Witness Statement

Hearing on "The Space Leadership Preservation Act and the Need for Stability at NASA"

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

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Chairman Smith, Ranking Member Johnson, and Members of the Committee: I am honored to appear before you today to discuss the future of our nation's space program. In my opinion, the timing and subject of this hearing are perfectly chosen. Within the year we will have a new administration in office and a new Congress in power, and one of the key questions confronting those elected representatives will be to determine how we can best go about restoring American preeminence in space. And, after getting our space program back on track, there will be no more important task than that of ensuring its stability. The last six years have provided an object lesson as to the consequences of failure to do so. In that regard, it may be of value to this committee, and consistent with the topic of this hearing, to review some of that history.

As the year 2009 opened, we had a plan for our nation's space program, a plan of generational scope for what it was that NASA was expected to do. That plan had been hammered out during the long and difficult period following the loss of Space Shuttle *Columbia*, the examination of the root causes of that loss by Adm. Hal Gehman's Columbia Accident Investigation Board (CAIB), and with the benefit of advice and counsel from all segments of the space community. I myself was invited to testify before both House and Senate on various aspects of space policy and programs some four times in 2003-04. The same was true of many, many others in this time of challenging, thoughtful deliberation concerning our future in space. No reasonable space policy alternative was left unexamined by the Executive and Legislative Branches prior to determining of what would be expected of NASA in the post-*Columbia* era.

The key elements of that plan were easily summarized. NASA and its contractor workforce would return the Space Shuttle to flight, incorporating the technical and programmatic corrections recommended by the CAIB. In keeping with our domestic and international commitments, the Shuttle would be used to complete the assembly of the International Space Station (ISS), after which it would be retired. During and following the fly-out of the Space Shuttle, and in accordance with a key CAIB recommendation, a new human space transportation system would be developed with a primary focus on safety and reliability. This system was to be completed not later than 2014, and then used to ferry astronauts from our

own and international partner nations to and from the ISS. Additionally, the strategy called for new commercial sector programs to foster competition and innovation for cargo delivery to the ISS throughout its remaining lifetime. Looking beyond the completion of the ISS, this new crew transportation system would also support the human return to the Moon by 2020, and the subsequent establishment of a permanent lunar outpost by the U.S. and its international partners. Finally, these developments were to be carried out in such a way as to enable later voyages to Mars.

This was a powerful and compelling strategic plan for our nation's future in space, not least because it could be expressed so concisely. It respected the need to complete existing commitments, even when doing so was hard – very hard. It respected the constraints imposed by both the geography of the Solar System and the existing state of our technology and space operations experience. It respected the needs of our international partners to have a near-term roadmap for human space activity beyond the completion of the ISS, while yet featuring arenas in which they could make critical contributions to critical challenges. And finally, it respected budget constraints, being achievable with incremental real-dollar budget growth beyond then-current levels.

The intrinsic merit of this plan was recognized by two successive Congresses, one controlled by Republicans and the other by Democrats, in the NASA Authorizations Acts of 2005 and 2008, respectively – yet another example of the historically strong bipartisan support that the Congress has always shown for our space program. And by early 2009, we had painfully but thoroughly recovered from the loss of *Columbia* and were well established on the way forward. The Shuttle had been returned to flight, the ISS was nearing completion, the elements of a new crew transportation system were in development, and the first two contracts for commercial cargo delivery to the ISS had been signed. Looking to the future, some fourteen nations had firmly embraced a plan to partner with the United States for a human return to the Moon, and were orienting their own national space plans and policies to that end.

But by early 2010, barely a year later, this carefully hewn strategy was in disarray. Human lunar return had been abandoned as a goal toward which we and our partners would work, as was the development by NASA of a crew transportation system to replace the Space Shuttle. Our existing commitments to our partners to supply crew transportation to ISS, in exchange for the laboratory modules and other ISS infrastructure that they had built, would be met for the foreseeable future by telling them to buy rides on the Russian *Soyuz*. Beyond the ISS, there was no plan save for a nebulous commitment to visit an asteroid sometime in the 2020s. Inasmuch as such a mission was inherently a one-off exercise offering little or no possibility for international involvement, our existing ISS partners rightly felt abandoned, and potential new partners saw little merit in aligning their programs with those of the United States.

In this context, we must understand that if U.S. leadership in space is important to our nation, then it is necessary to have goals which potential partners might wish to embrace. A one-time visit to an asteroid or, worse, visits to a boulder which has been robotically towed into cislunar space from an asteroid, a mission not adequately supported by the budget allocated to it, a

mission not even endorsed by the scientific community – this does not constitute such a goal. Contrariwise, returning to the Moon did, and does. The same nations that were eager to join us in that enterprise in 2009 still wish to do so; they are simply waiting for us to lead.

At this point I will note explicitly that I am *not* advocating a return to the Constellation architecture as it existed during my tenure as Administrator. Constellation was a particular engineering instantiation of an architecture that was itself designed to address the requirements of the space policy that was proposed by the president and codified into law by the Congress between 2005 and 2010. While I believed then and believe now that this was the best space policy we had seen since the early 1960s, the Constellation design itself was heavily dependent upon the smooth transition of both hardware and personnel from the Space Shuttle program. While the goal of effecting that transition from Shuttle to a follow-on system was consistently and explicitly required by the Congress, this direction was in the end willfully ignored by the present administration. So that opportunity was botched, and is gone forever. It cannot be recovered. What is needed today is, first, to reestablish a sensible space policy, and then consider how an efficient architecture to implement that policy might be designed.

I remind us of this history because of its relevance to the topic of the present hearing: ensuring the stability of the U.S. space program. It is emphatically not my view that we can never change our policies in space, or indeed in any other arena. Such a view would be disastrous. We must be prepared to alter course when circumstances and events demand. Indeed, the changes to our national space policy that were developed and enacted in 2003-05 were the most significant since President Nixon's cancellation of the Apollo program. But – and this is the key point – they were deliberated and advocated and debated in the open, over a sufficient period of time to allow all views to be heard, and in a multitude of venues, including the one in which we find ourselves today, this very room.

In contrast, the space policy changes wrought in 2010 were not proffered to or discussed with Congress, our international partners, the various stakeholders in the domestic space community, or even senior officials at NASA. They were not even represented as changes to core policy, but rather were developed in secret and put forth only as part of the President's Budget Request in February of that year. Especially telling was the fact that even Congressional Democrats were not involved; this was not a partisan decision, but a White House decision.

A national space program, as indeed with most Federal endeavors, is a ponderous thing. It is a difficult thing to change suddenly and, I would argue, should be difficult to change. The highly visible adverse consequences of the administration's abrupt departure in 2010 from an established and strongly bipartisan space policy, twice approved by Congress, should, I believe, give us pause for thought. We do not need, and would not benefit from, another overly abrupt change. It would not help our industry, it wouldn't help our international partners, and it would not allow the consensus to be developed that is necessary for a space program whose goals must be sustained over generational spans. But with that said, we are not now on the right path, and over the coming year or so we need to think carefully about what the proper

course for the future might be, and how best to get back on that course while creating the least possible collateral damage.

What might the "right path" look like? I have been clear in the past and hope to be clear now – to me the most logical step beyond the ISS is an international partnership, led by the United States, to return to the Moon, this time to stay. In the course of so doing we will learn what is needed to go beyond, to go to Mars. And if, as I have long suspected, the Moon turns out to be quite an interesting and useful destination in its own right, well then, so much the better.

But whatever path we choose, we must have clearly stated and executable objectives that are of interest to a broad array of domestic and international stakeholders and are supported with real budgets and real programs. Today's budgets and programs might cause the cynics among us to conclude that while Mars is indeed our goal, it always will be.

Space is the human frontier, as important to our future as were the frontiers of land, sea, and air that we faced in the past. We are just beginning to understand how we might explore, and exploit, that frontier. The consequences of getting it right or wrong are not immediate, but they are enormous when viewed in their proper historical context, involving as they do many questions of profound significance to our society.

We must ask ourselves not only what is our next destination but, more broadly, what is the nature and value of a human future in space? What directions will human society take as a result of opening the space frontier? Closer to home, how will the lives and security of Americans be directly affected by a retreat from space, or by our continuing dependence on others to get there? What social and cultural values will evolve and prevail, and how will we influence these developments? How is our stature as a world power affected if we are not present on the human frontier, when others are? What is the effect on our national security, if we are no longer regarded as the preeminent world space power? Can our nation remain open, vital, relevant, competitive and forward-looking in science, technology, culture, and commerce, if it turns back from the frontier of its time?

These are existential questions for our society, with profound security and economic implications; they deserve a proper debate and continuing oversight by our nation's deliberative bodies. Our people deserve a stable commitment by policy makers to the answers that emerge. If we are not able, or do not choose, to engage these issues, then other nations and societies will, and we are unlikely to be pleased with the result.

These issues are not presently part of our national space policy discussion. We are not, in fact, even engaged in such a discussion. To quote my friend and colleague Jim Albaugh, the now-retired CEO of Boeing Commercial Aircraft, the current administration's view of our nation's future in space offers "no dream, no vision, no plan, no budget, and no remorse." We must remedy this matter with all deliberate speed.

Thank you. I would be happy to answer any questions you may have.