

NASA Advisory Council
National Aeronautics and Space Administration
Washington, DC 20546

General Lester L. Lyles (USAF, Ret.), Chair

April 7, 2017

Mr. Robert M. Lightfoot, Jr.
Acting Administrator
National Aeronautics and Space Administration
Washington, DC 20546

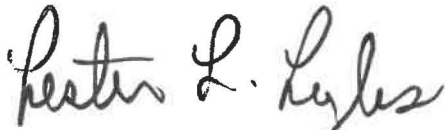
Dear Acting Administrator Lightfoot: 

The NASA Advisory Council held its first public meeting of 2017 at NASA Headquarters, Washington, DC, on March 30-31, 2017.

As a result of our deliberations, and in accordance with our "two-tier" approach for transmitting recommendations and findings to the NASA leadership, the Council approved one Council recommendation and one Council finding for your consideration (enclosed). The Council also approved three Committee findings and two Task Force recommendations for consideration by the NASA Associate Administrators. Copies of the latter also are enclosed for your information and awareness. The Council recommendation to you, and the two recommendations to the Associate Administrators, are on the very important Education mission. These comments reflect the Council's unanimous concerns with the possible budget impacts to NASA's Office of Education.

If you have any questions or wish to discuss this further, please do not hesitate to contact me.

Sincerely,



General Lester L. Lyles (USAF, Ret.)
Chair

Enclosures

NASA Advisory Council Recommendation

NASA Education Budget Alignment 2017-01-01 (STEM TF-01)

Name of Committee:	Ad Hoc Task Force on STEM Education
Chair of Committee:	Dr. Anita Krishnamurthi
Date of Council Public Deliberation:	March 31, 2017
Short Title of Finding:	NASA Education Budget Alignment

Recommendation: The budget for NASA's education efforts should be aligned with the goals articulated in the NASA Education Implementation Plan (NEIP). Budget stability is critical to long range planning by NASA and grantees. Budgets across funding offices should be aligned with the NEIP and coordinated with the Office of Education.

Major Reasons for the Recommendation:

- NASA education has many demands in a tight fiscal environment.
- The NEIP is simply a visionary document unless resources are allocated to its implementation.
- Uncertain and fluctuating budgets for NASA education lead to difficulty with planning NASA programs.
- Uncertainty also causes difficulties for undergraduate and graduate students, universities (including minority serving universities) and other grantees who rely on stable funding environments. The lack of stable funding is particularly disruptive for low-income and minority students.

Consequences of No Action on the Recommendation:

- The gap between stakeholder expectations for NASA's role in education and what NASA is able to do will remain.
- There will be continued fragmentation between activities conducted by multiple NASA offices.
- STEM training for undergraduate and graduate students will be impacted. Minorities, women and students with disabilities will be disproportionately impacted.

NASA Advisory Council Finding

Asteroid Redirect Mission

Name of Committee: Human Exploration and Operations Committee

Chair of Committee: Mr. Kenneth Bowersox

Date of Council Public Deliberation: March 30-31, 2017

Short Title of Finding: Asteroid Redirect Mission

Finding: The Asteroid Redirect Mission (ARM) team has worked diligently over the last several years to develop the systems and operations to retrieve a large sample from an asteroid and return it to the vicinity of the Earth. The mission analysis and system design work performed by the ARM team will have a tremendous influence on the way deep space exploration will be performed in the future. The NASA Advisory Council commends the members of the ARM team for their hard work and creativity.

NASA Advisory Council – Committee Finding

**Aeronautics Committee Finding
to NASA Associate Administrator for
Aeronautics Research Mission Directorate**

**Aeronautics Research Mission Directorate
Overarching Plan**

Name of Committee:	Aeronautics Committee
Chair of Committee:	Ms. Marion Blakey
Date of Council Public Deliberation:	March 30, 2017
Short Title of Finding:	Aeronautics Research Mission Directorate Overarching Plan

Finding: The NAC Aeronautics Committee finds that the current NASA Aeronautics research portfolio is relevant and forward leaning, much more so than in the past. The Committee endorses the path that the Aeronautics Research Mission Directorate (ARMD) is taking and recognizes that it is headed in the right direction. The NASA Aeronautics portfolio has a promising future in meeting National needs, and it is vital that ARMD continue to build strong partnerships with other government agencies and industry.

NASA Advisory Council – Committee Finding

Aeronautics Committee Finding to NASA Associate Administrator for Aeronautics Research Mission Directorate

Aeronautics Research Mission Directorate On-Demand Mobility

Name of Committee:	Aeronautics Committee
Chair of Committee:	Ms. Marion Blakey
Date of Council Public Deliberation:	March 30, 2017
Short Title of Finding:	Aeronautics Research Mission Directorate On-Demand Mobility

Finding: The NAC Aeronautics Committee is encouraged by the Aeronautics Research Mission Directorate (ARMD) investigation into concepts and technology for On-Demand Mobility (ODM). Although this field is in the early stage of development, the Committee recognizes and agrees with the high potential of this emerging market. The Committee recognizes that there is a fundamental question that needs to be answered regarding the roles of government vs. industry. NASA should not try to duplicate anything that industry is doing but focus on the most compelling areas that need to get accomplished by the government. The market is going to drive development of air vehicles but new infrastructure, certification and operational concepts, particularly in light of developments in artificial intelligence and autonomy, will be needed for the industry to flourish. In order for the U.S. to stay competitive and lead in this technology, the Committee believes that NASA needs to focus future work on these other areas in order to help the industry and the public. The Committee encourages NASA to partner with industry to learn a new way of thinking in a fast moving technology field. At the same time, NASA should maintain focus on infrastructure and certification, specifically as it pertains to autonomous systems and operational concepts.

NASA Advisory Council – Committee Finding

**Institutional Committee Finding
to NASA Associate Administrator for
Mission Support Directorate**

**NASA Human Capital
Business Services Assessment Implementation Plan**

Name of Committee:	Institutional Committee
Chair of Committee:	Ms. Kathryn Schmoll
Date of Council Public Deliberation:	March 30, 2017
Short Title of Finding:	NASA Human Capital Business Services Assessment Implementation Plan

Finding: After conducting an independent assessment of the NASA Human Capital Business Services Assessment (BSA) Implementation Plan and the specific business case regarding the classification and staffing functions, the NAC Institutional Committee believes the NASA decision to centralize classification and staffing functions at the NASA Shared Services Center (NSSC) as described in the implementation plan is based on sound governance, good business acumen and comprehensive consideration of mission requirements and risks. The NAC Institutional Committee believes the NASA plan is a necessary and positive step for the future of the Agency, and that NASA should continue to implement the noted plans to centralize classification and staffing at the NSSC.

NASA Advisory Council – Task Force Recommendation

**STEM Task Force Recommendation
to NASA Associate Administrator for Education**

Strategic Focus for NASA Education Solicitation Cycle

Name of Committee:	Ad Hoc Task Force on STEM Education
Chair of Committee:	Dr. Anita Krishnamurthi
Date of Council Public Deliberation:	March 31, 2017
Short Title of Finding:	Strategic Focus for NASA Education Solicitation Cycle

Recommendation: NASA should determine a strategic focus for each solicitation cycle and prioritize the majority of non-directed discretionary funds of the total NASA Education Budget to support that strategy. For example, we encourage NASA to consider focusing on particular age bands, geographic areas, segments of the population, or content areas in each solicitation cycle. To make this determination, NASA should collect and utilize additional impact data to inform solicitations and strategic directions for NASA’s education programs.

Major Reasons for the Recommendation:

- NASA education programs serve a very large array of audiences with limited resources. Narrowing down on a target audience or geography will help to focus the resources in a more strategic manner leading to greater impact.

Consequences of No Action on the Recommendation:

- NASA education funding will be spread thin among many different priorities and it will be difficult to both meaningfully affect all the populations served and to document substantive impact.

NASA Advisory Council – Task Force Recommendation

STEM Task Force Recommendation to NASA Associate Administrator for Education

Best Practices for NASA Education Programs

Name of Committee:	Ad Hoc Task Force on STEM Education
Chair of Committee:	Dr. Anita Krishnamurthi
Date of Council Public Deliberation:	March 31, 2017
Short Title of Finding:	Best Practices for NASA Education Programs

Recommendation: NASA education programs must contribute to the larger knowledge base of best practices in STEM Education. All grantees should be encouraged to publish their final reports and share their findings widely in public presentations beyond NASA audiences. Create a public database or participate in an existing one such as the Center for Advancement of Informal Science Education (CAISE) www.informalscience.org website to share NASA education programs' results and findings with the larger STEM education community.

Major Reasons for the Recommendation:

- NASA education programs and findings need to become more widely known among the broader STEM education community and be incorporated into the larger discussions of STEM education reform.
- Knowledge about the breadth and impact of NASA's education programs is often confined to stakeholders interested in or already knowledgeable about NASA. Consequently, the structure and impacts of NASA's education programs are not as widely known by the larger STEM education community who can be allies.
- STEM education researchers and advocates will be influential in incorporating discussions about NASA's education investments in larger conversations about STEM education reform in the United States and NASA's crucial role in that effort.

Consequences of No Action on the Recommendation:

- NASA education risks being insular and mysterious to the wider STEM education community.