

CONFERENCE REPORT (HOUSE REPORT 108-792)
TO ACCOMPANY H.R. 4818
FY 2005 CONSOLIDATED APPROPRIATIONS BILL
Division I—Department of Veterans Affairs, Housing and Urban Development,
and Independent Agencies

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

The joint explanatory statement of the managers herein reflects the agreement of the conferees on NASA programs and activities. The operative funding levels for programs and activities are those funding levels specified in this joint explanatory statement of the managers. Where no funding level is specified, NASA is directed to make a final determination of funding level for fiscal year 2005 and is required to notify the Congress under the established operating plan procedures of the Committees on Appropriations of the House and Senate. The conferees direct NASA not to charge any administrative expenses to congressionally directed spending on specific projects. These costs should be absorbed within the funding provided.

The conferees note that the House had requested a report from NASA documenting the reconciliation and correction of discrepancies between NASA's fund balance and the U.S. Treasury's reported balances as of September 30, 2003. NASA has not yet satisfied the reporting requirement specified in the House report, even though the report was due on September 30, 2004, over 45 days ago. NASA is directed to expeditiously complete the requested report and formally submit it to the Committees on Appropriations of the House and Senate. Included in the report should be an explanation of any outstanding discrepancies and potential remedies.

As part of the proposed exploration vision, NASA will begin to phase-out existing programs in order to accommodate the vision. These plans must be clearly identified in order for NASA to smoothly transition older programs to make way for missions associated with the vision. As part of this process, the conferees direct NASA to include in all future budget justifications the phase-out schedules and any out-year termination dates of its programs.

The conferees direct the National Academy's Space Studies Board to conduct a thorough review of the science that NASA is proposing to undertake under the space exploration initiative and to develop a strategy by which all of NASA's science disciplines, including Earth science, space science, and life and microgravity science, as well as the science conducted aboard the International Space Station, can make adequate progress towards their established goals, as well as providing balanced scientific research in addition to support of the new initiative. This study should be completed no later than March 15th, 2005.

The conferees have included substantial funding for the space exploration initiative, but to date there has been no substantive Congressional action endorsing the initiative. The conferees note that the initiative is a very long-term endeavor and will require tens of billions of dollars over the next two decades. As such, the initiative deserves and requires the deliberative benefit of the Congress. To this end, the conferees call upon the appropriate Committees of jurisdiction of the House and Senate for action to specifically endorse the initiative and provide authorization and guidance. NASA is directed to forward a comprehensive package of authorization legislation for consideration by the 109th Congress.

The conferees are concerned that the current implementation plans for the new vision do not properly address the requirements for the heavy lift capability that may be necessary to carry out the space exploration initiative. A complete review of such plans must be conducted prior to embarking fully upon the implementation of the initiative. In order to assess heavy lift capability needs, NASA shall report to the Committees on Appropriations of the House and Senate, no later than 180 days from the date of enactment of this Act, regarding NASA's heavy lift capability needs and plans to meet those needs immediately and in the future. NASA is encouraged to look at concepts currently being developed in the Falcon program with DARPA that could have an impact on future heavy lift program development.

The conferees are concerned about the implications of full cost accounting procedures on the operation of NASA's wind tunnels. Rates charged to U.S. airframe, engine and component manufacturers are significantly higher than facilities in Europe. The conferees are concerned that the impact of such high fees will drive U.S. companies and jobs overseas and result in the closing of NASA's wind tunnels. Therefore, the conferees direct NASA to restructure the fees charged for use of the agency's wind tunnels to make them competitive with rates charged overseas and report back to the Committees on Appropriations of the House and Senate by March 1, 2005 on their plan to restructure the fee system. Furthermore, the conferees prohibit NASA from closing any wind tunnels during fiscal year 2005.

The conferees agree with the direction in the Senate report that NASA is to include the out-year budget impacts on all operating plan proposals. The operating plan and all resubmissions also shall include a separate accounting of all program/mission reserves.

The conferees agree with the Senate direction that NASA shall provide appropriate funds for the completion of the current NAPA review of NASA's organizational, programmatic, and personnel structures, including funds to review the recently announced NASA organization transformation and the recommendation contained in the Aldridge report for NASA to consider conversion of some NASA centers to Federally Funded Research and Development Centers.

The conferees are concerned that that sole source contracting can stifle competition and discourage new investment in space-related activities and should be avoided as much as practicable. The conferees direct NASA to submit to the Committees on Appropriations of the House and Senate, each intention by NASA to enter into a sole source contract no later than 10 days before a contract is awarded; this requirement shall apply to all new contracts and contract modifications of more than \$500,000 where a new contractor is involved or a new activity is added to an existing contract.

The conferees agree that from within the funding provided, \$291,000,000 is to be used for a servicing mission to the Hubble Space Telescope. The conferees believe a successful servicing mission to Hubble should be one of NASA's highest priorities and have provided a substantial increase in funding to accomplish this goal. The conferees direct NASA to report to the Committees on Appropriations of the House and Senate on the status of their plan to service Hubble and the recommendations of the National Academy of Sciences within 90 days of enactment of this Act.

Finally, the conferees note that NASA has requested and the conferees have provided unrestrained transfer authority between the Exploration Capabilities account and the Science, Aeronautics, and Exploration account. The conferees have taken this action because NASA needs flexibility as it completes its transition to full cost accounting. While this transfer authority can be

used for purposes other than addressing full cost accounting issues, NASA is cautioned to do so with restraint.

SCIENCE, AERONAUTICS AND EXPLORATION

(INCLUDING TRANSFER OF FUNDS)

Appropriates \$7,742,550,000 for science, aeronautics and exploration, instead of \$7,621,169,000 as proposed by the House and \$7,936,500,000 as proposed by the Senate. The Senate proposal included \$200,000,000 in emergency funding.

The Federal investments in aeronautics research and development have delivered countless economic and societal benefits to the nation over the years. Challenges in dealing with the projected growth in air traffic as well as the need to reduce significantly the adverse environmental impacts of future aircraft will require that NASA remain deeply engaged in aeronautics research and development. The conferees direct NASA to develop a prioritized set of aeronautics goals through 2020, along with the annual funding requirements associated with achieving each goal. The plan should be provided to the Committees within 120 days. As part of NASA's investments in this area, the conferees direct NASA to provide \$25,000,000 for Intelligent Propulsion System Foundation

Technologies (Propulsion 21) to continue research by the existing coalition of NASA, state government, industry, and academia.

The conferees have included \$28,200,000 for the National Space Grant College and Fellowship program. This amount is an increase of \$9,100,000 to the fiscal year 2005 budget request. The amount provided will fund 40 states at \$575,000 each and 12 states at \$350,000 each as well as \$1,000,000 for administrative expenses.

The conferees have included \$12,000,000 for the Experimental Program to Stimulate Competitive Research (EPSCoR). The amount provided is \$7,400,000 above the budget request of \$4,600,000 and will fund the fourth year of current five-year research grants.

The conferees note the overall success of the Science, Engineering, Mathematics and Aerospace Academies program and direct NASA to fund the core program at no less than \$4,800,000 in fiscal year 2005.

The conferees have provided \$10,000,000 for the Lunar Reconnaissance Orbiter [LRO], a reduction of \$60,000,000 from the budget request. NASA should continue with its announcement of opportunity for scientific instruments with these funds. However, in establishing the criteria for instrument selection, not less than 25 percent of the LRO's scientific instrumentation funding should be explicitly dedicated to building instruments focused solely on answering basic science questions. The conferees are concerned that the lunar measurement investigations to be carried out by the LRO mission, intended to characterize future robotic and human lunar landing sites, will forgo the opportunity for research and focus only on applied engineering assessments. The current proposed announcement of opportunity focuses solely on the human exploration objectives of the potential mission. Since the LRO is allocated against NASA's space science budget, the conferees believe that fundamental lunar science questions should be addressed in a significant fashion through instruments on this spacecraft. The conferees encourage NASA, as part of the LRO development, to consider the research instrumentation opportunities as well as

technology qualification, navigation and communications capabilities, and resource identification technologies to maximize the opportunities of this first lunar mission.

The conferees share the concern of the Senate with regard to the proposed reductions to the Living With a Star [LWS] program and provide \$681,100,000 for the program. To meet the original goals of the LWS program, which the Congress has endorsed, the conferees are providing an additional \$35,000,000 for the LWS theme in 2005 to be allocated as follows: \$5,000,000 for the solar probe mission; \$15,000,000 to begin implementation of Geospace and \$5,000,000 for preliminary studies of solar sentinels; and \$10,000,000 for Solar Terrestrial Probes for continued development of the Magnetospheric Multiscale (MMS) mission. Furthermore, the conferees agree with the Senate direction that NASA is to develop a plan to guarantee launch of Geospace and Solar Dynamic Observatory within one year of each other with solar sentinels to follow in a reasonable time thereafter.

The conferees agree to provide \$2,000,000 for establishment of a NASA program office at the Applied Physics Laboratory [APL] for the purpose of administering all existing contracts between NASA and APL, including those under the LWS Program. The APL program office will report directly to the Associate Administrator for Science.

The conferees agree with the Senate direction that NASA is directed to undertake a detailed study of the feasibility for a New Horizons II mission, to be launched within the near-term, if the study results can justify the scientific return for such a follow-on mission, at a price considerably less than the original New Horizons mission. Such a study should have its results submitted to the Committee on Appropriations by April 15, 2005.

The conferees do not agree with the direction in the Senate report calling for the transfer of 10 FTE from the Office of the Associate Administrator for Science to the NASA field centers responsible for management of the Discovery and New Frontiers programs. NASA is directed to expeditiously address the concerns raised in the Senate report.

The conferees direct NASA to select competitively some of the scientific instruments for the Terrestrial Planet Finder mission as directed by the Senate. The conferees provide \$15,000,000 for this effort.

The conferees agree to an increase of \$15,000,000 above the President's request for fiscal year 2005 for the NASA Earth Science Applications Program. This funding increase will be used to support competitively-selected applications projects. These projects will integrate the results of NASA's earth observing systems and earth system models (using observations and predictions) into decision support tools to serve applications of national priority including, but not limited to, Homeland Security, Coastal Management, Agriculture Efficiency, Water Management and Disaster Management.

The conferees are supportive of continuation of the ECS/EMD Synergy Program, reflecting the success of NASA's EOS Data Information System [EOSDIS] and its core system [ECS]. The conferees are providing \$15,000,000 for Synergy in fiscal year 2005 with \$1,500,000 for the Battelle Pacific Northwest Laboratory's Infomart; not more than \$1,500,000 to support the transition of Synergy Infomart activities to the ESE Application Division to be administered through a Cooperative Agreement [CAN] that will focus these funds toward meeting the needs of State, local and tribal governments; and \$12,000,000 through the EOSDIS Maintenance and Development Contract to support an extension of the Synergy Data Pools to improve data

distribution to climate change models, expansion of data distribution to the user community and development of a pilot project using grid computing technology.

The conferees remain supportive of NASA's Columbia Project to upgrade its supercomputing capacity, but insists that NASA's total supercomputing capability should not reside at one location to protect the Agency from a potential single point of failure for mission critical and safety of flight analyses. Therefore, the conferees have provided \$5,000,000 from within funds projected for the Columbia project to upgrade the Goddard Space Flight Center's Center for Computational Science [NCCS] to guarantee that it serves as NASA's backup supercomputing center with tier 1 system backup and disaster recovery functions, including full transfer capability in the event of a failure of the principal supercomputer facility.

Based on the success of the X-43 program, the conferees are providing \$25,000,000 to continue design work being conducted for the X-43c as a follow-on to the X-43a program. The conferees encourage joint NASA and Air Force cooperation and collaboration in advancement of aeronautics technologies in the National interest.

The conferees agree to the following specific funding increases in addition to any increases mentioned above:

Space Science

An increase of \$250,000 for the Detroit Science Center;

An increase of \$150,000 for the Coca-Cola Space Science Center in Columbus, Georgia to support the Space Science Center;

An increase of \$2,100,000 for continued development of a lightweight carrier pallet to increase NASA's payload capacity for space shuttle servicing missions;

An increase of \$500,000 for the Sacramento Space Science Center at California State University;

An increase of \$1,000,000 for telescope construction at the Pisgah Astronomical Research Center;

An increase of \$1,000,000 for University of Idaho for RTULP Electronics for Space Applications;

An increase of \$1,000,000 for Utah State University in Logan, Utah for the Calibration Center;

An increase of \$300,000 to the University of Missouri at Rolla for the Advanced Millimeter Wave Inspection System program;

An increase of \$3,000,000 to New Mexico State University for the ultra-long balloon program to augment planned flights and technology development;

An increase of \$1,500,000 to Montana State University to purchase clean room systems and basic process equipment related to the microdevice fabrication facility;

An increase of \$1,000,000 for Texas Tech University Experimental Sciences Initiative, Lubbock, Texas to promote advanced and interdisciplinary research;

An increase of \$1,000,000 to the Southern Methodist University Multifab Facility in Dallas, Texas to develop multifabrication manufacturing technology;

An increase of \$1,000,000 to the University of Arkansas, Fayetteville, Arkansas for the Arkansas-Oklahoma Center for Space and Planetary Sciences;

An increase of \$1,500,000 to Montana State University-Bozeman for the Center for Studying Life in Extreme Environments;

An increase of \$2,500,000 to Marshall University in Bridgeport, West Virginia for the continuation of NASA related composites workforce development training at the Composites Technology Institute; and

An increase of \$1,750,000 to the University of Maryland, Baltimore County for photonics research.

Earth Science

An increase of \$500,000 to the Friends of the Museum of Natural Sciences in Raleigh, North Carolina for NASA Earth Science integration planning;

An increase of \$500,000 for continuation of emerging research that applies remote sensing technologies to forest management practices at the State University of New York, College of Environmental Sciences and Forestry;

An increase of \$1,000,000 for the Advanced Interactive Discovery Environment engineering research program at Syracuse University;

An increase of \$3,000,000 for the Regional Application Center for the Northeast;

An increase of \$15,900,000 for the Institute for Scientific Research, Inc. for development and construction of research facilities;

An increase of \$1,500,000 for on-going activities of the Goddard Institute for Systems, Software, and Technology Research, including mission design tools, Earth Science analysis, and remote sensing instrumentation development;

An increase of \$1,000,000 for the Goddard Space Flight Center's Clustering and Advanced Visual Environments Initiative;

An increase of \$1,000,000 for the University of San Francisco Center for Science and the Environment;

An increase of \$500,000 for hyper spectral remote sensing research and development at the Desert Research Institute;

An increase of \$400,000 for Space Place;

An increase of \$4,500,000 for the implementation of a remote data storage capability at the NASA IV&V Facility. Appropriated funds are for augmenting available data storage capacities;

expanding remote data storage capabilities to the Goddard Space Flight Center and a second DAAC; and communications, facility and integration services at the IV&V Facility to support data backup, recovery, and on-line access capabilities for the Goddard Space Flight Center (GSFC) ECS program;

An increase of \$3,000,000 to be transferred to the Air Force Research Laboratory to begin development of miniature synthetic radar technology;

An increase of \$1,500,000 for Integrated Sensing Systems at the Rochester Institute of Technology;

An increase of \$3,500,000 for Little River Canyon Field School;

An increase of \$390,000 for Pearl River Community College in Mississippi for remote sensing, geographic information system and GPS training;

An increase of \$1,000,000 for Idaho State University for the Temporal Landscape Change Research program;

An increase of \$3,000,000 for the University of Alaska for weather and ocean research;

An increase of \$1,000,000 to Utah State University in Logan, Utah for the Intermountain region Digital Image Archive and Processing Center;

An increase of \$750,000 for the University of Northern Iowa for the GeoTREE project;

An increase of \$1,000,000 for the University of Texas Mid-American Geospatial Information Center at the UT Center for Space Research in Austin, Texas to continue information collection through satellite imaging;

An increase of \$500,000 to the Liberty Science Center, Jersey City, New Jersey for the Hudson Harbor and Estuary Ecological Learning Center;

An increase of \$750,000 to the University of Connecticut for the Center for Land Use and Education Research;

An increase of \$750,000 to the University of Vermont, Burlington for the Center for Advanced Computing;

An increase of \$5,400,000 for the Wallops Island Flight Facility to be used for developing a standard small launch vehicle, universal FTS, doppler radar and launch modeling laboratory;

An increase of \$2,000,000 to the University of North Dakota in Grand Forks for the Northern Great Plains Space Sciences and Technology Center; and

An increase of \$2,000,000 to upgrade the High End Production Capability at the Goddard Space Flight Center to improve climate and weather research capabilities.

Biological and Physical Research

An increase of \$3,000,000 for space radiation research at the Loma Linda University Medical Center;

An increase of \$500,000 for the Northwestern University Institute for Proteomics and Nanobiotechnology;

An increase of \$400,000 for Musculoskeletal Simulator for Injuries at the Cleveland Clinic;

An increase of \$1,250,000 for the Michigan Research Institute;

An increase of \$600,000 to the MCNC-Research and Development Institute (RDI) for continued funding for a Laboratory for Distributed Chemical and Biological Sensors;

An increase of \$500,000 for gravitational space biology research at North Carolina State University;

An increase of \$3,000,000 for the National Center of Excellence in Bioinformatics in Buffalo, New York;

An increase of \$1,000,000 for the Central New York Biotechnology Research Center in Syracuse, New York;

An increase of \$900,000 for the State University of New York Downtown Medical Center in Brooklyn, New York for the Advanced Biotechnology Incubator project;

An increase of \$1,500,000 to the University of Missouri at Columbia for the National Center for Gender Physiology studies on basic biomedical knowledge for the improvement of life on earth and solution of problems in human space flight;

An increase of \$5,000,000 to the Marshall Space Flight Center for propulsion materials microgravity research;

An increase of \$2,000,000 for the Alliance for Nanohealth, Houston, Texas to purchase equipment and conduct research on Nanotechnology and medicine;

An increase of \$2,000,000 for the University of Louisville Space Flight Exploration: The Impact on Perception, Cognition, Sleep and Brain Physiology Project at the University of Louisville in Louisville, Kentucky;

An increase of \$1,000,000 to the National Technology Transfer Center at Wheeling Jesuit University to transfer and adapt the Walter Reed Army Medical Center's HealthForces program, into medically underserved rural areas;

An increase of \$1,000,000 to the State University of Buffalo Center for Bioinformatics, Erie, New York;

An increase of \$3,000,000 to the Inland Northwest Space Alliance in Montana for the FreeFlyer program; and

An increase of \$750,000 to the University of Montana in Missoula, Montana for the National Space Privatization Program.

Aeronautics

An increase of \$350,000 for Validated Probabilistic Lifting Tools;

An increase of \$500,000 for the Michigan Small Aircraft Transportation System;

An increase of \$3,000,000 for the Virginia Institute for Performing Engineering and Research;

An increase of \$700,000 to the Virtual Systems Laboratory of the National Aviation Technology Center, School of Aviation, Dowling College, New York;

An increase of \$1,700,000 for the University of Toledo Turbine Institute;

An increase of \$600,000 to the Research Triangle Institute, International for Synthetic Vision Systems/Combined Vision Systems;

An increase of \$2,100,000 for Research on Advanced Wireless Communications for Airport Applications;

An increase of \$2,700,000 to research Secure Automatic Dependent Surveillance Broadcast (ADS-B) Surveillance data link technology for enhanced aviation security and general aviation airspace access;

An increase of \$5,000,000 for Project SOCRATES;

An increase of \$1,000,000 for the National Aviation Technology Center at Dowling College, New York;

An increase of \$500,000 for the development of an Aircraft Radio Guidance System (ARGUS) utilizing a new radio frequency interferometer that will provide two or three dimensional navigation guidance for airborne, space or surface vehicles;

An increase of \$1,000,000 for the development of a Research Flight Computing System in support of the NASA Dryden Flight Research Center's Altair/Predator B UAV Technology Demonstrator Project;

An increase of \$7,500,000 for the Hydrogen Research Initiative;

An increase of \$1,000,000 to the Applied Polymer Technology Extension Consortium for research on polymers;

An increase of \$850,000 for the Florida Institute of Technology in Melbourne, Florida for its Hydrogen, Fuel Cell & Sensor Technology Initiative;

An increase of \$2,300,000 to the University of Missouri at Rolla for Aerospace Propulsion Particulate Emissions Reduction Program;

An increase of \$1,000,000 for the National Institute of Aviation Research in Kansas for icing research;

An increase of \$2,000,000 to Wichita State University in Wichita, Kansas for the National Center for Advanced Materials Performance for composite materials research;

An increase of \$1,000,000 for the Glenn Research Center for the National Center for Communications, Navigation and Surveillance;

An increase of \$4,000,000 for the Glenn Research Center for the commercial technology program;

An increase of \$1,000,000 to Iowa State University for the Center for Nondestructive Evaluation; and

An increase of \$3,000,000 to Chesapeake Information Based Aeronautics Consortium.

Education

An increase of \$500,000 to the State of Alabama for the Alabama Math, Science, and Technology Initiative;

An increase of \$250,000 for the Education Training Center at the U.S. Space and Rocket Center;

An increase of \$2,000,000 to the Educational Advancement Alliance, to support the Alliance's K-12 math, science, and technology education enrichment program;

An increase of \$400,000 for Albany State University/Darton College in Albany, Georgia for the Science, Engineering, Math and Aerospace Academy program;

An increase of \$250,000 for South Georgia Technical College in Americus, Georgia for the Science, Engineering, Math and Aerospace Academy program;

An increase of \$250,000 for Albany State University in Albany, Georgia for project 'JumpStart' for a Math, Science Education Enhancement program for pre-college students;

An increase of \$250,000 for the Georgia Project/ABAC College, Tifton, Georgia to implement a K-12 program for Hispanic students in science, engineering, math and aerospace in SW Georgia who struggle with English as a Second Language;

An increase of \$400,000 for the University System of Georgia--Board of Regents, Atlanta, Georgia for purchase and implementation of a pre-testing software for math and science educational and career-related standardized test;

An increase of \$100,000 for Georgia Southwestern College in Americus, Georgia for grants and scholarships in math and science for students implemented through the Multicultural Affairs Program;

An increase of \$4,000,000 for a new Science Center at St. Bonaventure's University in New York State;

An increase of \$2,000,000 for the JASON Foundation;

An increase of \$300,000 for a Science, Technology, Engineering, and Mathematics Center at Tennessee Tech University, Cookeville, Tennessee;

An increase of \$250,000 for Hollins University for upgrades to its science infrastructure;

An increase of \$250,000 for the University of New England Marine Science Center;

An increase of \$500,000 for the Liberty Science Center;

An increase of \$350,000 for Aerospace Education Center in Cleveland, Ohio;

An increase of \$200,000 for Morehouse College in Atlanta, Georgia to support the technology center;

An increase of \$1,000,000 for National Center for Air and Space Law at the University of Mississippi;

An increase of \$1,000,000 for Tennessee Technological Institute for the development of a Challenger Learning Center;

An increase of \$500,000 for the Christa McAuliffe Planetarium in New Hampshire for the construction of the Alan Shepard Discovery Center;

An increase of \$500,000 to Southeast Missouri State University for the NASA-ERC Initiative;

An increase of \$1,000,000 to the Texas A&M Space Engineering Institute in College Station, Texas to continue minority engineering outreach in conjunction with NASA;

An increase of \$1,000,000 to Northern Kentucky University/University of Louisville for the Taking Astronomy to the Schools Project at Northern Kentucky University in Campbell County, Kentucky;

An increase of \$750,000 for the US Space and Rocket Center in Huntsville, Alabama for education training equipment and the museum exhibit improvement program.

A increase of \$250,000 for Sci-Quest, Northern Alabama Science Center for the interactive immersive-reality science laboratory;

An increase of \$750,000 to the Delaware Aerospace Education Foundation in Kent County, Delaware;

An increase of \$500,000 to the Chabot Space and Science Center in Oakland, California for The Future for Humans in Space Education Program;

An increase of \$250,000 for Dominican University, San Rafael, California for the Center for Science and Technology for science teacher training and education;

An increase of \$250,000 to Rowan University, Pomona, New Jersey for the Engineering and Technology Satellite Campus;

An increase of \$250,000 to the Museum of Science and Industry in Chicago, Illinois for the Henry Crown Space Center;

An increase of \$250,000 to Glendale Community College, California for the Cimmarusti Science Center's Teacher Training and Science Education Outreach Program;

An increase of \$500,000 to the Science Center of Iowa in Des Moines, Iowa;

An increase of \$2,000,000 for improvements to the Cooper Library at the University of South Carolina, Columbia, South Carolina;

An increase of \$2,000,000 to the College of Charleston, South Carolina for the School of Science and Mathematics;

An increase of \$1,000,000 to the Boston Museum of Science, Massachusetts for the National Center for Technology Literacy;

An increase of \$750,000 to Space Education Initiative, Wisconsin for the Wisconsin Aerospace Education Initiative;

An increase of \$1,750,000 to the Mitchell Institute, Portland, Maine for educational purposes;

An increase of \$1,000,000 to the Virginia Air and Space Museum, Norfolk, Virginia;

An increase of \$750,000 for the Griffith Observatory, Los Angeles, California; and

An increase of \$4,000,000 to the University of Hawaii, Hilo for the Mauna Kea Astronomy Education Center;

EXPLORATION CAPABILITIES (INCLUDING TRANSFER OF FUNDS)

Appropriates \$8,425,850,000 for exploration capabilities, instead of \$7,496,800,000 as proposed by the House and \$8,411,100,000 as proposed by the Senate. The Senate proposal included \$600,000,000 in emergency funding.

The conferees agree that the space shuttle remains the cornerstone of our Nation's heavy launch capability and is critical to the future of the International Space Station and scientific research. Therefore, the conferees have provided \$4,319,200,000 for the space shuttle program, the same as the level within the request of the administration. Should additional resource needs associated with return-to-flight activities arise during this fiscal year, the regular order of the budget process allows for the Administration to submit a supplemental request for funding, which would be given full and fair consideration by Congress. Alternatively, NASA has flexibility under established operating plan procedures with the Committees on Appropriations of the House and Senate to propose funding adjustments to augment the budget for the space shuttle as necessary, contingent on Congressional approval of the proposed changes. The conferees believe that returning the shuttle fleet to flight, the first step in the Space Exploration Initiative, should be NASA's highest priority.

Within the funds provided, the conferees direct \$10,000,000 for the Propulsion Research Laboratory at Marshall Space Flight Center to perform non-nuclear research on spacecraft engine

systems that support nuclear thermal propulsion development. The conferees direct NASA to ensure that NASA facilities are utilized to the greatest extent possible by the Department of Energy in its role as a contractor for NASA under the Project Prometheus program.

The conferees do not agree with the termination of the commercial programs within the Innovative Technology Transfer Partnerships (ITTP) program as proposed in the budget submission, and have therefore provided an increase of \$30,000,000 to this appropriation for the express purpose of continuing the commercial programs, including the activities of both NASA and associated personnel, as they existed in fiscal year 2003 and prior fiscal years. The conferees notes that the National Academy of Public Administration (NAPA) has completed the first phase of an analysis of the ITTP program, which highlights a number of weaknesses that reduce the program's effectiveness at spin-in and spin-out of technology. The conferees direct NASA to fully address the recommendations of phases I and II of the NAPA study in the context of future budget submissions. The conferees support maintaining a vigorous ITTP program at NASA and strongly support maintaining the spin-out of NASA technology to the commercial world as an integral part of the program.

The conferees agree with direction contained in the Senate report that as soon as the Shuttle is available to provide access to the ISS, NASA is to provide the Committees on Appropriations of the House and Senate with a plan detailing the steps necessary to complete construction of the ISS. This plan may include completion of the ISS by only using the shuttle, or a combination of shuttle and unmanned flights for delivering components to the ISS. The cost implications associated with the revised schedule must be included in the plan that is submitted to the Committee within 30 days after the successful return-to-flight of the shuttle program. The report should also contain a timeline, in conjunction with the construction timetable for the ISS, for the eventual transition to a new manned launch vehicle.

The conferees are prepared to commit funds for development of a Crew Exploration Vehicle [CEV], but remain concerned that there has not been enough initial planning to determine what specific capabilities the CEV should have. The determination of the right capabilities should naturally come from a carefully thought-out plan and goals, which have yet to emerge from the implementation of the space exploration initiative. The current plan offered by NASA resembles a work-in-progress, rather than a firm definition of what is necessary to accomplish missions to the ISS, as well as future manned missions. The conferees expect NASA to provide a report to the Committees on Appropriations of the House and Senate that details the criteria and developmental goals the CEV must meet to accomplish the missions envisioned by NASA within 60 days of enactment of this Act. The report shall also include the internal and independent procedures that will be in place to ensure that the CEV will stay within its budget throughout its development.

As NASA begins to consider another manned vehicle program, the conferees do not want a repeat of the mistakes of the International Space Station, where poor management and lack of independent oversight resulted in major cost overruns. At this early stage in the development of the CEV, it is essential that these mistakes be avoided. Therefore, the conferees direct the Administrator of NASA to identify an independent oversight committee capable of examining the design, technology readiness, and most importantly the cost estimates for the CEV. The Administrator shall use available funds within the Exploration Capabilities account to provide sufficient resources for this independent committee. The chosen oversight committee shall report to the Administrator and the Committees on Appropriations of the House and Senate annually on their findings and recommendations.

The conferees have agreed to provide \$10,000,000 for the Centennial Challenges program, subject to passage of authorizing legislation. NASA is to be directed to submit a detailed implementation plan for this program to the Committees on Appropriations of the House and Senate as soon as practicable.

The conferees recognize that modeling and simulation will have an important role in assessing the overall system development and performance in the Space Exploration Initiative and provide \$3,000,000 for this purpose. The conferees believe that simulated integrated systems, including testing and evaluation, will substantially reduce the total development costs of future space transportation systems by formulating and validating program requirements and by identifying and mitigating program risks as early as possible in the development process. The conferees direct the Office of Exploration Systems to develop and implement an integrated system simulation strategy to take full advantage of modeling, simulation, and evaluation tools.

The conferees direct NASA to keep the Committees on Appropriations of the House and Senate informed, in writing, of any movement of funds related to the shuttle program, as well as including the out-year impacts on all activities involved in the funding shifts. Finally, the conferees expect regular consultations by NASA on all proposed changes to investments in the Shuttle program. These consultations should occur before program decisions are finalized.

The conferees agree to the following specific funding increases in addition to any increases mentioned above:

An increase of \$400,000 for the Glennan Microsystems Commercialization Initiative;

An increase of \$300,000 for Garrett Morgan Commercial;

An increase of \$900,000 for Simulation based acquisition for manned space flight vehicle, design and testing, MSFC;

An increase of \$150,000 to the Technology Research & Development Authority of Central Florida for continuing investment in IT, and security technologies;

An increase of \$2,000,000 for the Idaho National Engineering and Environmental Laboratory for development of performance, safety, and mission success tools for NASA programs;

An increase of \$250,000 to the Alabama A&M University for Advanced Propulsion Materials Research;

An increase of \$500,000 for the Nano and Micro Devices Laboratory at the University of Alabama in Huntsville;

An increase of \$6,000,000 for the continuation of the Space Alliance Technology Outreach Program for business incubators in Florida and New York;

An increase of \$1,000,000 for the National Center of Excellence in Wireless and Information Technology Programs at Stony Brook University, New York;

An increase of \$1,000,000 for the National Center of Excellence in Small Scale Systems Packaging at the State University of New York at Binghamton;

An increase of \$2,500,000 for NASA's Independent Verification and Validation Facility, of which \$800,000 is available for continuation of the Code Level Metrics Data Program; \$400,000 is available for continuation of IV & V of Neural Nets; and \$400,000 is available for Software Legacy Research;

An increase of \$600,000 to the MCNC-Research and Development Institute (RDI) for continued funding for a Laboratory for Distributed Chemical and Biological Sensors;

An increase of \$1,000,000 for Cryogenic Power Electronics Development at the State University of New York at Albany;

An increase of \$200,000 for the National Center for Communication Navigation, and Surveillance at Glenn Research Center;

An increase of \$400,000 for COM Simulation Architecture;

An increase of \$300,000 for the Bowling Green State University Hybrid Engine project;

An increase of \$500,000 to the University of Alabama in Huntsville for a Space Flight Guidance, Navigation, and Control Test Bed;

An increase of \$3,000,000 for the National Center of Excellence in Infotonics in Rochester, New York;

An increase of \$3,000,000 for the Computing, Information and Communications Technology Program (CICT) for High Information Density Approaches to Mobile Broadband Internet Communications;

An increase of \$3,000,000 to the Mobile Broadband Network project, a joint effort between NASA and the Air Force Research Laboratory;

An increase of \$3,000,000 to be transferred to the Air Force Research Laboratory to continue joint research between NASA and the Air Force on emerging areas of computing including grid computing, quantum and biomolecular information processing technology;

An increase of \$4,000,000 for the Stennis Space Center for the commercial technology program;

An increase of \$4,000,000 for the Marshall Space Flight Center for the commercial technology program;

An increase of \$750,000 to Purdue University in West Lafayette, Indiana for the Advanced Manufacturing Institute;

An increase of \$2,000,000 to Wheeling Jesuit University, West Virginia for continued operation of the National Technology Transfer Center;

An increase of \$1,000,000 to the University of New Orleans, Louisiana for the Composites Research Center of Excellence and for the development of advanced metallic joining technologies at Michoud Space Center;

An increase of \$1,750,000 to the University of Maryland, College Park for the nanotechnology institute; and

An increase of \$2,000,000 to the SSME program office at Marshall for development of a knowledge management integrated data environment.

OFFICE OF INSPECTOR GENERAL

Appropriates \$31,600,000 for the Office of Inspector General as proposed by the Senate, instead of \$31,400,000 as proposed by the House. The amount provided includes \$3,800,000 to conduct NASA's annual audit of NASA's financial statements.

The conferees remain concerned that NASA needs to reform its contracting process to ensure timely delivery of both services and hardware. The conferees direct the NASA Inspector General to issue a list of contracting `trouble' areas with recommendations to address these areas. The conferees understand that this is no easy project, but expects NASA and the NASA IG to respond to these concerns with a package of proposed contracting reforms that can begin to be implemented in fiscal year 2005.

ADMINISTRATIVE PROVISIONS

The conferees have included three administrative provisions included in both the House and Senate bills. In addition, the conferees agree to language proposed by the Senate allowing the use of funds for prizes and language allowing for the transfer of funds between the exploration capabilities account and the science, aeronautics, and exploration account subject to established operating plan procedure. The conferees further agree to language proposed by the Senate as a General Provision, with some modifications, which will have the effect of incorporating projects and activities into the text of the bill by reference.