

NONREIMBURSABLE SPACE ACT AGREEMENT  
BETWEEN  
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
AND  
CONSTELLATION SERVICES INTERNATIONAL, INC.  
FOR  
COMMERCIAL SPACE TRANSPORTATION CAPABILITIES

BACKGROUND

The National Aeronautics and Space Administration (NASA) has established the Commercial Crew & Cargo Program Office at the Johnson Space Center (JSC) as part of the Exploration Systems Mission Directorate. The objectives of the Commercial Crew/Cargo Program are to:

- implement U.S. Space Exploration policy with an investment to stimulate commercial enterprises in space,
- facilitate U.S. private industry demonstration of cargo and crew space transportation capabilities with the goal of achieving reliable, cost effective access to low-Earth orbit, and
- create a market environment in which commercial space transportation services are available to Government and private sector customers.

Under this program, NASA is entering into agreements with private industry to develop and demonstrate the vehicles, systems, and operations needed to resupply, return cargo from, and transport crew to and from a human space facility, with the International Space Station providing the representative requirements for such a facility.

Once demonstrated, industry will be able to provide these new services to non-NASA customers. NASA also plans to enter the next phase of the Commercial Crew & Cargo Program and purchase services from commercial providers to support the International Space Station.

This Agreement represents the signatories' commitment to meet these goals. Specifically, the approach of Constellation Services International, Inc. to meet these goals is outlined in Appendix 2.

## ARTICLE 1. AUTHORITY

This Agreement is entered into by the National Aeronautics and Space Administration, located at 300 E Street, SW, Washington, DC 20546 (hereinafter referred to as "NASA"), and Constellation Services International, Inc., (hereinafter referred to as "CSI" or "PARTICIPANT") with a place of business at 2313 Via Puerta, Suite B, Laguna Woods, CA 92637. NASA's authority to enter into this Agreement is in accordance with the authority set forth in Sections 203(c)(5) and 203(c)(6) of the National Aeronautics and Space Act of 1958, as amended, and NPD 1050.1G.

## ARTICLE 2. PURPOSE AND AGENCY COMMITMENT

A. NASA and CSI enter into this Agreement to facilitate CSI's anticipated development of a commercial transportation system capable of ferrying cargo between Earth and Low Earth Orbit (LEO). As part of its commitment to developing this commercial capability, CSI anticipates investing private capital towards its activities. Furthermore, CSI anticipates completing the first demonstration flight by April 2009.

B. NASA is committed to partnering with the private sector to facilitate the commercialization of LEO and the development of a commercial capability to ferry goods and people to LEO destinations. Accordingly the agency's Commercial Crew & Cargo Program Office is partnering with CSI, through this Agreement, to provide insight and assistance to CSI in its attempt to develop this capability.

C. The scope of the CSI effort, as applicable, involves the development and operation of an end-to-end space transportation system including ground operations and integration, launch, rendezvous, proximity operations, docking or berthing, orbital operations, reentry, and safe disposal or return. The purpose of this system is to transport cargo between Earth and a LEO destination. This system can also pick up cargo from a LEO destination and dispose of the cargo or return recoverable cargo to Earth.

D. This Agreement shall not be construed to allow CSI use of the International Space Station (ISS). In the event NASA determines that the ISS may be available for use, this

Agreement shall be amended to reflect the change or use of the ISS shall be covered by a separate agreement.

### ARTICLE 3. GENERAL PROVISIONS

A. CSI agrees that all news/press statements, arising out of activities to this Agreement, shall be reviewed and concurred on by the NASA JSC Director of Public Affairs, prior to release.

B. NASA does not endorse or sponsor any commercial product, service, or activity. NASA's participation in this Agreement and/or supply of equipment, facilities, technical information, or services under this Agreement does not constitute endorsement by NASA. CSI agrees that nothing in this Agreement will be construed to imply that NASA authorizes, supports, endorses, or sponsors any product or service of CSI resulting from activities conducted under this Agreement, regardless of the fact that such product or service may employ NASA-developed technology.

CSI agrees the words "National Aeronautics and Space Administration" and the letters "NASA" will not be used in connection with a product or service in a manner reasonably calculated to convey any impression that such product or service has the authorization, support, sponsorship, or endorsement of NASA, which does not, in fact, exist. In addition, with the exception of release of general information more particularly described below, CSI agrees that any proposed public use of the NASA name or initials (including press releases resulting from activities conducted under this Agreement and all promotional and advertising use) shall be submitted by CSI in advance to the NASA JSC Director of Public Affairs or designee ("NASA Public Affairs") for review and approval. Approval by NASA Public Affairs shall be based on applicable law and policy governing the use of the NASA name and initials.

Use of NASA emblems/devices (i.e., NASA Seal, NASA Insignia, NASA logotype, NASA Program Identifiers, and the NASA Flag) are governed by 14 C.F.R. Part 1221. CSI agrees that any proposed use of such emblems/devices shall be submitted for review and approval in accordance with such regulations.

NASA or CSI may, consistent with Federal law and this Agreement, release general information regarding its own participation in this Agreement as desired.

C. The Parties shall comply with all applicable laws and regulations including, but not limited to, safety, security, export control, and environmental laws and regulations.

D. The scope of the collaborative efforts under this Agreement is defined in Article 4 and Appendix 1. All requests for support from NASA covered or related to the efforts of this Agreement shall be coordinated through the NASA Key Official designated in Article 17, including any separate agreements for reimbursable or non-reimbursable work CSI desires at any NASA center.

E. The parties agree that nothing in this Agreement shall be construed to imply an agreement to contract in the future. It is the intent of both parties that, should future phases of this collaborative effort materialize, these phases will be accomplished under separate agreements, reimbursable or otherwise.

#### ARTICLE 4. RESPONSIBILITIES

A. CSI shall use reasonable efforts to:

1. Conduct its development program according to the milestones identified in Appendix 1 to this Agreement.
2. Provide NASA with data regarding its progress towards the milestones.
3. Conduct a quarterly meeting with NASA regarding the past quarter's milestones, demonstrating that the success criteria have been met.

B. NASA shall use reasonable efforts to:

1. Provide a point of contact for CSI within the Commercial Crew & Cargo Program Office within 60 days after the effective date of this agreement.
2. Provide a library of relevant NASA data/information including, but not limited to, projected requirements of the International Space Station (ISS) for cargo

transportation services and ISS visiting vehicle requirements.

3. Provide Program know-how regarding the ISS visiting vehicle requirements and processes. Resources will be provided on an as-available basis by the Commercial Crew & Cargo Program Office.

4. Review data provided by CSI.

5. Attend quarterly meetings with CSI regarding the past quarter's milestones.

6. Within 30 days of each quarterly meeting, provide CSI a written acknowledgement of milestone completion if NASA ascertains that the milestones of the previous quarter have been accomplished. Nothing in the acknowledgement of milestone completion shall be construed to imply that NASA endorses or sponsors any CSI product or service resulting from activities conducted under this Agreement. NASA's acknowledgement shall not be construed to imply approval or endorsement of the safety, reliability or appropriateness of any CSI design, system, architecture or testing methodology.

7. NASA may, at its discretion and after coordination with CSI, attend and observe CSI milestones.

#### ARTICLE 5. SCHEDULE AND MILESTONES

The major milestones are as documented in Appendix 1.

#### ARTICLE 6. FINANCIAL OBLIGATIONS

There shall be no transfer of funds or other financial obligations between NASA and CSI in connection with this Agreement. Each party shall fund its own participation under this Agreement.

#### ARTICLE 7. SCHEDULING CONFLICTS

The above schedule and milestones are estimated based upon the parties' current understanding of the projected use of NASA resources. Both parties agree to put forth reasonable efforts and cooperate in good faith to achieve the

objectives of this Agreement. In the event NASA's projected usage of its resources changes, CSI shall be given reasonable notice of the change, so that the schedule and milestones may be adjusted accordingly. The parties agree that NASA's usage of its resources shall have priority over the usage planned in this Agreement should a conflict arise, and NASA, in its sole discretion, shall determine whether to exercise that priority. Likewise, should a conflict arise as between two users, NASA, in its sole discretion, shall determine the priority as between the two users. The parties agree that the facilities, equipment, supplies, or services contemplated by this Agreement shall not be performed in any manner which interferes with NASA's overall mission.

#### ARTICLE 8. NONEXCLUSIVITY

This Agreement is not exclusive; accordingly, NASA may enter into similar Agreements for the same or similar purpose with other U.S. private or public entities.

#### ARTICLE 9. LIABILITY AND RISK OF LOSS

A. Each Party hereby waives any claim against the other Party, employees of the other Party, the other Party's related entities (including, but not limited to, contractors and subcontractors at any tier, grantees, investigators, customers, users, and their contractors and subcontractors, at any tier), and employees of the other Party's related entities for any injury to, or death of, the waiving Party's employees or the employees of its related entities, or for damage to, or loss of, the waiving Party's property or the property of its related entities arising from or related to activities conducted under this Agreement, whether such injury, death, damage or loss arises through negligence or otherwise, except in the case of willful misconduct.

B. Each Party further agrees to extend this cross-waiver to its related entities by requiring them, by contract or otherwise, to waive all claims against the other Party, related entities of the other Party, employees of the other Party and employees of its related entities for injury, death, damage, or loss arising from or related to activities conducted under this Agreement.

ARTICLE 10. INTELLECTUAL PROPERTY AND DATA RIGHTS - RIGHTS  
IN DATA

A. General

1. "Related Entity" as used in this Data Rights clause, means a contractor, subcontractor, grantee, or other entity having a legal relationship with NASA or Participant that is assigned, tasked, or contracted with to perform specified NASA or Participant activities under this Agreement.

2. "Data," as used in this Data Rights clause, means recorded information, regardless of form, the media on which it may be recorded, or the method of recording. The term includes, but is not limited to, data of a scientific or technical nature, computer software and documentation thereof, and data comprising commercial and financial information.

3. "Proprietary Data," as used in this Data Rights clause, means Data embodying trade secrets or comprising commercial or financial information that is privileged or confidential.

4. The Data rights set forth herein are applicable to employees of Participant and employees of any Related Entity of Participant. Participant shall ensure that its employees and employees of any Related Entity that perform Participant activities under this Agreement are aware of the obligations under this clause and that all such employees are bound to such obligations.

5. Data exchanged between NASA and Participant under this Agreement will be exchanged without restriction as to its disclosure, use, or duplication except as otherwise provided in this clause.

6. No preexisting Proprietary Data will be exchanged between the Parties under this Agreement unless specifically authorized in this clause or in writing by the owner of the Proprietary Data.

7. In the event that Data exchanged between NASA and Participant include a restrictive notice that NASA or Participant deems to be ambiguous or unauthorized, NASA or Participant may notify the other Party of such condition. Notwithstanding such a notification, as long as the restrictive notice provides an indication that a restriction on use or disclosure was intended, the Party receiving such Data will treat the Data pursuant to the

requirements of this clause unless otherwise directed in writing by the Party providing such Data.

8. Notwithstanding any restriction on use, disclosure, or reproduction of Data provided in this clause, the Parties will not be restricted in the use, disclosure, or reproduction of Data provided under this Agreement that:

(a) is publicly available at the time of disclosure or thereafter becomes publicly available without breach of this Agreement;

(b) is known to, in the possession of, or developed by the receiving Party independent of carrying out the receiving Party's responsibilities under this Agreement and independent of any disclosure of, or without reference to, Proprietary Data or otherwise protectable Data hereunder;

(c) is received from a third party having the right to disclose such information without restriction; or

(d) is required to be produced or released by the receiving Party pursuant to a court order or other legal requirement.

9. If either NASA or Participant believes that any of the events or conditions that remove restriction on the use, disclosure, or reproduction of the Data apply, NASA or Participant will promptly notify the other Party of such belief prior to acting on such belief, and, in any event, will notify the other Party prior to an unrestricted use, disclosure, or reproduction of such Data.

10. Disclaimer of Liability: Notwithstanding any restriction on use, disclosure, or reproduction of Data provided in this clause, NASA will not be restricted in, nor incur any liability for, the use, disclosure, or reproduction of any Data not identified with a suitable restrictive notice in accordance with paragraphs B and H of this clause or of any Data included in Data which Participant has furnished, or is required to furnish to the U.S. Government without restriction on disclosure and use.

11. Participant shall use the following, or a similar, restrictive notice as required by paragraphs B and H of this clause. In addition to identifying Proprietary Data with such a restrictive notice, Participant should mark each page containing Proprietary Data with the following, or a similar, legend: "Proprietary Data - use and disclose only in accordance with notice on title or cover page."

Proprietary Data Notice

These data herein include *<enter as applicable: "Background Data" or "Data Produced by Participant under a Space Act Agreement">* in accordance with the Data Rights provisions under Space Act Agreement *<provide applicable identifying information>* and embody Proprietary Data. In accordance with the Space Act Agreement, NASA will use reasonable efforts to maintain the data in confidence and limit use, disclosure, and reproduction by NASA and any Related Entity of NASA in accordance with restrictions identified in the Space Act Agreement *<may list specific restrictions listed in the Agreement>*.

B. Data First Produced by Participant under this Agreement

In the event Data first produced by Participant in carrying out Participant responsibilities under this Agreement is furnished to NASA, and Participant considers such Data to be Proprietary Data, and such Data is identified with a suitable restrictive notice, NASA will use reasonable efforts to maintain the Data in confidence and such Data will be disclosed and used by NASA and any Related Entity of NASA (under suitable protective conditions) only for carrying out NASA responsibilities under this Agreement. Upon completion of activities under this Agreement, such Data will be disposed of as requested by Participant.

C. Data First Produced by NASA Under this Agreement

Except for data disclosing an invention owned by NASA for which patent protection is being considered, in the event Participant requests that Data first produced by NASA (or any Related Entity of NASA) in carrying out NASA's responsibilities under this Agreement be maintained in confidence, and to the extent NASA determines that such Data would be Proprietary Data if it had been obtained from Participant, NASA will mark such Data with a restrictive notice and will maintain such marked Data in confidence for a period of two (2) years after development of the Data, with the express understanding that during the aforesaid restricted period such marked Data may be disclosed and used (under suitable protective conditions) by or on behalf of the U.S. Government for U.S. Government purposes only, and thereafter for any purpose whatsoever without

restriction on disclosure and use. Participant agrees not to disclose such marked Data to any third party without NASA's written approval until the aforesaid restricted period expires.

D. Publication of Results

1. Recognizing that section 203 of the National Aeronautics and Space Act of 1958 (42 U.S.C. § 2473), as amended, requires NASA to provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof, and that the dissemination of the results of NASA activities is one of the considerations for this Agreement, NASA will coordinate proposed publication of results with Participant in a manner that allows Participant a reasonable amount of time to review and comment on proposed publications.

2. Consistent with other obligations in this clause, NASA agrees that it will not publish any results without first receiving permission from Participant.

E. Data Disclosing an Invention

In the event Data exchanged between NASA and Participant discloses an invention for which patent protection is being considered, the furnishing Party specifically identifies such Data, and the disclosure and use of such Data is not otherwise limited or restricted herein, the receiving Party agrees to withhold such Data from public disclosure for a reasonable time (presumed to be one (1) year unless mutually agreed otherwise or unless such information is restricted for a longer period herein) in order for patent protection to be obtained.

F. Copyright

In the event Data is exchanged with a notice indicating that the Data is copyrighted and there is no indication that such Data is subject to restriction under paragraphs B or C of this clause (i.e., Data is not marked with a restrictive notice as required by paragraphs B or C of this clause), such Data will be presumed to be published and the following royalty-free licenses will apply.

1. If it is indicated on the Data that the Data existed prior to, or was produced outside of, this Agreement, the receiving Party and others acting on its

behalf, may reproduce, distribute, and prepare derivative works only for carrying out the receiving Party's responsibilities under this Agreement.

2. If the Data does not contain the indication of (1) above, the Data will be presumed to have been first produced under this Agreement and, except as otherwise provided in paragraph E of this clause for the protection of reported inventions, the receiving Party and others acting on its behalf may reproduce, distribute, and prepare derivative works for any purpose.

#### G. Data Subject to Export Control

Technical data, whether or not specifically identified or marked, that is subject to the export laws and regulations of the United States and that is provided to Participant under this Agreement will be treated as such, and will not be further provided to any foreign persons or transmitted outside the United States without proper U.S. Government authorization, where required.

#### H. Background Data

In the event Participant furnishes NASA with Data developed at private expense (or in the case of state or local government Data at government expense) that existed prior to, or was produced outside of, this Agreement, and such Data embody Proprietary Data, and such Data is so identified with a suitable restrictive notice, NASA will use reasonable efforts to maintain the Data in confidence and such Data will be disclosed and used by NASA and any Related Entity of NASA (under suitable protective conditions) only for carrying out NASA responsibilities under this Agreement. Upon completion of activities under this Agreement, such Data will be disposed of as requested by Participant.

#### I. Handling of Data

1. In the performance of this Agreement, Participant and any Related Entity of Participant may have access to, be furnished with, or use the following categories of Data:

(a) Proprietary Data of third parties that the U.S. Government has agreed to handle under protective arrangements; and/or

(b) U.S. Government Data, the use and dissemination of which, the U.S. Government intends to control.

2. Data provided by NASA to Participant under the Agreement:

(a) At the time of execution of this Agreement, the Parties agree that the following Proprietary Data of third parties will be provided to the Participant with the express understanding that Participant will use and protect such DATA in accordance with this clause: None

(b) At the time of execution of this Agreement, the Parties agree that the following U.S. Government Data will be provided to Participant with the express understanding that Participant will use and protect such U.S. Government Data in accordance with this clause: None

(c) At the time of execution of this Agreement, the Parties agree that the following software and related Data will be provided to Participant under a separate Software Usage Agreement with the express understanding that Participant will use and protect such related Data in accordance with this clause. Unless Participant has entered into a license, consistent with 37 C.F.R. Part 404, for software provided under this Agreement, upon completion of activities under this Agreement, such related Data will be disposed of as instructed by NASA: None

3. With respect to such Data specifically identified in this Agreement or specifically marked with a restrictive notice, Participant agrees to:

(a) Use, disclose, or reproduce such Data only to the extent necessary to perform the work required under this Agreement;

(b) Safeguard such Data from unauthorized use and disclosure;

(c) Allow access to such Data only to its employees and any Related Entity that require access for their performance under this Agreement.

(d) Except as otherwise indicated in 3(c) above, preclude access and disclosure of such Data outside Participant's organization;

(e) Notify its employees who may require access to such Data about the obligations under this clause and ensure that such employees comply with such obligations,

and notify its Related Entity that may require access to such Data about their obligations under this clause; and

(f) Return or dispose of such Data, as NASA may direct, when the Data is no longer needed for performance under this Agreement.

J. Oral and Visual Information

If information that Participant considers to be Proprietary Data is disclosed orally or visually to NASA, NASA will have no duty to limit or restrict, and will not incur any liability for, any disclosure or use of such information unless (a) Participant orally informs NASA before initial disclosure that such information is considered to be Proprietary Data, and (b) Participant reduces such information to tangible, recorded form that is identified and marked with a suitable restrictive notice as required by paragraphs B and H above and furnishes the resulting Data to NASA within 10 calendar days after such oral or visual disclosure.

K. Classified Material

In the event that access to, acquisition of, or delivery of classified material is required under this Agreement, the Participant must provide a completed Contract Security Classification Specification (DD Form 254 or equivalent) to the NASA Technical Point of Contact identified herein. Transmission and access to classified material shall be in accordance with NASA and U.S Federal Government statutes, regulations, and policies.

ARTICLE 11. INTELLECTUAL PROPERTY AND DATA RIGHTS - PATENT AND INVENTION RIGHTS

Based on the purpose and scope of this Agreement, and the responsibilities of the Parties, NASA has made an administrative determination that the provisions of section 305(a) of the National Aeronautics and Space Act of 1958, as amended (42 U.S.C. § 2457(a)), do not apply to this Agreement. Therefore, title to inventions made (conceived or first actually reduced to practice) as a result of activities performed under this Agreement will remain with the respective inventing party(ies). No invention or patent rights are exchanged between or granted by such parties under this Agreement except that NASA and CSI agree to use reasonable efforts to identify and report to each

other any invention that is believed to have been made jointly by employees of CSI and employees of NASA (including employees of such NASA contractors, subcontractors, or other entities), and to consult and agree as to the responsibilities and course of action to be taken to establish and maintain patent protection on such invention and on the terms and conditions of any license or other rights to be exchanged or granted by or between NASA and CSI.

#### ARTICLE 12. DISCLAIMER OF WARRANTY

Equipment, facilities, technical information, and services provided by NASA under this Agreement are provided "as is." NASA makes no express or implied warranty as to the condition of such equipment, facilities, technical information, or services, or as to the condition of any research or information generated under this Agreement, or as to any products made or developed under or as a result of this Agreement including as a result of the use of information generated hereunder, or as to the merchantability or fitness for a particular purpose of such research, information, or resulting product, or that the equipment, facilities, technical information, or services provided will accomplish the intended results or are safe for any purpose including the intended purpose, or that any of the above will not interfere with privately owned rights of others. Neither the government nor its contractors shall be liable for special, consequential or incidental damages attributed to such equipment, facilities, technical information, or services provided under this Agreement or such research, information, or resulting products made or developed under or as a result of this Agreement.

#### ARTICLE 13. TERM OF AGREEMENT

This Agreement becomes effective upon the date of the last signature below and shall remain in effect until the completion of all obligations of both parties hereto, or 3 years from the date of the last signature, whichever comes first.

#### ARTICLE 14. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Agreement by providing 30 calendar days written notice to the other Party.

ARTICLE 15. CONTINUING OBLIGATIONS

The obligations of the Parties set forth in the following provisions shall continue to apply after the expiration or termination of this Agreement:

ARTICLE 9, "LIABILITY AND RISK OF LOSS"

ARTICLE 10, "INTELLECTUAL PROPERTY AND DATA RIGHTS - RIGHTS IN DATA"

ARTICLE 11, "INTELLECTUAL PROPERTY AND DATA RIGHTS - PATENT AND INVENTION RIGHTS"

ARTICLE 21, "EXPORT LICENSES"

ARTICLE 16. DISPUTE RESOLUTION

Except as otherwise provided in the article of this Agreement entitled "Scheduling Conflicts," for those activities subject to 37 C.F.R. Part 404 under the articles of this Agreement entitled "Intellectual Property and Data Rights," and those situations where a pre-existing statutory or regulatory system exists (e.g. under the Freedom of Information Act, 5 U.S.C. § 552), all disputes concerning questions of fact or law arising under this Agreement shall be referred by the claimant in writing to the appropriate person identified as the "KEY PERSONNEL".

The persons identified as the KEY PERSONNEL for NASA and the CSI will consult and attempt to resolve all issues arising from the implementation of this Agreement. If the Parties remain unable to resolve the dispute, then the NASA Associate Administrator, Exploration Systems Mission Directorate, or that person's designee will issue a written decision which shall be a final Agency decision for all purposes including judicial review. Nothing in this section limits or prevents either Party from pursuing any other right or remedy available by law after exhaustion of administrative remedies.

ARTICLE 17. KEY PERSONNEL

The following personnel are designated as the key officials for their respective party.

NASA

Alan Lindenmoyer  
Manager, Commercial Crew &  
Cargo Program  
Mail Stop: QA  
2101 NASA Parkway  
Houston, Texas 77058  
Phone: 281-244-7064  
Fax: 281-483-5970  
alan.j.lindenmoyer@nasa.gov

CSI

ARTICLE 18. MODIFICATION/AMENDMENTS

Any modification to this Agreement shall be executed, in writing, and signed by an authorized representative of NASA and CSI. Any modification that creates an additional commitment of NASA resources must be signed by the original NASA signatory authority, or successor, or a higher level NASA official possessing original or delegated authority to make such a commitment.

ARTICLE 19. ASSIGNMENT OF RIGHTS

Neither this Agreement nor any interest arising under it will be assigned by either party without the express written consent of the other party.

ARTICLE 20. ANTI-DEFICIENCY ACT

All activities under or pursuant to this Agreement are subject to the availability of appropriated funds, and no provision shall be interpreted to require obligation or provision of funds in violation of the Anti-deficiency Act, 31 U.S.C. 1341.

ARTICLE 21. EXPORT LICENSES

CSI will be responsible for:

A. Compliance with all U.S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730

through 799, in the performance of this Agreement. In the absence of available license exemptions/exceptions, CSI will be responsible for obtaining the appropriate licenses or other approvals, if required, for exports of hardware, technical data, and software, or for the provision of technical assistance.

B. Obtaining export licenses, if required, before utilizing foreign persons in the performance of this Agreement, including instances where work will be performed on-site at NASA Centers, where the foreign person will have access to export-controlled technical data or software.

C. All regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.

D. Ensuring that the provisions of this Article apply to its subcontractors.

In the event that either party intends to utilize a foreign person (as defined in the International Traffic in Arms Regulations and the Export Administration Regulations) in the performance of this Agreement, such party shall be responsible for obtaining the required export licenses in advance of the foreign person's participation.

#### ARTICLE 22. APPLICABLE LAW

U.S. Federal law governs this Agreement for all purposes, including, but not limited to, determining the validity of this Agreement, the meaning of its provisions, and the rights, obligations and remedies of the parties.

ARTICLE 23. SIGNATURE BLOCK

The signatories to this Agreement covenant and warrant that they have authority to execute this Agreement. By signing below, the undersigned agrees to the above terms and conditions.

NATIONAL AERONAUTICS AND  
SPACE ADMINISTRATION

CSI

BY: 

Scott J. Horowitz  
Associate Administrator,  
Exploration Systems Mission  
Directorate

BY: 

Charles E. Miller  
President & CEO

DATE: 6/15/2007

DATE: 5 June 2007

APPENDIX 1: Milestones and Success Criteria

All milestones identified below will not involve NASA personnel except as observers pursuant to Article 4 of this Agreement.

<b>Date</b>	<b>Milestone Description/ Objective Success Criteria</b>
<b>September 2007</b>	<p><b>Milestone 1: ISS Requirements Review</b></p> <p><b>Description:</b> Prior to initiation of the CSI demonstration mission program, CSI will lay out its assumptions for the specific ISS technical and program requirements that its subsequent operational systems must meet. Technical issues to be provisionally resolved by CSI shall include:</p> <ol style="list-style-type: none"><li>1. Define specific functional, performance, safety, and other requirements that CSI anticipates NASA will want CSI to provide proof of compliance with via a demonstration flight vs. use of other standard verification and validation (V&amp;V) techniques: i.e. test, analysis, inspection, and/or similarity to existing ISS spacecraft and launch vehicles the CSI system is based on;</li><li>2. Review verification requirements and rationale;</li><li>3. Define allowable uses of ISS Russian Segment docking ports for delivery of pressurized and unpressurized cargo in light of existing and anticipated ISS configurations and operational capabilities;</li><li>4. Define operational limitations of specific ISS configurations for CSI mission(s);</li><li>5. Define mission reliability criteria for launch vehicle/space tug architectures;</li></ol>

	<p>6. Define ISS-mandated limitations on Progress space tug operations, including cargo unloading and trash loading timelines, propellant use restrictions (including Progress margins and scheduling of ISS propellant transfers), and lighting, communications, and secondary dissimilar range/rate sensor limitations beyond existing Progress requirements;</p> <p>7. Develop schedule of operational missions to meet ISS requirements;</p> <p>8. Verify that FAA procedures for non-recoverable reentry do not require an explicit license.</p> <p><b>Success Criteria:</b> Completion of the ISS Requirements Review as described above with no forward work items and all review comments dispositioned.</p>
<p><b>October 2007</b></p>	<p><b>Milestone 2: Program Implementation Plan Review</b></p> <p><b>Description:</b> CSI shall host a kickoff meeting to describe internally the plan for program implementation, which includes management planning for Design, Development, Testing, &amp; Evaluation (DDT&amp;E), integrated schedule, financing, supplier engagement, risks and anticipated mitigations.</p> <p>An additional objective of this review meeting is for CSI to brief their subcontractor team on the specifics of the demonstration mission plan, including any technical differences from the operational system.</p> <p><b>Success Criteria:</b> Completion of the Program Implementation Plan Review as described above with no forward work items and all review comments dispositioned.</p>

<p><b>November 2007</b></p>	<p><b>Milestone 3: CSI Long-lead Item Procurement ATP</b></p> <p><b>Description:</b> CSI will provide authorization to subcontractor for manufacturing start of standard Automated Rendezvous and Proximity Operations (ARPO) and docking mechanism subsystems.</p> <p><b>Success Criteria:</b> Completed contract negotiations for long-lead item procurement and contracts for ARPO and docking mechanism are signed.</p>
<p><b>December 2007</b></p>	<p><b>Milestone 4: SRR Update</b></p> <p><b>Description:</b> In accordance with the System Requirements Review (SRR) definition in NASA NPR 7123.1A "Systems Engineering Process &amp; Requirements" and/or other applicable documents and processes, CSI shall conduct a demonstration mission-specific update of the SRR that was previously held on March 18-19, 2003 during the NASA Alternate Access to Station (AAS) program under contract NAS8-02094.</p> <p><b>Success Criteria:</b> Completion of the SRR as described above in accordance with NPR7123.1A success SRR success criteria.</p>
<p><b>January 2008</b></p>	<p><b>Milestone 5: Phase I Safety Review Dry Run</b></p> <p><b>Description:</b> Preparation of LEO testbed equivalent of Phase I Safety Plans to NASA ISS Safety Review Panel (SRP) per requirements of SSP 30599 Rev B "Safety Review Process" and SSP 50146 "NASA/RSA Bilateral S&amp;MA Process Requirements for International Space Station." This will not involve review by the NASA SRP.</p> <p><b>Success Criteria:</b> Completion of the Phase I Safety Review Dry Run as described above with all comments dispositioned and no forward work required.</p>

<p><b>March 2008</b></p>	<p><b>Milestone 6: System Preliminary Design Review</b></p> <p><b>Description:</b> CSI shall conduct a demonstration mission-specific Preliminary Design Review (PDR) in accordance with the PDR definition in NASA NPR 7123.1A and/or other applicable documents and processes.</p> <p><b>Success Criteria:</b> Completion of the PDR as described above and in accordance with NPR 7123.1A with all comments dispositioned and no forward work required.</p>
<p><b>June 2008</b></p>	<p><b>Milestone 7: Phase II Safety Review Dry Run</b></p> <p><b>Description:</b> Preparation of LEO testbed equivalent of Phase II Safety Plans to NASA SRP per requirements of SSP 30599 Rev B "Safety Review Process" and SSP 50146 "NASA/RSA Bilateral S&amp;MA Process Requirements for International Space Station." This will not involve review by the NASA SRP.</p> <p><b>Success Criteria:</b> Successful completion of the Phase II Safety Review Dry Run as described above with all comments dispositioned and no forward work required.</p>
<p><b>September 2008</b></p>	<p><b>Milestone 8: System Critical Design Review (CDR)</b></p> <p><b>Description:</b> CSI shall conduct a demonstration mission-specific Critical Design Review (CDR) in accordance with the CDR definition in NASA NPR 7123.1A and/or other applicable documents and processes.</p> <p><b>Success Criteria:</b> Successful completion of the CDR as described above with all comments dispositioned and no forward work required.</p>
<p><b>November 2008</b></p>	<p><b>Milestone 9: Station Cargo Integration Review (SCIR) Dry Run</b></p> <p><b>Description:</b> Preparation of LEO testbed</p>

	<p>equivalent of NASA Station Cargo Integration Review (SCIR) per requirements of SSP 57057 Rev. A "ISS Payload Integration Template." This will not involve review by the NASA SCIR.</p> <p><b>Success Criteria:</b> Completion of the SCIR Dry Run as described above with all review comments dispositioned and no forward work required.</p>
<p><b>December 2008</b></p>	<p><b>Milestone 10: Phase III Safety Review Dry Run</b></p> <p><b>Description:</b> Preparation for presentation of LEO testbed equivalent of Phase III Safety Plans to NASA SRP per requirements of SSP 30599 Rev B "Safety Review Process" and SSP 50146 "NASA/RSA Bilateral S&amp;MA Process Requirements for International Space Station." This will not involve review by the NASA SRP.</p> <p><b>Success Criteria:</b> Completion of the Phase III Safety Review Dry Run as described above with all comments dispositioned and no forward work required.</p>
<p><b>March 2009</b></p>	<p><b>Milestone 11: Test Readiness Review (TRR)</b></p> <p><b>Description:</b> In preparation for standard vehicle testing at RSC Energia KIS facility in Korolev, Moscow region, CSI shall conduct a Test Readiness Review (TRR) in accordance with the TRR definition in NASA NPR 7123.1A and requirements of SSP 50101 "NASA/RSA Phase 2-3 Bilateral Integration and Verification Plan" and/or other applicable documents and processes.</p> <p><b>Success Criteria:</b> Completion of the TRR as described above with all comments dispositioned and no forward work required.</p>

<p><b>June 2009</b></p>	<p><b>Milestone 12: Certification of Flight Readiness (CoFR) Launch Package Assessment (LPA)/CoFR Stage Operations Readiness Review (SORR) Dry Run</b></p> <p><b>Description:</b> Preparation of CSI LEO testbed equivalent of NASA CoFR/LPA and CoFR/SORR per requirements of SSP 50108, "Certificate of Flight Readiness Document," Appendix G. This will not involve review by the NASA LPA or SORR.</p> <p><b>Success Criteria:</b> Successful completion of the CoFR/LPA and CoFR/SORR Dry Run as described above with all comments dispositioned and no forward work required.</p>
<p><b>September 2009</b></p>	<p><b>Milestone 13: launch to LEO Testbed</b></p> <p><b>Description:</b> Demonstration mission launch and orbital demonstration.</p> <p><b>Success Criteria:</b> Docking to LEO testbed and return of orbital vehicle with no flight vehicle or ground systems anomalies and all test objectives defined in the test plan have been accomplished.</p>

APPENDIX 2: TECHNICAL OVERVIEW

Section A2.1: CSI Baseline System

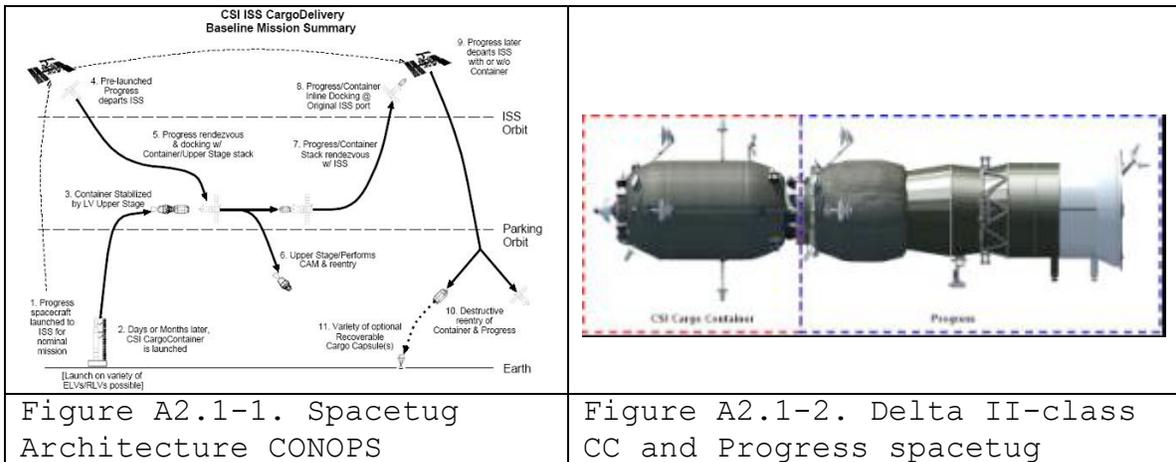
CSI has developed the intermodal *LEO Express<sup>SM</sup>* Space Cargo Service to provide delivery and return services for space stations. The first generation system uses a modification of the Russian Progress vehicle and systems, and can deliver (and remove) from a few hundred kilograms (kg) to more than 18,000 kg of passive dry cargo to a station at 400 km using existing launch vehicles. The system can be operational after a demonstration mission in September 2009.

In the first generation system, a Progress spacecraft (already located at the station) is employed as a reusable spacetug to dock with a Cargo Container (CC) placed by a launch vehicle into a parking orbit away from the station. The Progress then ferries the Cargo Container to a docking port, typically the same one that the Progress departed from.

At 230 kg/cubic-meter gross cargo density, the CSI system can deliver 3463 kg gross dry cargo "through the hatch" at ISS when using a Soyuz/Fregat (the commercial equivalent of the vehicle used to launch ISS Progress spacecraft). Delivered cargo mass is a function of the launch vehicle selected.

The baseline Cargo Container is a derivative of the Progress cargo compartment, Shuttle-Mir Docking Module, and ISS *Pirs* Docking Compartment-1.

The spacetug Concept of Operations (CONOPS) is shown in Figure A2.1-1. The Progress and an example Delta II Cargo Container is shown in Figure A2.1-2.



The Cargo Container can be launched on current U.S. launch vehicles, such as ULA's Atlas V, Delta II and Delta IV. Future vehicles such as SpaceX Falcon 9, Rocketplane Kistler K-1, and AirLaunch QuickReach could be used once available. Foreign launchers are an option, depending on customer requirements.

Other spacecraft could be used in the space tug role, such as RSC-Energia's Parom and U.S. vehicles such as Lockheed's Orion CEV, SpaceX's Dragon, and t/Space's CXV.

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