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NASA Procedural Requirements

COMPLIANCE IS MANDATORY**NPR 8820.2F**Effective Date: January 28,
2008Expiration Date: January 28,
2013[Printable Format \(PDF\)](#)[Request Notification of Change](#) (NASA Only)

Subject: Facility Project Requirements

Responsible Office: Facilities Engineering and Real Property Division[| TOC](#) | [Preface](#) | [Chapter1](#) | [Chapter2](#) | [Chapter3](#) | [Chapter4](#) | [Chapter5](#) | [AppendixA](#) |
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Appendix C. Forms and Instructions

Reference	Title	Form Number/Name
C.1	Facility Project--Brief Project Document	NASA Form 1509
C.2	Facility Project Cost Estimate	NASA Form 1510
C.3	Flash Bid Report	NASA Form 1579
C.4	Long Form Writeup	Long Form Writeup
C.5	CoF Routine Transaction Form	CoF Routine Transaction
C.6	CoF Self Assessment Metrics	CoF Self Assessment Metrics

C.1 NASA Form 1509, Facility Project--Brief Project Document

National Aeronautics and Space Administration		Facility Project-Brief Project Document			PROJECT ID	PROJECT CODE	
PROJECT TITLE				INSTALLATION/PROGRAM OFFICE	DATE	SUB/REV. NUMBER	
APPROVED FACILITY PROJECT COST ESTIMATE	ITEMS (LIST)		AMOUNT	RELATED COST DATA <i>(Not Included in the Approved Facility Project Cost Estimate, but required to make the facility initially operable)</i>			
				RELATED COSTS INVOLVED <input type="checkbox"/> YES (Specify) <input type="checkbox"/> NONE	SS (Amount)	PER (Amount)	
				OTHER RELATED EQUIPMENT	DESIGN (Amount)		
					TO BE PURCHASED TRANSFER OF EXCESS EXISTING	ITEM AMOUNT ITEM AMOUNT	FUTURE FUNDING ACTIVATION OTHER REAL ESTATE OTHER (Specify)
TOTAL ▶							
CATEGORY	JUSTIFICATION	WORK					
FUND SOURCE	TYPE	IDENTIFICATION					
SCOPE/DESCRIPTION							
BASIS OF NEED							
SCHEDULE DATES	PDR	of possible	at	% design	SUBMITTED BY	SIGNATURE AND TITLE	DATE
			START	COMPL	CONCURRENCE BY	SIGNATURE AND TITLE	DATE
	PER			JX CONCURRENCE	SIGNATURE AND TITLE	DATE	
	DESIGN			APPROVED BY	SIGNATURE AND TITLE	DATE	
	CONSTRUCTION						
	ACTIVATION						
OPERATIONAL							

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Figure C-1a NASA Form 1509, Facility Project--Brief Project Document

National Aeronautics and Space Administration				Facility Project-Brief Project Document				PROJECT ID	PROJECT CODE																				
PROJECT TITLE				INSTALLATION/PROGRAM OFFICE		DATE		SUB/REV. NUMBER																					
APPROVED FACILITY PROJECT COST ESTIMATE	ITEMS (LIST)			AMOUNT		RELATED COST DATA <i>(Not included in the Approved Facility Project Cost Estimate, but required to make the facility initially operable)</i>																							
						<input type="checkbox"/> YES (Amount) <input type="checkbox"/> NO (Amount) <input type="checkbox"/> PER (Amount) <input type="checkbox"/> DESIGN (Amount)																							
						<table border="1"> <thead> <tr> <th>ITEM</th> <th>AMOUNT</th> <th>ITEM</th> <th>AMOUNT</th> </tr> </thead> <tbody> <tr> <td>TO BE PURCHASED</td> <td></td> <td>FUTURE FUNDING</td> <td></td> </tr> <tr> <td>TRANSFER OF EXCESS</td> <td></td> <td>ACTIVATION</td> <td></td> </tr> <tr> <td>EXISTING</td> <td></td> <td>OTHER REAL ESTATE</td> <td></td> </tr> <tr> <td></td> <td></td> <td>OTHER (Specify)</td> <td></td> </tr> </tbody> </table>		ITEM	AMOUNT	ITEM	AMOUNT	TO BE PURCHASED		FUTURE FUNDING		TRANSFER OF EXCESS		ACTIVATION		EXISTING		OTHER REAL ESTATE				OTHER (Specify)			
	ITEM	AMOUNT	ITEM	AMOUNT																									
TO BE PURCHASED		FUTURE FUNDING																											
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EXISTING		OTHER REAL ESTATE																											
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TOTAL			▶																										
CATEGORY	JUSTIFICATION		WORK		OTHER RELATED EQUIPMENT																								
FUND SOURCE	TYPE	IDENTIFICATION																											
SCOPE/DESCRIPTION																													
BASIS OF NEED																													
SCHEDULE DATES	of possible	at	% design	PROJECT APPROVAL	SUBMITTED BY	SIGNATURE AND TITLE			DATE																				
	PER	START	COMPL		CONCURRENCE BY	SIGNATURE AND TITLE			DATE																				
	DESIGN				JX CONCURRENCE	SIGNATURE AND TITLE			DATE																				
	CONSTRUCTION				APPROVED BY	SIGNATURE AND TITLE			DATE																				
	ACTIVATION																												
	OPERATIONAL																												

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C.1 NASA Form 1509 (Continuation), Facility Project-Brief Project Document

Figure C-1b NASA Form 1509, Facility Project--Brief Project Document (Continuation)

C.1 Instructions for NASA Form 1509, Facility Project -- Brief Project Document The bolded titles in the following paragraphs provide the cross references to the NASA Form 1509 shown in Figures C-1a and C-1b.

C.1.1 Project ID -- an identification number assigned by the submitting organization.

C.1.2 Project Code -- a Center-designated project number. Center CoF Managers determine the naming convention.

C.1.3 Project Title -- a short representative statement of the project that must include the type of work (e.g., repair) and the function of the proposed facility. The title should include the facility name(s) as used in approved master plans and assigned facility number(s); e.g., Construction of Solar Simulator Facility (110) and Rehabilitation of Lunar Simulator Facility (130). Discrete project titles must include the type of facility work and describe the primary objective of the project. Include the function(s) of the resultant facility in the title (e.g., Administration, Laboratory, Warehouse, Aircraft Hangar, or Test Cell).

C.1.4 Installation/Program Office -- indicate the appropriate field installation (i.e., Center or Component) and the Headquarters organization advocating the project (e.g., GRC/ARMD or MSFC/SOMD). If the project location is different from the appropriate field installation, the installation would be indicated as shown in the following examples:

- a. "GRC/PB" for Plum Brook Station.
- b. "MSFC/MAF" for Michoud Assembly Facility.

The Headquarters Office advocates include:

- a. Aeronautics Research Mission Directorate (ARMD).
- b. Exploration Systems Mission Directorate (ESMD).

- c. Science Mission Directorate (SMD).
 - d. Space Operations Mission Directorate (SOMD).
- C.1.5 **Date** -- indicate the date of preparation of the form.

C.1.6 **Sub/Rev Number** -- a submission/revision number that provides a record of the submissions of the Field Installations and approvals of Headquarters.

a. **Centers** -- indicate consecutively with capital letters. The initial submission is A. Subsequent revisions are B, C, and D.

b. **Headquarters** -- indicate consecutively with numbers. First approval is 0. Subsequent approvals are 1, 2, 3.... For example, the submission/revision number will be B/1 after the second submission of the project by the Field Installation and the second approval of the project by Headquarters.

C.1.7 **Approved Facility Project Cost Estimate** -- the cost estimate must fully disclose the cost of construction, including contractor services to execute the planned facility project and make it operational (excluding Related Cost Data described in C.1.12). The anticipated amounts for labor, materials, supplies, collateral equipment, land acquisition, and site development for planned work are included in the estimate. In certain instances, the planning for the execution of the facility project will include the use of engineering and construction management services provided by the contract. When applicable, the cost estimate will identify the cost for these contractual services as follows:

- a. Engineering services for review and analysis of shop drawings.
- b. Construction management services, including evaluation of work progress, preparation and maintenance of critical path method (CPM) network diagrams, resolution of problems due to unanticipated changes in scheduled work, and other similar services.
- c. The cost for the accomplishment of specialized craftwork. When it is planned that NASA civil service employees will accomplish the work, identify and show as a separate element in the estimate.

The cost estimate may be a total for the entire project or broken down into specific segments or work packages.

The cost estimate also must provide a reasonable amount for contingencies, usually 10 percent. When establishing the amount for contingencies, consideration should be given to such factors as the nature and scope of work, material availability, interfaces or dependencies with other planned work or other items that could impact the work, and schedule. A modest contingency amount should suffice when the work is to construct a standard structure. An increased contingency amount should be considered when there is the potential for encountering significant unanticipated problems, such as modifying an existing space launch complex.

If a construction agent will manage the project, the estimated cost also must include the cost of that agent. The FPM must adjust the estimated cost of each project for the geographical area involved and for known or anticipated future cost conditions. The FPM must not include related costs within the AFPCE, but on the NASA Form 1509 under related costs (paragraph (9)).

Collateral Equipment encompasses building-type equipment, built-in equipment, and large, substantially affixed equipment/property normally acquired and installed as part of a facility project. (See Appendix A, "Collateral Equipment").

The FPM will consider a unit of equipment substantially affixed if work described under either of the following items is required and the work estimate is \$300,000 or more:

- a. Providing any special foundations, utility services, or other facilities support for a unit of equipment and to actually install the unit.
- b. Demounting the unit of equipment and performing any facility restoration work that might be involved in its removal from the NASA Form 1509, Facility Project--Brief Project Document, related building or structure.

When in doubt, the CoF Manager will request a determination on questionable (i.e., collateral or noncollateral) equipment from the Design and Construction Team of the Facilities Engineering and Real Property Division.

C.1.8 **Category**

C.1.8.1 **Justification** -- the categories for justification include the following:

- a. **Cost Effective** -- work that is not program critical or institutional critical, but that, if accomplished, would result in demonstrable cost savings or other benefits over the expected life of the project (see Life-Cycle Cost Analysis as discussed in paragraph 2.2.4.12, Budget and Approval Documents).
- b. **Emergency Repair** -- work that qualifies for funding from the CoF account under the provisions of Section 310 (b), National Aeronautics and Space Act of 1958, as amended.

- c. **Energy Conservation** -- Direct Energy Projects that are principally justified to reduce energy consumption and costs, or Related Energy Projects that are justified for other purposes but do contribute to the reduction of energy consumption.
- d. **Environmental** -- work required to correct an existing condition that might pollute the environment. It includes the correction of conditions to meet current environmental regulations. All environmental projects will indicate Environmental on this line item, as the projects are dictated by environmental regulatory requirements.
- e. **Institutional Critical** -- work urgently required to correct an existing condition involving institutional facilities, such as accelerating deterioration, that requires prompt correction. It includes the improvement of utility systems that support major areas of the installation. The emphasis is on priority work that is not program related.
- f. **Institutional Routine** -- work that is clearly necessary in the future but could be deferred to a subsequent budget year if necessitated by budget constraints.
- g. **Life Critical** -- work required to correct conditions that are dangerous to the life and health of personnel, with the potential of fatal injuries if they are not corrected.
- h. **Occupational Safety and Health** -- work required to meet current standards of the Occupational Safety and Health Act of 1970. Such work is necessary to improve the working environment for employees. This category is intended to accomplish work that is clearly needed for full compliance with the law and Executive Order (EO) 12196, Occupational Safety and Health Programs for Federal Employees, as amended.
- i. **Program Critical** -- work that is urgently needed to support a specific R&D program or mission and has to be completed by a stated date for successful accomplishment of that program or mission.
- j. **Program Support** -- work required to correct deficiencies in facilities that support R&D programs or missions. It includes deterioration that limits support of tests or operations and must be corrected in the current budget year. It also includes direct program projects that do not qualify as program critical projects.
- k. **Safety** -- work required to correct a safety hazard or to provide adequate fire protection for personnel, high value equipment, materials, or records that are difficult or impossible to replace and that are needed in the performance of mission or other essential tasks.
- l. **Security** -- work that is required to mitigate a security risk to the Center (personnel or property) identified through NPR 1620.2, Physical Security Vulnerability Risk Assessments.

m. **Health** -- work that is required to correct a health hazard or to provide adequate protection of personnel.

C.1.8.2 **Work** -- Categories for work reflect the type of work included in the project. The predominant type must be the first word in the block ("predominant" based upon associated cost). The following terms are acceptable work categories: repair, modification, construction, and land acquisition.

For minor facility projects, when more than one category of work is involved, the project is classified in accordance with the predominant work. If a project is 51 percent repair and 49 percent construction, it is a repair project.

C.1.9 Fund Source

C.1.9.1 **Type** -- the type of funds to be used for the facility project are indicated as Program Direct (PD) or CoF. The type of funds varies with the change in fiscal year according to the annual appropriations act approved by Congress and signed by the President. Contact the resources office for the correct input to this block for the fiscal year.

C.1.9.2 **Identification** -- the identification of funds varies with the change in fiscal year according to the annual appropriations act approved by Congress and signed by the President. Contact the resources office for the correct input to this block for the fiscal year.

C.1.10 **Related Cost Data** -- under the concept of full disclosure, all costs associated with a project execution must be shown. Since these costs are appropriated separately, they are not included in the approved facility project cost estimate (see Appendix D, Facility and Other Related Costs, paragraph D.2, Related Costs.).

C.1.10.1 **Related Costs Involved** -- check appropriate box. If "Yes," complete the following entries:

a. **Special Studies (SS) (Amount)** -- the cost to prepare special studies. Enter N/A if not required or not accomplished or "in house" if done by in house personnel.

b. **PER (Amount)** -- the cost to prepare a PER including reports, site surveys, and soil investigations. Enter N/A if not required or not accomplished or "in house" if done by in house personnel.

c. **Design (Amount)** -- the cost for the final design of the project. Enter N/A if not required or not accomplished or "in house" if done by in house personnel.

C.1.10.2 **Other Related Equipment** -- if equipment (other than collateral equipment--collateral equipment costs are

included in the AFPCE), including office furniture, is required to make the facility initially operable, the following information is required:

- a. **To Be Purchased** -- the total estimated cost for procurement, transportation, and installation of noncollateral equipment to be purchased under program appropriations.
- b. **Transfer of Excess** -- the total book value of the excess equipment (collateral and noncollateral) to be transferred from another NASA Field Installation or Government agency. Estimated costs for transportation and installation of noncollateral equipment are included. For collateral equipment to be obtained by transfer of excess, however, the estimated out of pocket transportation, installation, and rehabilitation costs must be included in the approved facility project cost estimate.
- c. **Existing** -- the estimated total value of equipment and real property improvements on hand at the Field Installation that can be utilized for the project.
- d. **Future Funding** -- show the planned future funding for any subsequent related requirement.
- e. **Activation** -- indicate the estimated costs associated with the installation of noncollateral (ground support) equipment, checkout, and initial operation of the facility that are funded as part of the operational costs (e.g., the installation of ground support equipment, the integration and checkout of combined facility and equipment systems, and the demonstration and acceptance of an operable facility). Enter "in house" if to be accomplished by in house personnel.
- f. **Other Real Estate** -- indicate the estimated rental costs if applicable. The purchase of land, easements, and rights of way must be part of the facility project and is not included in this entry.
- g. **Other (Specify)** -- other related costs not included above.

C.1.11. **Scope/Description** -- Describe the project's physical size, capacities, and characteristics. Quantify the extent of the project to the maximum extent possible (e.g., gross area, net usable area, capacity, health, fire and safety features, and special features). Attach a sketch, drawing, or site plan if it helps to describe the project. Provide a statement indicating completion of the environmental review process and the type of documentation prepared (i.e., Categorical Exclusion, Environmental Assessment, or an Environmental Impact Statement). Attach an explanation if the environmental process is not complete or normal documentation has not been prepared.

C.1.12 **Basis of Need** -- State the justification for the project and include the impact if the project is not accomplished. State the missions supported by this project and any known program schedule requirement that the project must meet. Identify any supporting engineering studies, economic evaluations, trade studies, or other considerations outlining the need for the project. For projects justified by Federal, State, or local regulations, cite the regulation.

The justification should be concise, complete, and factual. Whenever possible, it should specifically refer to related mission or program requirements and to the role of the proposed facility in the mission or program. Attach any known program milestones, schedules, flight schedules, or any other type of data that supports the justification. For projects replacing an existing capability, state the existing conditions and why they are unacceptable.

Support facilities, such as libraries, auditoriums, and cafeterias, must be justified separately and specifically. State any known specific project benefits. State known natural hazards, such as floods or earthquakes, that are unacceptable risks to mission. Briefly explain the unacceptable risks or cite the study that led to identification of the need for the requirement(s).

C.1.13. **PDR I** -- enter the projects' PDR I score, total possible score, and the percentage of design completion when the scoring occurred.

C.1.14. **Schedule Dates** -- indicate the schedule dates for PER, design, construction (execution), activation start, and the date the facility must be operational, if appropriate.

C.1.15. **Submitted** -- the signature and title of the Field Installation Director of the originating installation or designee is required on the project submitted to Headquarters for approval.

C.1.16. **Concurrence and Approval** -- to be completed at the Headquarters level for projects submitted for approval. These blocks also are available for locally approved projects.

C.1.17. **1509 Continuation Sheet** -- use for any additional supporting data required for the project beyond what is listed in Form 1509 (see Figure C.1-b).

C.2 NASA Form 1510, Facility Project Cost Estimate

 National Aeronautics and Space Administration		<h2>Facility Project Cost Estimate</h2>			
INSTALLATION/PROGRAM OFFICE			DATE		
PROJECT TITLE			SUBMISSION/REVISION		
			PROJECT CODE		
BASIS OF COST ESTIMATE			PROJECT ID		
I. SUMMARY OF COST ESTIMATE					
DESCRIPTION		AMOUNT	PERCENT		
		a.	b.		
1. ENGINEERING ESTIMATE					
2. COST ADJUSTMENT (Enter percentage of item 1a to right in col. 2b)					
3. SUBTOTAL (1+2)					
4. CONTINGENCIES (Enter percentage of item 3 to right in col. 4b)					
5. SUPERVISION, INSPECTION AND ENGINEERING SERVICES (Enter percentage of items 3a and 4a to right in col. 5b)					
6. OTHER BURDEN COSTS					
7. TOTAL BUDGET ESTIMATE (3+4+5+6)					
		SAY			
8. IDENTIFICATION OF COST ADJUSTMENT (Item 2, above) AND OTHER BURDEN COSTS (Item 6, above)					
II. PLANNING AND DESIGN					
DESCRIPTION	STATUS				
	NEEDED	IN-WORK	COMPLETE	IN-HOUSE/AE	COST
a.	b.	c.	d.	e.	
1. PRELIMINARY ENGINEERING REPORT					
2. SPECIAL STUDIES (Specify)					
3. FINAL DESIGN					
4. SUPERVISION AND ADMINISTRATION OF DESIGN SERVICES					
5. TOTAL PLANNING AND DESIGN COST					▶
III. RELATED COST DATA (Not included in this Approved Facility Cost Estimate, but required to make the facility initially operable.)					
1. RELATED COSTS INVOLVED		2. PER (Amount)		3. DESIGN (Amount)	
<input type="checkbox"/> a. YES (Identify in Items 2 through 10) <input type="checkbox"/> b. NONE					
OTHER RELATED EQUIPMENT	ITEM	AMOUNT	ITEM	AMOUNT	
	4. TO BE PURCHASED		8. ACTIVATION		
	5. TRANSFER TO EXCESS		9. OTHER REAL ESTATE		
	6. EXISTING		10. OTHER (Specify)		
	7. FUTURE FUNDING				

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Page 1 of 2 Pages

Figure C-2a NASA Form 1510, Facility Project Cost Estimate

C.2 NASA Form 1510 (Continuation) -- Facility Project Cost Estimate

 National Aeronautics and Space Administration Facility Project Cost Estimate (Continuation Sheet)			SUBMISSION/REVISION NO.			
			PROJECT CODE			
DESCRIPTION	UNIT OF MEASURE (1)	QUANTITY (2)	UNIT COST		TOTAL COST	
			ENGG (3)	BUDGET (4)	ENGG (5)	BUDGET (6)

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Figure C-2b NASA Form 1510, Facility Project Cost Estimate (Continuation)

C.2 Instructions for NASA Form 1510, Facility Project Cost Estimate

The bolded titles in the following paragraphs provide the cross references to NASA Form 1510 shown in Figures C-2a and C-2b.

C.2.1 Installation/Program Office, Project Title, Date, Submission/Revision Number, Project Code, Project ID -- provide the same information as shown on NASA Form 1509.

C.2.2 Basis of Cost Estimate -- Indicate the basis of the cost estimate as follows:

- a. Criteria and concepts only.
- b. Preliminary engineering report.
- c. Partially complete design (approved 30-percent, 60-percent, or 90-percent),
- d. Completed final design.
- e. Contractor's proposal.
- f. Other (explain).

Also indicate the date and originator of the estimated costs (i.e., June 2006 in house estimate or June 2006 ABC

Architect Engineer Company). To provide a uniform base for estimating costs for budget year estimates, the best available local or area experience as of the beginning of the past year should be used. In addition, the estimated local factor for increased costs should be applied to provide for cost increases (actual and anticipated) from the prior year base point and compounded annually to the project midpoint of construction. The basis of any such factor should be indicated (e.g., Engineering News-Record, March 2006). These costs will be reflected as a percentage added to the engineering estimate and will be included in the space provided under the Summary of Estimate.

C.2.3 I. Summary of Estimate -- the amount and percentage of the total estimated cost for the items listed below will be indicated in the appropriate entry blocks.

C.2.3.1 1. Engineering Estimate (EE) -- the total engineering cost estimate, which includes the costs for materials, labor, real estate actions, and services including contractor overhead and profit. Adequate design contingencies must be included. The EE will include all labor and material costs for all items including collateral equipment that would normally be furnished by a contractor and installed as permanent in the facility. When applicable, the cost to install GFP will be included. The EE does not include escalation, construction contingencies, or SIES. Estimates must identify funding requirements by fiscal year(s) and amount(s). The EE includes unit costs (i.e., units of measure and quantities for each significant item) instead of lump sum estimates.

C.2.3.2 2. Cost Adjustment -- the increase over the base cost used to cover anticipated cost increases compounded annually to the midpoint of the proposed construction period. Headquarters Facilities Engineering Division determines the percentage used. If higher rates for cost growth are needed to reflect local conditions, they must be supported by a special rationale establishing the uniqueness of the local conditions for the project.

C.2.3.3 3. Subtotal (of Engineering Estimate + Cost Adjustment) -- represents the project cost without contingencies, supervision, inspection, engineering services (SIES), or other burden costs.

C.2.3.4 4. Contingencies -- indicate normal construction contingencies estimated for changed conditions and essential change orders. Generally, it is 10 percent of the subtotal above.

C.2.3.5 5. Supervision, Inspection, and Engineering Services (SIES) -- the amount for the supervision and administration of the construction contract by a construction manager. Generally, it is 5 to 10 percent.

C.2.3.6 6. Other Burden Costs -- any other burden costs such as GFP refurbishment or transportation of equipment that might be included in the project.

C.2.3.7 7. Total Budget Estimate -- total estimated cost to provide an initially operable facility or total project as set forth in the scope and description of the facility project.

C.2.3.8 8. Identification of Cost Adjustment -- provide a description of the elements that constitute these factors.

C.2.4 II. Planning and Design -- provide data for the entries below:

C.2.4.1 1. Preliminary Engineering Report (PER) -- indicate the actual or estimated cost for the preparation of the PER for the project, normally 1-1/2 to 2 percent, its status, and method of accomplishment in the appropriate blocks.

C.2.4.2 2. Special Studies -- indicate the actual or estimated cost for any required special studies, normally two percent, that are not conceptual studies, such as soil borings or structural analyses. Describe the specific studies, their status, and method of accomplishment.

C.2.4.3 3. Final Design -- enter the actual or estimated cost for the preparation of final design, including contractual plans and specifications, and the status and method of accomplishment.

C.2.4.4 4. Supervision and Administration of Design Services -- the amount for supervision and administration of design by the construction agency.

C.2.4.5 5. Total Planning and Design Costs -- the summary of the items in column e.

C.2.5 III. Related Cost Data -- provide a breakout and description of related cost data as specified in instructions for NASA Form 1509. See Appendix D, Facility and Other Related Costs, paragraph D.2 Related Costs for a partial listing of related cost items and type items to be included.

C.2.6 IV. Facility Project Cost Estimate -- The Field Installation must submit this information in considerable detail by each fiscal year for which funds have been provided or will be requested. See paragraph 3.5.3.1 for engineering estimate details and Appendix A, Definitions "Current Cost Estimate."

The unit of measure, quantity, unit cost, and total cost must be shown for each item that can be reasonably identified and quantified. The use of lump sum (LS) should be avoided as much as possible if meaningful quantities and unit costs can be applied. Any item estimated to cost more than 20 percent of the total project cost estimate shall be subdivided to show components and associated costs. The following are minimum breakdown items as applicable:

a. Interest in Real Estate -- if the project includes land acquisition or other interests in real estate, identify land and easement costs.

b. Site Development and Utilities Outside 5 Foot Line -- enter costs normally associated with developing the site, such as site clearance and demolition, earthwork and landscaping, storm and sanitary sewers, mechanical and electrical utilities, roads, bridges, marine facilities, and airfield pavements. Also identify construction costs associated with testing, excavation, removal, and treatment and disposal of hazardous contaminated soil, water, or groundwater.

c. Building/Structure Within 5-Foot Line -- includes construction costs for architectural/structural, mechanical, and electrical work; and, the associated collateral equipment. These items are listed in as many procurement packages as necessary to optimize procurement strategy and project control. The specific packaging should be compatible with the standard divisions of labor and contractual disciplines of the construction industry to avoid conflicts, overlaps, and other contractual complications. Each package should be numbered (e.g., First -- Addition to Building; Second -- Modification of Second Floor; Third -- Air Conditioning). Include in each package further breakouts of the following information:

1. Architectural/structural -- costs normally associated with foundations, structural framing, walls, roofing, finishes, and specialties.
2. Mechanical -- costs normally associated with mechanical building equipment, such as HVAC and plumbing, should be included. Built in, nonseverable mechanical equipment.
3. Electrical -- costs normally associated with electrical building equipment, such as transformers, motor starters and control centers, lighting fixtures, communications, distribution systems, and wiring, should be entered. Built-in nonseverable electrical equipment.
4. Fire protection/safety -- costs normally associated with fire protection/safety equipment and systems, such as sprinkler heads, detectors, alarms.
5. Environmental -- construction costs normally associated with testing, decontamination/ cleanup, and removal and disposal of hazardous contaminated materials within a building. This includes asbestos demolition work, such as testing; removal and disposal of the asbestos; building and material decontamination activities; and other such costs necessary in support of the facility project.
6. Other -- any other construction costs.
7. Collateral Equipment Not Included Above -- costs for collateral equipment not shown above.
8. Special Features -- include any significant special items, such as fallout shelters, flood control, medical facilities, environmental air controls, water/groundwater pollution control, special water/groundwater or sewage treatment, noise controls, and any secondary functions necessary to meet community needs or interfaces with other agencies or organizations.

C.2.6.1 **Source of Cost Data** -- identify source of the cost data (e.g., PER, contractor quotation, quantity take off, recent procurement history) in this block.

C.2.6.2 **Totals** -- Enter sum of the total costs for the Engineering and Budget columns of the form.

C.2.7 V. **Related Items/Actions** -- Explain related items (e.g., additional procurement, program activity, trade studies, or facility projects) that are not included under Part III -- Related Cost Data.

C.3 NASA Form 1579 Flash Bid Report

 National Aeronautics and Space Administration		<h2 style="margin: 0;">Flash Bid Report</h2> <h3 style="margin: 0;">Facility Project Contract Bid Opening and Award Data</h3>			
PROJECT DATA					
1. PROJECT TITLE					
2. LOCATION		3. PROJECT NUMBER		4. DATE	
5. FISCAL YEAR	6. CATEGORY		7. OFFICE		
CURRENT COST ESTIMATE (CCE) Prior to Bid Opening					
8. ALL PRIOR BID PACKAGES					
9. THIS BID PACKAGE					
10. ALL REMAINING BID PACKAGES					
11. TOTAL CCE (8 + 9 + 10)					
THIS BID PACKAGE					
12. DESCRIPTION OF WORK					
13. GOVERNMENT BID ESTIMATE		14. BID OPENING DATE		15. NO. OF BIDS RECEIVED	
16. BID INFORMATION					
BID	CONTRACTOR, CITY, STATE	BASIC	ALT #1	ALT #2	ALT #3
LOW					
NEXT LOW					
HIGH					
17. ANTICIPATED AWARD AMOUNT					
18. REVISED CCE BASED ON LOW BID					
19. REVISED TOTAL CCE (8 + 10 + 18)					
20. AWARD DATE		20a. NOTICE-TO-PROCEED (NTP) DATE		20b. COMPLETION DATE	
21. REMARKS					

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Figure C-3a NASA Form 1579, Flash Bid Report

C.3 Instructions for NASA Form 1579, Flash Bid Report

INSTRUCTIONS**PROJECT DATA**

(1) **Project Title** - Use the same title as shown on the approved NASA FORM 1509 "Facility Project - Brief Project Document.

(2) **Location** - Indicate the cognizant Field Installation, Component Installation, or other location.

(3) **Project Number** - List the unique four-digit facility project number as shown in the IDENTIFICATION block of NASA FORM 1509.

(4) **Date** - Show the date of form preparation.

(5) **Fiscal Year** - Show the fiscal year as shown in the WORK block of NASA FORM 1509. If multi-year funding is involved, list each year.

(6) **Category** - Indicate the category as shown in the WORK block of NASA FORM 1509.

For CoF environmental projects, this line entry will identify the type of work to be performed (following the WORK entry block of NASA FORM 1509). Identify the environmental project category as follows:

- a. Environmental CoF - Construction and Modification
- b. Environmental CoF - Remediation
- c. Environmental CoF - Projectized Study

(7) **Approved Facility Project Cost Estimate (AFPCE)** - Indicate the AFPCE as shown on NASA FORM 1509.

**CURRENT COST ESTIMATE (CCE)
Prior to Bid Opening**

(8) **All Prior Bid Packages** - List the CCE of all awarded contracts for this project.

(9) **This Bid Package** - Show the CCE from this bid package.

(10) **All Remaining Bid Packages** - Show the total CCE for all planned bid packages.

(11) **Total CCE** - Show the CCE based on the sum of items 8, 9, and 10.

THIS BID PACKAGE

(12) **Description of Work** - Describe the work included in this bid package.

(13) **Government Bid Estimate** - Include the engineering estimate developed by the Government or an A-E adjusted to the midpoint of construction. Does not include contingencies, SIES, or other burden cost.

(14) **Bid Opening Date** - Provide bid opening date.

(15) **No. of Bids Received** - Show the bid quantity received.

(16) **Bid Information** - Provide bidder related data.

(17) **Anticipated Award Amount** - Include base award and selected alternates.

(18) **Revised CCE Based on Low Bid** - Show CCE for this bid package (item 17 plus contingencies, SIES, and other burden cost).

(19) **Revised Total CCE** - Show the CCE based on the sum of items 8, 10, and 18.

(20) **Dates** - Provide the best estimate of the scheduled award, notice-to-proceed, and completion date.

(21) **Remarks** - Provide the relative narrative remarks as necessary.

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Figure C-3a NASA Form 1579, Flash Bid Report Instructions**C.4 Long Form Writeup**

PROJECT TITLE: _____ INSTALLATION: _____
MISSION DIRECTORATE: _____ LOCATION: _____

FY 02 COST ESTIMATE (Thousand of Dollars) \$ _____ **PRIOR YEARS FUNDING** \$ _____

Project Elements: Construction \$ _____ Facility Planning and Design \$ _____

Element #1 \$ _____
Element #2 \$ _____
Element #3 \$ _____

PROJECT DESCRIPTION:

PROJECT JUSTIFICATION:

IMPACT OF DELAY:

Figure C-4 Long Form Writeup

C.4 Instructions for Long Form Writeup

The Long Form Writeup will be no longer than one page. It is used to describe discrete Construction of Facilities (CoF) projects in the Agency's budget submissions to the Office of Management and Budget (OMB) and the Congress.

C.4.1 **Project Title** --the same as the NASA Form 1509 project title.

C.4.2 **Installation** --the full name of the Center or Field Installation where the work is to be performed.

C.4.3 **Cognizant Office** --the responsible program office or other Headquarters office that advocates the project.

C.4.4 **Location** -- the place, city, county, state, or foreign country as appropriate. When the project includes work in separated locations, the phrase "Various Locations" is recommended.

C.4.5 **FY XX Cost Estimate (Thousand of Dollars)** --the major cost elements supporting the project as specified in paragraph 3.5.3, Section III: Engineering, Budget and Other Estimates.

C.4.6 **Prior Years Funding** -- identify funds used or intended for use for planning, design, and construction of the project from prior years' programs.

C.4.7 **Project Description** -- will be the same or equivalent to that on the NASA Form 1509 for the project, but written as a budget narrative suitable for Presidential and Congressional review.

C.4.8 **Project Justification** -- will be the same or equivalent as the Basis of Need section of the NASA Form 1509 for the project, but written as a budget narrative suitable for Presidential and Congressional review. Exception, impacts to mission should be stated in the next section.

C.4.9 **Impact of Delay** -- provide impacts if the project is not implemented.

C.5 CoF Routine Transaction Form

CoF Self Assessment Metrics

Fiscal Year: XXXX		Center:		Scorecard Indicator		
#	Description	Input*	Score*	Red	Yellow	Green
1	Percent of Projects Designed Before Start of Fiscal Year					
1a	Total Discrete Designs completed by the Beginning of the Fiscal Year (FY) of Construction (BOFYOC):	NI				
1b	Total Discrete Projects authorized for Design in FY:					
1.1	Key Performance Indicator (KPI) = Total Discrete Designs complete/total authorized		NI	< .79	.80 - .89	.90 - 1.00
1c	Total Minor Designs completed by BOFYOC:	NI				
1d	Total Minor Projects authorized for FY:					
1.2	KPI = (Total Minor Designs complete) / (total designs authorized)		NI	< .79	.80 - .89	.90 - 1.00
<p>* Notes: Input - if there is no data to input, type NA in the cell with "NI" in it. The Score is a calculated field, do not put data in this field.</p> <p>KPI 1.1 & 1.2 measure the readiness for entering into the FY. Were the projects that were authorized for this FY ready for advertisement (i.e. 100% designed) by the beginning of this fiscal year? The data required for this calculation are the number of designs for the measurement period (fiscal year under review) ready for advertisement (1a and 1c, respectively) divided by the number of authorized projects (1b and 1d, respectively).</p>						
2	Percent Construction Contracts: Awarded Before the End of the Fiscal Year					
2a	Total Discrete Construction contracts awarded by the End of the Fiscal Year (EOFY):	NI				
2b	Total Discrete Projects Approved for Construction in FY:					
2.1	KPI = (Total Discrete Projects awarded) / (total projects approved)		NI	< .79	.80 - .89	.90 - 1.00
2c	Total Minor Construction contracts awarded by EOFY:	NI				
2d	Total Minor Projects Approved for Construction in FY:					
2.2	KPI = (Total Minor Projects awarded) / (total approved)		NI	< .79	.80 - .89	.90 - 1.00
<p>KPI 2.1 and 2.2 measure the percent of authorized projects awarded within the period fiscal year. How many projects planned for construction during this fiscal year were awarded (i.e., obligated) by the end of the fiscal year? The data required for the calculation is the number of projects awarded (2a and 2c) and the number of projects authorized (2b and 2d).</p>						

Figure C-6 CoF Self Assessment Metrics

C.6 CoF Self Assessment Metrics (continued) -- Page 2

CoF Self Assessment Metrics

Fiscal Year: XXXX		Center:		Scorecard Indicator		
#	Description	Input*	Score*	Red	Yellow	Green
3	Percent Construction Funds Obligated Before End of the Fiscal Year:					
3a	Total CoF funds (discrete & minor) obligated during the FY	NI				
3b	Total CoF funds (discrete & minor) provided for construction for this FY					
3.1	KPI = (Total funds obligated) / (total funds provided)		NI	< .79	.80 - .89	.90 - 1.00
	KPI 3.1 measures the percent of CoF funds obligated during this fiscal year (includes only the projects authorized for this fiscal year). How well did your Center obligate funds provided for this FY? The data required is the amount of funds obligated (3a) divided by the total funds provided for construction (3b).					
4	Percent Cost Growth for Projects Completed During the Fiscal Year:					
4a	Total final cost of Discrete projects completed in FY	NI				
4b	Total Approved Facility Project Cost Estimate(s) (AFPCE) at award for discrete projects completed in FY					
4.1	KPI = ((Final Discrete construction cost)/(AFPCE at contract award) - 1)		NI	> .076	.051-.075	< .05
	KPI 4.1 measures the percent cost growth for discrete projects completed** during this FY (from any fiscal year) [4a] divided by the total AFPCE of discrete projects at time of award [4b] FY minus 1. How well did you estimate the cost of the project vs. the actual cost?					
4e	Total final cost of Minor Program projects completed in FY (\$000)	NI				
4f	Total CCE at award for Minor Program projects completed in FY (\$000)					
4.2	KPI = ((Final Minor construction cost)/(AFPCE at contract award) - 1)		NI	> .076	.051-.075	< .05
	KPI 4.2 measures the percent cost growth for minor program projects completed* during this FY (from any fiscal year) [4e] divided by the total AFPCE of discrete projects at time of award [4f] FY minus 1. How well did you estimate the cost of the project vs. the actual cost?					
	**NOTE: Project completion is defined per NPR 8820.2E as the date on which the Government accepts all contract deliverables is the contract completion date. Contract close out, a procurement function is not considered in this metric. The additional time required to achieve contract close out would adversely impact the value of this metric.					

C.6 CoF Self Assessment Metrics (continued) -- Page 3

CoF Self Assessment Metrics

Fiscal Year: XXXX		Center:				
#	Description	Input*	Score*	Scorecard Indicator		
				Red	Yellow	Green
5	Percent Schedule Growth for Projects Completed During the Fiscal Year:					
5a	Actual Discrete project contract duration days for all projects completed** during this FY	NI				
5b	Estimated discrete project planned days on original on approved Form 1509 (at the time of initial award)					
5.1	KPI = ((Actual contract duration days)/(Original estimated days (on 1509) duration) - 1)		NI	> .20	.16 - .20	< .15
	KPI 5.1 measures the percent schedule growth for discrete projects completed** during this FY. It is calculated by dividing the total actual number of construction contract days [5a] by the total estimated construction contract days [5b] minus 1. How well did we estimate the project schedule?					
5c	Actual Minor Program project contract duration days for all projects completed** during this FY	NI				
5b	Estimated Minor Program project planned days on original on approved Form 1509 (at the time of initial award)					
5.2	KPI = ((Actual contract duration days)/(Original estimated days (on 1509) duration) - 1)		NI	> .20	.16 - .20	< .15
	KPI 5.2 measures the percent schedule growth for minor projects completed** during this FY, divided by the total estimated duration in days minus 1					
6	Safety Metrics for Construction Projects During the Fiscal Year:					
6.1	KPI = RIR: Reportable Incident Rate during FY for construction contracts	NI	NI	> 8.0	> 2 ≤ 8.0	≤ 2.0
	KPI 6.1 data is for all active construction projects during the rating period FY (regardless of project FY)					
	RIR = (Total annual # of injuries incurred by sample firms x 200,000) / (Total annual # of hours worked by sample firms' employees)					
6.2	KPI = DART: Days Away, Restricted, or Transferred rate during FY for construction contracts	NI	NI	> 3.0	> 1 ≤ 3.0	≤ 1.0
	KPI 6.2 data is for all active construction projects (regardless of the project FY) during the rating period FY at your Center.					
	DART: This includes cases involving days away from work, restricted work activity, and transfers to another job and is calculated based on (N/EH) x (200,000) where N is the number of cases involving days away and/or job transfer or restriction, EH is the total number of hours worked by all employees during the calendar year, and 200,000 is the base for 100 full-time equivalent employees.					

C.6 CoF Self Assessment Metrics (continued) -- Page 4

CoF Self Assessment Metrics

Fiscal Year: XXXX		Center:		Scorecard Indicator		
#	Description	Input*	Score*	Red	Yellow	Green
				7	Percent of Mission Essential Security Projects Awarded During the Fiscal Year:	
7a	Number of Mission Essential Security (MES) projects executed for this FY	NI				
7b	Number of Mission Essential Security projects planned for this FY					
7.1	KPI = (MES executed/MES planned)		NI	<.9	.9 - .95	> .95
Note: A Mission Essential Security project is defined as security work on a Mission Essential Infrastructure real property asset or a project with a justification for the project is based upon a security requirement. (CoF projects only, do not include "locally approved" projects.)						
8	Sustainability - Percent of Projects Registered for LEED During the Fiscal Year					
8a	Total number of eligible construction projects registered for LEED certification	NI				
8b	Total number of eligible construction projects authorized for design in this FY year					
8.1	KPI = (# LEED Registered)/(Total # Projects eligible)		NI	<.35	.35 - .49	> .50
KPI measures the percent of registered projects for LEED. It is calculated by dividing the total number of registered projects by the total number of projects that are LEED eligible*** (projects with LEED certification granted waiver by FERPD are not included)						
***NOTE: "Eligible" projects are either a major renovation project (i.e., the cost of the project exceeds 50% of the replacement cost for that type construction) or a new construction project. Projects that construct additions to a building are "eligible."						
LEED = Leadership in Energy and Environmental Design certification by the US Green Bldg. Council						

C.6 CoF Self Assessment Metrics (continued) -- Page 5

CoF Self Assessment Metrics

Fiscal Year: XXXX		Center:		Scorecard Indicator		
#	Description	Input*	Score*	Red	Yellow	Green
				9	Quality Ratings for Projects Completed During the Fiscal Year:	
9a	Sum of quality survey scores addressing Mission Requirements	NI				
9b	Number of quality survey elements scored addressing Mission Requirements					
9.1	KPI = (sum of scores) / (total number of elements receiving a score)		NI	<2.5	2.5 - 4	> 4
Survey questions: A 3 and 6; B 1, 4, 7, and 8.						
9c	Sum of quality survey scores addressing construction	NI				
9d	Number of quality survey elements scored addressing construction					
9.2	KPI = (sum of scores) / (total number of elements receiving a score)		NI	<2.5	2.5 - 4	> 4
9.2 - average quality scores: from quality survey						
9e	Sum of quality survey scores addressing mission schedule	NI				
9f	Number of quality survey elements scored addressing mission schedule					
9.3	KPI = (sum of scores) / (total number of elements receiving a score)		NI	<2.5	2.5 - 4	> 4
9.3 - average quality scores from quality survey						
9g	Sum of quality survey scores addressing budget.	NI				
9h	Number of quality survey elements scored addressing budget.					
9.4	KPI = (sum of scores) / (total number of elements receiving a score)		NI	<2.5	2.5 - 4	> 4
9.4 - average quality scores: from quality survey						

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