



# **THE CASE FOR SPACE:**

## **A Legislative Framework for an Independent United States Space Force**

**Dustin L. Grant, Major, USAF**  
**Matthew J. Neil, Major, USAF**

A historical black and white photograph of the Wright Flyer biplane in flight over a rural landscape. The plane is a two-winged aircraft with a propeller and a tail. In the background, there are several small buildings and a line of trees under a clear sky.

**WRIGHT FLYER PAPERS**

## **Air Command and Staff College**

Evan L. Pettus, Brigadier General, Commandant  
James Forsyth, PhD, Dean of Resident Programs  
Paul Springer, PhD, Director of Research  
Peter A. Garretson, Lieutenant Colonel, Essay Advisor



Please send inquiries or comments to

Editor  
The Wright Flyer Papers  
Department of Research and Publications (ACSC/DER)  
Air Command and Staff College  
225 Chennault Circle, Bldg. 1402  
Maxwell AFB AL 36112-6426  
Tel: (334) 953-3558  
Fax: (334) 953-2269  
Email: [acsc.der.researchorgmailbox@us.af.mil](mailto:acsc.der.researchorgmailbox@us.af.mil)

**AIR UNIVERSITY**

**AIR COMMAND AND STAFF COLLEGE**



**The Case for Space:  
A Legislative Framework for an  
Independent United States Space Force**

DUSTIN L. GRANT, MAJ, USAF AND MATTHEW J. NEIL, MAJ, USAF

Wright Flyer Paper No. 73

Air University Press  
Muir S. Fairchild Research Information Center  
Maxwell Air Force Base, Alabama

*Commander, Air Command and Staff  
College*  
Brig Gen Evan L. Pettus

*Director, Air University Press*  
Lt Col Darin M. Gregg

---

*Project Editor*  
Dr. Stephanie Havron Rollins

*Copy Editor*  
Carolyn B. Underwood

*Illustrator*  
L. Susan Fair

*Print Specialist*  
Megan N. Hoehn

*Distribution*  
Diane Clark

Air University Press  
600 Chennault Circle, Building 1405  
Maxwell AFB, AL 36112-6010  
<https://www.airuniversity.af.edu/AUPress/>

Facebook:  
<https://www.facebook.com/AirUnivPress>

and

Twitter: <https://twitter.com/aupress>

Accepted by Air University Press April 2018 and published February 2020.

### Disclaimer

Opinions, conclusions, and recommendations expressed or implied within are solely those of the author and do not necessarily represent the views of the Department of Defense, the United States Air Force, the Air Education and Training Command, the Air University, or any other US government agency. Cleared for public release: distribution unlimited.

This Wright Flyer Paper and others in the series are available electronically at the AU Press website: <https://www.airuniversity.af.edu/AUPress/Wright-Flyers/>.



## Contents

<b>Foreword</b>	<i>iv</i>
<b>Abstract</b>	<i>v</i>
<b>Introduction</b>	1
<b>Failure to Progress</b>	3
A History of Early Space: The Beginnings of Fractured Leadership	3
Identifying Issues in Space Leadership	5
USAF Leadership in Space	6
Changes to Space: The 2018 NDAA	7
<b>Why a Separate Space Force?</b>	9
Space as a Warfighting Domain	9
Organizing for Space: A New Approach is Needed	11
Acquisitions	14
Posse Comitatus	15
<b>Roles and Missions of a USSF</b>	16
Considering the USCG Model	17
Law Enforcement in Space	18
Space Regulation and Inspection	20
Space Surveillance, Interdiction, and Rescue	21
Space Environment Research	23
<b>Legislative Framework for an Independent Space Force</b>	23
<b>Conclusion</b>	27
<b>Notes</b>	28
<b>Appendix 1</b>	33
<b>Appendix 2</b>	44
<b>Abbreviations</b>	72
<b>Bibliography</b>	74

## Foreword

It is my great pleasure to present another issue of The Wright Flyer Papers. Through this series, Air Command and Staff College presents a sampling of exemplary research produced by our residence and distance-learning students. This series has long showcased the kind of visionary thinking that drove the aspirations and activities of the earliest aviation pioneers. This year's selection of essays admirably extends that tradition. As the series title indicates, these papers aim to present cutting-edge, actionable knowledge—research that addresses some of the most complex security and defense challenges facing us today.

Recently, The Wright Flyer Papers transitioned to an exclusively electronic publication format. It is our hope that our migration from print editions to an electronic-only format will foster even greater intellectual debate among Airmen and fellow members of the profession of arms as the series reaches a growing global audience. By publishing these papers via the Air University Press website, ACSC hopes not only to reach more readers, but also to support Air Force-wide efforts to conserve resources. In this spirit, we invite you to peruse past and current issues of The Wright Flyer Papers at <https://www.airuniversity.af.edu/AUPress/Wright-Flyers/>.

Thank you for supporting The Wright Flyer Papers and our efforts to disseminate outstanding ACSC student research for the benefit of our Air Force and war fighters everywhere. We trust that what follows will stimulate thinking, invite debate, and further encourage today's air, space, and cyber war fighters in their continuing search for innovative and improved ways to defend our nation and way of life.

A handwritten signature in black ink, appearing to read 'E L Pettus', with a long horizontal flourish extending to the right.

EVAN L. PETTUS  
Brigadier General, USAF  
Commandant

## **Abstract**

This paper examines the United States Air Force's role in managing space and provides recommendations for the future of space in the US military. Though it echoes specific recommendations made elsewhere by previous authors, the primary purpose of this paper is to consider the legislative framework required to sever space from Air Force oversight and establish a separate United States space force (USSF) under the Department of Defense. The paper begins by examining the historical evolution and fractured history of space in the US government's bureaucratic machine. Next, this paper looks at multiple reports calling for changes in space leadership and oversight, the inability to effect meaningful change, and an evaluation of the need for an independent space force. It then discusses the various roles and missions an independent space force would assume. Finally, it discusses the legal framework necessary to establish a USSF and analyzes a legislative proposal. Though this paper advocates for "standing up" a separate USSF, the actual value of this paper is in the legislation proposed in Appendix 2, and the analysis of that proposal. Merely considering the specific recommendations in that enabling legislation is beneficial should the United States move toward establishing a USSF.

*The other services have air arms—magnificent air arms—but their air arms must fit within their services, each with a fundamentally different focus. So those air arms, when in competition with the primary focus of their services, will often end up on the short end, where the priorities for resources may lead to shortfalls or decisions that are suboptimum.*<sup>1</sup>

Gen Ronald Fogleman, USAF, Retired

*If the Air Force clings to its ownership of space, then tradeoffs will be made between air and space, when in fact, the tradeoff should be made elsewhere.*<sup>2</sup>

Gen Charles Horner, USAF, Retired

## **Introduction**

In the practice of family law exists perhaps the saddest and most painful area of law – “child in need of care” cases. These cases arise when a state steps into a family’s home and removes a child from that home because the parents or guardians have either engaged in conduct deemed harmful to the child or they have neglected the child in such a way that the child’s health and safety cannot longer be assured. In these cases, while the state places the child in foster homes or with relatives, they provide a “case plan” to the parents consisting of various tasks they must complete demonstrating that they are capable of caring for their child. For example, if the child is removed from the home because of parental drug use, the parents must undergo addiction counseling and prove they can remain sober before returning the child to their home. If the child is removed because of neglect, the parents must take parenting classes and show that they are capable of caring for their child before the child can return home. If the parents cannot complete their case plan promptly, removal of the child from home is permanent, and the state terminates parental rights to the child.

The standard governing child in need of care cases is the “best interest of the child” standard. Under this standard, the overarching legal consideration is what is in the child’s best interest. Family reunification is almost always the first goal in these cases, and caseworkers, social workers, addiction counselors, adoptive families, foster families, attorneys for the children and the parents, and even the judge all hope that the parents complete their case plan and the child returns home. However, if it becomes clear that the parents cannot

care for the child properly or are unable to make significant strides toward completing their case plan, and that returning the child to the parents would harm the child, the best interest of the child standard dictates placing the child elsewhere permanently, as tragic as that might seem.

The similarities between a child in need of care cases and the current United States Air Force (USAF) oversight of national security space are unfortunately striking. The USAF does not properly care for space, and like the removal of the USAF from the purview of the US Army in 1947, removing space from USAF management and oversight may be in the best interests of both parent and child. Congress and the Department of Defense (DOD) gave the USAF a “parenting plan” of sorts, and for years the USAF has failed to make significant progress or complete that plan successfully. The USAF has used its allotted time and the best interest of space dictates removal.

“Space is a warfighting domain, just like the land, air, and sea . . . we have the Air Force; we’ll have the Space Force.”<sup>3</sup> President Trump’s words reflect the ever-growing reality that the character of warfare is changing. Much like the air domain from the end of World War I through World War II, space has emerged and evolved as a warfighting domain. Rather than the past supporting role space served, warfare in the future is likely to extend or even begin within the space domain.

Additionally, as the burgeoning commercial space economy continues to grow, the need to protect lines of commerce will also grow. Unfortunately, the current USAF construct is ill-equipped to meet and overcome the challenges presented by such a change to the character of war, and a new dynamic is necessary. This paper examines the USAF’s role in managing space and makes recommendations for the future of space in the US military. Though it echoes specific recommendations made elsewhere by previous authors, the primary purpose of this paper is to consider a legislative framework required to sever space from USAF oversight and establish a separate United States Space Force (USSF) under the DOD. This paper begins by examining the historical evolution and fractured history of space in the US government’s bureaucratic machine. Next, this paper looks at multiple reports requesting changes in space leadership and oversight, and the inability to effect meaningful change without creating an independent USSF. It then discusses the various roles and missions an independent USSF would assume. Finally, it discusses the legal framework necessary to establish a USSF and analyzes a legislative proposal. Though this paper advocates for establishing a separate USSF, the real value of this paper is the legislation proposed in Appendix 2 and the analysis of that proposal herein. Merely considering the specific recommendations in that enabling legislation is beneficial should the United States move toward establishing a USSF.

## **Failure to Progress**

### **A History of Early Space: The Beginnings of Fractured Leadership**

On 4 October 1957, the Soviet Union launched a satellite roughly the size of a beach ball into orbit, entered a new domain, and began the space age. The launch of Sputnik, a rather innocuous satellite, kicked off the space race between the United States and the Soviet Union. It also provided the impetus for the US government's emphasis on space capabilities.<sup>4</sup> Moreover, the Soviet launch, and the shockwaves it sent through the US government, laid the groundwork for the fractured nature of space authorities that exist today. Although the United States had announced plans to launch an Earth-orbiting satellite as early as 1955, the surprise launch of Sputnik by the Soviet Union brought space to the forefront of the American public and caught the United States military ill-prepared for the space age.<sup>5</sup> At the time, none of the services had anything "approaching a comprehensive doctrine related to all of the potential military uses of space and the [United States] space policy focused on the development of space reconnaissance as virtually the only acceptable militarily-related aspect of space."<sup>6</sup> Rather than consolidating space capabilities into a single service or presenting a unified DOD approach, each service separately investigated the potential military uses of space after the launch of Sputnik. Primarily, the services looked at what security role the military should play in space and what types of organizations were most appropriate for this role.<sup>7</sup> During the Eisenhower administration, the USAF, in particular, advocated for a manned military presence in space.<sup>8</sup> However, much as the problem exists today, the armed services did not have "strong, coherent, or developed answers" to the questions of space doctrine.<sup>9</sup>

In addition to the military service efforts to investigate space, the United States created the Advanced Research Projects Agency (ARPA)—the predecessor to the Defense Advanced Research Projects Agency (DARPA)—in 1957 as an effort to ensure the United States avoided any further technological surprises such as the launch of Sputnik.<sup>10</sup> Although Secretary of Defense Neil H. McElroy tried to use ARPA to establish a consolidated and focused military space effort, ARPA, like the services, did not articulate a definite or clear preferred military space doctrine.<sup>11</sup> A prime example of an organization created by competing for bureaucratic interests, ARPA hampered and muddled early service efforts to think clearly about space.<sup>12</sup> As a result, the services were mostly unsuccessful moving the United States into a stronger military presence in space.<sup>13</sup> Instead, the United States moved into space via the civil path rather than military, beginning the bureaucratic "carving up" of space missions

and authorities. Much as the military was unprepared for the space race in 1957, so too was the US government as a whole. When the Soviet Union launched Sputnik, the government scrambled at first combat to the public perception of the importance of the Soviet launch. When that failed, the United States sought to establish civilian agencies that would close the gap between the United States and the Soviet Union. In July 1958, Congress passed the “National Aeronautics and Space Act (Space Act),” which created the National Aeronautics and Space Administration (NASA) out of the National Advisory Committee for Aeronautics and various other government agencies.<sup>14</sup>

The “National Aeronautics and Space Act of 1958” gave authority for all aeronautical and space activities sponsored by the United States to NASA except for “activities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States.”<sup>15</sup> Under the “Space Act,” these excepted activities are the purview of the DOD, as will be discussed later. Unfortunately, though, the “Space Act” did not provide any clarity for delineating which missions belonged to the DOD, and the DOD was ill-prepared to establish clear space doctrine. Although the “Space Act” seemed to leave some room for military operations in space, the creation of NASA demonstrated the United States’ focus on pursuing the civil route for entry into space. Conversely, however, during Kennedy’s presidential campaign, however, the military sought to capitalize on the missile and space gap rhetoric in advancing a more substantial military presence in space.

While campaigning against Richard Nixon, Kennedy furthered rhetoric that the United States was significantly behind the Soviet Union in missiles and space. This is generally referred to as the missile and space gap.<sup>16</sup> The services, and the USAF, in particular, sought to capitalize on this rhetoric and use the extreme tension between the United States and the Soviet Union to expand the US military presence in space.<sup>17</sup> However, just as during the Eisenhower administration, the DOD did not speak with one voice on this issue, and the services’ argument suffered from interservice rivalries and bickering. By the end of 1963, the United States completed its initial sorting of space priorities with the military mostly ineffective in arguing the need for space control or in selling space as the ultimate high ground.<sup>18</sup> As a result, the United States established a construct of fractured space authorities and the “stage was set for the military generally to resign itself to the sanctuary school of thought on space.”<sup>19</sup> This paper will demonstrate that although the USAF eventually won the interservice fight for the space mission, the fractured nature of space missions and authorities established early in the space age permeates the DOD and other parts of government to this day. With the emergence of the space economy and the actions of near-peer rivals such as China and Russia,

the United States finds itself once again on a precipice the services are ill-prepared to face. The United States must learn from its mistakes of the past, or it will be doomed to repeat them.

### **Identifying Issues in Space Leadership**

In 2001, the Space Commission concluded that the DOD and Intelligence Community (IC) were “not yet arranged or focused to meet the national security space needs of the 21st century,”<sup>20</sup> and highlighted the risk this failure posed. In 2008, the Allard Commission noted that though the 2001 Space Commission “alerted us to growing threats to our [national security space] assets,” in the seven years since 2001, “US dependency on those assets has grown while comparatively little has been achieved to make them more secure.”<sup>21</sup> The Allard Commission found that “leadership for strategy, budgets, requirements, and acquisition across [national security space] is fragmented, resulting in an absence of clear accountability and authority – ‘no one’s in charge.’”<sup>22</sup> By 2016, a Government Accountability Office (GAO) report focusing on defense space acquisition noted that “DOD space leadership responsibilities are fragmented among several organizations,” with the GAO report identifying 60 “stakeholder organizations” that had some role or responsibility for defense space acquisition management or oversight.<sup>23</sup> Despite 15 years in which to make significant improvements, the DOD had not yet solved the space leadership problem, though perhaps the IC had, leading the GAO to characterize the DOD as having a “longstanding and generally unsuccessful track record of making effective and lasting improvements” in managing space efforts.<sup>24</sup> In their December 2017 *Report on the Leadership, Management, and Organization of the Department of Defense’s Space Activities*, the Office of Management and Budget (OMB) identified that “unlike the IC and other DOD missions areas, no one agency or individual is responsible for DOD space.”<sup>25</sup> This led the OMB to conclude, “until DOD brings together all of its space expertise and manages it like other areas, the DOD space workforce will be sub-optimally configured to meet the emerging challenges associated with the space domain.”<sup>26</sup> While this paints a picture of the DOD and USAF as failing to take any steps whatsoever to organize for space correctly, it is not entirely a fair picture. For years, the USAF attempted to develop adequate space oversight. Unfortunately, its efforts did not produce the needed results, which led Congress to make changes with the 2018 National Defense Authorization Act (NDAA) that signaled a lack of patience for the USAF and DOD’s failed efforts.

## USAF Leadership in Space

As set out in DOD Directive 5100.01, the Air Force is the principal Air and Space Force, with primary responsibility within the DOD for space activities.<sup>27</sup> Though a once commonly held view was that space was simply an extension of air—a concept captured by the now passé term “aerospace”—space today is recognized as a separate warfighting domain and distinct from the land, sea, and air. However, perhaps because of that early concept of aerospace—that space was simply an extension of the air—the USAF has assumed responsibility for the vast majority of DOD space functions. That said, the same directive establishing the USAF as the principal Space Force also establishes that each military service shares responsibility for developing doctrine, creating tactics, techniques, and procedures, and for the organizing, training, and equipping functions for space within their respective service.<sup>28</sup> These military services and the various organizations housed under each service make up some of the 60 stakeholders identified in the 2016 GAO report; however, there are others. This shared responsibility has undoubtedly produced some tensions within and among the different services. It may also be what has led today’s Air Force leaders to try so desperately to hold onto space, while at the same time being unable to devote the time, attention, and resources that it deserves. Trying to manage two separate domains is difficult. With the advent of the cyber domain, which also currently falls under the Air Force, this problem has grown and will continue to grow without a foreseeable end in sight.

In the recent past, the Secretary of the Air Force (SecAF) was designated as the DOD Executive Agent (EA) for space.<sup>29</sup> As EA for space, the SecAF was responsible for promoting the unity of effort throughout the DOD for space matters.<sup>30</sup> However, in 2017, restructuring of that role occurred, and the position of Principal DOD Space Advisor (PDSA) was established and vested in the SecAF through DOD Directive 5100.96.<sup>31</sup> The intent in establishing this new position was to “strengthen the leadership of the DOD Space Enterprise by centralizing authorities and responsibilities in a single DOD official, who is empowered to unify the diffused and potentially competing voices of a broad range of stakeholders, and to provide a cohesive and unified space governance model.”<sup>32</sup> However, despite expectations that the PDSA role would be able to “effectively consolidate space leadership,” the office of PDSA was short-lived and disappeared with the 2018 NDAA.<sup>33</sup>

## Changes to Space: The 2018 NDAA

In 2017, Congressman Mike Rogers, member of the House Armed Services Committee and Chairman of the Subcommittee on Strategic Forces, introduced legislation to create a separate Space Corps under the USAF.<sup>34</sup> The proposed legislation was part of the House version of the 2018 NDAA and it would have created a Space Corps organized in much the same way as Title 10 organizes the Marine Corps under the Department of the Navy. Indeed, proposed legislation for the Space Corps tracked very closely with the provisions of Title 10, *United States Code*, establishing the United States Marine Corps. It would have created a separate corps with a separate chief of staff reporting directly to SecAF, similar to the commandant of the Marine Corps. This legislation would have added another seat to the Joint Chiefs of Staff and would have assumed all space functions currently handled by the USAF.<sup>35</sup> Unfortunately, Congressman Rogers' proposal did not make it into the final version of the NDAA, effectively shelving the idea of separating space into its component, albeit under the USAF, for the near term. However, this proposal has merit and is the subject of extensive studies.

One primary purpose of such proposals to sever space from the USAF is to provide "space" equal footing within the Air Force as "air" and to ensure the proper management of space. Congressman Rogers is among a growing contingent of lawmakers concerned that the USAF is not correctly managing space, which is driving efforts to reorganize within the DOD. With the USAF focused on both air and space, and increasingly on cyberspace, it is understandable that space cannot get equal attention within the Air Force. The Air Force's focus is understandably more on the air, with the inability to dedicate sufficient attention to space. Air Force doctrine even bears out the view that space is not co-equal with air.

Air Force doctrine presents airpower as a unitary construct. The USAF acknowledges the importance of space and cyberspace domains. However, Air Force doctrine should address what unifies Airmen. Thus, in the Air Force's senior doctrine product, it is appropriate to use concepts and language that bind Airmen together instead of presenting the USAF as a collection of tribes broken out in technological stovepipes according to the domains of air, space, and cyberspace.<sup>36</sup>

From this statement, it seems that the "tribe" of space is not part of what unifies Airmen, which is concerning to several members of Congress.

Although the Senate did not adopt the proposal to create a separate Space Corps, two changes included in the 2018 NDAA signal Congress' frustration with the lack of emphasis on space within the USAF and may forecast the

future of space within the DOD. First, the 2018 NDAA terminated the short-lived position of PDSA and transferred the PDSA responsibilities to someone chosen by the deputy secretary of defense, with the express prohibition on vesting the SecAF with those duties.<sup>37</sup> Though the reasons for this change were not included in the congressional record, Congress appears to be unhappy with the way the USAF has managed space and is removing some of that management function. As further evidence of this, the NDAA also required the deputy secretary of defense to contract with a federally funded research and development center (FFRDC) to develop a plan to establish a separate military department. This department would be responsible for space, and again explicitly mandated that whatever FFRDC was chosen could *not* be “closely affiliated with the Department of the Air Force.”<sup>38</sup> Although the FFRDC report is not required by Congress until 31 December 2018, from this, it appears Congress may be willing to go a step beyond merely creating a Space Corps under the USAF and create an entirely new independent Space Force. Whatever form it takes, though, the FFRDC *will* produce a plan to reorganize military space, and that plan may be expansive. In addition to abolishing the PDSA and mandating an FFRDC on the establishment of a separate military department, the 2018 NDAA also takes action to reorganize how the USAF currently manages space.

Under the 2018 NDAA, management of the space mission, with Air Force Space Command (AFSPC) reporting directly to the chief of staff of the Air Force (CSAF), is significantly changed. The Air Force activated AFSPC as a major command on 1 September 1982.<sup>39</sup> Its mission “is to provide resilient and affordable space and cyberspace capabilities for the Joint Force and the nation.”<sup>40</sup> As a major command, until the 2018 NDAA, AFSPC reported to the CSAF, who, in turn, reported to the SecAF. Although the AFSPC mission appears, on its face, to be a comprehensive and unified space mission, AFSPC remained subservient to the USAF and was forced into a supporting function. As a result, space effectively became a forgotten stepchild. However, stemming from the recent congressional focus on space, the 2018 NDAA sought to change the USAF’s management of space and bring the space mission into the spotlight.

Specifically, the NDAA establishes AFSPC as the “focal point for a ‘space service’ within the Air Force responsible for acquisition, resources, and requirements.”<sup>41</sup> As an area of primary responsibility, the 2018 NDAA tasks AFSPC to “fix the ‘systemic problems Congress identified in the national security space enterprise.’”<sup>42</sup> Through the NDAA, Congress fired the proverbial shot across the USAF’s bow concerning the mismanagement of the space mission. The 2018 NDAA also set specific deadlines for initial and interim DOD

reports on the progress toward examining plans to establish a separate military department. In the first report delivered on this subject on 1 March 2018, the deputy secretary of defense included an update on the progress toward working with an FFRDC and outlined four significant activities of the FFRDC. This included developing “functions, roles, and responsibilities for a military department based on the mission outcomes such a department will support,” and also using those functions and missions to design an organization including drafting enabling legislation.<sup>43</sup> Despite what the FFRDC recommended, wide-sweeping changes appear to be on the horizon. In this initial report, the deputy secretary of defense also admitted that changes to how the DOD manages space is needed, noting that the DOD “must fundamentally change the way it delivers space capabilities as a key component of a lethal, resilient, and rapidly adapting Joint Force.”<sup>44</sup> The time may have come to establish a separate Space Force. As unfortunate as it may be, for too long, the USAF focused on the air domain to the exclusion of space. This is understandable, and one cannot fault the USAF for doing so.

Despite numerous opportunities to do so, the USAF has yet to configure space adequately. The time has come to act in the “best interest of space” and remove space from the USAF. Setting it up as an independent Space Force within the DOD and equipping it to manage the entire national security space portfolio is the way to move forward. Continuing to allow space to flounder while the USAF and DOD attempt incremental changes in how they manage space only harms our national security.

## **Why a Separate Space Force?**

### **Space as a Warfighting Domain**

Space is a contested domain. The USAF defines *airpower* doctrinally as “the ability to project military power or influence through the control and exploitation of air, space, and cyberspace to achieve strategic, operational, or tactical objectives.”<sup>45</sup> That same Air Force doctrine document articulates that “just as airpower grew from its initial use as an adjunct to surface operations, space and cyberspace have likewise grown from their original manifestations as supporting capabilities into warfighting arenas in their own right.”<sup>46</sup> In addition to being a contested domain, space is quickly becoming a warfighting domain. In this regard, the United States has recognized that foreign ventures into space, though traditionally couched in terms of peaceful pursuits, are not always peaceful. Other nations have reached this same understanding.

With their successful 2007 anti-satellite weapons (ASAT) test, China pushed space into the realm of not just a contested domain but also a threatened domain. China continues to remain a dominant threat in space. After formally recognizing space as a warfighting domain for the first time in a 2015 white paper, China took a significant step toward reorganizing its Space Force in creating the People's Liberation Army (PLA) Strategic Support Force (SSF).<sup>47</sup> According to a 2016 Research and Development Corporation (RAND) study, "the SSF signifies an important shift in the PLA's prioritization of space and portends an increased role for PLA space capabilities."<sup>48</sup> Though the exact makeup and structure of the SSF are unclear, the SSF will handle both military space and cyber and electronic warfare (EW). As the RAND study notes, the SSF will help integrate space more fully into operations, and "by integrating space, cyber, and EW, the establishment of the SSF gives China a military space and information-warfare organization that is different from those that handle these missions for the United States and its allies."<sup>49</sup> Though the reorganization of China's space programs under the SSF was likely not merely an effort to streamline operations:

The significance of the SSF's establishment should not be underestimated. Its creation heralds a more prominent role for space in PLA operations and suggests the continued building of a more robust space program to meet operational requirements. The establishment of the SSF also suggests that the organization's requirement to train the next generation of space warfighters will necessitate the development of a formal doctrine governing space operations. Ultimately, the creation of the SSF, the establishment of doctrine, and the continued development of space technologies may result in the designation of the SSF as a service responsible for an independent information-warfare campaign, which would include space, cyber, and EW forces.<sup>50</sup>

In a February 2018 speech at the Air Force Association Air Warfare Symposium, the SecAF, Dr. Heather Wilson publicly recognized the threat this type of warfare posed. Discussing the US military's ability to communicate with anyone at any time in recent wars, Dr. Wilson stated, "In the future of combat, against a near-peer adversary, [that ability to communicate freely is] not going to be guaranteed."<sup>51</sup> She continued, "Our relative advantage in air and space power is being challenged, and we have to rise to that challenge."<sup>52</sup> At the same symposium, Air Force Chief of Staff General David Goldfein also spoke of the threat space posed to future warfighters. He stated, "We must expect that war of any kind will extend into space in any future conflict, and we have to change the way we think and prepare for that eventuality."<sup>53</sup> As aptly stated recently by Melissa de Zwart, Dean of Law at the University of Adelaide in Australia, "Conflict in outer space is not a case of 'if' but 'when.'"<sup>54</sup>

Our next war may be a space war, and we need an organization that is prepared to fight in that domain.

It is not just the threat of ASATs that should concern the United States. The threat to all humanity posed by near-Earth asteroids mandates that the world increase its vigilance and preparations for handling such catastrophic events, and plan now for ways to mitigate or eliminate this threat. As the historical leaders in space, the United States needs a central coordinating agency to handle all facets of its space activities. This “whole of space” approach is the only way for the United States to leverage its current advantages in space and present a coordinated effort to reclaim our position as the world’s space leader. Dubbed by some as the world’s police when it comes to international intervention, the United States is in a position to assume a similar role in space. To protect our ever-growing commercial expansion into space, we must have a unified Space Force tasked with overseeing all aspects of US space efforts.

### **Organizing for Space: A New Approach is Needed**

The current US construct for managing space lacks consistency. Notwithstanding the issues of lack of centralized space management within the DOD, nationally, there is not a single overarching federal entity charged with managing US space efforts, despite an overarching need for one. Space has become ubiquitous, with multiple dissimilar agencies each handling diverse components of the US space effort and without any central coordinating body. For example, NASA is responsible for controlling all space activities “sponsored by the United States.”<sup>55</sup> However, excepted explicitly from NASA’s purview are “activities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States (including the research and development necessary to make effective provision for the defense of the United States).”<sup>56</sup> These activities fall to the DOD. Thus, even though NASA is responsible for controlling all space activities, not all activities fall to them. We have separate entities governing commercial space and national security space. Though NASA seemingly handles commercial space activities and the DOD handles national security space activities, the two often overlap. DOD policy is that its space-related activities will not only ensure security in space and maintain our national security advantages there but also “energize the space industrial base that supports US national security.”<sup>57</sup> NASA, too, is responsible for encouraging “to the maximum extent possible, the fullest commercial use of space.”<sup>58</sup> Therefore we have NASA charged with controlling all space activities except those controlled by the DOD and charged with encouraging commercial uses of space, yet the DOD

is to ensure its activities energize the space industrial base as well. Were NASA and the DOD the only two federal entities involved in space, and were space commercialization the only issue, marrying these two related aims would be straightforward. Unfortunately, though NASA and the DOD are not the only two federal agencies with a role in space, and even within the DOD, there is not a dedicated coordinating body for all divergent DOD space efforts.

Outside the DOD, the Federal Aviation Administration (FAA) Office of Commercial Space Transportation (AST) has a role in commercial launch and reentry.<sup>59</sup> Within the Department of Commerce, there are also several different entities with a role in space. One such entity is the National Oceanic and Atmospheric Administration (NOAA), within which is the National Environmental Satellite, Data, and Information Service (NESDIS). The NESDIS is responsible for providing satellite data to a host of other entities, and NOAA is responsible for licensing any cameras launched into space from the United States that have the potential to view Earth from space.<sup>60</sup> Unfortunately, while NOAA holds the ultimate licensing authority, it is required to coordinate with the various intelligence agencies and the DOD. Such coordination takes a significant amount of time, and license applications often languish within the bureaucratic process.<sup>61</sup> Because of these fractured space authorities, companies and individuals must either forfeit their launch or launch without the proper license. Also within the Department of Commerce, currently falling under NOAA, is the Office of Space Commerce. The Office of Space Commerce plays a role in advancing and encouraging commercial space efforts.<sup>62</sup> Under 51 USC § 507, the Office of Space Commerce is responsible for promoting and assisting commercial space activities, which is ostensibly within the sole purview of NASA, as discussed above.<sup>63</sup> Notably, the current organizational structure hampers the Office of Space Commerce in terms of budget requests and personnel. Rather than being able to fight for a piece of the Department of Commerce budget directly, the Office of Space Commerce must submit requests through the director of NOAA. However, under the *Department of Commerce Strategic Plan for 2018-2022*, the secretary of Commerce plans to expand the Office of Space Commerce and make it directly reportable to the secretary.<sup>64</sup> Although this move allows the Office of Space Commerce to accomplish its statutorily established mission better, this is another example of further fracturing of space authorities, rather than consolidation. Even within the DOD, space authorities and missions lack unified leadership. Within the DOD, the National Geospatial-Intelligence Agency operates separate and apart from the USAF, although the USAF is responsible for managing DOD space functions. Also within the DOD, but operating apart from the Air Force is the National Reconnaissance Office (NRO) which is staffed with

DOD civilian personnel, members of the Central Intelligence Agency (CIA), and military members.<sup>65</sup> United States Strategic Command (USSTRATCOM) has a space control mission too, having assumed the duties of the now-defunct United States Space Command, which includes space surveillance, protection of United States-based space assets, and providing space support to other combatant commands.<sup>66</sup> The USAF generally provides the USSTRATCOM personnel charged with managing space control functions, but those personnel report to USSTRATCOM, not AFSPC. USSTRATCOM also has missions beyond space, meaning that even within this one functional combatant command, space again has to vie for attention.

The lack of consistency and discordant organizational structure pervades many areas of space, but an area where this discord is most glaring is in space acquisitions. The 2016 GAO report focused mostly on issues with DOD space acquisition; however, even within this one confined area of study it is noted that problems appear to be systemic. The GAO report specifically highlighted disparities between NRO space acquisitions and the USAF military space acquisition process managed by the Space and Missile Systems Center (SMC). Whereas NRO program managers are within two levels of the acquisition decision-maker, the military space acquisition process is characterized by “insufficient program manager empowerment and excessive reviews, which contribute to inefficiencies.”<sup>67</sup> These additional levels of bureaucratic review speak to an organizational framework that imposes burdensome oversight requirements that stymie the acquisition process. The GAO report highlighted these issues in examining four possible solutions to reforming the DOD space acquisition process. Of the four possible solutions examined, one was to combine the SMC and NRO into one agency, and a second was to establish a new Space Force under the DOD.<sup>68</sup> Both of these solutions aim at eliminating redundancies and empowering the proper people to make vital decisions promptly. This speed is something much needed not only in space acquisitions specifically but also in space oversight in general. The discussion above cites just a few examples of the myriad agencies that play a role in space policy or operations at a national level. However, each agency is operating in a specific way, and without any central controlling or coordinating body. As noted in a 1994 GAO report, as well as numerous reports since, the fragmented authorities and conflict of interest present in DOD’s organization of space capabilities is a significant problem.<sup>69</sup> This is not a sustainable model for the proper management of space by the United States into the future. The 2016 GAO report noted, “DOD space leadership responsibilities are fragmented.”<sup>70</sup> However, despite 20 years’ worth of in-depth studies identifying issues with the fragmented nature of space leadership, and numerous recommendations emerging from those various

studies all recommending some form of reorganization, “DOD has not made significant changes to space leadership that were recommended by the four most relevant studies” GAO identified in their report.<sup>71</sup> These leadership changes were not the only GAO recommendations though, and changes to space acquisition highlighted by the GAO may drive the need for an independent Space Force more than anything else.

## **Acquisitions**

In the letter to congressional Committees accompanying its 2016 report, the GAO stated that despite recent changes to the structure of space leadership, it was still proper to examine potential reforms “in light of DOD’s long-standing and generally unsuccessful track record of making effective and lasting improvements.”<sup>72</sup> Though the GAO report did not make any recommendations per se and it focused mainly on acquisition issues related to the DOD and NRO, compiling the report required interviewing several officials and experts, from which the GAO report made various findings that are informative. As the letter accompanying the report noted, those officials and experts identified that “DOD space acquisitions generally take too long due to fragmented leadership, a redundant oversight bureaucracy, and difficulty coordinating among numerous stakeholders,” while the NRO processes “appear more streamlined than DOD’s.”<sup>73</sup> Establishing an independent USSF and consolidating space acquisitions, by combining the NRO and SMC under the USSF, can fix this broken process. With this, giving the USSF broad other transactions authority (OTA)—the authority to carry out certain prototype, research, and production products—will overcome the hurdles presented by the Federal Acquisition Regulations (FAR). Most government agency contracts, including those entered into by the services, are based on the FAR, which is widely viewed by industry as burdensome and inflexible. Indeed, even military leaders recognize the almost prohibitive nature of the FAR, especially in acquiring space systems.<sup>74</sup> Often, smaller companies will not even contract with the government on account of the extra costs incurred in being FAR-compliant.<sup>75</sup> Even when agencies can find FAR-compliant partners, the process is so long and tedious that the acquired system is often outdated by the time of delivery. This is a particularly acute problem in the fast-paced space domain. The CIA and DARPA found creative ways around the obstacles presented by the FAR based on the OTA granted to the DOD by Congress.<sup>76</sup> Under the OTA authorizing statute, the “Secretary of Defense and the Secretary of each military department may enter into transactions (other than contracts, cooperative agreements, and grants) . . . in carrying out basic, applied,

and advanced research projects.<sup>77</sup> However, OTA awards are only permissible in limited circumstances, as provided by statute. As a result, OTA agreements are the exception rather than the rule in the DOD. For a USSF responsible for space systems acquisitions, an OTA model should be the norm rather than the exception, unlike current DOD practice.

### **Posse Comitatus**

In addition to the issues identified above, there exists one other compelling legal justification for establishing an independent Space Force instead of a Space Corps under the USAF. That reason is the Posse Comitatus Act. Although the concept of a Space Corps or Space Force is the subject of extensive writings, the authors of this paper are unaware of any academic work discussing the potential issues presented by the Posse Comitatus Act if a Space Corps is established under the USAF. This is a significant legal issue to address but one a separate Space Force quickly solves.

In the space domain, perhaps more than any other domain, the line between civil and military are blurred, and there is not a civil law enforcement infrastructure in space. As a result, the USSF will have a significant responsibility to enforce and assist in the enforcement of the laws of the United States. For this reason, perhaps more than any other, the USSF needs to be an independent force as opposed to a force organized under the USAF—to avoid potential conflicts with the Posse Comitatus Act.

The Posse Comitatus Act, 18 USC § 1385, was initially enacted by Congress to end the use of federal troops to police state elections in the former Confederate states.<sup>78</sup> The act states:

Whoever, except in cases and under circumstances expressly authorized by the Constitution or Act of Congress, willfully uses any part of the Army or Air Force as a posse comitatus or otherwise to execute the laws shall be fined under this title or imprisoned not more than two years, or both.<sup>79</sup>

Although the original act applied only to the Army, Congress amended the statute in 1956, expressly adding the USAF.<sup>80</sup> Notably, the Navy and Marine Corps are not included in the Posse Comitatus Act; however, the *Code of Federal Regulations* (CFR) made them subject to it.<sup>81</sup> The act, and the CFR, as applied to the Navy and Marine Corps, prohibits specific armed services from enforcing the laws of the United States. There are several notable exceptions to the Posse Comitatus Act that allow certain portions of the armed forces to act in a law enforcement role; however, they would not apply if a service were to attempt to enforce the space laws of the United States in space or on Earth. This could pose a significant problem with a Space Corps established under

the USAF, because the Posse Comitatus Act prohibits explicitly using any part of the Air Force as a posse comitatus.

While the Army, Navy, Air Force, and Marines are all subject to the Posse Comitatus Act per statute or regulation, the act does not apply to the DOD as a whole. It also does not apply to the United States Coast Guard (USCG), which is responsible for enforcing laws in the maritime domain. Later, this paper discusses the various missions the USSF will assume and many of those stem from a USCG model. However, understanding the relationship between the USCG and the Navy at this point is essential for understanding the benefit of having an independent USSF.

While the USCG and the Navy both operate in the maritime domain, neither is reliant upon the other for day-to-day support. There is a clear line of delineation between the USCG and Navy missions, and a lack of interdependency between the two, which allows the USCG to operate in a law enforcement capacity without the Navy running afoul of the CFR. However, unlike the relationship between the USCG and the Navy, the USAF is dependent on space assets for its peace and wartime missions. Though the USCG and Navy both operate independently in the same domain, the USAF has long taken the position that there is little distinction between air and space missions, viewing both as contained in aerospace.<sup>82</sup> Moreover, to operate in the air domain, the USAF requires the support of space assets, and vice versa. Given this interdependency, there is an acute danger that if a Space Corps is housed under the USAF, the Air Force, using the Space Corps, might engage in law enforcement type activities in the space domain. This would violate the Posse Comitatus Act. Even if given independent law enforcement authority to undertake specific actions as a Space Corps, it would be difficult to delineate when the Space Corps was acting under its Space Corps authority and when it was acting under Air Force authority. Establishing a separate USSF, not subject to the Posse Comitatus Act, would eliminate this concern, and would allow the USSF to engage in law enforcement actions freely and without concern.

## **Roles and Missions of a USSF**

If the United States were to reorganize national security space and establish an independent USSF, there are a litany of roles such a force should adopt. Most obvious would be the current roles assumed by the DOD, specifically those typically handled by AFSPC and the space roles currently assigned to USSTRATCOM. However, in addition to the current roles, an independent USSF must also take on additional roles not currently assigned to or tradition-

ally handled within the DOD. A discussion of those nontraditional space roles is below.

### **Considering the USCG Model**

Of the critical functions, roles, and responsibilities a USSF must assume, some of the most critical will be the roles and responsibilities the USCG currently assumes in the maritime domain. In a spring 2000 article published in the *Aerospace Power Journal*, Lt Col Cynthia McKinley compared the USCG with a proposed similar organization for orbital space. In that article, she wrote, “The evolution and formation of the Coast Guard’s missions reflect the importance of sea-based trade to the economy, of access to the sea by private citizens, and of the sea itself to national security. Orbital space now has that same level of importance to America’s economy, standard of living, and national security.”<sup>83</sup> These words were valid when first written in 2000, and are even more valid today.

Lt Col McKinley advocated for the creation of a United States Space Guard, and others have advocated a similar approach, arguing that the creation of a Space Guard would serve as a stepping-stone for creating an eventual Space Force. However, the incremental approach advocated in 2000 did not work. The USAF balked at any attempt to sever space from the USAF, and so the benefits of creating a Space Guard as an interim step toward an eventual Space Force are of little value today. The benefits of creating a USSF also outweigh any benefits of adopting a USCG concept only as an interim solution. Additionally, the overlap between a USCG operating in the maritime environment does not perfectly align with that needed for the space domain. The space domain needs a DOD agency more akin to the US Navy than a hybrid agency similar to the USCG. That said, examining the roles and responsibilities of the USCG are instructive for what would be needed in an eventual USSF.

In her article, Lt Col McKinley presents a table comparing USCG responsibilities to the requirements of a Space Guard. A reproduction of the table is below.

**Table 1: Coast Guard Responsibilities and Space Requirements<sup>84</sup>**

Today's Coast Guard Provides:	Space Exploitation Requires:
<ul style="list-style-type: none"> <li>• Waterways Management</li> <li>• Aids to Navigation</li> <li>• Seaport Security</li> <li>• Fishing Protection</li> <li>• Treaty Enforcement</li> <li>• Dealing with Piracy</li> <li>• Boating Safety</li> <li>• Environmental and Pollution Control</li> <li>• Ice Operations Science, and Weather</li> <li>• Boater Rescue</li> </ul>	<ul style="list-style-type: none"> <li>• Range Management</li> <li>• GPS</li> <li>• Spaceport Security</li> <li>• Orbital Slot Protection</li> <li>• Spectrum Use Monitoring</li> <li>• Dealing with Piracy</li> <li>• Dealing with Interference</li> <li>• Space Surveillance</li> <li>• Collision Avoidance</li> <li>• Debris Mitigation and Cleanup</li> <li>• Space Environment Research</li> <li>• Terrestrial Weather</li> <li>• Solar Research</li> <li>• Astronaut Rescue</li> <li>• Satellite Repair</li> </ul>

Examining this table, one can see how much overlap there is between the functions of the USCG and the mission requirements of a future Space Force. Considering the USCG's current role helps translate those concepts and roles to a space framework.

Title 14 USC § 2 outlines the duties of the USCG. Those duties include enforcing federal laws at sea; engaging in maritime surveillance and interdiction; administering laws and regulations to promote safety of life and property; developing and operating maritime navigation aids, icebreaking facilities, and rescue facilities to promote safety; engaging in research; and maintaining “a state of readiness to function as a specialized service in the Navy in time of war.”<sup>85</sup> A USSF will perform these same roles and responsibilities in the space domain.

### **Law Enforcement in Space**

The USCG enforces federal laws and regulations at sea, and the laws are voluminous. For outer space, there is an increasing body of law governing activities, both domestic and international, and an ever-increasing need for more laws and regulations. In 2013, the United Nations General Assembly passed a resolution recommending nations develop domestic legislation on the peaceful use of outer space.<sup>86</sup> In 2015, Congress answered that call with the United States Commercial Space Launch Competitiveness Act (CSLCA).<sup>87</sup> Other nations will soon follow suit. Though the United States can enforce provisions of domestic law through punitive actions on Earth for companies

or entities that might violate such law, there is not an on-orbit force capable of such law enforcement or in-person monitoring.

The purpose of the CSLCA, and laws like it, is to promote a pro-growth commercial space industry and encourage commercial investment in space.<sup>88</sup> The CSLCA represents a dramatic step forward in filling the gaps left by the “Outer Space Treaty (OST).” Under the CSLCA, the executive branch is required to (1) facilitate commercial recovery of space resources, (2) discourage government barriers to commercial recovery of space resources, and (3) promote the right of US citizens to engage in commercial recovery of space resources free from harmful interference.<sup>89</sup> Perhaps most importantly, the CSLCA establishes that US citizens engaged in commercial recovery of space resources own and can sell such resources.<sup>90</sup>

Armed with the CSLCA and the encouragement of the United States, commercial corporations are spearheading efforts aimed at exploiting space as a tourist destination and for its resources. Moon Express seeks to exploit the abundant lunar water resources to produce high- test peroxide fuel.<sup>91</sup> Moon Express is aiming for the resource-rich lunar south pole. In 2017, Moon Express expanded its exploration architecture and goal to establish a permanent presence and lunar prospecting at the lunar south pole by 2020.

Similarly, Shackleton Energy Company aims to mine the lunar ice reserves on the lunar poles for hydrogen and oxygen fuel production to sell to space partners in low Earth orbit.<sup>92</sup> Indeed, Shackleton’s mission statement ambitiously states that Shackleton will extract water from the lunar poles and “turn it into rocket fuel and create fuel stations in Earth’s orbit.”<sup>93</sup> In addition to resource exploitation, with significant reduction in launch costs in recent years, space tourism is in a period of growth. Virgin Galactic and Blue Origin aim to carry tourists into space within the next few years.<sup>94</sup> Recently, a start-up by the name of Orion Span announced plans to take space tourism to another level by launching a luxury space hotel into Earth orbit.<sup>95</sup> The company plans to launch the hotel, Aurora Station, into orbit in 2021 and begin receiving guests in 2022.<sup>96</sup> Once relegated to the minds of science fiction authors, the space economy is now a reality and the need for protection and security is increasingly evident.

Notably, President Trump published his *National Security Strategy* (NSS) in December 2017.<sup>97</sup> In addition to promoting public-private partnerships, the NSS promises to “simplify and update regulations for commercial space activity to strengthen competitiveness . . . [and] consider extending national security protection to our private sector partners as needed.”<sup>98</sup> Although the NSS does not task any particular agency with the space protection mission, it is logical to assume this will fall to the DOD. Much as the US Navy assumed

responsibility for protecting lines of commerce on the high seas, only a military force will be equipped to protect lines of commerce in space. With commercial space activities growing exponentially, and the expressed NSS of the United States, such a force is needed, and the USSF should be that force. It is also essential to consider that under international law, a nation is responsible for the actions of its citizens in space.

### **Space Regulation and Inspection**

Under the “OST,” states are responsible for the activities of its citizens in space and liable for any damages caused by those citizens.<sup>99</sup> A state is also responsible for ensuring that its citizens operating in space comply with international law concerning space.<sup>100</sup> With more private companies and private citizens venturing into space, who within the United States will ensure that its citizens are complying with international law and that any activities occurring in space are conducted safely? Today the FAA Office of Commercial Space Transportation (FAA/AST) licenses launches from the United States into space and any objects returning from space to the United States. AST also licenses any launch conducted by US citizens or corporations regardless of where those launches occur. However, FAA/AST is not equipped nor manned to handle on-orbit inspection or licensing.

Aside from conducting terrestrial inspections of commercial entities or private citizens traveling to or from outer space, the United States currently does not have a role in, or the ability to, inspect or enforce activities on-orbit or in space. This task needs an independent USSF.

Related to the expanded and ever-growing body of laws for space will be the development of regulations for commercial activities in space. Commercial resource exploration and utilization will become a growing industry in space. With companies possibly mining the lunar surface or other space bodies for resources, regulations on transportation, storage, and use must be developed. A USSF will help ensure that whatever resource extraction methods are used do not disturb other activities in space or pollute the space environment by creating additional space debris. If Orion Span or Bigelow Aerospace place modules on the moon are in orbit for habitation, regulations will develop to ensure that those habitats are habitable. Therefore, there must be enforcement of those regulations. A USSF will help ensure the health and safety of occupants in those habitats. Space commercialization is growing and with it will grow the body of space regulations. A USSF can help enforce those regulations. Additionally, a USSF will help

ensure protection for interplanetary commerce in the same way the USCG and the US Navy help protect maritime commerce.

### **Space Surveillance, Interdiction, and Rescue**

In enforcing federal laws at sea and in protecting the homeland from threats coming from the sea, the USCG also engages in maritime surveillance and interdiction. Though the USAF engages in space situational awareness and intelligence, surveillance, and reconnaissance, there is not a current force capable of on-orbit interdiction of human-made space objects. In 2007, China conducted a successful ASAT test by launching a kinetic kill vehicle from Earth to destroy a defunct weather satellite on-orbit.<sup>101</sup> Though this was a relatively primitive ASAT method, other proposed ASAT capabilities include possibly physically interfering with on-orbit satellites by equipping satellites with grappling arms, or merely maneuvering a satellite to interfere with the sensors on a satellite. This, of course, would require maneuvering an ASAT into close proximity with a target satellite, which would presumably be perceptible by the target satellite or from ground or space-based monitoring. If the United States were to detect such maneuvering and anticipated physical interference by an enemy satellite, the United States would need to act to interdict that unlawful space interference. Engaging in that type of on-orbit physical defense would be something a USSF should handle in the same way the USCG or Navy handles such efforts at sea. Additionally, if someone were to detect an asteroid on course to strike the Earth, the moon, or some other space object, the USSF would conceivably help respond to and mitigate that threat.

As has been outlined above, there is a host of agencies tasked with administering laws and regulations to promote safety in space. However, with the anticipated growth of commercial space and the inevitable related growth in legislation governing activities in space, a point will come where the body of law on space activities becomes too cumbersome for different agencies to manage. At that point, having one entity charged with overseeing the coherent development of those laws will become necessary, and aligning and coordinating the task of handling those laws under one lead agency is essential. That agency should be the USSF. The USCG focuses solely on the maritime domain, and its myopic focus allows it to understand the needs in that domain best and promulgate effective regulations. A singularly focused US organization in the space domain today does not exist. The USSF will be that agency.

As space becomes increasingly congested and manned, there becomes an even more significant threat of inadvertent or deliberate contact between spacecraft in space, or possible interference in space. Therefore, a need for

safety enforcement and possibly rescue in space needs to be developed. Under Article V of the “OST,” state parties agree to render “all possible assistance in the event of accident, distress, or emergency landing” to any astronaut carrying out activities in space or on any celestial body.<sup>102</sup> However, there are not any nations currently equipped to respond promptly to emergencies in space that threaten life and safety.

The United States can lead the way internationally by creating a USSF that acts as a rescue force. Related to its safety-promotion activities, the USCG is responsible for developing navigational aids and rescue facilities. The maritime domain is obviously much different from space. Establishing rescue facilities for rescues at sea is vastly different from establishing rescue facilities for rescues in space, but the concept still holds.

As discussed above, commercial enterprises are increasingly interested in the moon and in establishing manned lunar outposts. Indeed, even the US government is pursuing robust commercial partnerships that would establish lunar facilities. In January 2014, NASA began the Lunar CATALYST initiative.<sup>103</sup> The initiative seeks to allow private corporations to take advantage of NASA knowledge, engineers, and installations to design and build lunar robots, the precursor to manned lunar facilities.<sup>104</sup> The hope is that participating companies will be able to develop lunar landers that can deliver payloads to the lunar surface to meet an expected increase in commercial demand. Under the initiative, NASA entered into a no-funds-exchanged Space Act Agreements with Astrobotic Technology, Masten Space Systems, and Moon Express. These agreements were recently extended for an additional two years.<sup>105</sup> NASA expects that the companies could begin delivering small payloads to the lunar surface as early as 2018.<sup>106</sup> When such facilities are established, the need for on-orbit or lunar-based rescue and anti-piracy activities will increase. The establishment of the USSF will prepare the United States to respond to this need.

As man ventures into the ever-deeper reaches of space, fuel depots or other waystations to support interplanetary travel are necessary. Elon Musk, CEO of Space Exploration Technologies Corporation (SpaceX), envisions the establishment of a Mars colony in his lifetime, intending to make human beings an interplanetary species.<sup>107</sup> As facilities and human outposts are established, the need for protection as well and monitoring becomes increasingly important, and the USSF would be the proper agency for such a mission.

## **Space Environment Research**

As an organization with a vested interest in the sea, the USCG also researches while at sea. The USSF should do the same in space. Under the “OST,” state parties are required to inform other parties of any phenomena in space that could constitute a danger to the life or health of astronauts.<sup>108</sup> Understanding space phenomena that could constitute a danger requires focused research. Research also helps prepare the United States and the world for any threats originating from space such as near-Earth asteroids. On-orbit space weather forecasting will become necessary the more the United States relies upon space and ventures into space. Increased imagery and communications will also demand greater support and protection, and an USAF focused more on what space can provide the terrestrial warfighter instead of what the terrestrial warfighter can provide space will be unable to safeguard space adequately.

For this, a separate USSF is needed. Whatever form such a force would take, though, the USSF will have some very distinct roles and mission—some aligned with where national security space is currently, and some with an eye toward the not too distant future. Examining these roles is beneficial and helps inform any discussion of necessary legislation. However, while considering many of the roles from the USCG model helps, it is notable that the USCG maintains a state of continuous readiness that enables it to act in service to the Navy during wartime. The USSF, operating as a separate military service in the DOD would not have this same dual-purpose as all functions would be under the same force. As opposed to the USCG construct in wartime, the USSF would instead be perpetually prepared to act as a military force, yet would not fall under any other service. It would operate independently but also jointly as an independent service under the DOD.

## **Legislative Framework for an Independent Space Force**

Establishing an independent Space Force will be a monumental undertaking and planning for space operations into the future and keeping up with near-peer competitors without doing so will be exponentially more difficult. As an aid in understanding the complexities of such an undertaking, Appendix 2 provides a legislative framework for establishing a Space Force as an independent Title 10 service under the DOD. Appendix 1 is a more distilled version of the legislation, highlighting the more substantive and unique provisions recommended by the authors. The following is a summary of selected provisions of the draft legislation:

- Section 1 provides for the establishment of the Department of the Space Force as a separate service under the DOD. The authors presume that if an independent Space Force is established, Congress will amend 10 USC § 151 to add the chief of staff of the Space Force to the membership of the Joint Chiefs of Staff and Congress will also amend 10 USC § 181 to provide for Space Force membership on the Joint Requirements Oversight Council. The draft legislation contained in Appendix 1 and 2 is formulated with that presumption in mind.
- Section 3 details the primary duties of the USSF, including:
  - Enforcing and assisting in the enforcement of federal laws in, on, and surrounding terrestrial spaceports and those locations in space subject to the jurisdiction of the United States;
  - Engaging in space surveillance or interdiction as required in the enforcement of federal laws;
  - Administering and promulgating regulations for the promotion of life and safety of property in space;
  - Establishing and maintaining rescue facilities for the promotion of safety in space;
  - Engaging in scientific research and exploration of space and heavenly bodies;
  - Maintaining a state of readiness to function as a specialized service in the Joint Force in a time of war; and
  - Fulfilling Space Defense Zone and Missile Defense and Warning command responsibilities.
- Section 7 provides for five assistant secretaries for the Space Force. Section 7(b)(3) differentiates the Space Force from the Army, USAF, and Navy, by providing for an assistant secretary of the Space Force for Civil Space Works. This person shall have as their principal duty the overall supervision of the functions of the Department of the Space Force relating to programs for conservation and development of space water and power resources and related purposes. This position is similar to the Army's assistant secretary of the Army for Civil Works.
- Section 17 provides that the chief of staff of the Space Force will be appointed for a six-year term. While the chiefs of the other service departments are appointed for a four-year term, this provision is consistent with the 2018 NDAA, which provided for the AFSPC commander to be appointed for a six-year term.

- Section 24 assigns responsibility to the chief of staff of the Space Force for overseeing the safety, security, reliability, effectiveness, and credibility of the nuclear deterrence mission of the Space Force. Currently, the USAF is responsible for two prongs of the US nuclear triad—land-launched nuclear missiles and aircraft armed with nuclear bombs. If an independent Space Force is established, it should assume responsibility for land-launched nuclear missiles and the nuclear deterrence mission in space.
- Section 26(e) provides broad OTA to the secretary of the Space Force.
  - In exercising primary responsibility for the acquisition of spacecraft, space systems, and weapons and equipment of space combat and service elements, the secretary of the Space Force, or his or her designee, may enter into OTAs (transactions other than contracts, cooperative agreements, and grants) under the authority of this subsection.
  - The secretary may carry out this section independently; in cooperation with other Federal departments, agencies, and instrumentalities and Federal laboratories; or by making grants to, or entering into contracts, cooperative agreements, and other transactions with NASA, DARPA or any federal laboratory, state agency, authority, association, institution, for-profit or nonprofit corporation, organization, foreign country, or person.
  - To encourage innovative solutions to space system and space transportation problems and stimulate the deployment of new technology, the secretary may carry out, on a cost-shared basis activities—collaborative research and development with nonfederal entities, including state and local governments, foreign governments, colleges and universities, corporations, institutions, partnerships, sole proprietorships, and trade associations—that are incorporated or established under the laws of any state and federal laboratories.
- Section 26(f) provides authority to the secretary of the Space Force to enter into multiyear contracts for the procurement of space systems or the construction of spaceport facilities.
- Section 26(g) provides the secretary of the Space Force authority in federal and civil space works projects which would be in the public interest, similar to the Army Corps of Engineer’s Continuing authorities program.
- Section 26(i) provides for cooperation and coordination between the Space Force and the FAA/AST.
- Section 26(j) details the Space Force’s search and rescue authorities and responsibilities. In providing aid to distressed persons, the Space Force

may perform any acts necessary to rescue and aid persons, protect and save property, and take charge of and protect all property saved from space disasters at which the Space Force is present.

- Section 26(k) provides specific authorities to the Space Force for the conduct of law enforcement activities in space and in, on, or around spaceports. Specifically, Space Force officers are authorized to make inquiries, examinations, inspections, searches, seizures, and arrests in space and spaceports over which the United States has jurisdiction. This is for the prevention, detection, and suppression of violations of laws of the United States.
- Section 26(l) gives Space Force the authority to carry firearms while in the performance of their official duties.
- Section 26(m) gives the Space Force authority to operate and maintain space stations to provide search and rescue, communication, and scientific research.
- Section 26(n) authorizes the President to detail members of the Space Force to assist foreign governments in matters concerning which the Space Force may be of assistance.
- Section 26(o) provides for the assignment of commissioned officers to the Space Force as space attachés.
- Section 29(a) requires the President, in the next Unified Command Plan after the enactment of the legislation establishing the Space Force, to designate a specified geographic command. This command's boundaries shall begin at 100 kilometers above the Earth and extend through the volume of Cis-Lunar Space, including appropriate areas extending beyond Cis-Lunar space should US industry or citizens conduct commerce or the command itself conducts operations in such space.
- Section 30 provides for the establishment of a Civil Reserve Space Fleet, to be managed and coordinated by the secretary of the Space Force.

Neither Appendix 1 nor Appendix 2 purports to be a comprehensive or complete framework for the establishment of a separate military department. Specifically, readers should recognize that this paper and the accompanying legislative framework address the basic establishment of a Space Force and its missions and authorities. The United States moving toward the establishment of an independent Space Force will necessitate a more robust implementation of legislation, dealing with such issues as recruitment, personnel, and training, to name a few.

## Conclusion

The concept of an independent USSF is not novel. It is the subject of much discussion, past and present, and many debates among academics and space professionals alike. The concepts considered have often taken different forms, from discussions of a Space Guard operating along the lines of the USCG model to discussions of a Space Corps operating under the USAF, to discussions of an independent Space Force within the DOD, and even to discussions of a wholly independent Space Department falling outside the DOD. Each of these diverse proposals has merit and carries pros and cons. Considering these pros and cons is essential because severing space into a singular organization would not be a simple task. However, doing so is vitally important to our national security. The only proposal debated today without merit is the proposal currently advocated by the USAF, and that is the proposal to maintain the status quo. For far too long, the Air Force had the opportunity to change how it manages space incrementally, but it squandered those opportunities. Though one cannot honestly fault the Air Force for this failure – for too long, it was asked to do too much with too little – the time has come to establish an independent USSF.

This paper discussed the historical evolution and fractured history of space in the United States. It looked at some of the myriad studies in this area, from the 2001 Space Commission to the most recent GAO and OMB reports, and the changes made in the 2018 NDAA. These reports speak to the need to reorganize space and manage space to stay ahead of the threats posed by our peers. However, by and large, the proposals and recommendations drawn from these studies seem to have “fallen on deaf ears,” and whatever changes these various studies prompted failed to adequately address the need for better space organization and leadership. The time to properly address the deficiencies identified has passed, and the proper management of space in the future needs a new organization. That organization is the USSF.

In advocating for a USSF, this paper discussed the various roles and missions an independent Space Force would assume, and proposed a legal framework for establishing such a USSF. This paper makes many bold assertions, not the least of which is its proposed legislation and the discussion of that legislation. However, the hope is that the discussion contained herein spurs further discussion and research into the need for an independent USSF and what the legal framework supporting that independent force could look like. Though there is currently a relatively minuscule human presence in space—with the opening of commercialization of space and with the possibility of companies delving into space tourism—space will soon become a more con-

gested and populated domain. In that domain, we must have a Space Force capable of ensuring our national security and protecting US interests and its citizens. Creating an independent USSF under the DOD will not be popular, nor will it be easy, but doing so is required. Quite simply, it is in the best interest of space and the United States to do so.

### Notes

(All notes appear in shortened form. For full details, see the appropriate entry in the bibliography.)

1. Quoted in Curtis E. LeMay Center for Doctrine Development and Education, "Chapter 2, Airpower," *Volume I, Basic Doctrine*, 27 February 2015, <http://www.dctrine.af.mil/>.

2. Reported in Major Shawn P. Rife, "On Space-Power Separatism," *Aerospace Power Journal* 13, no. 1 (Spring 1999): 21, <https://www.airuniversity.af.edu/>, citing Gen Charles Horner in "Air Force Space System Control Questioned," *Space News*, 8 September 1997, 2.

3. President Donald J. Trump, (address, Marine Corps Air Station Miramar, San Diego, CA, 13 March 2018), C-Span.org, <https://www.c-span.org/>.

4. "Sputnik and The Dawn of the Space Age," NASA Main Page Multimedia Interactive Feature on 50th Anniversary of the Space Age, 10 October 2007, <https://history.nasa.gov/sputnik>.

5. NASA, "Sputnik: The Fiftieth Anniversary," NASA History Homepage, 10 October 2007, <https://history.nasa.gov/sputnik>.

6. Peter L. Hays, *Struggling towards Space Doctrine: US Military Space Plans, Programs, and Perspectives during the Cold War*, Report no. AFIT/CI/CIA-94-083 (Wright-Patterson AFB, OH: Air Force Institute of Technology, 1994), 96, <https://apps.dtic.mil/dtic/tr/fulltext/u2/a281988.pdf>.

7. Hays, *Struggling towards Space Doctrine*, 111.

8. Hays, *Struggling towards Space Doctrine*, 97.

9. Hays, *Struggling towards Space Doctrine*, 111.

10. Hays, *Struggling towards Space Doctrine*, 100.

11. Hays, *Struggling towards Space Doctrine*, 100.

12. Hays, *Struggling towards Space Doctrine*, 100.

13. Hays, *Struggling towards Space Doctrine*, 97.

14. "Sputnik and The Dawn of the Space Age."

15. US Congress, "National Aeronautics and Space Act of 1958," *Public Law 85-568*, 29 July 1958, <https://www.govtrack.us/>.

16. Hays, *Struggling towards Space Doctrine*, 97.

17. Hays, *Struggling towards Space Doctrine*, 97.

18. Hays, *Struggling towards Space Doctrine*, 97-98.

19. Hays, *Struggling towards Space Doctrine*, 98.

20. Commission to Assess United States National Security Space Management, and Organization, Report of the Commission to Assess United States National Security Space Management and Organization [Washington, D.C.]: The Commission, 2001, <https://www.hsdl.org/>.

21. A.T. Young, Edward Anderson, Lyle Bien, Ronald R. Fogleman, Keith Hall, Lester Lyles, and Hans Mark. *Leadership, Management, and Organization for National Security Space: Report to Congress of the Independent Assessment Panel on the Organization and Management of National Security Space*. No. IDA-GR-69 (Alexandria, V.A.: Institute for Defense Analyses, July 2008), ES-2, <https://apps.dtic.mil/>.

22. Young, et al., *Leadership, Management, and Organization for National Security Space*, ES-3.

23. Government Accountability Office, *Defense Space Acquisitions: Too Early to Determine If Recent Changes Will Resolve Persistent Fragmentation in Management and Oversight* (Washington, D.C.: Government Accountability Office, 27 July 2016), 2, <https://www.gao.gov/>.

24. GAO, *Defense Space Acquisitions*, 4.

25. Executive Office of the President of the United States, *OMB Report on the Leadership, Management, and Organization of the Department of Defense's Space Activities* (Washington, D.C.: Office of Management and Budget, 4 December 2017), 4, <https://aerospace.csis.org/>.

26. Executive Office of the President of the United States, *OMB Report*, 6.

27. DOD Directive (DODD) 5100.01, *Functions of the Department of Defense and Its Major Components*, 21 December 2010, 33, <https://www.hsdl.org/>.

28. DODD 5100.01, 27.

29. DOD Directive (DODD) 5101.02E, *DOD Executive Agent (EA) for Space*, 25 Jan 2013, <https://www.hsdl.org/>.

30. DODD 5101.02E.

31. DOD Directive (DODD) 5100.96, *DOD Space Enterprise Governance and Principal DOD Space Advisor (PDSA)*, 9 June 2017, 3, <https://www.esd.whs.mil/>.

32. DODD 5100.96, 3.

33. GAO, *Defense Space Acquisitions*, 2.

34. *Report on the National Defense Authorization Act for Fiscal Year 2018, H.R. 2810, 115th Cong., 1st sess., 2017, sec. 1601*, <https://www.congress.gov/>.

35. H.R. 2810, sec. 1601.

36. LeMay Center for Doctrine Development and Education, "Chapter 2, Airpower."

37. National Defense Authorization Act for Fiscal Year 2018, Public Law 115-91, 115th Cong., 1st sess. (12 December 2017), sec 1601(b), <https://www.congress.gov/>.

38. PL 115-91, sec 1601(d).

39. "About Us," Air Force Space Command, accessed 8 April 2018, <http://www.afspc.af.mil/>.

40. AFSC, "About Us."

41. Sandra Erwin, "Space Reforms Coming: 2018 NDAA Drops Legislative Bombshells on US Air Force," *SpaceNews*, 9 November 2017, <https://spacenews.com/>.
42. Erwin, "Space Reforms Coming."
43. Department of Defense, *Interim Report on Organizational and Management Structure for the National Security Space Components of the Department of Defense* (Washington, D.C.: Department of Defense, 1 March 2018), Annex 2, <https://media.defense.gov>.
44. DOD, *Interim Report on Organizational and Management Structure*, Annex 3.
45. LeMay Center for Doctrine Development and Education, "Chapter 2, Airpower."
46. LeMay Center for Doctrine Development and Education, "Chapter 2, Airpower."
47. See the State Council Information Office of the People's Republic of China, *China's Military Strategy* (The People's Republic of China: Ministry of National Defense, 26 May 2015), <http://eng.mod.gov.cn>.
48. Kevin L. Pollpeter, Michael S. Chase, and Eric Heginbotham, *The Creation of the PLA Strategic Support Force and Its Implications for Chinese Military Space Operations*, RAND Report RR-2058-AF (Santa Monica, C.A.: RAND, 2017), ix, <https://www.rand.org/>.
49. Pollpeter, et. Al, *The Creation of the PLA*, ix
50. Pollpeter, et. Al, *The Creation of the PLA*, x.
51. Dr. Heather A. Wilson, secretary of the Air Force, "State of the Air Force" (address, Air Warfare Symposium, Orlando, FL, 22 February 2018), <https://www.dvidshub.net/>.
52. Wilson, "State of the Air Force."
53. Gen. David L. Goldfein, chief of staff of the Air Force, "Air Force Innovation" (address, 2018 Air Warfare Symposium, Orlando, F.L., 23 February 2018), <https://www.dvidshub.net/>.
54. Quoted in Andrew Greene, "World Should Prepare for Military Conflict in Outer Space, Experts Warn," Australian Broadcasting Corporation, 10 April 2018, <http://www.abc.net.au/>.
55. Congressional Declaration of Policy and Purpose, *US Code*, vol. 51, sec. 20102(b) (2018), <https://www.law.cornell.edu/uscode/>.
56. *US Code*, vol. 51, sec. 20102(b).
57. DOD Directive (DODD) 3100.01, *Space Policy*, 18 October 2012,1, <https://www.hsdl.org/>.
58. *US Code*, vol. 51, sec. 20102(c).
59. Federal Aviation Administration, "About the Office of Commercial Space Transportation," Federal Aviation Administration, accessed 14 April 2018, <https://www.faa.gov/>.
60. Interview with personnel from Office of Space Commerce, 4 April 2018
61. Interview with personnel from Office of Space Commerce, 4 April 2018
62. Office of Space Commerce, "Mission," accessed 14 April 2018, <http://www.space.commerce.gov/>.

63. Establishment, *US Code*, vol. 51, sec. 50702 (2018), <https://www.law.cornell.edu/uscode/>.
64. Department of Commerce, *US Department of Commerce Strategic Plan 2018-2022* (Washington, D.C.: Department of Commerce, 12 February 2018), 4, <https://www.commerce.gov/about/strategic-plan>.
65. National Reconnaissance Office, “Who We Are,” National Reconnaissance Office, accessed 14 April 2018, <https://web.archive.org/>.
66. United States Strategic Command (STRATCOM), “USSTRATCOM Space Control and Space Surveillance,” USSTRATCOM, 17 October 2016, <https://web.archive.org/>.
67. GAO, *Defense Space Acquisitions*, 3.
68. GAO, *Defense Space Acquisitions*, 4.
69. Executive Office of the President of the United States, *OMB Report*, 3–4.
70. GAO, *Defense Space Acquisitions*, 2.
71. GAO, *Defense Space Acquisitions*, 2.
72. GAO, *Defense Space Acquisitions*, 4.
73. GAO, *Defense Space Acquisitions*, 3.
74. Lecturer, “Commandant’s Speaker Series” (lecture, Air Command and Staff College, Maxwell AFB, AL, 29 August 2017).
75. Rick E. Yannuzzi, “In-Q-Tel: A New Partnership Between the CIA and the Private Sector,” *Defense Intelligence Journal* (Winter 2000), <https://www.cia.gov/>.
76. Yannuzzi, “In-Q-Tel.”
77. Research Projects: Transactions Other Than Contracts and Grants, *US Code*, vol. 10, sec. 2371(a) (2018), <https://www.law.cornell.edu/uscode/>.
78. Eric V. Larson and John E. Peters, *Preparing the US Army for Homeland Security: Concepts, Issues, and Options*, RAND Report MR-1251-A (Santa Monica, C.A.: RAND, 2001), 243, <https://www.rand.org/>.
79. Use of Army and Air Force as Posse Comitatus, *US Code*, vol. 18, sec. 1385 (2018), <https://www.law.cornell.edu/uscode/>.
80. *US Code*, vol. 18, sec. 1385.
81. Applicability and Scope, *Code of Federal Regulations*, vol. 32, sec. 213.2 (2018), <https://www.law.cornell.edu/cfr/>.
82. Hays, *Struggling towards Space Doctrine*, 99–100.
83. Lt Col Cynthia A. S. McKinley, “The Guardians of Space: Organizing America’s Space Assets for the Twenty-First Century,” *Aerospace Power Journal* 14, no. 1 (Spring 2000): 37, <https://www.airuniversity.af.edu/>.
84. McKinley, “The Guardians of Space.”
85. Primary Duties, *US Code*, vol. 14, sec. 102 (2018), <https://web.archive.org/>.
86. United Nations General Assembly, “Recommendations on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space,” 11 December 2013, United Nations Digital Library, <https://digitallibrary.un.org/>.
87. US Commercial Space Launch Competitiveness Act of 2015, Public Law 114-90, 114th Cong., 1st sess. (25 November 2015), <https://www.congress.gov>.

88. Public Law 114-90.
89. Public Law 114-90.
90. Public Law 114-90.
91. Maria Fernanda Guanipa, "China Plans to be the First Country to Mine the Moon," *Pulse Headlines*, 29 January 2017, <https://www.pulseheadlines.com/>.
92. Guanipa, "China Plans to be the First Country to Mine the Moon."
93. Shackleton Energy Company, "Overview," Shackleton Energy Company, accessed 9 December 2017, <http://www.shackletonenergy.com/overview>.
94. Swapna Krishna, "A New Startup Wants to Launch a Luxury Space Hotel into Orbit," *Engadget*, 6 April 2018, <https://www.engadget.com>.
95. Krishna, "A New Startup Wants to Launch a Luxury Space Hotel into Orbit."
96. Krishna, "A New Startup Wants to Launch a Luxury Space Hotel into Orbit."
97. White House, *The National Security Strategy of the United States*, (Washington, DC: The White House, 2017), <https://www.whitehouse.gov/>.
98. White House, *NSS*, 31.
99. "Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies," 27 January 1967, Art. VI-VII. Available in UN Publication ST/SPACE/11 (New York: United Nations, 2002), <http://www.unoosa.org/oosa/>. The full title of this treaty is generally shortened to "Outer Space Treaty," which is how this paper will refer to the treaty.
100. "Outer Space Treaty," Article V.
101. Leonard David, "China's Anti-Satellite Test: Worrysome Debris Cloud Circles Earth," *Space.com*, 2 February 2007, <https://www.space.com/>.
102. "Outer Space Treaty," Article V.
103. Jean-Louis Santini, "NASA Bets on Private Companies to Exploit Moon's Resources," *Phys.org*, 9 February 2014, <https://phys.org/>.
104. Santini, "NASA Bets on Private Companies to Exploit Moon's Resources."
105. Erin Mahoney, "NASA Extends Agreements to Advance Commercial Lunar Landers," *NASA.gov*, 31 October 2017, <https://www.nasa.gov/>.
106. Mahoney, "NASA Extends Agreements to Advance Commercial Lunar Landers."
107. Mike Wall, "Elon Musk Says Mars Colony a Hedge against World War III," *Fox News*, 29 March 2018, <http://www.foxnews.com/>.
108. "Outer Space Treaty," Article V.

## **Appendix 1**

### **Space Force – Title 10 U.S. Code, Section F (Selected Provisions)**

#### **1. Organization**

The Department of the Space Force is separately organized under the secretary of the Space Force. It operates under the authority, direction, and control of the secretary of defense.

#### **3. Primary Duties**

Subject to the requirements of international law, the Space Force shall enforce or assist in the enforcement of all applicable federal laws in, on, and surrounding terrestrial spaceports and those locations in space subject to the jurisdiction of the United States. It shall engage in space surveillance or interdiction to enforce or assist in the enforcement of the laws of the United States. It shall administer laws and promulgate and enforce regulations for the promotion of life and safety of life and property in space. It shall develop, establish, maintain, and operate, with due regard to the requirements of national defense, rescue facilities, as needed, for the promotion of safety in space. It shall, in coordination with NASA, engage in scientific research and exploration of space and heavenly bodies. It shall maintain a state of readiness to function as a specialized service in the joint force in wartime, including the fulfillment of Space Defense Zone and Missile Defense and Warning command responsibilities.

#### **7. Assistant Secretaries of the Space Force**

- (a) There are five assistant secretaries of the Space Force. They shall be appointed from civilian life by the President and with the advice and consent of the Senate.
- (b) (3) One of the assistant secretaries shall be the assistant secretary of the Space Force for Civil Space Works. This person shall have as their principal duty the overall supervision of the functions of the Department of the Space Force relating to programs for conservation and development of space water and power resources and related purposes.

#### **17. Chief of Staff**

- (1) (a)(1) There is a chief of staff for the Space Force, who would be selected from the general officers of the Space Force and appointed to a six-year term by the President with the advice and consent of the

Senate. The chief of staff of the Space Force serves at the pleasure of the President. In wartime or during a national emergency declared by Congress, the chief of staff may be reappointed for a term of not more than six years.

#### **24. Oversight of the Nuclear Deterrence Mission**

- (a) Oversight of the nuclear deterrence mission is subject to the authority, direction, and control of the secretary of the Space Force. The chief of staff of the Space Force shall be responsible for overseeing the safety, security, reliability, effectiveness, and credibility of the nuclear deterrence mission of the Space Force.
- (b) Deputy chief of staff: The chief of staff shall designate a deputy chief of staff to carry out the following duties:
  - (1) Provide direction, guidance, integration, and advocacy regarding the nuclear deterrence mission of the Space Force.
  - (2) Conduct monitoring and oversight activities regarding the safety, security, reliability, effectiveness, and credibility of the nuclear deterrence mission of the Space Force.
  - (3) Conduct periodic comprehensive assessments of all aspects of the nuclear deterrence mission of the Space Force and provide such assessments to the secretary of the Space Force and the chief of staff of the Space Force.

#### **26. Policy, Composition, and Functions**

- (b) It is the intent of Congress to provide a Space Force that is— in conjunction with the other armed forces —capable of:
  - (1) Preserving peace and security and providing for the defense of the United States, the Commonwealths and its possessions, the global space commons, and any areas occupied by the United States;
  - (2) Supporting the national policies;
  - (3) Implementing the national objectives; and
  - (4) Overcoming any nations or nonstate actors responsible for aggressive acts that imperil the peace and security of the United States or its space interests.
- (c) There is a United States Space Force within the DOD.
- (d) In general, the Space Force includes space combat and service forces and such aviation as may be organic therein. It shall be organized,

trained, and equipped primarily for prompt and sustained offensive and defensive space operations. It is responsible for the preparation of the space forces necessary for the effective prosecution of national security needs except as otherwise assigned and, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Space Force to meet national security needs.

- (e) The Space Force shall develop spacecraft, space systems, weapons, tactics, techniques, organization, and equipment of space combat and service elements. Matters of joint concern as to these functions shall be coordinated between the Army, the Air Force, the Navy, and the Space Force.
- (f) The Space Force has primary responsibility for the acquisition of spacecraft, space systems, and weapons and equipment of space combat and service elements.
  - (1) In carrying out this function, the secretary of the Space Force, or his or her designee, may enter into transactions (other than contracts, cooperative agreements, and grants) under the authority of this subsection. The authority under this subsection is in addition to, and not limited by, the authority provided in section 2358 of this title to use contracts, cooperative agreements, and grants in carrying out such projects.
  - (2) Exercise of authority by the secretary of the Space Force. In any exercise of the authority in subsection (1), the secretary of the Space Force may act through any element of the Department of the Space Force that the secretary may designate.
  - (3) The secretary may carry out the responsibilities of this section independently; in cooperation with other Federal departments, agencies, and instrumentalities and Federal laboratories; or by making grants to, or entering into contracts, cooperative agreements, and other transactions with NASA, DARPA, or any federal laboratory, state agency, authority, association, institution, for-profit or nonprofit corporation, organization, foreign country, or person.
  - (4) There is hereby established on the books of the Treasury a separate account for the Department of the Space Force for support for transactions entered into under subsection (1). Funds in those accounts shall be available for the payment of such support.
    - (A) In addition to other funds made available to carry out this section, the secretary shall use such funds as may be deposited by

- any cooperating organization or person in a special account of the Treasury established for this purpose.
- (B) Use of funds: The secretary shall use funds made available to carry out this section to develop, administer, communicate, and promote the use of products of research, development, and technology transfer programs under this section.
- (5) To encourage innovative solutions to space system and space transportation problems and stimulate the deployment of new technology, the secretary may carry out, on a cost-shared basis, collaborative research and development with non-Federal entities, including state and local governments, foreign governments, colleges and universities, corporations, institutions, partnerships, sole proprietorships, trade associations that are incorporated or established under the laws of any state, and federal laboratories.
  - (6) In carrying out the authority contained in subsection (e)(5), the secretary may enter into cooperative research and development agreements (as defined in section 12 of the Stevenson-Wydler Technology Innovation Act of 1980<sup>1</sup>).
  - (7) The secretary of the Space Force shall:
    - (A) Ensure that management, technical, and contracting personnel of the Department of the Space Force involved in the award of administration of transactions under this section are afforded opportunities for adequate education and training; and
    - (B) Establish minimum levels and requirements for continuous and experiential learning for such personnel, including levels and requirements for acquisition certification programs.
  - (8) The Secretary of the Space Force shall prescribe regulations to carry out this section.
- (g) Subject to section 2306b of Title 10, United States Code, the Secretary of the Space Force may enter into one or more multiyear contracts:
    - (1) For the procurement of space systems or construction of space port facilities.
    - (2) For advance procurement associated with the space systems and space port facilities for which authorization to enter into a multiyear contract is provided under subsection (f)(1), and for systems and subsystems associated with such space systems or space port facilities in economic order quantities when cost savings are achievable.

- (3) A contract entered into under subsection (f)(1) shall provide that any obligation of the United States to make a payment under the contract for a fiscal year after the fiscal year of the enactment of this section is subject to the availability of appropriations or funds for that purpose for such later fiscal year.
- (h) The secretary of the Space Force is authorized to review:
  - (1) The operation of federal and civil space works to determine the need for modifications in the structure and operations of such projects for the purpose of improving the quality of the space environment in the public interest. The Secretary is authorized to take such action necessary to effectuate needed modifications in the structure and operation of federal and civil space works, subject to the requirements and limitations of international and federal law.
  - (2) The non-federal share of the cost of any modifications carried out under this section on civil space works shall be 25 percent.
  - (3) The secretary shall coordinate any actions taken pursuant to this subsection with appropriate international, federal, state, and local agencies.
- (i) The Space Force consists of:
  - (1) The Regular Space Force and the Space Force Reserve;
  - (2) All persons appointed or enlisted in the Space Force without component, and:
  - (3) All Space Force units and other Space Force organizations, with their installations and supporting and auxiliary combat, training, administrative, and logistic elements; and all members of the Space Force, including those not assigned to units; necessary to form the basis for a complete and immediate mobilization for the national defense in the event of a national emergency.
- (j) The Space Force, in maintaining and enforcing the laws of the United States with respect to civilian space launch activities shall solicit the cooperation of the Federal Aviation Administration, Office of Commercial Space Transportation, to the end that the personnel and facilities of the Office of Commercial Space Transportation will be utilized to the fullest possible advantage.
- (k) In order to render aid to distressed persons and spacecraft in space,
  - (1) The Space Force may:
    - (A) Perform any and all acts necessary to rescue and aid persons and protect and save property;

- (B) Take charge of and protect all property saved from space disasters at which the Space Force is present, until such property is claimed by persons legally authorized to receive it or until otherwise disposed of in accordance with law or applicable regulations, and care for bodies of those who may have perished in such catastrophes.
- (2) Subject to paragraph (g)(1), the Space Force may render aid to persons and protect and save property at any time and at any place in space at which Space Force facilities and personnel are available and can be effectively utilized. Can't get this to line up right.
- (1) (1) The Space Force may make inquiries, examinations, inspections, searches, seizures, and arrests in space and spaceports over which the United States has jurisdiction, for the prevention, detection, and suppression of violations of laws of the United States. For such purposes, commissioned and senior noncommissioned officers may at any time go on board any spacecraft subject to the jurisdiction or to the operation of any law of the United States, address inquiries to those on board, examine the craft's documents and papers, and examine, inspect, and search the craft and use all necessary force to compel compliance. When from such inquiries, examination, inspection, or search it appears that a breach of the laws of the United States rendering a person liable to arrest is being, or has been committed, by any person, such person shall be arrested or, if escaping, shall be immediately pursued and arrested; or, if it shall appear that a breach of the laws of the United States has been committed so as to render such craft, or the merchandise, or any part thereof, on board of, or brought into the United States by such craft, liable to forfeiture, or so as to render such craft liable to a fine or penalty and if necessary to secure such fine or penalty, such craft or such merchandise, or both, shall be seized.
- (2) The officers of the Space Force, insofar as they are engaged, pursuant to the authority contained in this section, in enforcing any law of the United States shall:
  - (A) Be deemed to be acting as agents of the particular executive department or independent establishment charged with administration of the particular law;
  - (B) Be subject to all the rules and regulations promulgated by such department or independent establishment with respect to the enforcement of that law; and

- (C) Be considered law enforcement officers for purposes of the Law Enforcement Officers Safety Act of 2004.<sup>2</sup> Can't get this to line up right.
- (m) Subject to guidelines approved by the secretary of the Space Force, members of the Space Force, in the performance of official duties, may carry a firearm.
- (n)
  - (1) Subject to the requirements and limitations of international law, the Space Force is authorized to operate and maintain space stations for the purpose of providing search and rescue, communication, and scientific research.
  - (2) The Space Force is authorized—subject to approval by the AST and the director of the FAA—to operate such air and space navigation facilities as deemed necessary for the safe and efficient protection and control of space traffic.
- (o)
  - (1) The President may, upon application from the foreign governments concerned, and whenever in his or her discretion the public interests render such a course advisable, detail members of the Space Force to assist foreign governments in matters concerning which the Space Force may be of assistance. Members so detailed may accept, from the government to which detailed, offices and such compensation and emoluments, subject to approval by the Secretary of the Space Force. While so detailed such members shall receive, in addition to the compensation and emoluments allowed them by such governments, the pay and allowances to which they are entitled in the Space Force and shall be allowed the same credit for longevity, retirement, and for all other purposes that they would receive if they were serving with the Space Force.
  - (2) The secretary of the Space Force, in coordination with the secretary of state, may provide, in conjunction with regular Space Force operations, technical assistance (including law enforcement and space safety and security training) to foreign militaries and other space authorities.
  - (3) After consultation with the secretary of state, the secretary of the Space Force may make grants to, or enter into cooperative agreements, contracts, or other agreements with, international space organizations for the purpose of acquiring information or data about space craft inspections, security, safety, environmental protection, classification, and space port or flag state law enforcement or oversight.

- (4) An activity may not be conducted under this subsection with a foreign country unless the secretary of state approves the conduct of such activity.
- (p) Commissioned officers may, with the consent of the secretary of state, be regularly and officially attached to the diplomatic missions of the United States in those nations with which the United States is extensively engaged. Expenses for the maintenance of such Space Force attachés abroad, including office rental and pay of employees and allowances for living quarters, including heat, fuel, and light, may be defrayed by the Space Force.

## **29. Commands: Territorial Organization**

- (a) In the next Unified Command Plan after the enactment of this subsection, the President shall designate a specified geographic command, whose boundaries shall begin at 100 kilometers above the Earth and extend through the volume of Cis-Lunar Space, to include, as appropriate, areas extending beyond Cis-Lunar space should United States industry or citizens conduct commerce or the command itself conducts operations in such space.
- (b) Except as otherwise prescribed by law or by the secretary of defense, the Space Force shall be divided into such organizations as the secretary of the Space Force may prescribe.
- (c) For Space Force purposes, the United States, its possessions, and other places in which the Space Force is stationed or is operating, may be divided into such areas as directed by the secretary. Officers of the Space Force may be assigned to command Space Force activities, installations, and personnel in those areas. In the discharge of the Space Force's functions or other functions authorized by law, officers so assigned have the duties and powers prescribed by the Secretary.

## **30. Civil Reserve Space Fleet**

- (a) The secretary of defense is authorized to create a Civil Reserve Space Fleet, to be managed and coordinated by the secretary of the Space Force. The Civil Reserve Space Fleet supports DOD space lift requirements in emergencies when the need for space lift exceeds the capability of the military space lift fleet. The term "Civil Reserve Space Fleet" means those spacecraft allocated, or identified for allocation, to the DOD under section 101 of the Defense Production Act of 1950, or

made available (or agreed to be made available) for use by the DOD under a contract made under this title, as part of the program developed by the Department of Defense through which the Department of Defense augments its space lift capability by use of civil spacecraft.<sup>3</sup>

- (b)
  - (1) The secretary of defense shall determine a fair and reasonable rate of payment for space lift services provided to the DOD by entities who are participants in the Civil Reserve Space Fleet program.
  - (2) The secretary of Defense shall prescribe regulations for purposes of subsection (a). The secretary of the Space Force may exclude from the applicability of those regulations any space lift services contract made through the use of competitive procedures.
  - (3) The secretary of the Space Force may, in determining the quantity of business to be received under a space lift services contract for which the rate of payment is determined in accordance with subsection (a)(1), use as a factor the relative amount of space lift capability committed by each entity to the Civil Reserve Space Fleet.
  - (4) A space lift services contract for which the rate of payment is determined in accordance with subsection (a)(1) shall not be subject to the provisions of section 2306a of this title or to the provisions of subsections (a) and (b) of section 1502 of title 41.
- (c)
  - (1) Subject to the provisions of chapter 137 of this title, and to the extent that funds are otherwise available, the secretary of the Space Force may:
    - (A) Contract with any citizen of the United States for the inclusion or incorporation of defense features in any new or existing spacecraft to be owned or controlled by that citizen; and
    - (B) Contract with United States spacecraft manufacturers for the inclusion or incorporation of defense features in new spacecraft to be operated by a United States space carrier.
  - (2) Each contract entered into under this section shall provide:
    - (A) That any spacecraft covered by contract shall be committed to the Civil Reserve Space Fleet;
    - (B) That, so long as the spacecraft is owned or controlled by a contractor, the contractor shall operate the spacecraft for the DOD as needed during any activation of the Civil Reserve Space Fleet, notwithstanding any other contract or commitment of that contractor; and

- (C) That the contractor operating the spacecraft for the Department of Defense shall be paid for that operation at fair and reasonable rates.
- (3) Each contract entered into under subsection (b)(1) shall include a provision that requires the contractor to repay to the United States a percentage (to be established in the contract) of any amount paid by the United States to the contractor under the contract with respect to any spacecraft if:
  - (A) The spacecraft is destroyed or becomes unusable, as defined in the contract;
  - (B) The defense features specified in the contract are rendered unusable or are removed from the spacecraft;
  - (C) Control over the spacecraft is transferred to any person or entity that is unable or unwilling to assume the contractor's obligations under the contract; or
  - (D) The registration of the spacecraft is terminated for any reason not beyond the control of the contractor.
- (4) A contract under subsection (b)(1) for the inclusion or incorporation of defense features in a spacecraft may include a provision authorizing the secretary of the Space Force:
  - (A) To contract, with the concurrence of the contractor, directly with another person for the performance of the work necessary for the inclusion or incorporation of defense features in such spacecraft; and
  - (B) To pay such other person directly for such work.
- (5) Notwithstanding section 101 of the Defense Production Act of 1950<sup>4</sup>, each spacecraft covered by a contract entered into under this section shall be committed exclusively to the Civil Reserve Space Fleet for use by the DOD as needed during any activation of the Civil Reserve Space Fleet unless the spacecraft is released from that use by the Secretary of Defense.
- (d) The Civil Reserve Space Fleet program is an important component of the military space lift system in support of the United States defense and foreign policies, and it is the policy of the United States to maintain the readiness and interoperability of Civil Reserve Space Fleet entities by providing appropriate levels of peacetime space lift augmentation to maintain networks and infrastructure, exercise the system, and interface effectively within the military space lift system.

### Notes

(All notes appear in shortened form. For full details, see the appropriate entry in the bibliography.)

1. Stevenson-Wydler Technology Innovation Act of 1980, Public Law 96-480, 96th Cong., 2nd sess. (21 October 1980), <https://www.govinfo.gov/>.
2. Law Enforcement Officers Safety Act of 2004, Public Law 108-277, 108th Cong., 1st sess. (22 July 2004), <https://www.congress.gov/>.
3. The Defense Production Act of 1950, Public Law 81-774, 88th Cong., 2nd sess. (8 September 1950).
4. PL 81-774.

## **Appendix 2**

### **Space Force – Title 10 U.S. Code, Section F**

#### **1. Organization**

The Department of the Space Force is separately organized under the secretary of the Space Force. It operates under the authority, direction, and control of the secretary of defense.

#### **2. Department of the Space Force: Seal**

The secretary of the Space Force shall have a seal for the Department of the Space Force. The design of the seal must be approved by the President. Judicial notice shall be taken of the seal.

#### **3. Primary Duties**

Subject to the requirements of international law, the Space Force shall enforce or assist in the enforcement of all applicable federal laws in, on, and surrounding terrestrial spaceports and those locations in space subject to the jurisdiction of the United States. It shall engage in space surveillance or interdiction to enforce or assist in the enforcement of the laws of the United States. It shall administer laws and promulgate and enforce regulations for the promotion of life and safety of life and property in space. It shall develop, establish, maintain, and operate, with due regard to the requirements of national defense, rescue facilities, as needed, for the promotion of safety in space. It shall, in coordination with NASA, engage in scientific research and exploration of space and heavenly bodies. It shall maintain a state of readiness to function as a specialized service in the joint force in wartime, including the fulfillment of Space Defense Zone and Missile Defense and Warning command responsibilities.

#### **4. Secretary of the Space Force**

- (a) (1) There is a secretary of the Space Force, appointed from civilian life by the President and with the advice and consent of the Senate. The secretary shall, to the greatest extent possible, be appointed from among persons most highly qualified for the position by reason of background and experience, including persons with appropriate management or leadership experience. The secretary is the head of the Department of the Space Force.

- (2) A person may not be appointed as secretary of the Space Force within five years after relief from active duty as a commissioned officer of a regular component of an armed force.
  - (3) The President, by and with the advice and consent of the Senate, may waive paragraph (2) if the President determines such action is necessary in the national interest.
- (b) Subject to the authority, direction, and control of the secretary of defense, the secretary of the Space Force is responsible for, and has the authority necessary to conduct, all affairs of the Department of the Space Force, including the following functions:
- (1) Recruiting.
  - (2) Organizing.
  - (3) Supplying.
  - (4) Equipping (including research and development).
  - (5) Training.
  - (6) Servicing.
  - (7) Mobilizing.
  - (8) Demobilizing.
  - (9) Administering (including the morale and welfare of personnel).
  - (10) Maintaining.
  - (11) The construction, outfitting, and repair of military equipment.
  - (12) The construction, maintenance, and repair of buildings, structures, and utilities, and the acquisition of real property and interests in real property necessary to carry out the responsibilities specified in this section.
  - (13) Promulgating space theory, space doctrine, space strategy, and space tactics, techniques, and procedures.
  - (14) Protecting of licit space commerce.
  - (15) Protecting United States' commercial space facilities and claims.
  - (16) Safety of space navigation.
  - (17) Space rescue and recovery.
  - (18) Constructing and maintaining public works in space.
  - (19) Active space debris remediation.
  - (20) Planetary defense against asteroids and comets.
- (c) Subject to the authority, direction, and control of the secretary of defense, the secretary of the Space Force is also responsible to the secretary of defense for:
- (1) The functioning and efficiency of the Department of the Space Force;

- (2) The formulation of policies and programs by the Department of the Space Force that are fully consistent with national security objectives and policies established by the President or the secretary of defense;
  - (3) The effective and timely implementation of policy, program, and budget decisions and instructions of the President or the secretary of defense relating to the functions of the Department of the Space Force;
  - (4) Carrying out the functions of the Department of the Space Force so as to fulfill the current and future operational requirements of the unified and specified combatant commands;
  - (5) Effective cooperation and coordination between the Department of the Space Force and the other military departments and agencies of the DOD to provide for more effective, efficient, and economical administration and to eliminate duplication;
  - (6) The presentation and justification of the positions of the Department of the Space Force on the plans, programs, and policies of the DOD; and
  - (7) The effective supervision and control of the intelligence activities of the Department of the Space Force.
- (d) The secretary of the Space Force is also responsible for such other activities as may be prescribed by law or by the President or secretary of defense.
- (e) After first informing the secretary of defense, the secretary of the Space Force may make such recommendations to Congress relating to the DOD as he or she considers appropriate.
- (f) The secretary of the Space Force may assign such of their functions, powers, and duties as they consider appropriate to the undersecretary of the Space Force and to the assistant secretaries of the Space Force. Officers of the Space Force shall, as directed by the secretary, report on any matter to the secretary, the undersecretary, or any Assistant secretary.
- (g) The secretary of the Space Force may:
- (1) Assign, detail, and prescribe the duties of members of the Space Force and civilian personnel of the Department of the Space Force;
  - (2) Change the title of any officer or activity of the Department of the Space Force not prescribed by law; and
  - (3) Prescribe regulations to carry out his or her functions, powers, and duties under this title.

## 5. Office of the secretary of the Space Force

- (a) There is in the Department of the Space Force an office of the secretary of the Space Force. The function of the office is to assist the secretary of the Space Force in carrying out his or her responsibilities.
- (b) The office of the secretary of the Space Force is composed of the following:
  - (1) The undersecretary of the Space Force.
  - (2) The assistant secretaries of the Space Force.
  - (3) The general counsel of the Department of the Space Force.
  - (4) The inspector general of the Space Force.
  - (5) The chief of legislative liaison.
  - (6) The Space Reserve Forces policy committee.
  - (7) Such other offices and officials as may be established by law or as the secretary of the Space Force may establish or designate.
- (c)
  - (1) The office of the secretary of the Space Force shall have sole responsibility within the office of the secretary and the space staff for the following functions:
    - (A) Acquisition.
    - (B) Auditing.
    - (C) Comptroller (including financial management).
    - (D) Information management.
    - (E) Inspector General.
    - (F) Legislative affairs.
    - (G) Public affairs.
  - (2) The secretary of the Space Force shall establish or designate a single office or other entity within the office of the secretary of the Space Force for each function specified in paragraph (1). No other office or other entity may be established or designated within the space staff to conduct any of the functions specified in paragraph (1).
  - (3) The secretary shall prescribe the relationship of each office or other entity established or designated under paragraph (2) to the chief of staff and to the space staff and shall ensure that each such office or entity provides the chief of staff such staff support as the chief of staff considers necessary to perform his or her duties and responsibilities.
  - (4) The vesting in the office of the secretary of the Space Force of the responsibility for the conduct of a function specified in paragraph (1) does not preclude other elements of the executive part of the Department of the Space Force (including the space staff) from

providing advice or assistance to the chief of staff or otherwise participating in that function within the executive part of the Department under the direction of the office assigned responsibility for that function in the office of the secretary of the Space Force.

- (5) The head of the office or other entity established or designated by the secretary to conduct the auditing function shall have at least five years of professional experience in accounting or auditing. The position shall be considered to be a career reserved position as defined in section 3132(a)(8) of title 5.
  - (6) The secretary, with the consent of the secretary of defense, may waive paragraph (5) if the secretary determines such action is necessary in the national interest.
- (d)
- (1) Subject to paragraph (2), the office of the secretary of the Space Force shall have sole responsibility within the office of the secretary and the space staff for the function of research and development.
  - (2) The secretary of the Space Force may assign to the space staff responsibility for those aspects of the function of research and development that relate to military requirements and test and evaluation.
  - (3) The secretary shall establish or designate a single office or other entity within the office of the secretary of the Space Force to conduct the function specified in paragraph (1).
  - (4) The secretary shall prescribe the relationship of the office or other entity established or designated under paragraph (3) to the chief of staff of the Space Force and to the space staff and shall ensure that each such office or entity provides the chief of staff such staff support as the chief of staff considers necessary to perform his or her duties and responsibilities.
- (e) The secretary of the Space Force shall ensure that the office of the secretary of the Space Force and the space staff do not duplicate specific functions for which the secretary has assigned responsibility to the other.
- (f) (1) The total number of members of the armed forces and civilian employees of the Department of the Space Force assigned or detailed to permanent duty in the office of the secretary of the Space Force and on the space staff may not exceed \_\_\_\_.

- (2) Not more than \_\_\_\_ officers of the Space Force on the active-duty list may be assigned or detailed to permanent duty in the office of the secretary of the Space Force and on the space staff.
- (3) The total number of general officers assigned or detailed to permanent duty in the office of the secretary of the Space Force and on the space staff may not exceed \_\_\_\_.
- (4) The limitations in paragraphs (1), (2), and (3) do not apply in time of war.
- (5) Each limitation in paragraphs (1) and (2) may be exceeded by a number equal to 15 percent of such limitation in time of national emergency.
- (g) The secretary of the Space Force shall recommend to the Chairman of the Joint Chiefs of Staff a qualified Space Force officer in the grade of general to perform duties as a member of the Joint Requirements Oversight Council in accordance with section 181 of this title.

#### **6. Undersecretary of the Space Force**

- (a) There is an undersecretary of the Space Force, appointed from civilian life by the President, by and with the advice and consent of the Senate.
- (b) The undersecretary shall perform such duties and exercise such powers as the secretary of the Space Force may prescribe.

#### **7. Assistant Secretaries of the Space Force**

- (a) There are five assistant secretaries of the Space Force. They shall be appointed from civilian life by the President and with the advice and consent of the Senate.
- (b)
  - (1) The assistant secretaries shall perform such duties and exercise such powers as the secretary of the Space Force may prescribe.
  - (2) One of the assistant secretaries shall be the assistant secretary of the Space Force for Manpower and Reserve Affairs. This person shall have as their principal duty the overall supervision of manpower and reserve component affairs of the Department of the Space Force.
  - (3) One of the assistant secretaries shall be the assistant secretary of the Space Force for Civil Space Works. This person shall have as their principal duty the overall supervision of the functions of the Department of the Space Force relating to programs for conservation

and development of space water and power resources, and related purposes.

- (4) (A) One of the assistant secretaries shall be the assistant secretary of the Space Force for Financial Management.
- (B) The assistant secretary shall be appointed from among persons who have significant budget, financial management, or audit experience in complex organizations.
- (C) The principal responsibility of the assistant secretary shall be the exercise of the comptroller functions of the Department of the Space Force, including financial management functions. The assistant secretary shall be responsible for all financial management activities and operations of the Department of the Space Force and shall advise the secretary of the Space Force on financial management.
- (5) (A) One of the assistant secretaries shall be the assistant secretary of the Space Force for Acquisition, Technology, and Logistics. The principal duty of the assistant secretary shall be the overall supervision of acquisition, technology, and logistics matters of the Department of the Space Force.
- (B) The assistant secretary shall have a principal military deputy, who shall be an officer of the Space Force on active duty. The principal military deputy shall be appointed from among officers who have significant experience in the areas of acquisition and program management. The position of principal military deputy shall be designated as a critical acquisition position under section 1733 of this title. In the event of a vacancy in the position of assistant secretary of the Space Force for acquisition, logistics, and technology, the principal military deputy may serve as acting assistant secretary for a period not to exceed one year.

**8. Secretary of the Space Force: Successors to Duties:** If the secretary of the Space Force dies, resigns, is removed from office, is absent, or is disabled, the person who is highest on the following list, and who is not absent or disabled, shall perform the duties of the secretary until the President directs another person to perform those duties or until the absence or disability ceases:

- (1) The undersecretary of the Space Force.

- (2) The assistant secretaries of the Space Force, in the order prescribed by the secretary of the Space Force and approved by the secretary of defense.
- (3) The general counsel of the Department of the Space Force.
- (4) The chief of staff.

**9. Administrative Assistant:** The secretary of the Space Force may appoint an administrative assistant in the office of the secretary of the Space Force. The administrative assistant shall perform such duties as the secretary may prescribe.

#### **10. General Counsel**

- (a) There is a general counsel of the Department of the Space Force, appointed from civilian life by the President, by and with the advice and consent of the Senate.
- (b) The general counsel shall perform such functions as the secretary of the Space Force may prescribe.

#### **11. Inspector General**

- (a) There is an inspector general of the Space Force who shall be detailed to such position by the secretary of the Space Force from the general officers of the Space Force. An officer may not be detailed to such position for a tour of duty of more than four years, except that the secretary may extend such a tour of duty if the secretary makes a special finding that the extension is necessary in the public interest.
- (b) When directed by the secretary or the chief of staff, the Inspector General shall:
  - (1) Inquire into and report upon the discipline, efficiency, and economy of the Space Force; and
  - (2) Perform any other duties prescribed by the secretary or the chief of staff.
- (c) The inspector general shall periodically propose programs of inspections to the secretary of the Space Force and shall recommend additional inspections and investigations as may appear appropriate.
- (d) The inspector general shall cooperate fully with the inspector general of the DOD in connection with the performance of any duty or function by the inspector general of the DOD under the Inspector General Act of 1978 regarding the Department of the Space Force.<sup>1</sup>

- (e) The inspector general shall have such deputies and assistants as the secretary of the Space Force may prescribe. Each such deputy and assistant shall be an officer detailed by the secretary to that position from the officers of the Space Force for a tour of duty of not to exceed four years, under a procedure prescribed by the secretary.

## **12. Financial Management**

- (a) The secretary of the Space Force shall provide that the assistant secretary of the Space Force for financial management shall direct and manage financial management activities and operations of the Department of the Space Force, including ensuring that financial management systems of the Department of the Space Force comply with subsection (b). The authority of the assistant secretary for such direction and management shall include the authority to:
  - (1) Supervise and direct the preparation of budget estimates of the Department of the Space Force and otherwise carry out, with respect to the Department of the Space Force, the functions specified for the undersecretary of defense (comptroller);
  - (2) Approve and supervise any project to design or enhance a financial management system for the Department of the Space Force; and
  - (3) Approve the establishment and supervise the operation of any asset management system of the Department of the Space Force, including:
    - (A) Systems for cash management, credit management, and debt collection; and
    - (B) Systems for the accounting for the quantity, location, and cost of property and inventory.
- (b)
  - (1) Financial management systems of the Department of the Space Force (including accounting systems, internal control systems, and financial reporting systems) shall be established and maintained in conformance with:
    - (A) The accounting and financial reporting principles, standards, and requirements established by the comptroller general under section 3511 of title 31; and
    - (B) The internal control standards established by the comptroller general under section 3512 of title 31.
  - (2) Such systems shall provide for:

- (A) Complete, reliable, consistent, and timely information which is prepared on a uniform basis and which is responsive to the financial information needs of department management;
  - (B) The development and reporting of cost information;
  - (C) The integration of accounting and budgeting information; and
  - (D) The systematic measurement of performance.
- (c) The assistant secretary shall maintain a 10-year plan describing the activities the Department of the Space Force proposes to conduct over the next ten fiscal years to improve financial management. Such plan shall be revised annually.
  - (d) The assistant secretary of the Space Force for Financial Management shall transmit to the secretary of the Space Force a report each year on the activities of the assistant secretary during the preceding year. Each such report shall include a description and analysis of the status of Department of the Space Force financial management.

### **13. Chief of Legislative Liaison**

- (a) There is a chief of legislative liaison in the Department of the Space Force.
- (b) The chief of legislative liaison shall perform legislative affairs functions as specified for the office of the secretary of the Space Force in this title.

### **14. Director of Small Business Programs**

- (a) Director: There is a director of small business programs in the Department of the Space Force. The director is appointed by the secretary of the Space Force.
- (b) Office of small business programs: The office of small business programs of the Department of the Space Force is the office that is established within the Department of the Space Force under section 15(k) of the Aid to Small Business.<sup>2</sup> The director of small business programs is the head of such office.
- (c) Duties and Powers:
  - (1) The director of small business programs shall, subject to paragraph (2), perform such duties regarding small business programs of the Department of the Space Force, and shall exercise such powers regarding those programs, as the secretary of the Space Force may prescribe.

- (2) Section 15(k) of the Small Business Act, except for the designations of the director and the office, applies to the director of small business programs.<sup>3</sup>

### **15. The Space Staff: Function and Composition**

- (a) There is in the executive part of the Department of the Space Force a space staff. The function of the space staff is to assist the secretary of the Space Force in carrying out their responsibilities.
- (b) The space staff is composed of the following:
  - (1) The chief of staff.
  - (2) The Vice chief of staff.
  - (3) The Deputy Chiefs of Staff.
  - (4) The Assistant Chiefs of Staff.
  - (5) The Surgeon General of the Space Force.
  - (6) The Judge Advocate General of the Space Force.
  - (7) The Chief of the Space Force Reserve.
  - (8) Other members of the Space Force assigned or detailed to the space staff.
  - (9) Civilian employees in the Department of the Space Force assigned or detailed to the space staff.
- (c) Except as otherwise specifically prescribed by law, the space staff shall be organized in such manner, and its members shall perform such duties and have such titles, as the secretary may prescribe.

### **16. The Space Staff: General Duties**

- (a) The space staff shall furnish professional assistance to the secretary, the undersecretary, the assistant secretaries of the Space Force, and the chief of staff of the Space Force.
- (b) Under the authority, direction, and control of the secretary of the Space Force, the space staff shall:
  - (1) Subject to the provisions of this title, prepare for such employment of the Space Force, and for such recruiting, organizing, supplying, equipping (including those aspects of research and development assigned by the secretary of the Space Force in accordance with Section 5(d) of this Act), training, servicing, mobilizing, demobilizing, administering, and maintaining of the Space Force, as will assist in the execution of any power, duty, or function of the secretary or the chief of staff;

- (2) Investigate and report upon the efficiency of the Space Force and its preparation to support military operations by combatant commands;
- (3) Prepare detailed instructions for the execution of approved plans and supervise the execution of those plans and instructions;
- (4) As directed by the secretary or the chief of staff, coordinate the action of organizations of the Space Force; and
- (5) Perform such other duties, not otherwise assigned by law, as may be prescribed by the secretary.

## **17. Chief of Staff**

- (a) (1) There is a chief of staff of the Space Force, who would be selected from the general officers of the Space Force and appointed to a six-year term by the President with the advice and consent of the Senate. In wartime or during a national emergency declared by Congress, the chief of staff may be reappointed for a term not to exceed six years.
- (2) The President may appoint an officer as chief of staff only if:
  - (A) The officer has had significant experience in joint duty assignments; and
  - (B) Such experience includes at least one full tour of duty in a joint duty assignment as a general officer.
- (3) The President may waive paragraph (2) in the case of an officer if the President determines such action is necessary in the national interest.
- (b) The chief of staff, while so serving, has the grade of general without vacating their permanent grade.
- (c) Except as otherwise prescribed by law and subject to the provisions of this title, the chief of staff performs their duties under the authority, direction, and control of the secretary of the Space Force and is directly responsible to the secretary.
- (d) Subject to the authority, direction, and control of the secretary of the Space Force, the chief of staff shall:
  - (1) Preside over the space staff;
  - (2) Transmit the plans and recommendations of the space staff to the secretary and advise the secretary with regard to such plans and recommendations;

- (3) After approval of the plans or recommendations of the space staff by the secretary, act as the agent of the secretary in carrying them into effect;
  - (4) Exercise supervision, consistent with the authority assigned to commanders of unified or specified combatant commands under chapter 6 of this title, over such of the members and organizations of the Space Force as the secretary determines;
  - (5) Perform the duties prescribed for them by this title and other provisions of law;
  - (6) Recommend to the secretary of the Space Force qualified officers in the grade of general to serve as members of the Joint Requirements Oversight Council in accordance with section 181 of this title; and
  - (7) Perform such other military duties, not otherwise assigned by law, as are assigned to them by the President, the secretary of defense, or the secretary of the Space Force.
- (e) (1) The chief of staff shall also perform the duties prescribed for them as a member of the Joint Chiefs of Staff under section 151 of this title.
- (2) To the extent that such action does not impair the independence of the chief of staff in the performance of their duties as a member of the Joint Chiefs of Staff, the chief of staff shall inform the secretary regarding military advice rendered by members of the Joint Chiefs of Staff on matters affecting the Department of the Space Force.
- (3) Subject to the authority, direction, and control of the secretary of defense, the chief of staff shall keep the secretary of the Space Force fully informed of significant military operations affecting the duties and responsibilities of the secretary.

### **18. Vice Chief of Staff**

- (a) There is a vice chief of staff of the Space Force, appointed by the President, by and with the advice and consent of the Senate, from the general officers of the Space Force.
- (b) The vice chief of staff of the Space Force, while so serving, has the grade of general without vacating their permanent grade.
- (c) The vice chief of staff has such authority and duties with respect to the Department of the Space Force as the chief of staff, with the approval of the secretary of the Space Force, may delegate to or prescribe for them. Orders issued by the vice chief of staff in performing such duties have the same effect as those issued by the chief of staff.

- (d) When there is a vacancy in the office of chief of staff or during the absence or disability of the chief of staff:
  - (1) The vice chief of staff shall perform the duties of the chief of staff until a successor is appointed or the absence or disability ceases; or
  - (2) If there is a vacancy in the office of the vice chief of staff or the vice chief of staff is absent or disabled, unless the President directs otherwise, the most senior officer of the Space Force in the space staff who is not absent or disabled and who is not restricted in performance of duty shall perform the duties of the chief of staff until a successor to the chief of staff or the vice chief of staff is appointed or until the absence or disability of the chief of staff or Vice chief of staff ceases, whichever occurs first.

#### **19. Deputy Chiefs of Staff and Assistant Chiefs of Staff**

- (a) The deputy chiefs of staff and the assistant chiefs of staff shall be general officers detailed to those positions.
- (b) The secretary of the Space Force shall prescribe the number of deputy chiefs of staff and assistant chiefs of staff, for a total of not more than eight positions.

#### **20. Surgeon General: Appointment and Duties**

- (a) Appointment: The surgeon general of the Space Force shall be appointed by the President, by and with the advice and consent of the Senate from officers of the Space Force who are in the Space Force medical department.
- (b) Duties:
  - (1) The surgeon general serves as the principal advisor to the secretary of the Space Force and the chief of staff of the Space Force on all health and medical matters of the Space Force, including strategic planning and policy development relating to such matters.
  - (2) The surgeon general serves as the chief medical advisor of the Space Force to the director of the Defense Health Agency on matters pertaining to military health readiness requirements and safety of members of the Space Force.
  - (3) The surgeon general, acting under the authority, direction, and control of the secretary of the Space Force, shall recruit, organize, train, and equip, medical personnel of the Space Force.

## **21. Judge Advocate General, Deputy Judge Advocate General: Appointment and Duties**

- (a) There is a judge advocate general in the Space Force, who is appointed from the officer ranks of the Space Force by the President and with the advice and consent of the Senate. The term of office is four years.
- (b) The judge advocate general of the Space Force shall be appointed from those officers who at the time of appointment are members of the bar of a federal court or the highest court of a state, and who have had at least eight years of experience in legal duties as commissioned officers.
- (c) The judge advocate general, in addition to other duties prescribed by law:
  - (1) Is the legal adviser of the secretary of the Space Force and of all officers and agencies of the Department of the Space Force;
  - (2) Shall direct the officers of the Space Force designated as judge advocates in the performance of their duties; and
  - (3) Shall receive, revise, and have recorded the proceedings of courts of inquiry and military commissions.
- (d)
  - (1) There is a deputy judge advocate general in the Space Force, who is appointed from the officer ranks of the Space Force by the President and with the advice and consent of the Senate. They must have the qualifications prescribed in subsection (b) for the judge advocate general. The term of office of the deputy judge advocate general is four years.
  - (2) When there is a vacancy in the office of the judge advocate general, or during the absence or disability of the judge advocate general, the deputy judge advocate general shall perform the duties of the judge advocate general until a successor is appointed or the absence or disability ceases.
  - (3) When paragraph (2) cannot be complied with because of the absence or disability of the deputy judge advocate general, the heads of the major divisions of the office of the judge advocate general, in the order directed by the secretary of the Space Force, shall perform the duties of the judge advocate general, unless otherwise directed by the President.
- (e) Under regulations prescribed by the secretary of defense, the secretary of the Space Force, in selecting an officer for recommendation to the President under subsection (a) for appointment as the judge advocate general or under subsection (d) for appointment as the deputy

judge advocate general, shall ensure that the officer selected is recommended by a board of officers that, insofar as practicable, is subject to the procedures applicable to selection boards convened under chapter 36 of this title.

- (f) No officer or employee of the DOD may interfere with:
  - (1) The ability of the judge advocate general to give independent legal advice to the secretary of the Space Force or the chief of staff of the Space Force; or
  - (2) The ability of officers of the Space Force who are designated as judge advocates who are assigned or attached to, or performing duty with, military units to give independent legal advice to commanders.

## **22. Office of the Space Force Reserve: Appointment of Chief**

- (a) There is in the executive part of the Department of the Space Force an office of Space Force reserve which is headed by a chief who is the adviser to the chief of staff on Space Force Reserve matters.
- (b) Appointment:
  - (1) The President, by and with the advice and consent of the Senate, shall appoint the chief of Space Force reserve from general officers of the Space Force reserve. Once 10 years have passed from the enactment of this chapter, the President shall only appoint general officers who have had at least 10 years of commissioned service in the Space Force.
  - (2) The secretary of defense may not recommend an officer to the President for appointment as chief of Space Force reserve unless the officer:
    - (A) Is recommended by the secretary of the Space Force; and
    - (B) Is determined by the Chairman of the Joint Chiefs of Staff, in accordance with criteria and as a result of a process established by the Chairman, to have significant joint duty experience.
  - (3) An officer on active duty for service as the chief of Space Force reserve shall be counted for purposes of the grade limitations under sections 525 and 526 of this title.
- (c) Term; Reappointment: The chief of Space Force reserve is appointed for a period of six years, but may be removed for cause at any time. An officer serving as chief of Space Force reserve may be reappointed for one additional six-year period.

- (d) Budget: The chief of Space Force reserve is the official within the executive part of the Department of the Space Force who, subject to the authority, direction, and control of the secretary of the Space Force and the chief of staff, is responsible for preparation, justification, and execution of the personnel, operation and maintenance, and construction budgets for the Space Force Reserve. As such, the chief of Space Force reserve is the director and functional manager of appropriations made for the Space Force Reserve in those areas.
- (e) Full Time Support Program: The chief of Space Force reserve manages, with respect to the Space Force Reserve, the personnel program of the DOD known as the Full Time Support Program.
- (f) Annual Report: The chief of Space Force reserve shall submit to the secretary of defense, through the secretary of the Space Force, an annual report on the state of the Space Force Reserve and the ability of the Space Force Reserve to meet its missions. The report shall be prepared in conjunction with the chief of staff of the Space Force and may be submitted in classified and unclassified versions.

### **23. Chief of Chaplains: Appointment and Duties**

- (a) Chief of chaplains:
  - (1) There is a chief of chaplains in the Space Force, appointed by the President, by and with the advice and consent of the Senate, from officers of the Space Force designated under section 8067(h) of this title as chaplains who:
    - (A) Are serving on active duty; and
    - (B) Have served on active duty as a chaplain for at least eight years.
  - (2) An officer appointed as the chief of chaplains shall be appointed for a term of three years. However, the President may terminate or extend the appointment at any time.
  - (3) The chief of chaplains shall perform such duties as may be prescribed by the secretary of the Space Force and by law.
- (b) Selection Board: Under regulations approved by the secretary of defense, the secretary of the Space Force, in selecting an officer for recommendation to the President for appointment as the chief of chaplains, shall ensure that the officer selected is recommended by a board of officers that, insofar as practicable, is subject to the procedures applicable to the selection boards convened under chapter 36 of this title.

## **24. Oversight of Nuclear Deterrence Mission**

- (a) Oversight of Nuclear Deterrence Mission is subject to the authority, direction, and control of the secretary of the Space Force, the chief of staff of the Space Force shall be responsible for overseeing the safety, security, reliability, effectiveness, and credibility of the nuclear deterrence mission of the Space Force.
- (b) Deputy chief of staff: The chief of staff shall designate a deputy chief of staff to carry out the following duties:
  - (1) Provide direction, guidance, integration, and advocacy regarding the nuclear deterrence mission of the Space Force.
  - (2) Conduct monitoring and oversight activities regarding the safety, security, reliability, effectiveness, and credibility of the nuclear deterrence mission of the Space Force.
  - (3) Conduct periodic comprehensive assessments of all aspects of the nuclear deterrence mission of the Space Force and provide such assessments to the secretary of the Space Force and the chief of staff of the Space Force.

**25. Regulations :** The President may prescribe regulations for the governance of the Space Force.

## **26. Policy; Composition; Functions**

- (a) It is the intent of Congress to provide a Space Force that is capable—in conjunction with the other armed forces—of:
  - (1) Preserving the peace and security, and providing for the defense, of the United States, the Commonwealths and its possessions, the global space commons, and any areas occupied by the United States;
  - (2) Supporting the national policies;
  - (3) Implementing the national objectives; and
  - (4) Overcoming any nations or nonstate actors responsible for aggressive acts that imperil the peace and security of the United States or its space interests.
- (b) There is a United States Space Force within the DOD.
- (c) In general, the Space Force includes space combat and service forces and such aviation as may be organic therein. It shall be organized, trained, and equipped primarily for prompt and sustained offensive and defensive space operations. It is responsible for the preparation of the space forces necessary for the effective prosecution of national

security needs except as otherwise assigned and, in accordance with integrated joint mobilization plans, for the expansion of the peacetime components of the Space Force to meet national security needs.

- (d) The Space Force shall develop spacecraft, space systems, weapons, tactics, techniques, organization, and equipment of space combat and service elements. Matters of joint concern as to these functions shall be coordinated between the Army, the Air Force, the Navy, and the Space Force.
- (e)
  - (1) The Space Force has primary responsibility for the acquisition of spacecraft, space systems, and weapons and equipment of space combat and service elements. In carrying out this function, the secretary of the Space Force, or his or her designee, may enter into OTAs (transactions other than contracts, cooperative agreements, and grants) under the authority of this subsection. The authority under this subsection is in addition to, and not limited by, the authority provided in section 2358 of this title to use contracts, cooperative agreements, and grants in carrying out such projects.
  - (2) Exercise of authority by the secretary of the Space Force. In any exercise of the authority in subsection (1), the secretary of the Space Force may act through any element of the Department of the Space Force that the secretary may designate.
  - (3) The secretary may carry out the responsibilities of this section independently; in cooperation with other federal departments, agencies, and instrumentalities and federal laboratories; or by making grants to, or entering into contracts, cooperative agreements, and OTAs with, NASA, DARPA, or any federal laboratory, state agency, authority, association, institution, for-profit or nonprofit corporation, organization, foreign country, or person.
  - (4) There is hereby established on the books of the Treasury a separate account for the Department of the Space Force for support for transactions entered into under subsection (1). Funds in those accounts shall be available for the payment of such support.
    - (A) In addition to other funds made available to carry out this section, the secretary shall use such funds as may be deposited by any cooperating organization or person in a special account of the Treasury established for this purpose.
    - (B) Use of funds: The secretary shall use funds made available to carry out this section to develop, administer, communicate,

- and promote the use of products of research, development, and technology transfer programs under this section.
- (5) To encourage innovative solutions to space system and space transportation problems and stimulate the deployment of new technology, the secretary may carry out, on a cost-shared basis, collaborative research and development with non-federal entities, including state and local governments, foreign governments, colleges and universities, corporations, institutions, partnerships, sole proprietorships, trade associations that are incorporated or established under the laws of any state, and federal laboratories.
  - (6) In carrying out the authority contained in subsection (e)(5), the secretary may enter into cooperative research and development agreements (as defined in section 12 of the Stevenson- Wydler Technology Innovation Act of 1980.<sup>4</sup>
  - (7) The secretary of the Space Force shall:
    - (A) Ensure that management, technical, and contracting personnel of the Department of the Space Force involved in the award of administration of transactions under this section are afforded opportunities for adequate education and training; and
    - (B) Establish minimum levels and requirements for continuous and experiential learning for such personnel, including levels and requirements for acquisition certification programs.
  - (8) The secretary of the Space Force shall prescribe regulations to carry out this section.
- (f)
- (1) Subject to section 2306b of Title 10, United States Code, the secretary of the Space Force may enter into one or more multiyear contracts for the procurement of space systems or construction of space port facilities.
  - (2) The secretary of the Space Force may enter into one or more contracts, for advance procurement associated with the space systems and spaceport facilities for which authorization to enter into a multiyear contract is provided under subsection (f)(1), and for systems and subsystems associated with such space systems or spaceport facilities in economic order quantities when cost savings are achievable.
  - (3) A contract entered into under subsection (f)(1) shall provide that any obligation of the United States to make a payment under the contract for a fiscal year after the fiscal year of the enactment of this

section is subject to the availability of appropriations or funds for that purpose for such later fiscal year.

- (g) (1) The secretary of the Space Force is authorized to review the operation of federal and civil space works to determine the need for modifications in the structure and operations of such projects for the purpose of improving the quality of the space environment in the public interest. The secretary is authorized to take such action necessary to effectuate needed modifications in the structure and operation of federal and civil space works, subject to the requirements and limitations of international and federal law.
- (2) The non-federal share of the cost of any modifications carried out under this section on civil space works shall be 25 percent.
- (3) The secretary shall coordinate any actions taken pursuant to this subsection with appropriate international, federal, state, and local agencies.
- (h) The Space Force consists of:
  - (1) The Regular Space Force and the Space Force Reserve;
  - (2) All persons appointed or enlisted in the Space Force without component, and
  - (3) All Space Force units and other Space Force organizations, with their installations and supporting and auxiliary combat, training, administrative, and logistic elements; and all members of the Space Force, including those not assigned to units; necessary to form the basis for a complete and immediate mobilization for the national defense in the event of a national emergency.
- (i) The Space Force, in maintaining and enforcing the laws of the United States with respect to civilian space launch activities shall solicit the cooperation of the FAA/OST to the end that the personnel and facilities of the OST will be utilized to the fullest possible advantage.
- (j) (1) In order to render aid to distressed persons and spacecraft in space, the Space Force may:
  - (A) Perform any and all acts necessary to rescue and aid persons and protect and save property;
  - (B) Take charge of and protect all property saved from space disasters at which the Space Force is present, until such property is claimed by persons legally authorized to receive it or until otherwise disposed of in accordance with law or applicable regulations, and care for bodies of those who may have perished in such catastrophes.

- (2) Subject to paragraph (g)(1), the Space Force may render aid to persons and protect and save property at any time and at any place in space at which Space Force facilities and personnel are available and can be effectively utilized.
- (k) (1) The Space Force may make inquiries, examinations, inspections, searches, seizures, and arrests in space and space ports over which the United States has jurisdiction, for the prevention, detection, and suppression of violations of laws of the United States. For such purposes, commissioned and senior noncommissioned officers may at any time go on board any spacecraft subject to the jurisdiction or to the operation of any law of the United States, address inquiries to those on board, examine the craft's documents and papers, and examine, inspect, and search the craft and use all necessary force to compel compliance. When from such inquiries, examination, inspection, or search it appears that a breach of the laws of the United States rendering a person liable to arrest is being, or has been committed, by any person, such person shall be arrested or, if escaping, shall be immediately pursued and arrested; or, if it shall appear that a breach of the laws of the United States has been committed so as to render such craft, or the merchandise, or any part thereof, on board of, or brought into the United States by such craft, liable to forfeiture, or so as to render such craft liable to a fine or penalty and if necessary to secure such fine or penalty, such craft or such merchandise, or both, shall be seized.
- (2) The officers of the Space Force, insofar as they are engaged, pursuant to the authority contained in this section, in enforcing any law of the United States shall:
  - (A) Be deemed to be acting as agents of the particular executive department or independent establishment charged with administration of the particular law;
  - (B) Be subject to all the rules and regulations promulgated by such department or independent establishment with respect to the enforcement of that law; and
  - (C) Be considered law enforcement officers for purposes of the Law Enforcement Officers Safety Act of 2004.
- (l) Subject to guidelines approved by the secretary of the Space Force, members of the Space Force, in the performance of official duties, may carry a firearm.

- (m)
  - (1) Subject to the requirements and limitations of international law, the Space Force is authorized to operate and maintain space stations for the purpose of providing search and rescue, communication, and scientific research.
  - (2) The Space Force is authorized, subject to approval by the OST and the Director of the FAA, to operate such air and space navigation facilities as deemed necessary for the safe and efficient protection and control of space traffic.
- (n)
  - (1) The President may, upon application from the foreign governments concerned, and whenever in his or her discretion the public interests render such a course advisable, detail members of the Space Force to assist foreign governments in matters concerning which the Space Force may be of assistance. Members so detailed may accept, from the government to which detailed, offices and such compensation and emoluments, subject to approval by the secretary of the Space Force. While so detailed such members shall receive, in addition to the compensation and emoluments allowed them by such governments, the pay and allowances to which they are entitled in the Space Force and shall be allowed the same credit for longevity, retirement, and for all other purposes that they would receive if they were serving with the Space Force.
  - (2) The secretary of the Space Force, in coordination with the secretary of state, may provide, in conjunction with regular Space Force operations, technical assistance (including law enforcement and space safety and security training) to foreign militaries and other space authorities.
  - (3) After consultation with the secretary of state, the secretary of the Space Force may make grants to, or enter into cooperative agreements, contracts, or other agreements with, international space organizations for the purpose of acquiring information or data about space craft inspections, security, safety, environmental protection, classification, and space port or flag state law enforcement or oversight.
  - (4) An activity may not be conducted under this subsection with a foreign country unless the secretary of state approves the conduct of such activity.
- (o) Commissioned officers may, with the consent of the secretary of state, be regularly and officially attached to the diplomatic missions of the United States in those nations with which the United States is exten-

sively engaged. Expenses for the maintenance of such Space Force attachés abroad, including office rental and pay of employees and allowances for living quarters, including heat, fuel, and light, may be defrayed by the Space Force.

## **27. Designation: Officers to Perform Certain Professional Functions**

- (a) Medical functions in the Space Force shall be performed by commissioned officers of the Space Force who are qualified under regulations prescribed by the secretary of the Space Force and who are designated as medical officers.
- (b) Dental functions in the Space Force shall be performed by commissioned officers of the Space Force who are qualified under regulations prescribed by the secretary and who are designated as dental officers.
- (c) Veterinary functions in the Space Force shall be performed by commissioned officers of the Space Force who are qualified under regulations prescribed by the secretary, and who are designated as veterinary officers.
- (d) Medical service functions in the Space Force shall be performed by commissioned officers of the Space Force who are qualified under regulations prescribed by the secretary, and who are designated as medical service officers.
- (e) Nursing functions in the Space Force shall be performed by commissioned officers of the Space Force who are qualified under regulations prescribed by the secretary and who are designated as Space Force nurses.
- (f) Biomedical science functions, including physician assistant functions and chiropractic functions, in the Space Force shall be performed by commissioned officers of the Space Force who are qualified under regulations prescribed by the secretary, and who are designated as biomedical science officers.
- (g) Judge advocate functions in the Space Force shall be performed by commissioned officers of the Space Force who are qualified under regulations prescribed by the secretary, and who are designated as judge advocates.
- (h) Chaplain functions in the Space Force shall be performed by commissioned officers of the Space Force who are qualified under regulations prescribed by the secretary and who are designated as chaplains.

- (i) Other functions in the Space Force requiring special training or experience shall be performed by members of the Space Force who are qualified under regulations prescribed by the secretary, and who are designated as being in named categories.

## **28. Space Force Nurse: Chief Appointment**

- (a) Position of Chief: There is a chief of the Space Force nurse corps.
- (b) Chief: The secretary of the Space Force shall appoint the chief from the officers of the regular Space Force designated as Space Force nurses whose regular grade is above lieutenant colonel and who are recommended by the surgeon general. The chief serves at the pleasure of the secretary.

## **29. Commands: Territorial Organization**

- (a) In the next Unified Command Plan after the enactment of this subsection, the President shall designate a specified geographic command, whose boundaries shall begin at 100 kilometers above the Earth and extend through the volume of Cis-Lunar Space, to include, as appropriate, areas extending beyond Cis-Lunar space should United States industry or citizens conduct commerce or the command itself conducts operations in such space.
- (b) Except as otherwise prescribed by law or by the secretary of defense, the Space Force shall be divided into such organizations as the secretary of the Space Force may prescribe.
- (c) For Space Force purposes, the United States, its possessions, and other places in which the Space Force is stationed or is operating, may be divided into such areas as directed by the secretary. Officers of the Space Force may be assigned to command Space Force activities, installations, and personnel in those areas. In the discharge of the Space Force's functions or other functions authorized by law, officers so assigned have the duties and powers prescribed by the secretary.

## **30. Civil Reserve Space Fleet**

- (a) The secretary of defense is authorized to create a Civil Reserve Space Fleet, to be managed and coordinated by the secretary of the Space Force. The Civil Reserve Space Fleet supports DOD space lift requirements in emergencies when the need for space lift exceeds the capability of the military space lift fleet. The term "Civil Reserve Space

Fleet” means those spacecraft allocated, or identified for allocation, to the DOD under section 101 of the Defense Production Act of 1950), or made available (or agreed to be made available) for use by the DOD under a contract made under this title, as part of the program developed by the DOD through which the DOD augments its space lift capability by use of civil spacecraft.<sup>5</sup>

- (b)
  - (1) The secretary of defense shall determine a fair and reasonable rate of payment for space lift services provided to the DOD by entities who are participants in the Civil Reserve Space Fleet program.
  - (2) The secretary of defense shall prescribe regulations for purposes of subsection (a). The secretary of the Space Force may exclude from the applicability of those regulations any space lift services contract made through the use of competitive procedures.
  - (3) The secretary of the Space Force may, in determining the quantity of business to be received under a space lift services contract for which the rate of payment is determined in accordance with subsection (a)(1), use as a factor the relative amount of space lift capability committed by each entity to the Civil Reserve Space Fleet.
  - (4) A space lift services contract for which the rate of payment is determined in accordance with subsection (a)(1) shall not be subject to the provisions of section 2306a of this title or to the provisions of subsections (a) and (b) of section 1502 of title 41.
- (c)
  - (1) Subject to the provisions of chapter 137 of this title, and to the extent that funds are otherwise available, the secretary of the Space Force may:
    - (A) Contract with any citizen of the United States for the inclusion or incorporation of defense features in any new or existing spacecraft to be owned or controlled by that citizen; and
    - (B) Contract with United States spacecraft manufacturers for the inclusion or incorporation of defense features in new spacecraft to be operated by a United States space carrier.
  - (2) Each contract entered into under this section shall provide:
    - (A) That any spacecraft covered by contract shall be committed to the Civil Reserve Space Fleet;
    - (B) That, so long as the spacecraft is owned or controlled by a contractor, the contractor shall operate the spacecraft for the DOD as needed during any activation of the Civil Reserve Space Fleet, notwithstanding any other contract or commitment of that contractor; and

- (C) That the contractor operating the spacecraft for the DOD shall be paid for that operation at fair and reasonable rates.
- (3) Each contract entered into under subsection (b)(1) shall include a provision that requires the contractor to repay to the United States a percentage (to be established in the contract) of any amount paid by the United States to the contractor under the contract with respect to any spacecraft if:
  - (A) The spacecraft is destroyed or becomes unusable, as defined in the contract;
  - (B) The defense features specified in the contract are rendered unusable or are removed from the spacecraft;
  - (C) Control over the spacecraft is transferred to any person or entity that is unable or unwilling to assume the contractor's obligations under the contract; or
  - (D) The registration of the spacecraft is terminated for any reason not beyond the control of the contractor.
- (4) A contract under subsection (b)(1) for the inclusion or incorporation of defense features in a spacecraft may include a provision authorizing the secretary of the Space Force:
  - (A) To contract, with the concurrence of the contractor, directly with another person for the performance of the work necessary for the inclusion or incorporation of defense features in such spacecraft; and
  - (B) To pay such other person directly for such work.
- (5) Notwithstanding section 101 of the Defense Production Act of 1950, each spacecraft covered by a contract entered into under this section shall be committed exclusively to the Civil Reserve Space Fleet for use by the DOD as needed during any activation of the Civil Reserve Space Fleet unless the spacecraft is released from that use by the secretary of defense.<sup>6</sup>
- (d) The Civil Reserve Space Fleet program is an important component of the military space lift system in support of the United States defense and foreign policies, and it is the policy of the United States to maintain the readiness and interoperability of Civil Reserve Space Fleet entities by providing appropriate levels of peacetime space lift augmentation to maintain networks and infrastructure, exercise the system, and interface effectively within the military space lift system.

### Notes

(All notes appear in shortened form. For full details, see the appropriate entry in the bibliography.)

1. Inspector General Act of 1978, Public Law 95-452, 95th Cong., 2nd sess. (12 October 1978), <https://www.law.cornell.edu/>.

2. Awards or Contracts, *US Code*, vol. 15, sec. 644 (2013), <https://www.law.cornell.edu/uscode/>.

3. Awards or Contracts, *US Code*.

4. Stevenson-Wydler Technology Innovation Act of 1980, Public Law 96-480, 96th Cong., 2nd sess. (21 October 1980), <https://www.govinfo.gov/>.

5. The Defense Production Act of 1950, Public Law 81-774, 88th Cong., 2nd sess. (8 September 1950).

6. PL 81-774.

## Abbreviations

AFSPC	Air Force Space Command
ARPA	Advanced Research Projects Agency
ASAT	Anti-satellite Weapons
AST	The Office of Commercial Space Transportation
CFR	Code of Federal Regulations
CIA	Central Intelligence Agency
CSAF	Chief of Staff of the Air Force
CSLCA	Commercial Space Launch Competitiveness Act
DARPA	Defense Advanced Research Projects Agency
DOD	Department of Defense
EA	Executive Agent
EW	Electronic warfare
FAA	Federal Aviation Administration
FAR	Federal Acquisition Regulations
FFRDC	Federally funded research and development center
GAO	Government Accountability Office
IC	Intelligence Community
NASA	National Aeronautics and Space Administration
NDAA	National Defense Authorization Act
NESDIS	National Environmental Satellite, Data, and Information Service
NOAA	National Oceanic and Atmospheric Administration
NRO	National Reconnaissance Office
NSS	National Security Strategy
OMB	Office of Management and Budget
OST	Outer Space Treaty
OTA	Other Transactions Authority
PDSA	Principal DOD Space Advisor
PLA	People's Liberation Army
RAND	Research and Development Corporation
SecAF	Secretary of the Air Force
SMC	Space and Missile Systems Center

SSF	Strategic Support Force
USAF	United States Air Force
USSF	United States Space Force
USCG	United States Coast Guard

## Bibliography

- Air Force Space Command. "About Us." <http://www.afspc.af.mil/>.
- "Air Force Space System Control Questioned." *Space News*. 8 September 1997, 2. Applicability and Scope. *Code of Federal Regulations*. Vol. 32, sec. 213.2 (2018). <https://www.law.cornell.edu/cfr/>.
- Awards or Contracts, *US Code*. Vol. 15, sec. 644 (2013). <https://www.law.cornell.edu/uscode/>.
- Commission to Assess United States National Security Space Management, and Organization, *Report of the Commission to Assess United States National Security Space Management and Organization*. Washington, D.C.: The Commission, 2001. <https://www.hsdl.org/>.
- Congressional Declaration of Policy and Purpose. *US Code*. Vol. 51, secs. 20102(b)–(c) (2018). <https://www.law.cornell.edu/uscode/>.
- Curtis E. LeMay Center for Doctrine Development and Education. *Volume I, Basic Doctrine*, 27 February 2015. <http://www.doctrine.af.mil/>.
- David, Leonard "China's Anti-Satellite Test: Worrisome Debris Cloud Circles Earth." *Space.com*, 2 February 2007. <https://www.space.com/>.
- Department of Commerce. *U.S. Department of Commerce Strategic Plan 2018–2022*. Washington, D.C.: Department of Commerce, 12 February 2018. <https://www.commerce.gov/about/strategic-plan>.
- Department of Defense. *Interim Report on Organizational and Management Structure for the National Security Space Components of the Department of Defense* Washington, D.C.: Department of Defense, 1 March 2018. <https://media.defense.gov>.
- Department of Defense Directive (DODD) 3100.01. *Space Policy*, 18 October 2012. <https://www.hsdl.org/>.
- \_\_\_\_\_. 5100.01. *Functions of the Department of Defense and Its Major Components*, 21 December 2010. <https://www.hsdl.org/>.
- \_\_\_\_\_. 5100.96. *DOD Space Enterprise Governance and Principal DOD Space Advisor (PDSA)*, 9 June 2017. <https://www.esd.whs.mil/>.
- \_\_\_\_\_. 5101.02E. *DOD Executive Agent (EA) for Space*, 25 Jan 2013. <https://www.hsdl.org/>.
- Erwin, Sandra. "Space Reforms Coming: 2018 NDAA Drops Legislative Bombshells on U.S. Air Force." *SpaceNews*, 9 November 2017. <https://spacenews.com/>.
- Establishment. *US Code*. Vol. 51, sec. 50702 (2018). <https://www.law.cornell.edu/uscode/>.
- Executive Office of the President of the United States. *OMB Report on the Leadership, Management, and Organization of the Department of Defense's*

- Space Activities*. Washington, D.C.: Office of Management and Budget, 4 December 2017. <https://aerospace.csis.org/>.
- Federal Aviation Administration. "About the Office of Commercial Space Transportation." <https://www.faa.gov/>.
- Goldfein, David L., chief of staff of the Air Force. "Air Force Innovation." Address. Air Warfare Symposium, Orlando, FL, 23 February 2018. <https://www.dvidshub.net/>.
- Government Accountability Office. *Defense Space Acquisitions: Too Early to Determine If Recent Changes Will Resolve Persistent Fragmentation in Management and Oversight*. Washington, D.C.: GAO, 27 July 2016. <https://www.gao.gov/>.
- Greene, Andrew. "World Should Prepare for Military Conflict in Outer Space, Experts Warn." Australian Broadcasting Corporation, 10 April 2018. <http://www.abc.net.au/>.
- Guanipa, Maria Fernanda., "China Plans to be the First Country to Mine the Moon." *Pulse Headlines*, 29 January 2017. <https://www.pulseheadlines.com/>.
- Hays, Peter L. *Struggling towards Space Doctrine: US Military Space Plans, Programs, and Perspectives during the Cold War*. Report no. AFIT/CI/CIA-94-083. Wright-Patterson AFB, OH: Air Force Institute of Technology, 1994. <https://apps.dtic.mil/dtic/tr/fulltext/u2/a281988.pdf>.
- Inspector General Act of 1978. Public Law 95-452. 95th Cong., 2nd sess., 12 October 1978. <https://www.law.cornell.edu/>.
- Krishna, Swapna. "A New Startup Wants to Launch a Luxury Space Hotel into Orbit," Engadget, 6 April 2018. <https://www.engadget.com>.
- Larson, Eric V., and John E. Peters, *Preparing the U.S. Army for Homeland Security: Concepts, Issues, and Options*. RAND Report MR-1251-A. Santa Monica, C.A.: RAND, 2001. <https://www.rand.org/>.
- Law Enforcement Officers Safety Act of 2004. Public Law 108-277. 108th Cong., 1st sess., 22 July 2004. <https://www.congress.gov/>.
- Mahoney, Erin. "NASA Extends Agreements to Advance Commercial Lunar Landers." NASA.gov, 31 October 2017. <https://www.nasa.gov/>.
- McKinley, Cynthia A.S. "The Guardians of Space: Organizing America's Space Assets for the Twenty-First Century," *Aerospace Power Journal* 14, no. 1 (Spring 2000): 37-45. <https://www.airuniversity.af.edu/>.
- Moon Express, "About Us." <https://web.archive.org/>.
- NASA. "Sputnik: The Fiftieth Anniversary." NASA History Homepage, 10 October 2007. <https://history.nasa.gov/sputnik>.
- National Defense Authorization Act for Fiscal Year 2018. Public Law 115-91. 115th Cong., 1st sess., 12 December 2017, sec 1601(b). <https://www.congress.gov/>.

National Reconnaissance Office. "Who We Are." <https://web.archive.org/>.

Office of Space Commerce. "Mission." <http://www.space.commerce.gov/>.

Pollpeter, Kevin L., Michael S. Chase, and Eric Heginbotham. *The Creation of the PLA Strategic Support Force and Its Implications for Chinese Military Space Operations*. RAND Report RR-2058-AF. Santa Monica, C.A.: RAND, 2017. <https://www.rand.org/>.

Primary Duties, *US Code*. Vol. 14, sec. 102 (2018). <https://web.archive.org/>.

Report on the National Defense Authorization Act for Fiscal Year 2018. *H.R. 2810. 115th Cong., 1st sess., 2017*. <https://www.congress.gov/>.

Research Projects: Transactions Other Than Contracts and Grants. *US Code*. Vol. 10, sec. 2371(a) (2018). <https://www.law.cornell.edu/uscode/>.

Rife, Shawn P. "On Space Power Separatism." *Aerospace Power Journal* 13, no. 1 (Spring 1999): 21-39. <https://www.airuniversity.af.edu/>.

Santini, Jean-Louis. "NASA Bets on Private Companies to Exploit Moon's Resources." *Phys.org*, 9 February 2014. <https://phys.org/>.

Shackleton Energy Company, "Overview." <http://www.shackletonenergy.com/overview>.

Stevenson-Wydler Technology Innovation Act of 1980. Public Law 96-480. 96th Cong., 2nd sess., 21 October 1980. <https://www.govinfo.gov/>.

The Defense Production Act of 1950. Public Law 81-774. 88th Cong., 2nd sess., 8 September 1950.

The State Council Information Office of the People's Republic of China, *China's Military Strategy*. The People's Republic of China: Ministry of National Defense, 26 May 2015. <http://eng.mod.gov.cn/>.

"Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies." 27 January 1967. Available in United Nations (UN) Publication ST/SPACE/11. New York: UN, 2002. <http://www.unoosa.org/oosa/>.

Trump, Donald J., president. Address. Marine Corps Air Station Miramar, San Diego, CA, 13 March 2018). C-Span.org. <https://www.c-span.org/>.

United Nations General Assembly. "Recommendations on National Legislation Relevant to the Peaceful Exploration and Use of Outer Space." 11 December 2013. United Nations Digital Library. <https://digitallibrary.un.org/>.

United States Congress, "National Aeronautics and Space Act of 1958," Public Law 85-568, 29 July 1958, <https://www.govtrack.us/>.

United States Strategic Command (STRATCOM). "USSTRATCOM Space Control and Space Surveillance." USSTRATCOM, 17 October 2016. <https://web.archive.org/>.

US Commercial Space Launch Competitiveness Act of 2015. Public Law 114-90. 114th Cong., 1st sess., 25 November 2015. <https://www.congress.gov>.

- Use of Army and Air Force as Posse Comitatus. *US Code*. Vol. 18, sec. 1385 (2018). <https://www.law.cornell.edu/uscode/>.
- Wall, Mike. "Elon Musk Says Mars Colony a Hedge against World War III." *Fox News*, 29 March 2018. <http://www.foxnews.com/>.
- White House. *The National Security Strategy of the United States*. Washington, DC: The White House, 2017. <https://www.whitehouse.gov/>.
- Wilson, Heather A., secretary of the Air Force. "State of the Air Force." Address. Air Warfare Symposium, Orlando, FL, 22 February 2018. <https://www.dvidshub.net/>.
- Yannuzzi, Rick E. "In-Q-Tel: A New Partnership Between the CIA and the Private Sector." *Defense Intelligence Journal* (Winter 2000). <https://www.cia.gov/>.
- Young, A. T., Edward Anderson, Lyle Bien, Ronald R. Fogleman, Keith Hall, Lester Lyles, and Hans Mark. *Leadership, Management, and Organization for National Security Space: Report to Congress of the Independent Assessment Panel on the Organization and Management of National Security Space*. No. IDA-GR-69. Alexandria, V.A.: Institute for Defense Analyses, July 2008. <https://apps.dtic.mil/dtic/tr/fulltext/u2/a486551.pdf>.