GLENN PROCEDURAL REQUIREMENTS

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COMPLIANCE IS MANDATORY

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Subject: Glenn Research Center Research and Technology Project Management Procedure w/Change 1 (02/27/2025)

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PREFACE

P.1 PURPOSE

The purpose of this document is to establish the requirements for the formulation and implementation of Research and Technology (R&T) projects at the Glenn Research Center (GRC) in accordance with the project requirements of National Aeronautics and Space Administration (NASA) Procedural Requirements (NPR) 7120.8, NASA Research and Technology Program and Project Requirements. This document is consistent with the NASA GRC governance model contained in Glenn Policy Directive (GLPD) 1000.1, GRC Governance and Strategic Management Structure.

P.2 APPLICABILITY

a. This Glenn Procedural Requirement (GLPR) applies to NASA GRC, including contracted service providers to the extent specified in their contracts with NASA.

b. This document applies only to R&T projects and Spaceflight Systems tasks. Any R&T programs managed by GRC **shall** use NPR 7120.8.

c. This GLPR applies to current and future NASA GRC Space R&T projects required to comply with NPR 7120.8, as determined by the Program Manager or designee.

d. For existing projects, the requirements of this document are applicable to the project's current phase as of the effective date of this GLPR and to phases yet to be completed. Projects may be subject to process audits no sooner than 1 year after the effective date of the GLPR. This GLPR also applies to NASA Aeronautics R&T projects that are hosted at GRC. Projects hosted at other Centers will adhere to the host Center procedure. In the absence of such a procedure, this GLPR may be used for guidance.

e. In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term "shall." The term "may" denotes discretionary privilege or permission, "can" denotes statements of possibility or capability, "should" denotes a good practice and is recommended but not required, "will" denotes expected outcome, and "are/is" denotes descriptive material.

f. In this procedure, all document citations are assumed to be the latest version, unless otherwise noted.

P.3 AUTHORITY

a. NPR 7120.8, NASA Research and Technology Program and Project Management Requirements

b. GLPD 1000.1, GRC Governance and Strategic Management Structure

P.4 APPLICABLE DOCUMENTS AND FORMS

a. NASA Policy Directive (NPD) 1000.0, NASA Governance and Strategic Management Handbook

b. NPD 7120.6, Knowledge Policy for Programs and Projects

c. NPR 7120.5, NASA Space Flight Program and Project Management Requirements

d. NPR 7123.1, NASA Systems Engineering Processes and Requirements

e. GLPR 1280.1, Glenn Research Center Quality Manual

f. GLPR 1440.1, Records Management

g. GLPR 7120.5.10, GRC Space Flight Project Management Requirements and Best Practices

h. GLPR 7120.5.20, GRC Project Deviation/Waiver Process

i. GLPR 8000.4, Risk Management

j. GLC-CMC-1000.1, Center Management Council (CMC)

k. GLP-1120.1, NASA John H. Glenn Research Center Technical Authority Implementation Plan

l. GLP-L-7120.6, Knowledge Management Implementation Plan and Best Practices

P.5 MEASUREMENT/VERIFICATION

a. Compliance with this document is verified through oversight by the Space Flight Systems (SFS) Project Review Board (PRB) and the Aeronautics PRB as applicable. This is consistent with NPR 7120.8, Section P.5.

b. Independent internal and external audits of this procedure are performed as part of the overall GRC Business Management System (BMS) Quality Management System process per GLPR 1280.1.

P.6 CANCELLATION

This document replaces GLPR 7120.8, GRC Research and Technology Project Management Procedure w/Change 3 (11/04/2019), dated 11/19/2013.

Electronically signed

Laurence A. Sivic
Associate Director

CHAPTER 1: Introduction

1.1 Rationale and Benefit

1.1.1 The NASA GRC uses this project procedure to ensure consistent application of policies, guidelines, processes, standards, and requirements as part of the project management processes required by NPR 7120.8. This document describes how the projects are formulated and implemented and outlines responsibilities for the entire project life cycle from the original request through final records and archiving of the project results.

1.1.2 This procedure applies to projects identified as Research and Technology (R&T) projects. These projects are defined as follows:

a. Research Project: A project that performs basic research or applied research.

b. Technology Development (TD) Project: A specific R&T project identified in an Agency Program Plan that has defined technical requirements, a life-cycle cost that incorporates a specific beginning and ending, and a management structure. The TD projects yield new or revised technology that addresses NASA's strategic needs.

1.1.3 The R&T projects may not be as rigorous as space flight system development projects but should review and apply systems engineering processes to manage the project, as determined by the Project Manager (PM) during formulation of the project.

1.1.4 The primary objective of this procedure is to formally define roles and responsibilities and define the typical life-cycle tasks necessary to formulate and implement R&T projects at GRC.

a. If the Project/Task is an NPR 7120.8 SFS Directorate R&T Project/Task, the PM will follow Appendix D for guidance concerning Classification, Governance Authority/Signatory, Management Reporting Cadence, and Project Lead Position Staffing. Refer to R&T Project Compliance Matrix (Appendix C) for applicable requirements. Refer to GLPR 7120.5.10 for additional guidance and management best practices.

b. If GRC is not the project lead Center, the lead PM may assign part of the project implementation to GRC. The GRC personnel will follow the implementation activity of this procedure within the context of the host center procedures and the project plan.

1.2 Procedure Overview

1.2.1 This procedure follows the guidance from NPR 7120.8 and includes requirements and guidance used by GRC to comply with both Agency and GRC governance. Requirements within this document taken directly from NPR 7120.8 are referenced at the end of each requirement statement to provide traceability back to the original requirement.

1.2.2 Roles and responsibilities for the Mission Directorate Associate Administrator (MDAA) and Program Director (PD) are defined in NPR 7120.8. These occur at the mission directorate level but are

outside GRC's purview. The requirements for those roles are not the responsibility of GRC unless they are formally delegated to GRC.

1.2.3 This directive applies the principle of a minimum set of essential requirements and maximum flexibility for R&T programs and projects. Rather than tailoring down from the directive's requirements, R&T projects may need to pull in additional requirements from NPR 7120.5 for more robust or structured project management, particularly on larger projects or projects that may transition to flight.

1.3 Records

1.3.1 The PM **shall** establish and maintain a repository of records and products accessible by the appropriate directorate staff and other project stakeholders using guidance from GLPR 1440.1, GRC Records Management. *[NPR 7120.8, Section 4.2.11.6].* The R&T project repository should include the following:

a. Project plan

b. Applicable project deliverables as defined in the project plan

c. Project task plans, also known as research agreements, discipline plans, and any other documents

d. Internal and independent review materials and findings, if required

e. Materials created and used during the closeout review

f. Documented knowledge management activities

1.3.2 Inputs

a. Program Commitment Agreement (PCA)

b. Program plan

c. Independent assessments

d. Funding guidelines

1.3.3 Outputs

1.3.3.1 The PM, once selected, is responsible for formulating, implementing, and closing the project. Section 1.3.1 identifies the artifacts to be archived as a result of this procedure.

1.3.3.2 At the end of a project, the PM will follow a formal closeout process described in implementation activities of this document. Published research as well as the documents archived as part of this closeout process will serve as the final outputs of the project, but it is understood that the true outputs of the project are the achievements attained through the research and development performed.

1.3.4 Knowledge Management

The PM will follow GLP-L-7120.6, Knowledge Management Implementation Plan and Best Practices, to capture lessons learned and knowledge gained during the project. If GLP-L-7120.6 is not available, refer to NPD 7120.6, Knowledge Policy for Programs and Projects, for guidance.

CHAPTER 2: Roles and Responsibilities

2.1 Background

This GLPR has been developed to describe specific roles within GRC. Senior project management may assign these roles to individuals regardless of their formal position, provided approval by the individual's branch and/or division management.

2.2 Center Management Council (CMC) Chair

2.2.1 Per NPR 7120.8, paragraph 5.4.4, each Center Director is responsible for ensuring the conduct of R&T activities and investigations assigned or awarded to that Center follows appropriate practices. The Center Director is responsible for Center scientific processes, specifications, rules, practices, and other activities necessary to ensure the quality of results from R&T programs and projects. The Center Director has delegated Center responsibility to the CMC Chair.

2.2.2 The GRC CMC Chair is the final Center decision authority for reviewing and concurring with project plans, selected engineering products, status, issues, and risks that the Center is able to address. See GLC-CMC-1000.1, GRC Center Management Council, for specific responsibilities relating to this document.

2.3 The Project Review Board (PRB) Chair

2.3.1 The GRC has two PRB chairs; they are aligned with the NASA Headquarters (HQ) Mission Directorates and include Aeronautics Research (Code K) and Space Flight Systems (Code M). The GRC projects will be directed by the PRB Chair that supports the mission directorate funding the project.

2.3.2 The PRB Chair is responsible for directing and managing projects performed at GRC.

2.3.3 Specifically, for this procedure, the GRC PRB Chair:

a. Assigns and approves the PM for projects led by GRC.

b. Assigns GRC project representatives for projects led by other Centers where GRC is a participant.

c. Reviews the project plan and recommends when to go forward for CMC Chair review and concurrence.

d. Reviews all major changes to the project and recommends whether to go forward for CMC Chair review.

e. Approves established key decision points.

f. Periodically evaluates the cost, schedule, risk, and performance under its purview.

2.4 Decision Authority (DA)

Per NPR 7120.8, paragraph 2.6.1.2, the DA **shall** approve decisions made at key decision points (KDPs), which are summarized and recorded in the decision documentation (e.g., memorandum or other appropriate format) that will become part of the retrievable program or project documentation. The DA is an individual authorized by the Agency to make important decisions on projects under their authority. The decision documentation should include the decision made, rationale, effective date, and any actions associated with the decision (including responsible parties and due dates).

2.5 Independent Assessment Teams

See NPR 7120.8, paragraph 2.6.1.4.

2.6 Implementing Organization(s)

2.6.1 Implementing organizations are organizations providing resources to a project outside of the project management directorates. This can include organizations internal and external to GRC.

2.6.2 The implementing organizations play a key role in the projects and work closely with the PM to formulate and implement that project.

2.6.3 Technical implementing organizations should be aware of the GRC Technical Authority (TA) Implementation Plan, GLP-1120.1, and how the TA is delegated to the technical elements of the project.

2.6.4 Specifically, for this procedure, the implementing organizations:

a. Define the technical approach to the project.

b. Staff the project.

c. Assign technical project leadership positions, such as project scientist, technical lead, element lead, and task lead.

d. Conduct and participate in technical reviews.

e. Responsible for conducting the work within the organization, communicating progress, issues, and technical planning information to the PM. The implementing organizations should provide technical reports to the technical leads as specified in the project plan.

2.7 Project Manager (PM)

2.7.1 The selection and assignment of a PM is made as early in the project life cycle as possible. The PM provides the overall leadership for the project, managing all aspects of the project, including technical, cost, schedule, safety, and business aspects. The PM will also be responsible for the coordination and direction of the project team.

2.7.2 Specifically, for this procedure, the PM:

a. Coordinates project definition and content during Pre-Formulation phase.

b. Develops the project plan.

c. Manages the project's resources.

d. Tracks the progress of the project against a baseline plan.

e. Communicates with the program office and implementing organizations.

f. Conducts project reviews.

g. Participates in program reviews and coordinates project inputs.

h. Establishes agreements with implementing organizations.

i. Coordinates preparation of resource estimates and participates in project planning and budget execution cycles on behalf of project.

j. Establishes resource allocations within the project.

k. Performs workforce planning and management.

2.7.3 For projects led by Centers other than GRC, a GRC resource will be assigned to assist the PM by performing the duties described above for GRC tasks.

2.8 Technical Authority (TA)

2.8.1 GRC will follow NASA TA policy as defined in NPD 1000.0, NASA Governance and Strategic Management Handbook, as delegated by:

a. Letter of Delegation (LoD) Code L TA DLE, Engineering Technical Authority – Discipline Lead Engineer

b. LoD ETA – MSL Engineering Technical Authority (ETA) Delegation – Multidisciplinary System Level

c. LoD SMA TA, Safety and Mission Assurance Technical Authority Delegation

2.8.2 Any dissenting opinions **shall** follow GLP-1120.1, Chapter 5.

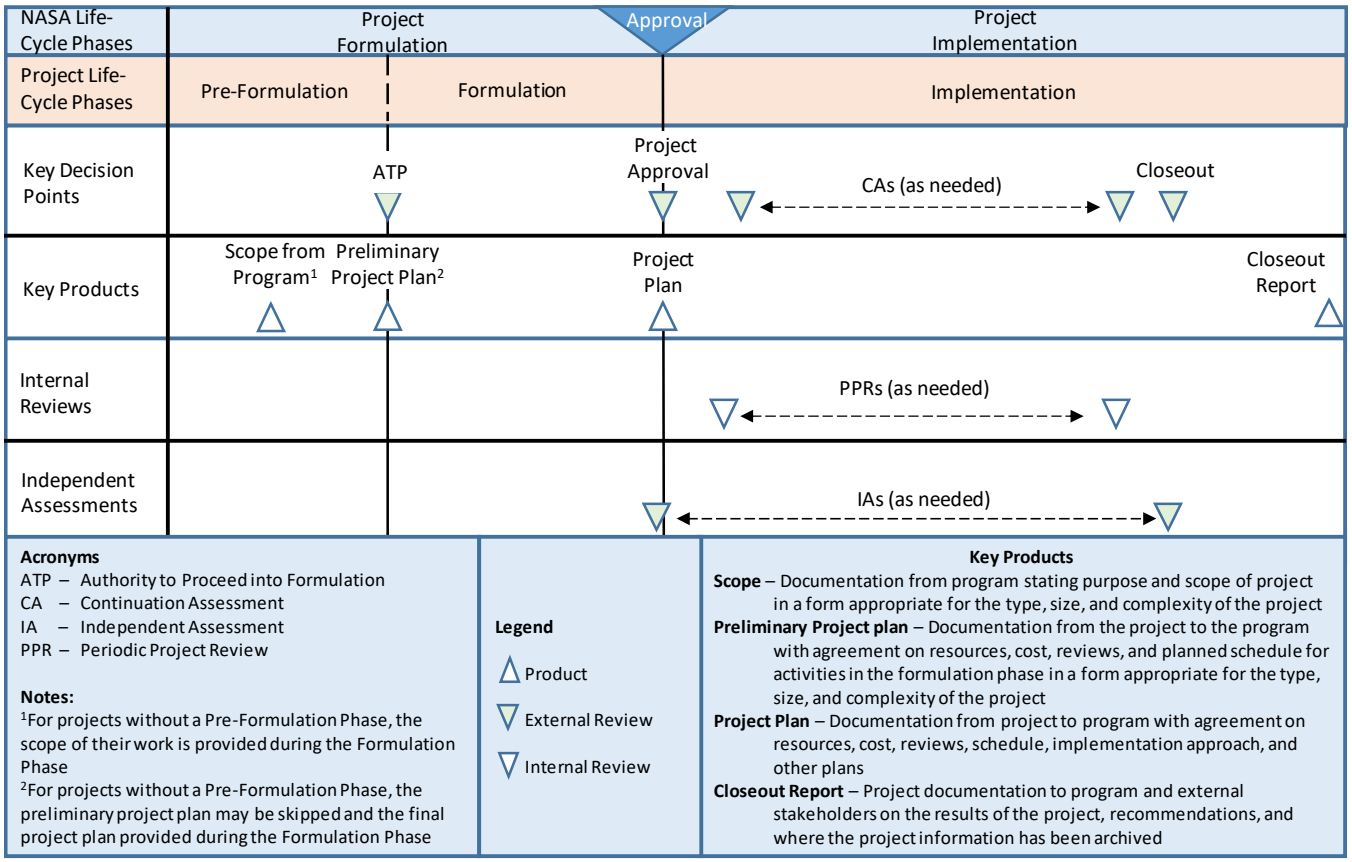
2.9 Research Practices

Refer to NPR 7120.8, paragraph 5.5.

CHAPTER 3: Research and Technology Project Procedure

3.1 Overview

Figure 3.1 shows the project life cycle. The project life-cycle phases consist of Pre-Formulation, Formulation, and Implementation (including Closeout). The figure also depicts project reviews (including key decision points, internal reviews, and independent assessments) and key products. See NPR 7120.8, paragraph 4.1, for more overview information.



Source: NPR 7120.8, Figure 4-1

Figure 3.1. Research and Technology (R&T) Project Life Cycle

3.2 Research and Technology Project Requirements

3.2.1 The project's home Director Of (Aeronautics or SFS) **shall** identify, assign, and approve the PM.

3.2.2 The PM may establish a formulation team to define needs, goals, and objectives and establish the project approach to meeting them along with required resources and schedule.

Note: The project manager should review NPR 7120.8 Appendix M for additional NASA Policy Directives or Procedural Requirements that may apply to the particular project requirements.

3.2.3 The PM **shall** provide to the DA documentation that establishes the technical and acquisition work that needs to be performed during the life cycle or at least during the Formulation Phase, including the management process, deliverables, preliminary schedule, and funding requirements.

3.2.4 The PM **shall** follow:

a. GLPR 8000.4, Risk Management, to identify and manage project risks.

b. GLPR 7120.5.20, GRC Project Deviation/Waiver Process, for any requirement deviations and waivers.

3.2.5 The PM **shall** follow the R&T requirement process as stated in NPR 7120.8, paragraphs 4.2.4, Receive Project Scope, through 4.2.11, Project Closeout, in coordination with the DA. (Those requirements are summarized in this document's Appendix C, Research and Technology Project Compliance Matrix, as reference).This includes following the Research and Technology Project Plan Template and Research and Technology Project Work Breakdown Structure as cited in NPR 7120.8 Appendix G and Appendix I, respectively. Note that the Project Plan template is provided as guidance on expected content and additional content governed by the Center (such as IT Security) may be required.

a. At the conclusion of the project, the PM **shall** archive data so that future users can assess the research results (including any generated Technical Memorandums, journal articles or papers) and technology maturity (e.g., technology readiness level) and incorporate the research or technology into system designs or perform further investigations in accordance with GLPR 1440.1.

b. Archival data may include, but are not limited to, the final report from the Closeout KDP, results from independent assessments, engineering drawings, specifications, test reports, problem reports, anomalies, cost, schedule, risk mitigations, and any other documentation of project activities and results necessary for future researchers to understand the work performed, the resources needed, and the results that were achieved. Lessons learned are documented in accordance with NPD 7120.6 using the GLP-L-7120.6 as guidance.

c. Documentary information produced while conducting NASA R&T projects that is suitable for preservation, as evidence of NASA organization and activities or because of the value of the information contained, regardless of format, is a Federal record and is maintained, safeguarded, and dispositioned in accordance with the guidelines of GLPR 1440.1.

3.3 Tailoring

3.3.1 Tailoring of this document is a matter of technical and managerial judgment that is engaged in by project management and the approving authority to determine the formality with which each of the requirements should economically be implemented in the project and for the system of interest. Refer to NPR 7120.8, Section 5.6, Principles Related to Tailoring Requirements.

3.3.2 Any tailoring of this document, including any deviations or waivers, will be recorded in the project plan and approved by the PRB Chair or the designated governing authority.

Appendix A: Definitions

Activity. (1) Any of the project components or research functions that are executed to deliver a product or service or provide support or insight to mature technologies. (2) A set of tasks that describe the technical effort to accomplish a process and help generate expected outcomes.

Approval. Authorization by a required management official to proceed with a proposed course of action; approvals must be documented.

Authority to Proceed (ATP). The acknowledgment by the decision authority that the program/project has met formulation requirements and is ready to proceed to implementation. By approving a program/project, the decision authority commits the budget resources necessary to continue into implementation.

Center Director. Person responsible for establishing, developing, and maintaining the institutional capabilities (processes and procedures, human capital, facilities, and infrastructure) required for the execution of programs and projects, including the system of checks and balances to ensure the technical and scientific integrity of programs and projects assigned to the Center.

Center Management Council (CMC). The council at a center that performs oversight of programs and projects by evaluating all program and project work executed at that center.

Concurrence. A documented agreement by a management official that a proposed course of action is acceptable.

Decision Authority (DA). The individual authorized by the Agency to make important decisions on programs and projects under their authority.

Evaluation. The continual, independent (i.e., outside the advocacy chain of the program/project) evaluation of the performance of a program/project and incorporation of the evaluation findings to ensure adequacy of planning and execution according to plan.

Formulation. The identification of how the program or project supports the Agency's strategic needs, goals, and objectives; the assessment of feasibility, technology, and concepts; risk assessment, team building, development of operations concepts, and acquisition strategies; establishment of high-level requirements and success criteria; the preparation of plans, budgets, and schedules essential to the success of a program or project; margins; and the establishment of control systems to ensure performance to plan and alignment with current Agency strategies.

Implementation. The execution of approved plans for the development and operation of the program/project, and the use of control systems to ensure performance to approved plans and continued alignment with the Agency's strategic needs, goals, and objectives.

Independent Assessment (IA). IAs are conducted periodically as part of the program and project life cycle to ensure the relevance, quality, and performance of the program or project. Assessments include reviews, evaluations, audits, analysis oversight, and investigations and are independent to the extent the

involved personnel apply their expertise impartially and without any conflict of interest or inappropriate interference or influence, particularly from the organization(s) being assessed.

Key Decision Point (KDP). A decisional review that serves as a gate through which programs and projects need to pass to continue through their life cycle. KDPs entail a determination by the DA on the readiness of the program or project to progress through its life cycle. KDPs enable a disciplined approach to assessing program and project performance.

Life-Cycle Cost (LCC). The total of the direct, indirect, recurring, nonrecurring, and other related expenses both incurred and estimated to be incurred in the design, development, verification, production, deployment, operation, maintenance, support, and disposal of a project, including Closeout. The LCC of a project or system can also be defined as the total cost of ownership over the project or system's life cycle from Formulation through Implementation. It includes all design, development, deployment, operation and maintenance, and disposal costs.

Periodic Project Review (PPR). An internal review of a project's cost, schedule, and technical performance. Any issues or concerns are discussed, risks reviewed, recommendations made, and/or actions assigned. PPRs may take the form of informal discussions or more formal life-cycle reviews. For small projects, a gathering of the project team and key stakeholders may suffice to discuss the project's progress and to refine forward planning, including tailored reviews listed in NPR 7123.1. Larger projects may need a more formal review with a wider audience and a more formal process for gathering comments, dispositioning them, and refining plans.

Principal Investigator (PI). A person who conceives an investigation and is responsible for carrying it out and reporting its results. In some cases, PIs from industry and academia act as project managers for smaller development efforts with NASA personnel providing oversight. Not all projects will have a designated PI.

Process. A set of activities used to convert inputs into desired outputs to generate expected outcomes and satisfy a purpose.

Program. A strategic investment by a Mission Directorate or Mission Support Office that has a defined architecture and/or technical approach, requirements, funding level, and a management structure that initiates and directs one or more projects. A program defines a strategic direction that the Agency has identified as critical.

Program Commitment Agreement (PCA). The contract between the Associate Administrator and the cognizant MDAA or Mission Support Office Director (MSOD) that authorizes transition from formulation to implementation of a program.

Program Manager. A generic term for the person who is formally assigned to be in charge of the program. A program manager could be designated as a program lead, program director, or some other term, as defined in the program's governing document. A program manager is responsible for the formulation and implementation of the R&T program, per the governing document with the sponsoring MDAA.

Program Plan. The document that establishes the program's baseline for implementation signed by the MDAA or MSOD, Center Director(s), and program manager.

Project. (1) A specific investment having defined goals, objectives, requirements, life-cycle cost, a beginning, and an end. A project yields new or revised products or services that directly address NASA's strategic needs. They may be performed wholly in house; by Government, industry, academia partnerships; or through contracts with private industry. (2) A unit of work performed in programs, projects, and activities.

Project Manager (PM). A generic term that represents the position in charge of the project. A project manager could be designated as a project manager, portfolio manager, project principal investigator, project scientist, or some other term, as defined in the project's governing document. A project manager is responsible for the formulation and implementation of the R&T project per the governing document with the program director.

Project Plan. The document that establishes the project's baseline for implementation, signed by the cognizant program manager, Center Director, PM, and the MDAA, if required.

R&T Program. An Agency program that comprises strictly R&T projects.

R&T Project. An Agency project managed as either a Technology Development project or a Research project.

Research and Technology (R&T). Basic research, applied research, and technology development.

Risk. In the context of mission execution, risk is the potential for performance shortfalls, which may be realized in the future, with respect to achieving explicitly established and stated performance requirements. The performance shortfalls may be related to any one or more of the following mission execution domains: (1) safety, (2) technical, (3) cost, and (4) schedule. (See NPR 8000.4.)

Risk Assessment. An evaluation of a risk item that determines: (1) what can go wrong, (2) how likely is it to occur, (3) what the consequences are, (4) what the uncertainties are that are associated with the likelihood and consequences, and (5) what the mitigation plans are.

Risk Management. Risk management includes risk-informed decision making (RIDM) and continuous risk management (CRM) in an integrated framework. RIDM informs systems engineering decisions through better use of risk and uncertainty information in selecting alternatives and establishing baseline requirements. CRM manages risks over the course of the Formulation and Implementation phases of the life cycle to ensure that safety, technical, cost, and schedule requirements are met. (See NPR 8000.4.) These processes are applied at a level of rigor commensurate with the complexity, cost, and criticality of the program.

Safety. Freedom from those conditions that can cause death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment.

Stakeholder. Any party that has an interest in the outcome or deliverable of a program or project. Stakeholders include customers, beneficiaries, and organizations that will work on or provide support to the program or project.

System. The combination of elements that function together to produce the capability required to meet a need. The elements include all hardware, software, equipment, facilities, personnel, processes, and procedures needed for this purpose.

Systems Engineering. A disciplined approach for the definition, implementation, integration, and operation of a system (product or service). The emphasis is on achieving stakeholder functional, physical and operational performance requirements in the intended use environments over planned life within cost and schedule constraints. Systems engineering includes the engineering processes and technical management processes that consider the interface relationships across all elements of the system, with other systems, or as a part of a larger system.

Tailoring. The process used to adjust or seek relief from a prescribed requirement to accommodate the needs of a specific task or activity (e.g., program or project). The tailoring process results in the generation of deviations and waivers depending on the timing of the request.

Technical Authority. Part of NASA's system of checks and balances that provides independent oversight of programs and projects in support of safety and mission success through the selection of individuals at delegated levels of authority. The individual who specifically maintains technical responsibility over establishment of, changes to, and waivers of requirements in a designated area is the Technical Authority. Technical Authority delegations are formal and traceable to the Administrator. Individuals with Technical Authority are funded independently of a program or project.

Terms of Reference. A document specifying the nature, scope, schedule, and ground rules for an independent review or independent assessment.

Technology Development Project. A specific R&T project identified in an Agency Program Plan that has defined technical requirements, a life-cycle cost that incorporates a specific beginning and ending, and a management structure. A Technology Development project yields new or revised technology that addresses NASA's strategic needs.

Waiver. A documented authorization releasing a program or project from meeting a requirement after the requirement is put under configuration control at the level the requirement will be implemented.

Work Breakdown Structure (WBS) Model. Model that describes a system that consists of end products and their subsystems (which perform the operational functions of the system), the supporting or enabling products, and any other work products (plans, baselines) required for the development of the system.

Appendix B: Acronyms

ATP	Authority to Proceed
BMS	Business Management System
CA	Continuation Assessment
CMC	Center Management Council
CRM	Continuous Risk Management
DA	Decision Authority
DLE	Discipline Lead Engineer
EMB	Engineering Management Board
GLP	Glenn Procedure
GLPD	Glenn Procedural Directive
GRC	Glenn Research Center
IA	Independent Assessment
KDP	Key Decision Point
LCC	Life-Cycle Cost
LoD	Letter of Delegation
MDAA	Mission Directorate Associate Administrator
MSOD	Mission Support Office Director
NASA	National Aeronautics and Space Administration
NPD	NASA Policy Directive
NPR	NASA Procedural Requirement
PCA	Program Commitment Agreement
PCE	Project Chief Engineer
PD	Program Director
PM	Project Manager
POC	Point of Contact
PPR	Periodic Project Review
PRB	Project Review Board
RIDM	Risk-Informed Decision Making
R&T	Research and Technology
SFS	Space Flight Systems
SMA	Safety and Mission Assurance
SMB	Safety and Mission Assurance Management Board
TA	Technical Authority
TD	Technology Development
WBS	Work Breakdown Structure

Appendix C: Research and Technology Project Compliance Matrix

The following compliance matrix will be used to identify (tailor), monitor, and report compliance with this procedure across the body of projects at GRC.

#	GLPR Section	Source	Requirement Statement	Project Implementation Intent			
				Existing Project Document/ Section	Compliance		
					Full	Partial	N/A
1	P.2.b	NA	This document applies only to R&T projects/tasks. Any R&T programs managed by GRC shall use NPR 7120.8.				
2	1.3.1	NPR 7120.8, Sec. 4.2.11.6	The PM shall establish and maintain a repository of records and products accessible by the appropriate directorate staff and other project stakeholders using guidance from GLPR 1440.1, GRC Records Management.				
3	2.4	NPR 7120.8, Sec. 2.6.1.2	The DA shall approve decisions made at KDPs which are summarized and recorded in the decision documentation (e.g., memorandum or other appropriate format) that will become part of the retrievable program or project documentation.				
4	2.8.2	NPR 7120.8, Sec. 5.3.1	Any dissenting opinions shall follow GLP 1120.1, Technical Authority Implementation Plan, Chapter 5.				
5	3.2.1	NPR 7120.8, Sec. 4.2.3.1	The project's home Director Of shall identify, assign, and approve the PM.				
6	3.2.3	NPR 7120.8, Sec. 4.2.3.1	The PM shall provide to the DA documentation that establishes the technical and acquisition work that needs to be performed during the life cycle or at least during the Formulation Phase, including the management process, deliverables, preliminary schedule, and funding requirements.				
7	3.2.4	NA	The PM shall follow: GLPR 8000.4, Risk Management, to identify and manage project risks GLPR 7120.5.20, GRC Project Deviation/Waiver Process, for any requirement deviations and waivers.				
8	3.2.5	NA	The PM shall follow the R&T requirement process as stated in NPR 7120.8, paragraphs 4.2.4, Receive Project Scope, through 4.2.11, Project Closeout, in coordination with the DA.				
9	3.2.5	NPR 7120.8, Sec. 4.2.7.1	The project manager shall develop a Project Plan that contains, as a minimum: a. A description of the project and its objectives. b. How the project will be managed. c. How the project will be monitored and controlled, including reviews. d. The expected cost and schedule. e. Deliverables.				
10	3.2.5	NPR 7120.8, Sec. 4.2.9.2	For projects with an LCC of $250 million or greater, if the project exceeds the LCC costs by 30 percent or more, the project shall notify the DA and program manager.				
11	3.2.5	NPR 7120.8, Sec. 4.2.10.2.1	The PM shall conduct PPRs to evaluate the status of the project.				
12	3.2.5	NPR 7120.8, Sec. 4.2.11.4.1	The PM shall provide a Closeout report at the conclusion of each project.				
13	3.2.5	NPR 7120.8, Sec. 4.2.11.6	At the conclusion of the project, the PM shall archive data so that future users can assess the research results and technology maturity (e.g., technology readiness level) and incorporate the research or technology into system designs or perform further investigations in accordance with GLPR 1440.1, Records Management.				

APPENDIX D: GRC Space Research and Technology Projects/Tasks Classification and Governance Guidance

D.1 Classification Guidance

D.1.1 For guidance purposes, GRC has developed a GRC Project Classification Scheme to define the expectations of both the PMs and the GRC governance chain for the SFS Directorate only. Each project "class" represents a series of criteria that defines the kind of Project/Task performed at GRC. It is used to assist a PM and the GRC governance team in determining the best classification and governance approach for each Project/Task managed at the Center. Space R&T 7120.8 projects fall into the Silver or Bronze Project/Task class. Table D.1 shows the criteria for each applicable Project/Task class:

TABLE D.1.—GRC SPACE FLIGHT SYSTEMS PROJECT AND TASK CLASSIFICATION GUIDANCE

Criteria	Project/Task Class Silver	Project/Task Class Bronze
Agency/Program Assigned Role	Project (Lead) or Task Support	Project (Lead) or Task Support
Concept and Development Cost (Phases A–D, Full Cost)	$20–$100M	<$20M
Annual Full-Cost Budget	$5–$10M	<$5M
Annual Full-Time Equivalent (FTE)	10–30	<10

D.1.2 Criteria Definitions

a. **Agency/Program Role:** GRC can participate in Projects as the assigned lead organization or in Tasks in support of a customer.

b. **Concept and Development Cost:** This is the estimated cost of the Concept and Technology Development, Engineering Design, and System Development phases of the Project/Task from the beginning of Phase A through completion of Phase D. It excludes proposal development and Pre-Phase A Concept Studies as well as Operations and Decommissioning costs (Phases E–F).

c. **Annual Full-Cost Budget:** This is the full-cost budget, which includes both labor and non-labor (i.e., procurement) funding allocations for the Project/Task in a given fiscal year.

d. **Annual FTE:** This is the number of full-time equivalent (FTE) civil servants allocated to the Project/Task in a given fiscal year

D.1.3 How to Use Guidance in Table D.1

a. Assigned PM to recommend, for management concurrence, a GRC Project/Task class (Silver or Bronze) depending upon which column contains the preponderance of Project/Task characteristics. Classification to be determined initially during Project/Task initiation then reaffirmed annually as part of the planning, programming, budget, and execution process for a new fiscal year. The PM is expected to present the recommended Project/Task classification to the PRB for approval. The SFS Directorate presents to the CMC for concurrence if delegated by responsible SFS management to do so.

b. The SFS Directorate office chief is responsible for reviewing and concurring on the PM's recommended Project/Task classification prior to presentation to the PRB for approval. If necessary, the responsible office chief, in consultation with the Director of SFS, may change the recommended classification to take into account other factors such as payload/mission risk classification per NPR 8705.4, management priority, complexity, visibility, and Center strategy. The Project/Task classification should be reassessed annually because it may change during the life cycle of the Project/Task.

c. See GLPR 7120.5.10, GRC Space Flight Management Requirements and Best Practices, Table 2.1, GRC Space Flight Systems Project and Task Classification Guidance, for the GRC Classification scheme for all Space Flight Systems Projects/Tasks (NPR 7120.5 and NPR 7120.8), for reference ONLY.

D.2 Governance Approval Authority Guidance

The Project/Task class is used to determine Governance Approval Authority Guidance. Guidance for products and their respective approval authority is shown in Table D.2. Follow the applicable Project/Task class:

TABLE D.2.—GRC GOVERNANCE/APPROVAL AUTHORITY GUIDANCE

PRODUCT (Requires approval/concurrence above PM level)	Project/Task Class Silver	Project/Task Class Bronze
Formulation Agreement/Project Plan	Code M Director or Division Chief, advised by the PRB	Code M Division Chief, advised by the PRB
External Support Agreements/Task Plan	Code M Division Chief, advised by the PRB	Code M Division Chief, advised by the PRB
Systems Engineering Management Plan	Code L Director, advised by the Engineering Management Board (EMB)	Code L Director (as required), advised by the EMB
Safety and Mission Assurance Plan	Code Q Director or Division Chief, advised by the Safety and Mission Assurance Management Board (SMB)	Code Q Division Chief (as required), advised by the SMB
Milestone Review Plan/Terms of Reference	Code M Division Chief, advised by the PRB	Code M Division Chief (as required), advised by the PRB
Milestone Review Readiness and Results/Other Key Project/Task Triggers	Code M Director, advised by the PRB	Code M Division Chief (as required), advised by the PRB

Note 1: A task plan is a simplified project plan tailored for Silver and Bronze Projects/Tasks and is used when more definition is required than the External Support Task Agreement allows for a Project/Task plan. Tailoring is encouraged and should be performed in consultation with the higher tier customer office and the cognizant GRC approving authority as shown in Table D.2.

Note 2: See GLPR 7120.5.10, Table 2.2, for GRC Governance/Approval Authority Guidance for all Space Flight Systems Projects/Tasks (NPR 7120.5 and NPR 7120.8), for reference ONLY.

D.3 Management Periodic Reporting Guidance

The Project/Task class is used to determine management periodic reporting guidance. Guidance for governing councils/boards and their respective reporting cadence is shown in Table D.3. Follow the applicable Project/Task class:

TABLE D.3.—GRC PERIODIC REPORTING GUIDANCE

GOVERNING COUNCIL/BOARD	Project/Task Class Silver	Project/Task Class Bronze
CMC	SFS Director or designee – Monthly Project/Task – Quarterly	Determined by delegated GRC management authority
SFS Directorate	Project Office Status – Monthly	Project Office Status – Monthly
Responsible Code M Project Office	Monthly	Determined by delegated GRC management authority Months
EMB	Biweekly	Monthly or Quarterly based on Project/Task factors and the EMB
Safety and Mission Assurance (SMA) Management Board (SMB)	SMA Mission Assurance Manager reports summary status of key Projects/Tasks across the SFS portfolio monthly to the SMB. Chief SMA Officers or Project SMA Leads report summary status as determined by the SMB.	

Note 1: This table provides recommended guidance for Project/Task routine reporting depending on Project/Task class. In this context, reporting means any direct report from the PM or designated team members for discussion of major risks and issues when multiple GRC directorates are providing team members or at management request.

Note 2: The recommended reporting level and cadence is for internal GRC governance and management oversight only. It does not supersede reporting requirements established by the higher tier programmatic customer. However, when a Project/Task is required to report internally to GRC management authority and externally to the programmatic customer, it is good practice for the Project/Task to report internally at GRC in advance of the external reporting, in any given period. The rationale for this is to ensure that the highest possible quality report is provided to the external customer and that any new issues since the last report are brought to GRC management's attention, and potential quick resolution, before they are released outside the Center.

Note 3: The Governance body listed is responsible for providing the Project/Task with the required information needed and the expected schedule for reporting.

Note 4: The table is recommended guidance only. The PM is expected to proactively facilitate a dialogue with both the customer and with the GRC management authority to ensure that periodic reporting requirements are streamlined to the maximum degree possible. Once agreement is reached among all parties, the reporting requirements should be documented in the project plan or equivalent.

Note 5: See GLPR 7120.5.10 Table 2.3 for GRC Management Periodic Reporting Guidance, for all Space Flight Systems Projects/Tasks (NPR 7120.5 and NPR 7120.8) for reference ONLY.

D.4 Project/Task Core Team Roles Guidance

The Project/Task class is used to determine Project/Task Core Team Roles Guidance. Guidance for Project/Task Roles and their respective staffing recommendation is shown below. Follow the applicable Project/Task class:

TABLE D.4.—PROJECT/TASK CORE TEAM ROLE GUIDANCE

RECOMMENDATION	Project/Task Class Silver	Project/Task Class Bronze
Applicable	Project Manager Chief Engineer Lead Systems Engineer Chief SMA Officer or Project SMA Lead Risk Manager Configuration/Data Manager Scheduler Budget/Resource Analyst Control Account Managers (CAMS)/WBS Element Leads	Project Manager Product Lead Engineer (in lieu of Chief Engineer) Chief SMA Officer or SMA Lead Configuration/Data Manager Scheduler Budget/Resource Analyst
Optional	Deputy Project Manager Integration Manager	Lead Systems Engineer Risk Manager CAMS/WBS Element Leads
Not Required	Product Lead Engineer (in lieu of Chief Engineer)	Deputy Project Manager Chief Engineer Integration Manager
If required for Projects/Tasks with science or advanced technology development content	Principal Investigator	Principal Investigator

Note 1: Applicable: Function is typically needed no matter the type of Project/Task and may be performed by full-time or part-time/shared staff tailored to the unique needs and available budget of each Project/Task.

Note 2: Optional: Function may, may not be needed, or may be fulfilled by other than assigning a Project/Team member.

Note 3: Project/Task team roles and staffing levels are expected to evolve over the life cycle of the Project/Task, and the changes should be documented in any revisions to the project plan that are issued at appropriate KDPs or other milestone points in the Project/Task. See GLPR 7120.5.10, Table 3.1, for Project/Task Core Team Role Guidance for all Space Flight Systems Projects/Tasks (NPR 7120.5 and NPR 7120.8), for reference ONLY.

Change History

Change	Date	Description/Comments
Basic	11/19/2013	Initial Release - New directive created based on requirements in NPR 7120.8. This GLPR consolidates proposed GLPR 7120.8.4 and GLPR 7120.8.5.
Change 1	5/27/2014	Updated Sections 1.1.1e (1) (2) (4), 4.1.1, 4.1.2a, 4.2.3b, 4.2.5a,b, to clarify applicability guidance for Aero and Space R&T projects/tasks. Added document content applicability table to guide Space and Aero projects/tasks. Added "(Aero only)" to Sections 4.2.5b, d(4), 4.2.7, 4.2.8, 4.2.9, 4.3.7, 4.3.8, and 4.3.9. Updated Appendix C.2 TD Compliance Matrix to include the requirements levied per GLPR 7120.5.10 Section 2.3. Project Classification. Added Appendix F classification and governance guidance for Space R&T projects/tasks.
Change 2	9/10/2018	Administrative Change: Per GLPR 1410.1, extended the expiration date from 11/19/2018 to 11/19/2019.
A	02/28/2020	This revision reflects the major revision to NPR 7120.8. The summary of the changes include: • Deletion of Portfolio Projects section • Deletion of figures no longer applicable due to changes in NPR 7120.8 • Streamlining of content to directly reference appropriate NPR 7120.8 sections relating to projects to avoid duplication. • Update GRC procedure document references Agreed change between Code K and Code M for the Point of Contact from Code K to be Code M.
Change 1	02/27/2025	Administrative change to extend expiration date from 02/28/2025 to 05/30/2025 to complete substantive review/changes per GLPR 1410.1