

**MS Word Exhibit 300 for O&M (BY2008) (Form) / JSC Space Shuttle Program Flight Software (Item)**

Form Report, printed by: System Administrator, **Jan 31, 2007**

**OVERVIEW**

<b>General Information</b>	
<b>1. Date of Submission:</b>	January 31, 2007
<b>2. Agency:</b>	026
<b>3. Bureau:</b>	00
<b>4. Name of this Capital Asset:</b>	JSC Space Shuttle Program Flight Software
<b>Investment Portfolio:</b>	BY OMB 300 Items
<b>5. Unique ID:</b>	026-00-01-03-01-1418-00
<b>(For IT investments only, see section 53. For all other, use agency ID system.)</b>	

**All investments**

6. What kind of investment will this be in FY2008?
<i>(Please NOTE: Investments moving to O&amp;M ONLY in FY2008, with Planning/Acquisition activities prior to FY2008 should not select O&amp;M. These investments should indicate their current status.)</i>
Operations and Maintenance
7. What was the first budget year this investment was submitted to OMB?
FY2004
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.
NASA's vision is "to improve life here, to extend life to there, and to find life beyond." NASA's mission is "to understand and protect our home planet, to explore the universe and search for life, and to inspire the next generation of explorers as only NASA can." The mission of NASA's Space Operations Directorate's Space Shuttle Program strongly supports this mission through its direct support of the 2003 NASA Strategic Plan, Goal 8, "Ensure the provision of space access and improve it by increasing safety, reliability, and affordability." The Space Shuttle Program (SSP) supports Goal 8. JSC's SSP Flight Software (FSW) organization supports Goal 8 through their direct support of the SSP. SSP FSW IT investment provides for maintenance, testing, reconfiguration, and configuration management of the onboard Shuttle software. The SSP FSW IT investment allows NASA and our collaborating industry partner, United Space Alliance (USA), to provide the products and services required to support the Space Shuttle operations. The products and services include network management, systems management, engineering tasks, customer support help desk, 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, not COTS. No E-gov projects or e-business technologies are applicable to this highly unique, non-COTS, non-public investment. The SSP Flight Software is one functional area of a much larger Space Flight Operations Contract. The SSP Flight Software flies the Space Shuttle; it does not have any Government-wide eGovernment applications. No personnel actions are taken using SSP Flight Software, and no financial decisions are made using SSP Flight Software. In fact, the only thing SSP Flight Software does is fly the Space Shuttle. The overall contract does indeed use these applications/functions, but the funding represented in SSP Flight Software does not represent those systems, personnel, or costs.
9. Did the Agency's Executive/Investment Committee approve this request?
Yes
9.a. If "yes," what was the date of this approval?
Jun 1, 2006
10. Did the Project Manager review this Exhibit?
Yes
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

12.b.1. If "yes," is an ESPC or UESC being used to help fund this investment?

12.b.2. If "yes," will this investment meet sustainable design principles?

12.b.3. If "yes," is it designed to be 30% more energy efficient than relevant code?

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

Yes

If "yes," select the initiatives that apply:

<b>Human Capital</b>	Yes
<b>Budget Performance Integration</b>	
<b>Financial Performance</b>	Yes
<b>Expanded E-Government</b>	
<b>Competitive Sourcing</b>	Yes
<b>Faith Based and Community</b>	
<b>Real Property Asset Management</b>	
<b>Eliminating Improper Payments</b>	
<b>Privatization of Military Housing</b>	
<b>R and D Investment Criteria</b>	
<b>Housing and Urban Development Management and Performance</b>	
<b>Broadening Health Insurance Coverage through State Initiatives</b>	
<b>Right Sized Overseas Presence</b>	
<b>Coordination of VA and DoD Programs and Systems</b>	

13.a. Briefly describe how this asset directly supports the identified initiative(s)?

Strategic Management of Human Capital - We aggressively build a team of highly qualified individuals that is representative of America's diversity. NASA has completed a 2004 Workforce analysis and restructuring plan to align its human resources with the Agency's mission, goals and objectives. NASA has also developed a Competency Management System that allows the Agency to track and project core workforce competencies address workforce imbalances and guide future recruitment and deployment

14. Does this investment support a program assessed using OMB's 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 PART program assessed by OMB's Program Assessment Rating Tool?

Space Shuttle

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

Adequate

15. Is this investment for information technology (See section 53 for definition)?

Yes

**For information technology investments only:**

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 2006 agency high risk report (per OMB's "high risk" memo)?

No

19. Is this a financial management system?

No

19.a. If "yes," does this investment address a FFIA compliance area?

19.a.1. If "yes," which compliance area:

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

19.b. If "yes," please identify the system name(s) and system acronym(s) as reported in the most recent financial systems inventory update required by Circular A-11 section 52.

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

Area	Percentage	
Hardware	1.00	
Software	1.00	
Services	98.00	
Other	0.00	
<b>Total</b>	100.00	

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

<b>Name</b>	
<b>Phone Number</b>	
<b>Title</b>	
<b>Email</b>	

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

Yes

**SUMMARY OF FUNDING**

**SUMMARY OF SPENDING FOR PROJECT PHASES (In Millions)**

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

(Estimates for BY+1 and beyond are for planning purposes only and do not represent budget decisions)

	PY	CY	BY
	2006	2007	2008
<b>Planning:</b>	0.000	0.000	0.000
<b>Acquisition:</b>	0.000	0.000	0.000
<b>Subtotal Planning &amp; Acquisition:</b>	0.000	0.000	0.000
<b>Operations &amp; Maintenance:</b>	86.651	84.892	84.819
<b>TOTAL</b>	86.651	84.892	84.819
<b>Government FTE Costs</b>	1.126	1.164	1.203
<b># of FTEs</b>	9.0	9.0	9.0
<b>Total, BR + FTE Cost</b>	87.777	86.057	86.023

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?

3. If the summary of spending has changed from the FY2007 President's budget request, briefly explain those changes.

No Change.

Budget Comments \* Internal Use Only\*

**PERFORMANCE**

**Performance Information**

*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 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 or qualitative measure.*

*Agencies must use Table 1 below for reporting performance goals and measures for all non-IT investments and for existing IT investments that were initiated prior to FY 2005. The table can be extended to include measures for years beyond FY 2006.*

Table 1

	<b>Fiscal Year</b>	<b>Strategic Goal(s) Supported</b>	<b>Performance Measure</b>	<b>Actual/baseline (from Previous Year)</b>	<b>Planned Performance Metric (Target)</b>	<b>Performance Metric Results (Actual)</b>
<b>1</b>	2003	Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	100% accuracy and On Schedule Delivery	Multifunction Electronic Display System Software Test and Operations Support Required Services: The delta code changes for the interim release are 100% technically correct and delivered on the negotiated schedules. 100% accuracy will be expected	The delta code Changes to be delivered without slips or redelivery caused by MEDS software not meeting negotiated schedules or due to a redelivery to correct an error are allowed if no additional resource impact to outside organizations is incurred	FY03 100 %FY04 Current 100%
<b>2</b>	2003	Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Maintain 100% accuracy.	Flight Software Avionics and Software System Support Required Service: Provide I-load Selections 100% Accurate	No errors requiring redelivery which impacts I load development schedules or requiring patch for flight.	100% Accurate.No errors which will impact safety, mission success, or major program schedule milestones.
<b>3</b>	2003	Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Maintain 100% Availability	Shuttle Avionics Integration Laboratory (SAIL) Required Service: SAIL operations system availability = 100%.	SAIL operations system non-availability with no impact to safety, mission success, or major program schedule milestones to be 5%.	100% availability.No significant impact to safety, mission success, or major program schedule milestones.
<b>4</b>	2003	Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Maintain 100% Error Free	Vehicle and Payload Data Collection/Reconfiguration Required Service: Data Reconfiguration Deliverables 0% Error Free	Data products delivered during the previous year contained errors, with all errors dispositioned prior to the start of flight specific simulations, and in no case impact safety, mission success, or major program schedule milestones.	5% of the data products delivered during the previous year contained errors, with all errors dispositioned prior to the start of the flight specific simulation, and in no case impact safety, mission success, or major program schedule milestones.

<b>5</b>	2003	Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Maintain baseline.	Orbiter and Backup Flight System (BFS) Flight Software Processing and Tools Required Service: Provide BFS Software Approval Sheet (SAS) and test patches are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	No slips or redelivery caused by the backup flight system not meeting negotiated schedules or due to redelivery to correct any errors if no additional resource impact to an outside organization is incurred.	100% technically accurate, complete in content, and delivered on the negotiated schedule. No errors in released test patches caused by the backup flight system for crew training or testing.
<b>6</b>	2004	Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	100% accuracy and On Schedule Delivery	Multifunction Electronic Display System Software Test and Operations Support Required Services: The delta code changes for the interim release are 100% technically correct and delivered on the negotiated schedules. 100% accuracy will be expected	The delta code Changes to be delivered without slips or redelivery caused by MEDS software not meeting negotiated schedules or due to a redelivery to correct an error are allowed if no additional resource impact to outside organizations is incurred	100% Accurate and On Schedule Delivery
<b>7</b>	2004	Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Maintain 100% accuracy.	Flight Software Avionics and Software System Support Required Service: Provide I-load Selections 100% Accurate	No errors requiring redelivery which impacts I load development schedules or requiring patch for flight.	100% Accurate.No errors which will impact safety, mission success, or major program schedule milestones.
<b>8</b>	2004	Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Maintain 100% Availability	Shuttle Avionics Integration Laboratory (SAIL) Required Service: SAIL operations system availability = 100%.	No errors requiring redelivery which impacts I load development schedules or requiring patch for flight.	100% availability.No significant impact to safety, mission success, or major program schedule milestones.
<b>9</b>	2004	Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Maintain 100% Error Free	Vehicle and Payload Data Collection/Reconfiguration Required Service: Data Reconfiguration Deliverables 0% Error Free	Data products delivered during the previous year contained errors, with all errors dispositioned prior to the start of flight specific simulations, and in no case impact safety, mission success, or major program schedule milestones.	5% of the data products delivered during the previous year contained errors, with all errors dispositioned prior to the start of the flight specific simulation, and in no case impact safety, mission success, or major program schedule milestones.

<b>10</b>	2004	Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Maintain baseline.	Orbiter and Backup Flight System (BFS) Flight Software Processing and Tools Required Service: Provide BFS Software Approval Sheet (SAS) and test patches are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	No slips or redelivery caused by the backup flight system not meeting negotiated schedules or due to redelivery to correct any errors if no additional resource impact to an outside organization is incurred.	100% technically accurate, complete in content, and delivered on the negotiated schedule. No errors in released test patches caused by the backup flight system for crew training or testing.
<b>11</b>	2005	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Multifunction Electronic Display System (MEDS) Software Test and Operations Support Required Services: MEDS Software Interim Release Deliverables. The delta code changes for the interim release are 100% technically correct and delivered on the negotiated schedules; 100% accuracy will be expected for the associated documentation.	100%	100% Accurate and On-Schedule Delivery	N/A - no interim releases in FY05
<b>12</b>	2005	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Flight Software Avionics and Software System Support Required Service: Provide I-load selections that are 100% accurate.	100%	100% Accurate. No errors which will impact safety, mission success, or major program schedule milestones.	100%
<b>13</b>	2005	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Shuttle Avionics Integration Laboratory (SAIL) Required Service: SAIL operations system availability = 100%.	100%	100% availability. No significant impact to safety, mission success, or major program schedule milestones.	98.5%
<b>14</b>	2005	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Vehicle and Payload Data Collection/Reconfiguration Required Service: Error-Free Data Reconfiguration Deliverables	5% of the data products delivered during the previous year contained errors, with all errors dispositioned prior to the start of the flight specific simulation, and in no case impact safety, mission success, or major program schedule milestones.	100% accurate. No errors that would cause impacts to mission safety, mission success, or scheduled launch date.	99.7%

<b>15</b>	2005	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Backup Flight System (BFS) Flight Software Processing and Tools Required Service: Provide BFS Software Approval Sheet (SAS) and test patches that are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	100%	100% technically accurate, complete in content, and delivered on the negotiated schedule. No errors in released test patches caused by the backup flight system for crew training or testing.	100%
<b>16</b>	2006	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Multifunction Electronic Display System (MEDS) Software Test and Operations Support Required Services: MEDS Software Interim Release Deliverables. The delta code changes for the interim release are 100% technically correct and delivered on the negotiated schedules; 100% accuracy will be expected for the associated documentation.	N/A - no interim releases in FY05	100% Accurate and On-Schedule Delivery	N/A - no interim releases in FY06 Year-to-Date
<b>17</b>	2006	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Flight Software Avionics and Software System Support Required Service: Provide I-load selections that are 100% accurate.	100%	100% Accurate. No errors which will impact safety, mission success, or major program schedule milestones.	100% Year-to-Date
<b>18</b>	2006	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Shuttle Avionics Integration Laboratory (SAIL) Required Service: SAIL operations system availability = 100%.	98.5%	100% availability. No significant impact to safety, mission success, or major program schedule milestones.	98.5% Year-to-date
<b>19</b>	2006	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Vehicle and Payload Data Collection/Reconfiguration Required Service: Error-Free Data Reconfiguration Deliverables	99.7%	100% accurate. No errors that would cause impacts to mission safety, mission success, or scheduled launch date.	100% Year-to-Date

<b>20</b>	2006	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Backup Flight System (BFS) Flight Software Processing and Tools Required Service: Provide BFS Software Approval Sheet (SAS) and test patches that are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	100%	100% technically accurate, complete in content, and delivered on the negotiated schedule. No errors in released test patches caused by the backup flight system for crew training or testing.	100% Year-to-Date
<b>21</b>	2007	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Multifunction Electronic Display System (MEDS) Software Test and Operations Support Required Services: MEDS Software Interim Release Deliverables. The delta code changes for the interim release are 100% technically correct and delivered on the negotiated schedules; 100% accuracy will be expected for the associated documentation.	TBD	100% Accurate and On-Schedule Delivery	TBD
<b>22</b>	2007	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Flight Software Avionics and Software System Support Required Service: Provide I-load selections that are 100% accurate.	TBD	100% Accurate. No errors which will impact safety, mission success, or major program schedule milestones.	TBD
<b>23</b>	2007	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Shuttle Avionics Integration Laboratory (SAIL) Required Service: SAIL operations system availability = 100%.	TBD	100% availability. No significant impact to safety, mission success, or major program schedule milestones.	TBD
<b>24</b>	2007	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Vehicle and Payload Data Collection/Reconfiguration Required Service: Error-Free Data Reconfiguration Deliverables	~5% of the data products delivered contained errors, with all errors dispositioned prior to the start of the flight specific simulation, and in no case impact safety, mission success, or major program schedule milestones.	100% accurate. No errors that would cause impacts to mission safety, mission success, or scheduled launch date.	TBD

<b>25</b>	2007	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Backup Flight System (BFS) Flight Software Processing and Tools Required Service: Provide BFS Software Approval Sheet (SAS) and test patches that are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	TBD	100% technically accurate, complete in content, and delivered on the negotiated schedule. No errors in released test patches caused by the backup flight system for crew training or testing.	TBD
<b>26</b>	2008	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Multifunction Electronic Display System (MEDS) Software Test and Operations Support Required Services: MEDS Software Interim Release Deliverables. The delta code changes for the interim release are 100% technically correct and delivered on the negotiated schedules; 100% accuracy will be expected for the associated documentation.	TBD	100% Accurate and On-Schedule Delivery	TBD
<b>27</b>	2008	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Flight Software Avionics and Software System Support Required Service: Provide I-load selections that are 100% accurate.	TBD	100% Accurate. No errors which will impact safety, mission success, or major program schedule milestones.	TBD
<b>28</b>	2008	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Shuttle Avionics Integration Laboratory (SAIL) Required Service: SAIL operations system availability = 100%.	TBD	100% availability. No significant impact to safety, mission success, or major program schedule milestones.	TBD
<b>29</b>	2008	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Vehicle and Payload Data Collection/Reconfiguration Required Service: Error-Free Data Reconfiguration Deliverables	~5% of the data products delivered contained errors, with all errors dispositioned prior to the start of the flight specific simulation, and in no case impact safety, mission success, or major program schedule milestones.	100% accurate. No errors that would cause impacts to mission safety, mission success, or scheduled launch date.	TBD

<b>30</b>	2008	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Backup Flight System (BFS) Flight Software Processing and Tools Required Service: Provide BFS Software Approval Sheet (SAS) and test patches that are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	TBD	100% technically accurate, complete in content, and delivered on the negotiated schedule. No errors in released test patches caused by the backup flight system for crew training or testing.	TBD
<b>31</b>	2009	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Multifunction Electronic Display System (MEDS) Software Test and Operations Support Required Services: MEDS Software Interim Release Deliverables. The delta code changes for the interim release are 100% technically correct and delivered on the negotiated schedules; 100% accuracy will be expected for the associated documentation.	TBD	100% Accurate and On-Schedule Delivery	TBD
<b>32</b>	2009	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Flight Software Avionics and Software System Support Required Service: Provide I-load selections that are 100% accurate.	TBD	100% Accurate. No errors which will impact safety, mission success, or major program schedule milestones.	TBD
<b>33</b>	2009	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Shuttle Avionics Integration Laboratory (SAIL) Required Service: SAIL operations system availability = 100%.	TBD	100% availability. No significant impact to safety, mission success, or major program schedule milestones.	TBD
<b>34</b>	2009	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Vehicle and Payload Data Collection/Reconfiguration Required Service: Error-Free Data Reconfiguration Deliverables	~5% of the data products delivered contained errors, with all errors dispositioned prior to the start of the flight specific simulation, and in no case impact safety, mission success, or major program schedule milestones.	100% accurate. No errors that would cause impacts to mission safety, mission success, or scheduled launch date.	TBD

<b>35</b>	2009	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Backup Flight System (BFS) Flight Software Processing and Tools Required Service: Provide BFS Software Approval Sheet (SAS) and test patches that are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	TBD	100% technically accurate, complete in content, and delivered on the negotiated schedule. No errors in released test patches caused by the backup flight system for crew training or testing.	TBD
<b>36</b>	2010	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Multifunction Electronic Display System (MEDS) Software Test and Operations Support Required Services: MEDS Software Interim Release Deliverables. The delta code changes for the interim release are 100% technically correct and delivered on the negotiated schedules; 100% accuracy will be expected for the associated documentation.	TBD	100% Accurate and On-Schedule Delivery	TBD
<b>37</b>	2010	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Flight Software Avionics and Software System Support Required Service: Provide I-load selections that are 100% accurate.	TBD	100% Accurate. No errors which will impact safety, mission success, or major program schedule milestones.	TBD
<b>38</b>	2010	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Shuttle Avionics Integration Laboratory (SAIL) Required Service: SAIL operations system availability = 100%.	TBD	100% availability. No significant impact to safety, mission success, or major program schedule milestones.	TBD
<b>39</b>	2010	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Vehicle and Payload Data Collection/Reconfiguration Required Service: Error-Free Data Reconfiguration Deliverables	~5% of the data products delivered contained errors, with all errors dispositioned prior to the start of the flight specific simulation, and in no case impact safety, mission success, or major program schedule milestones.	100% accurate. No errors that would cause impacts to mission safety, mission success, or scheduled launch date.	TBD

<b>40</b>	2010	2003 NASA Strategic Goal 8: Ensure the provision of space access and improve it by increasing safety, reliability, and affordability	Backup Flight System (BFS) Flight Software Processing and Tools Required Service: Provide BFS Software Approval Sheet (SAS) and test patches that are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	TBD	100% technically accurate, complete in content, and delivered on the negotiated schedule. No errors in released test patches caused by the backup flight system for crew training or testing.	TBD
-----------	------	--	---	-----	---	-----

All new IT investments initiated for FY 2005 and beyond must use Table 2 and are required to use the FEA Performance Reference Model (PRM). Please use Table 2 and the PRM to identify the performance information pertaining to this major IT investment. 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 at least four different Measurement Areas (for each fiscal year). The PRM is available at [www.egov.gov](http://www.egov.gov).

Table 2

	Fiscal Year	Measurement Area	Measurement Category	Measurement Grouping	Measurement Indicator	Baseline	Planned Improvements to the Baseline	Actual Results
<b>1</b>	2003	Customer Results	Timeliness and Responsiveness	Delivery Time	Annual percentage On-Time Delivery of PI Technical Information Systems IT products support both the Programs overall reliability and ensure affordability of the systems.	On-time Delivery of PI Technical Information Systems IT Products - Standards of Excellence (SOE) = 95% Expectation = 80% Maximum Error Rate (MER) = >80%	Maintain SOE of 95% on-time delivery	98.57% - Performance of 98.57 exceeded planned standard of excellence
<b>2</b>	2003	Processes and Activities	Quality	Errors	Monthly average of 4 or less DRs across released PI applications supports both the Programs overall reliability and ensures affordability of the systems.	Maintain SOE of 4 or less discrepancies (DRs) against Program Integration (PI) released applications	Maintained SOE	0.75 DRs per month
<b>3</b>	2003	Technology	Reliability and Availability	Availability	Monthly percentage of unplanned or unscheduled outage supports the agency's goal of maintaining high system reliability and helps ensures space access.	Availability of systems: Standards of Excellence (SOE) = 99% Expectation = 97% Maximum Error Rate (MER) = >97%	Maintain 99% or better availability	99.90% - Improved from FY02 average of 99.69% to FY03 average of 99.90%
<b>4</b>	2004	Customer Results	Timeliness and Responsiveness	Delivery Time	Annual percentage On-Time Delivery of PI Technical Information Systems IT products support both the Programs overall reliability and ensure affordability of the systems.	On-time Delivery of PI Technical Information Systems IT Products - Standards of Excellence (SOE) = 95% Expectation = 80% Maximum Error Rate (MER) = >80%	Maintain SOE of 95% on-time delivery	91.94% - Performance Of 91.94 did not meet SOE, but exceeded defined MER

<b>5</b>	2004	Processes and Activities	Quality	Errors	Monthly average of 4 or less DRs across released PI applications supports both the Programs overall reliability and ensures affordability of the systems.	Maintain SOE of 4 or less discrepancies (DRs) against Program Integration (PI) released applications	Performance of 0.42 DRs per month exceeded defined SOE	0.42 DRs per month
<b>6</b>	2004	Technology	Reliability and Availability	Availability	Monthly percentage of unplanned or unscheduled outage supports the agency's goal of maintaining high system reliability and helps ensures space access.	Availability of systems: Standards of Excellence (SOE) = 99% Expectation = 97%	Maintain 99% or better availability	99.97% - Improved from FY03 average of 99.90% to FY04 average of 99.97%
<b>7</b>	2005	Customer Results	Timeliness and Responsiveness	Delivery Time	Annual percentage On-Time Delivery of PI Technical Information Systems IT products support both the Programs overall reliability and ensure affordability of the systems.	On-time Delivery of PI Technical Information Systems IT Products - Standards of Excellence (SOE) = 95% Expectation = 80% Maximum Error Rate (MER) = >80%	Re-establish SOE of 95% on-time delivery each year from 2005 to 2011	Year-to-date = 97.92
<b>8</b>	2005	Processes and Activities	Quality	Errors	Monthly average of 4 or less DRs across released PI applications supports both the Programs overall reliability and ensures affordability of the systems.	Monthly average of 4 or less DRs across released PI applications Standards of Excellence (SOE) = 4 or less Discrepancy Reports (DRs) Expectation = 5 to 7 DRs Maximum Error Rate (MER) = 8 DRs	Maintain SOE of 4 or less discrepancies (DRs) against Program Integration (PI) released applications each year from 2005 to 2011	Year-to-date = 0.25 DRs per month
<b>9</b>	2005	Technology	Reliability and Availability	Availability	Monthly percentage of unplanned or unscheduled outage supports the agency's goal of maintaining high system reliability and helps ensures space access.	Availability of systems: Standards of Excellence (SOE) = 99% Maximum Error Rate (MER) = >97%	Maintain 99% or better availability each year from 2005 to 2011	Year-to-date = 99.5%
<b>10</b>	2006	Customer Results	Timeliness and Responsiveness	Delivery Time	Multifunction Electronic Display System (MEDS) Software Interim Release Deliverables: The delta code changes for the interim release are 100% technically correct and delivered on the negotiated schedules.	100% accuracy and On Schedule Delivery	Maintain 100% accuracy and on time delivery.	N/A - no interim releases in FY06 Year-to-Date
<b>11</b>	2006	Processes and Activities	Quality	Errors	Flight Software Avionics and Software System Support Required Service: 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%	100% Year-to-Date

<b>12</b>	2006	Processes and Activities	Quality	Errors	Orbiter and Backup Flight System (BFS) Flight Software Approval Sheet (SAS) and test patches are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	99.5%	Maintain 99.5%	100% Year-to-Date
<b>13</b>	2006	Processes and Activities	Quality	Errors	Orbiter and Backup Flight System (BFS) Flight Software Approval Sheet (SAS) and test patches are 100% technically accurate, complete in content, and delivered on the negotiated schedule.	100%	Maintain 100% accuracy	100% Year-to-Date
<b>14</b>	2006	Technology	Reliability and Availability	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 5%.	98.5%	Maintain baseline	TBD
<b>15</b>	2007	Customer Results	Timeliness and Responsiveness	Delivery Time	Multifunction Electronic Display System (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.	TBD
<b>16</b>	2007	Processes and Activities	Quality	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
<b>17</b>	2007	Processes and Activities	Quality	Errors	Vehicle and Payload Data Collection/Reconfiguration: 0% Error Free. Data products delivered during the previous year contained errors, with all errors dispositioned and in no case impact safety, mission success, or major program schedule milestones.	99.5%	Maintain 99.5%	TBD
<b>18</b>	2007	Processes and Activities	Quality	Errors	Orbiter and 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%	TBD

<b>19</b>	2007	Technology	Reliability and Availability	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 5%.	98.4%	Maintain baseline	TBD
<b>20</b>	2008	Customer Results	Timeliness and Responsiveness	Delivery Time	Multifunction Electronic Display 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
<b>21</b>	2008	Processes and Activities	Quality	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
<b>22</b>	2008	Processes and Activities	Quality	Errors	Vehicle and Payload Data Collection/Reconfiguration: 0% Error Free. Data products delivered during the previous year contained errors, with all errors dispositioned and in no case impact safety, mission success, or major program schedule milestones.	99.5%	Maintain 99.5%	TBD
<b>23</b>	2008	Processes and Activities	Quality	Errors	Orbiter and 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
<b>24</b>	2008	Technology	Reliability and Availability	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 5%.	98.4%	Maintain baseline	TBD
<b>25</b>	2009	Customer Results	Timeliness and Responsiveness	Delivery Time	Multifunction Electronic Display 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

<b>26</b>	2009	Processes and Activities	Quality	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
<b>27</b>	2009	Processes and Activities	Quality	Errors	Vehicle and Payload Data Collection/Reconfiguration: 0% Error Free. Data products delivered during the previous year contained errors, with all errors dispositioned and in no case impact safety, mission success, or major program schedule milestones.	99.5%	Maintain 99.5%	TBD
<b>28</b>	2009	Processes and Activities	Quality	Errors	Orbiter and 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
<b>29</b>	2009	Technology	Reliability and Availability	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 5%.	98.4%	Maintain baseline	TBD
<b>30</b>	2010	Customer Results	Timeliness and Responsiveness	Delivery Time	Multifunction Electronic Display 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
<b>31</b>	2010	Processes and Activities	Quality	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
<b>32</b>	2010	Processes and Activities	Quality	Errors	Vehicle and Payload Data Collection/Reconfiguration: 0% Error Free. Data products delivered during the previous year contained errors, with all errors dispositioned and in no case impact safety, mission success, or major program schedule milestones.	99.5%	Maintain 99.5%	TBD

<b>33</b>	2010	Processes and Activities	Quality	Errors	Orbiter and 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
<b>34</b>	2010	Technology	Reliability and Availability	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 5%.	98.4%	Maintain baseline	TBD

**EA**

**Enterprise Architecture (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

1.a. If "no," please explain why?

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

2.b. If "no," please explain why?

**Service Reference Model**

3. 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 Domain	Service Type	Component	Reused Component Name	Reused UPI	Internal or External Reuse?	Funding %
1	Change Management	Both ASDEP and SAIL facilities employ the Change Management principals to implement hardware and software changes.	Business Management Services	Management of Processes	Change Management			No Reuse	15.00

2	Configuration Management	Both ASDEP and SAIL facilities employ Configuration Management to manage the IT resources with in these facilities.	Business Management Services	Management of Processes	Configuration Management			No Reuse	15.00
3	Data Recovery	Data recovery is address by the disaster recovery plans established for both ASDEP and SAIL facilities.	Back Office Services	Data Management	Data Recovery			No Reuse	1.00
4	Facilities Management	FSW Element has responsible for managing the ASDEP and SAIL computer facilities	Back Office Services	Asset / Materials Management	Facilities Management			No Reuse	2.00
5	Instrumentation and Testing	The SAIL Facility provides for the integration testing of software and hardware.	Back Office Services	Development and Integration	Instrumentation and Testing			No Reuse	25.00
6	Software Development	The ASDEP facility provides access to test facilities as well as supports application software development type activities.	Back Office Services	Development and Integration	Software Development			No Reuse	35.00
7	Identification and Authentication	ASDEP employ COTS software to perform authentication and user identification during logon	Support Services	Security Management	Identification and Authentication			No Reuse	2.00
8	Access Control	ASDEP employ COTS software to address access control	Support Services	Security Management	Access Control			No Reuse	1.00
9	Intrusion Detection	ASDEP employ COTS software to perform intrusion detection	Support Services	Security Management	Intrusion Detection			No Reuse	1.00
10	License Management	For both the ASDEP and SAIL facilities software procurement and licensing is provided by USA IM services.	Support Services	Systems Management	License Management			No Reuse	1.00
11	System Resource Monitoring	System performance monitoring is used within the ADEP facility and provides inputs to the planning process	Support Services	Systems Management	System Resource Monitoring			No Reuse	1.00
12	Software Distribution	FSW unique environment requires additional software to be installed on workstations.	Support Services	Systems Management	Software Distribution			No Reuse	1.00

**Technical Reference Model**

4. 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
Data Recovery	Service Access and Delivery	Access Channels	Collaboration / Communications
Facilities Management	Service Access and Delivery	Delivery Channels	Internet
Identification and Authentication	Service Access and Delivery	Service Requirements	Authentication / Single Sign-on

Change Management	Service Access and Delivery	Service Requirements	Hosting
Configuration Management	Service Access and Delivery	Service Transport	Supporting Network Services
Software Development	Service Platform and Infrastructure	Delivery Servers	Application Servers
Data Recovery	Service Platform and Infrastructure	Delivery Servers	Media Servers
Change Management	Service Platform and Infrastructure	Software Engineering	Integrated Development Environment
Instrumentation and Testing	Service Platform and Infrastructure	Software Engineering	Test Management
Software Development	Service Platform and Infrastructure	Database / Storage	Database
Software Development	Service Platform and Infrastructure	Database / Storage	Storage
Configuration Management	Service Platform and Infrastructure	Hardware / Infrastructure	Servers / Computers
Configuration Management	Service Platform and Infrastructure	Hardware / Infrastructure	Peripherals
Configuration Management	Service Platform and Infrastructure	Hardware / Infrastructure	Local Area Network (LAN)
System Resource Monitoring	Service Platform and Infrastructure	Hardware / Infrastructure	Network Devices / Standards
Access Control	Component Framework	Security	Supporting Security Services

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

No

5.a. If "yes," please describe.

6. Does this investment provide the public with access to a government automated information system?

No

6.a. If "yes," does customer access require specific software (e.g., a specific web browser version)?

6.a.1. If "yes," provide the specific product name(s) and version number(s) of the required software and the date when the public will be able to access this investment by any software (i.e. to ensure equitable and timely access of government information and services).

<b>RISK</b>
-------------

<b>Risk Management</b>
------------------------

<i>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.</i>
--

<i>Answer the following questions to describe how you are managing investment risks.</i>
--

<i>1. Does the investment have a Risk Management Plan?</i>
--

Yes
-----

<i>1.a. If "yes," what is the date of the plan?</i>
---

Sep 8, 2003
-------------

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

No
----

<i>1.c. If "yes," describe any significant changes:</i>
---

<i>2. If there is currently no plan, will a plan be developed?</i>
--

<i>2.a. If "yes," what is the planned completion date?</i>
--

<i>2.b. If "no," what is the strategy for managing the risks?</i>
---

<i>3. Briefly describe how investment risks are reflected in the life cycle cost estimate and investment schedule: (O&amp;M investments do NOT need to answer.)</i>
---

**COST & SCHEDULE**

**Cost and Schedule Performance**

1. Was operational analysis conducted?

Yes

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

Oct 1, 2005

1.b. If "yes," what were the results?

Operational assessments are continuously performed on capital assets to assess their performance and effectiveness in meeting critical mission operations objectives. 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. 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.

1.c. If "no," please explain why it was not conducted and if there are any plans to conduct operational analysis in the future.

**Actual Performance against the Current Baseline**

2. Complete the following table to compare actual cost performance against the planned cost performance baseline. Milestones reported may include specific individual scheduled preventative and predictable corrective maintenance activities, or may be the total of planned annual operation and maintenance efforts).

2.a. What costs are included in the reported Cost/Schedule Performance information?

Contractor Only

	Description of Milestone	Planned End Date	Actual End Date	Planned Total Cost (\$mil)	Actual Total Cost (\$mil)	Schedule Variance (# of days)	Cost Variance (\$mil)
1	FY 06 Maintenance Cost	Sep 30, 2006	Sep 30, 2006	86.650	86.650	0	0.000
2	FY 07 Maintenance Cost	Sep 30, 2007		84.890			
3	FY 08 Maintenance Cost	Sep 30, 2008		84.820			

			DME	Steady State	Total
<b>Completion date:</b> <b>Current Baseline:</b>	Sep 30, 2011	<b>Total cost:</b> <b>Current Baseline:</b>		641.381	641.381
<b>Estimated completion date:</b>	Sep 30, 2011	<b>Estimate at completion:</b>			