



# Collaborations for Commercial Space Capabilities (NASA-CCSC-01)

Pre-proposal Teleconference  
April 3, 2014





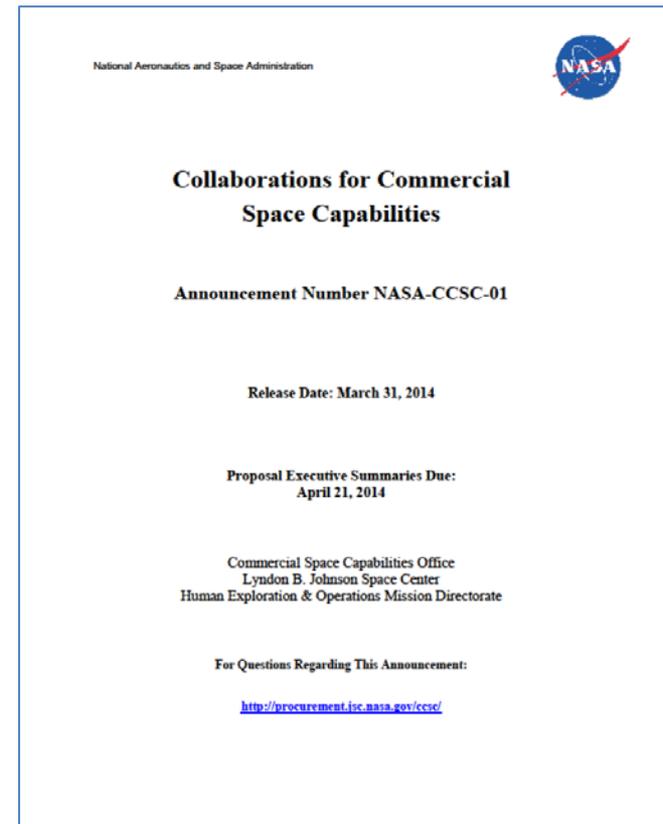
# NASA Representatives

- **Phil McAlister**  
Director, Commercial Spaceflight Development,  
Human Exploration and Operations Mission Directorate  
NASA Headquarters
- **Alan Lindenmoyer**  
Manager, Commercial Space Capabilities Office,  
Human Exploration and Operations Mission Directorate  
NASA Johnson Space Center
- **Tim Boyes**  
Agreements Officer,  
NASA Johnson Space Center

# Purpose of Pre-proposal Teleconference



- **The purpose of today's briefing is to present an overview of the information provided in the Collaborations for Commercial Space Capabilities Announcement (NASA-CCSC-01) released on March 31, 2014**
  - NASA will address questions to clarify the content of the Announcement
  - NASA will not provide evaluations, opinions, or recommendations on any suggested approaches or concepts
  - The Announcement and written answers posted to the competition website take precedence over all verbal discussions and answers to questions





- **Introduction**

- Background
- Purpose/Objective
- Approach
  - NASA's Human Exploration Strategy
  - Voyages: Capability Driven Framework
- Schedule

- **Information for Participants**

- General Information
- Eligible Participants
- Compliance with U.S. Laws, Regulations and Policies
- Intellectual Property
- Title and Rights in Personal Property
- Anticipated Funding
- Use of Government Resources
  - Base Support
  - Specific Support



- **Instructions for Proposals**
  - Proposal Submittal
  - Proposal Content
- **Proposal Evaluation and Selection**
  - Process
  - Selection and Award
  - Personnel
- **List of Appendices**
  - Draft SAA
  - Government Resources
  - Instructions for Proposal Marking and Delivery
- **Questions and Answers**



## • Background

- NASA encourages innovative and entrepreneurial efforts within the private sector to develop new space-related capabilities.
- In pursuit of the goals of the National Space Policy and NASA’s Strategic Plan, NASA is continuing its efforts to foster the development of new industrial space-related capabilities that will lead to education and job growth in science and engineering and spur economic growth as capabilities for new space markets are created.
- NASA’s Human Exploration and Operations Mission Directorate (HEOMD) is engaging in several initiatives to enable industry partnership opportunities such as
  - Lunar Cargo Transportation and Landing by Soft Touchdown Announcement (Solicitation Number: Lunar-CATALYST-01)
  - Asteroid Redirect Mission Broad Agency Announcement (Solicitation Number: NNH14ZCQ002K)
- This Collaboration activity is an additional opportunity to partner with NASA and is not intended to preclude ongoing or future partnership discussions directly with NASA Centers or Mission Directorates for use of NASA personnel services or facilities.
- Entities with existing Agreements with NASA Centers or Mission Directorates are not required to respond to this Announcement to retain those Agreements.
- Participation in one initiative does not preclude participation in any of the others. Companies are free to interact with NASA in any or all of the initiatives that support their organization’s goals.



## • Purpose

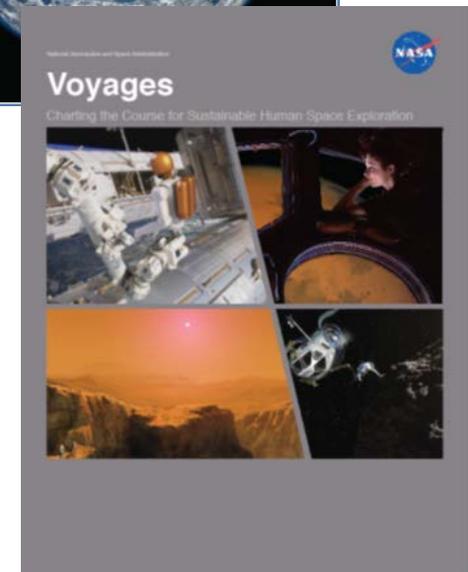
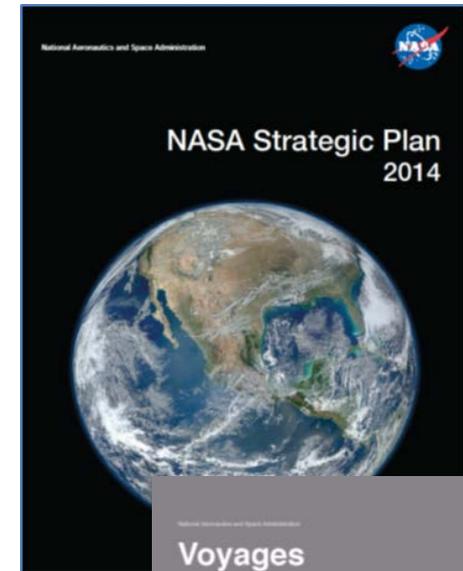
- The purpose of these Agreements is to advance commercial space-related efforts by facilitating access to NASA's vast spaceflight resources including
  - Technical expertise,
  - Assessments,
  - Lessons learned,
  - Data.
- With this activity, NASA intends to focus on facilitating the development of integrated space capabilities, not individual technologies.

## • Objective

- The objective of the Collaborations for Commercial Space Capabilities (CCSC) Agreements is to advance private sector development of integrated space capabilities so that the emerging products or services are commercially available to government and non-government customers within approximately the next five years.

## • Approach

- NASA plans to use its other transactions authority within the National Aeronautics and Space Act, 51 U.S.C. § 20113(e), to enter into one or more **Space Act Agreements** where each party bears the cost of its participation, and there is **no exchange of funds** between the parties.
- There must be specific, identifiable alignment with one or more elements of **NASA's 2014 Strategic Plan**, Strategic Goal 1, Objective 1.1 *to expand human presence into the solar system and to the surface of Mars to advance exploration, science, innovation, benefits to humanity, and international collaboration.*
- **NASA's Voyages report** articulates NASA's multi-destination human space exploration strategy and the core capabilities needed to conduct increasingly complex missions to a range of destinations over time.



# HUMAN EXPLORATION

NASA's Path to Mars



## EARTH RELIANT

MISSION: 6 TO 12 MONTHS  
RETURN TO EARTH: HOURS



## PROVING GROUND

MISSION: 1 TO 12 MONTHS  
RETURN TO EARTH: DAYS



## EARTH INDEPENDENT

MISSION: 2 TO 3 YEARS  
RETURN TO EARTH: MONTHS



Finding new ways to do business. We are leveraging more public-private partnerships and harnessing the ingenuity of the American people to accomplish our work.

# Human Exploration Pathways

## Mastering the Fundamentals

- Extended Habitation Capability (ISS)
  - High Reliability Life Support
- Deep-space Transportation (SLS and Orion)
- Exploration EVA
- Automated Rendezvous & Docking
- Docking System

## Pushing the Boundaries

- Deep Space Operations
  - Deep Space Trajectories
  - Deep Space Radiation Environment
  - Integrated Human/Robotic Vehicle
- Advanced In-Space Propulsion (SEP)
  - Moving Large Objects
- Exploration of Solar System Bodies

On to Mars

**Towards Earth Independent**  
Crewed Orbit of Mars or Phobos/Deimos

Land on Mars

To Moon And Beyond  
(International and/or Industry Partners)

To Mars

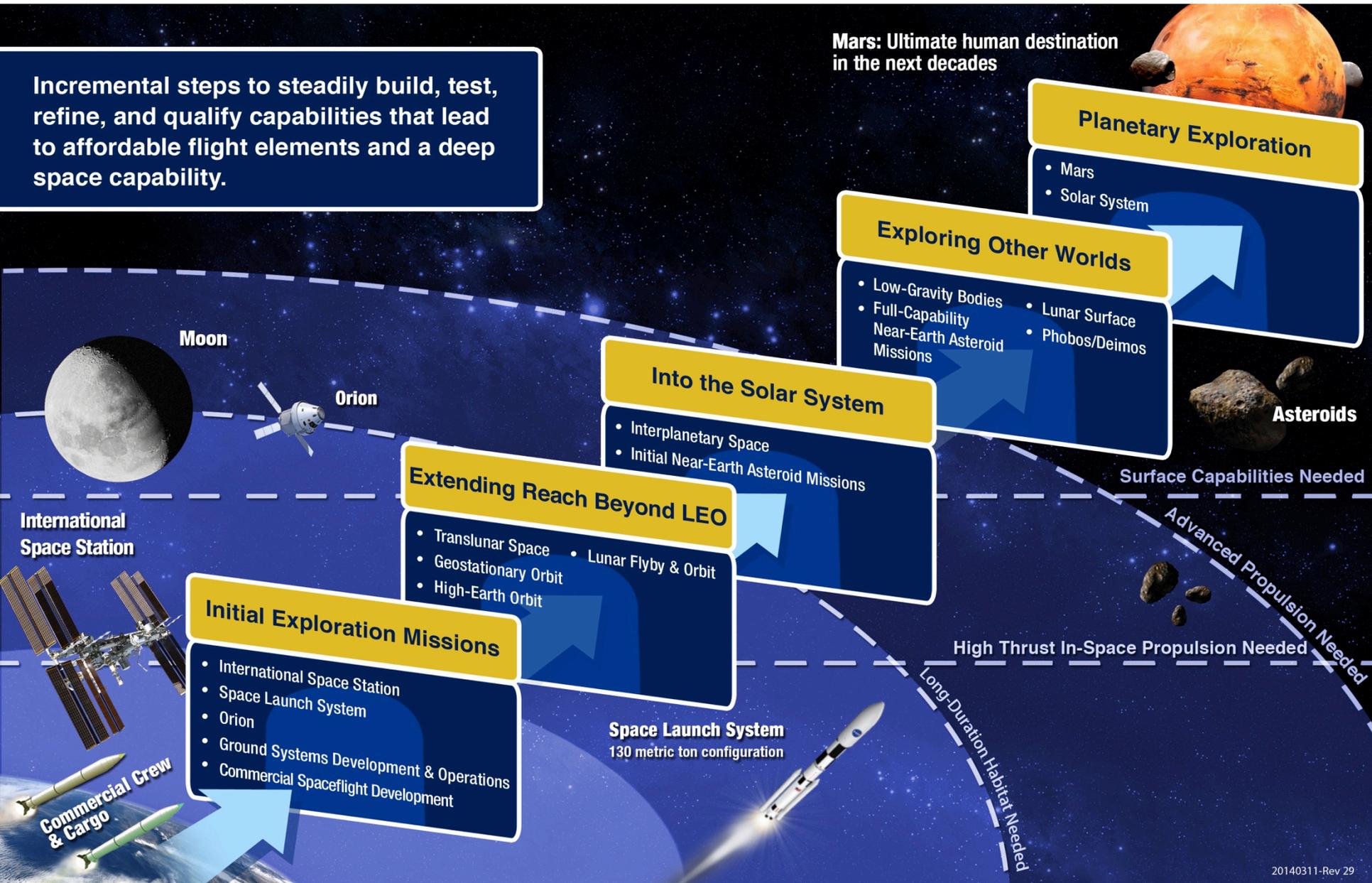
"Bringing the Moon Within  
Economic Sphere of Earth"

# The Capability Driven Framework

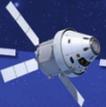


Incremental steps to steadily build, test, refine, and qualify capabilities that lead to affordable flight elements and a deep space capability.

Mars: Ultimate human destination in the next decades



Moon



Orion

International Space Station



Commercial Crew & Cargo

## Initial Exploration Missions

- International Space Station
- Space Launch System
- Orion
- Ground Systems Development & Operations
- Commercial Spaceflight Development

## Extending Reach Beyond LEO

- Translunar Space
- Geostationary Orbit
- High-Earth Orbit
- Lunar Flyby & Orbit

## Into the Solar System

- Interplanetary Space
- Initial Near-Earth Asteroid Missions

## Exploring Other Worlds

- Low-Gravity Bodies
- Full-Capability Near-Earth Asteroid Missions
- Lunar Surface
- Phobos/Deimos

## Planetary Exploration

- Mars
- Solar System



Asteroids

Surface Capabilities Needed

Advanced Propulsion Needed

High Thrust In-Space Propulsion Needed

Long-Duration Habitat Needed

Space Launch System  
130 metric ton configuration



# Capabilities: Foundations of Human Space Exploration

(Reference: *Voyages*, NP-2011-06-395-LaRC)



- **Transportation Capabilities**

- **Low Earth orbit crew and cargo access:** commercial and international transportation to the ISS and LEO
- **Beyond Earth orbit crew and cargo access:** new transportation systems for exploration missions beyond LEO; the Orion Multi-Purpose Crew Vehicle (MPCV) program and the Space Launch System (SLS) program are currently developing this capability
- **In-space propulsion:** advanced, efficient, and reliable propulsion for transporting exploration systems and accessing deep-space destinations such as NEAs and Mars

- **Capabilities for Mission Operations**

- **Ground operations:** facilities and systems for processing, refurbishing, integrating, transporting, and launching spacecraft from Earth; the Exploration Ground Systems program and 21st Century Launch Complex effort are currently developing these capabilities
- **In-space operations:** supports complex orbital and in-space exploration operations, including autonomous operation of human and robotic exploration teams, and addresses unforeseen contingencies

- **Habitation and Destination Capabilities**

- **Long-duration habitation:** enables deep-space habitation en route to, near, or on exploration destinations
- **Mobile exploration module:** provides a safe environment for exploring destinations away from the primary habitat
- **Extravehicular activity (EVA) systems:** support humans in the hostile space environment during excursions away from a habitat
- **Precursor robotics:** robotic missions that investigate candidate destinations and provide vital information to prepare for human explorers
- **Human-robotic interfaces:** enable seamless interaction between humans and robots at exploration destinations
- **Destination systems:** capabilities to access, live on, exploit local resources, and sustain a presence on the surfaces of other celestial bodies

# Strategic Principles for Incremental Building of Capabilities



- **Six key strategic principles to provide a sustainable program:**
  - Executable with current **budget with modest increases**.
  - Application of **high Technology Readiness Level (TRL)** technologies for near term, while focusing research on technologies to address challenges of future missions.
  - **Near-term mission** opportunities with a defined cadence of compelling missions providing for an incremental buildup of capabilities for more complex missions over time.
  - Opportunities for **US Commercial Business** to further enhance the experience and business base learned from the ISS logistics and crew market.
  - **Multi-use, evolvable** Space Infrastructure.
  - Significant International and **Commercial participation**, leveraging current International Space Station partnerships.



## • Schedule

- NASA will commence its CCSC activities with the participant upon execution of the SAA, which is targeted for **summer 2014**.
- The period of performance will be defined in each SAA.
- To provide flexibility to consider future CSCC partnerships, at NASA's discretion, there may be opportunities for additional competitions under this Announcement, at which time, NASA will publish the notice in fedbizops.

- |                               |             |
|-------------------------------|-------------|
| – Announcement Posted         | 3/31/14     |
| – Pre-proposal Teleconference | 4/3/14      |
| – Part 1 Proposals Due        | 4/21/14     |
| – Part 2 Proposals Due        | 5/27/14     |
| – SAA Selection               | July 2014   |
| – SAA Execution               | August 2014 |

# Information for Participants



## • General Information

<b>Agency:</b>	National Aeronautics and Space Administration
<b>Announcement Title:</b>	Collaborations for Commercial Space Capabilities
<b>Announcement Number:</b>	NASA-CCSC-01
<b>Responsible Office:</b>	Commercial Space Capabilities Office NASA Johnson Space Center Houston, TX 77058-3696
<b>Proposal Executive Summaries Due Date:</b>	April 21, 2014, 2:00 p.m. CDT
<b>Point of Contact:</b>	All questions shall be directed to the following NASA official:  Agreements Officer: Tim Boyes Telephone: 281-483-1838 Fax: 281-483-5970 Email: <a href="mailto:JSC-CCSC-Competition@mail.nasa.gov">JSC-CCSC-Competition@mail.nasa.gov</a>
<b>Website:</b>	The Announcement as well as current news and other information may be obtained and downloaded over the Internet at: <a href="http://procurement.jsc.nasa.gov/ccsc/">http://procurement.jsc.nasa.gov/ccsc/</a>



- **Eligible Participants**

- All **U.S. private sector entities**, including non-profits, may propose under this Announcement.

- **Compliance with U.S. Laws, Regulations and Policies**

- Proposals must comply with all applicable U.S. laws, regulations and policies, including but not limited to the following:
  - National Space Policy of the United States of America, June 2010
  - National Space Transportation Policy, November 2013
  - Commercial Space Act of 1998 (P.L. 105-303; 51 U.S.C. 50101 et seq.)
  - Commercial Space Launch Act of 1984 (51 U.S.C. 50901 et seq.)

- **Intellectual Property**

- Under CCSC, participants will retain intellectual property rights to the maximum extent allowed by law and regulation

- **Title and Rights in Personal Property**

- NASA anticipates that title to all personal property acquired or developed by a Participant under CCSC demonstrations will remain with the Participant.

- **Anticipated Funding**

- NASA does not intend to provide any funding to participants under these SAAs. Participants are expected to **secure all of the funding** necessary to perform their obligations under the CCSC agreements.
- The Government's obligation to enter into and continue performance of agreements is contingent upon the availability of appropriated funds.



## • Use of Government Resources

- In responding to this Announcement, NASA encourages participants to be as specific as possible about the Government resources and support that they are requesting. To this end, Appendix B lists the web sites of offices at each NASA center or facility that can provide further information about the resources of that NASA center or facility.
- Government resources, which shall be identified in the Space Act Agreement, shall be in two categories:
  1. **Base Support.** This shall generally be the same for all partners and may consist of:
    - NASA partnership point of contact
    - NASA attendance at quarterly reviews of progress under the partnership
    - NASA observation of partner milestones
    - NASA review of partner-provided data
    - Access to NASA technical data, lessons learned, and expertise support.
  - Base support will be provided at **no cost** to the partner, as resources permit, as part of NASA's obligations in the SAA.
  2. **Specific Support.** This support will be unique to each partner and may be requested in the proposal. It may consist of specific:
    - NASA assessments, analyses, or other services
    - Use of NASA facilities
    - Use of NASA-developed technologies
    - Loan of NASA property.
  - Specific support may be provided under a separate **Reimbursable SAA** with the providing NASA center or facility on a non-interference basis as resources permit. Under a Reimbursable SAA, partners would be expected to **cover NASA's costs**.

# Instructions for Proposals



## • Proposal Submittal

- NASA will accept multiple proposals per private sector entity.
- Proposal submittal shall occur in **two parts**:
  - **Part 1:** Companies shall submit an Executive Summary of no more than two pages by **April 21, 2014, 2:00 p.m. CDT** for screening and ranking. The Executive Summary shall have the content specified in 3.2.2.
  - **Part 2:** NASA will notify each company whether its Executive Summary was among those most favorably evaluated. If so, the company shall have the opportunity to submit a full proposal due back to NASA approximately three weeks after notification. The exact due date and time will be specified in the notification. The proposal shall have the content defined in section 3.2 and shall **not exceed 10 pages**. This page limit does not apply to the Executive Summary, appendices, and the other excluded content identified in 3.1.4. The Executive Summary may be updated from the original version submitted in Part 1 to reflect the current content of the full proposal.
- Executive Summaries and full proposals shall be submitted by either **email or by memory stick**. No paper submittals will be accepted. Note that only email submittals are constrained in size.
- If opting to submit via email, Executive Summaries and full proposals shall be emailed to [JSC-CCSC-Competition@mail.nasa.gov](mailto:JSC-CCSC-Competition@mail.nasa.gov). Each submittal shall be contained in a single email. The maximum size of each email submittal shall be **10 Mbytes**. Participants are encouraged to email submittals at least two business days prior to the deadline to allow time to resolve any transmission problems.
- The Executive Summary and full proposal shall be in Microsoft Word or Portable Document File (PDF) format. In addition, Microsoft Excel files may be included in Appendix 2.
- Proposals received by the Government after the published date and time for receipt **will not** be evaluated.



## • Proposal Content

- Section I          Executive Summary
- Section II        Relevance to NASA
- Section III        Business Approach
  - B1 - Business Overview
  - B2 - Development and Demonstration Plan
  - B3 - Compliance
  - B4 – Financial and Resource Acquisition Plan
  - B5 - Business Risk Management Plan
- Section IV        Technical Approach
  - T1 - Capability Concept
  - T2 - Development, Production, and Demonstration
  - T3 - Safety and Mission Assurance
  - T4 - Technical Risk Management Plan
- Appendix 1        Proposed Milestones
- Appendix 2        Requested Government Resources
- Appendix 3        Supplemental Business Data

# Proposal Evaluation and Selection



- **Process**

- All proposals will be screened to determine whether they comply with the eligibility criteria and proposal instructions of this Announcement. Proposals that are not compliant may be rejected without further review.
- The first step of the evaluation process will be a ranking of Executive Summaries that are compliant with this Announcement based on the alignment and relevance of the proposed capability with NASA's Strategic Plan Objective 1.1 and NASA's Voyages report, the feasibility of the participant's business and technical approach, and the feasibility of the requested NASA support. **Highest priority will be placed on the most relevant and feasible proposals which help advance NASA's exploration goals in a complimentary manner.** The participants whose Executive Summaries are most favorably ranked will receive an invitation from NASA to deliver a full proposal for the second step.
- During the second step of the process, NASA will evaluate the full proposals that are compliant with this Announcement to assess the **level of effectiveness** of the proposed capability in meeting NASA's Strategic Plan Objective 1.1, capabilities in NASA's Voyages report, and the CCSC objective. The effectiveness assessment shall consider the degree to which NASA could potentially benefit from the proposed capability by reducing cost or improving the availability or performance of space capabilities relevant to NASA's human exploration strategy. NASA will also evaluate the **levels of confidence** in the business and technical approaches. NASA may ask questions via teleconference during the review process to obtain clarification of information provided in the proposals. Those proposals most favorably evaluated will be selected for the third step.
- The third step of the process will be teleconferences and/or on-site **due diligence** meetings and **negotiations of SAAs** with participants whose proposals were most favorably evaluated. Participants will be notified of selection for due diligence at least one week in advance of the first teleconference or on-site meeting. NASA will provide the participant with a list of questions resulting from the initial evaluation. During the diligence meetings, participants will have the opportunity to present their overall business approach, technical approach, response to the questions provided by NASA, and any proposed changes to the SAA in Appendix A. NASA will work with the participants to resolve any issues associated with the SAA and negotiate toward an agreement on terms. NASA may ask questions during the diligence meetings to obtain verbal clarification of information provided in the proposals or presentation materials. At the conclusion of this step, NASA shall review and revise, if indicated, the evaluation results of the previous step.



## • Selection and Award

- After completing due diligence and SAA negotiations, NASA will present the results of the proposal evaluation to the Selection Official. The Selection Official will compare the proposals against one another and select a portfolio of one or more participants whose proposals are **most effective, have the highest confidence, and can be supported by NASA** within available resources.
- Upon selection, NASA will enter into negotiation with each selected participant on the proposed SAA. NASA reserves the right to select for execution all, some, or none of the proposals it receives in response to this Announcement. The competitive process will conclude with execution of an SAA between NASA and the selected participant(s).

## • Personnel

- The Government will use selected contractor support personnel to assist in providing technical and business expertise in the evaluation of executive summaries and proposals. All contractor involvement in the evaluation process will be bound by appropriate conflicts of interest provisions and non-disclosure agreements to protect proprietary and competition sensitive information.
- By submitting an Executive Summary or proposal under this Announcement, the participant is deemed to have consented to release of data in its proposal to these NASA contractors supporting evaluation of proposals.

# List of Appendices



- **Appendix A: Draft Space Act Agreement**
- **Appendix B: Government Resources**

Ames Research Center (ARC)	<a href="http://www.nasa.gov/offices/ipp/centers/arc/contact/index.html">http://www.nasa.gov/offices/ipp/centers/arc/contact/index.html</a>
Armstrong Flight Research Center (AFRC)	<a href="http://www.nasa.gov/offices/ipp/centers/dfrc/about/ipp-staff.html">http://www.nasa.gov/offices/ipp/centers/dfrc/about/ipp-staff.html</a>
Glenn Research Center (GRC)	<a href="http://technology.grc.nasa.gov/">http://technology.grc.nasa.gov/</a>
Goddard Space Flight Center (GSFC)	<a href="http://techtransfer.gsfc.nasa.gov/">http://techtransfer.gsfc.nasa.gov/</a>
Jet Propulsion Laboratory (JPL)	<a href="https://scienceandtechnology.jpl.nasa.gov/opportunities/industry/innovativepartnershipprogram/">https://scienceandtechnology.jpl.nasa.gov/opportunities/industry/innovativepartnershipprogram/</a>
Johnson Space Center (JSC)	<a href="http://www.nasa.gov/centers/johnson/partnerships/index.html">http://www.nasa.gov/centers/johnson/partnerships/index.html</a>
Kennedy Space Center (KSC)	<a href="http://technology.ksc.nasa.gov/contact.htm">http://technology.ksc.nasa.gov/contact.htm</a>
Langley Research Center (LaRC)	<a href="http://technologygateway.nasa.gov/">http://technologygateway.nasa.gov/</a>
Marshall Space Flight Center (MSFC)	<a href="http://techtran.msfc.nasa.gov/contact.php">http://techtran.msfc.nasa.gov/contact.php</a>
Stennis Space Center (CCSC)	<a href="http://www.nasa.gov/centers/stennis/ssc-partnerships/index.html">http://www.nasa.gov/centers/stennis/ssc-partnerships/index.html</a>
Wallops Flight Facility (WFF)	<a href="http://sites.wff.nasa.gov/code802/">http://sites.wff.nasa.gov/code802/</a>
White Sands Test Facility (WSTF)	<a href="http://www.nasa.gov/centers/wstf/business/index.html">http://www.nasa.gov/centers/wstf/business/index.html</a>

- **Appendix C: Instructions for Proposal Marking and Delivery**



# Questions and Answers

- Questions and answers discussed during the pre-proposal teleconference will be logged and posted to competition website.
- Written questions may be submitted to the Agreements Officer, [timothy.a.boyes@nasa.gov](mailto:timothy.a.boyes@nasa.gov) or [JSC-CCSC-Competition@mail.nasa.gov](mailto:JSC-CCSC-Competition@mail.nasa.gov)
- Questions and feedback may be submitted anonymously to the Agreements Officer through the link on the competition website.
- Questions and answers will be logged and posted to the competition website

<http://procurement.jsc.nasa.gov/ccsc/>

**Collaborations for Commercial Space Capabilities (CCSC)**

**Information Links**

Current Information	Point of Contact
<ul style="list-style-type: none"><li>• <a href="#">Pre-Solicitation Synopsis (RFI)</a><ul style="list-style-type: none"><li>◦ <a href="#">Modification 1</a></li><li>◦ <a href="#">Modification 2</a></li><li>◦ <a href="#">Modification 3</a></li><li>◦ <a href="#">Modification 4</a></li></ul></li><li>• <a href="#">Announcement for Proposals</a></li><li>• <a href="#">Pre-proposal Teleconference</a></li><li>• <a href="#">Interested Parties List</a></li><li>• <a href="#">Anonymous Questions to the Agreements Officer and Feedback</a></li><li>• <a href="#">Milestone Schedule</a></li></ul>	<p>Name: <b>Tim Boyes</b> Title: <b>Agreements Officer</b> Phone: <b>281.483.1838</b> Email: <a href="mailto:timothy.a.boyes@nasa.gov">timothy.a.boyes@nasa.gov</a></p>

---

**Current News and Events**

3/31/14 Posted the Announcement for Proposals.

3/26/14 Posted Modification 4 to the Pre-Solicitation Synopsis regarding information on the Pre-proposal Teleconference. Posted the Teleconference Information.

Curator: [EA Web Services](#)  
Responsible NASA Official: [timothy.a.boyes@nasa.gov](mailto:timothy.a.boyes@nasa.gov)

[Home](#) | [NASA NAIS Synopsis Page](#) | [NASA Web Accessibility and Policy Notices](#) | [NASA's Guide on Organizational Conflicts of Interest](#)