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

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

August 4, 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 second public meeting of 2017 at the National Institute of Aerospace, Hampton, Virginia, on July 27-28, 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 three Council findings for your consideration (enclosed). The Council also approved one Committee recommendation and eight Committee findings for consideration by the NASA Associate Administrators. Copies of the latter also are enclosed for your information and awareness.

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

Cybersecurity Scorecard by NASA Center
2017-02-01 (IC-01)

Name of Committee:	Institutional Committee
Chair of Committee:	Mr. James Jennings *(for Ms. Kathryn Schmoll, Chair)*
Date of Council Public Deliberation:	July 27, 2017
Short Title of Recommendation:	Cybersecurity Scorecard by NASA Center

Recommendation: The Council recommends that the Office of the Chief Information Officer (OCIO), in collaboration with the NASA Information Technology (IT) Council:

- Develop and determine the content/methodology of a cybersecurity scorecard to be applied to each NASA Center.
- Limit the scorecard metrics to those that would foster continuous improvement to the Agency's overall cybersecurity posture.
- Complete the scorecard on a quarterly basis.

Major Reasons for the Recommendation: A scorecard-based tool would:

- Provide motivation and energize NASA Centers to actively engage in, and be compliant with, sound cybersecurity policies.
- Reward and reinforce positive behaviors.
- Help the OCIO identify successes and challenges to potentially drive decisions for future cybersecurity investments.

Consequences of No Action on the Recommendation: Cybersecurity intrusions threaten the security and reputational risk to NASA and the Federal Government. Without transparency and accountability down to local operational levels, there can be lack of ownership for cybersecurity lapses.

NASA Advisory Council Finding

Efforts of NASA and the Office of Education

Name of Committee:	Ad Hoc Task Force on STEM Education
Chair of Committee:	Dr. Aimee Kennedy
Date of Council Public Deliberation:	July 27, 2017
Short Title of Finding:	Efforts of NASA and the Office of Education

Finding: The Council acknowledges the efforts of NASA and the Office of Education:

- The team has been executing the FY 2017 plan while simultaneously planning for FY 2018 while completing the process of the Business Services Assessment (BSA).
- The Council recognizes the pressure and complexity facing the team, and we applaud them for their commitment and efforts to inspire the next generation of the NASA workforce.

NASA Advisory Council Finding

Cooperation between the NASA Human Exploration and Operations Mission Directorate and Science Mission Directorate

Name of Committees:	Science Committee Human Exploration and Operations Committee
Chair of Committee:	Dr. Bradley Peterson Mr. Kenneth Bowersox
Date of Council Public Deliberation:	July 27, 2017
Short Title of Finding:	Cooperation between the NASA Human Exploration and Operations Mission Directorate and Science Mission Directorate

Finding: The Council finds that it is clear from the presentations and discussions during the joint session of the Human Exploration and Operations (HEO) Committee and Science Committee that the NASA Human Exploration and Operations Mission Directorate (HEOMD) and Science Mission Directorate (SMD) are working well together, and have already identified opportunities for cooperation on future activities such as the Deep Space Gateway and servicing, and possible future assembly of deep-space telescopes. The Council believes that this collaboration is beneficial to NASA.

NASA Advisory Council Finding

International Space Station (ISS) Phaseout

Name of Committee:	Human Exploration and Operations Committee
Chair of Committee:	Mr. Kenneth Bowersox
Date of Council Public Deliberation:	July 27, 2017
Short Title of Finding:	International Space Station (ISS) Phaseout

Finding: The Council finds that the International Space Station (ISS) is a critical facility for development of systems that will be used for deep space exploration, especially for life support systems. Current projections show approximately two years of run-time on deep space exploration life support systems onboard ISS – in preparation for what may be a three-year crewed mission to Mars in the 2030s. While the official commitment to ISS currently ends in 2024, the Council believes that it is likely that exploration development in low Earth orbit will need to be continued past 2024.

Ideally, the end of government support for the ISS would be determined by clear criteria for its required use, availability of commercial alternatives, and would be a gradual reduction in support rather than a sharp cutoff at a fixed date. Early understanding of ISS availability after 2024 will improve the station's science utilization and improve the likelihood that commercial providers will be able to sustain low Earth orbit operational capability after the government reduces support.

NASA Advisory Council – Committee Recommendation

Institutional Committee Recommendation
to NASA Associate Administrator
for Mission Support Directorate

Utilization of Geographic Information System (GIS)
to Assist in Managing Aging Infrastructure

Name of Committee:	Institutional Committee
Chair of Committee:	Mr. James Jennings *(for Ms. Kathryn Schmoll, Chair)*
Date of Council Public Deliberation:	July 27, 2017
Short Title of Recommendation:	Utilization of Geographic Information System (GIS) to Assist in Managing Aging Infrastructure

Recommendation: The Institutional Committee recommends that NASA develop and implement an Agency-wide strategy to utilize the Geographic Information System (GIS) to assist in managing NASA's aging infrastructure. This strategy should leverage the existing NASA Langley Research Center model and include Conditioned Based Monitoring (CBM) strategies and applications.

Major Reasons for the Recommendation: NASA Langley Research Center has successfully implemented GIS and CBM tools to reduce their facility maintenance costs. A similar Agency-wide initiative could yield similar achievements and cost-savings across the Agency.

Consequences of No Action on the Recommendation: Loss of opportunity to:

- Improve the Agency's maintenance posture.
- Take advantage of potential savings based on a proven model.

NASA Advisory Council – Committee Finding

Science Committee Finding
to NASA Associate Administrator for
Science Mission Directorate

Earth Observations Socio-Economic Value

Name of Committee:	Science Committee
Chair of Committee:	Dr. Bradley Peterson
Date of Council Public Deliberation:	July 27, 2017
Short Title of Finding:	Earth Observations Socio-Economic Value

Finding: The Science Committee and former Earth Science Subcommittee support efforts to better assess socio-economic implications of improved Earth observations from space. Related to this topic, the Science Committee and former Earth Science Subcommittee support efforts to improve integration between Applied Sciences and Research, and the creation of the consortium to assess socio-economic values of improved Earth observations from space.

NASA Advisory Council – Joint Committee Finding

Human Exploration and Operations Committee
and Science Committee
Joint Committee Finding
to NASA Associate Administrators for
Human Exploration and Operations Mission Directorate
and Science Mission Directorate

Servicing and Assembly of Satellites On-Orbit

Name of Committees:	Science Committee Human Exploration and Operations Committee
Chair of Committee:	Dr. Bradley Peterson Mr. Kenneth Bowersox
Date of Council Public Deliberation:	July 27, 2017
Short Title of Finding:	Servicing and Assembly of Satellites On-Orbit

Finding: Both the Human Exploration and Operations (HEO) Committee and Science Committee were pleased that the servicing and assembly of large satellites, such as future deep space telescopes or other scientific instruments, is being explored by groups internal to NASA as well as groups representing broader communities that include NASA representation. The HEO and Science Committees believe that these efforts are valuable contributions for planning for the Deep Space Gateway which could enable or enhance on-orbit servicing or assembly of future space assets and potentially lower costs for large satellites.

NASA Advisory Council – Joint Committee Finding

Human Exploration and Operations Committee
and Science Committee
Joint Committee Finding
to NASA Associate Administrators for
Human Exploration and Operations Mission Directorate
and Science Mission Directorate

Deep Space Gateway Workshop

Name of Committees:	Science Committee Human Exploration and Operations Committee
Chair of Committee:	Dr. Bradley Peterson Mr. Kenneth Bowersox
Date of Council Public Deliberation:	July 27, 2017
Short Title of Finding:	Deep Space Gateway Workshop

Finding: Both the Human Exploration and Operations (HEO) Committee and Science Committee commend NASA's efforts to maximize the science benefit of the Deep Space Gateway as specified in the existing Decadal Surveys and other key NASA science planning documents.

NASA Advisory Council – Committee Finding

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

FY 2018 Budget for Aeronautics Research Mission Directorate

Name of Committee:	Aeronautics Committee
Chair of Committee:	Ms. Marion Blakey
Date of Council Public Deliberation:	July 27, 2017
Short Title of Finding:	FY 2018 Budget for Aeronautics Research Mission Directorate

Finding: The Aeronautics Committee believes that aeronautics is and will continue to be a strong factor for the U.S. economy. The Committee finds that NASA provided an excellent overview of the NASA Aeronautics portfolio, and is appropriately supporting the spectrum of what is needed by both the traditional and emerging aviation communities. NASA is making excellent progress on its Low Boom Flight Demonstrator X-plane. The Committee endorses NASA's work in the New Aviation Horizons X-planes initiative, and sees concrete benefits to the U.S. industry. The Committee continues to urge NASA to be aggressive in addressing the airspace integration, autonomy and other key needs for emerging aviation users.

NASA Advisory Council – Committee Finding

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

New Aviation Horizons

Name of Committee:	Aeronautics Committee
Chair of Committee:	Ms. Marion Blakey
Date of Council Public Deliberation:	July 27, 2017
Short Title of Finding:	New Aviation Horizons

Finding: The Aeronautics Committee strongly supports the NASA Aeronautics budget for X-planes and recognizes that NASA has worked very hard for the current budget levels. The Committee finds that NASA should consider opportunities to integrate autonomous operations into the New Aviation Horizons (NAH) initiative. The Committee also finds that NASA should be careful not to sacrifice other investments in emerging market areas (Unmanned Aircraft Systems, Urban Air Mobility, etc.) in the event of X-plane cost escalation.

NASA Advisory Council – Committee Finding

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

University Leadership Initiative

Name of Committee:	Aeronautics Committee
Chair of Committee:	Ms. Marion Blakey
Date of Council Public Deliberation:	July 27, 2017
Short Title of Finding:	University Leadership Initiative

Finding: The Aeronautics Committee commends NASA for the effort to successfully launch the University Leadership Initiative (ULI). The Committee was very impressed with the objective and approach to the initiative, including the competitive award process used by NASA. There was expressed concern about the ability of the U.S. educational system to motivate students to pursue STEM careers. The Committee believes that ULI is a great example of an initiative that can address this issue. NASA has a great reputation worldwide and ULI should be amplified so that more students can take advantage of the opportunities offered.

NASA Advisory Council – Committee Finding

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

Airspace Transportation Demonstration

Name of Committee:	Aeronautics Committee
Chair of Committee:	Ms. Marion Blakey
Date of Council Public Deliberation:	July 27, 2017
Short Title of Finding:	Airspace Transportation Demonstration

Finding: The Aeronautics Committee finds that NASA should further highlight to the public the contributions it is making to NextGen. The Airspace Transportation Demonstrations (ATDs) are providing tangible benefits to the airlines and flying public that are not widely recognized, but critical to fulfilling the NextGen vision. The Committee encourages NASA to push toward demonstrating higher levels of automation and autonomy to increase the benefits further.

NASA Advisory Council – Committee Finding

Technology, Innovation and Engineering Committee Finding to NASA Associate Administrator for Space Technology Mission Directorate

Support for Space Technology Mission Directorate Revised Strategic Framework

Name of Committee:	Technology, Innovation and Engineering Committee
Chair of Committee:	Dr. William Ballhaus
Date of Council Public Deliberation:	July 27, 2017
Short Title of Finding:	Support for Space Technology Mission Directorate Revised Strategic Framework

Finding: The Technology, Innovation and Engineering Committee agrees with the revised strategic framework presented by the Space Technology Mission Directorate (STMD). The Committee suggests two additional considerations within the Mega-Drivers:

- Consideration of safety/risk (Increasing Access).
- Responsible stewardship/debris mitigation (Growing Utilization of Space).

The outcomes are currently being defined, and the implementation plan and ownership of outcomes remain to be defined. The Committee will re-engage with STMD at the November 2017 meeting.