

**U.S. House of Representatives  
Committee on Science, Space, and Technology  
Subcommittee on Space**

**HEARING CHARTER**

*NASA Infrastructure: Enabling Discovery and Ensuring Capability*

**Friday, September 20, 2013  
9:30 a.m. – 11:30 p.m.  
2318 Rayburn House Office Building**

**Purpose**

On Friday, September 20th, the Space Subcommittee will hold a hearing to review NASA’s efforts to manage its facilities and infrastructure, the agency’s current legislated authorities, and its proposed legislation to provide greater flexibility to the agency.

**Witnesses**

- **The Honorable Paul K. Martin**, Inspector General, National Aeronautics and Space Administration
- **Mr. Richard Keegan**, Associate Deputy Administrator, National Aeronautics and Space Administration

**Background**

NASA is the ninth largest Federal Government real property holder; however, nearly 80 percent of the agency’s facilities are 40 or more years old.<sup>1</sup> A 2012 study by NASA estimated that NASA may have as many as 865 unneeded facilities, with maintenance costs of over \$24 million a year.<sup>2</sup> Similarly, NASA has a backlog of over \$2.19 billion in deferred maintenance.<sup>3</sup>

The NASA Office of the Inspector General (OIG), the Government Accountability Office (GAO), the National Academies, and Congress have repeatedly highlighted the need to address NASA’s aging infrastructure. The NASA OIG issued an audit report in February 2013 titled, “NASA’s Efforts to Reduce Unneeded Infrastructure and Facilities.”<sup>4</sup> In August 2012, the NASA OIG issued an audit report titled, “NASA’s Infrastructure and Facilities: An Assessment

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<sup>1</sup> “NASA’s Efforts to Reduce Unneeded Infrastructure and Facilities.” Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf> , p.i

<sup>2</sup> “NASA’s Efforts to Reduce Unneeded Infrastructure and Facilities.” Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf> , p.i

<sup>3</sup> “Deferred Maintenance Assessment Report,” NASA, October 1, 2012.

<sup>4</sup> “NASA’s Efforts to Reduce Unneeded Infrastructure and Facilities.” Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf>

of the Agency's Real Property Leasing Practices<sup>5</sup>." Several reports related to NASA's infrastructure were also released in 2011, including "NASA's Infrastructure and Facilities: An Assessment of the Agency's Real Property Master Planning<sup>6</sup>," "NASA's Infrastructure and Facilities: Assessment of Data Used to Manage Real Property Assets<sup>7</sup>," and "Preparing for the Space Shuttle Program's Retirement: Review of NASA's Controls over Public Sales of Space Shuttle Property."<sup>8</sup> The GAO issued several reports highlighting problems with Federal Real Property in 2007, as well as a 2012 report on NASA's Enhanced Use Leasing. A GAO report going as far back as 1996 noted that NASA would not meet its goal of reducing excess infrastructure by 25 percent by the end of that decade.<sup>9</sup> See Appendix A for a more complete list of reports and recommendations related to NASA's infrastructure.

A 2012 National Academies report included the following recommendation:

"With respect to NASA centers: The administration and Congress should adopt regulatory and legislative reforms that would enable NASA to improve the flexibility of the management of its centers; and NASA should transform its network of field centers into an integrated system that supports its strategic plan and communications strategy and advances its strategic goals and objectives."<sup>10</sup>

The same report opined that, "If NASA were given more authority to manage its infrastructure instead of leaving this process to GSA, the agency could take better advantage of opportunities in the private sector."<sup>11</sup>

The NASA Authorization Act of 2010 required a study of NASA's institutional requirements that would identify "a strategy to evolve toward the most efficient retention, sizing, and distribution of facilities, laboratories, test capabilities, and other infrastructure consistent with NASA's missions and mandates," stating that the Administrator, "should pay particular attention to identifying and removing unneeded or duplicative infrastructure."<sup>12</sup> NASA's response described a strategy to translate the Agency Facilities Strategy developed in 2009 into results through the creation of an Agency Master Plan (discussed below), and specifically through more integrated and prominent governance, specific facilities consolidation and renewal metrics, and a

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<sup>5</sup> "NASA's Infrastructure and Facilities: An Assessment of the Agency's Real Property Leasing Practices." Office of Inspector General. August 9, 2012. <http://oig.nasa.gov/audits/reports/FY12/IG-12-020.pdf>

<sup>6</sup> "NASA's Infrastructure and Facilities: An Assessment of the Agency's Real Property Master Planning." Office of Inspector General. December 19, 2011. <http://oig.nasa.gov/audits/reports/FY12/IG-12-008.pdf>

<sup>7</sup> "NASA's Infrastructure and Facilities: Assessment of Data Used to Manage Real Property Assets." Office of Inspector General. August 4, 2011. <http://oig.nasa.gov/audits/reports/FY11/IG-11-024.pdf>

<sup>8</sup> "Preparing for the Space Shuttle Program's Retirement: Review of NASA's Controls over Public Sales of Space Shuttle Property." Office of Inspector General. March 15, 2011. <http://oig.nasa.gov/audits/reports/FY11/IG-11-016.pdf>

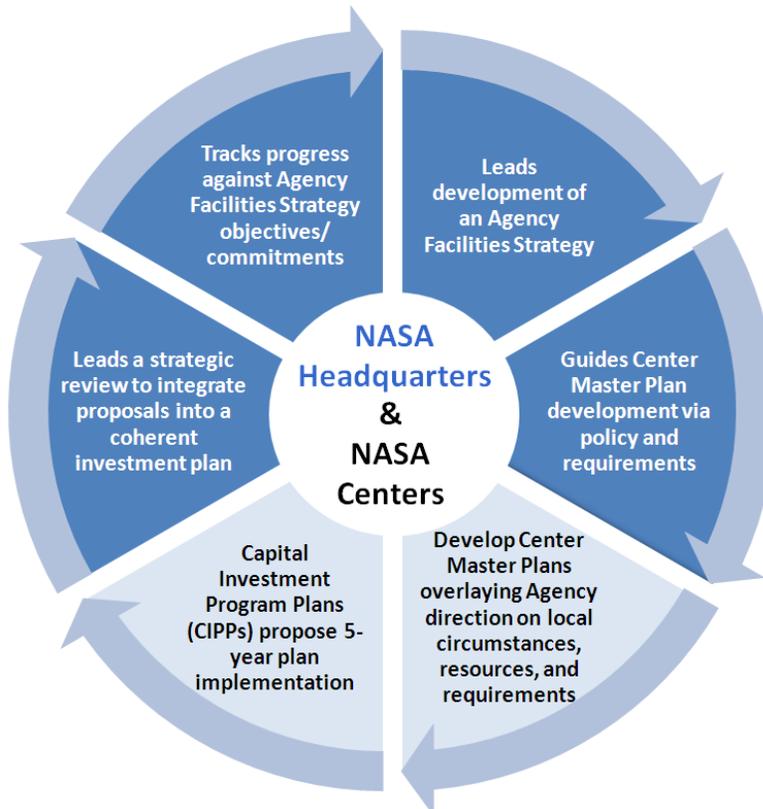
<sup>9</sup> "NASA's Efforts to Reduce Unneeded Infrastructure and Facilities." Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf>, p.i

<sup>10</sup> "NASA's Strategic Direction and the Need for a National Consensus." The National Academy of Sciences. 2012. [http://www.nap.edu/catalog.php?record\\_id=18248](http://www.nap.edu/catalog.php?record_id=18248), P. 6

<sup>11</sup> "NASA's Strategic Direction and the Need for a National Consensus." The National Academy of Sciences. 2012. [http://www.nap.edu/catalog.php?record\\_id=18248](http://www.nap.edu/catalog.php?record_id=18248), P. 48

<sup>12</sup> Public Law 111-267, "NASA Authorization Act of 2010."

more “corporate” model for managing technical capabilities efficiently and effectively.<sup>13</sup> In terms of governance, the report highlighted the elevation of the mission support function to the directorate level in 2010, the establishment of the Mission Support Council, and the initiation of the Corporate Portfolio Management Program.<sup>14</sup> For metrics, the report noted NASA’s goal of a 10% reduction by 2020 and a 15% reduction by 2050. The division of responsibilities between Centers and Headquarters in responding to the challenges highlighted in the NASA Authorization Act of 2010 is illustrated below<sup>15</sup>:



In 2009, NASA developed an Agency Facilities Strategy and subsequently developed its first Agency-wide integrated master plan, based on Center input, to implement this strategy and align funding with facilities requirements.<sup>16</sup> A December 2011 OIG report on the development of the Agency master plan found deficiencies within the individual Center plans that had the potential to limit the Agency plan’s usefulness. Specifically, the OIG report found that the Center plans “(1) were developed using funding assumptions for the recapitalization program that are no longer realistic and (2) are missing essential information needed to make objective Agency-wide real property decisions. In addition, 5 of the 10 Centers did not develop master plans to reduce

<sup>13</sup> “NASA Institutional Requirements Study pursuant to Section 1102, NASA Authorization Act of 2010.” February 2012. p.4

<sup>14</sup> “NASA Institutional Requirements Study pursuant to Section 1102, NASA Authorization Act of 2010.” February 2012. p.25

<sup>15</sup> “NASA Institutional Requirements Study pursuant to Section 1102, NASA Authorization Act of 2010.” February 2012. p .24

<sup>16</sup> “NASA’s Efforts to Reduce Unneeded Infrastructure and Facilities.” Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf> , p.v-vi

their real property footprint in accordance with Agency goals because of uncertain mission requirements.”<sup>17</sup>

The December 2011 report recommended that NASA:

- provide clear guidance to Centers on the information needed in the Centers’ master plans;
- ensure that plans to reduce the Agency’s real property footprint more fully consider the specific mission of the individual Centers when setting reduction requirements; and
- update NASA policy to better reflect the current risk-based process for prioritizing institutional Construction of Facilities projects.<sup>18</sup>

The February 2013 OIG report on NASA facilities maintenance indicated that the Agency was still implementing the recommendations made in the December 2011 audit.<sup>19</sup>

The most recent NASA OIG report noted that reducing infrastructure and facilities is a challenge because of the considerable changes in mission focus over the past six years due to the end of the Space Shuttle program, the initiation of the Constellation Program in 2004 and subsequent termination in 2010, and the development of the Space Launch System and Orion crew capsule. Agency culture and business practices, political pressure, and inadequate funding were also identified as challenges.<sup>20</sup>

NASA currently utilizes several methods to reduce its infrastructure footprint. NASA may report excess property to the General Services Administration (GSA), which may subsequently sell the asset or transfer it to another Federal agency. At the completion of such a transfer, the property no longer belongs to NASA. NASA may out-grant an underutilized asset to another Federal entity through lease, easement, permit, license, Space Act Agreement, or a Memorandum of Understanding or Agreement. In this situation, the asset remains in NASA’s possession, even if it is used by another entity. Similarly, NASA may lease an underutilized asset to the private sector or a non-Federal public sector entity. In leasing any non-excess real property and related personal property to a non-Federal entity, NASA may use an enhanced use lease (EUL) for the arrangement, which allows NASA to retain and use the proceeds from the lease.<sup>21</sup> EUL began as a pilot program after the Consolidated Appropriations Resolution of 2003 amended the National Aeronautics and Space Act of 1958 (“Space Act”) to state that the Administrator may enter into a lease with any person or entity for property under NASA jurisdiction at two centers.<sup>22,23</sup> NASA

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<sup>17</sup> “NASA’s Infrastructure and Facilities: An Assessment of the Agency’s Real Property Master Planning.” Office of Inspector General. December 19, 2011. <http://oig.nasa.gov/audits/reports/FY12/IG-12-008.pdf> p.iii

<sup>18</sup> “NASA’s Infrastructure and Facilities: An Assessment of the Agency’s Real Property Master Planning.” Office of Inspector General. December 19, 2011. <http://oig.nasa.gov/audits/reports/FY12/IG-12-008.pdf> , p.15-16

<sup>19</sup> “NASA’s Efforts to Reduce Unneeded Infrastructure and Facilities.” Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf> , p.vi

<sup>20</sup> “NASA’s Efforts to Reduce Unneeded Infrastructure and Facilities.” Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf> , p.ii

<sup>21</sup> NASA Real Estate Desktop Guide.

[http://www.hq.nasa.gov/office/codej/codejx/Assets/Docs/NASA\\_Real\\_Estate\\_Desktop\\_Guide\\_July\\_2012\\_FINAL.pdf](http://www.hq.nasa.gov/office/codej/codejx/Assets/Docs/NASA_Real_Estate_Desktop_Guide_July_2012_FINAL.pdf)

<sup>22</sup> Public Law 108-7, “Consolidated Appropriations Resolution of 2003.”

<sup>23</sup> “NASA Desk Guide for Enhanced Use Leasing of Real Property.” National Aeronautics and Space Administration. February 2010.

[http://www.hq.nasa.gov/office/codej/codejx/Assets/Docs/EUL\\_Desk\\_Guide\\_Feb\\_2010.pdf](http://www.hq.nasa.gov/office/codej/codejx/Assets/Docs/EUL_Desk_Guide_Feb_2010.pdf)

selected the Kennedy Space Center in Florida and Ames Research Center in California for this pilot program. Congress subsequently expanded the EUL program to include all Centers in 2008, with additional restrictions added.<sup>24</sup>

In 2012, NASA began preparing for a comprehensive technical capability assessment to identify and evaluate the capabilities of individual Centers against the current and future needs of the Agency.<sup>25</sup> The assessment would enable NASA to rank each Center's principal capabilities and evaluate them against the needs of each Mission Directorate to identify potential areas of consolidation. The February 2013 OIG report cautioned that the Agency would face challenges in this process, including "transparency of the process to internal and external stakeholders and the inevitable political opposition to eliminating or consolidating capabilities and associated infrastructure at NASA Centers."<sup>26</sup> The report recommended that NASA's Associate Administrator complete the technical capabilities assessment and "ensure that the assessment includes a process for communicating decisions to outside stakeholders and is established into Agency policy."<sup>27</sup>

## **ISSUES**

### **Lack of a Comprehensive Exploration Roadmap**

One of the greatest challenges facing NASA's management of its facilities and infrastructure is the lack of a comprehensive roadmap to identify long-term mission needs for human spaceflight exploration of the solar system. Without a long-term goal or destination the agency is unable to determine the facilities and infrastructure necessary to implement a strategy to achieve that goal. Last month, NASA released the International Space Exploration Coordination Group (ISECG) Global Exploration Roadmap (GER) that outlined an "international effort to prepare for collaborative space exploration missions beginning with the International Space Station (ISS)

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<sup>24</sup> The Consolidated Appropriations Act of 2008 (Public Law No: [110-161](#)) specified that EUL was to be used for "any non-excess real property and related personal property" as opposed to "any real property". This legislation also: limited the consideration that could be supplied for a lease, removing maintenance or construction as an option required that cash be provided for the lease at fair market (rather than other specified services, as had previously been allowed); required certification that a lease will not have a negative impact on NASA's mission; and added a sunset for EUL in December 2017.

The NASA Authorization Act of 2008 (Public Law No: [110-422](#)) required the development of an agency-wide EUL policy that would contain: criteria for determining whether enhanced-use lease provides better economic value to the Government than other options; requirements for the identification and costs of proposed changes needed to ensure security of a site; measures of effectiveness for the program; and accounting controls and procedures to ensure accountability. The legislation also specified that of cash received not used to cover the cost of the lease, 35 percent must be deposited in a capital asset account, and the remaining 65 percent available to the Center engaged in the lease for to be used for maintenance and improvements.

The Consolidated and Further Continuing Appropriations Act, 2012 (Public Law No: [112-55](#)) allowed in-kind consideration for leases for the purpose of developing renewable energy production facilities.

<sup>25</sup> "NASA's Efforts to Reduce Unneeded Infrastructure and Facilities." Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf>, p.vii

<sup>26</sup> "NASA's Efforts to Reduce Unneeded Infrastructure and Facilities." Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf>, p.vii

<sup>27</sup> "NASA's Efforts to Reduce Unneeded Infrastructure and Facilities." Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf>, p.viii

and continuing to the Moon, near-Earth asteroids, and Mars.”<sup>28</sup> This roadmap, however, is not a NASA-specific commitment, strategy, or plan. H.R. 2687 and S. 1317, the NASA Authorization Acts passed by the House Science, Space, and Technology Committee and the Senate Commerce, Science, and Transportation Committee, respectively, both contained provisions directing NASA to develop such a roadmap.<sup>29,30</sup> Absent a roadmap and stability of purpose for NASA’s human spaceflight exploration mission objectives, NASA will continue to be unable to determine what facility and infrastructure capabilities are needed.

## **Management Options**

As NASA seeks to manage its infrastructure challenges, it is important that it follows a rigorous process to ensure that facilities and capabilities are not lost because of short-sighted decisions and that appropriate oversight is conducted to ensure taxpayer equities are appropriately considered. NASA should also follow an established and transparent process for determining whether to dispose of a property (by excess to GSA or demolition), or whether to grant the property to others. Similarly, NASA should establish a transparent process for determining what type of contractual out-grant mechanism (e.g., transfer, lease, etc.) should be utilized.

Another issue is whether additional legislative authorities are necessary for NASA to optimize property management, including the establishment of a capital fund which would allow NASA, or NASA centers, to manage funds derived from the private sector use of NASA facilities. Various capital fund proposals have also been accompanied with oversight mechanisms to ensure agency decisions are transparent and appropriate. Additional authorities include expanded permission to streamline the conveyance of property, broader EUL authority, and various other pilot projects. Different centers are also exploring innovative infrastructure strategies, such as Langley Research Center’s 20-Year Revitalization Plan.

## **Launch Complex 39A**

With the end of the Space Shuttle program in 2011, NASA is planning to lease Launch Complex 39A (LC 39A) at Kennedy Space Center to the private sector. Two companies, Space Exploration Technologies (SpaceX) and Blue Origin, have publically declared that they submitted proposals to operate LC 39A, with Blue Origin’s proposal aimed toward supporting a multi-user facility, while SpaceX proposes exclusive use of the launch pad. Earlier this month, Blue Origin filed a formal protest with the Government Accountability Office regarding the bid process.<sup>31</sup> A letter signed by five senators was also sent to Administrator Bolden raising concerns that an unfair advantage would be created by an exclusive lease to SpaceX.<sup>32</sup>

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<sup>28</sup> The Global Exploration Roadmap, NASA, August 2013. [http://www.nasa.gov/sites/default/files/files/GER-2013\\_Small.pdf](http://www.nasa.gov/sites/default/files/files/GER-2013_Small.pdf)

<sup>29</sup> H.R. 2687, “National Aeronautics and Space Administration Authorization Act of 2013”. Representative Steven Palazzo et al. <http://lis.gov/cgi-lis/query/z?c113:H.R.2687>:

<sup>30</sup> S. 1317. “National Aeronautics and Space Administration Authorization Act of 2013.” Senator Bill Nelson et al. <http://lis.gov/cgi-lis/query/z?c113:S.1317>:

<sup>31</sup> Dean, James. “Launch company Blue Origin protests possible deal for pad 39A.” Florida Today. September 8, 2013. <http://www.floridatoday.com/article/20130908/SPACE/309080042/Launch-company-Blue-Origin-protests-possible-deal-pad-39A>

<sup>32</sup> Letter to Administrator Bolden from Senators Hatch, Inhofe, Landrieu, Murray, and Vitter. September 5, 2013.

## Shiloh

Space Florida, an independent agency for economic development for the state of Florida, has sought to acquire a NASA-owned site known as Shiloh, following the end of the Space Shuttle program.<sup>33</sup> Space Florida was initially rebuffed by NASA because “the property identified in [the] request has not been reported as excess. Furthermore, this property continues to serve NASA long-term mission requirements, as a buffer zone between NASA mission and local communities and as a potential site for future mission requirements.”<sup>34</sup> Conversations between NASA and Space Florida have continued, but without resolution.<sup>35</sup> In July 2013, Space Florida announced that it was soliciting an independent consultant to conduct an environmental study of the potential impacts of construction and operating a commercial launch complex at the site.<sup>36</sup>

## Arc Jet

On January 19, 2011, NASA decided that it would close the arc jet facility at the Johnson Space Center (JSC) and consolidate all operations at the Ames Research Center where another arc jet facility exists.<sup>37</sup> The expected savings of the consolidation was reportedly \$5 million per year.<sup>38</sup> NASA stated that the consolidation would not result in any foreseeable loss in capabilities, but if an additional need was identified it could supplement the Ames arc jet facility by utilizing a Department of Defense arc jet.<sup>39</sup> However, a report from the Office of the Chief Engineer found that “...proposed NASA missions over the next 30 years will require arc jet capabilities beyond what exist today” and that “...no current facility, including those at Arnold Engineering Development Center [DOD] and the Large Core Arc Tunnel [Boeing], can deliver the heating rates, pressures, and shear levels at the scale and duration needed for cost-effective, weight-efficient, and reliable design of thermal protection systems for safe return from Mar5s or near-Earth objects.”<sup>40</sup> Since the decision was announced, NASA initiated a \$22.9 million contract to replace the Complex Steam Vacuum System Boiler at ARC.<sup>41</sup>

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<sup>33</sup> Green, Amy. With NASA Shuttles Gone, Florida Towns Suffer, Court SpaceX. WNYC. May 3, 2013. [http://www.wnyc.org/blogs/transportation-nation/2013/may/03/florida\\_wants\\_nasa\\_to\\_turn\\_land\\_over\\_to\\_spacex\\_1/](http://www.wnyc.org/blogs/transportation-nation/2013/may/03/florida_wants_nasa_to_turn_land_over_to_spacex_1/)

<sup>34</sup> Matthews, M.K. “State scrambles to get NASA's OK for land to build Launchpad. The Orlando Sentinel. January 29, 2013. [http://articles.orlandosentinel.com/2013-01-29/news/os-shiloh-nasa-spacex-florida-20130127\\_1\\_space-florida-nasa-state-scrambles](http://articles.orlandosentinel.com/2013-01-29/news/os-shiloh-nasa-spacex-florida-20130127_1_space-florida-nasa-state-scrambles)

<sup>35</sup> Green, Amy. With NASA Shuttles Gone, Florida Towns Suffer, Court SpaceX. WNYC. May 3, 2013. [http://www.wnyc.org/blogs/transportation-nation/2013/may/03/florida\\_wants\\_nasa\\_to\\_turn\\_land\\_over\\_to\\_spacex\\_1/](http://www.wnyc.org/blogs/transportation-nation/2013/may/03/florida_wants_nasa_to_turn_land_over_to_spacex_1/)

<sup>36</sup> “Space Florida Initiates Environmental Study Process for Proposed Commercial Spaceport.” Space Ref. July 15, 2013. <http://www.spaceref.com/news/viewpr.html?pid=41185>

<sup>37</sup> “Arc Jet Testing Capabilities,” Memo from Associate Administrator for Mission Support Directorate to Officials-in Charge of Headquarters Offices and Directors, NASA Centers, February 14, 2011.

<sup>38</sup> Carreau, Mark, “NASA Fiscal 2014 Budget Trims Workforce, Facilities, Consultants,” Aerospace Daily & Defense Report, April 15, 2013.

<sup>39</sup> Letter from Seth Statler, Associate Administrator for Congressional Relations, to Rep. Pete Olson, June 5, 2012.

<sup>40</sup> Evaluation of the NASA Arc Jet Capabilities to Support Mission Requirements, NASA Office of the Chief Engineer, NASA/SP-2010-577, May 2010.

<sup>41</sup> “Replace Acr Jet Complex Steam Cavuum System Boiler,” Solicitation Number NNA13418436R, NASA, August 23, 2013.

## **Test Stands**

The February 2013 OIG report noted that, “As many as 14 of the Agency’s 35 rocket engine test stands are currently underutilized or NASA managers could not identify how these facilities are needed to support future missions. NASA’s use of test stands has declined in recent years primarily due to a lack of new, large-scale propulsion test programs. The ongoing development of the heavy-lift rocket associated with NASA’s Space Launch System (SLS) is not expected to alter this trend.”<sup>42</sup> However, various private sector interests have expressed interest in utilizing NASA test stands.

## **Wind Tunnels**

Facilities used by NASA’s Aeronautics Research Mission Directorate, such as wind tunnels, present a unique challenge in that NASA maintains infrastructure that is used by various American aerospace companies and other Federal agencies such as the Department of Defense. The February 2013 OIG report noted that, “At least 6 of NASA’s 36 wind tunnels are currently underutilized or NASA managers could not identify how these facilities are needed to support future missions. NASA’s use of wind tunnels has declined in recent years due to a reduction in the Agency’s aeronautics budget, fewer new aircraft developments by the Department of Defense and private industry, newer and more capable foreign testing facilities, and the advent of alternative testing methods such as Computational Fluid Dynamics.”<sup>43</sup> Determining the fate of these facilities requires discussion not only with NASA, but also with the other agencies and companies that may have a future needs for the national capability that NASA provides.

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<sup>42</sup> “NASA’s Efforts to Reduce Unneeded Infrastructure and Facilities.” Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf> , p.iii

<sup>43</sup> “NASA’s Efforts to Reduce Unneeded Infrastructure and Facilities.” Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf> .p.iii

## Appendix A: Reports Related to Infrastructure

### NASA

- **Augustine Commission Report:** “The right mission and the right size: NASA’s budget should match its mission and goals. Further, NASA should be given the ability to shape its organization and infrastructure accordingly, while maintaining facilities deemed to be of national importance.”<sup>44</sup>
  
- **Columbia Accident Investigation Board Report:**
  - “Deteriorating Shuttle Infrastructure: The same ambiguity about investing in Shuttle upgrades has also affected the maintenance of Shuttle Program ground infrastructure, much of which dates to Project Apollo and 1970s Shuttle Program construction. Figure 5.5-4 depicts the age of the Shuttle’s infrastructure as of 2000. Most ground infrastructure was not built for such a protracted lifespan. Maintaining infrastructure has been particularly difficult at Kennedy Space Center, where it is constantly exposed to a salt water environment. Board investigators have identified deteriorating infrastructure associated with the launch pads, Vehicle Assembly Building, and the crawler transporter. Figures 5.5-5 and 5.5-6 depict some of this deterioration. For example, NASA has installed nets, and even an entire sub-roof, inside the Vehicle Assembly Building to prevent concrete from the building’s ceiling from hitting the Orbiter and Shuttle stack. In addition, the corrosion-control challenge results in zinc primer on certain launch pad areas being exposed to the elements. When rain falls on these areas, it carries away zinc, runs onto the leading edge of the Orbiter’s wings, and causes pinholes in the Reinforced Carbon-Carbon panels (see Chapter 3). In 2000, NASA identified 100 infrastructure items that demanded immediate attention. NASA briefed the Space Flight Advisory Committee on this ‘Infrastructure Revitalization’ initiative in November of that year. The Committee concluded that “deteriorating infrastructure is a serious, major problem,’ and, upon touring several Kennedy Space Center facilities, declared them ‘in deplorable condition.’ NASA subsequently submitted a request to the White House Office of Management and Budget during Fiscal Year 2002 budget deliberations for \$600 million to fund the infrastructure initiative. No funding was approved. In Fiscal Year 2002, Congress added \$25 million to NASA’s budget for Vehicle Assembly Building repairs. NASA has reallocated limited funds from the Shuttle budget to pressing infrastructure repairs, and intends to take an integrated look at infrastructure as part of its new Shuttle Service Life Extension Program. Nonetheless, like Space Shuttle upgrades, infrastructure revitalization has been mired by the uncertainty surrounding the Shuttle Program’s lifetime. Considering that the Shuttle will likely be flying for many years to come, NASA, the White House, and

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<sup>44</sup> “Seeking a Human Spaceflight Program Worthy of a Great Nation.” Review of Human Spaceflight Plans Committee (Augustine Commission). [http://www.nasa.gov/pdf/396093main\\_HSF\\_Cmte\\_FinalReport.pdf](http://www.nasa.gov/pdf/396093main_HSF_Cmte_FinalReport.pdf), p.16

- Congress alike now face the specter of having to deal with years of infrastructure neglect.”<sup>45</sup>
- “O10.6-2 NASA and United Space Alliance managers must understand workforce and infrastructure requirements, match them against capabilities, and take actions to avoid exceeding thresholds.”<sup>46</sup>

## **NASA Office of Inspector General**

- **NASA’s Efforts to Reduce Unneeded Infrastructure and Facilities (February 12, 2013)**
  - **Recommendation 1.** Complete the ongoing comprehensive technical capabilities assessment and ensure the process is established into policy.
  - **Recommendation 2.** Ensure the assessment includes a process for communicating decisions to outside stakeholders to promote transparency and agreement.
  - **Recommendation 3.** Expedite implementation of Corporate Portfolio Management and ensure the process is updated, documented, and established into policy.
  - **Recommendation 4. a.** Implement changes to NASA Technical Capabilities Database to improve data accuracy, including developing a process to ensure multiple facilities are not captured under one capability.
  - **Recommendation 4. b.** Implement changes to NTCD to improve data accuracy, including developing and implementing a process to validate data input by the Centers into NTCD.<sup>47</sup>
- **NASA’s Infrastructure and Facilities: An Assessment of the Agency’s Real Property Leasing Practices (August 9, 2012)**
  - **Recommendation 1.** Clarify the criteria Centers should use to determine whether underutilized property has a current or future mission-related use and provide training to Center personnel on the revised criteria.
  - **Recommendation 2.** Coordinate with the Centers to develop a process to maintain a complete inventory of real property available for leasing.
  - **Recommendation 3.** Develop guidance that requires increased consideration of Federal entities for leasing opportunities and coordination with GSA to identify potential Federal tenants.
  - **Recommendation 4.** Develop guidance and training for personnel addressing the requirements and best practices for marketing leasing opportunities to non-Federal entities.
  - **Recommendation 5.** The Associate Administrator for Mission Support should clarify guidance to ensure the widest possible publication of leasing opportunities and competition when appropriate.

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<sup>45</sup> “Columbia Accident Investigation Board: Report Volume 1.” August 2003. [http://s3.amazonaws.com/akamai.netstorage/anon.nasa-global/CAIB/CAIB\\_lowres\\_full.pdf](http://s3.amazonaws.com/akamai.netstorage/anon.nasa-global/CAIB/CAIB_lowres_full.pdf), p. 221

<sup>46</sup> “Columbia Accident Investigation Board: Report Volume 1.” August 2003. [http://s3.amazonaws.com/akamai.netstorage/anon.nasa-global/CAIB/CAIB\\_lowres\\_full.pdf](http://s3.amazonaws.com/akamai.netstorage/anon.nasa-global/CAIB/CAIB_lowres_full.pdf), p. 221

<sup>47</sup> “NASA’s Efforts to Reduce Unneeded Infrastructure and Facilities.” Office of Inspector General. February 12, 2013. <http://oig.nasa.gov/audits/reports/FY13/IG-13-008.pdf>, p. 29.30

- **Recommendation 6.** The Associate Administrator for Mission Support should instruct Center management of the limitations of their signature authority regarding real property agreements.
- **Recommendation 7.** The Associate Administrator for Mission Support should review all real property agreements to ensure they are consistent with applicable statutes and regulations regarding proper signature authority and required contractual terms.
- **Recommendation 8.** We recommended that the Associate Administrator for Mission Support develop guidance for determining whether in-kind consideration provides the best value to the Government.<sup>48</sup>
- **NASA’s Infrastructure and Facilities: An Assessment of the Agency’s Real Property Master Planning (December 19, 2011)**
  - **Recommendation 1.** Provide clear guidance to the Centers on the information that should be included in Center master plans to ensure that key information is captured and consistent for all Centers. Information should include, at minimum, clear linkages between projects and Agency or Center goals, as well as information on all major institutional and programmatic CoF [Construction of Facilities] projects.
  - **Recommendation 2.** Ensure plans to reduce the Agency’s real property footprint more fully consider the specific missions of the individual Centers when setting real property reduction requirements.
  - **Recommendation 3.** Update NASA policy to better reflect the current risk-based process for prioritizing institutional CoF projects.<sup>49</sup>
- **NASA’s Infrastructure and Facilities: Assessment of Data Used to Manage Real Property Assets (August 4, 2011)**
  - **Recommendation 1.** Establish processes for the Centers that accurately capture the utilization rates of facilities in the RPMS [Real Property Management System]. These processes should include, at a minimum, the use of quantitative methods to calculate utilization rates and annual inspections of facilities.
  - **Recommendation 2.** Revise NASA policy to include guidance for conducting mission dependency reviews, including developing a consistent definition of the mission reviewers should consider when performing the reviews.
  - **Recommendation 3.** Reassess and revise, as appropriate, contracts for condition assessments to provide contractors sufficient detail and direction to ensure that the Agency is provided comprehensive assessments of the physical condition of its facilities.<sup>50</sup>
- **Preparing for the Space Shuttle Program’s Retirement: Review of NASA’s Controls over Public Sales of Space Shuttle Property (March 15, 2011)**
  - **Recommendation 1.a.** The Assistant Administrator for Strategic Infrastructure should coordinate with the Associate Administrator for International and

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<sup>48</sup> “NASA’s Infrastructure and Facilities: An Assessment of the Agency’s Real Property Leasing Practices.” Office of Inspector General. August 9, 2012. <http://oig.nasa.gov/audits/reports/FY12/IG-12-020.pdf> p. 12, 14-15, 22, 26

<sup>49</sup> “NASA’s Infrastructure and Facilities: An Assessment of the Agency’s Real Property Master Planning.” Office of Inspector General. December 19, 2011. <http://oig.nasa.gov/audits/reports/FY12/IG-12-008.pdf> p. 15-16

<sup>50</sup> “NASA’s Infrastructure and Facilities: Assessment of Data Used to Manage Real Property Assets.” Office of Inspector General. August 4, 2011. <http://oig.nasa.gov/audits/reports/FY11/IG-11-024.pdf> p. 15-16

Interagency Relations and include in the planned revision of NPR 4300.1A a clear explanation of how NASA's property disposition activities, including domestic property sales, could result in a violation of export control laws.

- **Recommendation 1.b.** The Assistant Administrator for Strategic Infrastructure should coordinate with the Associate Administrator for International and Interagency Relations and include in the planned revision of NPR 4300.1A requirements that responsible property disposal and export control personnel ensure that export control determinations are made before property is disposed of and that the eligibility of potential buyers is verified prior to releasing controlled items to them. At a minimum, verifying buyer eligibility should include verifying citizenship and comparing identities with both the Department of State's debarred parties list and the Department of Commerce's denied persons list prior to the sale of export controlled.
- **Recommendation 2.** The Associate Administrator for International and Interagency Relations should revise NPR 2190.1 to explain how NASA's domestic sales of property may result in exports and to require a review of Centers' export-controlled property disposition activities during annual Export Control Program audits.
- **Recommendation 3.** The Director, Kennedy Space Center, should clarify KDP-KSC-P-3716 and KDP-KSC-P-2613 to reflect the recommended revisions to NPR 4300.1A and NPR 2190.1.
- **Recommendation 4.** The Director, Johnson Space Center, should clarify Johnson Space Center Work Instruction 4300.1 and Johnson Space Center Work Instruction 2190.1 to reflect the recommended revisions to NPR 4300.1A and NPR 2190.1.
- **Recommendation 5.a.** The Office of the Chief Financial Officer should determine how much of the FY 2010 proceeds remain unobligated.
- **Recommendations 5.b.** The Office of the Chief Financial Officer should proactively coordinate with the Exploration Systems Mission Directorate's Resources Management Office to make timely use of the funds in accordance with the relevant Financial Management Operating Procedures or, if necessary, request that GSA extend the time period during which NASA may make use of the funds.<sup>51</sup>
- **Audit NASA's Facilities Maintenance (March 2, 2011)**<sup>52</sup>
- **Final Memorandum on NASA's Accounting for Real Property Leased to Other Entities (December 11, 2007)**
  - **Recommendation 1.a.** We recommended that the NASA Chief Financial Officer and the Director, Facilities Engineering and Real Property Division, review and revise the relevant FMR sections and NPR to clarify the policy and procedures related to the recording of leased real property whereby NASA is the lessor under both capital and operating leases. Topics to be considered for inclusion in the

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<sup>51</sup> "Preparing for the Space Shuttle Program's Retirement: Review of NASA's Controls over Public Sales of Space Shuttle Property." Office of Inspector General. March 15, 2011. <http://oig.nasa.gov/audits/reports/FY11/IG-11-016.pdf>, p. 9-11

<sup>52</sup> "Audit of NASA's Facilities Maintenance (Report No. IG-11-015; Assignment No. A-09-002-00)." March 2, 2011. <http://oig.nasa.gov/audits/reports/FY11/IG-11-015.pdf>

revisions are the definition of terms used to indicate that property has been leased to another entity, reference to the accounting procedures for reimbursable agreements for the recording of collections under leases, and the procedures for recording leased assets in the accounting records. During the revision process, there should be coordination between the OCFO and FERPD to ensure that the terminology being used by each office is consistent.

- **Recommendation 1.b.** We recommended that the NASA Chief Financial Officer and the Director, Facilities Engineering and Real Property Division, provide training on the revised FMR and NPR as a result of the above recommendation to OCFO and FERPD personnel at both Headquarters and the Centers affected by the revisions.
- **Recommendation 2.a.** We recommended that the NASA Chief Financial Officer perform an analysis of all real property leased to other entities under an operating lease. The analysis should identify all relevant property with costs that meet or exceed the capitalization threshold and for which the useful life has not expired. Based on the results of the analysis, an adjustment should be recorded in the accounting records. When determining the adjustment amount, consideration should be given and a determination made as to whether the adjustment or a portion thereof should be recorded as a prior period adjustment.<sup>53</sup>

## **National Academy of Science**

### **NASA's Strategic Direction and the Need for a National Consensus**

- “Legislative and regulatory limitations on NASA’s freedom to manage its workforce and infrastructure constrain the flexibility that a large organization needs to grow or shrink specific scientific, engineering, and technical areas in response to evolving goals and budget realities.”<sup>54</sup>
- **“Recommendation: With respect to NASA centers:**
  - The administration and Congress should adopt regulatory and legislative reforms that would enable NASA to improve the flexibility of the management of its centers.
  - NASA should transform its network of field centers into an integrated system that supports its strategic plan and communications strategy and advances its strategic goals and objectives.”<sup>55</sup>
- **“Infrastructure flexibility.** The General Services Administration (GSA) imposes restrictions on government agencies charging less than fair market value for facilities, making it difficult for NASA to dispose of facilities it no longer needs. Easing such restrictions for NASA could save the government money by not having to maintain or demolish buildings no longer required by NASA. In addition, current regulations require that disposed property first be offered to state and local governments, a requirement that

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<sup>53</sup> “Final Memorandum on NASA’s Accounting for Real Property Leased to Other Entities.”

<http://oig.nasa.gov/audits/reports/FY08/IG-08-004.pdf>, P. 6-7

<sup>54</sup> “NASA’s Strategic Direction and the Need for a National Consensus.” Committee on NASA’s Strategic Direction, National Research Council. 2012. [http://download.nap.edu/cart/download.cgi?&record\\_id=18248](http://download.nap.edu/cart/download.cgi?&record_id=18248), p. 6

<sup>55</sup> “NASA’s Strategic Direction and the Need for a National Consensus.” Committee on NASA’s Strategic Direction, National Research Council. 2012. [http://download.nap.edu/cart/download.cgi?&record\\_id=18248](http://download.nap.edu/cart/download.cgi?&record_id=18248), p. 6

could slow down or hinder the ability to find private users. If NASA were given more authority to manage its infrastructure instead of leaving this process to GSA, the agency could take better advantage of opportunities in the private sector.”<sup>56</sup>

### **America’s Future in Space**

- Foundational element of an effective U.S. space program: “An effectively sized and structured infrastructure—realizing synergy from the public and private sectors and from international partnerships.”<sup>57</sup>
- “This infrastructure, much of it supported by NASA, was built on the National Advisory Committee for Aeronautics centers existing at the time of NASA’s founding and was expanded during the ramp-up of the Apollo program. The NASA centers provide unique capabilities essential to the civil space program in the years ahead, including rocket test facilities, spacecraft assembly facilities and flight control centers, and launch facilities, as well as personnel with expertise that universities and industry could not necessarily supply...DOD is responsible for the nation’s launch complexes and ranges at Cape Canaveral Air Force Station and Vandenberg Air Force Base, which support military launches and which also provide collateral support to NASA and commercial launch operations. It also maintains the worldwide space surveillance network used by all U.S. agencies, as well as commercial and foreign entities, and a satellite command and control network that provides support to civil operations...The DOD also supports cooperative space development testing with its own space facilities in cooperation with NASA and commercial programs...Essential infrastructure is also provided by NOAA, which has an array of tracking stations and data and information systems to conduct its meteorological and environmental satellite observing programs. U.S. universities and both federal and nongovernment laboratories house many of the organizations and facilities where U.S. space science and engineering research is conducted...A healthy U.S. civil space program should be able to optimize the participation and responsibilities of all three involved sectors— government, industry, and academia. Such an optimized institutional partnership would:
  - develop and nurture a culture of cooperation achieved through sharing of facilities and intellectual capacity;
  - ensure that facilities—at NASA, NOAA, and elsewhere—are sized, maintained, and distributed properly so as to be vital components of a larger civil space enterprise without their maintenance becoming an impediment to a balanced division of resources within and outside the agencies;
  - provide necessary support for facilities, human capital, technology transition, innovation, and entrepreneurial activities; and
  - regularly assess mission performance, technical expertise, and the strengths of interactions across all three sectors.”<sup>58</sup>

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<sup>56</sup> “NASA’s Strategic Direction and the Need for a National Consensus.” Committee on NASA’s Strategic Direction, National Research Council. 2012. [http://download.nap.edu/cart/download.cgi?&record\\_id=18248](http://download.nap.edu/cart/download.cgi?&record_id=18248), p. 48

<sup>57</sup> “America’s Future in Space.” Committee on the Rationale and Goals of the U.S. Civil Space Program; National Research Council. 2009. [http://www.nap.edu/download.php?record\\_id=12701](http://www.nap.edu/download.php?record_id=12701), p. 5

<sup>58</sup> “America’s Future in Space.” Committee on the Rationale and Goals of the U.S. Civil Space Program; National Research Council. 2009. [http://www.nap.edu/download.php?record\\_id=12701](http://www.nap.edu/download.php?record_id=12701), p. 54-56

## **Government Accountability Office**

### **Improved Cost Reporting Would Help Decision Makers Weigh the Benefits of Enhanced Use Leasing (2012)**

- Recommendation: “To promote transparency about EULs, improve decision-making regarding EULs, and ensure more accurate accounting of EUL net benefits, we recommend that OMB work with VA, NASA, State, and USDA, and any other agencies with EUL authority, to ensure that agencies consistently attribute all costs associated with EULs (such as consulting, termination, and leaseback costs) to their EUL programs, as appropriate.”<sup>59</sup>

### **Enhanced Use Leasing Program Needs Additional Controls (2007)**

- Recommendation: “Before NASA considers requesting that the Congress extend EUL authority to additional centers, we recommend that the NASA Administrator develop an agency wide EUL policy, based upon sound business practices and lessons learned from the demonstration centers, that establishes controls and processes to ensure accountability and protect the government’s interests, including:
  - criteria for determining that EUL represents the best economic value for the government, compared with other options, such as federal financing through appropriations or sale of the property;
  - measures of effectiveness for the EUL program, such as reductions in the square footage of underutilized property and in the dollar amount of deferred maintenance; and
  - accounting controls and processes to ensure accountability, such as an
    - accounting system for tracking the value of in-kind consideration; and
    - audit trail and documentation to readily support financial transactions.

In addition, if NASA receives expanded EUL authority, the agency also needs to adopt mechanisms to keep the Congress fully informed of the agency’s activity under EUL authority, including:

- identifying and quantifying the value of in-kind consideration arrangements and expenditures of EUL revenue in its annual EUL reports to the Congress, and
- reporting the availability and use of EUL funds in the agency’s operating plans.”<sup>60</sup>

### **Federal Real Property: Progress Made Toward Addressing Problems, but Underlying Obstacles Continue to Hamper Reform (2007)**

- “We are making three recommendations to OMB’s Deputy Director for Management. We recommend that the Deputy Director, in conjunction with FRPC, take the following three actions:
  - develop a framework that agencies can use to better ensure the validity and usefulness of key real property data in the FRPP. At a minimum, the framework would suggest standards for frequency of validation methods,

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<sup>59</sup> “Improved Cost Reporting Would Help Decision Makers Weigh the Benefits of Enhanced Use Leasing.” Government Accountability Office. December 2012. <http://gao.gov/assets/660/651028.pdf>, p.20

<sup>60</sup> “Enhanced Use Leasing Program Needs Additional Controls.” Government Accountability Office. March 1, 2007. <http://gao.gov/products/GAO-07-306R>, p.5-6

- develop an action plan for how the FRPC will address key problems, including the continued reliance on costly leasing in cases where ownership is more cost effective over the long term, the challenges of securing real property assets, and reducing the effect of competing stakeholder interests on businesslike outcomes in real property decisions; and
- establish a clearer link or crosswalk between agencies' efforts under the real property initiative and broader capital planning guidance.”<sup>61</sup>

## **Space Foundation**

### **Pioneering: Sustaining U.S. Leadership in Space**

- “The second element of restructuring the national civil space enterprise is consolidating and trimming unused and excess infrastructure and capital assets... There are three critical points to emphasize about streamlining NASA. The first is that the exercise is not to “punish” some parts of NASA and get rid of them... The second point is that it is neither reasonable nor necessary to close entire centers, provided that centers can effectively shed their excess infrastructure as has been done with some of the old space shuttle facilities... The third point is that a principal function of the entire exercise is not to just close down buildings, but to engage with and get the buy-in of the agency as a whole for the new pioneering mission.

...It will be much easier to pursue this task if NASA has better positive incentives to cut its infrastructure. Currently, NASA cannot recover the costs for decommissioning something even if it results in revenue for the U.S. government. Some agencies, such as the Department of State and the DoD, can keep the proceeds from the sale of excess property without even needing to have the funds returned to them through appropriations. If NASA centers are able to keep the proceeds of sales, they would be more likely to get rid of some older facilities to pay for upgrades or maintenance on the facilities they keep. An obstacle to trimming facilities in a fair and equitable manner is that the centers all use different standards and language to keep track of their property. Based on experiences elsewhere in government, it will be most effective to conduct a facilities audit with independent commissioners who will be able to manage some of the trades between centers and act as a neutral evaluator. As with previous similar efforts, the independent commissioners would present their plan to the President and then Congress as a package. This package would be voted on in its entirety, so as to share responsibility for the consequences of an audit and to compel people to make choices, even if those choices are difficult.

The inclusion of incentives and independent commissioners is geared toward establishing buy-in for the pioneering mission. Center directors have learned the hard way that a good-faith effort to reduce facilities can become a trap if priorities change and a retired piece of hardware is needed again. Furthermore, if a center director gets rid of something during one cost-cutting initiative, it does not necessarily buy easier terms during the next

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<sup>61</sup> “Federal Real Property: Progress Made Toward Addressing Problems, but Underlying Obstacles Continue to Hamper Reform.” Government Accountability Office. April 2007. <http://gao.gov/products/GAO-07-349>, p. 49

round—in fact, it simply reduces the number of things to choose among in future cutbacks.”<sup>62</sup>

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<sup>62</sup> “Pioneering: Sustaining U.S. Leadership in Space.” The Space Foundation. December 2012. <http://www.spacefoundation.org/programs/research-and-analysis/pioneering>, p.45-47.

## Appendix B: Legislative Language Proposed by NASA<sup>63</sup>

### Disposal of Personal Property for Use in Commercial Space Transportation Services

#### SEC. \_\_\_\_. DISPOSAL OF PERSONAL PROPERTY FOR USE IN COMMERCIAL SPACE TRANSPORTATION SERVICES AND SPACE-RELATED ACTIVITIES.

(A) AUTHORITY FOR SALE OF PERSONAL PROPERTY FOR USE IN COMMERCIAL SPACE TRANSPORTATION SERVICES AND SPACE-RELATED ACTIVITIES.—Chapter 201 of title 51, United States Code, is amended –

(A) by deleting the “and” from the end of subsection (4) of Section 20113(c)

(B) by deleting the “,” from the end of subsection (5) of Section 20113(c) and inserting “;and”.

(C) by adding the following new subsection (6) to Section 20113(c):

(A) to sell or otherwise dispose of excess personal property when such sale will support the development of the United States commercial space industry. Sale of excess personal property under this subsection is authorized if —

(i) the Administrator determines that

(I) the sale of said personal property will support the development and delivery of space-related activities and space transportation services by current or potential United States commercial providers;

(II) equivalent personal property is not commercially available on reasonable terms;

(III) the personal property has commercial value when used for its intended purpose; and

(IV) the sale of said personal property is consistent with public safety, national security, and international treaty obligations;

(ii) the sale is subject to obtaining competition that is feasible under the circumstances;

(iii) the sale is accompanied by a written instrument providing that the personal property shall be used and maintained by the purchaser solely for the purpose for which it was sold, will be utilized to support the development and delivery of space-related activities and space transportation services, and shall not be further sold or transferred except as part of the sale of all or substantially all of the assets of the purchaser; and such additional terms, reservations, restrictions and conditions that the Administrator determines are necessary to ensure use of the personal property for the purposes for which it was conveyed and to safeguard the interests of the Government;

(iv) the sale includes consideration for the transfer of the personal property as determined by the Administrator to be proper,

(B) Notwithstanding any of the provision of law, the General Services Administration may act as the sales agent for sales conducted under this subsection. The expenses incurred by the Administration or its sales agent in conducting sales under this subsection may be paid from the proceeds of such sales. ”

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<sup>63</sup> “NASA Statutory and Sectional Analysis Language.”

## **SECTIONAL ANALYSIS:**

This proposal would provide a mechanism for NASA to support United States commercial providers of space transportation services and space-related activities by providing a mechanism to transfer excess federal personal property directly to such providers through disposal after the personal property has been reported excess to NASA's needs. The proposed legislation would authorize sale of personal property to support the development of the United States commercial space industry upon appropriate determination by the Administrator once the personal property has been reported excess by NASA. Any personal property subject to sale under the proposed legislation would be subject to reasonable competition and would require that the Administrator determine appropriate consideration for any sale. NASA anticipates that it will work with GSA to permit GSA to act as NASA sales agent for sales conducted under this authority.

This proposal would authorize the use of sale of excess personal property only when a determination can be made that:

- sale of said personal property will support the development and delivery of space-related activities and space transportation services by current or potential United States commercial providers;
- equivalent personal property is not commercially available on reasonable terms;
- the personal property will be used for its intended purpose and will be utilized to support the development and delivery of space-related activities and space transportation services; and
- the sale of said personal property to a commercial provider is consistent with public safety, national security, and international treaty obligations.

Many NASA Centers are exploring options for currently under-utilized equipment that could be of potential benefit to commercial industry. The proposed legislation will enable the availability of such equipment for the productive use by the commercial space industry whereas otherwise the equipment would be stored unused or potentially destroyed. NASA believes that this authority will provide industry increased benefits along with potentially reduced risks. For example, equipment sold rather than provided under a time-limited or terminable loan agreement would provide a commercial company greater certainty in developing plans and managing investments in infrastructure over time. Further, the unique equipment that once provided value to NASA would continue providing value to commercial industry without requiring NASA to maintain ownership, potential liability and administrative responsibilities for the personal property.

This proposal implements the foundational activity set forth in the 2010 National Space Policy (June 28, 2010) to:

**Strengthen U.S. Leadership In Space-Related Science, Technology, and Industrial Bases.** Departments and agencies shall: conduct basic and applied research that increases capabilities and decreases costs, where this research is best supported by the government; *encourage an innovative and entrepreneurial commercial space sector; and help ensure the availability of space-related industrial capabilities in support of critical government functions.* (emphasis supplied).

The current proposal uses the terms “commercial provider;” “space-related activities;” “space transportation services; and “United States commercial provider.” These terms are defined elsewhere in Title 51 in the Commercial Space Act of 1998, 51 U.S.C. §§ 50101 et seq. This narrowly targets the beneficiaries of the proposed authority to those entities as required to benefit the Federal Government by facilitating the availability of services from United States commercial providers so such services can be acquired by the Federal Government as required under the Commercial Space Act of 1998.

**Impacts:**

None envisioned. The proposal applies only to excess federal personal property – personal property that has been declared excess by NASA and no longer needed for Agency missions. It is anticipated the opportunity to ensure that unneeded NASA personal property is further utilized in a productive capacity will encourage the reporting of additional NASA personal property as excess. This will reduce NASA’s current inventory of personal property and potential reduce the cost to maintain personal property with limited programmatic utility.

**Associated costs:**

No additional costs above those required to administer the personal property disposal process.

**Authority to Support Commercial Space through Acquisition and Joint Infrastructure Development**

**NASA Statutory and Sectional Analysis Language**

**SEC. \_\_\_\_ . COMMERCIAL SPACE LAUNCH COOPERATION.**

(a) In General.—Chapter 201 of title 51, United States Code, is amended by adding at the end the following new section:

**“§ 20148. Commercial space launch cooperation**

**‘(a) Authority for Agreements Relating to Space Transportation Infrastructure-** The Administrator of the National Aeronautics and Space Administration--

‘(1) may enter into an agreement with a covered entity to provide the covered entity with support and services related to the space transportation infrastructure of the National Aeronautics and Space Administration; and

‘(2) upon the request of such covered entity, may include such support and services in the space launch and reentry range support requirements of the National Aeronautics and Space Administration if--

‘(A) the Administrator determines that the inclusion of such support and services in such requirements--

‘(i) is in the best interest of the Federal Government;

‘(ii) does not interfere with the requirements of the National Aeronautics and Space Administration; and

‘(iii) does not compete with the commercial space activities of other covered entities, unless that competition is in the national security interests of the United States; and

‘(B) any commercial requirement included in the contract has full non-Federal funding before the execution of the contract.

**‘(b) Contributions-**

‘(1) IN GENERAL- The Administrator of the National Aeronautics and Space Administration may enter into an agreement with a covered entity on a cooperative and voluntary basis to accept contributions of funds, services, and equipment to carry out this section.

‘(2) USE OF CONTRIBUTIONS- Any funds, services, or equipment accepted by the Administrator under this subsection--

‘(A) may be used only for the objectives specified in this section in accordance with terms of use set forth in the agreement entered into under this subsection; and

‘(B) shall be managed by the Administrator in accordance with regulations of the National Aeronautics and Space Administration.

‘(3) REQUIREMENTS WITH RESPECT TO AGREEMENTS- An agreement entered into with a covered entity under this subsection—

‘(A) shall address the terms of use, ownership, and disposition of the funds, services, or equipment contributed pursuant to the agreement; and

‘(B) shall include a provision that the covered entity will not recover the costs of its contribution through any other agreement with the United States.

**‘(c) Annual Report-** Not later than January 31 of each year, the Administrator of the National Aeronautics and Space Administration shall submit to its congressional oversight committees a report on the funds, services, and equipment accepted and used by the Administrator under this section during the preceding fiscal year.

**‘(d) Regulations-** The Administrator of the National Aeronautics and Space Administration shall prescribe regulations to carry out this section.

**‘(e) Definitions-** In this section:

‘(1) COVERED ENTITY- The term ‘covered entity’ means a non-Federal entity that--

‘(A) is organized under the laws of the United States or of any jurisdiction within the United States; and

‘(B) is engaged in commercial space activities.

‘(2) LAUNCH SUPPORT FACILITIES- The term ‘launch support facilities’ has the meaning given the term in section 50501(7) of title 51.

‘(3) SPACE RECOVERY SUPPORT FACILITIES- The term ‘space recovery support facilities’ has the meaning given the term in section 50501(11) of title 51.

‘(4) SPACE TRANSPORTATION INFRASTRUCTURE- The term ‘space transportation infrastructure’ has the meaning given that term in section 50501(12) of title 51.’

**(f) Clerical Amendment-** The table of sections at the beginning of such chapter, as so amended, is further amended by adding at the end the following new item: ‘20148. Commercial space launch cooperation.’

## SECTIONAL ANALYSIS:

This proposal would provide a mechanism for the National Aeronautics and Space Administration (NASA) to support commercial space activities by providing greater access to launch property and services to the private sector, and allow NASA to accept funding from the private sector in order to develop, enhance, or maintain the U.S. Government's launch, range instrumentation, and reentry sites. This proposal would authorize NASA to accept non-federal funding only under strict implementation guidelines, which would be narrowly applied to space launch and base support services only.

With one exception, this proposal is identical to and provides NASA with the same authority provided to the Department of Defense under Section 912 of Public Law 112-239, the FY 2013 National Defense Authorization Act.<sup>64</sup>

Failure to take action to provide NASA with the same authority to work with commercial partners as DoD risks creating uncertainty for commercial providers, contributes to the further erosion of NASA's space transportation infrastructure as compared to the DoD and places NASA at a disadvantage compared to DoD as it supports the development of a robust domestic space launch industry.

Under this proposal, NASA may include, with up-front commercial funding, commercial launch/base support requirements in NASA contracts. For example if a commercial launch provider could add its requirements and funding to existing NASA infrastructure support contracts, the government's purchasing power would be enhanced through the increase in the economies of scale, as well as the benefit from receiving the additional up-front funding from the commercial launch provider prior to contracting. Thus, this change would ensure our contracts are "right-sized" and no longer offered to commercial launch providers just on an "excess" capacity basis, which would result in synergistic operations and eliminate administrative impediments and bureaucracy. Commercial use of any/all NASA processing facilities to process both commercial and government payloads would result in efficiencies, better mission assurance, and cost savings for users.

Existing section 2273(c) of Title 10 instructs the Secretary of Defense to pursue the attainment of the capabilities necessary to launch and insert United States national security payloads into space "in coordination with the Administrator of the National Aeronautics and Space Administration" to the maximum extent practicable. DoD and NASA maintain continuing collaboration on many space-related activities, including significant agreements under the Economy Act for shared services and infrastructure. And both DoD and NASA launch and space recovery support facilities and ranges are challenged by escalating costs, eroding capabilities, and bureaucratic processes. These conditions not only impair DoD and NASA launch programs, but also impair DoD's and NASA's ability to support commercial space to the level of Congressional/Presidential intent. Because of the significant coordination and interdependencies between DoD and NASA's space programs, it is imperative that NASA be provided the same opportunities to meet the needs of the commercial sector and reduce the cost to the government.

This legislative change would provide NASA with the same abilities to address these needs by allowing the NASA and the commercial space sector to combine their requirements and funding within NASA contracts and allowing and NASA to purchase facilities and equipment

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<sup>64</sup> Because NASA receives reimbursable budget authority in its annual appropriation, NASA does not require, and therefore does not seek, the authority provided to the DoD under subsection (d), which establishes the "Defense Cooperation Space Launch Account" to hold funds received under the new authority.

that can be shared and maintained on an equitable basis -- making the services and facilities available to each with the cost and availability efficiencies shared by all.

**Budget Implications:** The National Aeronautics and Space Administration (NASA) expects this proposal to be covered by existing civil servant labor, specifically within the plans and programs functions of the Human Explorations and Operations Mission Directorate (HEOMD). The work involved would be an extension of the administration, liaison, consultation, and planning functions already performed in conjunction with commercial and state entities doing business with the DoD space wings and HEOMD. Any cost is part of the FY 2014-2018 budget baseline and does not require additional funding from Congress. There would be no budgetary tradeoff to fund this proposal. Rather, the associated workload would be added to and compete with other assigned tasks for performance by appropriate personnel as priorities dictate.

The primary budget implication of this proposal is that it would permit NASA to accept contributions of funds, property, and services from non-federal entities to enable federal/nonfederal partnerships that benefit access to space and the development and vitality of the commercial space industry. It would not increase any NASA launch, range, or facility budget, but it could pave the way for cost savings or cost avoidance opportunities. The proposal would allow NASA and the commercial industry to share requirements and costs on a case-by-case basis, thereby creating quantity efficiencies for all. It does not mandate additional costs or generate guaranteed, measurable savings. It is an “enabling” authority for NASA launch and space recovery support facilities to enter into agreements with the commercial space industry, to save resources and add capability for all parties, but only when in the best interests of the government.

This proposal would enhance NASA’s authority to collaborate with non-federal entities to facilitate implementation of the NASA launch support and infrastructure modernization program. It also furthers NASA’s ability to collaborate with the Secretary of Defense in developing the additional capabilities necessary to support both government and commercial launch requirements. The specific mechanisms provided in the proposal are beneficial in that they permit non-federal entities to leverage government resources to support development of the United States domestic space industry.

### **Background on Proposal:**

Since late 2010, NASA has collaborated with the Air Force on this proposed legislation to be included in the National Defense Authorization Act (NDAA), to ensure that it would provide NASA the same authorities being requested by the DoD to support commercial space activities. Due to the extensive coordination between the DoD and NASA in use of launch infrastructure and capabilities, it is imperative that both entities operate under the same authorities in this area. Commercial partners utilizing co-located DoD and NASA facilities need assurance that “the Government” will provide consistent and coordinated support.

During consideration of the NDAA in 2011, Armed Services Committee staff did not include this provision, either for DoD alone, or with the addition of NASA, due to Congressional staff unfamiliarity with the criticality, issues with Congressional Budget Office scoring, and an incorrect perception that only DoD authorities can reside in Title 10 of the US Code.

Given this history, the DoD submitted to the House and Senate Armed Services Committees (HASC/SASC) the Commercial Space Launch Cooperation authority without the inclusion of NASA. However, recognizing the close relationship between NASA and the Air

Force for co-located space launch facilities, the Air Force supports NASA seeking the same authority which the DoD recently received in Section 912 of Public Law 112-239, the FY 2013 National Defense Authorization Act. . On April 20, 2012, Air Force staff discussed the proposed authority with House and Senate Armed Services Committee staff and relayed that NASA oversight Committee staff may be speaking to them about supporting the proposed authority and including NASA in the provision.

NASA briefed staff for its authorization Committees in both the House and the Senate on this Authority in May, 2012. Ultimately, the authority was included (without NASA) in Section 912 of Public Law 112-239, the FY 2013 National Defense Authorization Act.