

106 SUCCESS STORY

Space Shuttles: NASA Contributions to Space Flight and Exploration

Nationwide



“*Atlantis* now takes on a mission of inspiration for future exploration. The good side of this is that *Atlantis*, *Discovery*, and *Endeavour* will be able to tell the space shuttle story to millions for years to come.”

— ROBERT D. CABANA
Director, Kennedy Space Center

THE STORY

The Space Transportation System (STS), better known as the Space Shuttles, was established in the late 1960s to create reusable space vehicles that would enter space, return to Earth, and prepare for another flight. A total of five shuttle orbiters were built for spaceflight and soon became icons of the U.S. space program. The first two, *Columbia* and *Challenger*, met tragic ends, but the remaining three—*Discovery*, *Atlantis*, and *Endeavour*—continued their epic service until retirement in 2011. Despite being less than 50 years old, the National Aeronautics and Space Administration (NASA) determined they were eligible for the National Register of Historic Places for their outstanding contribution to space flight and exploration and significant engineering. Each orbiter’s three main engines, external tank, and solid rocket boosters are contributing historic elements.

Supplying the world’s first reusable “space truck,” the program’s accomplishments are widely known. A shuttle carried the Hubble Space Telescope into space, and astronauts spacewalking from orbiters completed repair and upgrade missions to keep the Hubble on the cutting edge of science. They also carried materials to construct the International Space Station, and launched numerous scientific, commercial, and military satellites.

THE PROJECT

In 2004, NASA was directed to retire the Space Shuttles in order to make way for the new Space Launch System, a series of more conventional rockets. The orbiters were slated to go to museums, but numerous questions regarding transfer, interpretation, and extent of documenting their important engineering heritage remained.

THE 106 PROCESS

NASA, the federal agency carrying out this project, was responsible for conducting the Section 106 process under the National Historic Preservation Act. Section 106 requires that federal agencies identify historic properties and assess the effects of the projects they carry out, fund, or permit on those properties. Federal agencies also are required to consult with parties that have an interest in the fate of the property when

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Photos: Above, STS-135 *Atlantis* prelaunch, July 7, 2011 (photo courtesy NASA/Bill Ingalls); Right, launchpads at Kennedy Space Center, Florida (photo courtesy NASA)



Photos: Left, *Discovery's* ride into history atop a special NASA 747 above the Virginia countryside on its way to the Smithsonian Udvar-Hazy Center; Right, shuttle liftoff (photos courtesy NASA)



adverse effects are likely to ensue. To meet its Section 106 responsibilities, NASA determined the shuttles were historically significant, and that retiring the shuttles from service, preparing them for museum display, and transferring them out of federal ownership constituted an adverse effect to these historic properties. In 2009, it initiated consultation with the Advisory Council on Historic Preservation (ACHP) and the four State Historic Preservation Officers (SHPOs) representing states where NASA's major shuttle-related centers are located. NASA's Johnson Space Center in Houston, Texas, controlled the launch and missions and technically "owned" the shuttles; California's Dryden Flight Research Center served as an alternate landing site; Florida's Kennedy Space Center was responsible for initial launch and post-landing ground processing; and Alabama's Marshall Space Flight Center was responsible for shuttle propulsion systems development and management. NASA also invited the National Park Service (NPS) to participate in consultation. To engage the public, NASA requested comments from former NASA employees and space enthusiast groups and local historical societies near its Centers. In 2011, NASA, the ACHP, NPS, and the four SHPOs executed a Memorandum of Agreement (MOA) setting out the steps to preserve and document the orbiters.

To mitigate the adverse effects, the consulting parties determined that *Discovery*—which had flown the most missions—would receive a higher level of documentation in the Historic American Engineering Record, along with information on the unique engineering of *Atlantis* and *Endeavour*, and modifications made to the shuttles over time. Pursuant to the MOA, NASA developed educational materials and is compiling an extensive bibliography and oral histories from employees and alumni, which will be available on NASA's Web site.

THE SUCCESS

NASA is proud of its development and operation of the orbiters and is eager to tell their story, building an important legacy. Through the Section 106 process, NASA, the ACHP, and the four SHPOs worked to ensure the exciting story of this program and the contributions made to space travel would be preserved and told in various formats reaching broad audiences—school children, the public, scientists, and space professionals. All major design phases from concept development through use to retirement are being documented. In addition, support equipment and facilities are being recorded, providing permanent textual and visual documentation of the entire STS. The remaining three Shuttles are now preserved, interpreted, and on display at the Smithsonian Institution's National Air and Space Museum Udvar-Hazy Center, Virginia (*Discovery*); the California Science Center, Los Angeles (*Endeavour*); and Kennedy Space Center, Florida (*Atlantis*).

ADVISORY COUNCIL ON HISTORIC PRESERVATION

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Consulting Parties:

NASA
ACHP
Alabama State Historic Preservation Officer
California State Historic Preservation Officer
Florida State Historic Preservation Officer
Texas State Historic Preservation Officer
National Park Service

For more about Section 106 and the ACHP go to www.achp.gov



Preserving America's Heritage