NASA ADVISORY COUNCIL
National Aeronautics and Space Administration
Washington, DC 20546
Dr. Kenneth M. Ford, Chairman

March 9, 2011

Mr. Charles F. Bolden, Jr.
Administrator
National Aeronautics and Space Administration
Washington, DC 20456

Dear Administrator Bolden:

The NASA Advisory Council held a very productive public meeting at NASA Headquarters in Washington, DC, on February 10-11, 2011. We appreciated the time you were able to spend with us in the midst of your extremely busy schedule just prior to the release of the President's Budget for FY 2012.

As a result of its deliberations, the Council approved four recommendations, two findings, and three observations. They are enclosed for your consideration, along with the minutes from our meeting to provide additional background.

Thank you for the opportunity to provide our insights and advice concerning NASA and the U.S. civil space program. If you have any questions or wish to discuss further, please contact me.

Sincerely,

Kenneth M. Ford
Chairman

Enclosures

NASA Advisory Council Recommendation

Public Outreach for Commercial Activities
2011-01-01 (CSC-01)

Name of Committee:	Commercial Space Committee
Chair of Committee:	Mr. Bretton Alexander
Date of Council Public Deliberation:	February 11, 2011
Short Title of Recommendation:	Public Outreach for Commercial Activities

Recommendation: The Council recommends that NASA encourage existing Commercial Orbital Transportation Services contractors to work with NASA's Office of Communications to integrate public outreach into mission planning and operations. The Council also recommends that NASA's Office of Communications draft a recommended commercial partner public outreach and participatory exploration policy (including contingency media/communications plans) to serve as a guideline when developing future partner agreements.

Major Reasons for the Recommendation: Current Commercial Orbital Transportation Services contracts between NASA and private sector space entities do not include any guidelines to insure reasonable public access to mission activities. The Space Act of 1958 requires NASA to "provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof." Public participation in space exploration remains a NASA priority to insure continued funding, recruit talent and inspire interest in Science, Technology, Engineering, and Mathematics (STEM) education. Therefore, it is in the mutual interest of the space agency and its commercial partners to ensure the public is granted a "front row seat" to future missions, providing such access is legal and does not compromise the intellectual property rights of the commercial entity, or unnecessarily divert resources away from higher priority mission activities.

Consequences of No Action on the Recommendation: NASA may not be able to effectively "provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof" as required by the Space Act of 1958.

NASA Advisory Council Recommendation

NASA Advisory Council Committees Should Meet as a Group at Least Once a Year
2011-01-02 (EC-01)

Name of Committee:	Exploration Committee
Chair of Committee:	Mr. Richard Kohrs
Date of Council Public Deliberation:	February 10, 2011
Short Title of Recommendation:	NASA Advisory Council Committees Should Meet as a Group at Least Once a Year

Recommendation: The Council recommends to the Administrator that its nine committees meet as a group and/or in selected groups, at least once a year, with an agenda that cuts across the interests of the committees and with an opportunity to hear from the Administrator and share their perspectives on issues related to NASA activities.

Major Reasons for the Recommendation: The previous NASA Administrator had a NASA Advisory Council that operated as one unit, with all members attending the Advisory Council meeting. The current NASA Administrator has chosen to organize the NAC into nine NAC committees that operate somewhat independently and are represented at the Advisory Council only by committee chairs. Prior experience indicates that potential efficiencies are gained by shared deliberations and "cross pollination" of information and expertise among disciplines. Some committees have met jointly to share their experience with each other and have brought forward joint observations, findings and recommendations. It would be beneficial to NASA to have committees come together to integrate efforts, hold cross-discipline meetings and explore systems approaches that can potentially lead to increased quality, efficiency, cost reduction, risk reduction, etc. that might not be apparent when working separately. Further, this would allow NASA leadership to efficiently communicate priorities, introduce new directions and receive feedback.

Consequences of No Action on the Recommendation: Without this coordination, the various committees may perform redundant work, offer advice that fails to recognize unintended consequences, or provide recommendations that are not well informed.

NASA Advisory Council Recommendation

Communicating the Human Spaceflight Vision
2011-01-03 (SOC-01)

Name of Committee:	Space Operations Committee
Chair of Committee:	Col. Eileen Collins (USAF, Ret.)
Date of Council Public Deliberation:	February 10, 2011
Short Title of Recommendation:	Communicating the Human Spaceflight Vision

Recommendation: The Council believes there is a disconnect between the human spaceflight vision at the top levels of the Agency and the perception that is prevalent throughout the NASA civil servant and contractor workforce. The success of commercial launch to low Earth orbit is imperative to the success of the NASA exploration beyond low Earth orbit, including the capability for multiple destinations, with the ultimate goal being Mars. We recommend that a clear vision of the overall NASA direction of its human spaceflight program be communicated to the workforce and the public, to include the commercial and deep space exploration components. NASA should publish specific goals and objectives, and communications should include an enrollment plan, town hall meetings, the NASA website, social media, and other forums. Follow-up will be required to ensure that the message is received, and that actions are underway commensurate with the vision.

Major Reasons for the Recommendation: Motivate the workforce behind the vision. A more informed workforce is more productive. Improve NASA's image with the public. Tie in with Science, Technology, Engineering, and Mathematics (STEM) education and inspiration. Eliminate the perception of competition between low-Earth orbit and deep space programs.

Consequences of No Action on the Recommendation: Potential lack of workforce commitment and motivation. A potentially deteriorating NASA image, both internally and externally.

NASA Advisory Council Recommendation

Use of Secondary Payloads for Technology Demos
2011-01-04 (TIC-01)

Name of Committee:	Technology and Innovation Committee
Chair of Committee:	Ms. Esther Dyson
Date of Council Public Deliberation:	February 10, 2011
Short Title of Recommendation:	Use of Secondary Payloads for Technology Demos

Recommendation: The Council recommends that NASA encourage the use of secondary payloads (where feasible) on future NASA and commercial missions as an important capability for testing, validating and demonstrating new technologies and scientific payloads in the coming years.

Major Reasons for the Recommendation: The Council discussed the underutilization of NASA and commercial expendable launch vehicles (ELV's) and reusable launch vehicles (RLV's) launch capacities for secondary flight payloads for technology validation and demonstrations. The Council believes that NASA should encourage missions with additional payload capacity to make it available for research. Secondary payloads are vital for testing and proving many technology capabilities, especially in times of constrained budgets and resources.

Consequences of No Action on the Recommendation: Missed opportunity to utilize an underused resource for technology demonstrations. Many transformative technologies that could be validated as a secondary payload would remain at a lower Technology Readiness Level (TRL) level and may not advance for use on later NASA missions.

NASA Advisory Council Finding

NASA/FAA/EPA Research Coordination and Collaboration in Environmental Impacts of Aviation

Name of Committee:	Aeronautics Committee
Chair of Committee:	Ms. Marion Blakey
Date of Council Public Deliberation:	February 11, 2011
Short Title of Finding:	NASA/FAA/EPA Research Coordination and Collaboration in Environmental Impacts of Aviation

Finding: The Council is encouraged to see strong coordination and collaboration in research between NASA and the Federal Aviation Administration (FAA) concerning environmental impacts of aviation and hopes that collaboration will continue. The Council also believes NASA's technical expertise and research can lend support to the Environmental Protection Agency's (EPA's) standards setting and regulatory policy initiatives as related to aviation, such as greenhouse gas emissions, and therefore supports a more proactive collaboration with EPA.

NASA Advisory Council Finding

Human Exploration Framework Team (HEFT) Report

Name of Committee:	Exploration Committee
Chair of Committee:	Mr. Richard Kohrs
Date of Council Public Deliberation:	February 10, 2011
Short Title of Finding:	HEFT Report

Finding: The Council applauds the Human Exploration Framework Team (HEFT) report. The HEFT approach has evolved over the last months with a strategy able to support multiple mission options that could be selected in future decisions, based on budget availability. The Council agrees with HEFT's conclusion that a capabilities-based strategy for future exploration can be an excellent basis for a sustainable, realistic, and affordable space exploration program. The Council is concerned about how NASA will handle the management aspects of this strategy; e.g., acquisition strategy, contract incentives, internal organization within NASA. The Council also encourages NASA to continue its dialogue with external organizations to seek best-practices and benchmarks for successful affordability initiatives. (This includes initiatives currently underway in the Air Force, and the initiatives defined in the Defense Science Board's 'Adaptability Study.')

NASA Advisory Council Observation

Grass Roots Innovation and Research at NASA Centers

Name of Committee:	Technology and Innovation Committee
Chair of Committee:	Ms. Esther Dyson
Date of Council Public Deliberation:	February 10, 2011
Short Title of Observation:	Grass Roots Innovation and Research at NASA Centers

Observation: Both Langley Research Center (LaRC) and Kennedy Space Center (KSC) have significant and important technology and innovation work underway. The Technology and Innovation Committee was particularly impressed with the Multifunctional Electrospun fibers, the Electron-Beam Free-form Fabrication, the Boron Nitrite Nanotubes and plans for Airborne Wind Capture at LaRC. The Committee was impressed with the Cryogenics laboratory and research, the smart coating research for Corrosion and Detection and Protection, Dust Mitigation Technologies, and the "smart wiring" research and technologies at KSC. Many of these technologies have various immediate or potential commercial applications. The Council encourages the continuation of this grass-roots innovation and research at all NASA Centers. The Council believes the adoption of Center Chief Technologists at all of the NASA Field Centers encourages innovation by the NASA civil servant workforce.

NASA Advisory Council Observation

Managed Risk in Innovation and Technology Development

Name of Committee:	Technology and Innovation Committee
Chair of Committee:	Ms. Esther Dyson
Date of Council Public Deliberation:	February 10, 2011
Short Title of Observation:	Managed Risk in Innovation and Technology Development

Observation: During the Technology and Innovation Committee's visit to both Langley Research Center and Kennedy Space Center, there seemed to be issues with technologists being isolated and not sharing or even seeking knowledge beyond their own organization or Center. Additionally, in some cases researchers need to be encouraged to be less risk-averse – especially in the technology development and commercialization arena. More discussion needs to happen throughout the Agency about managed risk and pushing the risk envelope in innovation and technology development – and making the distinction between risk that one can learn from and risk that endangers lives. NASA should consider changes to the reward system to encourage researchers to take informed risk.

NASA Advisory Council Observation

Intellectual Property Protection and Administration

Name of Committee:	Technology and Innovation Committee
Chair of Committee:	Ms. Esther Dyson
Date of Council Public Deliberation:	February 10, 2011
Short Title of Observation:	Intellectual Property Protection and Administration

Observation: NASA should consider reviewing its approach towards intellectual property protection and administration. A more active approach could assist in reinforcing the Agency's reputation as a technology hub, validate the efforts of leading NASA technologists, safeguard the public investment into NASA technology developments, and promote a more direct link between specific NASA technology and how it benefits humankind.