MEMORANDUM OF AGREEMENT
AMONG THE
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND THE
STATE HISTORIC PRESERVATION OFFICERS OF
ALABAMA, CALIFORNIA, FLORIDA AND TEXAS
FOR THE
RETIREMENT OF THE SPACE SHUTTLE ORBITERS
FROM SERVICE

WHEREAS, following the January 14, 2004 announcement by President George W. Bush, the National Aeronautics and Space Administration (NASA) was directed to retire the Space Shuttle Program (SSP) by the end of 2010 and the NASA Authorization Act of 2010 extended the SSP into FY2011; and

WHEREAS, the shuttle or Space Transportation System (STS) consists of one orbiter, two solid rocket boosters and motors (SRBs), an external tank (ET) and three space shuttle main engines (SSMEs), hereafter referred to as "the stack;" and

WHEREAS, the retirement of the stack from service, the safing process (removing toxic and hazardous materials from the orbiters and other components of the stack to ensure the safety of the viewing public), preparation for display and the subsequent transfer of any of the stack out of federal ownership constitutes an *undertaking*, subject to review under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, 16 U.S.C. § 470f, and its implementing regulations, 36 C.F.R. Part 800; and

WHEREAS, this undertaking is to be covered by this Memorandum of Agreement (MOA) and will suffice to cover all Section 106 compliance for the termination of the SSP, safing and transfer of the stack elements; and

WHEREAS, the activities from concept development and implementation for testing and processing for launch, recovery and landing of the stack took place across the country (reference *Exhibit A*), and the area of potential effect for this undertaking is not geographically defined; however, the SSP is managed from the Johnson Space Center (JSC), Houston, Texas, which is the primary designated NASA site responsible for the orbiters and mission control; and

WHEREAS, the other three primary NASA space operations centers associated with the stack are responsible for the following: (1) Dryden Flight Research Center (DFRC) in California serves as the alternate landing site; (2) Kennedy Space Center (KSC) in Florida for ground processing, launch and landing activities; and (3) Marshall Space Flight Center (MSFC) in Alabama for shuttle propulsion systems development and management; and

WHEREAS, NASA completed a historic survey in November 2007 in accordance with Section 110 of the NHPA and determined that the three operational orbiters (*Atlantis, Discovery*

and *Endeavour*) are individually *eligible* for listing on the National Register of Historic Places (NRHP), and the Texas (TX) State Historic Preservation Officer (SHPO) concurred; and

WHEREAS, the SSME, ET and SRB were not formally evaluated for their NRHP eligibility as part of the 2007 survey; however, NASA considers them as contributing elements to the historic significance of the orbiters; and

WHEREAS, NASA has consulted with the Alabama (AL), California (CA), Florida (FL) and TX SHPOs, who all agree with NASA's determination that retiring the stack from service, the demilitarization, decontamination, safing process and transfer out of federal ownership constitutes an *adverse effect* to these historic properties, and all four SHPOs have been invited to sign this MOA as signatory parties; and

WHEREAS, in accordance with 36 C.F.R. 800.6(a)(1), NASA notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination providing the specified documentation, and the ACHP chose to participate in the consultation pursuant to 36 C.F.R. 800.6(a)(1)(iii) and is a signatory party to this MOA; and

WHEREAS, due to the space shuttle's extraordinary historical importance in American space exploration, the National Park Service (NPS) participated in consultation to provide expert advice for inclusion of documentation into the Historic American Engineering Record (HAER) collection and is invited to be a concurring party to the MOA; and

WHEREAS, NASA has an existing agreement with the Smithsonian Institution (Smithsonian) (updated August 8, 2008) concerning the transfer and management of NASA's historical artifacts whereby the Smithsonian has the right of first refusal to accept such artifacts under NASA control which become available; and

WHEREAS, NASA consulted with the public by developing with the consulting parties a list of interested parties and has engaged employees, contractors and the general public through notices (reference *Exhibit B*) and publications, and has taken into account all comments received; and

WHEREAS, NASA created an e-mail address to receive comments on the proposed undertaking (jsc-sts-recordation@mail.nasa.gov) and considered all comments received prior to the signing of this MOA; and

WHEREAS, NASA developed a Fact Sheet (reference *Exhibit C*), prior to the extension of the SSP, Question & Answer Sheet (reference *Exhibit D*), and a list of terms and definitions (reference *Exhibit E*) in accordance with 36 C.F.R. 800.16 to assist External Relations and Education, Public Affairs, NASA Historic Preservation Officers and centers, as needed; and

WHEREAS, the disposition of the personal property that is severable and loaded onto the stack with every mission (e.g., astronaut suits, gloves, tools, etc.) is not covered under this MOA and is not considered historic property associated with the NHPA; and

WHEREAS, NASA shall continue to follow procedures and guidelines contained in NASA Procedural Requirement (NPR) 4310.1, *Identification and Disposition of NASA Artifacts;* NASA Policy Directive (NPD) 4300.1B, *NASA Personal Property Disposal Policy* and NPR 4300.1A, *NASA Personal Property Disposal Procedural Requirements* as well as its existing agreement with the Smithsonian for the disposition of personal property; and

WHEREAS, NASA is committed to the public display as the end-state for the three orbiters; and selected three recipient museums: National Air and Space Museum (NASM) for *Discovery*, Kennedy Space Center for *Atlantis*, and the California Science Center for *Endeavour*; however, only *Endeavour* is expected to be leaving federal ownership; and

WHEREAS, this MOA does not include other buildings, structures objects, sites and districts eligible for or listed on the NRHP associated with the SSP, and NASA is working with the appropriate SHPOs on mitigation plans for those eligible assets as separate undertakings; and

WHEREAS, NASA and the consulting parties have agreed that for the purpose of documentation and recordation, the orbiter *Discovery* shall be the "shuttle of record," with supplemental documentation of the engineering uniqueness of and modifications made during their working lives of the other two remaining orbiters (*Atlantis* and *Endeavour*), as well as the engineering modifications made to the orbiters and the contributing elements after the *Challenger* and *Columbia* accidents; and

NOW, THEREFORE, NASA, the NPS, the ACHP, and the SHPOs from TX, FL, AL and CA all agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effects of the undertakings on the historic properties.

STIPULATIONS

NASA shall ensure that the following measures are carried out:

I. PRESERVATION

A. NASA has ensured that to the extent practicable, the remaining orbiters will be preserved, for public display upon retirement at the selected museums; and

B. Any orbiter displayed will be maintained in accordance with Section 603 of the National Aeronautics and Space Administration Authorization Act of 2010 and all organizations receiving an orbiter shall follow the conditions set forth in NASA's Request for Information published in the Federal Business Opportunities (FedBizOps) on January 15, 2010 and found in *Exhibit F*; and

C. NASA shall retain the contributing elements (SSMEs, SRBs and ET) as operational assets until they are no longer required for NASA technical use at which time they will either be made available for display or dismantled for safety or International Traffic Arms Regulations (ITAR)/Export Control reasons.

II. RECORDATION

A. Purpose and organization of STS recordation:

1. The purpose of compiling documentation on the STS is to tell the story to future generations. The goal is to provide members of the public, engineers and space enthusiasts with comprehensive and appropriate documentation of how the flight hardware of the STS was conceived, developed, used and its accomplishments.

2. NASA shall organize its documentation around a written historical narrative. This written historical narrative shall include the design history and evolution of performance and safety improvements of the orbiter and contributing propulsion elements (ET, SSME and SRB). The following phases will be documented: concept development, preliminary design, design development, test and evaluation, operations (including major modifications, mission phases and ground operations) and the "end-state configuration" of the orbiter *Discovery* as well as major modifications resulting from the *Challenger* and *Columbia* accidents.

3. The historical narrative shall include the following kinds of documentation (detailed below): technical and interpretative drawings; photographs and video recordings; and oral histories. This documentation is designed to complement the three orbiters (*Discovery, Atlantis and Endeavour*).

B. Determining adequate level of documentation for the STS:

1. The determination of level of documentation is based on the recognition that the orbiters are unique elements of the American space program and are nationally significant historic properties. As such, NASA acknowledges the need to preserve and present the story of the STS through a combination of documentary media.

2. NASA acknowledges that HAER recordation of the orbiter is appropriate and has engaged the NPS to produce HAER drawings of *Discovery* to complete its package for the Library of Congress. NPS will consult with NASA to identify the best views and layout of the Level 1 drawings that NPS will produce. A potential list of drawings and documentation is in *Exhibit G*.

C. Types of documentation to support the historical narrative:

1. Technical and Interpretative Drawings: NASA will collect documentation that includes a combination of original technical drawings, schematics, flow processes, and interpretative drawings for the orbiter *Discovery* and representative examples of each of the contributing elements (ET, SSME and SRB) from its extensive collection of existing documentation (ranging from initial conceptual designs and drawings and testing up through end-state photographs, and video).

2. Photographs and Video: Visual recordation will consist of assembling representative samples of digital photographs and video footages; taking additional large-format, archival photographs negatives, as needed.

3. Oral Histories: Oral histories of key personnel that have been previously completed will be reviewed for applicability, and NASA will conduct additional oral histories specific to this undertaking. Oral histories will be integrated into the historic narrative, and will be made publicly available on the proposed NASA Stack Recordation website.

4. NASA Website: NASA shall develop a Stack Recordation website for public use as a tool to facilitate the dissemination of the stack research performed pursuant to this MOA. The website will be available for public access for documentation and recordation materials and will link to a graphic of the stack's suppliers to geographical areas associated with the SSP.

5. Bibliography: The historical narrative shall contain a bibliography of existing space shuttle books, educational materials and websites.

6. Education Outreach: NASA has developed appropriate educational materials for primary and secondary educational use. Such materials will be made available through NASA's public website and may be obtained by NASA's education program.

7. Documentation Standards: This documentation will be prepared in compliance with the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation: HABS/HAER Standards, originally published in the Federal Register, Vol. 48, No. 190, (Thursday, September 29, 1983), pp. 44730-34, Historic American Buildings Survey/Historic American Engineering Record, Cultural Resources Program, National Park Service, U.S. Department of the Interior, revised 1990, and the Historic American Engineering Record, Guidelines for Historical Reports, U.S. Department of the Interior, National Park Service, Heritage Documentation Programs: Historic American Buildings Survey/Historic American Engineering Record/Historic American Landscapes Survey.

8. Professional Qualifications: The research and written narrative shall be compiled by a person or persons meeting, at a minimum, the *Secretary of the Interior's Professional Qualifications Standards* for Historians and Architectural Historians. The photography will be carried out pursuant to this MOA by or under the direct supervision of such person or persons.

D. Distribution of documentation:

1. NASA will provide hard copies, as well as digital files, of all final HAER documentation to the Library of Congress HAER collection through the NPS, to the ACHP, the SHPOs of AL, CA, FL and TX, and to the SHPOs of those states where an orbiter is displayed. Any state repository, museum, university or library may request

digital copies of the final documentation. The information will also be made available to the interested public through posting on the NASA Stack Recordation website as it is completed. State SHPOs will be notified of availability of the information on NASA's Stack Recordation website.

2. Prior to public display, the orbiters and all associated elements are subject to *ITAR/Export Control* regulations, and documentation will have to be cleared for public release based on Department of State and Department of Commerce regulations. Recordation materials subject to ITAR/Export Control regulations will be excluded from the final documentation provided to the Library of Congress. ITAR-controlled materials may be distributed to a publicly accessible repository capable of managing classified or other secured materials (i.e., the National Archives and Records Administration).

III. OTHER MEASURES

NASA will develop and submit a nomination for a representative orbiter to the National Register of Historic Places as a National Historic Landmark in recognition of the orbiters' significance as national treasures.

IV. AMENDMENTS

Any signatory party to this MOA may request in writing to NASA that it be amended, whereupon the signatory parties shall consult in accordance with 36 C.F.R. 800.6(c)(7) to consider such an amendment. All signatory parties must signify their acceptance of the proposed changes to the MOA in writing within thirty (30) days of their receipt. This MOA shall only be amended by a written instrument executed by all the signatory parties. Where no consensus can be reached, the MOA will not be amended. The amendment will be effective on the date a copy signed by all the signatories is received by the ACHP or such later date as may be specified in this amendment.

V. DISPUTES

A. Should any signatory party to this MOA object in writing to NASA regarding any action proposed or the manner in which the terms of this MOA are implemented, NASA shall consult with the objecting party to try to resolve the objection.

B. If the objection is not resolved through the process outlined in Stipulation V.A., NASA shall forward all documentation relevant to the objection to the ACHP, including NASA's proposed resolution. The ACHP shall provide NASA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, NASA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. NASA will then proceed according to its final decision.

C. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, NASA may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, NASA shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the MOA, and provide them and the ACHP with a copy of such written response.

D. NASA's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remains unchanged.

VI. TERMINATION

A. If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation IV, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

B. Once the MOA is terminated, and prior to work continuing on the undertaking, NASA must either (a) execute an MOA pursuant to 36 C.F.R. 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. 800.7. NASA shall notify the signatories as to the course of action it will pursue.

VII. ANTI-DEFICIENCY ACT

All activities pursuant to this MOA are subject to the availability and allocation of appropriated funds for such purposes. Should NASA be unable to fulfill the terms of this MOA, NASA shall immediately notify all parties and consult to determine whether to amend or terminate the agreement pending the availability of resources.

VIII. EFFECTIVE DATE AND DURATION

A. Unless terminated pursuant to Stipulation VI, this MOA will be in effect following execution by the signatory parties until NASA, in consultation with the other signatory parties, determines that all of its stipulations have been satisfactorily fulfilled. Unless NASA and the SHPOs agree on an extension, the MOA shall automatically terminate five (5) years from the date of execution and have no further force or effect.

B. If NASA determines that the stipulations cannot be met within that period, the MOA parties will consult to reconsider its terms. Reconsideration may include continuation of the MOA as originally executed, amendment of the MOA pursuant to Stipulation IV, or termination pursuant to Stipulation VI.

C. If the MOA is terminated, it shall have no further force or effect. In such event, NASA shall notify the other signatory parties in writing and follow stipulation VI.

D. The effective date of this MOA will be the date of the last signature. This MOA will be null and void if its terms are not carried out within five (5) years from the date of execution.

Execution of this MOA among all parties and implementation of its terms and stipulations is evidence that NASA has afforded all parties a reasonable opportunity to comment on its proposed undertaking affecting these historic properties under Section 106 of the NHPA and that NASA has taken into account the effects on their historic properties.

SIGNATORY PARTIES:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

__Original Signed by_____Date_ July 29, 2011__
William H. Gerstenmaier
Associate Administrator
NASA Space Operations Mission Directorate

ALABAMA STATE HISTORIC PRESERVATION OFFICE

__Original Signed by_____Date_ August 29, 2011_
Frank White
Executive Director, Alabama Historical Commission
Alabama State Historic Preservation Officer

CALIFORNIA STATE HISTORIC PRESERVATION OFFICE

__Original Signed by_____Date_ September 1, 2011_
Milford Wayne Donaldson, FAIA
California State Historic Preservation Officer

FLORIDA STATE HISTORIC PRESERVATION OFFICE

__Original Signed by_____Date_ September 9, 2011_
JuDee L. Dawkins
Interim Florida State Historic Preservation Officer

TEXAS STATE HISTORIC PRESERVATION OFFICE

__Original Signed by_____Date_ September 21, 2011_
Mark Wolfe
Executive Director, Texas Historical Commission
Texas State Historic Preservation Officer

ADVISORY COUNCIL ON HISTORIC PRESERVATION

__Original Signed by_____Date_ September 29, 2011_
John M. Fowler
Executive Director
Advisory Council on Historic Preservation

CONCURRING PARTIES:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

_Original Signed by_____Date_July 12, 2011__
John P. Shannon
Manager
Space Shuttle Program

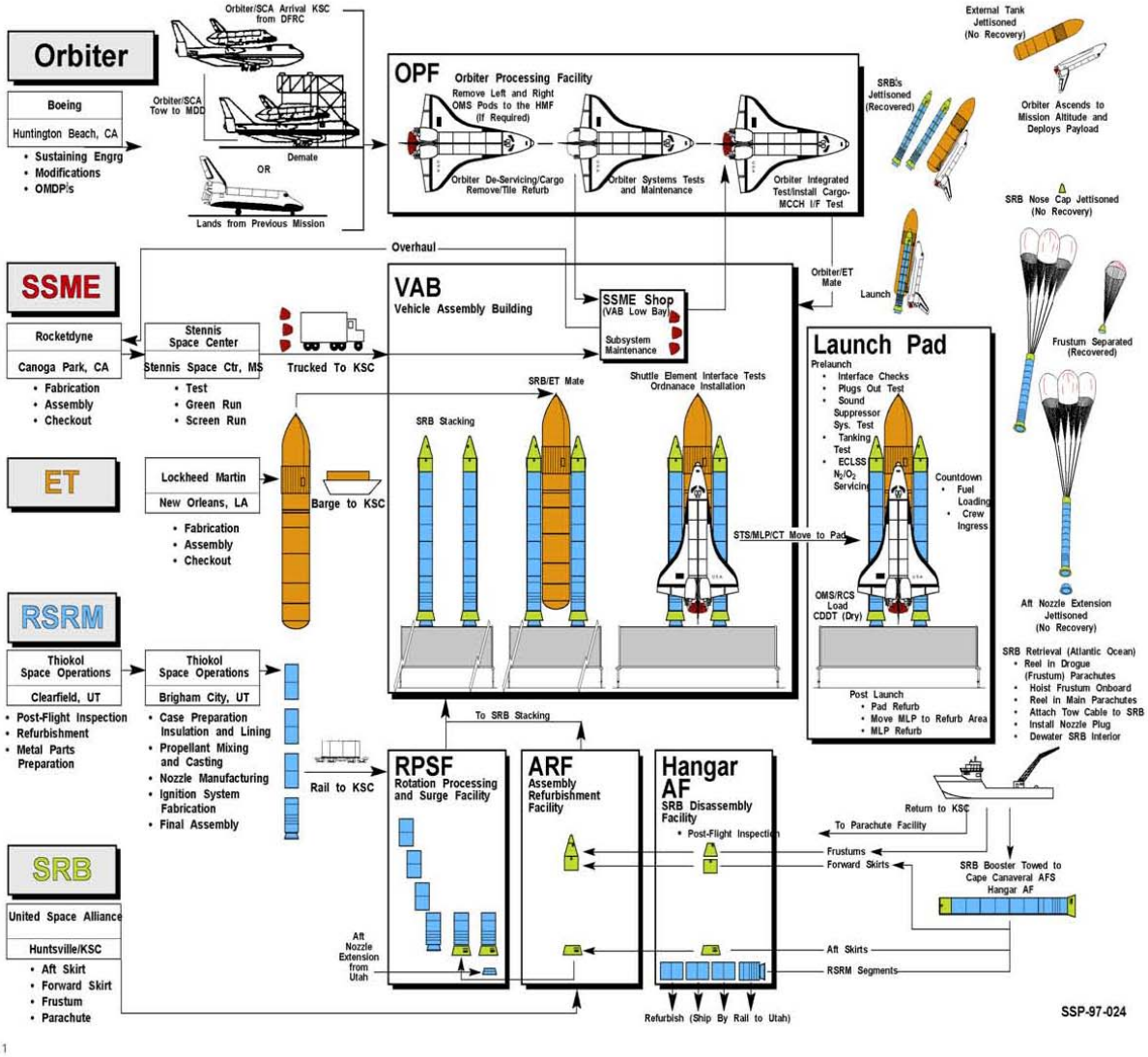
NATIONAL PARK SERVICE

__Original Signed by_____Date_August 12, 2011_
Richard O'Connor, Ph.D.
Chief
Heritage Documentation Program

EXHIBIT A – SSP PROCESSING FLOW AND LOCATIONS OF ACTIVITIES

Shuttle Processing

Landing to Launch – Space Shuttle Hardware Flow



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Flow 1

EXHIBIT B – INTERESTED PARTY LETTER and RECIPIENTS
Mailed letters in February, April and September, 2010

National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
2101 NASA Parkway
Houston, Texas 77058-3696

April 23, 2010

Reply to Attn of: AC

SUBJECT: Public Comment on "Retirement of the Space Transportation System (STS)"

You have been identified as an office/society that may be interested in NASA's undertaking, *Retirement of the STS also known as "Space Shuttle."* As you are aware, NASA has been directed to end the Space Shuttle Program (SSP) by 2010. As a result, there is a vast amount of ongoing history capture. This specific recordation effort is focused on the STS or "stack." The "stack" is defined as the orbiter, external tank (ET), Space Shuttle main engines (SSME's), and solid rocket boosters (SRB's).

As with all undertakings conducted in accordance with the National Historic Preservation Act (NHPA) implementing regulations (36 CFR Part 800, Protecting Historic Properties), **public input is sought**. It is important to note that this undertaking is focused on documenting the engineering uniqueness of the STS. NASA intends for the three orbiters to be preserved and rendered accessible through public display. However, this undertaking does not include disposition of the orbiters or mission-specific artifacts. **Anyone wishing to submit a comment or suggestion about this recordation activity may send it to jsc-sts-recordation@mail.nasa.gov**. Our goal is to make final recordation products available through state repositories, museums, universities, libraries and appropriate Web sites.

The orbiters are listed on the property records of the Johnson Space Center (JSC), Houston, Texas. They have been surveyed and determined to be individually eligible for listing on the National Register of Historic Places. As a result, the STS falls under the NHPA. The SSME's, ET, and SRB's are not considered individually eligible but have been determined to be contributing elements.

All phases of the SSP, from concept development to retirement, will be documented; however, special emphasis will be placed on design and hardware evolution and the changes that have occurred in response to the two Space Shuttle accidents. Although documentation will include all three orbiters, *Discovery* has been identified as the "shuttle of record." In addition to JSC, STS operations are directly supported by the Kennedy Space Center, Florida; Marshall Space Flight Center, Alabama; and Dryden Flight Research Center, California. The Historic Preservation Officers from these centers are working closely with their center historian, archivist, artifacts manager, photographers, property managers, and records managers to support this recordation effort.

JSC is leading this recordation effort supported by a team of representatives from the SSP and other NASA Centers. The Texas State Historic Preservation Officer (SHPO) will be the main signatory with concurrences from the Alabama, Florida, and California SHPO's along with the Advisory Council on Historic Preservation. Because this activity will include an extensive collection of photographs, oral histories, technical drawings, and

operational information, we are striving to complete this research in a timely manner prior to the end of the last Space Shuttle mission currently scheduled for September 2010. Information gathered will be used to develop a Historic American Engineering Record (HAER) in accordance with Department of Interior standards. The HAER collection is maintained by the Library of Congress in Washington, D.C. which will be available to future aerospace students, researchers, and others.

Your support of NASA's efforts to document the STS for future generations is appreciated. For more information, visit www.nasa.gov/transition.

ORIGINAL SIGNED BY

Perri E. Fox
JSC Transition Manager
Lead, STS Recordation Team

1 Enclosure:
NASA Fact Sheet

bcc:
Jill Jahn
Senior Communications Analyst
Futron Corporation
2100 Space Park Drive, Suite 100
Houston, TX 77058

EXHIBIT C – FACT SHEET
Provided to the public in April, 2010

National Aeronautics and Space Administration

NASAfacts

Space Transportation System Recordation

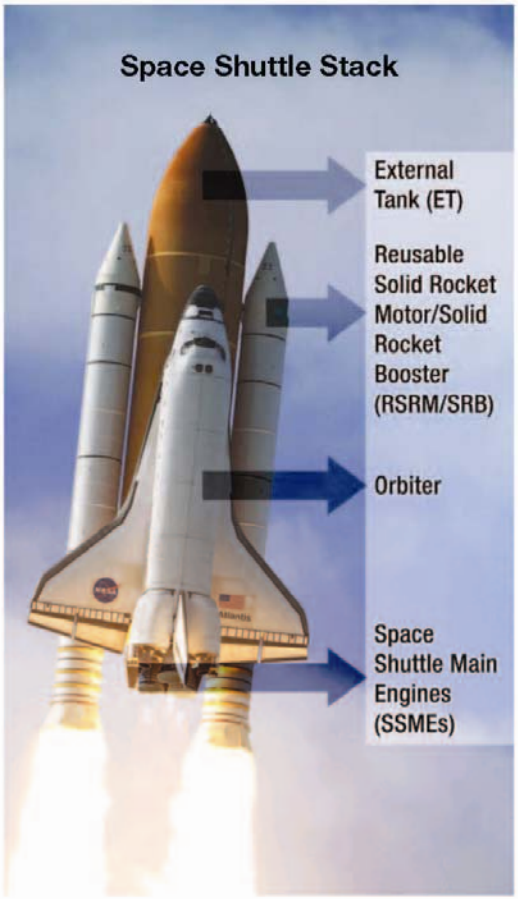
NASA's Space Shuttle Program (SSP) has served America's science and research programs for over 30 years. The shuttle, which was on the drawing board even before humans first landed on the moon in 1969, was envisioned as a way to deliver humans and cargo to and from a space station. In the three decades since it became a reality, NASA's Space Transportation System (STS), first launched in April 1981, is the only reusable spacecraft capable of delivering and returning large payloads and scientific experiments to and from space. Today, the

shuttle fleet is comprised of Discovery, Atlantis and Endeavour. Shuttle flights supported space station Mir and were essential in the construction of the International Space Station. They delivered the Hubble Space Telescope to space, kept it in working order over the course of 20 years and four repair missions, and deployed planetary spacecraft to study Jupiter, Venus and the sun. In the orbiters' onboard laboratories, hundreds of experiments have helped scientists study the effects of microgravity on materials, plants, animals and human beings, to the benefit of life on Earth.

The fleet is scheduled for retirement in 2010 after 134 missions.

National Historic Status

The space shuttle orbiters have been designated as "eligible" for listing on the National Register of Historic Places. The contributing hardware consists of the external fuel tank, space shuttle main engines and solid rocket boosters. The complete assembly of an orbiter and the contributing hardware is often referred to as a "stack".



NASA has a programmatic agreement with the Smithsonian Institution, National Air and Space Museum, to be the primary curator for the management and preservation of NASA's historical artifacts. The agency will continue working with the Smithsonian and the General Services Administration for placement of excess and obsolete SSP inventory.

Recordation Undertaking

NASA has been directed to remove the Space Transportation System from active service in 2010. This action will result in the ending of the SSP. Property of historic significance that is no longer required after the program ends must have its history recorded. Recordation is underway with the support of the SSP and various NASA centers. NASA plans to perform a Level II Historic American Engineering Record, in accordance with Department of Interior standards. The undertaking will capture the historic property through collections of photographs, drawings, archival files and by preparing a written history of the property.

NASA recordation activities will cover the historic phases for engineering of the stack from concept development to retirement including design, test and operations; the unique features of the three active orbiters; the ferry operations for the Shuttle Carrier Aircraft; major design modifications and mission operations post Challenger and Columbia.

This undertaking does not cover the disposition, or safing of the orbiters, nor other buildings, structures, sites and districts associated with the SSP and any other personal property or artifacts not hardwired onto the stack.

Recordation Team Membership

Several NASA centers and organizations are involved in the shuttle recordation activity. They include:

- Johnson Space Center
- Kennedy Space Center
- Marshall Space Flight Center
- Dryden Flight Research Center
- NASA Headquarters
- Michoud Assembly Facility
- Stennis Space Center
- White Sands Test Facility/White Sands Space Harbor
- Florida, Texas, Alabama and California State Historic Preservation Offices
- Advisory Council on Historic Preservation
- National Park Service

Johnson Space Center is leading the stack recordation effort in consultation with the Texas State Historic Preservation Officer. The final report will be maintained by the Library of Congress and will be available to future generations.

All comments or questions can be sent to: jsc-sts-recordation@mail.nasa.gov.

National Aeronautics and Space Administration

Lyndon B. Johnson Space Center
Houston, Texas 77058

www.nasa.gov

FS-2010-03-001-JSC

EXHIBIT D – Q & A SHEET
Provided to the public in June, 2010

SPACE TRANSPORTATION SYSTEM AND SHUTTLE STACK RECORDATION ACTIVITY
Frequently Asked Questions

RECORDATION & REGULATORY QUESTIONS

1. Are the orbiters listed on the National Register of Historic Places?

   No. The orbiters were recently determined "eligible" for listing on the National Register of Historic Places (NRHP) as a result of the Space Shuttle Program survey completed in 2007. The remaining elements of the shuttle stack are considered contributing resources to the orbiters per recommendations from the Advisory Council on Historic Preservation. The stack is made up of the orbiter, one external tank, three space shuttle main engines and two solid rocket boosters. Even though the elements are not formally listed on the NRHP, NASA will treat them as if they were.

2. What regulations mandate this process?

   Section 106 of the National Historic Preservation Act of 1966 and the implementing regulations to the Act, 36 C.F.R. Part 800: Protection of Historic Properties. NASA is required to comply with the Act to identify and protect historic properties. 36 C.F.R. Part 800 defines what federal agency activities are subject to Section 106, and how agencies consult with others to seek ways to reduce or avoid adverse effects to historic properties. Retiring the space shuttle orbiter is considered an adverse effect. Section 106 requires consultation with the State Historic Preservation Office(s)/Advisory Council on Historic Preservation and other interested parties. A mitigation plan and a Memorandum of Agreement will be prepared and implemented for the adverse effects.

3. What does recordation mean?

   Recordation is the process of capturing the status of historic property before any modifications and/or demolition activities can occur. This is accomplished by collecting photographs, drawings and archival files, and preparing a written history of the property to meet the Secretary of the Interior's Standards for Architectural and Engineering Documentation.

   For the space shuttle orbiters and contributing elements and design phases – from concept development to retirement – will be documented; however, special emphasis will be placed on design and hardware evolution and the changes that occurred in response to the two shuttle accidents. Discovery has been identified as the "shuttle of record," which means that it will be the one most extensively documented and researched. NASA will also document the major design modifications and mission operations following the Challenger and Columbia tragedies; and retirement (decommissioning and safing).

Recordation is performed by qualified professionals meeting the Secretary of the Interior's Professional Qualification Standards.

4. Who are you consulting with on this undertaking?

   NASA is consulting with the Advisory Council on Historic Preservation, the National Park Service, the State Historic Preservation Officers from California, Texas, Alabama and Florida and interested parties designated by each state.

5. What level of documentation are you going to be performing?

   NASA will perform a Level II Historic American Engineering Record (HAER) which has been approved by the Regulatory Agencies.

   More information on this process can be found at http://www.nps.gov/hdp/.

6. Where is the documentation going to reside?

   The HAER collection is maintained by the Library of Congress in Washington, D.C., and will be available to future aerospace students and researchers. Final recordation products will also be made available through state repositories, museums, universities, libraries and appropriate websites.

7. Is the documentation open for the public to view?

   Yes, it will be available online at the Library of Congress and other repositories.

GENERAL QUESTIONS

1. Why are we ending the Space Shuttle Program?

   In 2004, President George W. Bush announced a new exploration initiative, the Vision for Space Exploration. As part of this initiative, NASA will continue to use the space shuttle fleet to fulfill its obligation to complete assembly of the International Space Station and then retire the fleet by the end of 2011. Congress expressly endorsed the President's exploration initiative.

2. When is the Space Shuttle Program coming to an end?

   The fleet is expected to retire by in 2011, subject to a number of factors.

3. What makes up a Space Transportation System (STS) or "stack"?

   An STS is made up of one orbiter, one external tank, two solid rocket boosters and three space shuttle main engines that are assembled and flight ready.

4. What is replacing the Space Shuttle Program?

   The President's new direction for NASA is designed to spur innovation by investing in breakthrough technologies to help extend our reach beyond low Earth orbit. The plan also calls on significant investments to support the growing commercial space industry to provide access to the International Space Station and low Earth orbit.

5. What is happening to all of the property in the Space Shuttle Program?

   Property that has future use for other programs/projects is being transferred to organizations within NASA. Property that has no identified use will be offered to the Smithsonian Institution under an existing Memorandum of Understanding. Any personal property that is not of interest to the Smithsonian will be disposed of through normal policies and procedures established by NASA and with the General Services Administration (GSA). Certified museums will have a chance to request some of these artifacts through the website set up by GSA located at http://gsaxcess.gov/NASAWel.htm.

6. Are the Smithsonian, NASA visitor centers and museums involved in the process?

   Yes. NASA has an agreement with the Smithsonian Institution (dated Aug. 8, 2008) for the Smithsonian to be the primary curator for the management and preservation of NASA's historical artifacts. NASA will continue working with them and the GSA for disposition of excess and obsolete Space Shuttle Program inventory.

7. How are you going to tell the Space Shuttle Program story?

   The Space Shuttle Program has been documented extensively throughout the years. Information on the program can be found in books, films, movies, websites and visitor centers. The recordation activity will compile this existing information and further document the important details of the space shuttle orbiters and contributing elements (the external tank, solid rocket boosters and space shuttle main engines) for research by students and adults.

8. Can I get memorabilia from the Space Shuttle Program? If so, how?

   Yes. Though government property cannot be given to the public, models and other commercial memorabilia are available at visitor centers, gift shops and online stores through a variety of vendors. The General Services Administration will be handling the disposition of most of the shuttle-related personal property determined excess to current and future NASA requirements.

9. Was an environmental impact statement completed on this undertaking?

   Two agency-wide environmental documents were prepared after the retirement of the Space Shuttle Program was announced and the development of the Constellation Program began. In July 2008, the Space Shuttle Programmatic Environmental

Assessment: Transition and Program Property Disposition was completed by NASA Marshall Space Flight Center. The document can be found at www.nasa.gov/mission_pages/shuttle/main/pea.html. *The Final Constellation Environmental Impact Statement, managed by NASA Johnson Space Center, was completed in January 2008 and can be found at* www.nasa.gov/mission_pages/constellation/main/peis.html.

ORBITER AND STACK QUESTIONS

1. What makes up the stack?

   A stack is made up of an orbiter, one external tank, three space shuttle main engines and two solid rocket boosters.

2. How many orbiters are left?

   Three orbiters are left: Atlantis, Discovery and Endeavour. Enterprise, the orbiter used as a test vehicle, is currently on display at the Smithsonian.

3. Will one of the orbiters be displayed in a museum for future generations?

   Yes. The three remaining orbiters will be displayed, but the decision has not been made as to who will be receiving the orbiters with the exception of Discovery, which will be displayed at the National Air and Space Museum, Steven F. Udvar-Hazy Center. Enterprise is currently on display at the Smithsonian.

4. What museums will get *Atlantis* and *Endeavour*?

   The decision has not been made yet.

   NASA issued a Request for Information (RFI) to obtain input on the community's ability to acquire and publicly display the space shuttle orbiters after conclusion of the Space Shuttle Program from educational institutions, science museums and other appropriate organizations. The RFI also seeks ideas on how these assets can best be used in the broad national interest to inspire the American public and students in particular.

   NASA issued a follow-up 2010 RFI to convey information on a decrease in the cost of preparing and transporting an orbiter – from $42M to $28.8M – and an adjustment in the delivery schedule – advancing it by six months. Responses were due by Feb. 19, 2010, and are being evaluated.

5. Can we buy pieces of the orbiters?

   No. Government property cannot be given or sold to the public. It must be disposed of through GSA.

6. When will a decision be made as to where the remaining orbiters will reside, post-retirement?

   A selection date has not been determined.

7. Will the orbiters be disposed of safely?

   Yes. NASA will ensure that all property is inspected and processed to meet safety, environmental and museum standards.

EXHIBIT E – TERMS AND DEFINITIONS

Adverse Effect – As defined at 36 C.F.R. 800.5(a)(1) and (2), an undertaking is considered to have an *adverse effect* on a resource when it may diminish the integrity of the resource's location, design, setting, materials, workmanship, feeling or association. *Adverse effects* on historic properties may include, but are not limited to, physical destruction, damage or alteration to all or part of a resource; isolation of the resource from, or alteration of, the character of the resource's setting when that character contributes to the resource's qualification for the National Register of Historic Places (NRHP); introduction of visual, audible or atmospheric elements that are not out of character with the resource or its setting; neglect of a resource resulting in its deterioration or destruction; and the transfer, lease or sale of the resource out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

Advisory Council on Historic Preservation (ACHP) – An independent agency created by Title II of the National Historic Preservation Act (NHPA), 16 U.S.C. Section 470i. The review process established by NHPA Section 106, 16 U.S.C. Section 470f, is conducted according to regulations issued by the ACHP, 36 C.F.R. Part 800, as authorized by 16 U.S.C. Section 470s.

Consultation – The process of seeking, discussing and considering the views of other participants, and where feasible, seeking agreement regarding matters arising in the Section 106 process. The Secretary of the Interior's Standards and Guidelines for Federal Agency Preservation Programs pursuant to the NHPA provide further guidance on consultation.

Contributing Resource – A building, structure or object that adds to the historic association or historic engineering or architectural qualities for which a property is significant because either it was present during the period of significance, relates to the documented significance of the property, and possesses historic integrity or is capable of yielding important information about the period, or it independently meets the NRHP criteria.

Effect – Alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register.

Eligible – Properties that meet the NRHP criteria as determined by regulations of the Secretary of Interior.

Historic American Engineering Record (HAER) – The Heritage Documentation Program administers HAER, as well as companion programs, the Historic American Building Survey (HABS), the Historic American Landscapes Survey (HALS), and the Cultural Resources Geographic Information Systems (CRGIS). Documents produced through these programs constitute the Nation's largest archive of historic architectural, engineering and landscape documentation. These documents are produced in compliance with the *Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation: HABS/HAER Standards*, originally published in the Federal Register, Vol. 48, No. 190, (Thursday, September 29, 1983), pp. 44730-34, Historic American Buildings Survey/Historic American Engineering Record Cultural Resources Program, National Park Service, U.S.

Department of the Interior, revised 1990. Additional guidance is also included in *Historic American Engineering Record, Guidelines for Historical Reports,* U.S. Department of the Interior, National Park Service, Heritage Documentation Programs: Historic American Buildings Survey/Historic American Engineering Record/Historic American Landscapes Survey, April 2008.

Historic Property – Any prehistoric or historic district, site, building, structure or object listed or determined eligible for inclusion on the NRHP maintained by the Secretary of the Interior. It includes artifacts, records and remains that are related to and located within such properties. Also includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meets the NRHP criteria.

International Traffic in Arms Regulations – The ITAR regulations implement Section 38 of the Arms Export Control Act (22 USC 2778) which authorizes the President to control the export of defense articles and defense services. All technology pertaining to space development is included in the regulations, as described in Title 22, Chapter I, Subchapter M of the Code of Federal Regulations. The Department of State interprets and enforces ITAR.

Mitigation – A remedy or offset to an *adverse effect* or a change in an historic property's qualifying characteristics that diminish its integrity. Treatment is the act of mitigating those effects, or how one goes about implementing the mitigation measure(s) agreed upon in consultation. Thus, a mitigation plan for the undertaking may contain several treatment plans, one for each property being adversely affected. Mitigation can include compilation of documentation such as as-built drawings and site plans, photographic documentation (HABS/HAER), development of websites, models, public interpretation, reports/pamphlets, written history narrative, data recovery, salvage of artifacts and/or oral interviews.

National Historic Preservation Act (NHPA) – The National Historic Preservation Act of 1966, as amended (Public Law 89-665; 16 U.S.C. 470 et seq.), is the legislation that created the NRHP, the ACHP (giving it authority to issue regulations implementing Section 106) and the posts of State and Tribal Historic Preservation Officers with the intent to preserve historical properties.

National Register of Historic Places (NRHP) – The list of districts, sites, buildings, structures and objects significant in American history, architecture, archaeology, engineering or culture. The NRHP is maintained by the Secretary of the Interior under authority of Section 101(a)(1)(A) of the NHPA, as amended.

NRHP Criteria – The criteria established by the Secretary of the Interior for evaluating the eligibility of properties for inclusion on the NRHP (36 C.F.R. Part 60).

Memorandum of Agreement (MOA) – An MOA is a type of agreement document that records the terms and conditions agreed upon to resolve the *adverse effects* of an undertaking upon historic properties in accordance with 36 C.F.R. 800.6(c) of the ACHP's regulations implementing Section 106.

Safing – The process of removing toxic and hazardous materials from the orbiters and other components of the stack to ensure safe long term storage

Secretary – The Secretary of the Interior acting through the Director of the National Park Service, except where otherwise specified.

Secretary's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716-44742) – Technical information regarding archaeological and historic preservation activities and methods. The Standards and Guidelines are prepared under the authority of Section 101(f), (g) and (h), and Section 110 of the NHPA of 1966, as amended.

Section 106 – Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and afford the ACHP a reasonable opportunity to comment on such undertakings. The Section 106 process seeks to accommodate historic preservation concerns with the needs of federal undertakings through consultation among the agency official and other parties with an interest in the effects of the undertaking on historic properties, commencing at the early stages of project planning. The goal of consultation is to identify historic properties potentially affected by the undertaking, assess its effects and seek ways to avoid, minimize or mitigate any *adverse effects* on historic properties.

State Historic Preservation Officer (SHPO) – The official appointed or designated pursuant to Section 101(b)(1) of the NHPA to administer the historic preservation program or a representative designated to act for the SHPO.

Undertaking – A project, activity or program, funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with federal financial assistance; and those requiring a federal permit, license or approval. NASA's operations and oversight of contractor operations are federal activities that have the potential to affect historic properties.

Exhibit F – NASA's Request for Information

Published in the Federal Business Opportunities (FedBizOps) on January 15, 2010

NASA Follow-up Request for Information on Space Shuttle Orbiter Placement

Introduction:

This is a Request for Information (RFI) only and does not constitute a commitment, implied or otherwise, that the National Aeronautics and Space Administration (NASA) will take procurement action in this matter. Further, neither NASA nor the Government will be responsible for any cost incurred in furnishing this information.

This RFI is a follow-up to RFI Reference # NNH09OI001L; Space Shuttle Orbiter and Space Shuttle Main Engine Placement, dated December 17, 2008.

NASA recognizes the interest by educational institutions, science museums, and other appropriate organizations in the acquisition of NASA Shuttle-related property following the last flight of the Space Shuttle. While NASA's priority is flying the remaining Shuttle missions safely, because of the quantity, complexity, and dispersion of the Space Shuttle Program (SSP) assets, successful Space Shuttle transition and retirement requires careful planning prior to program completion, currently scheduled for September 2010.

This RFI is being used to gather additional research for NASA to make decisions regarding placement of Space Shuttle Orbiters and public display after conclusion of the SSP. In light of proposed cost and schedule changes associated with the acquisition and display of the Orbiters, NASA is seeking updated information from educational institutions, science museums, and other appropriate organizations about the community's ability to acquire and display a Space Shuttle Orbiter after the vehicles are retired from flight status.

Changes to Orbiter Transfer Cost and Schedule addressed in this RFI:

1. A recipient will be required to take delivery of an Orbiter between July and December 2011, six months earlier than the May 2012 date included in the December, 2008 RFI. The first Orbiter is scheduled to be delivered in July 2011, with the other Orbiter(s) to follow later.

2. A suitable climate-controlled indoor facility must be available to house the Orbiter when delivered.

3. The cost to complete display preparation for each Orbiter and ferry the Orbiter to its ultimate display location is updated to $28.8 million. This cost is to be provided to NASA. The $28.8M cost includes the cost to ferry each Orbiter to its ultimate destination. A recipient will be required to demonstrate to NASA that the recipient possesses the full display preparation and ferrying cost no later than April, 2011. NASA will no longer require that recipients fund safing of the Orbiters. The December, 2008 RFI anticipated that the recipient of the Orbiter would be responsible for funding safing costs.

4. NASA may also have the opportunity to place an unflown Orbiter for display in addition to the two retired Orbiters discussed in the Original RFI.

5. This RFI does not address Space Shuttle Main Engines (SSMEs). NASA does not plan to include three installed SSMEs with each Orbiter.

NASA is interested in identifying whether potential recipient organizations are capable of bearing the full cost of Space Shuttle Orbiter final display preparation and transportation/ferry flight. NASA will bear the cost of Orbiter safing which includes decontamination of hypergolic fuel systems and removal of other safety and environmental hazards from the vehicles. Organizations interested in receiving a Space Shuttle Orbiter for public display must be prepared to raise all funding for Space Shuttle Orbiter final display preparation, and transportation/ferry services. Organizations that ultimately receive an Orbiter will be responsible for all display preparation and transportation/ferry flight costs.

NASA will use the results of this RFI to determine interest that may lead to selection of specific organizations to receive a Space Shuttle Orbiter. The Orbiters may be directly transferred or donated to eligible recipient organizations, if any.

Background:

NASA will cease SSP operations at all locations following completion of the last flight, currently scheduled to occur in September, 2010. The Government may elect to change the scheduled date for last flight: that would change the scheduled date an Orbiter is available for transfer to a recipient. SSP retirement necessitates the disposition of all SSP assets and items no longer required by NASA, including the Space Shuttle Orbiters.

The NASA Authorization Act of 2008 (P.L. 110-422) directs NASA to "submit to Congress a plan describing the process for the disposition of the remaining Orbiters and other Space Shuttle program-related hardware after the retirement of the Space Shuttle fleet." NASA advised the Congress and has had subsequent discussions with the Smithsonian Institution, National Air and Space Museum regarding accession of a flown Space Shuttle Orbiter to the national collection. The National Air and Space Museum houses the national collection of aerospace artifacts. NASA also advised the Congress that the Agency would issue an RFI to gauge the level and scope of interest of U.S. organizations in acquiring the two (2) other Orbiters and other major flight hardware (such as the SSMEs) for public display once NASA's programmatic requirements for the assets have been satisfied.

SSP Hardware Addressed in this RFI:

Space Shuttle Orbiters

NASA's Space Shuttle Orbiters (Figure 1) are the first reusable spacecraft capable of routinely launching into orbit like rockets and then returning to Earth as gliders. These unique crew and heavy cargo-carrying vehicles are the main element of the National Space Transportation System that has been the mainstay of the U.S. human spaceflight program for more than a quarter-century. The Space Shuttle Orbiters have and continue to perform a wide variety of scientific research and space operations missions, including the final assembly of the International Space Station.

Due to the significance of the Space Shuttle Orbiters and the role they have played in the Nation's space program, special attention will be paid to ensuring they will retire to appropriate places. NASA is keenly aware of the essential value of these key assets to the space program's rich history; the Agency is therefore committed to making placement decisions that are determined to be in the best interest of the American taxpayer.

Under NASA's current plan, the Orbiter Discovery is to transfer to the National Air and Space Museum. Endeavour or Atlantis will be available for placement no earlier than July, 2011. The other Orbiter will be available before the end of December, 2011, and NASA intends that ferry flights will be completed no later than December, 2011.

NASA estimates the total cost to be incurred by a recipient organization for Orbiter display preparation, and delivery by ferry flight to a U.S. destination airport at approximately $28.8 million. This includes the cost to air ferry the Orbiter by Shuttle Carrier Aircraft from the Kennedy Space Center to a U. S. destination airport. This estimate is based on updated estimates by NASA about the minimum tasks which must be performed for public display of each Space Shuttle Orbiter. It does not take into account special measures that may be required in specific situations such as transporting the Orbiter long distances over public roadways which may require removal of light posts and traffic signals or transport by barge over water. Additional preparation tasks such as fabrication of engine bay covers or mock nozzles, open payload bay door display configuration, and lighting on the vehicle would also increase costs to recipients. The Orbiters will not be disassembled for transportation or storage.

Special Considerations:

It should be noted that the organizations that ultimately receive a Space Shuttle Orbiter must abide by the International Traffic in Arms Regulations (ITAR) restrictions placed on the items. The Orbiters fall under the purview of the U.S. Munitions List (USML), as defined in the ITAR (22 CFR120-130) and are export controlled. The Space Shuttle Orbiters shall not be transferred to foreign persons (ITAR 120.16), in the U.S. or abroad, or exported out of the U.S., without notification to NASA and the specific approval/export license from the Department of State Directorate for Defense Trade Controls (http://www.pmddtc.state.gov/). Violations of these regulations are punishable by fine, imprisonment, or both.

Air ferry of Orbiters by Shuttle Carrier Aircraft would require U. S. destination airports to have 8,000 to 10,000 feet runways depending on the altitude and atmospheric temperature of the landing site, and the final weight of the Orbiters being delivered.

The Space Shuttle Orbiters may not be displayed or stored outdoors. Responders should be aware that the Orbiters will require suitable climate-controlled indoor display or storage space.

Respondents should take into consideration that the Orbiters may contain hazardous materials and require proper handling. Although NASA will take necessary precautions to decontaminate the hardware and remove or render safe known safety and environmental hazards, it may not be possible to completely remove all residual hazards from the hardware. NASA will clearly identify any unusual hazards that are not removed, prior to transferring the Orbiters to final recipient organizations.

There is a limited quantity of support items and tools that may be necessary to transport, assemble, and display the Space Shuttle Orbiters. Loan of support items and tools would be negotiated and coordinated with the recipient organizations, contingent on NASA program requirements.

Responding to this RFI:

Organizations responding to this RFI must be: 1) a U.S. museum, institution, or organization dedicated to education or educational outreach, including NASA Visitor Centers; 2) a U.S. Federal agency, State, Commonwealth, or U.S. possession or any municipal corporation or political subdivision thereof; or 3) the District of Columbia.

Note: At a minimum, if you previously responded to NASA's 2008 RFI Reference # NNH09OI001L, Space Shuttle Orbiter and Space Shuttle Main Engine Placement, please acknowledge your intent and ability to satisfy items 1-4 addressed in the section entitled "Changes to Orbiter Transfer Cost and Schedule addressed in this RFI". If you wish to provide updated or new information in response to this RFI, NASA requests that you provide only the updated or new information with appropriate references, if necessary, to your response to the December, 2008 RFI.

RFI responses must include:

- Name of the primary point of contact for the response
- Academic faculty or business title
- Institution or organization affiliation
- Email address
- Phone
- Identification of other key individuals who collaborated on the RFI response
- A brief summary (300 word limit) description of previous relevant experience in displaying assets of National significance.

RFI Questions:

NASA is requesting responses to the following questions:

1. Would your organization be interested in acquiring an Orbiter? For what purpose and at what location?

2. Please explain your organization's approach to raising funding necessary for Orbiter final display preparation, and ferry/transportation services.

    a. What are your proposed source(s) of funding?
    b. What is your ability to raise sufficient funds in time to meet the April 4, 2011 target for funds to be transferred to support display preparation of an Orbiter?

3. The Space Shuttle Orbiters may not be displayed or stored outdoors, and will require suitable climate-controlled indoor display space. Please provide your organization's capabilities to appropriately house, protect, display, and curate a Space Shuttle Orbiter.

4. Given the updated schedule, financial and curatorial requirements stated in this RFI, what is the earliest date your organization could accept the transfer of an Orbiter?

5. What is the benefit to the Nation of displaying a Space Shuttle Orbiter at your facility? In your response, please identify:

    a. How you would use these assets to inspire the American public and students in particular;
    b. Other specific educational or education outreach opportunities; and
    c. How you would you assess, evaluate, and measure these objectives.

6. Provide the techniques and interpretive strategies that you would use to enhance the display of these artifacts and increase the public's ability to understand the Nation's space exploration agenda.

7. What additional assets, tools, or expertise would your organization request from NASA in order to display these assets to the American public?

Topics which organizations should also include the following in an Appendix in as much detail as reasonably possible:

- Mission Statement
- Organizational Chart
- Nature of Governing Authority
- Accreditation or other relevant credential
- Collection Ownership and Management Policy
- Attendance Figures for each of the past 5 years
- Population of geographic area in which organization is located
- Local infrastructure for transporting a Space Shuttle Orbiter, once offloaded from the Shuttle Carrier Aircraft, to the final display location
- Budget and Resources profile including endowments over the past 5 years
- Number of Web Page Hits for each of the past 5 years

Please note that RFI responses including the Appendix must not exceed 25 pages in length. Use single-spaced, 12-point, Times New Roman font.

The following file naming convention should be used: SSP_RFI_firstinitial_lastname2010.doc

For example: Angela Rodriguez would name her file SSP_RFI_A_Rodriguez2010.doc

Authorized file formats include: Adobe Acrobat versions 6 - 8 (.pdf) Microsoft Word (.doc) and Microsoft Excel (.xls)

Although all comments received will be carefully reviewed and considered for inclusion in any possible later action, the initiators of this request make no commitment to include any particular recommendations. Respondents will not be notified of the results of the review.

No solicitation exists; therefore, do not request a copy of the solicitation.

Response Submission Deadline:

Responses to this RFI must be submitted no later than 11:59 PM Eastern Standard Time, on February 19, 2010. RFI submissions will be accepted as email attachments only. All responses must be sent to HQ-SSP_RFI@mail.nasa.gov, with "SSP RFI Response" in the subject line.

An email confirmation of receipt from NASA will be sent within a one-week period to the designated point of contact.

Point of Contact for Inquiries and Submissions:

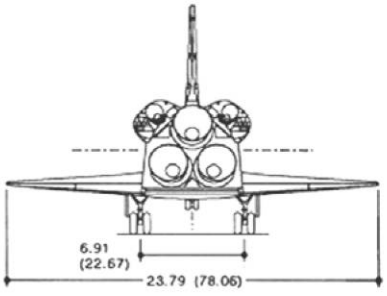
Inquiries/questions regarding this proposal may be directed to NASA Headquarters, Office of Infrastructure, Mail Stop 4G74, 300 E Street SW, Washington D.C., 20546, fax 202-358- 2826, telephone 202-358-0746 (Bob Sherouse), or electronic mail at HQ-SSP_RFI@mail.nasa.gov with "SSP RFI Inquiry" in the subject line. Inquiries/questions must be received by 1 February. NASA responses to inquiries/questions received by this deadline will be available by 9 February and publicly posted at **www.nasa.gov/transition/**.

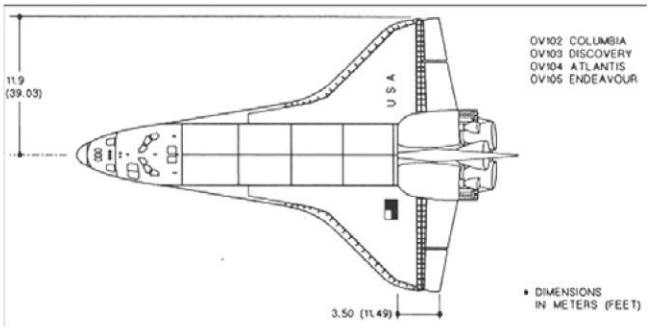
DISCLAIMER

NASA will not publicly disclose proprietary information obtained as a result of this RFI. To the full extent that it is protected by law and regulations, information identified by a respondent as Proprietary or Confidential will be kept confidential. This RFI may also be found electronically at **www.nasa.gov/transition/**.

Approximate Dimensions and Weight	
Wing span	78 ft.
Length	122 ft.
Height	56 ft.
Wingtip	12 ft.
Dry Weight	151,000 ft.

Minimum Ground Clearances	
Body Flap	12 ft.
Main Gear Door	3 ft.
Nose Gear Door	3 ft.
Wingtip	12 ft.





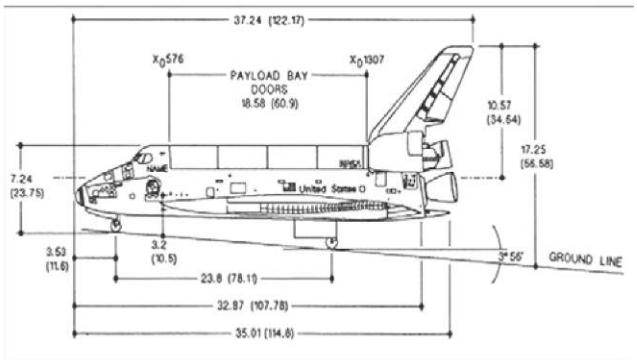


FIGURE 1 – Space Shuttle Orbiter

Exhibit G – Preliminary Suggested List of Drawings and Documentation

I. Space Shuttle Vehicle

A. Overall drawings with dimensions from various viewpoints
* includes orbiter's Range Safety system and a typical mission profile

B. Main propulsion system, including overview, drawings of orbiter aft compartment and flow schematic

II. Orbiter

A. Overall drawings with dimensions, from various viewpoints

B. Exploded view of orbiter components

C. Drawings of major systems, as follows:

1. Avionics (GNC, DPS, Communications)
2. Auxiliary Power System
3. Hydraulics
4. Electrical Power System
5. Environmental Control and Life Support System
6. Landing/Deceleration System, including both the main and nose landing gear and the drag chute
7. Orbital Maneuvering System
8. Reaction Control System, including both the forward reaction controls system and the aft reaction control system
9. Thermal Protection System, including drawings that illustrate the differences between all five operational orbiters
10. Thermal Control System, including both active and passive systems
11. Crew Compartment
    a. Flight Deck, general views and consoles
    b. Mid Deck, general views
    c. Airlock

III. SSME

A. Overall drawing showing dimensions

B. Drawing showing elevations, with key components marked, labeled and text

C. Exploded view showing key components

IV. SRB

A. Drawing showing overall dimensions of the SRB, as well as statistics, thermal protection system and operational profile

B. Exploded view of the SRB, with key components marked

C. Drawings of the different SRB segments
Solid Rocket Motor
Nose Cap with and without frustrum Forward Skirt
Forward Rocket Motor Segment
Center Segment Aft Booster Assembly with and without aft skirt
Aft Skirt
TVC Schematics

V. ET

A. Drawings showing overall dimensions of ET, as well as statistics, thermal protection system and propulsion system configuration

B. LOX tank component drawing, including structure, profile, nose cap

C. Intertank component drawing, including structure and ring frames

D. LH2 tank component drawing, including structure and profile