

Acquisition Notice Posting

Headquarters Acquisition Division

ANNOUNCEMENT OF CUBESAT LAUNCH INITIATIVE

General Information

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Response Date:	Nov 4, 2019
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Office Address

NASA/Goddard Space Flight Center, NASA Headquarters Acquisition Branch, Code 210.H, Greenbelt, MD 20771

Description

1.0 INTRODUCTION AND BACKGROUND

The National Aeronautics and Space Administration (NASA) Human Exploration and Operations Mission Directorate (HEOMD) anticipates making launch opportunities for a limited number of CubeSats available to a variety of U.S. CubeSat developers. The CubeSat Launch Initiative (CSLI) will provide or facilitate flight opportunities as secondary payloads on launches, as well as deployments from the International Space Station, currently planned for 2020–2023.

This solicitation includes three types of opportunities and is organized to provide general information and requirements applicable to any proposal, and three appendices to provide additional information and requirements unique to those opportunities.

- **Appendix A** applies to U.S. accredited educational organizations and non-profit organizations (who are *not* seeking a Space Launch System (SLS) Artemis 2 opportunity).
- **Appendix B** applies to NASA-sponsored and/or -selected CubeSat projects (who are *not* seeking a SLS Artemis 2 opportunity).
- **Appendix C** applies to the SLS Artemis 2 deep-space launch opportunity.

For the purpose of this Announcement, a NASA sponsored and/or selected CubeSat is defined as a CubeSat selected and funded by NASA through a competitive process for CubeSat development or is funded entirely by a NASA Center or Mission Directorate for the development of a CubeSat. All respondents seeking an SLS Artemis 2 launch opportunity should respond to Appendix C. Respondents can only submit one CubeSat mission per proposal but may submit multiple proposals.

More information about the CubeSat Launch Initiative, including previously selected Respondents, is available at: http://go.nasa.gov/CubeSat_initiative.

A CubeSat is a type of space research nanosatellite. The base CubeSat dimension is 10x10x11 centimeters (one “Cube” or “1U”). CubeSats supported by this Launch Initiative include volumes of 1U, 2U, 3U, 6U and 12U. CubeSats of 1U, 2U and 3U size typically have a mass of 1.33 kilograms per 1U Cube. A 6U CubeSat typically has a mass under 12 kg, and a 12U CubeSat typically has a mass under 20 kg. The final mass is dependent upon the selected dispenser.

NASA anticipates entering into one or more Agreements with selected Respondents (“Collaborators”) to support the CubeSat Launch Initiative. Participation in the CubeSat Launch Initiative will be contingent upon selection by NASA and negotiation of an appropriate Agreement between NASA and the Collaborator.

Proposed CubeSat investigations must address an aspect of science, technology development, education, or operations encompassed by NASA’s strategic goals and objectives as identified in the NASA Strategic Plan.

The NASA 2018 Strategic Plan is available at:

https://www.nasa.gov/sites/default/files/atoms/files/nasa_2018_strategic_plan.pdf

CubeSats investigations proposed for the SLS Artemis 2 mission specifically must address lunar or Martian Strategic Knowledge Gaps identified by the agency, and priority will be given to those reducing risk for future deep-space human exploration missions. Knowledge and data gained from these payloads will be shared with NASA.

NASA's Lunar Strategic Knowledge Gaps are available at:

<https://www.nasa.gov/exploration/library/skg.html>

Strategic Knowledge Gaps related to Mars exploration are available at:

https://mepag.jpl.nasa.gov/reports/P-SAG_Matrix_draft_v21.xlsx

NASA will not transfer any funds to selected Collaborators under Agreements negotiated in response to this Announcement. Collaborators will be responsible for securing funding to support the development of their CubeSat payload and for all other costs incurred by the Collaborator to participate in the CubeSat Launch Initiative.

2.0 GENERAL INFORMATION

Agency Name: NASA (National Aeronautics and Space Administration)

Opportunity Title: Announcement of CubeSat Launch Initiative

Response Due Date: Electronic Proposals may be received until the close date on November 4, 2019 at 4:30 p.m. via email to hq-aes@mail.nasa.gov.

Points of Contact:

If you have any questions concerning this opportunity please contact:

Anne Sweet	John Guidi	Kimberly Robinson (for SLS)
202-358-3784	202-358-1644	256-544-5182
anne.sweet-1@nasa.gov	john.guidi@nasa.gov	nasa-slspayloads@mail.nasa.gov

Instrument Type(s): Refer to the Appendices for the type of collaborative agreements NASA will use under this Announcement.

Evaluation Panel: Government personnel from NASA will participate in the evaluation of Proposals. All contractor personnel participating in the evaluation will be bound by conflict of interest provisions and appropriate nondisclosure requirements to protect proprietary information.

Submission Instructions: All Proposals submitted in response to this Announcement must be emailed to hq-aes@mail.nasa.gov. Paper submissions will not be reviewed. Any material

submitted in response to this Announcement will not be returned. Proposals may be submitted at any time before the response date. Proposals received by the Government after the response date and time will not be considered. If a Respondent is concerned about information security during transmission, NASA has the ability to accept secure transmission. Contact the Point of Contact (Anne Sweet) for secure transmission requirements. Files must be submitted in a single bookmarked and searchable PDF of less than 10 Mb.

NASA will not issue paper copies of this Announcement. This Announcement does not constitute an obligation for NASA to begin negotiations or enter into agreements with any Respondents to carry out this activity. NASA reserves the right to select for negotiations all, some, or none of the Proposals submitted in response to this Announcement. NASA provides no funding for reimbursement of Proposal development costs.

It is NASA's policy to safeguard all Proposals as confidential and privileged information, as provided by law. NASA will not, without permission of the Respondent, use the Proposal contents for other than evaluation purposes.

It is not NASA's intent to publicly disclose proprietary information obtained during this solicitation. To the full extent that it is protected pursuant to the Freedom of Information Act and other laws and regulations, information identified by a Respondent as "Proprietary or Confidential" will be kept confidential.

NASA reserves the right to amend or withdraw this Announcement at any time.

3.0 ELIGIBILITY INFORMATION

U.S. organizations meeting the requirements set forth in the Appendices are eligible to submit Proposals in response to this Announcement.

All Proposals will be screened to determine their compliance with the Eligibility (Section 3.0 of each Appendix) and Proposal Instructions (Section 5.0 of each Appendix) of this Announcement. Proposals that do not comply may be declared noncompliant and rejected without further review. A submission compliance checklist is provided in Section 5.0 of each Appendix. This checklist provides Respondents a list of the items that NASA will check for compliance before evaluating a Proposal.

Refer to the appendices for specific eligibility information.

4.0 PROPOSAL EVALUATION AND SELECTION

4.1 Evaluation and Selection Process

Proposals deemed compliant with this Announcement will be assessed by the Selection Recommendation Committee against the Evaluation Criteria outlined in Section 4.2 of each Appendix and NASA programmatic factors. Respondents should be aware that NASA may request clarification of a specific point or points in a Proposal during the evaluation and

selection process. Such a request and the Respondent's response shall be in writing.

The Selection Recommendation Committee members will independently assess the Proposals according to Evaluation Criteria outlined in Section 4.2 of each Appendix. Afterward, the Selection Recommendation Committee will develop a final prioritization based on their assessments of the Proposals.

The Selection Recommendation Committee will produce two prioritized lists of proposed CubeSat investigations: a list for Appendix A and B missions, and a list for Appendix C SLS Artemis 2 deep-space CubeSat missions.

4.2 Evaluation Criteria

Refer to the Appendices for specific evaluation criteria.

4.3 Selection Notification

NASA will notify all Respondents of the results of the evaluation and prioritization process. After the completion of the evaluation and prioritization process, NASA will begin negotiations with the selected Respondent in priority order from the Selection Recommendation Committee. The purpose of the negotiations is to define the terms and conditions of the Agreement supporting Collaborators' participation in the project and to align the recommended Proposals with the anticipated launch manifest. The Selection Authority will make the final selection of those approved for this opportunity after the completion of negotiations, depending on the outcome of the negotiations.

The Selection Authority shall be the Associate Administrator for Human Exploration and Operations.

5.0 PROPOSAL INSTRUCTIONS

Proposals must comply with the following requirements.

Page Limitations

Proposal Section	Total Pages
Proposal Cover Page	1
Proposal Title Page	1
Points of Contact	1
Proposal Abstract	750 words
Proposal Detail	10 (5 pages for a NASA sponsored and/or selected CubeSats)

- **Resumes**
 - Resumes shall be included for key personnel. In general, resumes should be limited to no more than 1–2 pages each.
- **Compliance Documents**
 - Include any documents necessary to supplement the Proposal text and satisfy the requirements of the compliance checklist (refer to appropriate solicitation appendix).
- **Additional documentation**
 - Include any documentation in the appendix that validates or supports the Proposal, such as plans for the remaining CubeSat development and technical risks and their mitigation plans.

Points of Contact

Ms. Anne E Sweet
Launch Services Program Executive
202-358-3784 anne.sweet-1@nasa.gov

Mr. John Guidi
Deputy Director, Advanced Exploration Systems
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For SLS Technical Inquiries

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Manager, SLS Payload Integration
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APPENDIX A
EDUCATIONAL AND NON-PROFIT ORGANIZATION CUBESAT MISSIONS

A-1.0 INTRODUCTION

The CubeSat Launch Initiative (CSLI) provides flight opportunities for a limited number of CubeSats available to U.S. non-profit organizations and U.S. accredited educational organizations. CSLI provides flight opportunities as secondary payloads on launches, as well as deployments from the International Space Station, currently planned for 2020–2023.

NASA will provide integration and other services as necessary to complete the launch activity. NASA will not transfer any funds to selected Collaborators under Agreements negotiated in response to this Announcement.

A-2.0 GENERAL INFORMATION

In an effort to equitably provide launch opportunities to as many CubeSat projects as possible, NASA, via CSLI, is imposing a funding limit of \$300,000 for integration and launch services of any CubeSat mission selected regardless of size. This funding limit will generally be adequate to launch a CubeSat up to 3U in size into low-Earth orbit. If the complexity and orbit requirement for a mission exceeds this amount, the selected organization will be responsible for funding the additional cost.

Collaborators will be responsible for securing funding to support the development of their CubeSat payload and for all other costs incurred by the Collaborator to participate in the CubeSat Launch Initiative. In addition, a Collaborator may be required to reimburse NASA for the direct costs of the integration and launch activities in the event the Collaborator fails to meet its obligations under the collaboration agreement or terminates the Agreement after NASA incurs costs associated with integration.

Response Due Date: Electronic Proposals may be received until the close date on November 4, 2019 at 4:30 p.m. EST via email to hq-aes@mail.nasa.gov.

Selection Notification: Selection is anticipated by February 21, 2020.

Instrument Type: Cooperative Research and Development Agreements (CRADAs).

A-3.0 ELIGIBILITY INFORMATION

A-3.1 Eligible Applicants

U.S. organizations meeting the following requirements are eligible to submit Proposals in response to Appendix A of this Announcement.

- The Respondent must be from a U.S. non-profit organization or U.S. accredited educational organization.

A-3.2 Eligibility Requirements

CubeSats Supported. 1U, 2U, 3U, 6U and 12U

CubeSat Development Funding Commitment. The Respondent is responsible for securing funding to support the development of the CubeSat payload prior to submitting the Proposal and for all other costs incurred by the Respondent to support its participation in the project. **Letter(s) demonstrating sufficient financial support for remaining CubeSat development are required.**

Relevance to NASA. Each CubeSat investigation must demonstrate a benefit to NASA by addressing goals and objectives of the NASA Strategic Plan. More specifically, each CubeSat investigation must address an aspect of science, technology development, education, or operations encompassed by NASA's strategic goals and outcomes as identified in the NASA Strategic Plan. Respondents are required to provide NASA a report and data on the technology developed or demonstrated, or the scientific research that resulted from their CubeSat mission.

Merit Review. Prior to submission of the Proposal, each CubeSat investigation must have passed an intrinsic merit review. In the review, goals and objectives of the proposed investigation must be assessed to determine the scientific, educational or technical quality of the investigation. The review will assess the overall alignment of the proposed investigation in addressing one or more of the science, technology, education, or operations goals or objectives identified in the NASA Strategic Plan. The merit review panel should be comprised of individuals not on the project team.

Feasibility Review. Prior to submission of the Proposal, each CubeSat investigation must have passed a feasibility review in which the technical implementation, including feasibility, resiliency, risk and the probability of success, were assessed. The feasibility review panel should be comprised of individuals not on the project team.

Launch Services Program (LSP) Requirements. To enhance compatibility with a Primary payload and to provide optimal manifesting opportunities, each CubeSat payload should fully comply with the LSP requirements as described in Launch Services Program, Program Level Dispenser and CubeSat Requirements Document (LSP-REQ-317.01B) located at: http://www.nasa.gov/pdf/627972main_LSP-REQ-317_01A.pdf. If a Respondent is unsure of compliance or would like to pursue a waiver to a requirement, the proposal should identify the requirement needing clarification or identify the specific requirement(s) you seek to have waived, and clearly state the rationale for waiver in the proposal.

A-3.3. Project Focus Area

Proposals must identify a primary and, if appropriate, secondary focus for their CubeSat effort, i.e., whether the Investigation addresses a scientific research question, a technology development/demonstration objective, or an education objective. Additional post-flight NASA-required Collaborator deliverables will depend on the CubeSat project focus and will

be specified in the negotiated Agreement. When selecting more than one focus area, note that each focus area selected must be appropriately supported (see Section A-4.2 Evaluation Criteria).

A-4.0 PROPOSAL EVALUATION AND SELECTION

A-4.1 Evaluation and Selection Process

The Selection Recommendation Committee may consider a variety of programmatic factors in deciding whether or not to select Proposals, including, but not limited to, available launches, Launch Service requirements waiver requests, and maintaining a programmatic and scientific balance across the sponsoring organizations. Special consideration may be given to proposals that geographically broaden program participation to states that have not previously been selected by the CubeSat Launch Initiative. Those states include: Delaware, Maine, Mississippi, Nebraska, Nevada, New Hampshire, North Carolina, Oklahoma, South Carolina, South Dakota and Wyoming. Previous CubeSat Launch Initiative selectees are encouraged to partner with and/or mentor organizations from these states.

Selected Proposals from any prior announcements that resulted in a prioritization for a launch opportunity will generally take precedence over the results of this Announcement. Manifest order will generally be in priority order unless critical needs dictate an earlier launch or available flight opportunities enable an earlier launch.

NASA will negotiate agreements with respondents recommended for selection as manifest opportunities are available. Selection recommendation does not guarantee the availability of a launch opportunity.

A-4.2 Evaluation Criteria

A-4.2.1 Overview

The Evaluation Criteria and associated weighting for all proposals are as follows:

- Relevance to one or more NASA Strategic Goals or Objectives (Section 4.2.2), weighted 40%;
- Outcome of Scientific, Educational or Technical Merit Review(s) (Section 4.2.3), weighted 30%; and
- Outcome of Feasibility Review (Section 4.2.4), weighted 30%.

A-4.2.2 Relevance to one or more NASA Strategic Goals or Objectives

Each CubeSat investigation must demonstrate a benefit to NASA by addressing goals and objectives of the NASA Strategic Plan.

The following factors will be assessed for the benefit to NASA. Proposals must

include sufficient information and supporting details to allow assessment of these factors.

- Does the Proposal demonstrate that the CubeSat investigation provides benefits to NASA by addressing one or more of the goals and objectives of the NASA Strategic Plan?
- Are these the benefits that were reviewed in the merit review?
- Why is an orbital flight opportunity necessary or advantageous for providing these benefits to NASA?

A-4.2.3 Outcome of Scientific, Educational or Technical Merit Review(s)

Each CubeSat-supported investigation must have passed an intrinsic merit review in which the goals and objectives of the proposed investigation were assessed to determine the scientific, educational or technical quality of the investigation and the overall alignment of the proposed investigation to addressing one or more of the science, technology, education or operations goals or objectives identified in the NASA Strategic Plan.

Reviewers will assess the following factors. Proposals must include sufficient information and supporting details to allow reviewers to assess these factors. The merit review panel should be comprised of individuals external to the project team.

- What was the merit review process?
- Was the merit review competitive or noncompetitive?
- What were the qualifications of the merit review committee members (if possible identify by name, title and expertise)?
- What factors did the merit review use to assess merit?
- What was the outcome of the merit review?
- How did the Respondent respond to and/or address the findings of the merit review?

NASA is not specifying how the merit review should be conducted. NASA is, however, requiring that a determination of the merit of the CubeSat investigation be conducted **prior** to the Proposal being submitted.

Any supporting documentation from the merit review that is useful in supporting this assessment may be included in the Proposal as an Appendix.

If the respondent elects more than one focus area, the reviewers will evaluate the proposal based on all focus areas selected and the scores will be averaged to determine the final score.

A-4.2.4 Outcome of Feasibility Review

Each CubeSat investigation must have passed a feasibility review in which the technical implementation, including feasibility, resiliency and the probability of success, was assessed.

Reviewers will assess the following factors. Proposals must include sufficient information and supporting details to allow reviewers to assess these factors. The feasibility review panel should be comprised of individuals external to the project team.

- What was the feasibility review process?
- What were the qualifications of the feasibility review committee members (if possible identify by name, title and relevant expertise)?
- What factors did the feasibility review use to assess feasibility?
- How were the management team roles, experience, expertise and the organizational structure of the team assessed? Please note any past experience with CubeSat development.
- How was the technical development risk associated with the overall CubeSat mission assessed?
- If the CubeSat investigation requires critical technology development for flight readiness, how were the areas assessed and how were the plans for completing technology development assessed?
- Concerning the development of the CubeSat for flight, how was the probability of success assessed?
- What was the outcome of the feasibility review?
- How did Respondent respond to and/or address the findings of the feasibility review?
- Is there sufficient financial support for the development of the CubeSat payload and for all other costs incurred by Respondent to support its participation in the project?

NASA is not specifying how the feasibility review should be conducted. NASA

is, however, requiring that a determination of the feasibility of the CubeSat investigation be conducted **prior** to the Proposal being submitted. Any supporting documentation from the feasibility review that is useful in supporting the assessment, including project schedules, risk management plans and/or project development plans, may be included in the Proposal as an Appendix.

A-4.2.5 CubeSat Launch Initiative Educational and Non-Profit Organization CubeSat Proposal Evaluation Rubric

Relevance to NASA					
	Poor	Fair	Good	Very Good	Excellent
Address one or more NASA Strategic Plan Goals and Objectives	Investigation is not relevant to current NASA goals and objectives	Investigation is somewhat relevant to NASA	Investigation is relevant to high level NASA goals and objectives	Investigation is relevant to specific NASA Strategic Plan goals and objectives	Investigation is extremely relevant to specific NASA Strategic Plan goals and objectives or science or technology roadmaps
NASA Benefits were reviewed as part of Merit Review	NASA benefits were not specifically reviewed as part of the Merit Review	NASA benefits were reviewed but Merit reviewers did not adequately address	Merit reviewers adequately reviewed for relevance to NASA	Merit reviewers determined the investigation was relevant to NASA	Merit reviewers determined the investigation was highly relevant to NASA
Orbital flight opportunity is necessary or advantageous for providing benefits to NASA	Proposal addressed the topic but orbital flight opportunity is not necessary or advantageous for mission to be beneficial to NASA	Proposal addressed the topic but orbital flight opportunity is only minimally necessary or advantageous for mission to be beneficial to NASA	Proposal did not address the topic but an orbital flight opportunity is clearly necessary or advantageous for mission to be beneficial to NASA	Proposal addressed the topic and orbital flight opportunity is advantageous for mission to be beneficial to NASA	Proposal addressed the topic and orbital Flight opportunity is necessary for mission to be beneficial to NASA

A-4.2.5 CubeSat Launch Initiative Educational and Non-Profit Organization CubeSat Proposal Evaluation Rubric

Merit Review Process - Determine scientific, education or technical quality of investigation					
	Poor	Fair	Good	Very Good	Excellent
Was the Merit Review competitive?	Merit Review process not described	Noncompetitive and Limited internal reviewers	Noncompetitive with internal/external reviewers	Process described; internal or external competition or noncompetitive w/ highly qualified reviewers	NASA, NSF or similar competition
Qualification of Merit Reviewers	Merit Review conducted but merit reviewers were not qualified to assess the investigation	Merit Review consisted of one qualified reviewer	Qualified internal merit review panel	Qualified external merit review panel	Highly qualified merit review panel
Factors used to Assess Merit Review	Factors provided but they were not relevant to proposed investigation	Factors provided but some were not relevant or they were only minimally relevant to proposed investigation	Factors not specifically provided but proposal adequately assessed relevant factors	Factors provided and all were relevant to proposed investigation	Factors provided and all were highly relevant to proposed investigation
Outcome of Merit Review - How did proposer respond and/or address the findings	Major issues found and proposer did not address any issues noted in the Merit Review	Minor issues noted in Merit Review and proposer did not address issues	Proposer addressed some but not all of the issues noted in the Merit Review	Proposers addressed all issues noted in the Merit Review	Proposers sufficiently addressed all issues noted in the Merit Review or there were no findings to address

A-4.2.5 CubeSat Launch Initiative Educational and Non-Profit Organization CubeSat Proposal Evaluation Rubric

Feasibility Review Process - Determine feasibility, resiliency and probability of success					
	Poor	Fair	Good	Very Good	Excellent
Feasibility Review Process	Feasibility Review process not described	Noncompetitive or limited internal competition	Noncompetitive with internal/external reviewers	Process described; internal or external competition or noncompetitive w/ highly qualified reviewers	NASA, NSF or similar competition
Qualification of Feasibility Reviewers	Feasibility Review conducted but reviewers were not qualified to assess the investigation	Feasibility Review consisted of one qualified reviewer	Qualified internal feasibility review panel	Qualified external feasibility review panel	Highly qualified feasibility review panel
Feasibility Review of management teams roles/experience, expertise and organizational structure	Reviewers expressed concerns related to team and structure that were not addressed in proposal	Reviewers expressed concerns related to team and structure that were somewhat addressed in proposal	Reviewers did not express concerns but team structure or all concerns noted by reviewers were not addressed	Reviewers determined the project has a qualified team.	Reviewers determined the project has a highly qualified team
Technical development risk assessment	Reviewers identified risks that would have significant impact on project mission that were not addressed by proposer	Reviewers identified major risks that would have significant impact on project mission and some were not addressed by proposer	Reviewers identified moderate risks that would have moderate impact on project mission and some were not addressed by proposer	Reviewers identified minor risks that would have little impact on project mission and were not addressed by proposer	Reviewers identified risks that would have an impact on project mission and all were addressed by proposer or no risks were identified
Assessment of probability of success	Reviewers determined low probability of success and proposer did not address concerns	Reviewers determined moderate probability of success but proposer did not address concerns	Reviewers determined high probability of success but proposer did not address concerns	Reviewers determined moderate probability of success and any issues related to success were addressed	Reviewers determined high probability of success and/or any issues related to success were thoroughly addressed
Outcome of Feasibility Review - How did proposer respond and/or address the findings	Major issues found and proposer did not address any issues noted in the Feasibility Review	Minor issues noted in Feasibility Review and proposer did not address issues	Proposer addressed some but not all of the issues noted in the Feasibility Review	Proposers addressed all issues noted in the Feasibility Review	Proposers sufficiently addressed and responded to all findings noted in the Feasibility Review or there were no findings to address

A-5.0 PROPOSAL INSTRUCTIONS

Proposal Detail: The Proposal shall contain sufficient information to enable reviewers to determine whether the Proposal complies with the Eligibility Information (Section A-3.0) and to assess the Proposal based on the Evaluation Criteria (Section A-4.2). The proposal shall also include:

- CubeSat primary and, if appropriate, secondary focus area: scientific research question, technology development/demonstration or education.
- CubeSat Development: schedule for remaining CubeSat development that supports a launch in 2020–2023.
- Summary of Requirement compliance or required potential waivers.
- A CubeSat Mission Parameters Table using the following format:

CubeSat Mission Parameters								
Mission Name	Mass	Cube Size		Desired Orbit	Acceptable Orbit Range	400 km @ 51.6 degree incl. Acceptable – Yes or No	Ready for Dispenser Integration Date	Desired Mission Life
			Altitude					
			Inclination					

- A CubeSat Project Details Table using the following format:

CubeSat Project Details						
Focus Area(s) (e.g., science, technology, education)	Student Involvement Yes or No	NASA Funding		Sponsoring Organization(s)	Collaborating Organization(s)	
		Yes or No	Organization		List	International – Yes or No

- If applicable, a Launch Services Program, Program Level Dispenser and CubeSat Requirements Document (LSP-Req-317.01) Waiver Request Table

Launch Services Program, Program Level Dispenser and CubeSat Requirements Document (LSP-Req-317.01) Waiver Request Table	
Requirement	Reason Waiver Requested

- Funding Commitment: letter(s) demonstrating sufficient financial support for remaining CubeSat development.
- Note for Proposals identified with an Education Focus Area: If the proposed CubeSat includes outreach components, the proposal must include a description of the education plan.

Compliance checklist and required documents

- Respondent is a U.S. non-profit organization or an accredited U.S. educational organization
- Proposal includes demonstration of the benefits to NASA based upon the 2018 NASA Strategic Plan
- Proposal identifies a project focus area
- Proposal includes a description of the merit review process and outcome including review committee membership
- Proposal includes a description of the feasibility review process and outcome including review committee membership
- Proposal fully complies with the Launch Services requirements or identifies any potential waivers
- Proposal includes a completed Mission Parameters Table
- Proposal includes a completed Project Details Table
- Proposal includes a schedule for remaining CubeSat development that supports a launch in 2020–2023
- Proposal includes funding commitment information and a funding commitment letter

APPENDIX B
NASA-SPONSORED AND/OR SELECTED CUBESAT MISSIONS

B-1.0 INTRODUCTION

The CubeSat Launch Initiative provides flight opportunities for NASA-sponsored and/or selected missions. For the purpose of this Announcement, a NASA sponsored and/or selected CubeSat is defined as a CubeSat selected and funded by NASA through a competitive process for CubeSat development or is funded entirely by a NASA Center or Mission Directorate for the development of a CubeSat. The CubeSat Launch Initiative provides flight opportunities as secondary payloads on launches, as well as deployments from the International Space Station, currently planned for 2020–2023.

NASA provides integration and other services as necessary to complete the launch activity. NASA will not transfer any funds to selected Collaborators under Agreements negotiated in response to this Announcement.

B-2.0 GENERAL INFORMATION

In an effort to equitably provide launch opportunities to as many CubeSat projects as possible, NASA, via the CubeSat Launch Initiative, is imposing a funding limit of \$300,000 for integration and launch services of any CubeSat mission selected regardless of size. This funding limit will generally be adequate to launch a CubeSat up to 3U in size into low-Earth orbit. If the complexity and orbit requirement for a mission exceeds this amount, the selected organization will be responsible for funding the additional cost.

In addition, a Collaborator may be required to reimburse NASA for the direct costs of the integration and launch activities in the event the Collaborator fails to meet its obligations under the collaboration agreement or terminates the Agreement after NASA incurs costs associated with integration.

Response Due Date: Electronic Proposals may be received until the close date on November 4, 2019 at 4:30 p.m. EST via email to hq-aes@mail.nasa.gov.

Selection Notification: Selection is anticipated by February 21, 2020.

Instrument Type(s): Cooperative Research and Development Agreements (CRADAs).

B-3.0 ELIGIBILITY INFORMATION

B-3.1 Eligible Applicants

U.S. organizations meeting the following requirements are eligible to submit Proposals in response to Appendix B of this Announcement.

- The proposed CubeSat mission must have been previously selected and funded by NASA

through a competitive process for CubeSat development or is funded entirely by a NASA Center or Mission Directorate for the development of the CubeSat.

B-3.2 Eligibility Requirements

CubeSats Supported. 1U, 2U, 3U, 6U, and 12U

CubeSat Development Funding Commitment. Respondent must provide documentation demonstrating NASA sponsored and/or selected the CubeSat mission through a competitive process for CubeSat development or is funded entirely by a NASA Center or Mission Directorate for the development of a CubeSat.

Potential Impact. Each CubeSat investigation must demonstrate potential to enable, enhance or otherwise influence the identified mission focus area. More specifically, each CubeSat investigation must result in an impact on future missions, potentially validate a new or enabling technology, advance scientific measurement or have meaningful student involvement. Respondents are required to provide NASA a report and data on the technology developed or demonstrated, or the scientific research that resulted from their CubeSat mission.

Feasibility Review. Prior to submission of the Proposal, each CubeSat investigation must have passed a feasibility review in which the technical implementation, including feasibility, resiliency, risk and the probability of success, was assessed. The feasibility review panel should be comprised of individuals not on the project team.

Launch Services Program (LSP) Requirements. To enhance compatibility with a Primary payload and to provide optimal manifesting opportunities, each CubeSat payload should fully comply with the LSP requirements as described in Launch Services Program, Program Level Dispenser and CubeSat Requirements Document (LSP-REQ-317.01B) located at http://www.nasa.gov/pdf/627972main_LSP-REQ-317_01A.pdf. If a Respondent is unsure of compliance or would like to pursue a waiver to a requirement, the proposal should identify the requirement needing clarification or identify the specific requirement(s) you seek to have waived, and clearly state the rationale for waiver in the proposal.

B-3.3 Project Focus Area

Proposals must identify a primary and, if appropriate, secondary focus for their CubeSat effort, i.e., whether the Investigation addresses a scientific research question, a technology development/demonstration objective, or an education objective. Additional post-flight NASA-required Collaborator deliverables will depend on the CubeSat project focus and will be specified in the negotiated Agreement. When selecting more than one focus area, note that each focus area selected must be appropriately supported (see Section B-4.2 Evaluation Criteria).

B-4.0 PROPOSAL EVALUATION AND SELECTION

B-4.1 Evaluation and Selection Process

The Selection Recommendation Committee may consider a variety of programmatic factors in deciding whether or not to select Proposals, including, but not limited to, available launches, Launch Service requirements waiver requests, and maintaining a programmatic and scientific balance across the sponsoring organizations.

Selected Proposals from any prior announcements that resulted in a prioritization for a launch opportunity will generally take precedence over the results of this Announcement. Manifest order will generally be in priority order unless critical needs dictate an earlier launch or available flight opportunities enable an earlier launch.

NASA will negotiate agreements with respondents recommended for selection as manifest opportunities are available. Selection recommendation does not guarantee the availability of a launch opportunity.

B-4.2 Evaluation Criteria

B-4.2.1 Overview

The Evaluation Criteria and associated weighting for all proposals are as follows:

- Potential Impact to NASA (Section 4.2.2), weighted 60%; and
- Outcome of Feasibility Review (Section 4.2.5), weighted 40%.

B-4.2.2 Potential Impact to NASA

Each investigation must demonstrate potential impact to NASA goals and objectives of the NASA Strategic Plan based on the focus areas selected in the CubeSat Project Details Table.

The following factors will be assessed for the potential impact to NASA. Proposals must include sufficient information and supporting details to allow assessment of these factors.

- **Technology Demonstration:** Does the proposal demonstration enhance future missions, reveal a flaw in a potentially enhancing technology, or otherwise impact the trade space for enhancing technologies?
- **Scientific Investigation:** Does the proposal exhibit potential to advance a scientific measurement, possibly using a new or enabling technology, influenced by the NASA Science Plan?
- **Educational Focus:** Does the proposal provide for meaningful involvement of students in the project through scientific or technical design and development

or hands-on work?

If the respondent elects more than one focus area, the reviewers will evaluate the proposal based on all focus areas selected and the scores will be averaged to determine the final score.

B-4.2.3 Outcome of Feasibility Review

Each CubeSat investigation must have passed a feasibility review in which the technical implementation, including feasibility, resiliency and the probability of success, was assessed.

Reviewers will assess the following factors. Proposals must include sufficient information and supporting details to allow reviewers to assess these factors. The feasibility review panel should be comprised of individuals external to the project.

- What was the feasibility review process?
- What were the qualifications of the feasibility review committee members (if possible identify by name, title and relevant expertise)?
- What factors did the feasibility review use to assess feasibility?
- How were the management team roles, experience, expertise and the organizational structure of the team assessed? Please note any past experience with CubeSat development.
- How was the technical development risk associated with the overall CubeSat mission assessed?
- If the CubeSat investigation requires critical technology development for flight readiness, how were the areas assessed and how were the plans for completing technology development assessed?
- Concerning the development of the CubeSat for flight, how was the probability of success assessed?
- What was the outcome of the feasibility review?
- How did Respondent respond to and/or address the findings of the feasibility review?
- Is there sufficient financial support for the development of the CubeSat payload and for all other costs incurred by Respondent to support its participation in the project?

NASA is not specifying how the feasibility review should be conducted. NASA is, however, requiring that a determination of the feasibility of the CubeSat investigation be conducted **prior** to the Proposal being submitted. Any supporting documentation from the feasibility review that is useful in supporting the assessment, including project schedules, risk management plans and/or project development plans, may be included in the Proposal as an Appendix.

B-4.2.4 CubeSat Launch Initiative NASA-Sponsored/Selected CubeSat Proposal Evaluation Rubric

Potential Impact to NASA - Provides meaningfully improved performance to current state of the art or capabilities					
	Poor	Fair	Good	Very Good	Excellent
Potential Impact to NASA for missions that denote a focus area on a Technology Demonstration	Positive or negative outcome has little impact on future NASA missions	Outcome may have some impact on future NASA missions	May enhance future missions, reveal a flaw in a potentially enhancing technology, or otherwise impact the trade space for enhancing technologies	May significantly enhance future missions, reveal a flaw in a potentially significantly enhancing technology, or otherwise impact the trade space for significantly enhancing technologies	May result in development of an enabling technology for future missions, reveal a flaw in a potentially enabling technology or otherwise impact the trade space for enabling technologies
Potential Impact to NASA for missions that denote a focus area on a Scientific Investigation	Little impact on NASA science or technology maturation strategic objectives	Exhibits a nominal response to NASA science objectives where outcome may have some impact on future NASA missions	Exhibits potential to advance a scientific measurement, possibly using a new or enabling technology, influenced by the NASA Science Plan	Exhibits significant potential to advance a scientific measurement, possibly using a new or enabling technology, relevant to the NASA Science Plan	Will produce a scientific measurement, or validate a new or enabling technology, identified in the current National Academies Decadal Surveys and/or NASA Science Plan
Potential Impact to NASA for missions that denote a focus area on Education	Nominal student participation in the project; student contributions are ancillary to the success of the project	Reasonable student participation in the project; student contributions appear to have some impact on the success of the project	Meaningful involvement of students in the project through scientific or technical design and development or hands-on work	Student-led project or proposal demonstrates significant student participation in the project through scientific or technical design and development or hands-on work	Student-led project or proposal demonstrates significant student participation in the project through scientific or technical design and development or hands-on work plus project has the potential for scalability through partnerships, expansion to educational networks, or dissemination of widely-accessible educational materials

B-4.2.4 CubeSat Launch Initiative NASA-Sponsored/Selected CubeSat Proposal Evaluation Rubric

Feasibility Review Process - Determine feasibility, resiliency and probability of success					
	Poor	Fair	Good	Very Good	Excellent
Feasibility Review Process	Feasibility Review process not described	Noncompetitive or limited internal competition	Noncompetitive with internal/external reviewers	Process described; internal or external competition or noncompetitive w/ highly qualified reviewers	NASA, NSF or similar competition
Qualification of Feasibility Reviewers	Feasibility Review conducted but reviewers were not qualified to assess the investigation	Feasibility Review consisted of one qualified reviewer	Qualified internal feasibility review panel	Qualified external feasibility review panel	Highly qualified feasibility review panel
Feasibility Review of management teams roles/experience, expertise and organizational structure	Reviewers expressed concerns related to team and structure that were not addressed in proposal	Reviewers expressed concerns related to team and structure that were somewhat addressed in proposal	Reviewers did not express concerns but team structure or all concerns noted by reviewers were not addressed	Reviewers determined the project has a qualified team.	Reviewers determined the project has a highly qualified team
Technical development risk assessment	Reviewers identified risks that would have significant impact on project mission that were not addressed by proposer	Reviewers identified major risks that would have significant impact on project mission and some were not addressed by proposer	Reviewers identified moderate risks that would have moderate impact on project mission and some were not addressed by proposer	Reviewers identified minor risks that would have little impact on project mission and were not addressed by proposer	Reviewers identified risks that would have an impact on project mission and all were addressed by proposer or no risks were identified
Assessment of probability of success	Reviewers determined low probability of success and proposer did not address concerns	Reviewers determined moderate probability of success but proposer did not address concerns	Reviewers determined high probability of success but proposer did not address concerns	Reviewers determined moderate probability of success and any issues related to success were addressed	Reviewers determined high probability of success and/or any issues related to success were thoroughly addressed
Outcome of Feasibility Review - How did proposer respond and/or address the findings	Major issues found and proposer did not address any issues noted in the Feasibility Review	Minor issues noted in Feasibility Review and proposer did not address issues	Proposer addressed some but not all of the issues noted in the Feasibility Review	Proposers addressed all issues noted in the Feasibility Review	Proposers sufficiently addressed and responded to all findings noted in the Feasibility Review or there were no findings to address

B-5.0 PROPOSAL INSTRUCTIONS

Proposal Detail: The Proposal shall contain sufficient information to enable reviewers to determine whether the Proposal complies with the Eligibility Information (Section B-3.0) and to assess the Proposal based on the Evaluation Criteria (Section B-4.2). The proposal shall also include:

- Documentation demonstrating NASA sponsored and/or selected the CubeSat mission through a competitive process for CubeSat development.
- CubeSat primary and, if appropriate, secondary focus area: scientific research question, technology development/demonstration or education.
- CubeSat Development: schedule for remaining CubeSat development that supports a launch in 2020–2023.
- Summary of Requirement compliance or required potential waivers.
- A CubeSat Mission Parameters Table using the following format:

CubeSat Mission Parameters								
Mission Name	Mass	Cube Size		Desired Orbit	Acceptable Orbit Range	400 km @ 51.6 degree incl. Acceptable – Yes or No	Ready for Dispenser Integration Date	Desired Mission Life
			Altitude					
			Inclination					

- A CubeSat Project Details Table using the following format:

CubeSat Project Details						
Focus Area(s) (e.g., science, technology, education)	Student Involvement Yes or No	NASA Funding		Sponsoring Organization(s)	Collaborating Organization(s)	
		Yes or No	Organization		List	International – Yes or No

- If applicable, a Launch Services Program, Program Level Dispenser and CubeSat Requirements Document (LSP-Req-317.01) Waiver Request Table

Launch Services Program, Program Level Dispenser and CubeSat Requirements Document (LSP-Req-317.01) Waiver Request Table	
Requirement	Reason Waiver Requested

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- Note for Proposals identified with an Education Focus Area: If the proposed CubeSat includes outreach components, the proposal must include a description of the education plan.

Compliance checklist and required documents

- Respondent is a NASA center, a U.S. not-for-profit organization, an accredited U.S. educational organization or U.S. commercial entity.
- Proposal includes documentation demonstrating NASA sponsored and/or selected the CubeSat mission through a competitive process for CubeSat development.
- Proposal describes potential impact to NASA
- Proposal identifies a project focus area
- Proposal includes a description of the feasibility review process and outcome including review committee membership
- Proposal fully complies with the Launch Services requirements or identifies any potential waivers
- Proposal includes a completed Mission Parameters Table
- Proposal includes a completed Project Details Table
- Proposal includes a schedule for remaining CubeSat development that supports a launch in 2020–2023

APPENDIX C
SLS ARTEMIS 2 DEEP-SPACE CUBESAT MISSIONS

C-1.0 INTRODUCTION

The CubeSat Launch Initiative is facilitating a limited number of opportunities for payloads on the Space Launch System (SLS) Artemis 2 mission targeted to launch in 2022. This launch opportunity is available for CubeSats developed by NASA centers, other U.S. federal agencies, U.S. accredited educational organizations, U.S. non-profits, and U.S. commercial entities. (Proposals from U.S. commercial entities will be considered if no commercially available launch vehicle is available to accomplish the CubeSat mission.) NASA supports public-private partnerships for achieving its strategic goals and objectives for expanding the frontiers of knowledge, capability, and opportunities in space.

For the SLS Artemis 2 mission, entities described above whose missions comply with the Space Launch System Use Policy, Chapter 701 Use of Space Launch System or Alternatives, 51 U.S.C. §§ 70101-70104 are eligible to propose for this launch opportunity. CubeSats proposed for the SLS Artemis 2 mission specifically must address lunar or Martian Strategic Knowledge Gaps identified by the agency, and priority will be given to those reducing risk for future deep-space human exploration missions. Knowledge and data gained from these payloads will be shared with NASA.

NASA's Lunar Strategic Knowledge Gaps are available at:
<https://www.nasa.gov/exploration/library/skg.html>

Strategic Knowledge Gaps related to Mars exploration are available at:
https://mepag.jpl.nasa.gov/reports/P-SAG_Matrix_draft_v21.xlsx

SLS Artemis 2 secondary payloads will be located within the Orion Stage Adapter volume, taking advantage of excess performance not required for the primary mission. CubeSats aboard SLS will be able to have their own propulsion systems to reach deep space destinations. SLS Artemis opportunities are limited to 6U and 12U CubeSats.

C-2.0 GENERAL INFORMATION

The Respondent proposing for an SLS Artemis 2 flight opportunity is responsible for securing funding to support the development of the CubeSat payload within one year of the date of selection and for all other costs incurred by the Respondent to support its participation in the project. Letter(s) demonstrating sufficient financial support for remaining CubeSat development will be required as soon as possible or no later than one year after selection.

Respondents that are federal agencies will reimburse NASA consistent with federal law.

Other Respondents including NASA Centers will be required to provide NASA reimbursement of direct costs of payload integration, including, but not limited to, the cost of the commercially available dispenser and the analytical and physical integration of the payload into the dispenser.

Integration costs are estimated to be \$350,000 for a 6U CubeSat and \$450,000 for a 12U CubeSat. Final costs will be dependent on factors including selection of dispensers for Artemis 2, any additional dispenser-qualification costs, and complement of payloads selected. Any required services the Respondent requests beyond standard integration may incur additional costs. Costs of analytical and physical integration of the dispensers onto the launch vehicle, the design/development/test of the deployment system, and the launch itself will be paid by NASA.

Response Due Date: Electronic Proposals may be received until the close date on November 4, 2019 at 4:30 p.m. EST via email to hq-aes@mail.nasa.gov.

Selection Notification: Selection is anticipated no earlier than January 15, 2020.

Instrument Type(s): Reimbursable agreement

C-3.0 ELIGIBILITY INFORMATION

C-3.1 Eligible Applicants

U.S. organizations meeting the following requirements are eligible to submit Proposals in response to Appendix C of this Announcement.

- The Respondent must be from a NASA center, other U.S. federal agency, U.S. accredited educational organization, U.S. non-profit organization, or qualifying U.S. commercial entity.

C-3.2 Eligibility Requirements

CubeSats Supported. 6U and 12U

Legal Compliance. Missions must comply with the Space Launch System Use Policy, Chapter 701 Use of Space Launch System or Alternatives, 51 U.S.C. §§ 70101-70104, to be eligible to propose for this launch opportunity.

CubeSat Development Funding Commitment. The Respondent must acknowledge in their proposal that funding commitment information and a funding commitment letter will be required within one year of selection to demonstrate sufficient financial support for the CubeSat development.

Relevance to NASA. The proposed mission must contribute to extending human presence beyond low-Earth orbit and substantially benefit from the unique capabilities of the Space Launch System. Each CubeSat investigation must demonstrate a benefit to NASA by addressing goals and objectives of the NASA Strategic Plan. CubeSats proposed specifically must address lunar or Martian Strategic Knowledge Gaps identified by the agency, and priority will be given to those reducing risk for future deep-space human exploration missions. Respondents are required to provide NASA a report and data on the technology developed or demonstrated, or the scientific research that resulted from their CubeSat

mission.

Merit Review. Prior to submission of the Proposal, each CubeSat investigation must have passed an intrinsic merit review. In the review, goals and objectives of the proposed investigation must be assessed to determine the quality of the investigation in addressing the specified lunar or Mars exploration SKGs. The merit review panel should be comprised of individuals not on the project team.

Feasibility Review. CubeSat missions will need to be available for integration on SLS to support a notional launch readiness date in October 2022. This date may change depending on the SLS flight schedule. Upon selection and through development, the SLS Payload Integration Team will advise selected CubeSat missions of schedule. Prior to submission of the Proposal, each CubeSat investigation must have passed a feasibility review in which the schedule and technical implementation, including feasibility, resiliency, risk and the probability of success, were assessed. The feasibility review panel should be comprised of individuals not on the project team.

Spacecraft Launch System Program Requirements. To ensure payloads do not present undue risk to the SLS and Orion vehicles or the SLS Artemis 2 mission, each SLS Artemis 2 CubeSat payload should fully comply with the SLS requirements as described in Space Launch System (SLS) Artemis 2 Secondary Payloads 6U & 12U Potential CubeSat Accommodations (located at https://nasa.gov/sites/default/files/atoms/files/sls_artemis-2_6u-12u_accommodations_8_1_19_0.pdf). Please note that the SLS vehicle is still under development and as such requirements provided are not comprehensive and will continue to mature. If a Respondent is unsure of compliance or would like to pursue a waiver to a requirement, the proposal should identify the requirement needing clarification or identify the specific requirement(s) you seek to have waived, and clearly state the rationale for waiver in the proposal. If selected the Respondent will be required to submit a waiver.

C-4.0 PROPOSAL EVALUATION AND SELECTION

C-4.1 Evaluation and Selection Process

In addition to an assessment based on the criteria described in Section C-4.2, the Selection Recommendation Committee may consider a variety of programmatic factors in deciding whether or not to select Proposals, including, but not limited to, SLS requirement waiver requests and the CubeSat development schedule to support the SLS Artemis 2 notional launch date of October 2022.

NASA will negotiate reimbursable agreements with respondents recommended for selection. Selection recommendation does not guarantee the availability of a launch opportunity.

C-4.2 Evaluation Criteria

C-4.2.1 Overview

The Evaluation Criteria and associated weighting for all proposals are as follows:

- Relevance to one or more NASA Strategic Goals or Objectives (Section C-4.2.2), weighted 40%;
- Outcome of Scientific, Educational or Technical Merit Review(s) (Section C-4.2.3), weighted 30%; and
- Outcome of Feasibility Review (Section C-4.2.4), weighted 30%.

C-4.2.2 Relevance to one or more NASA Strategic Goals or Objectives

Each CubeSat investigation must demonstrate a benefit to NASA by addressing goals and objectives of the NASA Strategic Plan, specifically, lunar and Mars SKGs.

The following factors will be assessed for the benefit to NASA. Proposals must include sufficient information and supporting details to allow assessment of these factors.

- Does the Proposal demonstrate that the CubeSat investigation provides benefits to NASA by addressing one or more of the lunar and Mars SKGs?
- Are these the benefits that were reviewed in the merit review?
- Why is a flight beyond low-Earth orbit necessary or advantageous for providing these benefits to NASA?

C-4.2.3 Outcome of Merit Review

Each CubeSat-supported investigation must have passed an intrinsic merit review in which the goals and objectives of the proposed investigation were assessed to determine the quality of the investigation and the overall alignment in addressing the specified SKG(s).

Reviewers will assess the following factors. Proposals must include sufficient information and supporting details to allow reviewers to assess these factors. The merit review panel should be comprised of individuals external to the project team.

- What was the merit review process?
- Was the merit review competitive or noncompetitive?
- What were the qualifications of the merit review committee members (if possible identify by name, title and expertise)?
- What factors did the merit review use to assess merit?

- What was the outcome of the merit review?
- How did the Respondent respond to and/or address the findings of the merit review?

NASA is not specifying how the merit review should be conducted. NASA is, however, requiring that a determination of the merit of the CubeSat investigation be conducted **prior** to the Proposal being submitted.

Any supporting documentation from the merit review that is useful in supporting this assessment may be included in the Proposal as an Appendix.

C-4.2.4 Outcome of Feasibility Review

Each CubeSat investigation must have passed a feasibility review in which the schedule, technical implementation, including feasibility, resiliency and the probability of success, were assessed.

Reviewers will assess the following factors. Proposals must include sufficient information and supporting details to allow reviewers to assess these factors. The feasibility review panel should be comprised of individuals external to the project team.

- What was the feasibility review process?
- What were the qualifications of the feasibility review committee members (if possible identify by name, title and relevant expertise)?
- What factors did the feasibility review use to assess feasibility?
- How were the management team roles, experience, expertise and the organizational structure of the team assessed? Please note any past experience with CubeSat development.
- How is the schedule risk for Artemis 2 launch in October 2022 [currently under review] assessed?
- How was the technical development risk associated with the overall CubeSat mission assessed?
- If the CubeSat investigation requires critical technology development for flight readiness, how were the areas assessed and how were the plans for completing technology development assessed?
- Concerning the development of the CubeSat for flight, how was the probability of success assessed?

- What was the outcome of the feasibility review?
- How did Respondent respond to and/or address the findings of the feasibility review?
- Is there sufficient financial support for the development of the CubeSat payload and for all other costs incurred by Respondent to support its participation in the project?

NASA is not specifying how the feasibility review should be conducted. NASA is, however, requiring that a determination of the feasibility of the CubeSat investigation be conducted **prior** to the Proposal being submitted. Any supporting documentation from the feasibility review that is useful in supporting the assessment, including project schedules, risk management plans and/or project development plans, may be included in the Proposal as an Appendix.

C-4.2.5 CubeSat Launch Initiative Artemis 2 Deep-Space CubeSat Proposal Evaluation Rubric

Relevance to NASA					
	Poor	Fair	Good	Very Good	Excellent
Address one or more NASA lunar or Mars Strategic Knowledge Gaps	Investigation does not identify nor address an SKG	Investigation does not specify an SKG, but is somewhat relevant to human exploration of the Moon or Mars	Investigation is relevant to high level NASA goals and objectives related to human exploration of the Moon or Mars	Investigation is relevant to specific NASA lunar or Mars Strategic Knowledge Gaps	Investigation is extremely relevant to specific NASA lunar or Mars Strategic Knowledge Gaps
NASA Benefits were reviewed as part of Merit Review	NASA benefits were not specifically reviewed as part of the Merit Review	NASA benefits were reviewed but Merit reviewers did not adequately address	Merit reviewers adequately reviewed for relevance to NASA	Merit reviewers determined the investigation was relevant to NASA	Merit reviewers determined the investigation was highly relevant to NASA
SLS Artemis 2 beyond low Earth orbit flight opportunity is necessary or advantageous for providing benefits to NASA	Proposal addressed the topic but SLS Artemis orbital flight opportunity is not necessary or advantageous for mission to be beneficial to NASA	Proposal addressed the topic but SLS orbital flight opportunity is only minimally necessary or advantageous for mission to be beneficial to NASA	Proposal did not address the topic but a SLS orbital flight opportunity is clearly necessary or advantageous for mission to be beneficial to NASA	Proposal addressed the topic and a SLS orbital flight opportunity is advantageous for mission to be beneficial to NASA	Proposal addressed the topic and a SLS orbital flight opportunity is necessary for mission to be beneficial to NASA

C-4.2.5 CubeSat Launch Initiative Artemis 2 Deep-Space CubeSat Proposal Evaluation Rubric

Merit Review Process - Determine scientific, education or technical quality of investigation					
	Poor	Fair	Good	Very Good	Excellent
Was the Merit Review competitive?	Merit Review process not described	Noncompetitive and Limited internal reviewers	Noncompetitive with internal/external reviewers	Process described; internal or external competition or noncompetitive w/ highly qualified reviewers	NASA, NSF or similar competition
Qualification of Merit Reviewers	Merit Review conducted but merit reviewers were not qualified to assess the investigation	Merit Review consisted of one qualified reviewer	Qualified internal merit review panel	Qualified external merit review panel	Highly qualified merit review panel
Factors used to Assess Merit Review	Factors provided but they were not relevant to proposed investigation	Factors provided but some were not relevant or they were only minimally relevant to proposed investigation	Factors not specifically provided but proposal adequately assessed relevant factors	Factors provided and all were relevant to proposed investigation	Factors provided and all were highly relevant to proposed investigation
Outcome of Merit Review - How did proposer respond and/or address the findings	Major issues found and proposer did not address any issues noted in the Merit Review	Minor issues noted in Merit Review and proposer did not address issues	Proposer addressed some but not all of the issues noted in the Merit Review	Proposers addressed all issues noted in the Merit Review	Proposers sufficiently addressed all issues noted in the Merit Review or there were no findings to address

C-4.2.5 CubeSat Launch Initiative Artemis 2 Deep-Space CubeSat Proposal Evaluation Rubric

Feasibility Review Process - Determine feasibility, resiliency and probability of success					
	Poor	Fair	Good	Very Good	Excellent
Feasibility Review Process	Feasibility Review process not described	Noncompetitive or limited internal competition	Noncompetitive with internal/external reviewers	Process described; internal or external competition or noncompetitive w/ highly qualified reviewers	NASA, NSF or similar competition
Qualification of Feasibility Reviewers	Feasibility Review conducted but reviewers were not qualified to assess the investigation	Feasibility Review consisted of one qualified reviewer	Qualified internal feasibility review panel	Qualified external feasibility review panel	Highly qualified feasibility review panel
Feasibility Review of management teams roles/experience, expertise and organizational structure	Reviewers expressed concerns related to team and structure that were not addressed in proposal	Reviewers expressed concerns related to team and structure that were somewhat addressed in proposal	Reviewers did not express concerns but team structure or all concerns noted by reviewers were not addressed	Reviewers determined the project has a qualified team.	Reviewers determined the project has a highly qualified team
Technical development and schedule risk assessment	Reviewers identified risks that would have significant impact on project mission that were not addressed by proposer	Reviewers identified major risks that would have significant impact on project mission and some were not addressed by proposer	Reviewers identified moderate risks that would have moderate impact on project mission and some were not addressed by proposer	Reviewers identified minor risks that would have little impact on project mission and were not addressed by proposer	Reviewers identified risks that would have an impact on project mission and all were addressed by proposer or no risks were identified
Assessment of probability of success	Reviewers determined low probability of success and proposer did not address concerns	Reviewers determined moderate probability of success but proposer did not address concerns	Reviewers determined high probability of success but proposer did not address concerns	Reviewers determined moderate probability of success and any issues related to success were addressed	Reviewers determined high probability of success and/or any issues related to success were thoroughly addressed
Outcome of Feasibility Review - How did proposer respond and/or address the findings	Major issues found and proposer did not address any issues noted in the Feasibility Review	Minor issues noted in Feasibility Review and proposer did not address issues	Proposer addressed some but not all of the issues noted in the Feasibility Review	Proposers addressed all issues noted in the Feasibility Review	Proposers sufficiently addressed and responded to all findings noted in the Feasibility Review or there were no findings to address

C-5.0 PROPOSAL INSTRUCTIONS

Proposal Detail: The Proposal shall contain sufficient information to enable reviewers to determine whether the Proposal complies with the Eligibility Information (Section C-3.0) and to assess the Proposal based on the Evaluation Criteria (Section C-4.2). The proposal shall also include:

- CubeSat Development: schedule for remaining CubeSat development that supports the Artemis 2 targeted launch date of October 2022 [under review].
- Summary of Requirement compliance or required potential waivers.
- A CubeSat Mission Parameters Table using the following format:

CubeSat Mission Parameters					
Mission Name	Mass	Cube Size	Is a lunar-vicinity heliocentric trajectory compatible with your mission? (Yes/No)	Ready for Dispenser Integration Date	Desired Mission Life

- A CubeSat Project Details Table using the following format:

CubeSat Project Details						
SKG(s)	Student Involvement Yes or No	NASA Funding		Sponsoring Organization(s)	Collaborating Organization(s)	
		Yes or No	Organization		List	International – Yes or No

- If applicable, an SLS Requirements (Space Launch System (SLS) Artemis 2 Secondary Payloads 6U & 12U Potential CubeSat Accommodations) Waiver Request Table

SLS Requirements (Space Launch System (SLS) Artemis 2 Secondary Payloads 6U & 12U Potential CubeSat Accommodations) Waiver Request Table	
Requirement	Reason Waiver Requested

- Funding Commitment: letter(s) demonstrating sufficient financial support for remaining CubeSat development is required within one year of selection.

- Note for Proposals with an Education component: If the proposed CubeSat includes outreach components, the proposal must include a description of the education plan.

Compliance checklist and required documents

- Respondent is a NASA center, U.S. federal agency, U.S. accredited educational organization, U.S. non-profit organization, or a qualifying U.S. commercial entity.
- Proposal includes demonstration of the benefits to NASA based upon the 2018 NASA Strategic Plan and specifically addresses lunar or Martian Strategic Knowledge Gaps identified by the agency.
- Proposal includes information on compliance with the Space Launch System Use Policy, Chapter 701 Use of Space Launch System or Alternatives, 51 U.S.C. §§ 70101-70104.
- Proposal includes a description of the merit review process and outcome including review committee membership
- Proposal includes a description of the feasibility review process and outcome including review committee membership
- Proposal fully complies with the Space Launch System (SLS) Artemis 2 Secondary Payloads 6U & 12U Potential CubeSat Accommodations (located at https://nasa.gov/sites/default/files/atoms/files/sls_artemis-2_6u-12u_accommodations_8_1_19_0.pdf) or identifies any potential waivers
- Proposal includes a completed Mission Parameters Table
- Proposal includes a completed Project Details Table
- Proposal includes a schedule for remaining CubeSat development that supports the Artemis 2 notional launch date of October 2022.
- Proposal includes acknowledgement that funding commitment information and a funding commitment letter will be required within one year of selection to demonstrate sufficient financial support for the CubeSat development.