

Exhibit 300 (BY2009)

PART ONE	
OVERVIEW	
1. Date of Submission:	2007-09-07
2. Agency:	026
3. Bureau:	00
4. Name of this Capital Asset:	JSC Space Shuttle Program Flight Software
5. Unique Project Identifier:	026-00-01-03-01-1418-00
6. What kind of investment will this be in FY2009?	
Operations and Maintenance	
7. What was the first budget year this investment was submitted to OMB?	
FY2005	
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>NASA's vision is to pioneer the future in space exploration, scientific discovery and aeronautics research. In 2004, the President committed the Nation to a journey of exploring the solar system and beyond; returning to the moon in the next decade, then venturing further into the solar system, ultimately sending humans to Mars and beyond. NASA enthusiastically embraced the challenge as its vision NASA's Space Operations Mission Directorate will operate the Space Shuttle until its retirement and will manage completion and use of the International Space Station to ensure its continued availability as a unique space outpost and laboratory. The JSC Space Shuttle Program (SSP) strongly supports this vision through its direct support of the NASA Strategic Goal 1, "Fly the Shuttle as safely as possible until its retirement, not later than 2010." The SSP FSW IT investment allows NASA and our collaborating industry partner, United Space Alliance (USA) to provide the products and services required for maintaining, testing, reconfiguration, and configuration management of the onboard Shuttle software. The products and services include network management, systems management, engineering tasks, desktop management, IT security operations management and COTS software installation. It also includes the design, testing and operational deployment of customized hardware and software. FSW is a custom-built, unique environment. The SSP FSW is one functional area of a much larger Space Program Operations Contract. The SSP FSW flies the Space Shuttle; it does not have any e-Gov or e-business applications. Neither personnel actions nor financial decisions are made using SSP FSW. This software is a highly unique, non-COTS, non-public investment which is only used to fly the Space Shuttle.</p>	
9. Did the Agency's Executive/Investment Committee approve this request?	
yes	
9.a. If "yes," what was the date of this approval?	
2007-07-11	
10. Did the Project Manager review this Exhibit?	
yes	
11. Project Manager Name:	
Darrell E. Stamper	
Project Manager Phone:	
(281) 483-0858	
Project Manager Email:	
darrell.e.stamper@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:	
Competitive Sourcing Financial Performance 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?)	
We build a team of highly qualified individuals representative of America's diversity. NASA completed a workforce analysis/restructuring plan to align human resources with NASA's mission, goals and objectives. The investments's financial management functions are accomplished under the NASA financial process which determines performance objectives/goals directly linked to budget reviews and guidance for the Agency. We follow the Federal and Agency procurement regulations for competitive sourcing.	
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 Shuttle	
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	
20. What is the percentage breakout for the total FY2008 funding request for the following? (This should total 100%)	
Hardware	1
Software	1
Services	98
Other	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	

	Fiscal Year	Strategic Goal Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvement to the Baseline	Actual Results
1	2007	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Mission and Business Results	Space Operations	Flight Software Avionics and Software System Support with no impact to safety, mission success or major program schedule milestones.	100% accuracy and On Schedule Delivery	Maintain 100% accuracy and on time delivery.	Year-to-date 100%
2	2007	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Customer Results	Delivery Time	Multifunction Electronic Display Subsystem (MEDS) Software Interim Release Deliverables. The delta code changes for the interim release are 100% technically correct and delivered on schedule with 100% accuracy for associated documentation.	100% accuracy and On Schedule Delivery	Maintain 100% accuracy and on time delivery.	Year-to-date 100%
3	2007	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Flight Software Avionics and Software System Support: Provide I-Load Selections 100% Accurate. No errors requiring redelivery which impacts I-Load development schedules or requiring patch for flight.	100% accuracy.	Maintain 100%	Year-to-date 100%
4	2007	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Vehicle and Payload Data Collection/Reconfiguration: 100% Error Free. No errors that impact safety, mission success, or major program schedule milestones.	99.5%	Maintain 99.5%	Year-to-date 98.9%
5	2007	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Backup Flight System (BFS) Flight Software Software Approval Sheet (SAS) and test patches are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	100% accuracy.	Maintain 100%	Year-to-date 100%
6	2007	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Technology	Availability	Shuttle Avionics Integration Laboratory (SAIL) operations system availability = 100%. SAIL operations system non-availability with no impact to safety, mission success, or major program schedule milestones to be no more than 5%.	98.4%	Maintain baseline	Year-to-date 97.7%

	Fiscal Year	Strategic Goal Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvement to the Baseline	Actual Results
7	2008	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Customer Results	Delivery Time	Multifunction Electronic Display Sub-system (MEDS) Software Interim Release Deliverables. The delta code changes for the interim release are 100% technically correct and delivered on schedule. 100% accuracy for associated documentation.	100% accuracy and On Schedule Delivery	Maintain 100% accuracy and on time delivery.	TBD
8	2008	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Flight Software Avionics and Software System Support: Provide I-Load Selections 100% Accurate. No errors requiring redelivery which impacts I-Load development schedules or requiring patch for flight.	100% accuracy.	Maintain 100%	TBD
9	2008	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Vehicle and Payload Data Collection/Reconfiguration: 100% Error Free. No errors that impact safety, mission success, or major program schedule milestones.	99.5%	Maintain 99.5%	TBD
10	2008	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Backup Flight System (BFS) Flight Software Software Approval Sheet (SAS) and test patches are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	100%	Maintain 100% accuracy	TBD
11	2008	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Technology	Availability	Shuttle Avionics Integration Laboratory (SAIL) operations system availability = 100%. SAIL operations system non-availability with no impact to safety, mission success, or major program schedule milestones to be no more than 5%.	98.4%	Maintain baseline	TBD
12	2009	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Customer Results	Delivery Time	Multifunction Electronic Display Sub-system (MEDS) Software Interim Release Deliverables. The delta code changes for the interim release are 100% technically correct and delivered on schedule. 100% accuracy for associated documentation.	100% accuracy and On Schedule Delivery	Maintain 100% accuracy and on time delivery.	TBD

	Fiscal Year	Strategic Goal Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvement to the Baseline	Actual Results
13	2009	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Flight Software Avionics and Software System Support: Provide I-Load Selections 100% Accurate. No errors requiring redelivery which impacts I-Load development schedules or requiring patch for flight.	100% accuracy.	Maintain 100%	TBD
14	2009	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Vehicle and Payload Data Collection/Reconfiguration: 100% Error Free. No errors that impact safety, mission success, or major program schedule milestones.	99.5%	Maintain 99.5%	TBD
15	2009	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Backup Flight System (BFS) Flight Software Software Approval Sheet (SAS) and test patches are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	100%	Maintain 100% accuracy	TBD
16	2009	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Technology	Availability	Shuttle Avionics Integration Laboratory (SAIL) operations system availability = 100%. SAIL operations system non-availability with no impact to safety, mission success, or major program schedule milestones to be no more than 5%.	98.4%	Maintain baseline	TBD
17	2010	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Customer Results	Delivery Time	Multifunction Electronic Display Subsystem (MEDS) Software Interim Release Deliverables. The delta code changes for the interim release are 100% technically correct and delivered on schedule. 100% accuracy for associated documentation.	100% accuracy and On Schedule Delivery	Maintain 100% accuracy and on time delivery.	TBD
18	2010	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Flight Software Avionics and Software System Support: Provide I-Load Selections 100% Accurate. No errors requiring redelivery which impacts I-Load development schedules or requiring patch for flight.	100% accuracy.	Maintain 100%	TBD

	Fiscal Year	Strategic Goal Supported	Measurement Area	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvement to the Baseline	Actual Results
19	2010	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Vehicle and Payload Data Collection/Reconfiguration: 100% Error Free. No errors that impact safety, mission success, or major program schedule milestones.	99.5%	Maintain 99.5%	TBD
20	2010	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Processes and Activities	Errors	Backup Flight System (BFS) Flight Software Software Approval Sheet (SAS) and test patches are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	100%	Maintain 100% accuracy	TBD
21	2010	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Technology	Availability	Shuttle Avionics Integration Laboratory (SAIL) operations system availability = 100%. SAIL operations system non-availability with no impact to safety, mission success, or major program schedule milestones to be no more than 5%.	98.4%	Maintain baseline	TBD
22	2008	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Mission and Business Results	Space Operations	Flight Software Avionics and Software System Support with no impact to safety, mission success or major program schedule milestones.	100% accuracy and On Schedule Delivery	Maintain 100% accuracy and on time delivery.	TBD
23	2009	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Mission and Business Results	Space Operations	Flight Software Avionics and Software System Support with no impact to safety, mission success or major program schedule milestones.	100% accuracy and On Schedule Delivery	Maintain 100% accuracy and on time delivery.	TBD
24	2010	Goal 1: Fly the Shuttle as safely as possible until its retirement, not later than 2010.	Mission and Business Results	Space Operations	Flight Software Avionics and Software System Support with no impact to safety, mission success or major program schedule milestones.	100% accuracy and On Schedule Delivery	Maintain 100% accuracy and on time delivery.	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 Space Shuttle Program Flight Software

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 <http://www.whitehouse.gov/omb/egov/>.

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.

	Agency Component Name	Agency Component Description	Service Type	Component	Reused Component Name	Reused UPI	Internal or External Reuse?	Funding %
1	Change Management	Both ASDEP and SAIL facilities employ Change Management to implement hardware and software changes.	Management of Processes	Change Management			No Reuse	15
2	Configuration Management	Both ASDEP and SAIL facilities employ Configuration Management to manage the IT resources with in these facilities.	Management of Processes	Configuration Management			No Reuse	15
3	Data Recovery	Data recovery is address by the disaster recovery plans established for both ASDEP and SAIL facilities.	Data Management	Data Recovery			No Reuse	1

	Agency Component Name	Agency Component Description	Service Type	Component	Reused Component Name	Reused UPI	Internal or External Reuse?	Funding %
4	Facilities Management	FSW Element has responsible for managing the ASDEP and SAIL computer facilities	Asset / Materials Management	Facilities Management			No Reuse	2
5	Instrumentation and Testing	The SAIL Facility provides for the integration testing of software and hardware.	Development and Integration	Instrumentation and Testing			No Reuse	25
6	Software Development	The ASDEP facility provides access to test facilities as well as supports application software development type activities.	Development and Integration	Software Development			No Reuse	35
7	Identification and Authentication	ASDEP employ COTS software to perform authentication and user identification during logon	Security Management	Identification and Authentication			No Reuse	2
8	Access Control	ASDEP employ COTS software to address access control	Security Management	Access Control			No Reuse	1
9	Intrusion Detection	ASDEP employ COTS software to perform intrusion detection	Security Management	Intrusion Detection			No Reuse	1
10	License Management	For both the ASDEP and SAIL facilities software procurement and licensing is provided by USA IM services.	Systems Management	License Management			No Reuse	1
11	System Resource Monitoring	System performance monitoring is used within the ADEP facility and provides inputs to the planning process	Systems Management	System Resource Monitoring			No Reuse	1

	Agency Component Name	Agency Component Description	Service Type	Component	Reused Component Name	Reused UPI	Internal or External Reuse?	Funding %
12	Software Distribution	FSW unique environment requires additional software to be installed on workstations.	Systems Management	Software Distribution			No Reuse	1

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	Data Recovery	Service Access and Delivery	Access Channels	Collaboration / Communications	Backup
2	Facilities Management	Service Access and Delivery	Delivery Channels	Internet	n/a - Internet not supported in ASDEP
3	Identification and Authentication	Service Access and Delivery	Service Requirements	Authentication / Single Sign-on	Oracle OID and Microsoft Windows LDAP. Vendors: Oracle Corp. and Microsoft
4	Change Management	Service Access and Delivery	Service Requirements	Hosting	Lotus Notes CM Database - IBM
5	Configuration Management	Service Access and Delivery	Service Transport	Supporting Network Services	Checkpoint FW - Checkpoint Corp. and Cisco switches from Cisco Corp.
6	Software Development	Service Platform and Infrastructure	Delivery Servers	Application Servers	Oracle Application Server - Oracle Corp. and CM Database Harvest - Computer Associates
7	Data Recovery	Service Platform and Infrastructure	Delivery Servers	Media Servers	Backup
8	Change Management	Service Platform and Infrastructure	Software Engineering	Integrated Development Environment	CMSII application
9	Instrumentation and Testing	Service Platform and Infrastructure	Software Engineering	Test Management	SAIL internally-developed test tool
10	Software Development	Service Platform and Infrastructure	Database / Storage	Database	Oracle - Oracle Corp.
11	Software Development	Service Platform and Infrastructure	Database / Storage	Storage	IBM AIX RISC 6000 Hardware and DASD
12	Configuration Management	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers	Windows & IBM AIX O/S platforms on HP

	SRM Component	Service Area	Service Category	Service Standard	Service Specification (i.e., vendor and product name)
13	Configuration Management	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals	CTS and CMS II - (USA Locally developed Tools)
14	Configuration Management	Service Platform and Infrastructure	Hardware / Infrastructure	Local Area Network (LAN)	CTS and CMS II - (USA Locally developed Tools)
15	System Resource Monitoring	Service Platform and Infrastructure	Hardware / Infrastructure	Network Devices / Standards	Patrol - BMC Corporation
16	Access Control	Component Framework	Security	Supporting Security Services	Microsoft Windows, Oracle SSO & OID, ALERT Software and Checkpoint Firewall Software. Aelita Software and Internet Security Scanner

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

no

PART THREE

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?

2007-02-28

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

no

COST & SCHEDULE

1. Was operational analysis conducted?

yes

1.a. If yes, provide the date the analysis was completed.

2007-07-06

What were the results of your operational analysis?

Operational assessments are continuously performed on capital assets to assess their performance and effectiveness in meeting critical mission operations objectives. This investment supports strategic Goal 1, "Fly the Shuttle as safely as possible until its retirement, not later than 2010." The flight software is rigorously tested prior to its use in flight. All anomalies that are identified are investigated thoroughly, and appropriate action is taken to ensure that the software will perform nominally during flight. A Software Readiness Review is held prior to each flight to ensure that the software has been reviewed by all organizations that share responsibility for it, and all agree that it is ready for flight. A Performance Measurement System is used to track and monitor key metrics monthly to evaluate the effectiveness, efficiency, productivity, availability, reliability, and security of capital assets. Metrics data for the prior year and current year to-date indicate that the quality of the flight software continues to be extremely high. Operations and maintenance costs associated with these capital assets are reviewed monthly in conjunction with the metrics to identify early warning indicators of impacts to lifecycle costs and performance goals. Data from operational analyses are used to prioritize operations and maintenance costs to underperforming assets and/or the requests for new funding in the annual Program Operating Plan inputs. Users of the flight software, Shuttle astronauts, are involved in flight software testing in order to ensure that the software provides the needed functionality and performance characteristics. In addition, a representative

of the Astronaut Office actively participates in the weekly meeting of the Shuttle Avionics Software Control Board (SASCB) where flight software issues, modifications, and schedules are discussed. When a need for additional functionality or enhanced performance is identified, the flight software is modified accordingly. The software modifications that are currently being implemented in Operational Increment 34 (OI-34) represent the final set of flight software modifications planned for the Shuttle Program. The first flight of OI-34 is scheduled for April 2009.

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