to support this activity.

18.) Cost for the support effort will need to be collected and reported according to the

Operating Plan.

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20.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities. 21.) Provide support to the FOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on MOD provided equipment and software or use of non-MOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

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29) Provide Technical meeting coordinator (CD15 Working Groups and associated splinters) and CD15 SharePoint webmaster.

30) Provide MCC21 Buildup and facility knowledge and coordination. Knowledge of the room buildup plan, maintenance team, and working relationships with IRD, COD, and CD4. Interface point for final design and implementation integration of IRD and COD solutions with CD4 and into MCCS.

31) Provide MCC21 Systems Engineering & Integration support. MCCS (MCC21) system knowledge to assist in coordination, tracking, and monitoring of FDOC products and implementations thru completion of MCC-21 Phase 2 activities. Working knowledge of CST-100, EFT-1, and MPCV/SLS designs to assist with ensuring that the design and implementation of these projects are converging (i.e., MCC-21 isn't delivering a capability that is orthogonal to another project's expectations). Must have good communications and technical writing skills as well as a working relationship with CD4 and FDOC MCC-21 project teams to ensure that the MCC design matches these systems designs

32) Provide Boeing CST-100 CDR support. This task will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. A resource is also required to interface with the Boeing Ground Segment team and also with the Boeing onboard team to ensure that the MCC design matches these systems designs. The subsystems that will require the most design work are: Command, Comm and Recon. Past Boeing CST-100 experience is highly desired.

33) Provide Boeing CST-100 implementation support. This tasks will include: participating in implementation working groups; monitoring interfaces and coordinating any necessary interface communications; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most design work are: Command, Comm, Recon, and External Interfaces. Past Boeing CST-100 and MCC21 experience is highly desired.

34) Provide Boeing CST-100 testing support and coordination.

35) Provide Recon expert capable of assisting in the design of the new recon system that will be used for all new vehicles that will be supported in the MCCS. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY15 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

36) Provide ICAN support: Weekly ICAN meeting support. The ability to develop systems engineer products required by the ICAN. The systems that are discussed in the ICAN are: Command, Comm, Recon, Voice, Video, OPS History and MCCS common services.

37) Provide CMIT support: Weekly CMIT meeting support. The ability to develop systems engineering products required by the CMIT. The systems that are discussed in the CMIT are: Command, Comm, Recon, Voice, Video, OCA, OPS History and MCCS common services.

38) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

2.2NASA INPUT REQUIREMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of personnel (FTE): 6.0 (3.5 ISS, 1 MPCV, 1.5 CST-100)

Travel requirements Number of trips (1 person/trip): 3 Trip destination: ISS (Domestic - 3, International - 0) Trip duration: 5 days Materials support required, if any: \$270K for ISS purchased labor, \$40k for MPCV purchased labor, and \$40K for CST-100 purchased labor

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

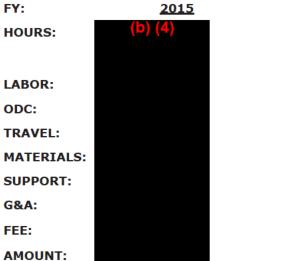
Facilities Development and Operations	Task Order Number:	Mod:
Contract	FDOC-TO5-15	4
FDOC Cost Estimate		

(b) (4) FDOC-TO5-15 FDOC Total Cost Estimate:

FY: HOURS:

LABOR: ODC:

G&A: FEE:



Grand Totals

(b) (4)

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

<u>Amount</u>

WBS Total:



		Date Pr	nted: 09/10/2014	
	pment and Operations	Task Order Number:	Mod:	
	ontract	FDOC-TO8-15	Basic	
Facility Engineering	and Support Services Task			
	Order			
Contractor: Lockheed M	artin Corporation	Contract Number: NN	109HD46C	
GFY: 15	Multiyear: No	SOW Ref: 3.3.7		
Title: Alternate Facility N	lanager			
Mission Directorates Supported:	Aeronautics Exploration	🗖 External 🗖 Science	X Space Ops	
Programs Supported:	□ Aeronautics □ Constellation □ SpaceComm X Station Other Desc:	□ Science □ Shuttle □ Other		
	Schedule			
St	art Date:	Estimated Comp	etion Date:	
10	0/01/2014	09/30/2	015	
	Approvals			
Title	Point of Contact	Phone	Date Approved	
Task Order Monitor	Bauer, Angela	(281) 483-1398	07/08/2014	
Task Order TMR	ALLCORN, JON	(281) 244-8402	07/09/2014	
Task Order Division	Lindner, Daniel	(281) 483-3885	07/11/2014	
FDOC Representative	Beuchaw, Karen	(281) 283-4461	08/01/2014	
Task Order Monitor	Bauer, Angela	(281) 483-1398	08/01/2014	
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/01/2014	
COTR	Lowery, James	(281) 483-1064	08/01/2014	
NASA Contracts Officer	NEVELS, CHRYSTAL	(281) 792-7842	09/10/2014	
CO's Signature	Vevelo	Date 9/10/2014		
Contents: Title - Sid	gnature Page			
	d Resources Summary			
Task Ord				
	eneral Scope of Work			
2.0 T	ask Description			
3.0 S	RMQA			
	ecurity Requirements			
Estimate	d NASA Resources Summary			

Facilities Development and Operations Contract FDOC Cost Estimate Summary					Task O Numb FDOC-T	er:	Rev	ision:		
Fiscal Year	Mod	Labor Hours	Labor \$	ODC \$	Travel \$	Material \$	Support \$	G&A \$	Fee \$	Total \$
	Original			Ψ	Ÿ	(b) (4)	Ý			
Totals:	I									

NOTE: The FDOC total estimated cost is approves a total value of (b) (4) and the Contracting Officer's signature (4)



1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide assistance to or act as the Facility Manager.

1.20BJECTIVE

Ensure that safety, operations and facility support issues are resolved in a timely manner.

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

The Alternate Facility Manager's safety related duties are to:

- Assist in the preparation of report for Special Assistance to Director (SAD) Monthly Telecon
- Back-up for Facility Manager at FOIG Monthly Safety Meeting
- Back-up to Facility Manager as AED Coordinator
- Assist in resolution of Facility Mishaps
- Assist with Voluntary Protection Program (VPP) actions
- Act as Fire Warden
- Participate in and resolve safety issues found Monthly Building Inspections
- Assist with Environmental Management System (EMS) and Hazmat database updates
- Assist the Facility Manager in role of Safety and Health Representative
- Assist Facility Manager with periodic review of Emergency Action Plan (EAP)

The Alternate Facility Manager's facility operations duties are to:

- Approve Fire System Outages and Testing
- Assist Facility Manager in coordinating and monitoring fire drills
- Assist Facility Manager in planning Open House and Inspection Day
- Become familiar with and assist Facility Manager in managing Memorandums of
- Understanding (MOU) between DD facilities and other facilities.
- Assist Facility Manager in the planning of daily PAO, Educational Outreach, Space Center Houston and VIP visits
- Ensure guides are available for all tours
- Act as tour guide
- Act as back-up to Facility Manager in approving Form 722A's (official visitors)
- Approve Friends and Family Visits (ERVBs)
- Respond to Hot and Cold Calls
- Respond to Building Issues

- Assist Facility Manager in writing and maintaining Hurricane Shutdown Procedures For Computer Equipment And Air Conditioning

- Support the resolution of Space Center Houston Issues
- Support the resolution of National Historical Monument Issues
- Assist the Facility Manager with visits by museum and historical site survey teams
- Assist the Facility Manager in working all aspects of Shuttle retirement

The Alternate Facility Manager's facility support duties are to:

- Assist the Facility Manager with the annual Major Facilities Utilization Report (headquarters requirement coordinated by COD)

- Assist the Facility Manager with the Major Facilities Inventory (headquarters requirement coordinated by COD)

- Develop and Submit MCRR, CoF and WAD Projects
- Respond to Physical Security Issues (Card readers, doors, personnel, etc.)
- Attend Pre-Construction Briefings and Walkthroughs
- Attend contractor project meetings and provide status to the Facility Manager
- Review contractor facility plans and report impacts to the Facility Manager
- Provide overall facility support including, but not limited to, support of maintenance,

operations, and engineering. This effort includes activities such as analysis and integration - Support continuous improvement efforts to improve overall efficiency of facility operations.

This effort includes activities such as process improvements and design reviews

- Evaluate floor-space utilization requests for present and future occupants

- Assist the Facility Manager with filming coordination

2.2NASA INPUT REQUIREMENTS

None required.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of personnel (FTE):1 FTE (ISS)

Travel requirements: Number of trips (1 person/trip): 1 Trip destination: ISS (Domestic - 1, International - 0) Trip duration: 5 days Trip purpose: support facility-related safety training and/or benchmarking activities.

Materials support required, if any: N/A

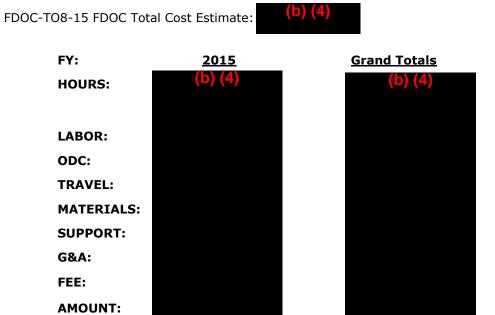
3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

Facilities Development and Operations	Task Order Number:	Mod:
Contract	FDOC-TO8-15	
FDOC Cost Estimate		



NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

<u>WBS</u>

<u>Amount</u>

WBS Total:



		Date Pri	inted: 09/10/2014
Facilities Develo	pment and Operations	Task Order Number:	Mod:
	ontract	FDOC-TO9-15	Basic
Facility Engineering	and Support Services Task		
	Order		
Contractor: Lockheed M	artin Corporation	Contract Number: NN	109HD46C
GFY: 15	Multiyear: No	SOW Ref: 3.3.1	
Title: Ground Segment C	Control Board Technical Support		
Mission Directorates Supported:	Aeronautics D Exploration	🗖 External 🗖 Science	X Space Ops
Programs Supported:	□ Aeronautics □ Constellation □ SpaceComm X Station Other Desc:	□ Science □ Shuttle □ Other	
	Schedule		
St	art Date:	Estimated Comp	etion Date:
10)/01/2014	09/30/2	015
	Approvals		
Title	Point of Contact	Phone	Date Approved
			07/00/0044
Task Order Monitor	Gowda, Shashi	(281) 483-7057	07/03/2014
Task Order Monitor Task Order TMR	ALLCORN, JON	(281) 244-8402	07/03/2014
Task Order Monitor Task Order TMR Task Order Division	ALLCORN, JON Lindner, Daniel	(281) 244-8402 (281) 483-3885	07/03/2014 07/07/2014
Task Order Monitor Task Order TMR Task Order Division FDOC Representative	ALLCORN, JON Lindner, Daniel Beuchaw, Karen	(281) 244-8402 (281) 483-3885 (281) 283-4461	07/03/2014 07/07/2014 08/01/2014
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor	ALLCORN, JON Lindner, Daniel Beuchaw, Karen Gowda, Shashi	(281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 483-7057	07/03/2014 07/07/2014 08/01/2014 08/01/2014
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst	ALLCORN, JON Lindner, Daniel Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO	(281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 483-7057 (281) 244-0513	07/03/2014 07/07/2014 08/01/2014 08/01/2014 08/01/2014
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor	ALLCORN, JON Lindner, Daniel Beuchaw, Karen Gowda, Shashi	(281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 483-1064	07/03/2014 07/07/2014 08/01/2014 08/01/2014
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst	ALLCORN, JON Lindner, Daniel Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James	(281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 483-7057 (281) 244-0513	07/03/2014 07/07/2014 08/01/2014 08/01/2014 08/01/2014
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR	ALLCORN, JON Lindner, Daniel Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James	(281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 483-1064	07/03/2014 07/07/2014 08/01/2014 08/01/2014 08/01/2014 08/01/2014 09/10/2014
Task Order Monitor Task Order TMR Task Order Division FDOC Representative Task Order Monitor NASA Resource Analyst COTR NASA Contracts Officer CO's Signature Contents: Title - Signature Task Ord 1.0 G 2.0 T 3.0 S 4.0 S	ALLCORN, JON Lindner, Daniel Beuchaw, Karen Gowda, Shashi VICENCIO, CARLITO Lowery, James NEVELS, CHRYSTAL	(281) 244-8402 (281) 483-3885 (281) 283-4461 (281) 483-7057 (281) 244-0513 (281) 483-1064 (281) 792-7842	07/03/2014 07/07/2014 08/01/2014 08/01/2014 08/01/2014 08/01/2014 09/10/2014

Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task C Numl FDOC-T	ber:	Revision:		
Fiscal	Mod	Labor					Fee \$	Total \$		
Year			Hours \$ \$ \$							
2015	Original		(D) (4)							
Totals:	Totals:									

NOTE: The FDOC total estimated cost is approves a total value of (b) (4)



and the Contracting Officer's signature

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide technical support to the Ground Segment Control Board (GSCB)

1.20BJECTIVE

Ensure all GSCB activities are supported

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

The Contractor shall provide technical systems engineering and operational support to the Ground Segment Control Board (GSCB) and international Technical Interchange Meetings (TIMs).

Tasks include:

- International Ground Systems Specification (IGSS) book management
- Support Multi-lateral GSCB and TIMs at IP locations
- Review and provide comments on IP ground segment requirements
- GSCB engineering support

- Software Review Control Panel (SRCP) support for GSCB-related topics and Schedule Issues/Change Forms (SIFs)

- Support for IP End-to-End test coordination

- Administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging

- IP Network requirements and implementation coordination

2.2NASA INPUT REQUIREMENTS

All NASA Programmatic requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

1. As Identified to fulfill 2.1	Per negotiated schedule	
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2.4MATERIAL/TRAVEL

Number of personnel (FTE): 1.5 FTE (ISS)

Travel requirements: Number of trips (1 person/trip): 7 Trip destination: ISS (Domestic - 4, International - 3) Trip duration: 5 days

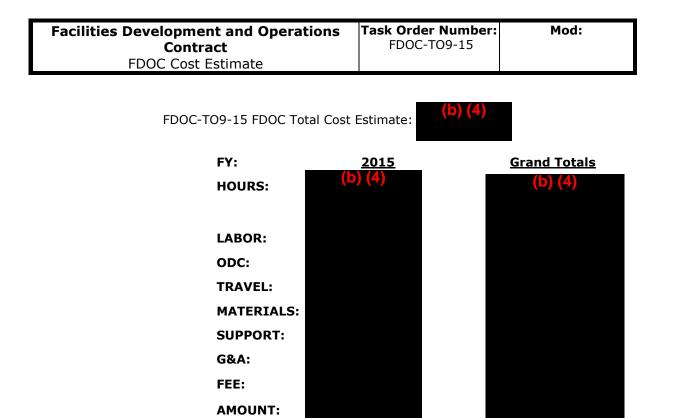
Materials support required, if any: N/A

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

<u>Amount</u>

WBS Total:



		Date Pri	inted: 04/21/2015						
Facilities Develo	pment and Operations	Task Order Number:	Mod:						
	ontract	FDOC-TO9-15	1						
Facility Engineering	and Support Services Task								
	Order								
Contractor: Lockheed M	lartin Corporation	Contract Number: NN	109HD46C						
	Multiveen Ne	SOW Deft 2.2.1							
GFY: 15	Multiyear: No	SOW Ref: 3.3.1							
Fitle: Ground Segment Control Board Technical Support									
Mission Directorates Supported:	Aeronautics Exploration	External Science	X Space Ops						
Programs Supported:	Aeronautics Constellation SpaceComm X Station Other Desc:	☐ Science ☐ Shuttle ☐ Other							
	Schedule								
St	art Date:	Estimated Comp	etion Date:						
10	0/01/2014	09/30/2							
	Approvals								
Title	Point of Contact	Phone	Date Approved						
Task Order Monitor	Gowda, Shashi	(281) 483-7057	04/06/2015						
Task Order TMR	Carreon, Patricia	(281) 483-7052	04/08/2015						
Task Order Division	Leblanc, Troy	(281) 244-0279	04/09/2015						
FDOC Representative	Beuchaw, Karen	(281) 283-4461	04/10/2015						
Task Order Monitor	Gowda, Shashi	(281) 483-7057	04/16/2015						
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	04/16/2015						
COTR	Lowery, James	(281) 483-1064	04/16/2015						
NASA Contracts Officer	NEVELS, CHRISTAL	(281) 792-7842	04/21/2015						
CHRYSTAL CO's Signature CHRYSTAL Dircuits Co's Signature CHRYSTAL Dircuits									
Contents: Title - Signature Page Estimated Resources Summary Task Order Text 1.0 General Scope of Work 2.0 Task Description 3.0 SRMQA 4.0 Security Requirements Estimated NASA Resources Summary									

Facilities Development and Operations Contract FDOC Cost Estimate Summary						Task Order Number: FDOC-TO9-15		Revision: 1		
Fiscal	al Mod Labor Labor \$ ODC Travel Material						Support	G&A \$	Fee \$	Total \$
Year		Hours		\$	\$	\$	\$			
2015	Original					(b) (4	-)			
2015	1									
Totals:										
(b) (4)										

NOTE: The FDOC total estimated cost is approves a total value of (b) (4)



and the Contracting Officer's signature

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

Provide technical support to the Ground Segment Control Board (GSCB)

1.20BJECTIVE

Ensure all GSCB activities are supported

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

The Contractor shall provide technical systems engineering and operational support to the Ground Segment Control Board (GSCB) and international Technical Interchange Meetings (TIMs).

Tasks include:

- International Ground Systems Specification (IGSS) book management
- Support Multi-lateral GSCB and TIMs at IP locations
- Review and provide comments on IP ground segment requirements
- GSCB engineering support

- Software Review Control Panel (SRCP) support for GSCB-related topics and Schedule Issues/Change Forms (SIFs)

- Support for IP End-to-End test coordination

- Administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging

- IP Network requirements and implementation coordination
- ISS Support includes Integration of CCtCap per SSCN 014337

2.2NASA INPUT REQUIREMENTS

All NASA Programmatic requirements.

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

1. As Identified to fulfill 2.1 Per negotiated schedule

2.4MATERIAL/TRAVEL

Number of personnel (FTE): 1.5 FTE (ISS)

Travel requirements: Number of trips (1 person/trip): 7 Trip destination: ISS (Domestic - 4, International - 3) Trip duration: 5 days

Materials support required, if any: N/A

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.

Facilities Developmen Contra FDOC Cost F	Task Orde FDOC-	r Number: TO9-15	Mod: 1		
FDOC-T	09-15 FDOC Tota	l Cost E	Estimate:	(b) (4)	
	FY:		2015	_	Grand Totals
	HOURS:	()	o) (4)		(b) (4)
	LABOR:				
	ODC:				
	TRAVEL:				
	MATERIALS:				
	SUPPORT:				
	G&A:				
	FEE:				
	AMOUNT:				

NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

WBS

<u>Amount</u>

WBS Total:



			Date Printed: 08/13/201			
	nt and Operations Contract I Support Services Task Order	Task Order Number: FDOC-TO11-15	Mod:			
Contractor: Lockheed Martin	n Corporation	Contract Number: NNJ09HD4	6C			
GFY: 15	Multiyear: No	SOW Ref: 3.3.4				
Title: Systems Engineering S	Support for Mission Operation Project	t in Support of MPCV				
Mission Directorates Supported:	Aeronautics Exploration		X Space Ops			
Programs Supported:	Aeronautics Constellation SpaceComm Station Other Desc:MPCV	on 🗖 Science 🗖 Shuttle X Other				
	Schedu	Jie				
	art Date: /01/2014	Estimated Completion Date: 09/30/2015				
	Approv	als	a prince l'an traverse a l'attaining di la traverse anna anna anna anna anna anna anna an			
Title	Point of Contact	Phone	Date Approved			
Task Order Monitor	Cobb, Carey	(281) 244-8564	07/10/2014			
Task Order TMR	ALLCORN, JON	(281) 244-8402	07/10/2014			
Task Order Division	Lindner, Daniel	(281) 483-3885	07/11/2014			
FDOC Representative	Beuchaw, Karen	(281) 283-4461	08/01/2014			
Task Order Monitor	Cobb, Carey	(281) 244-8564	08/01/2014			
NASA Resource Analyst	VICENCIO, CARLITO	(281) 244-0513	08/01/2014			
COTR	Lowery, James	(281) 483-1064	08/01/2014			
NASA Contracts Officer	, NEVELS, CHRYSTAL	(281) 792-7842	08/13/2014			
CO's Signature//	evelo		ate 08-13-14			
Task Order 1 1.0 Gene 2.0 Task 3.0 SRM0 4.0 Secu	esources Summary Text ral Scope of Work Description					

Facilities Development and Operations Contract FDOC Cost Estimate Summary	Task Order Number: FDOC-T011-15	Revision:
Fiscal Mod Labor Labor \$ ODC \$ Travel \$ Materia Year 2015 Original (b) (4)	al Support \$ G&A \$	Fee \$ Total \$
Totals: NOTE: The FDOC total estimated cost is (b) (4) and the Contracting Of	ficer's signature approv	es a total value of (b)

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Facilities Development and Operations Contract	Task Order Number:	Mod:
Task Order Text	FDOC-T011-15	

1.0 GENERAL SCOPE OF WORK

1.1PURPOSE

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.

1.20BJECTIVE

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects(e.g. MCC21, TS21, UA21) for applicability to the MOP baseline. In addition, support is needed for development and baselining of the Mission Systems (MS) to GSDO and MS to Space Launch System (SLS) Interface Requirements Documents (IRDs) and Interface Control Documents (ICDs.)

2.0 TASK DESCRIPTION

2.1DESCRIPTION OF WORK

1.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate MPCV programmatic changes for impact to MOP Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, C3I, ESD Con Ops) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of MOP-unique update procedures.

3. Develop and Maintain Interface documentation - For the MS to GSDO IRD/ ICD this includes development of the document, conduct of integration working groups with GSDO, baseline and configuration management of the IRD/ ICD, development of the interface design, issue resolution, and document production.

For the MS to SLS ICD, this includes support to the lead program (SLS) in the form of working group attendance, issue resolution, provision of document updates, and development of interface design.

b.) MOP/ MOD Advocacy - ensure MOP/ MOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

2.) Provide Cradle Support

a) Develop document inputs in Cradle-compatible format for the MS to GSDO IRD/ ICD.

3.) Provide Technical Forum Support

a.) Provide technical support to the MPCV and MOP/ MOD forums (e.g. MOPCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of MOP external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide MOP inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on MS to GSDO IRD/ ICD.

2.2NASA INPUT REQUIREMENTS

- Access to all MOP-level requirements and design documentation

2.3CONTRACTOR SERVICES/PRODUCTS REQUIRED, DELIVERY/PERFORMANCE SCHEDULE AND APPLICABLE PERFORMANCE STANDARDS

2.4MATERIAL/TRAVEL

Number of personnel (FTE): 0.25 FTE (MPCV)

Travel requirements: None.

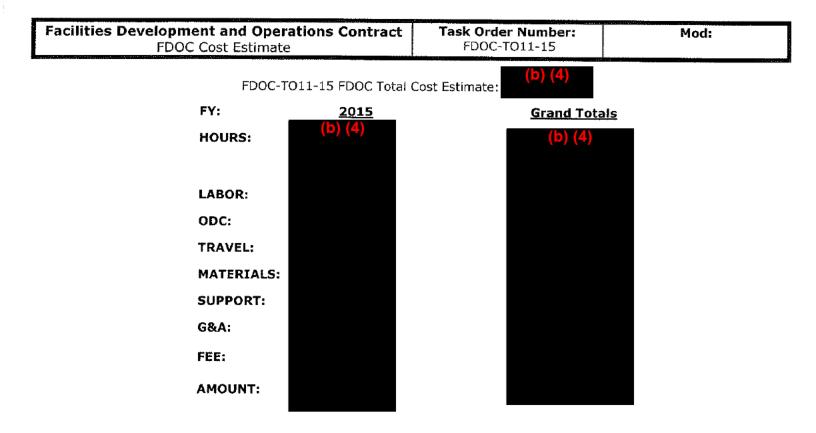
Materials support required, if any: None.

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this Task Order (TO) shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The Contractor shall comply with the NASA SRM&QA policies and procedures, and with the JSC Quality Management System (QMS), including all procedures, guidelines, and work instructions that are applicable to the work required under this TO.

4.0 SECURITY REQUIREMENTS

The work performed under this Task Order (TO) shall be in accordance with SOW section 2.6, Security Management and JSC security guidelines.



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Facilities Development and Operations Contract	Task Order Number:	Mod:
Estimated NASA Resources Summary	FDOC-T011-15	
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NASA RESOURCES GENERAL INFORMATON

FACTORY: None Specified IN POP BASELINE: NO

PSLA: None Specified INCREMENTALLY FUNDED: NO

WBS INFORMATION:

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Amount

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Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09H	D46C					
GFY: FY16	SOW Reference: 3.3.2 Program Requirements Document (PRD)							
Title: Program Requirements Document (PRD)								
Programs Supported:								
SpaceComm	Station	Commercial Crew	MPCV/SLS					
CST-100	Other /Other Description	on:						
Schedule								
	r t Date: 1/2015		d Completion Date: 9/30/2016					

3.3.2. Program Requirements Document (PRD)

The Contractor shall provide book management support of the program requirements documents (PRD) into the Automated Support Requirements System (ASRS). The Contractor shall provide support to include identification, technical analysis, coordination, and documentation.

3.3.2.1. PRD Documentation Support

The Contractor shall provide for PRD documentation generation, maintenance, and publication.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

Technical Description: Provide book management support of the International Space Station and Multi-Purpose Crew Vehicle Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

1.2 OBJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the Program's formal requirement document.

Functions are Station, MPCV, SLS, and GSDO program tasks delegated to FOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

ISS Support includes Integration of CCtCap per SSCN 014337

2.2 NASA INPUT REQURIEMENTS

- Program Requirements Document Change Requests (JSC form 50) supporting ISS Orbital Volume I,II and MPCV

- Electronic book maintenance for ISS Orbital Volume I,II and MPCV

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

<u>Labor Requirements</u> Number of personnel (FTE):	0.5 FTE (0.375 ISS, 0.125 MPCV)					
Material Requirements						
Material:	None					
<u>Travel Requirements</u> Number of trips (1 person/trip): 1 (ISS)						
Trip destination (domestic/intern	ational): domestic					
Trip duration: 5 days						
Trip purpose: attend multi-cen	ter requirement issues resolution meetings					

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

Facilities Development and Operations Contract	Task Order Number:	Rev:
Facility Engineering and Support Services Task Order	FDOC-TO0-16	Original

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

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GFY: FY16	SOW Reference: 3.3.2 Program Requirements Document (PRD)							
Title: Program Requirements Document (PRD)								
Programs Supported:								
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CST-100	Other /Other Descripti	on:						
Schedule								
Start Date: Estimated Completion Date:								
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3.3.2. Program Requirements Document (PRD)

The Contractor shall provide book management support of the program requirements documents (PRD) into the Automated Support Requirements System (ASRS). The Contractor shall provide support to include identification, technical analysis, coordination, and documentation.

3.3.2.1. PRD Documentation Support

The Contractor shall provide for PRD documentation generation, maintenance, and publication.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

Technical Description: Provide book management support of the International Space Station, <u>Orion, and</u> <u>Commercial Crew</u> Programmatic Requirement Documents. Support to include: identification, technical analysis, coordination, correlation and documentation.

1.2 OBJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, resolve any discrepancies and document the final requirements in the Program's formal requirement document.

Functions are Station, <u>MPCVOrion</u>, SLS, GSDO, <u>and CCP</u> program tasks delegated to FOD to execute on behalf of the Programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

Facilities Development and Operations Contract	Task Order Number:	Rev:
Facility Engineering and Support Services Task Order	FDOC-TO0-16	1

2.1 DESCRIPTION OF WORK

ISS Support includes Integration of CCtCap per SSCN 014337

2.2 NASA INPUT REQURIEMENTS

- Program Requirements Document (PRD) Changeustomer Support Requirement Requests (CSRR) supporting ISS Orbital Volume I,II, Orion and Commercial Crew.

- Electronic book maintenance for ISS Orbital Volume I,II and MPCVOrion.

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

<u>Labor Requirements</u> Number of personnel (FTE):	0.5 FTE (0.3 <u>18</u> ISS, 0.1 <u>30</u> ORION, <u>0.026 CCP-SpaceX, 0.026 CCP-Boeing</u>)
<u>Material Requirements</u> Material:	None
<u>Travel Requirements</u> Number of trips (1 person/trip):	1 (ISS)
Trip destination (domestic/interr	national): domestic
Trip duration: 5 days	
Trip purpose: attend multi-cen	ter requirement issues resolution meetings

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

Facilities Development and Operations Contract	Task Order Number:	Rev:
Facility Engineering and Support Services Task Order	FDOC-TO0-16	1

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

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Contractor: Lockheed Martin Corporation Contract Number: NNJ09HD46C GFY: FY16 SOW Reference: 3.3.1.2 NACAIT Title: Network and Communications Analysis and Integration Team (NACAIT) Programs Supported: SpaceComm Station CST-100 Other /Other Description: Schedule Start Date: Estimated Completion Date:	Facilities Development a	nd Operations Contract	Task Order Number:	Rev:					
Contractor: Lockheed Martin Corporation Contract Number: NNJ09HD46C GFY: FY16 SOW Reference: 3.3.1.2 NACAIT Title: Network and Communications Analysis and Integration Team (NACAIT) Programs Supported: SpaceComm Station CST-100 Other /Other Description: Schedule Start Date: Estimated Completion Date:	Facility Engineering and Su	oport Services Task Order	FDOC-TO1-16	Original					
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3.3.1.2. Network and Communications Analysis and Integration Team (NACAIT)

The Contractor shall provide support to the NACAIT by coordinating and documenting network communications requirements. Additionally, the Contractor shall collect program requirements changes, work with various program communities to validate the requirements, resolve any discrepancies, and document the final requirements in the program's formal requirement document.

Service level of support will be defined annually by NASA.

• NPRD Documentation Support - The Contractor shall provide for network program requirement documentation (NPRD) generation, maintenance, and publication.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, MPCV, SLS, and GSDO ground-to-ground communications requirements.

1.2 OBJECTIVE

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, MPCV, SLS and GSDO program tasks delegated to FOD to execute on behalf of the ISS, MPCV, SLS and GSDO programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

-Determine communication needs for ISS, MPCV, SLS and GSDO operational support among all elements that support the ISS, MPCV, SLS and GSDO Programs

-Gather and consolidate communications requirements into draft versions of the MSRD

-Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, MPCV, SLS and GSDO Programs on implementation and actual need of communication services

-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO Program communications requirements

-Document final, approved version of ISS, MPCV, SLS and GSDO communications requirements in the MSRD and officially document the approved requirements into the Program Requirements Document as specified by the Support Requirements System Management Plan (JSC-27379)

-Provide coordination point of contact for NISN for communications schedules

-Develop end-to-end data flow diagrams for the ISS, MPCV, SLS, and GSDO Programs

-Support other ISS, MPCV, SLS, and GSDO operational communications-related tasks as required by NASA

- ISS Support includes Integration of CCtCap per SSCN 014337

2.2 NASA INPUT REQURIEMENTS

International Space Station Operational Communication Overview (IOCO)

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

Labor Requirements Number of personnel (FTE):	1 FTE (0.75 ISS, 0.25 MPCV)
<u>Material Requirements</u> Material:	None
<u>Travel Requirements</u> Number of trips (1 person/trip):	4 Trips (1 domestic ISS, 3 domestic MPCV)
Trip destination (domestic/interr	national): domestic
Trip duration: 5 days	
Trip purpose: Attend multi-age	ency and center requirements definition and problem resolving meetings

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

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Contractor: Lockheed Martin	Corporation	Contract Num	nber: NNJ09HD	046C					
GFY: FY16	SOW Reference: 3.3.1.2	NACAIT							
Title: Network and Communic	Title: Network and Communications Analysis and Integration Team (NACAIT)								
Programs Supported:									
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3.3.1.2. Network and Communications Analysis and Integration Team (NACAIT)

The Contractor shall provide support to the NACAIT by coordinating and documenting network communications requirements. Additionally, the Contractor shall collect program requirements changes, work with various program communities to validate the requirements, resolve any discrepancies, and document the final requirements in the program's formal requirement document.

Service level of support will be defined annually by NASA.

• NPRD Documentation Support - The Contractor shall provide for network program requirement documentation (NPRD) generation, maintenance, and publication.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

Technical Description: Provide Support to the Network and Communications Analysis and Integration Team (NACAIT) by coordinating and documenting ISS, Orion, SLS, GSDO and Commercial Crew ground-to-ground communications requirements.

1.2 OBJECTIVE

Collect program communication requirements changes, work with the various program communities to validate the requirements, resolve any discrepancies and document the final requirements in the program's formal requirement document.

Functions are Station, Orion, SLS and GSDO program tasks delegated to FOD to execute on behalf of the ISS, Orion, SLS, GSDO and Commercial Crew programs. Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

-Determine communication needs for ISS, Orion, SLS, GSDO and Commercial Crew operational support among all elements that support the ISS, Orion, SLS, GSDO and Commerical Crew Programs

-Gather and consolidate communications requirements into draft versions of the NPRD

-Coordinate negotiations between elements (including Flight Control Team, Mission Control Centers, Remote Principal Investigators, etc) NISN, the International Partners and the ISS, Orion, SLS, GSDO and Commercial Crew Programs on implementation and actual need of communication services

-Support various Technical Interchange Meeting and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, Orion, SLS, GSDO and Commercial Crew Program communications requirements -Document final, approved version of ISS, Orion, SLS, GSDO and Commercial Crew communications requirements in the NPRD and officially document the approved requirements into the Program Requirements

Document as specified by the Support Requirements System Management Plan (JSC-27379)

-Provide coordination point of contact for Communications Services Offices (CSO) for communications schedules

-Develop end-to-end data flow diagrams for the ISS, Orion, SLS, GSDO and Commercial Crew Programs -Support other ISS, Orion, SLS, GSDO and Commercial Crew operational communications-related tasks as required by NASA

- ISS Support includes Integration of CCtCap per SSCN 014337

2.2 NASA INPUT REQURIEMENTS

International Space Station Operational Communication Overview (IOCO)

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

1 FTE (0.702 ISS, 0.25 Orion, 0.024 CCP-SpaceX, 0.024 CCP-Boeing)
None

Travel Requirements

Number of trips (1 person/trip): 7 Trips

Trip destination (domestic/international): ISS (Domestic - 1, International - 1 trip of 10-day length), Orion (Domestic - 3), CCP-SpaceX (Domestic - 1), CCP-Boeing (Domestic - 1)

Trip duration: 5 days

Facilities Development and Operations Contract	Task Order Number:	Rev:
Facility Engineering and Support Services Task Order	FDOC-TO1-16	1

Trip purpose: Attend multi-agency and center requirements definition and problem resolving meetings

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

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Contractor: Lockheed Martin	Corporation	Со	ntract Number: NNJ09	HD46C				
GFY: FY16	SOW Reference: 3.3.3	HSF Netw	ork Operations Integra	tion				
Title: Human Space Flight (HS	F) Network Operations	Integratio	n Team (NOIT)					
Programs Supported:								
SpaceComm	SpaceComm Station Commercial Crew MPCV/SLS							
CST-100 Other /Other Description:								
Schedule								
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3.3.3. Human Space Flight (HSF) Network Operations Integration

The Contractor shall provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the Wide Area Network, the NASA Ground Networks, and the NASA Space Network support. Additionally, the Contractor shall assist in integrating the other NASA centers and DoD support for HSF missions including the use of tracking radars. The emphasis of this work shall be in supporting certification that the space communications data services are fully integrated and ready to support HSF missions.

The Contractor shall support the preparation of the:

- CoFR.
- ACAs.
- Communications and data services execution.
- Service performance metrics and evaluation.
- Current and pending anomaly resolution reports.
- Space improvement recommendations.
- Periodic roll-up reports on the status of the space communications data services elements.

Service level of support will be defined annually by NASA.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

1.2 OBJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

Tasks include, but are not limited to, the following:

-Support in the preparation of the Certificate of Flight Readiness (CoFR).

-Assist the NSG and NACAIT in planning the integrated implementation of

space communications data services required to support HSF missions.

-Evaluate required endorsement codes within the CoFR implementation plan

-Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated services

-Identify problem areas in providing the services with options for workarounds in the event of service interruption.

-Support all HSF Readiness Reviews

-Provide voice, video, and data assessments for mission services implementation

-Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, MPCV, SLS and GSDO communications requirements

- ISS Support includes Integration of CCtCap per SSCN 014337

2.2 NASA INPUT REQURIEMENTS

Network Operations Directive (NOD)

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

Labor Requirements

Number of personnel (FTE): 3 FTE (1 ISS, 2 MPCV)

Material Requirements

Material:

None

Travel Requirements

Number of trips (1 person/trip): 12 Trips (3 domestic ISS, 9 domestic MPCV)

Trip destination (domestic/international): domesticTrip duration: 5 daysTrip purpose: attend Technical Interchange Meetings and Operational Readiness Reviews

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

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Programs Supported:										
SpaceComm	SpaceComm Station Commercial Crew MPCV/SLS									
CST-100 Other /Other Description:										
Schedule										
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3.3.3. Human Space Flight (HSF) Network Operations Integration

The Contractor shall provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the Wide Area Network, the NASA Ground Networks, and the NASA Space Network support. Additionally, the Contractor shall assist in integrating the other NASA centers and DoD support for HSF missions including the use of tracking radars. The emphasis of this work shall be in supporting certification that the space communications data services are fully integrated and ready to support HSF missions.

The Contractor shall support the preparation of the:

- CoFR.
- ACAs.
- Communications and data services execution.
- Service performance metrics and evaluation.
- Current and pending anomaly resolution reports.
- Space improvement recommendations.
- Periodic roll-up reports on the status of the space communications data services elements.

Service level of support will be defined annually by NASA.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

Technical Description: Provide technical integration support including systems analysis and engineering support to the operations of the NASA data services providers. These providers include the NASA Integrated Services Network, the NASA Near Earth Networks, and the NASA Space Network support.

1.2 OBJECTIVE

Collect program requirements changes, work with the various communities to validate the requirements, and resolve any discrepancies.

Tasks are not MCC or IPS functions.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

Tasks include, but are not limited to, the following:

-Support in the preparation of the Certificate of Flight Readiness (CoFR).

-Assist the <u>Network Support Group (NSG)</u> and <u>Network and Communications Analysis Integration Team</u>

(NACAIT) in planning the integrated implementation of

space communications data services required to support HSF missions.

-Evaluate required endorsement codes within the CoFR implementation plan

-Provide an assessment and rollup of the Associate Contractor Agreements necessary for successful integrated services

-Identify problem areas in providing the services with options for workarounds in the event of service interruption.

-Support all HSF Readiness Reviews

-Provide voice, video, and data assessments for mission services implementation

-Support various Technical Interchange Meetings and Control Boards for the purpose of gathering, integrating, and getting approval for ISS, Orion, SLS, GSDO and Commercial Crew communications requirements

- ISS Support includes Integration of CCtCap per SSCN 014337

2.2 NASA INPUT REQURIEMENTS

Network Operations Directive (NOD)

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

<u>Labor Requirements</u> Number of personnel (FTE):	3 FTE (<u>0.83</u> ISS, 2 <u>.0</u> Orion, <u>0.085 CCP-SpaceX, 0.085 CCP-Boeing</u>)
Material Requirements Material:	None
Travel Requirements	

Facilities Development and Operations Contract	Task Order Number:	
Facility Engineering and Support Services Task Order	FDOC-TO2-16	l

Number of trips (1 person/trip): 12 Trips (<u>4</u> domestic ISS, <u>6</u> domestic Orion, <u>1 domestic CCP-SpaceX, 1</u> <u>domestic CCP-Boeing</u>)

Rev: 1

Trip destination (domestic/international): domestic

Trip duration: 5 days

Trip purpose: attend Technical Interchange Meetings and Operational Readiness Reviews

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

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Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C						
GFY: FY16 SOW Reference: 3.3.4 Systems Engineering and Integration Support									
Title: Systems Engineering and Integration Support (Strategic Projects)									
Programs Supported:									
SpaceComm	Station	Commercial Crew	MPCV/SLS						
CST-100 [Other /Other Description	n:							
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3.3.4. Systems Engineering and Integration Support

The Contractor shall provide system engineering support services to the NASA-led effort of defining NASA's ongoing engineering projects. Engineering support shall include systems engineering, spacecraft operability definition, and system development skills to supplement NASA core competencies. The support shall include providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering and proposed alternatives.

Services levels of support will be defined annually by NASA.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

Provide system engineering support services to the government led effort of defining NASA's ongoing control center space operations engineering projects for Strategic Projects.

1.2 OBJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA MSD to the MSD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or ER development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

Facilities Development and Operations Contract	Task Order Number:	Rev:
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 Participate in appropriate meetings and forums necessary to assist in assuring effective communication between MSD facility and customer communities, MSD Project Managers, and FDOC contractor personnel.
 Assist MSD customer communities in identifying operational requirements and assessing those requirements

against existing and planned facility capabilities to determine change requirements and impacts for current Strategic Projects.

3.) Monitor Program (e.g. ISS and the various visiting vehicles) development activities affecting MSD facilities for requirements and changes which will affect ongoing Strategic Projects.

4.) Assist MSD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term MSD strategic architecture.

5.) Assist in any studies and assessments as needed by MSD facility, MSD Project Managers or MSD Customer communities.

6.) Represent the MSD customer interests in the planning, design and development of strategic MSD facility capabilities.

7.) Coordinate all change activities with the appropriate MSD project manager.

8.) Represent the MSD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected MSD Project Manager.

10.) Ensure all MSD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Work with FOD, FDOC, and other related parties to identify and resolve system engineering issues. Present at the appropriate forums (MSD CCB, ITCP, and other MSD Panels and Working Groups). Status changes and issues as required.

12.) Research existing operational concepts (e.g. ISS and visiting vehicles). Meet with MSD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

13.) Work to identify and resolve issues for data requirements, operational concepts, architecture, reconfiguration, and distribution methods and respond to actions from the MSD CCB and MSD Panels and Working Groups as required.

14.) Provide materials support as required to support this activity.

15.) Cost for the support effort will need to be collected and reported according to the Operating Plan.

2.2 NASA INPUT REQURIEMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

Labor Requirements Number of personnel (FTE): 1.5 FTE (ISS)

Facilities Development and Operations Contract
Facility Engineering and Support Services Task Order

Material Requirements Material:

\$100k

Travel Requirements

Number of trips (1 person/trip): 2 Trips (ISS)

Trip destination (domestic/international): domestic

Trip duration: 5 days

Trip purpose: meeting support

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

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GFY: FY16	SOW Reference: 3.3.5 Arcl	nitectural and Engineering Supp	ort						
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3.3.5. Architectural and Engineering Support

The Contractor shall provide system engineering and architectural design support services to the NASA Systems Engineering and ongoing NASA control center space operations engineering projects. All strategic engineering activities will be defined and scheduled by NASA. Engineering activities shall be conducted at JSC, within an office and computer laboratory environment. These NASA directed services shall include:

- Studies and analysis of proposed operations modifications.
- Identification and documentation of alternative operations solutions.
- End-to-end architecture tradeoff assessment.
- Development of strategic and tactical plans.
- Implementation plans and strategies.
- Standards development.
- Investigation of space operations process and reengineering.
- Evaluation of new NASA program requirements.
- Investigation and development of new technologies for possible operations modifications.

Service level of support will be defined annually by NASA.

The Contractor shall support the development, coordination, and refinement of the mission operations facilities strategic vision and tactical plans across all mission operations facilities reflected in the estimates above.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Systems Division (MSD) Information Technology and Special Projects Branch (CD2).

This Task Order is to provide engineering support for the Space Data System standards development.

1.2 OBJECTIVE

Identify key areas for change and facilitate budget and schedule activities to: 1.) Support development of effective Space Data Systems Standards

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MSD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

2.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

2.2 NASA INPUT REQURIEMENTS

All CD requirements.

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

<u>Labor Requirements</u> Number of personnel (FTE):	0.6 FTE (SCAN-CCSDS)
<u>Material Requirements</u> Material:	None
<u>Travel Requirements</u> Number of trips (1 person/trip):	2 Trips (1 domestic SCAN-CCSDS, 1 international SCAN-CCSDS)
Trip destination (domestic/intern Trip duration: 5 days	ational): 1 domestic, 1 international
Trip purpose: Support bi-annua	al CCSDS Data Standards Working Group meetings

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC

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Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

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Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C						
GFY: FY16	SOW Reference: 3.3.5 Architectural and Engineering Support								
Title: FDOC-TO4-16 Rev1 Architectural and Engineering Support									
Programs Supported:									
SpaceComm	SpaceComm Station Commercial Crew MPCV/SLS								
CST-100	Other /Other Description	n: SCAN							
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3.3.5. Architectural and Engineering Support

The Contractor shall provide system engineering and architectural design support services to the NASA Systems Engineering and ongoing NASA control center space operations engineering projects. All strategic engineering activities will be defined and scheduled by NASA. Engineering activities shall be conducted at JSC, within an office and computer laboratory environment. These NASA directed services shall include:

- Studies and analysis of proposed operations modifications.
- Identification and documentation of alternative operations solutions.
- End-to-end architecture tradeoff assessment.
- Development of strategic and tactical plans.
- Implementation plans and strategies.
- Standards development.
- Investigation of space operations process and reengineering.
- Evaluation of new NASA program requirements.
- Investigation and development of new technologies for possible operations modifications.

Service level of support will be defined annually by NASA.

The Contractor shall support the development, coordination, and refinement of the mission operations facilities strategic vision and tactical plans across all mission operations facilities reflected in the estimates above.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

Provide system engineering and architectural design support services to the NASA Mission Systems Division (MSD) Information Technology and Special Projects Branch (CD2).

This Task Order is to provide engineering support for the Space Data System standards development.

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1.2 OBJECTIVE

Identify key areas for change and facilitate budget and schedule activities to: 1.) Support development of effective Space Data Systems Standards

Support Space Data Systems Standards assessments, formulation, development, authoring, and chairing as directed.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

1.) Participate in meetings and forums as requested supporting MSD engineering teams and the Consultative Committee for Space Data Systems (CCSDS) efforts.

2.) Support Space Data Systems Standards and committee assessment, formulation, development, authoring, and chairing of working groups.

2.2 NASA INPUT REQURIEMENTS

All CD requirements.

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

<u>Labor Requirements</u> Number of personnel (FTE):	0.1 FTE (SCAN-CCSDS) Rev 1
<u>Material Requirements</u> Material:	None
	2 Trips (1 domestic SCAN-CCSDS, 1 international SCAN-CCSDS)
Trip destination (domestic/interr	ational): 1 domestic, 1 international
Trip duration: 5 days	
Trip purpose: Support semi-an	nual CCSDS Data Standards Working Group meetings

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC

Facilities Development and Operations Contract	Task Order Number:	Rev:		
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Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

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Facility Engineering and Su	oport Services Task Order	FDOC-TO5-16	Original						
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C						
GFY: FY16 SOW Reference: 3.3.4 Systems Engineering and Integration Support									
Title: MCCS Systems Engineering and Integration Support									
Programs Supported:									
SpaceComm	Station	Commercial Crew 🛛 🛛 🔀	MPCV/SLS						
🔀 CST-100	Other /Other Description	.							
	Schedule								
Star	t Date:	Estimated	Completion Date:						
10/	1/2015	9/	30/2016						

3.3.4. Systems Engineering and Integration Support

The Contractor shall provide system engineering support services to the NASA-led effort of defining NASA's ongoing engineering projects. Engineering support shall include systems engineering, spacecraft operability definition, and system development skills to supplement NASA core competencies. The support shall include providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering and proposed alternatives.

Services levels of support will be defined annually by NASA.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

Provide Mission Control Center Systems system engineering and sustaining support services.

1.2 OBJECTIVE

Monitor, assess, and function as a liaison for various NASA Program change activities of interest to NASA MSD to the MSD facilities, customers, or users in the tactical timeframe (within the confines of development cycle projects or Equipment Replacement (ER) development cycles). The support shall include, but not be limited to, providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering for space operations change requests and proposed alternatives.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

1.) Participate in appropriate meetings and forums necessary to assist in assuring effective communication between CD facility and customer communities, CD Project Managers, and FDOC contractor personnel.

2.) Assist CD customer communities in identifying operational requirements and assessing those requirements against existing and planned facility capabilities to determine change requirements and impacts.

3.) Monitor Program (i.e. ISS, visiting vehicles, MPCV/SLS, and CCDEV) development and sustaining activities affecting CD facilities for requirements and changes which will affect the facility capabilities.

4.) Assist CD Management and Project Leads in designing and implementing changes and new requirements and equipment replacement to align with long term CD strategic architecture.

5.) Assist in any studies and assessments as needed by CD facility, CD Project Managers or CD Customer communities.

6.) Represent the CD customer interests in the planning, design and development of strategic CD facility capabilities.

7.) Coordinate all change activities with the appropriate CD project manager/lead.

8.) Represent the CD facility and customer interests and impacts to the various change boards.

9.) Report all change activities, impacts, and recommendations to the affected CD Project Manager.

10.) Ensure all CD facility and customer change activities, impacts, and recommendations are communicated to the FDOC contractor for evaluation and inclusion in both short-term and long-term facility planning.

11.) Generate documentation to communicate recommendations to the proposed strategic plan. Generate SRs as needed to bring the changes into the MCCS Work plan.

12.) Generate and maintain a list of potential MCCS architecture changes and perform system engineering research and assessment of these changes.

13.) Work with FOD, FDOC, and other related parties to identify and resolve system engineering and sustaining issues. Present at the appropriate forums (MSD CCB, MCWG, and other MSD Panels and Working Groups). Status changes and issues as required.

14.) Research existing and future operational concepts (e.g. ISS, visiting vehicles, MPCV/SLS, and CCDEV). Meet with CD and the User community to understand and summarize the concepts. Determine how these concepts drive the MCCS architectures. Make recommendations on updating the existing documents.

15.) Work to identify and resolve issues for data requirements, operational concepts, architecture,

reconfiguration, distribution methods, and transition related activities and respond to actions from the MSD CB and MSD Panels and Working Groups as required.

16.) Support MCCS activities by supplying information as requested on MCCS.

17.) Provide materials support as required to support this activity.

18.) Work to identify, plan, and support MCC-21 capability demonstrations in support of the CD customer interests.

19.) Support MPCV/SLS and Boeing CST-100 ICD and Ops Concept development activities.

20.) Provide support to the FOD led tri-program (GSDO, MPCV, SLS) Communications, Network, and Tracking team. Support includes technical support and assessments related to the network and comm architecture as related to the MCC designs and capabilities, support to ROM-type efforts where needed on FOD provided equipment and software or use of non-FOD items in the MCC, support to EM-1 and subsequent security assessments, support to Technical Interchange and team meetings on an as needed basis, and production of products related to MCC capabilities as needed to support the operations assessments of the team.

21) Provide Full architectural understanding of all MCCS Systems past and present. Understanding of NASA's strategic goals and vision for future systems, missions, and vehicle integration. For new development (MPCV, CC) and existing business consultation (ISSP), COMM expert with knowledge in the following areas: RF communications; Modem design; FEC schemes; CCSDS Standards specifically AOS, SLE and the Encapsulation standards; IRIG 106 TLM Standards; Telemetry decommutation and calibration; Navigation and Tracking.

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Individual should have knowledge in the following generalized areas: Hardware and software design; systems design and implementation; prior experience of developing a comm front end for a dynamic vehicle.

22) Provide Working knowledge of the MCC systems supporting Orion missions. OS/Comet expertise including installing updates, debugging issues, and start-up and monitoring the health of the system.

23) Provide Experience with Orion missions and OS/Comet command and telemetry system to start to migrate these functions to the MCCS (MCC21) system including regression checks (which requires working knowledge of OS/Comet).

24) Provide Support for development and evaluation of Orion and SLS CDRs. These tasks will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most knowledge are: Command, Comm, Recon, and External Interfaces. Past MPCV/ EFT-1 and MCC21 experience is highly desired.

25) Provide MS-GSDO ICD and IRD and MS-SLS ICD interface updates. This includes supporting meetings with GSDO (KSC) and SLS. End-to-end system knowledge of MPCV and SLS is required. Good technical writing skills and working knowledge of these three documents are highly desired:

[1] MPCV 70054, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Document (IRD)

[2] MPCV 72548, Mission Systems (MS)-to-Ground Systems Development & Operations (GSDO) Interface Requirements Control Document (ICD)

[3] MS-SLS ICD

26) Provide MCCS (MCC21) system knowledge to research innovative solutions to PTF issues or new requirements of the system. As well as the ability to test delivered systems from a practical flight controller/user perspective.

27) Provide Technical meeting coordinator (CD15 Working Groups and associated splinters) and CD15 SharePoint webmaster.

28) Provide MCC21 Buildup and facility knowledge and coordination. Knowledge of the room buildup plan, maintenance team, and working relationships with IRD, COD, and CD4. Interface point for final design and implementation integration of IRD and COD solutions with CD4 and into MCCS.

29) Provide MCC21 Systems Engineering & Integration support. MCCS (MCC21) system knowledge to assist in coordination, tracking, and monitoring of FDOC products and implementations thru completion of MCC-21 Phase 2 activities. Working knowledge of CST-100, Orion missions, and MPCV/SLS designs to assist with ensuring that the design and implementation of these projects are converging (i.e., MCC-21 isn't delivering a capability that is in conflict with another project's expectations). Must have good communications and technical writing skills as well as a working relationship with CD4 and FDOC MCC-21 project teams to ensure that the MCC design matches these systems designs

30) Provide Boeing CST-100 SAR support. This task will include: participating in design working groups; defining interfaces and generating the associated interface control documents; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. A resource is also required to

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interface with the Boeing Ground Segment team and also with the Boeing onboard team to ensure that the MCC design matches these systems designs. The subsystems that will require the most design work are: Command, Comm and Recon. Past Boeing CST-100 experience is highly desired.

31) Provide Boeing CST-100 implementation support. This tasks will include: participating in implementation working groups; monitoring interfaces and coordinating any necessary interface communications; monitor FDOC products and designs across different projects to ensure a uniform approach is followed in all projects. The subsystems that will require the most design work are: Command, Comm, Recon, and External Interfaces. Past Boeing CST-100 and MCC21 experience is highly desired.

32) Provide Boeing CST-100 testing support and coordination.

33) Provide Recon expert capable of assisting in the design of the new recon system that will be used for all new vehicles that will be supported in the MCCS. This expert will also have to interface with the onboard teams of all new vehicles to understand how the flight products will be delivered to the MCC. The expert will also provide flight product design advice to the onboard flight software teams. The expert will also integrate, advise, and augment capabilities/practices associated with PTF customers usage of recon/FSW deliverables. The new vehicles that are in scope for FY16 are: MPCV; SLS; CST-100. Prior knowledge of designing, implementing and utilizing recon systems is a must.

34) Provide ICAN support: Weekly ICAN meeting support. The ability to develop systems engineer products required by the ICAN. The systems that are discussed in the ICAN are: Command, Comm, Recon, Voice, Video, OPS History and MCCS common services.

35) Provide CMIT support: Weekly CMIT meeting support. The ability to develop systems engineering products required by the CMIT. The systems that are discussed in the CMIT are: Command, Comm, Recon, Voice, Video, OCA, OPS History and MCCS common services.

36) Provide Network resource/Comm resource to help coordinate the MCC and WSC changes being effected by the SGSS and CSO Network projects.

2.2 NASA INPUT REQURIEMENTS

All program programmatic requirement documentation apply. Change specific requirements defined by project specific change teams.

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

Labor RequirementsNumber of personnel (FTE):6.5 FTE (4 ISS, 1 MPCV, 1.5 CST-100)

Facilities Development and Operations Contract Facility Engineering and Support Services Task Order	Task Order Number: FDOC-TO5-16	Rev: Original					
Material Requirements		· · · · · · · · · · · · · · · · · · ·					
Material: \$320K ISS, \$	40K MPCV, \$40K CST-100 (for pur	chased labor)					
<u>Travel Requirements</u> Number of trips (1 person/trip): 4 Trips (3 do	mestic ISS, 1 international ISS)						
Trip destination (domestic/international): 3 domestic ISS, 1 international ISS							
Trip duration: 5 days							
Trip purpose: meeting support							

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

(a) Any supplies and services to be furnished under this contract shall be ordered by issuance of delivery orders for IDIQ (CLIN 003) or task orders for LOE (CLIN 004) by the individuals or activities designated in the Schedule. Such orders may be issued from **January 1, 2009 through September 30, 2016**.

(b) All IDIQ delivery orders (CLIN 003) or LOE task orders (CLIN 004) are subject to the terms and conditions of this contract. In the event of conflict between an IDIQ delivery order (CLIN 003) or LOE task order (CLIN 004) and this contract, the contract shall control.

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Facilities Development a	nd Operations Contract	Task Order Number:	Rev:						
Facility Engineering and Su	nnort Services Task Order	FDOC-TO8-16	Original						
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Title: Alternate Facility Mana	Title: Alternate Facility Manager								
Programs Supported:									
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Sta	rt Date:	Estimated	Completion Date:						
10/	1/2015	9/	/30/2016						
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3.3.7. Alternate Facility Manager

The contractor shall provide Alternate Facility Manager support services to the NASA-led effort of providing Primary Facility Manager Services. Alternate Facility Manager support services shall include safety and health, facility and operations functions to supplement NASA core competencies. Services levels of support will be defined annually by NASA.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

Provide assistance to or act as the Facility Manager.

1.2 OBJECTIVE

Ensure that safety, operations and facility support issues are resolved in a timely manner.

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

Tasks include, but not limited to, the following:

The Alternate Facility Manager's safety related duties are to:

- Back-up to Facility Manager as AED Coordinator
- Assist in resolution of Facility Mishaps
- Assist with Voluntary Protection Program (VPP) actions
- Act as Fire Warden

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- Participate in and resolve safety issues found Monthly Building Inspections

- Assist with Environmental Management System (EMS) and Hazmat database updates

- Assist the Facility Manager in role of Safety and Health Representative

- Assist Facility Manager with periodic review of Emergency Action Plan (EAP)

The Alternate Facility Manager's facility operations duties are to:

- Approve Fire System Outages and Testing

- Assist Facility Manager in coordinating and monitoring fire drills

- Assist Facility Manager in planning Open House and Inspection Day

- Become familiar with and assist Facility Manager in managing Memorandums of Understanding (MOU) between MSD facilities and other facilities.

- Assist Facility Manager in the planning of daily PAO, Educational Outreach, Space Center Houston and VIP visits

- Ensure guides are available for all tours

- Act as tour guide

- Act as back-up to Facility Manager in approving Form 722A's (official visitors)

- Approve Friends and Family Visits (ERVBs)

- Respond to Hot and Cold Calls

- Respond to Building Issues

- Assist Facility Manager in writing and maintaining Hurricane Shutdown Procedures For Computer Equipment And Air Conditioning

- Support the resolution of Space Center Houston Issues

- Support the resolution of National Historical Monument Issues

- Assist the Facility Manager with visits by museum and historical site survey teams

The Alternate Facility Manager's facility support duties are to:

- Assist the Facility Manager with the annual Major Facilities Utilization Report (headquarters requirement coordinated by COD)

- Assist the Facility Manager with the Major Facilities Inventory (headquarters requirement coordinated by COD)

- Develop and Submit MCRR, CoF and WAD Projects
- Respond to Physical Security Issues (Card readers, doors, personnel, etc.)
- Attend Pre-Construction Briefings and Walkthroughs
- Attend contractor project meetings and provide status to the Facility Manager
- Review contractor facility plans and report impacts to the Facility Manager

- Provide overall facility support including, but not limited to, support of maintenance, operations, and engineering. This effort includes activities such as analysis and integration

- Support continuous improvement efforts to improve overall efficiency of facility operations. This effort includes activities such as process improvements and design reviews

- Evaluate floor-space utilization requests for present and future occupants

- Assist the Facility Manager with filming coordination

2.2 NASA INPUT REQURIEMENTS

None required.

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2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

Labor Requirements
Number of personnel (FTE): 1 FTE (ISS)

Material Requirements

Material:

None

Travel Requirements

Number of trips (1 person/trip): 1 Trip (ISS) Trip destination (domestic/international): domestic Trip duration: 5 days

Trip purpose: support facility-related safety training and/or benchmarking activities

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

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Facilities Development and Operations Contract	Task Order Number:	Rev:		
Facility Engineering and Support Services Task Order	FDOC-TO8-16	Original		

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Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C						
GFY: FY16	16 SOW Reference: 3.3.1 Ground Segment Control Board (GSCB)								
Title: Ground Segment Control Board (GSCB) Technical Support									
Programs Supported:	Programs Supported:								
SpaceComm	Station	Commercial Crew	MPCV/SLS						
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3.3.1. Ground Segment Control Board (GSCB)

The GSCB is a multi-lateral board that established a baseline for and controls subsequent change to operations and mission integration ground facilities related products. The GSCB also provides a forum for the resolution of technical and schedule issues, including joint operations and utilization issues.

The Security Analysis and Support Team (SART) and the Network and Communications Analysis and Integration Team (NACAIT) sub-teams chartered under the GSCB, work specific functional areas for ground systems interfaces. The Contractor shall provide support to these teams.

The Contractor shall provide GSCB engineering and Technical Interchange Meeting (TIM) support, act as International Ground System Specification (IGSS) book manager, and provide Software Review Control Panel (SRCP) support for GSCB-related topics. The Contractor shall also provide GSCB administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging. In addition to these tasks, the Contractor shall provide support for IP Network requirements and implementation coordination.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE Provide technical support to the Ground Segment Control Board (GSCB)

1.2 OBJECTIVE

Ensure all GSCB activities are supported

2.0 TASK DESCRIPTION

Facilities Development and Operations Contract	Task Order Number:	Rev:		
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2.1 DESCRIPTION OF WORK

The Contractor shall provide technical systems engineering and operational support to the Ground Segment Control Board (GSCB) and international Technical Interchange Meetings (TIMs).

Tasks include:

- International Ground Systems Specification (IGSS) book management
- Support Multi-lateral GSCB and TIMs at IP locations
- Review and provide comments on IP ground segment requirements
- GSCB engineering support

- Software Review Control Panel (SRCP) support for GSCB-related topics and Schedule Issues/Change Forms (SIFs)

- Support for IP End-to-End test coordination

- Administration support, including: IP telecon set up; GSCB, TIMs, and telecon agenda development and coordination; Minutes and protocol development and distribution; IP escort coordination; IP badging

- IP Network requirements and implementation coordination
- ISS Support includes Integration of CCtCap per SSCN 014337

2.2 NASA INPUT REQURIEMENTS

All NASA Programmatic requirements.

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

Labor Requirements	
Number of personnel (FTE)	: 1.5 FTE (ISS)

Material Requirements

Material:

None

Travel Requirements

Number of trips (1 person/trip): 5 Trips (2 domestic ISS, 3 international ISS) Trip destination (domestic/international): 2 domestic ISS, 3 international ISS

Trip duration: 5 days

Trip purpose: GSCB meetings with International Partners

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

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Facility Engineering and Support Services Task Order	FDOC-TO9-16	Original		

Work performed under this task shall be in accordance with SOW sections 2.9, Safety and Health Management, and 2.11, Quality Assurance. The contractor shall comply with the NASA SRM&QA policies and procedures and with the JSC Quality Management System (QMS), including all procedures, guidelines and work instructions applicable to the work required under this Task order.

4.0 SECURITY REQUIREMENTS

Work performed under this task shall be in accordance with SOW section 2.6, Security Management and JSC Security guidelines.

5.0 AUTHORITY

F.5 ORDERING (FAR 52.216-18) (OCT 1995)

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Facility Engineering and Sup	oport Services Task Order	FDOC-TO11-16	Original					
Contractor: Lockheed Martin	Corporation	Contract Number: NNJ09HD	46C					
GFY: FY16	SOW Reference: 3.3.4 Systems Engineering and Integration Support							
Title: Systems Engineering and Integration Support MPCV SE&I								
Programs Supported:								
SpaceComm	Station C	ommercial Crew 🛛 🔀	MPCV/SLS					
CST-100	Other /Other Description	:						
Schedule								
Star	t Date:	Estimated	Completion Date:					
10/2	1/2015	9/	30/2016					

3.3.4. Systems Engineering and Integration Support

The Contractor shall provide system engineering support services to the NASA-led effort of defining NASA's ongoing engineering projects. Engineering support shall include systems engineering, spacecraft operability definition, and system development skills to supplement NASA core competencies. The support shall include providing studies, analyses, impact statements, end-to-end architecture tradeoff assessments, implementation plans, and operations process reengineering and proposed alternatives.

Services levels of support will be defined annually by NASA.

1.0 GENERAL SCOPE OF WORK

1.1 PURPOSE

The purpose of this Task Order (TO) is to provide systems engineering services for technical baseline support to the Mission Operation Project (MOP) in support of Multi-Purpose Crew Vehicle (MPCV) Mission Operations.

1.2 OBJECTIVE

The objective of this task is to provide systems engineering support to MOP in the management, definition and maintenance of the MOP technical baseline. The goal is to keep the MOP technical baseline current with the MPCV Program baseline and monitor the facilities projects for applicability to the MOP baseline. In addition, support is needed for development and baselining of the Mission Systems (MS) to GSDO and MS to Space Launch System (SLS) Interface Requirements Documents (IRDs) and Interface Control Documents (ICDs.)

2.0 TASK DESCRIPTION

2.1 DESCRIPTION OF WORK

1.) Provide technical baseline administration

a.) Maintain the technical baseline.

1. Change management - evaluate MPCV programmatic changes for impact to ExCB Level requirements. This includes changes to functional requirements, verification requirements, interface requirements, and ICDs resulting from programmatic (IRDs, C3I, ESD Con Ops) changes.

2. Baseline update - physically update the technical baseline. This includes notification of relevant stakeholders, conduct of reviews, baseline change data entry and reconciliation, and maintenance of ExCB-unique update procedures.

3. Develop and Maintain Interface documentation - For the MS to GSDO IRD/ ICD this includes development of the document, conduct of integration working groups with GSDO, baseline and configuration management of the IRD/ ICD, development of the interface design, issue resolution, and document production.

For the MS to SLS ICD, this includes support to the lead program (SLS) in the form of working group attendance, issue resolution, provision of document updates, and development of interface design.

b.) ExCB/ FOD Advocacy - ensure ExCB/ FOD needs are considered in decision making forums/ processes. This includes keeping up with changes to the MPCV-mandated tools and processes that affect the technical baseline and supporting the forums that make those decisions.

2.) Provide Cradle Support

a) Develop document inputs in Cradle-compatible format for the MS to GSDO IRD/ ICD.

3.) Provide Technical Forum Support

a.) Provide technical support to the MPCV and ExCB/ FOD forums (e.g. ExCB, INT COMM & NW P2P, NWG, MGWG) that make system engineering evaluations and decisions.

4.) Provide Interface Definition Support

a.) Aid in determination, refinement, and documentation of ExCB external interfaces This includes but is not limited to IRD interfaces, non-IRD interfaces, and PRD interfaces.

b.) Provide ExCB inputs to Level II-controlled Interface Requirements/ Control definitions

c.) Provide Book Manager services on MS to GSDO IRD/ ICD.

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2.2 NASA INPUT REQURIEMENTS

Access to all ExCB-level requirements and design documentation

2.3 PERIOD OF PERFORMANCE

The period of performance does not commence until the CO has granted authorization to proceed. This task order period of performance starts 10/1/2015 and ends 09/30/2016.

2.4 LABOR/MATERIAL/TRAVEL

Labor Requirements	
Number of personnel (FTE):	0.25 FTE (MPCV)

None

<u>Material Requirements</u> Material:

<u>Travel Requirements</u> Number of trips (1 person/trip): none Trip destination (domestic/international): none Trip duration: none Trip purpose: none

3.0 SAFETY, RELIABILITY, MAINTAINABILITY, QUALITY ASSURANCE

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