National Aeronautics and
Space Administration

Office of Inspector General
Washington, DC 20546-0001

August 9, 2007

TO: Administrator

FROM: Inspector General

SUBJECT: Audit of NASA's Management and Funding of Fiscal Year 2006 Congressional Earmarks (Report No. IG-07-028)

In response to Senator Coburn's request dated August 23, 2006, the Office of Inspector General conducted an independent audit of congressional earmarks included in NASA's budget for fiscal year (FY) 2006 to determine

- the total number and cost, including the cost of the earmark itself and related costs such as staff time and administration, of congressional earmarks within NASA programs;
- the overall impact of earmarks on advancing the primary mission and goals of the Agency; and
- what oversight NASA conducted on earmarks and how that oversight compares to the oversight conducted on other expenditures such as grants and contracts.

As Senator Coburn requested, we defined a congressional earmark as a provision of law, a directive, or item represented in any table, chart, or text contained within a joint explanatory statement or a report accompanying a bill that specifies the identity of an entity, program, project, or service and the amount of the assistance to be received. (See Enclosure 1 for scope and methodology details.)

Results in Brief

NASA's FY 2006 budget of $16.6 billion included 199 earmarks with congressionally directed funding of $568.2 million, or 3.4 percent of the Agency's budget. The total cost of the 199 FY 2006 earmarks was $576.2 million, which included the $568.2 million in congressionally directed funding plus $8 million in Agency oversight and administration costs.

Of the 199 earmarks, NASA characterized 12 of them as programmatic earmarks because they directed the use of $280.7 million in appropriated funding to existing NASA programs. NASA characterized the remaining 187 as site-specific earmarks because they directed the use of $287.5 million in appropriated funding to specific activities and identified sites and/or recipients that should perform the work. We reviewed 42 earmarks, valued at $321.4 million, including all 12 programmatic earmarks and a statistically selected sample of 30 site-specific earmarks. Details on the earmarks we reviewed are contained in Enclosures 2 to 4.

For each of the 42 earmarks reviewed, we determined whether they funded activities that were consistent with the Agency's priorities for advancing its mission and goals. We did this by comparing the earmarks against the Agency's priorities as described in the 2006 NASA Strategic Plan, strategic planning documents, and other studies that are intended to identify Agency priorities (see Enclosure 5). We limited the criteria of this audit to these public articulations framing NASA priorities. We did not conduct any research or examination of individual justifications for earmarks beyond these criteria.

We concluded that the 12 programmatic earmarks generally aligned with the Agency's priorities for advancing its mission and goals (see Enclosure 6), although, by definition, these earmarks were not identical to the allocations of resources presented in the President's budget. These earmarks directed the use of specified funding amounts on existing NASA programs, including the Hubble Space Telescope Servicing Mission and the heavy lift launch vehicles.

In addition, we concluded that 21 of the 30 site-specific earmarks we selected for review, or 70 percent, also generally aligned with the Agency's priorities for advancing its mission and goals (see Enclosure 7). These 21 earmarks, with a total value of $28.45 million, involved activities that aligned with priorities within the Agency's Aeronautics, Exploration Systems, and Science Mission Directorates as well as the Education Program. They included activities such as aeronautics research, space technology, Earth science applications, and collegiate education initiatives.

We also concluded that 9 of the site-specific earmarks we selected for review, or 30 percent, did not align with the Agency's priorities for advancing its mission and goals. These 9 earmarks, with a total value of $12.25 million, were comprised of:

- 3 site-specific earmarks in the Exploration Systems Mission Directorate that directed funding to research that NASA determined was not feasible for developing the crew exploration and heavy lift launch vehicles or for advancing Strategic Plan goals of the Vision for Space Exploration through 2014;
- 4 site-specific earmarks in the Science Mission Directorate that funded research projects that were not space, planetary, or Earth science priorities; and
- 2 site-specific earmarks in NASA's cross-Agency support offices that did not reflect priorities of those offices or NASA's mission directorates.

We projected the results of our review of the 30 statistically selected site-specific earmarks against our universe of all 187 FY 2006 site-specific earmarks. The projection indicated that $201 million of the $287.5 million, or 70 percent of the funding for site-specific earmarks aligned with NASA's priorities, while $86.5 million, or 30 percent, did not align. When we combine the results of our review of the programmatic and site-specific earmarks, we estimate that $481.7 million, or 85 percent of FY 2006 earmarks, aligned with NASA's priorities, while $86.5 million, or 15 percent, did not align with those priorities.

We recognize that there is vigorous debate on the utility and advisability of earmarks as an appropriate exercise of congressional power. A finding of lack of alignment between an earmark and NASA priorities, as we have defined it pursuant to the selected criteria, is no more determinative of the appropriateness of congressional action than a finding of alignment. In either instance, Congress, or members thereof, caused the redirection of budgetary resources or added specificity on how to apply those resources that was different from the Executive Branch's proposal. While there are multiple perspectives on how NASA can best achieve its mission, our objective was to provide relevant data on the similarities and differences in the selected earmarks rather than opining on their merits.

Because the FY 2006 appropriation did not provide additional funding for the 199 earmarks, NASA redirected funding included in the President's budget submission to fund the earmarks. NASA documented the redirection of funding as part of the Initial Operating Plan[1] submission. We were unable to link redirections to a specific earmark because NASA redirected funds in the approved budget by considering earmarks, rescissions, and NASA programmatic changes as an overall revision to the budget rather than as separate, individual revisions. However, we were able to identify the overall impact of earmarks on the Education Program, which received 73 earmarks with directed funding of $83.8 million, or 51 percent of its budget. Specifically, we reviewed 10 FY 2006 earmarks with a total value of $26.1 million and concluded that while they aligned with NASA's priorities for advancing its mission and goals, the Agency redirected funding between activities in order to maintain the same overall budget for education. For example, the Agency reduced funding for the Minority University Researchers Education Program from 51 percent of the education budget to 24 percent, while increasing informal education activities from 2 percent to 20 percent of the budget.

As requested, we also reviewed NASA's oversight of earmarks awarded as grants. NASA awarded 29 of the 30 statistically selected site-specific earmarks as grants. Oversight requirements for these earmark grants were consistent with oversight requirements for non-earmark grants. We found that NASA personnel generally complied with oversight requirements. NASA awarded one of the 30 earmarks as a contract and applied Federal and NASA acquisition regulations to establish oversight requirements for the contract.

We provided a draft of this memorandum to NASA's Deputy Assistant Administrator for Legislative Affairs for review and comment. The Deputy Assistant Administrator concurred with our findings and conclusions.

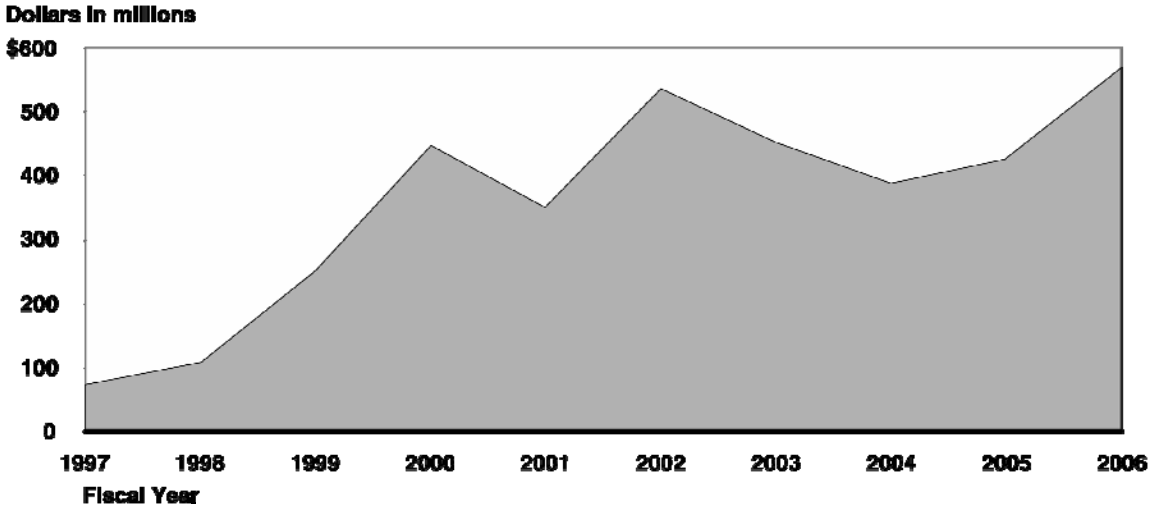
Background

The cost and number of earmarks has increased in the past 10 fiscal years. In FY 1997, NASA's budget included 6 earmarks; by 2006, the budget included 199 earmarks. Figure 1 shows the amount of congressionally directed spending through earmarks in NASA's budget

[1] After NASA's appropriation has been passed by Congress each fiscal year, NASA's Initial Operating Plan is transmitted annually by the NASA Administrator to the chair and ranking member of the House and Senate Subcommittees on Commerce, Justice, Science, and Related Agencies.

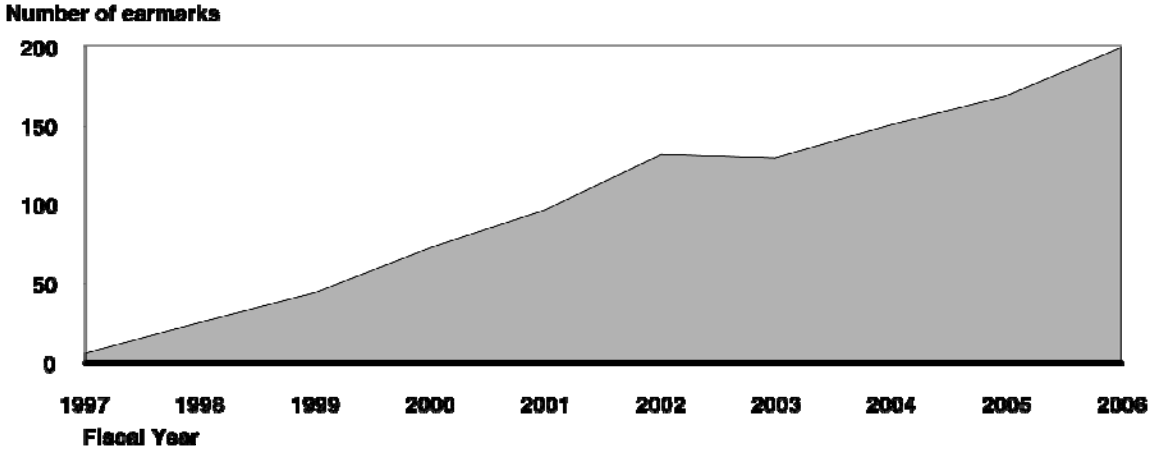
over the last 10 years. Figure 2 shows changes in the number of NASA's earmarks over the last 10 years.

Figure 1. Growth in the Cost of NASA Earmarks, FY 1997 through 2006



Source: OIG analysis of data provided by the Office of Legislative Affairs.

Figure 2. Growth in the Number of NASA Earmarks, FY 1997 through 2006



Source: OIG analysis of data provided by the Office of Legislative Affairs.

In March 2004, the previous NASA Administrator expressed concerns about the magnitude of congressional interest items in NASA's budget. To better track the progress of earmark projects and assess their value to NASA, the Agency established consistent, merit-based evaluation processes and uniform and complete grant records for tracking earmark grant proposals. The procedures required the evaluation of earmark grant proposals against three standards from NASA's policy on unsolicited proposals: specific relevance to the NASA mission; intrinsic scientific, engineering, or technical merit; and cost reasonableness. The procedures also established the means to document the evaluation. Enclosure 8 depicts

NASA's process for site-specific earmarks. Procedures for evaluating grant proposals are included in that process.

In the transmittal letter for NASA's FY 2006 Initial Operating Plan, the current Administrator noted that the Conference Report included a record-high number of congressional interest items attached to the NASA appropriation, representing an increase of more than $100 million over FY 2005. The Administrator expressed concern that the growth of unrequested congressional directions for NASA funding was eroding the Agency's ability to carry out its mission of space exploration and peer-reviewed scientific discovery. The letter noted that the magnitude of congressional directions could adversely impact NASA's ability to deliver the Crew Exploration Vehicle by the earliest possible date following the 2010 retirement of the shuttle.

Incorporating earmark projects into programs resulted in the redirection of funding from the FY 2006 President's budget to levels reported in the Initial Operating Plan. NASA had to redirect funding from the President's budget to accommodate $568.2 million for 199 earmarks that were not separately funded in the appropriation, while addressing 1.28 percent rescissions and making NASA-directed programmatic changes that were decided after submission of the President's budget. The redirection of funding from levels requested in the President's budget to levels reported in the Initial Operating Plan reduced program budgets in NASA's mission directorates and cross-Agency support offices. Reductions, however, cannot be linked to a specific earmark because NASA redirected funds in the approved budget by considering earmarks, rescissions, and NASA programmatic changes as an overall revision to the budget rather than as separate, individual revisions.

Total Number and Overall Costs of Earmarks

NASA's budget included 199 earmarks in FY 2006 with congressionally directed funding of $568.2 million. Under NASA's full cost accounting principles, staff time and administrative costs are added to project costs. NASA requires Agency projects to follow full cost accounting principles. However, for 22 of the 42 earmarks in our sample, the full costs of administration, which includes staff time, were not accounted for as earmark project costs. If full cost accounting principles had been followed, an estimated $8 million would have been added to the $568.2 million in congressionally directed funding to make the total cost $576.2 million (see Enclosure 9).

Impact of Earmarks on Advancing NASA's Primary Mission and Goals

The Agency's process for evaluating the relevance of earmarks identified 93 percent of the earmarks in our sample as related to NASA's mission. However, the redirection of funding from the President's budget reduced program budgets within NASA's mission directorates and cross-Agency support offices. Our assessment found that 85 percent of the earmarks aligned with priorities for advancing NASA's mission and goals; the 15 percent that did not align represented $86.5 million in earmark funding.

Agency's Assessment of Relevance to NASA's Mission

NASA Grant Information Circular (GIC) 06-01, April 12, 2006, requires that earmarks be evaluated and assessed to determine the relevance of the proposed effort to the NASA mission. The evaluation and assessment are documented and maintained by NASA's Office of Legislative Affairs. GIC 06-01 further states that some earmarks are not directly relevant to specific NASA programs or projects and relevance may need to be, in some cases, broadly interpreted against NASA's overall mission. GIC 06-01 encourages evaluators to work with intended earmark recipients to align their proposals as closely with NASA's mission as possible. Supplemental guidance issued by the Office of Legislative Affairs requires an assessment of the earmark's relevance to mission as either strong, moderate, or marginal.

For 3 of the 42 earmarks (7 percent) in our sample, the assessment of relevance was not documented. For 39 of the 42 earmarks (93 percent) in our sample, technical officers evaluated the earmark as relevant to the NASA mission. For those 39 earmarks, 59 percent were assessed as strong, 38 percent were assessed as moderate, and 3 percent were assessed as marginal.

Alignment of Earmarks with NASA's Priorities

Priorities for advancing the Agency's mission and goals are described in the 2006 NASA Strategic Plan and plans for program activities included in the President's budget. The plans are required by the Government Performance Results Act of 1993. In selecting priorities for those plans, NASA Procedural Directive 1000.0, "Strategic Management and Governance Handbook," August 2005, requires Agency senior management to engage the NASA internal as well as external science communities, via the National Research Council and science advisory groups, to define and prioritize science questions that NASA should pursue. The National Research Council identifies priorities for NASA's programs in decadal surveys and other reports. In a March 2007 speech to the Goddard Space Symposium, the NASA Administrator stated that decadal surveys provided by the scientific community are essential for shaping the Agency's funding choices within the disciplines of Earth science, heliophysics, planetary science, and astrophysics.

Agency missions in aeronautics, exploration systems, and science received 113 of the 199 earmarks in FY 2006. Cross-Agency support offices, primarily the Office of Education, were assigned the remaining 86 earmarks. To determine whether the earmark funded research or other projects that aligned with priorities for advancing the mission, we compared the 42 earmarks in our sample to priorities identified in the 2006 NASA Strategic Plan, in plans for program activities in the President's budget, and in external decadal surveys and reports (see Enclosures 6 and 7). For 33 of 42 earmarks (79 percent), we found that the earmark funded research that aligned with priorities for advancing the mission. However, for 9 of the 42 earmarks (21 percent), the earmark funded research or other projects that did not align with priorities for advancing the mission. We statistically projected funding for the 9 site-specific earmarks to the sample universe of 187 site-specific earmarks for FY 2006 and estimated that $86.5 million of the $568.2 million directed for earmarks did not align with priorities for advancing the mission. (See Enclosure 10 for our calculation.)

Aeronautics Research Mission Directorate (ARMD). For FY 2006, the President's budget request included $852.3 million for ARMD. The Initial Operating Plan provided an $884.1 million budget for ARMD. That budget included 17 earmarks with congressionally directed funding of $97.5 million (11.4 percent of the approved ARMD budget). The 17 earmarks included $60 million for 1 programmatic earmark and $37.5 million for 16 site-specific earmarks. Of the 17 earmarks, we reviewed 3 with a value of $67 million and found that they aligned with NASA's priorities.

The aeronautics research mission was established in the National Aeronautics and Space Act of 1958 (Space Act)[2] and the Vision-100 Century of Aviation Reauthorization Act of 2003 (Vision-100).[3] The Space Act requires the Agency to conduct aeronautics activities that contribute materially to (1) improving the usefulness, performance, speed, safety, and efficiency of aeronautical and space vehicles; (2) establishing long-range studies of the potential benefits from the use of aeronautical and space activities; and (3) preserving the United States as a leader in aeronautical and space science and technology applications for peaceful activities in the atmosphere and in space. Vision-100 requires NASA to assist in developing the Next-Generation Air Transportation System (NGATS) and designates NASA as the lead Agency in developing a redesigned air-traffic control system for the NGATS. That responsibility was deemed a national priority in the Vision-100 legislation because domestic air travel is expected to triple over the next 20 years and overload our current air travel system.[4] The mission established in the Space Act and Vision-100 is contained in the Strategic Plan, Sub-goal 3E.

We assessed the $60 million programmatic earmark and 2 site-specific earmarks against Sub-goal 3E and project planning documents to determine whether the earmarks aligned with ARMD priorities. We found that the ARMD earmarks align with Sub-goal 3E. We also found that $10 million of the $60 million programmatic earmark funded hypersonic research that aligns with priorities identified in NASA's "Fundamental Aeronautics Hypersonic Proposal," April 28, 2006 draft. The remaining $50 million of the $60 million earmark funded other hypersonic, subsonic, and supersonic research activities that align with priorities identified in the Hypersonic Project, Subsonic Fixed Wing Project, Subsonic Rotary Wing, and Supersonic Project Reference Documents. The 2 site-specific earmarks aligned with priorities in those hypersonic, subsonic, and supersonic reference documents as well as reference documents within the directorate's Aviation Safety and Airspace Systems Programs.

ARMD earmark activities also aligned with priorities identified in a report requested by Congress and a survey commissioned by NASA. During the FY 2006 appropriation process, Congress requested that the National Institute of Aerospace (NIA) provide an assessment that was to lead the development of a 5-year aeronautics research plan and budget for NASA. In April 2005, NIA provided its assessment to Congress in *Responding to the Call: Aviation*

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[2] Public Law 85-568, "National Aeronautics and Space Act," 72 Stat. 426 438 (July 29, 1958), as amended.

[3] Public Law 108-176, "Vision-100 Century of Aviation Reauthorization Act," December 12, 2003.

[4] Government Accountability Office. "National Airspace System Modernization" (GAO-06-1114T, September 27, 2006).

Plan for American Leadership, which identified critical enabling technologies for hypersonic flight, access to space, and space technology. NASA commissioned the National Research Council to complete a survey of civil aeronautics that would prioritize research projects to be undertaken in the next 10 years. *Decadal Survey of Civil Aeronautics: Foundation for the Future* (National Research Council, 2006), conducted concurrently with NASA's assessment of the aeronautics program, identified 51 research and technology capabilities as priorities.

Exploration Systems Mission Directorate (ESMD). For FY 2006, the President's budget included $3.165 billion for ESMD. The Initial Operating Plan provided a $3.05 billion budget for ESMD. That budget included 57 earmarks with congressionally directed funding of $157.1 million (5 percent of ESMD's budget). The 57 earmarks included $60 million for 4 programmatic earmarks and $97.1 million for 53 site-specific earmarks. Of the 57 earmarks, we reviewed 12 with a value of $71 million. Of the 12 earmarks, we found that 3 site-specific earmarks with a value of $5 million did not align with NASA's priorities.

Executive Order 13326, "The President's Commission on Implementation of United States Space Exploration Policy," January 27, 2004, established the Vision for Space Exploration. Goals for the Vision for Space Exploration include (1) developing and testing a new spacecraft, the crew exploration vehicle, by 2008, to support human exploration missions no later than 2014; and (2) returning to the Moon, no later than 2020, as the launching point for missions beyond.[5] Those goals are stated in the Strategic Plan as Goals 4 and 6, respectively.

We reviewed the 4 programmatic earmarks and statistically selected 8 site-specific earmarks for assessment to determine whether they aligned with ESMD priorities. We assessed the earmarks against Strategic Plan Goals 4 and 6 and a study commissioned by the NASA Administrator, "NASA's Exploration Systems Architecture Study (ESAS) Final Report," November 2005. The purpose of that study was to determine the best exploration architecture and strategy to implement the Vision for Space Exploration. As stated in the study's preface, one purpose of the study was to identify key technologies required to enable a reprioritization of near-term and far-term technology investments. We found that all 4 of the programmatic earmarks (100 percent) and 5 site-specific earmarks (63 percent) aligned with priorities in ESAS. We also found that 3 site-specific earmarks (37 percent) did not align. Table 1 describes our assessment for those 3 site-specific earmarks.

[5] President Bush described the goals during his announcement of the Vision for Space Exploration on January 14, 2004, and in "A Renewed Spirit of Discovery," January 2004.

Table 1. ESMD Earmarks Not Aligned with Priorities		
Earmark	**Funding**	**Description**
Collaborative research on innovative carbon nanotechnology	$1,000,000	Nanotechnology research was deemed a low priority for developing the crew exploration and heavy lift launch vehicles. The President's budget reduced nanotechnology research and stated the research was a low priority for advancing the Vision for Space Exploration. ESAS stated that early emphasis had been placed on revolutionary exploration concepts, such as nanostructures, but that many of these concepts turned out to be either not feasible for human exploration missions or well beyond expected technology readiness for near-term implementation. The ESAS study identified the crew exploration and heavy lift launch vehicles as near-term priorities for achieving goals defined by the President for a manned flight no later than 2014. For one earmark, a research proposal was not submitted to NASA. For the other two earmarks, research did not align with the priorities of goals and sub-goals for the Vision for Space Exploration through 2014. Those goals and sub-goals were described in the Strategic Plan.
Support for research in nanotechnology and biotechnology	$2,000,000	
Support for research and development in nanotechnology, biotechnology, and information technology	$2,000,000	

Source: OIG analysis of earmark work statements.

The Initial Operating Plan provided approximately $16 million for nanotechnology research that was included in FY 2006 earmarks. At the same time, the Initial Operating Plan eliminated funding for nano-material research activities within ESMD that were not earmarks. The explanation provided in the Initial Operating Plan was that long-term development of nano-materials was eliminated to redirect technology funding from lower priority research and technology elements and to refocus on those activities that support acceleration of the crew exploration vehicle, launch systems, and critical long lead items.

Science Mission Directorate (SMD). For FY 2006, the President's budget request included $5.476 billion for SMD. The Initial Operating Plan provided SMD a $5.254 billion budget. That budget included 39 earmarks with congressionally directed funding of $188.6 million (3.4 percent of the SMD budget). The 39 earmarks included $140.3 million for 5 programmatic earmarks and $48.3 million for 34 site-specific earmarks. Of the 39 earmarks, we reviewed 14 with a value of $148.6 million and found that 4 site-specific earmarks with a value of $2.6 million did not align with NASA's priorities.

Strategic Plan Goal 3 is to develop a balanced overall program of science and exploration consistent with the redirection of the human spaceflight program to focus on exploration. Sub-goals 3A through 3D state that a balanced program will (1) study Earth from space to advance scientific understanding and meet societal needs; (2) understand the Sun and its effects on Earth and the solar system; (3) advance scientific knowledge of the solar system,

search for evidence of life, and prepare for human exploration; and (4) discover the origin, structure, evolution, and destiny of the universe, and search for Earth-like planets.

To determine whether the sampled earmarks aligned with SMD priorities, we assessed the 5 programmatic earmarks and 9 statistically sampled site-specific earmarks against the Strategic Plan and NASA planning documents. Specifically, the evaluation considered NASA's *Earth Science Enterprise Strategy* (2003); *Space Science Enterprise Strategy* (2003); *Sun-Solar System Connection* (May 22, 2005); *Exploring Our Planet for the Benefit of Society* (May 2005); *Universe Exploration: From the Big Bang to Life* (May 20, 2005); *Agency Objective Statement, Strategic Roadmap #4* (2005); *SRM3: The Solar System Exploration Strategic Roadmap* (2005); and the "NASA Earth Science Research Plan" (January 6, 2005 Draft). The 5 programmatic earmarks and 5 of the site-specific earmarks (56 percent) aligned with priorities in those documents. However, 4 site-specific earmarks (44 percent) did not align with priorities in Sub-goals 3A through 3D, the *Earth Science Enterprise Strategy*, the *Space Science Enterprise Strategy*, or the "NASA Earth Science Research Plan" (Draft). Those 4 earmarks also did not align with priorities in three studies by the National Academy of Sciences. Table 2 describes our assessment of those 4 earmarks.

Table 2. SMD Earmarks Not Aligned with Priorities		
Earmark	**Funding**	**Description**
University research of deep submicron radiation hard electronics	$500,000	Research of deep submicron radiation electronics was not identified as a planetary science priority in Strategic Plan Goal 3, the *Earth Science Enterprise Strategy*, or the *Space Science Enterprise Strategy*. Similar research was not included as a priority in three studies by the National Academy of Sciences.[a]
University digital image archive center	$750,000	Project did not reflect NASA Earth Science research priorities in Strategic Plan Goal 3 or the NASA Earth Science Research Plan. According to the project's proposal, the project would use a narrow, regional set of land cover data for a digital image processing and archive center with the purpose of landscape planning and monitoring in the region. Sub-goal 3A states that the Agency will study the Earth from space to quantify global land cover change. The Earth Science Research Plan states that NASA science seeks to understand the consequences of land cover and land use changes, including climate changes. Similar research was not a priority in the three studies by the National Academy of Sciences.[a]
University center for space and planetary sciences	$1,000,000	Proposal states that this earmark "is foremost a scientific infrastructure grant, the purpose being to grow the individual research projects to a point where they are nationally competitive for support and to further develop our facilities and expertise." The Strategic Plan does not define a priority for developing scientific infrastructure at universities so that those institutions may perform future sample-return analyses. Similar research was not a priority in the three studies by the National Academy of Sciences.[a]
University research of Sun-climate and extra solar planets	$300,000	Earmark funded the continued operation of seven photometric automated telescopes at a privately owned nonprofit observatory. The telescopes were not a priority in Strategic Plan Goal 3. They were not identified as priorities in the three studies by the National Academy of Sciences.[a]

[a] The three National Academy of Sciences studies are the *Earth Science and Applications from Space: Urgent Needs and Opportunities to Serve the Nation* (2005); *Review of Goals and Plans for NASA's Space and Earth Sciences* (2006); and *Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond* (2007) Prepublication copy.

Source: OIG analysis of earmark work statements.

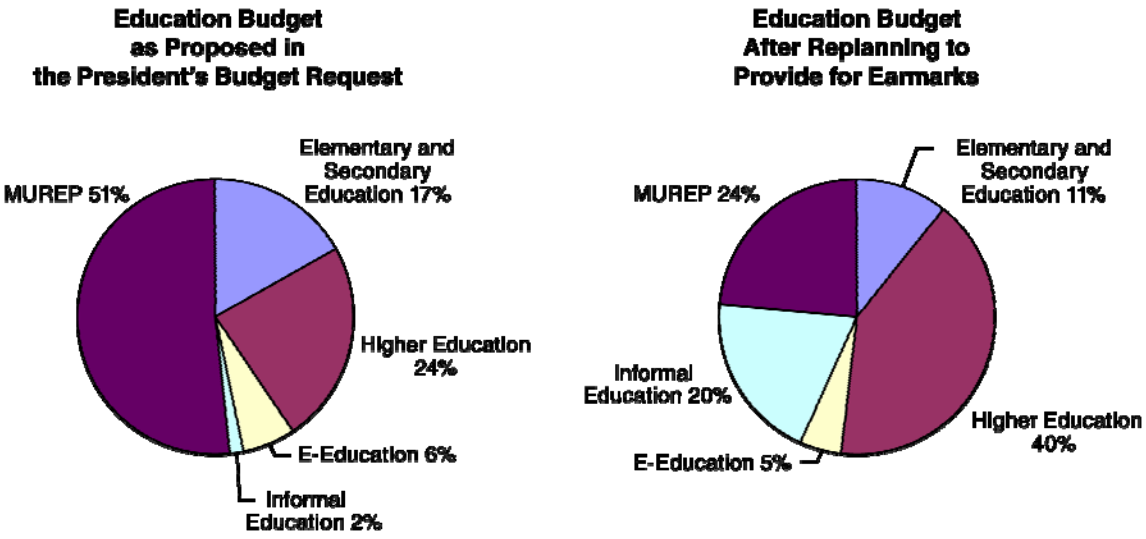
Office of Education (OEd). The 2006 NASA Strategic Plan describes the cross-Agency support programs, which include OEd. In FY 2006, OEd received a $166.9 million budget that included 73 earmarks with directed funding of $83.8 million (51 percent of OEd's budget). The 73 earmarks included $20.4 million for 2 programmatic earmarks and $63.4 million for 71 site-specific earmarks. Of the 73 earmarks, we reviewed 10 with a value of $26.1 million and found they aligned with NASA's priorities. We also assessed the impact of FY 2006 earmarks on the overall OEd budget and found that the Agency decreased the budget for the Minority University Researchers Education Program (MUREP) while increasing the budget for informal education, in order to maintain the same overall budget for education.

The Strategic Plan establishes three goals for OEd. The first goal is to strengthen NASA and the Nation's future workforce; the second goal is to attract and retain students in science, technology, engineering, and mathematics (STEM) disciplines; and the third is to engage Americans in NASA's mission. To meet these goals, OEd manages educational activities in five program areas: (1) MUREP, (2) higher education, (3) elementary and secondary education, (4) E-education, and (5) informal education.

The 2 programmatic earmarks totaling $20.4 million met program objectives defined by Congress. The first earmark directed a $12.2 million augmentation to the Space Grant Program. The Space Grant Program was established in Title II of the "National Aeronautics and Space Administration Authorization Act of 1988," 42 U.S.C. 2486, October 30, 1987. NASA's program mirrors the objective defined in legislation—to broaden the base of universities and individuals contributing to and benefiting from aerospace science and technology. The second earmark directed an $8.2 million augmentation to the NASA Experimental Program to Stimulate Competitive Research (EPSCoR). EPSCoR was established in the "National Aeronautics and Space Administration Authorization Act, FY 1993," Public Law 102-588, November 4, 1993. The NASA program reflects the purpose defined in legislation—to provide states with funding to develop a more competitive research base. NASA and six other Federal agencies conduct EPSCoR programs.

Earmarks influenced OEd's spending and priorities. To redirect funding for earmark projects while maintaining the same overall budget, OEd replanned its programs. The replanning resulted in significantly different program priorities from those initially proposed in the President's budget. Figure 3 illustrates the OEd program budget before and after replanning.

Figure 3. Education Budget Before and After Replanning



Source: OIG analysis of NASA's FY 2006 Initial Operating Plan.

As shown in the charts, funding for informal education grew from 2 to 20 percent of the OEd budget, while funding for MUREP decreased from 51 to 24 percent of the OEd budget. The informal education program area promotes awareness of NASA's mission among the American public through hands-on, interactive, educational activities. Informal education projects include science centers, museums, and planetariums. The MUREP program awards multiyear grants to engage minority institutions, faculty, and students in research pertinent to NASA missions. MUREP focuses on retaining underrepresented and underserved students in a STEM discipline and their entry into the scientific and technical workforce.

The reduction in MUREP funding resulted in cuts to each of the 18 on-going projects in the program area. Two MUREP projects, the University Research Centers (URC) and Faculty Awards for Research (FAR), illustrate how the cuts affected institutions, faculty, and students.

- **URC.** URC provides a competitive NASA-related research capability among minority institutions that fosters new aerospace science and technology concepts. Support for URC helps U.S. citizens obtain advanced degrees in STEM disciplines. The FY 2006 URC budget was reduced 57.1 percent from $19.8 million, as proposed in the President's budget request, to $8.5 million. This reduction eliminated solicitation of new institutions to participate during FY 2006, reduced the number of fully funded URC from 17 to 11, and eliminated 300 graduate and undergraduate students and more than 30 faculty members from engaging in NASA research.

- **FAR.** FAR permits faculty at minority institutions to integrate research and education with the unique mission requirements of a specific NASA Center. NASA's intent is to increase the interest and participation of students traditionally underrepresented in the Agency's research programs. FAR funding was cut by 80 percent in FY 2006. This cut resulted in 50 fewer faculty researchers and more than 200 fewer students engaging in ongoing NASA research.

Although support for informal education was relevant to the NASA mission, informal education did not focus funding on activities designed to provide the knowledge and skills needed for NASA's future workforce. That focus differed from what NASA preferred. Informal education efforts are described in OEd strategic planning document, "NASA Education Strategic Coordination Framework: A Portfolio Approach," June 26, 2006, as efforts that are very broad and have the goal of reaching and inspiring a large number of people. In contrast, the framework describes focused education activities, such as those conducted through MUREP and FAR, as activities designed to promote learning among targeted populations and to develop specific STEM knowledge and skills.

Other Cross-Agency Support Offices. Cross-Agency support programs also include the Shared Capability Assets Program, the Innovative Partnerships Program, and Advanced Business Systems. Those programs involve the Office of Institutions and Management, the Innovative Partnerships Program, and the Office of Chief Information Officer (OCIO). In FY 2006, the offices received 13 site-specific earmarks with directed funding of $41.3 million. Of the 13 earmarks, we reviewed 3 with a value of $8.7 million and found that 2 of the site-specific earmarks with a value of $4.7 million did not align with NASA's priorities.

To determine whether the earmarks aligned with NASA priorities, we assessed the 3 site-specific earmarks against the Strategic Plan, OEd secondary education program plans, and the ESAS report. Of the 3 site-specific earmarks we reviewed, we found that 2 earmarks (67 percent) did not reflect priorities for the cross-Agency support offices or the Agency's mission directorates. Table 3 describes our assessment of those 2 earmarks.

Table 3. Earmarks in Cross-Agency Support Offices Not Aligned with NASA Priorities		
Earmark	**Funding**	**Description**
Initiative for NASA education K-12	$200,000	Initiative did not reflect strategic goals of Innovative Partnerships and proposed to provide materials that were already available from OEd at no cost. Earmark project was to deliver Internet-based tools and education lessons to 30 schools and 20,000 students over a 3-year period. Project was not aligned with the Strategic Plan, which states that Innovative Partnerships will promote innovative technology partnerships among NASA, U.S. industry, and other sectors for the benefit of Agency programs and projects. Project supports goals of secondary education programs in OEd that already provided tools and educational materials similar to those provided by the earmark project.
Research of grid computing-based evolutionary design techniques across NASA applications	$4,500,000	Research did not align with OCIO or exploration systems priorities. Research involved grid computing-based design techniques that may result in automatic design software with potential application on long-term space missions. Techniques were not discussed in OCIO goals stated in the Strategic Plan or goals for long-term space missions discussed in the Strategic Plan. We found no current or future plans within NASA for efforts in the area of automatic design software. Grid computing-based evolutionary design techniques are not mentioned in the ESAS report as an exploration system priority.

Source: OIG analysis of earmark work statements.

NASA's Oversight of Earmarks and Other Expenditures

Oversight consists of internal control procedures over the evaluation, award, and monitoring of earmarks and other procurement expenditures. For our statistically selected sample, we compared NASA's oversight requirements for earmarks to the oversight requirements for other expenditures. NASA's procedures for implementing and administering earmarks provide that earmark grants are subject to the same oversight requirements as other grant expenditures. Specifically, GIC 06-01 states

> Grant and contracting officers processing non-competitive grants and cooperative agreements resulting from unsolicited proposals and proposals for renewals, shall comply with applicable coverage in 14 C.F.R. Part 1260, i.e., Grant Handbook.

We tested NASA's implementation of oversight requirements for 29 site-specific earmarks in our statistically selected sample that were grant awards. We found that personnel responsible for evaluating, awarding, and monitoring earmarks generally complied with the Agency's oversight requirements. We also found that NASA technical officers for 12 of the 29 earmarks (41 percent) provided earmark recipients with assistance to ensure that recipients' proposals demonstrated relevance to mission and scientific merit. The assistance,

which was encouraged but not required under NASA policy, included performing multiple technical evaluations as earmark recipients revised and resubmitted their proposals.

A researcher submitting a grant proposal either in response to a competitive solicitation or as an unsolicited grant proposal does not receive similar assistance with proposals. NASA's policy for proposals submitted in response to a competitive announcement states that it is the principal investigator's responsibility to ensure that the proposal is relevant to the mission and guidelines stated in the announcement. The policy further states NASA will make selection decisions based on the most scientifically excellent proposals that meet those guidelines. NASA's policy for unsolicited proposals allows discussion between the researcher and Agency prior to selection but states that the discussion is limited to understanding NASA's need for the research. Based on discussions with technical officers, those policies are followed, and non-earmark recipients do not typically receive the additional assistance provided to earmark recipients.

Our statistically selected sample included only one contract with tasks funded by the earmark. The contract included clauses that stated oversight requirements from Federal and NASA acquisition regulations. Those regulations are used to establish oversight requirements for other NASA contracts.

If you have any questions concerning this audit, please contact me at 358-1220 or Ms. Evelyn Klemstine, the Assistant Inspector General for Auditing, at 358-2572.

signed

Robert W. Cobb

10 Enclosures

cc:
Legislative Affairs Officer
Legislative Affairs Specialist
Audit Liaison Representative, ESMD
Audit Liaison Representative, ARM

Scope and Methodology

Scope

Fieldwork for the audit was conducted from October 2006 through August 2007. For this audit, a congressional earmark was defined as a provision of law, a directive, or item represented in any table, chart, or text contained within a joint explanatory statement or a report accompanying a bill that specifies the identity of an entity, program, project, or service and the amount of the assistance to be received. We limited our audit to FY 2006 earmarks.

Methodology

To identify the total number of FY 2006 earmarks, we interviewed officials from the Office of Legislative Affairs (OLA) regarding methods by which earmarks were communicated to the Agency. We reviewed Conference Report on H.R. 2862, "Science, State, Justice, Commerce, and Related Agencies Appropriations Act, 2006," and OLA records.

To estimate the total cost of earmarks in FY 2006, we interviewed Headquarters and Center officials about the Agency's use of full cost accounting practices on earmarks. We determined from interviews and documentation that Center costs for overhead and administrative effort by Center technical officers were not deducted in accordance with full cost accounting practices. To determine a value for Center overhead, we applied the Center overhead rate to the cost of civil servants working directly on an earmark. To determine a value for administrative effort by Center technical officers, we obtained an estimate of the time devoted to that effort (communicating with earmark designees, reviewing proposals, and monitoring earmark recipients' efforts). We multiplied technical officer time estimates by Center labor rates and added other expenses, such as travel, that were incurred for the administrative effort. We applied Center overhead and fringe rates and subtracted Center overhead that had already been deducted from earmark funding. We projected the value of additional administrative effort for the 30 statistically selected earmarks to the universe of site-specific earmarks (see Enclosure 9).

To assess the overall impact of earmarks on advancing the primary mission and goals of the Agency, we conducted interviews with NASA program executives, resource analysts, procurement officers, financial officials, and technical officers for the earmark projects. We interviewed technical officers and reviewed pertinent records to determine the work scope that was funded by earmarks. We compared the work scope to the Agency's priorities as defined in internal and external program documents. We verified the results of our comparisons with NASA technical officers. We surveyed technical officers for earmark grant projects to identify indicators of technical performance. We also determined the percentage of competitive awards and reviewed existing policies on competition. We determined the value of earmarks in our sample that did not align. We projected the value of earmarks that did not align in our statistically selected sample to the universe of site-specific earmarks (see Enclosure 10).

To determine the oversight NASA conducted on earmarks and how that oversight compared to the oversight on other expenditures, we interviewed NASA program executives and procurement officials to obtain an understanding of Agency oversight procedures. We reviewed Agency procedures for implementing and administering earmarks and compared oversight requirements for earmarks to the oversight requirements for other procurement expenditures. We interviewed technical officers, reviewed grant files, and obtained contract information to determine the nature and extent of oversight conducted on sampled earmarks. We did not evaluate whether NASA's oversight procedures were effective in helping the Agency achieve intended procurement outcomes.

We performed our audit procedures on a sample of NASA's 199 FY 2006 earmarks. The sample consisted of all 12 programmatic earmarks valued at $280.7 million, and a statistically selected sample of 30 site-specific earmarks valued at $40.7 million. The results of our statistically selected sample were projected to the universe of site-specific earmarks as described in Enclosures 9 and 10.

Sampled Programmatic Earmarks	
Programmatic Earmark in Each Mission Directorate or Cross-Agency Support Office	**Amount**
Aeronautics Research	
Aeronautics Research Program	$60,000,000
Education	
Experimental Program to Stimulate Competitive Research (EPSCoR)	8,200,000
Space Grant Program	12,200,000
Exploration Systems	
National Center for Advanced Manufacturing	20,000,000
Alternative Small Spacecraft Technologies	20,000,000
Propulsion Research Laboratory	15,000,000
Heavy Lift Launch Vehicle	5,000,000
Science	
Hubble Space Telescope Servicing Mission	80,300,000
Glory Mission	30,000,000
Earth Science Competitive Grant Program	15,000,000
Space Interferometry Mission	10,000,000
Living With a Star Program	5,000,000
Total programmatic earmarks (12)	**$280,700,000**

Statistically Sampled Site-Specific Earmarks	
Site-Specific Earmark in Each Mission Directorate or Cross-Agency Support Office	**Amount**
Aeronautics Research	
Research of propagating and predicting uncertainty in dynamic systems	$3,000,000
Aeronautics research of which $1 million is for a demonstration of the Navy's Joint Aviation Technical Data Integration program into civilian applications	4,000,000
Education	
Space exploration education program	700,000
Collegiate innovative teacher training initiative	1,000,000
University academic programs	1,000,000
Collegiate integrated education center	1,000,000
Public school system math and science programs	150,000
Space education learning center	600,000
Science center exhibits	250,000
University education initiative	1,000,000
Exploration Systems	
Collaborative research on innovative carbon nanotechnology	1,000,000
Space technology program	1,000,000
University development and enhancement of space flight technologies	1,000,000
Program for high-power pulsed inductive thruster technology research	2,000,000
University research of rejuvenating injured tissues for enhanced wound healing	1,000,000
Laboratory initiative for a modeling and simulation test bed environment	1,000,000
Support for research in nanotechnology and biotechnology	2,000,000
Support for research and development in nanotechnology, biotechnology, and information technology	2,000,000
Other Cross-Agency Support Offices	
Research of grid computing-based evolutionary design techniques across NASA applications	4,500,000
Infrastructure upgrades to accommodate unmanned aerial vehicles	4,000,000
Initiative for NASA education K-12	200,000
Science	
University center for earth observing research	2,000,000
Collaborative research of earth science applications	2,000,000
University research of deep submicron radiation hard electronics	500,000
University laboratory for advanced scintillator materials	800,000
University support of a large millimeter telescope project	750,000
Project to support geospatial sciences	200,000
University research of Sun-climate and extra solar planets	300,000
University digital image archive center	750,000
University center for space and planetary sciences	1,000,000
Total site-specific earmarks (30)	**$40,700,000**

Summary of Sampled Earmarks (dollars in millions)			
Mission Directorate or Cross-Agency Support Office	**Sampled Programmatic Earmarks**	**Statistically Sampled Site-Specific Earmarks**	**Totals**
Aeronautics Research	$ 60.0	$ 7.0	$ 67.0
Education	20.4	5.7	26.1
Exploration Systems	60.0	11.0	71.0
Other Cross-Agency Support	–	8.7	8.7
Science	140.3	8.3	148.6
Totals	**$280.7**	**$40.7**	**$321.4**

Criteria Used to Assess Alignment with Priorities

To assess whether the sampled earmarks aligned with NASA's priorities, we compared the work scope of the 42 sampled earmarks to Agency priorities as defined in internal and external program documents listed below.

Aeronautics Research

- National Aeronautics and Space Act of 1958
- NASA Policy Directive (NPD) 1001.0, "2006 NASA Strategic Plan," February 7, 2006
- Vision-100 Century of Aviation Reauthorization Act of 2003
- NASA, "Fundamental Aeronautics Hypersonic Proposal," April 28, 2006 draft
- NASA, "Fundamental Aeronautics Hypersonics Project Reference Document," May 25, 2006
- NASA, "Fundamental Aeronautics Program Subsonic Fixed Wing Project Reference Document," not dated
- NASA, "Fundamental Aeronautics Subsonic – Rotary Wing Reference Document," May 26, 2006
- NASA, "Fundamental Aeronautics Program Supersonics Project Reference Document," May 26, 2006
- NASA, "Next Generation Air Transportation System (NGATS) Air Traffic Management (ATM) Air Portal Project Reference Material," February 19, 2007
- NASA, "NGATS ATM Airspace Project Reference Material," June 1, 2006
- National Institute of Aeronautics, "Responding to the Call: Aviation Plan for American Leadership," April 2005
- National Research Council, "Decadal Survey of Civil Aeronautics: Foundation for the Future," 2006
- National Research Council, "Aeronautics Innovations: NASA's Challenges and Opportunities," 2006

Education

- 2006 NASA Strategic Plan
- NASA, "NASA Education Strategic Coordination Framework: A Portfolio Approach," June 26, 2006

Exploration Systems

- 2006 NASA Strategic Plan
- "NASA's Exploration Systems Architecture Study (ESAS) Final Report," November 2005

Exploration Systems (continued)

- National Research Council, "Assessment of NASA's Mars Architecture 2007−2016," 2006

Other Cross-Agency Support Offices

- 2006 NASA Strategic Plan
- "NASA's Exploration Systems Architecture Study (ESAS) Final Report," November 2005

Science

- 2006 NASA Strategic Plan
- NASA, "Earth Science Enterprise Strategy," October 1, 2003
- NASA, "Space Science Enterprise Strategy," October 1, 2003
- NASA, "Sun-Solar System Connection Strategic Roadmap," May 22, 2005
- NASA, "Exploring Our Planet for the Benefit of Society," May 2005
- NASA, "Universe Exploration: From the Big Bang to Life," May 20, 2005
- NASA, "Agency Objective Statement, Strategic Roadmap #4, The Search for Earth-Like Planets," 2005
- NASA, "SRM3: The Solar System Exploration Strategic Roadmap," 2005
- NASA, "NASA Earth Science Research Plan," January 6, 2005 Draft
- National Research Council, "Earth Science and Applications from Space: Urgent Needs and Opportunities to Serve the Nation," 2005
- National Research Council, "Review of Goals and Plans for NASA's Space and Earth Sciences," 2006
- National Research Council, "Earth Science and Applications from Space: National Imperatives for the Next Decade and Beyond," 2007 Prepublication Copy
- National Research Council, "An Assessment of Balance in NASA's Science Programs," 2006
- National Research Council, "Science in NASA's Vision for Space Exploration," 2005
- NASA, "Report of the Planetary Science Subcommittee of the NASA Advisory Council Science Committee," September 25−26, 2006

Sampled Programmatic Earmarks that Aligned with Priorities

To assess whether the sampled programmatic earmarks aligned with NASA's priorities, we compared the work scope of the earmarks to Agency priorities as defined in internal and external program documents including NASA planning documents and studies that identified NASA's priorities. This listing shows only the primary documents we used.

Programmatic Earmarks that Aligned with NASA's Priorities		
Mission Directorate or Cross-Agency Support Office	**Amount**	**Program Documents Used to Assess Alignment with Priorities**
Aeronautics Research		
Aeronautics Research Program	$60,000,000	National Aeronautics and Space Act of 1958 and 2006 NASA Strategic Plan, Sub-goal 3E
Education		
Experimental Program to Stimulate Competitive Research (EPSCoR)	8,200,000	2006 NASA Strategic Plan, Strategic Communications: Education Initiative
Space Grant Program	12,200,000	2006 NASA Strategic Plan, Strategic Communications: Education Initiative
Exploration Systems		
National Center for Advanced Manufacturing	20,000,000	2006 NASA Strategic Plan, Goals 4 and 6
Alternative Small Spacecraft Technologies	20,000,000	2006 NASA Strategic Plan, Goals 5 and 6, Sub-goal 3F
Propulsion Research Laboratory	15,000,000	2006 NASA Strategic Plan, Goals 4 and 6
Heavy Lift Launch Vehicle	5,000,000	2006 NASA Strategic Plan, Goals 4 and 6
Science		
Hubble Space Telescope Servicing Mission	80,300,000	2006 NASA Strategic Plan, Goal 1; Sub-goal 3D
Glory Mission	30,000,000	2006 NASA Strategic Plan, Sub-goals 3C and 3D
Earth Science Competitive Grant Program	15,000,000	2006 NASA Strategic Plan, Goal 3
Space Interferometry Mission	10,000,000	2006 NASA Strategic Plan, Sub-goals 3C and 3D
Living With a Star Program	5,000,000	2006 NASA Strategic Plan, Sub-goals 3B and 3C
Total programmatic earmarks that align with priorities (12)	**$280,700,000**	

Statistically Sampled Site-Specific Earmarks that Aligned with Priorities

To assess whether the sampled site-specific earmarks aligned with NASA's priorities, we compared the work scope of the earmarks to Agency priorities as defined in internal and external program documents, including NASA planning documents and studies that identified NASA's priorities. This listing shows only the primary documents we used.

Site-Specific Earmarks that Aligned with NASA's Priorities		
Mission Directorate or Cross-Agency Support Office	**Amount**	**Program Documents Used to Assess Alignment with Priorities**
Aeronautics Research		
Research of propagating and predicting uncertainty in dynamic systems	$3,000,000	2006 NASA Strategic Plan, Sub-goal 3E
Aeronautics research—$1 million is for a demonstration of civilian applications for the Navy's Joint Aviation Technical Data Integration program	4,000,000	2006 NASA Strategic Plan, Sub-goal 3E
Education		
Space exploration education program	700,000	2006 NASA Strategic Plan, Strategic Communications: Education Initiative
Collegiate innovative teacher training initiative	1,000,000	2006 NASA Strategic Plan, Strategic Communications: Education Initiative
University academic programs	1,000,000	2006 NASA Strategic Plan, Strategic Communications: Education Initiative
Collegiate integrated education center	1,000,000	2006 NASA Strategic Plan, Strategic Communications: Education Initiative
Public school system math and science programs	150,000	2006 NASA Strategic Plan, Strategic Communications: Education Initiative
Space education learning center	600,000	2006 NASA Strategic Plan, Strategic Communications: Education Initiative
Science center exhibits	250,000	2006 NASA Strategic Plan, Strategic Communications: Education Initiative
University education initiative	1,000,000	2006 NASA Strategic Plan, Strategic Communications: Education Initiative
Exploration Systems		
Space technology program	1,000,000	2006 NASA Strategic Plan, Strategic Communications: Education Initiative
University development and enhancement of space flight technologies	1,000,000	2006 NASA Strategic Plan, Goals 4 and 6, Sub-goal 3F
Program for high-power pulsed inductive thruster technology research	2,000,000	2006 NASA Strategic Plan, Goals 4 and 6
University research of rejuvenating injured tissues for enhanced wound healing	1,000,000	2006 NASA Strategic Plan, Sub-goal 3F
Laboratory initiative for a modeling and simulation test bed environment	1,000,000	2006 NASA Strategic Plan, Goal 6; Sub-goal 3F

Site-Specific Earmarks that Aligned with NASA's Priorities		
Mission Directorate or Cross-Agency Support Office	**Amount**	**Program Documents Used to Assess Alignment with Priorities**
Other Cross-Agency Support Offices		
Infrastructure upgrades to accommodate unmanned aerial vehicles	4,000,000	2006 NASA Strategic Plan, Sub-goal 3E
Science		
University center for earth observing research	2,000,000	2006 NASA Strategic Plan, Sub-goal 3A
Collaborative research of earth science applications	2,000,000	2006 NASA Strategic Plan, Sub-goal 3A
University laboratory for advanced scintillator materials	800,000	2006 NASA Strategic Plan, Goal 3
University support of a large millimeter telescope project	750,000	2006 NASA Strategic Plan, Goal 3
Project to support geospatial sciences	200,000	2006 NASA Strategic Plan, Sub-goal 3A
Total site-specific earmarks that align with priorities (21)	**$28,450,000**	

NASA's Process for Identifying, Awarding, and Monitoring Site-Specific Earmarks

Within each of the phases illustrated below, some tasks are performed concurrently rather than sequentially.

Identification Phase

Office of Legislative Affairs

- Communicate with House and Senate Committees to identify earmark sponsors
- Communicate with sponsors to obtain information about intended recipients
- Consult with Mission Directorates, Cross-Agency Support Offices, and senior management to determine best fit
- Assign earmarks to Mission Directorates and Cross-Agency Support Offices
- Make intial contact with recipients to discuss the NASA awards process and verify contact information
- Provide contact information to procurement offices and the NASA Shared Services Center (NSSC)

Mission Directorates and Support Offices

- Redirect funding to provide for earmarks
- Adjust work scope and schedule for affected projects to reflect changes in funding
- Designate centers to be responsible for earmark award and oversight

Procurement Offices and the NASA Shared Services Center (NSSC)

- Assign Grants/Contracting Officers
- Solicit recipients' cost and technical proposals

Proposal Evaluation and Award Phase

Office of Legislative Affairs

- Monitor progress toward award
- Respond to Congressional and recipient inquiries regarding status of awards

Financial Management Offices

- Monitor progress toward award
- Ensure appropriate accounting for the earmark
- Review and sign the DORA

NASA Technical Officers

- Review the recipient's cost and technical proposal
- Communicate with the recipient to ensure that proposed efforts are relevant to the NASA mission
- Request and review revised proposals, as needed
- Prepare the Documentation of Readiness for Award (DORA) and submit to the Financial Management Office

Procurement Offices and NSSC

- Determine whether the award should be a grant, cooperative agreement, or contract
- Review the proposal for cost reasonableness
- Award funds to the recipient

Monitoring and Performance Evaluation Phase

NASA Technical Officers

- Communicate with the recipient during the period of performance, as needed
- Review interim and final technical reports

Calculation of Additional Administration Costs

NASA follows full cost accounting principles throughout Agency programs. Those principles were followed on earmark projects in three ways. First, NASA reduced earmark funding for Government-wide budget reductions and the corporate overhead rate. Second, the Center responsible for managing the earmark project applied a Center overhead rate. Centers were not required to apply an overhead rate but had the option of applying the lesser of 1 percent of the earmark's value or $20,000. Third, the responsible Center deducted the cost of civil servants working directly on the project.

However, for 22 of the 42 earmarks in our sample, the full costs of Center overhead and administrative effort by Center technical officers were not accounted for as earmark project costs. Those costs should have been charged to earmarks under the Agency's full cost accounting practices. As shown below, we estimate that NASA incurred administration costs of $8 million more than the total amount of earmark funds identified in Conference Report on H.R. 2862, "Science, State, Justice, Commerce, and Related Agencies Appropriations Act, 2006."

Programmatic Earmarks	
Universe of 12 Programmatic Earmarks	$ 280,700,000
Additional Administration Costs	4,268,983[a]
Audited Full Cost of Programmatic Earmarks	$ 284,968,983
Site-Specific Earmarks	
Universe of 187 Site-Specific Earmarks	$ 287,475,000
Estimated Additional Administration Costs	3,756,260[b]
Estimated Full Cost of Site-Specific Earmarks	$ 291,231,260
Combined Audited and Estimated Full Cost of FY 2006 Earmarks	
Audited Full Cost of Programmatic Earmarks	$ 284,968,983
Estimated Full Cost of Site-Specific Earmarks	291,231,260
Total Estimated Full Cost	$ 576,200,243
Combined Audited and Estimated Full Cost of FY 2006 Earmarks	$ 576,200,243
(Less) Congressionally Directed Spending per H.R. 2862	(568,175,000)
Additional Administration Costs	**$ 8,025,243**

[a] We calculated the actual cost of administrative effort and related overhead for all FY 2006 programmatic earmarks. The calculation was based on technical officer estimates of time spent on earmark administration.

[b] The estimate of additional technical officer administration is based on our review of 30 statistically selected site-specific earmarks. Our review identified additional administration costs of $531,802 or 1.3 percent ($531,802 ÷ $40,700,000) more than the amount funded in the Conference Report. We applied the 1.3 percent increase to the universe of 187 site-specific earmarks (1.3 percent × $287,475,000) to estimate the cost of additional technical officer administration.

Calculation of Earmarks not Aligned with Priorities

Our assessment determined earmark funds were spent for research and other projects that did not align with Agency priorities. We estimated $86.5 million was associated with FY 2006 earmarks that did not align, as shown in the cost calculation below.

FY 2006 Earmarks not Aligned with Priorities	
Universe of 187 Site-Specific Earmarks	$ 287,475,000
Percentage that did not align [a]	30.1%
Estimate of FY 2006 Earmarks not Aligned	$ 86,525,031

[a] The estimate of FY 2006 earmarks that did not align is based on our review of 30 statistically selected site-specific earmarks. Our review identified 9 of the 30 site-specific earmarks that did not align with NASA priorities. The 9 earmarks that did not align were valued at $12,250,000 or 30.1 percent ($12,250,000 ÷ $40,700,000) of the sample universe.