

**Exhibit 300 (BY2009)**

<b>PART ONE</b>	
<b>OVERVIEW</b>	
<b>1. Date of Submission:</b>	2007-09-07
<b>2. Agency:</b>	026
<b>3. Bureau:</b>	00
<b>4. Name of this Capital Asset:</b>	JSC Integrated Planning System
<b>5. Unique Project Identifier:</b>	026-00-01-02-01-1407-00
6. What kind of investment will this be in FY2009?	
Mixed Life Cycle	
7. What was the first budget year this investment was submitted to OMB?	
FY2003	
8. Provide a brief summary and justification for this investment, including a brief description of how this closes in part or in whole an identified agency performance gap.	
<p>The Integrated Planning Systems (IPS) provides the ground system computational capabilities which the Space Shuttle and the International Space Station (ISS) mission planners and flight controllers use for pre-mission planning, shuttle profile design and analysis including powered flight guidance and control software verification, post-mission analysis, and near real-time mission support. IPS is comprised of an open system standards based data processing platform on which applications are hosted. IPS provides a standard set of mission planning applications for producing the integrated mission activity timeline, and utilizes a central data management system to store and distribute products. This IT investment supports both the Space Shuttle and Space Station programs. The functionality now provided was initially developed for the Space Shuttle program in the mid 1970s. During this period the business management processes and the supporting financial management processes have changed to accommodate the evolving program needs and reporting requirements. While NASA can report life-cycle costs for these programs and their major projects, it is extremely difficult to trace back the entire life-cycle cost history associated with this IT investment. In Fiscal Year (FY) 2003 NASA moved to a full-cost budgeting environment. For the purpose of this OMB Exhibit 300, the life-cycle costs reported cover FY 2003 through the planned termination of the program for which the IT investment supports. Additional investments in IT are necessary not only to maintain the existing equipment, but also to replace the equipment as it becomes non-maintainable due to escalating sustaining costs or due to the unavailability of commercial vendors. Mitchell Macha is the Project Manager for both the Mission Control Center (MCC) and the IPS. The two investments are functionally and organizationally related. Mr. Macha has overall PM responsibility for the MCC and IPS facilities under the MSOC contract. His involvement with these facilities occurs on a regular basis. Two people on his staff support him - Larry Bishop for MCC and Jerry Yencharis for IPS, but Mr. Macha has overall direct responsibility for budget, schedules, and work content for these facilities</p>	
9. Did the Agency's Executive/Investment Committee approve this request?	
yes	
9.a. If "yes," what was the date of this approval?	
2006-10-23	
10. Did the Project Manager review this Exhibit?	
yes	
11. Project Manager Name:	
Mitchell Macha	
Project Manager Phone:	
281-483-7059	
Project Manager Email:	
mitchell.g.macha@nasa.gov	
11.a. What is the current FAC-P/PM certification level of the project/program manager?	
Senior/Expert-level	

12. Has the agency developed and/or promoted cost effective, energy-efficient and environmentally sustainable techniques or practices for this project.

yes

12.a. Will this investment include electronic assets (including computers)?

yes

12.b. Is this investment for new construction or major retrofit of a Federal building or facility? (answer applicable to non-IT assets only)

no

13. Does this investment directly support one of the PMA initiatives?

yes

If yes, select the initiatives that apply:

Budget Performance Integration  
Competitive Sourcing  
Human Capital

13.a. Briefly and specifically describe for each selected how this asset directly supports the identified initiative(s)? (e.g. If E-Gov is selected, is it an approved shared service provider or the managing partner?)

Human Capital - The IPS fosters a culture that is built on trust, respect, teamwork, communication, creativity, and empowerment. Budget Performance - Objectives/goals for Shuttle Program are planned and measured accordingly through the use of the Integrated Budget and Performance Document. Competition - Approximately 95% of IPS funding is contracted dollars. The prime contractor for IPS operations utilizes competitively awarded procurements whenever possible.

14. Does this investment support a program assessed using the Program Assessment Rating Tool (PART)?

yes

14.a. If yes, does this investment address a weakness found during the PART review?

no

14.b. If yes, what is the name of the PARTed program?

Space and Flight Support

14.c. If yes, what rating did the PART receive?

Adequate

15. Is this investment for information technology?

yes

16. What is the level of the IT Project (per CIO Council's PM Guidance)?

Level 3

17. What project management qualifications does the Project Manager have? (per CIO Council's PM Guidance)

(1) Project manager has been validated as qualified for this investment

18. Is this investment identified as high risk on the Q4 - FY 2007 agency high risk report (per OMB memorandum M-05-23)?

no

19. Is this a financial management system?

no

19.a.2. If no, what does it address?

Human Spaceflight

20. What is the percentage breakout for the total FY2008 funding request for the following? (This should total 100%)

<b>Hardware</b>	12
<b>Software</b>	1
<b>Services</b>	87
<b>Other</b>	0

21. If this project produces information dissemination products for the public, are these products published to the Internet in conformance

with OMB Memorandum 05-04 and included in your agency inventory, schedules and priorities?

n/a

22. Contact information of individual responsible for privacy related questions.

Name

Patti Stockman

Phone Number

(202) 358-4787

Title

Agency Privacy and Records Manager

Email

patti.stockman@nasa.gov

23. Are the records produced by this investment appropriately scheduled with the National Archives and Records Administration's approval?

yes

24. Does this investment directly support one of the GAO High Risk Areas?

no

### SUMMARY OF SPEND

1. Provide the total estimated life-cycle cost for this investment by completing the following table. All amounts represent budget authority in millions, and are rounded to three decimal places. Federal personnel costs should be included only in the row designated Government FTE Cost, and should be excluded from the amounts shown for Planning, Full Acquisition, and Operation/Maintenance. The total estimated annual cost of the investment is the sum of costs for Planning, Full Acquisition, and Operation/Maintenance. For Federal buildings and facilities, life-cycle costs should include long term energy, environmental, decommissioning, and/or restoration costs. The costs associated with the entire life-cycle of the investment should be included in this report.

All amounts represent Budget Authority

	PY 2007	CY 2008	BY 2009
<b>Planning Budgetary Resources</b>	0.000	0.000	0.000
<b>Acquisition Budgetary Resources</b>	0.780	0.681	0.748
<b>Maintenance Budgetary Resources</b>	12.694	12.937	14.216
<b>Government FTE Cost</b>	0.905	0.882	0.636
<b># of FTEs</b>	7	7	5

Note: For the cross-agency investments, this table should include all funding (both managing partner and partner agencies).

Government FTE Costs should not be included as part of the TOTAL represented.

2. Will this project require the agency to hire additional FTE's?

no

2.a. If "yes," how many and in what year?

N/A

3. If the summary of spending has changed from the FY2008 President's budget request, briefly explain those changes.

No request has been made for additional funding, but rather a shift has occurred in the reporting of the budget beginning in FY08/BY09. In the past, an effort was made to delineate between IT and non-IT labor for Exhibit 300 reporting purposes. Since the majority of the IPS's budget is clearly expended on IT labor and materials, and much confusion surrounds the definition of IT labor, it was decided to report the entire budget as IT. This change will lessen or eliminate false Earned Value variances caused by the inability to align the Exhibit 300 planned performance figures with the Contractor's (Lockheed Martin Mission Systems) Earned Value system.

### PERFORMANCE

In order to successfully address this area of the exhibit 300, performance goals must be provided for the agency and be linked to the annual performance plan. The investment must discuss the agency's mission and strategic goals, and performance measures (indicators) must be provided. These goals need to map to the gap in the agency's strategic goals and objectives this investment is designed to fill. They are the internal and external performance benefits this investment is expected to deliver to the agency (e.g., improve efficiency by 60

percent, increase citizen participation by 300 percent a year to achieve an overall citizen participation rate of 75 percent by FY 2xxx, etc.). The goals must be clearly measurable investment outcomes, and if applicable, investment outputs. They do not include the completion date of the module, milestones, or investment, or general goals, such as, significant, better, improved that do not have a quantitative measure.

Agencies must use the following table to report performance goals and measures for the major investment and use the Federal Enterprise Architecture (FEA) Performance Reference Model (PRM). Map all Measurement Indicators to the corresponding Measurement Area and Measurement Grouping identified in the PRM. There should be at least one Measurement Indicator for each of the four different Measurement Areas (for each fiscal year). The PRM is available at [www.egov.gov](http://www.egov.gov). The table can be extended to include performance measures for years beyond FY 2009.

	<b>Fiscal Year</b>	<b>Strategic Goal Supported</b>	<b>Measurement Area</b>	<b>Measurement Grouping</b>	<b>Measurement Indicator</b>	<b>Baseline</b>	<b>Planned Improvement to the Baseline</b>	<b>Actual Results</b>
<b>1</b>	2007	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Technology	Availability	Availability of ground system services for IPS critical and non-critical functions for all unscheduled outages and down time supports providing safe reliable system in ensuring space access.	Provide 98% availability of ground system services for IPS critical and non-critical functions for all unscheduled outages and down time.	Increase to and maintain availability at 100% through end of life 2016.	Continued to average 99.8% availability over the past 12 months (Apr 06-Mar 07).
<b>2</b>	2007	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Software fault density measures software quality. Errors are reported via anomaly reports. Supports the strategic goal of enhancing efficiency in operations and sustaining of the IPS.	Achieve a software fault density of no more than 1 anomaly per thousand (.2) source lines of code (KSLOC) for mature software (greater than 2 years old).	Maintain the current baseline through end of life 2016.	Averaged .086 anomaly reports per KSLOC for the past 12 months (Jun '06-May '07)
<b>3</b>	2007	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Customer Results	Delivery Time	Implement changes to the IPS baseline that are designated as Flight Priority 1 and return the system to an operational status within the period agreed to by the user (Operational Need Date/OND).	Meet the OND for all Flight Priority 1 service requests.	Maintain the current baseline through end of life 2016.	Currently performing at 100%. ONDs for all Flight Priority 1 service requests have been met from Jun '06 to May '07.

	<b>Fiscal Year</b>	<b>Strategic Goal Supported</b>	<b>Measurement Area</b>	<b>Measurement Grouping</b>	<b>Measurement Indicator</b>	<b>Baseline</b>	<b>Planned Improvement to the Baseline</b>	<b>Actual Results</b>
<b>4</b>	2007	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Mission and Business Results	Space Operations	Provide ground system computational capabilities which the International Space Station and Space Shuttle mission planners and flight controllers use for pre-mission planning, shuttle profile design and analysis, and near real-time mission support.	Ensure the IPS provides the computational capabilities needed by the Shuttle and Station programs.	Maintain the current baseline through end of life 2016.	Currently performing at 100%. The IPS has not delayed nor negatively impacted a mission.
<b>5</b>	2008	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Technology	Availability	Availability of ground system services for IPS critical and non-critical functions for all unscheduled outages and down time supports providing safe reliable system in ensuring space access	Provide 98% availability of ground system services for IPS critical and non-critical functions for all unscheduled outages and down time.	Increase to and maintain availability at 100% through end of life 2016.	TBD
<b>6</b>	2008	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Software fault density measures software quality. Errors are reported via anomaly reports. Supports the strategic goal of enhancing efficiency in operations and sustaining of the IPS.	Achieve a software fault density of no more than 1 anomaly per thousand (.2) source lines of code (KSLOC) for mature software (greater than 2 years old).	Maintain the current baseline through end of life 2016	TBD

	<b>Fiscal Year</b>	<b>Strategic Goal Supported</b>	<b>Measurement Area</b>	<b>Measurement Grouping</b>	<b>Measurement Indicator</b>	<b>Baseline</b>	<b>Planned Improvement to the Baseline</b>	<b>Actual Results</b>
<b>7</b>	2008	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Customer Results	Delivery Time	Implement changes to the IPS baseline that are designated as Flight Priority 1 and return the system to an operational status within the period agreed to by the user (Operational Need Date/OND).	Meet the OND for all Flight Priority 1 service requests.	Maintain the current baseline through end of life 2016.	TBD
<b>8</b>	2008	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Mission and Business Results	Space Operations	Provide ground system computational capabilities which the International Space Station and Space Shuttle mission planners and flight controllers use for pre-mission planning, shuttle profile design and analysis, and near real-time mission support.	Ensure the IPS provides the computational capabilities needed by the Shuttle and Station programs.	Maintain the current baseline through end of life 2016.	TBD
<b>9</b>	2009	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Technology	Availability	Availability of ground system services for IPS critical and non-critical functions for all unscheduled outages and down time supports providing safe reliable system in ensuring space access.	Provide 98% availability of ground system services for IPS critical and non-critical functions for all unscheduled outages and down time.	Increase to and maintain availability at 100% through end of life 2016.	TBD

	Fiscal Year	Strategic Goal Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvement to the Baseline	Actual Results
10	2009	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Software fault density measures software quality. Errors are reported via anomaly reports. Supports the strategic goal of enhancing efficiency in operations and sustaining of the IPS.	Achieve a software fault density of no more than 1 anomaly per thousand (.2) source lines of code (KSLOC) for mature software (greater than 2 years old).	Maintain the current baseline through end of life 2016.	TBD
11	2009	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Customer Results	Delivery Time	Implement changes to the IPS baseline that are designated as Flight Priority 1 and return the system to an operational status within the period agreed to by the user (Operational Need Date/OND).	Meet the OND for all Flight Priority 1 service requests.	Maintain the current baseline through end of life 2016.	TBD
12	2009	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Mission and Business Results	Space Operations	Provide ground system computational capabilities which the International Space Station and Space Shuttle mission planners and flight controllers use for pre-mission planning, shuttle profile design and analysis, and near real-time mission support.	Ensure the IPS provides the computational capabilities needed by the Shuttle and Station programs.	Maintain the current baseline through end of life 2016.	TBD

**EA**

*In order to successfully address this area of the business case and capital asset plan you must ensure the investment is included in the agency's EA and Capital Planning and Investment Control (CPIC) process, and is mapped to and supports the FEA. You must also ensure the business case demonstrates the relationship between the investment and the business, performance, data, services, application, and technology layers of the agency's EA.*

1. Is this investment included in your agency's target enterprise architecture?

yes
2. Is this investment included in the agency's EA Transition Strategy?
yes
2.a. If yes, provide the investment name as identified in the Transition Strategy provided in the agency's most recent annual EA Assessment.
JSC Integrated Planning System
3. Is this investment identified in a completed (contains a target architecture) and approved segment architecture?
no
4. Identify the service components funded by this major IT investment (e.g., knowledge management, content management, customer relationship management, etc.). Provide this information in the format of the following table. For detailed guidance regarding components, please refer to <a href="http://www.whitehouse.gov/omb/egov/">http://www.whitehouse.gov/omb/egov/</a> .
Component: Use existing SRM Components or identify as NEW. A NEW component is one not already identified as a service component in the FEA SRM.
Reused Name and UPI: A reused component is one being funded by another investment, but being used by this investment. Rather than answer yes or no, identify the reused service component funded by the other investment and identify the other investment using the Unique Project Identifier (UPI) code from the OMB Ex 300 or Ex 53 submission.
Internal or External Reuse?: Internal reuse is within an agency. For example, one agency within a department is reusing a service component provided by another agency within the same department. External reuse is one agency within a department reusing a service component provided by another agency in another department. A good example of this is an E-Gov initiative service being reused by multiple organizations across the federal government.
Funding Percentage: Please provide the percentage of the BY requested funding amount used for each service component listed in the table. If external, provide the funding level transferred to another agency to pay for the service.

	<b>Agency Component Name</b>	<b>Agency Component Description</b>	<b>Service Type</b>	<b>Component</b>	<b>Reused Component Name</b>	<b>Reused UPI</b>	<b>Internal or External Reuse?</b>	<b>Funding %</b>
<b>1</b>	Space and Ground Network IT Support	The IPS conducts configuration management of the hardware and software that comprise the operational and development systems.	Management of Processes	Configuration Management			No Reuse	3
<b>2</b>	Space and Ground Network IT Support	The IPS stores mission planning and flight design data on a variety of media.	Document Management	Library / Storage			No Reuse	3
<b>3</b>	Space and Ground Network IT Support	Information sharing within the IPS occurs via storage media. Users place mission planning products in a common area accessible by others.	Knowledge Management	Information Sharing			No Reuse	2
<b>4</b>	Space and Ground Network IT Support	The majority of the work performed by the IPS is predictive analysis, such as the loading profiles and mission planning changes and their affect on the physical attributes of the vehicle.	Analysis and Statistics	Mathematical			No Reuse	5
<b>5</b>	Space and Ground Network IT Support	The IPS utilizes imagery from a planning perspective to understand the relationship of objects to the spacecraft and the relationship of the crew and equipment to the spacecraft during space walks, remote manipulator operations, and vehicle proximity operations.	Visualization	Imagery			No Reuse	3

	<b>Agency Component Name</b>	<b>Agency Component Description</b>	<b>Service Type</b>	<b>Component</b>	<b>Reused Component Name</b>	<b>Reused UPI</b>	<b>Internal or External Reuse?</b>	<b>Funding %</b>
<b>6</b>	Space and Ground Network IT Support	All IPS system configuration data, application software, and audit data are recorded to tape daily. The tapes are sent to an off-site disaster recovery storage facility on a weekly basis.	Data Management	Data Warehouse			No Reuse	8
<b>7</b>	Space and Ground Network IT Support	The IPS systems are very large and complex; therefore at any given time some components are being replaced with new technology. Integration with old technology and translation of data interfaces between old and new technology is almost always accomplished via custom software applications.	Development and Integration	Legacy Integration			No Reuse	2
<b>8</b>	Space and Ground Network IT Support	Data from various input sources is written to common data stores. Custom applications are developed to integrate the data and perform computations on that data.	Development and Integration	Data Integration			No Reuse	2
<b>9</b>	Space and Ground Network IT Support	Since the IPS systems support manned space flight, all hardware and software applications are thoroughly tested before being introduced into the operational environment	Development and Integration	Instrumentation and Testing			No Reuse	8

	<b>Agency Component Name</b>	<b>Agency Component Description</b>	<b>Service Type</b>	<b>Component</b>	<b>Reused Component Name</b>	<b>Reused UPI</b>	<b>Internal or External Reuse?</b>	<b>Funding %</b>
<b>10</b>	Space and Ground Network IT Support	The IPS systems are comprised of several millions of lines of custom software and written in numerous programming languages.	Development and Integration	Software Development			No Reuse	50
<b>11</b>	Space and Ground Network IT Support	The Operating System auditing function is enabled on each IT System to detect intrusions. These audit logs are reviewed periodically for intrusions via manual procedures and custom software applications.	Security Management	Intrusion Detection			No Reuse	3
<b>12</b>	Space and Ground Network IT Support	Access to all IPS IT systems is strictly controlled by account and password administration. This is typically accomplished through the capabilities of the operating system.	Security Management	Identification and Authentication			No Reuse	3
<b>13</b>	Space and Ground Network IT Support	Via the capabilities built into the operating system of each IT system, user groups are established and managed to allow group level access to applications and data.	Security Management	Access Control			No Reuse	2
<b>14</b>	Space and Ground Network IT Support	The Operating System auditing function is enabled on each IT System to provide audit trail capture and analysis. These logs are reviewed periodically via manual procedures and via custom software applications.	Security Management	Audit Trail Capture and Analysis			No Reuse	3

	Agency Component Name	Agency Component Description	Service Type	Component	Reused Component Name	Reused UPI	Internal or External Reuse?	Funding %
15	Space and Ground Network IT Support	Because the IPS systems support manned space flight, software distribution is tightly controlled. Distribution is accomplished via a combination of manual procedures and custom software applications from the development environment to the test environment, and to the operational environment.	Systems Management	Software Distribution			No Reuse	3

5. To demonstrate how this major IT investment aligns with the FEA Technical Reference Model (TRM), please list the Service Areas, Categories, Standards, and Service Specifications supporting this IT investment.

FEA SRM Component: Service Components identified in the previous question should be entered in this column. Please enter multiple rows for FEA SRM Components supported by multiple TRM Service Specifications.

Service Specification: In the Service Specification field, Agencies should provide information on the specified technical standard or vendor product mapped to the FEA TRM Service Standard, including model or version numbers, as appropriate.

	SRM Component	Service Area	Service Category	Service Standard	Service Specification (i.e., vendor and product name)
1	Configuration Management	Service Platform and Infrastructure	Software Engineering	Software Configuration Management	Telelogic CM Synergy
2	Data Integration	Component Framework	Business Logic	Platform Independent	Oracle, SQL Server
3	Data Warehouse	Service Platform and Infrastructure	Database / Storage	Database	Oracle, SQL Server
4	Data Warehouse	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	IBM Printers
5	Imagery	Service Platform and Infrastructure	Database / Storage	Database	Oracle, SQL Server
6	Imagery	Service Platform and Infrastructure	Database / Storage	Storage	IBM Shark Storage Area Network
7	Imagery	Service Platform and Infrastructure	Hardware / Infrastructure	Local Area Network (LAN)	Cisco routers and switches
8	Information Sharing	Service Platform and Infrastructure	Database / Storage	Database	Oracle, SQL Server
9	Information Sharing	Service Platform and Infrastructure	Database / Storage	Storage	IBM Shark Storage Area Network
10	Instrumentation and Testing	Service Platform and Infrastructure	Software Engineering	Test Management	Parasoft Test ++, Vector/Cast

	<b>SRM Component</b>	<b>Service Area</b>	<b>Service Category</b>	<b>Service Standard</b>	<b>Service Specification (i.e., vendor and product name)</b>
<b>11</b>	Legacy Integration	Component Framework	Business Logic	Platform Independent	Oracle, SQL Server
<b>12</b>	Library / Storage	Service Platform and Infrastructure	Database / Storage	Database	IBM Shark Storage Area Network
<b>13</b>	Library / Storage	Service Platform and Infrastructure	Database / Storage	Storage	Oracle, SQL Server
<b>14</b>	Mathematical	Service Platform and Infrastructure	Database / Storage	Database	IBM Shark Storage Area Network
<b>15</b>	Mathematical	Service Platform and Infrastructure	Database / Storage	Storage	Dell workstations, HP Proliant servers, and IBM Bladecenter servers
<b>16</b>	Mathematical	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers	Dell workstations, HP Proliant servers, and IBM Bladecenter servers
<b>17</b>	Software Development	Component Framework	Business Logic	Platform Independent	N/A
<b>18</b>	Software Distribution	Service Access and Delivery	Service Transport	Service Transport	N/A
<b>19</b>	Audit Trail Capture and Analysis	Component Framework	Security	Supporting Security Services	N/A
<b>20</b>	Intrusion Detection	Component Framework	Security	Supporting Security Services	N/A

6. Will the application leverage existing components and/or applications across the Government (i.e., FirstGov, Pay.Gov, etc)?

no

**PART TWO**

**RISK**

*You should perform a risk assessment during the early planning and initial concept phase of the investment's life-cycle, develop a risk-adjusted life-cycle cost estimate and a plan to eliminate, mitigate or manage risk, and be actively managing risk throughout the investment's life-cycle.*

*Answer the following questions to describe how you are managing investment risks.*

1. Does the investment have a Risk Management Plan?

yes

1.a. If yes, what is the date of the plan?

2004-08-10

1.b. Has the Risk Management Plan been significantly changed since last year's submission to OMB?

no

3. Briefly describe how investment risks are reflected in the life cycle cost estimate and investment schedule:

The project employed a Cost-Effectiveness Analysis in comparing the alternatives. The alternative is cost-effective if, on the basis of life cycle cost analysis of competing alternatives, it is determined to have the lowest costs expressed in present value terms. Cost effectiveness analysis is being used because each alternative has the same annual effects and dollar values cannot be assigned to their benefits. In addition to the total cost of ownership, risk analysis and sensitivity analysis is used in understanding the risk-adjusted costs. The project has accounted for risk in each of the alternatives reviewed. Risks are normally identified and documented with mitigation plans during the design process. By choosing option 1, the project will utilize identical Cisco network switches as are deployed elsewhere in the facility and procuring a second GigaMAN (Gigabit Metropolitan Area Network) which is functionally identical to a GigaMAN already in use. Therefore, there were no significant risks identified with the selection of option 1 in the alternatives analysis. There are

residual risks that are common to all alternatives and that are basically unavoidable. These risks include: a) buying and using high performance technology that is at the leading edge - systems that are sold in small numbers and so are not field-proven - systems that are not as reliable as servers and microcomputers sold by the millions; b) risks of a dynamically evolving market; c) risk of changes in user workload composition and size and that the workload may not be well-suited to the platform; d) limited supply of staff with the specialized skills required to configure, operate, and maintain these specialized machines. The project has accounted for risks as defined in the Risk Management plan. Additionally, these risks are taken into consideration in the Acquisition Strategy and are tracked through-out the life cycle of the projects by project management processes including Operational Analysis. Risks are also accounted for in the Investment Schedule. The contractor includes in its estimates the cost to prototype and/or perform additional, extensive testing by the user community for projects that are determined to have higher risks.

**COST & SCHEDULE**

1. Does the earned value management system meet the criteria in ANSI/EIA Standard 748?

yes

2. Is the CV% or SV% greater than  $\pm 10\%$ ?

yes

2.a. If yes, was it the?

CV

2.b. If yes, explain the variance.

NASA utilizes a tool, Primavera ProSight, to generate the Exhibit 300. EVM data such as Planned Value (PV) and Earned Value (EV) are entered into the Cost and Schedule Performance Section. These figures, along with DME budget data pulled from other areas of the Exhibit 300, are used to calculate the Actual Cost (AC). The Exhibit 300 budget data contains both Government and Contracted costs while the EVM data reflects only MSOC contracted costs. Further, MSOC's Earned Value system does not classify the data according to DME and Steady State. MSOC's EVM data (PV and EV) contain both DME and SS, while ProSight makes it's calculations by using only DME. For these reasons, a false variance is shown. In actuality, a variance of less than 5% exists.

2.c. If yes, what corrective actions are being taken?

No corrective action is being taken as MSOC's total cost variance for the IPS is within the established threshold of +/-5%. The cost variance calculated above is not a valid indicator of actual cost performance.

3. Has the investment re-baselined during the past fiscal year?

no

Generated by Primavera ProSight