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HOUSE OF REPRESENTATIVES
REPORT
117–192

TO MAKE REVISIONS IN TITLE 51, UNITED STATES CODE, AS NECESSARY TO KEEP THE TITLE CURRENT, AND TO MAKE TECHNICAL AMENDMENTS TO IMPROVE THE UNITED STATES CODE

NOVEMBER 30, 2021.—Referred to the House Calendar and ordered to be printed

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Mr. NADLER, from the Committee on the Judiciary, submitted the following

R E P O R T

[To accompany H.R. 5982]

The Committee on the Judiciary, to whom was referred the bill (H.R. 5982) to make revisions in title 51, United States Code, as necessary to keep the title current, and to make technical amendments to improve the United States Code.

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Purpose and Summary

H.R. 5982 would revise title 51, United States Code, to add recently adopted laws, and to make other necessary technical corrections to references in other titles of the Code.

Background and Need for the Legislation

The House has assigned to the Judiciary Committee responsibility for the "Revision and codification of the Statutes of the

United States." [1] In modern practice, this responsibility entails periodically updating the United States Code ("the Code"). Currently organized in 54 titles based on subject matter, the Code contains all of the general and permanent laws of the United States. Congress created the Code in 1926 to compile federal laws into a sensible, up-to-date collection that would spare people the labor of searching for laws in the chronologically-organized volumes of the Statutes at Large.[2] To date, 27 of these 54 titles have been enacted into "positive law," which means the text of these titles is itself the law,[3] while the remaining titles are "non-positive," meaning that they organize federal statutes for users' convenience, but do not themselves have the force of law.[4]

The entity responsible for updating the Code as Congress passes new laws or amends existing ones is the Office of the Law Revision Counsel (OLRC).[5] Established within the House of Representatives, OLRC's purpose is "to develop and keep current an official and positive codification of the laws of the United States," while maintaining strict impartiality as to issues of legislative policy.[6] The Judiciary Committee plays an essential role in two of OLRC's important functions. OLRC is required:

> (1) To prepare, and submit to the Committee on the Judiciary one title at a time, a complete compilation, restatement, and revision of the general and permanent laws of the United States which conforms to the understood policy, intent, and purpose of the Congress in the original enactments, with such amendments and corrections as will remove ambiguities, contradictions, and other imperfections both of substance and of form, separately stated, with a view to the enactment of each title as positive law.

The Judiciary Committee therefore plays a key role in maintaining the accuracy of the U.S. Code. OLRC regularly submits to the Committee proposed legislation that carries out its mission to keep the Code current and correct. The Judiciary Committee then considers and reports this legislation to the House. If the legislation passes into law, OLRC implements the changes in the Code.

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[1] Clause 1(*l*)(17) of House Rule X.

[2] The Statutes at Large is the collection of laws passed in a particular session of Congress, arranged in sequence by public law number, https://www.archives.gov/federal-register/publications/statutes.html. The content of the Statutes at Large is considered "legal evidence of laws, concurrent resolutions, treaties, international agreements other than treaties, proclamations by the President, and proposed or ratified amendments to the Constitution of the United States therein contained, in all the courts of the United States, the several States, and the Territories and insular possessions of the United States." 1 U.S.C. § 112.

[3] For example, H.R. 2694 (117th Congress) proposes amending Title 18 ("Crimes and Criminal Procedure"), which is a positive title of the U.S. Code, so it is drafted to directly amend a provision of that title ("Section 4285 of title 18, United States Code, is amended in the first sentence. . . ."). The content of positive-law Code titles is considered "legal evidence of the laws therein contained, in all the courts of the United States, the several States, and the Territories and insular possessions of the United States." 1 U.S.C. § 204.

[4] For example, H.R. 2922 (117th Congress) proposes amending section 101(b) of the Elder Abuse Prevention and Prosecution Act, which is compiled in Title 34 ("Crime Control and Law Enforcement"), a non-positive title of the Code. In this situation, the bill amends the underlying law and includes a parenthetical citation to its location in Title 34 as a convenience ("Section 101(b) of the Elder Abuse Prevention and Prosecution Act (34 U.S.C. 21711(b)) is amended to read . . ."). The contents of non-positive titles "establish prima facie the laws of the United States, general and permanent in their nature, in force on the day preceding the commencement of the session following the last session the legislation of which is included." 1 U.S.C. § 204.

[5] Office of the Law Revision Counsel (hereinafter OLRC), U.S. Code, home page, https://uscode.house.gov/.

[6] H. Res. 988 (93d Congress), § 205(c), as enacted into law by Pub. L. 93–554 (2 U. S. C. § 285a).

H.R. 5982, which amends title 51 of the Code (National and Commercial Space Programs), represents one of OLRC's recent efforts to keep positive-laws titles in the Code up to date. Since it was created as a positive-law title in 2010,[7] Congress has adopted several important reforms to the subject matter of title 51.[8] Some of these new laws were placed into the non-positive title 42 (the Public Health and Welfare), while OLRC located others in notes to title 51. Section 3 of this legislation incorporates these recent statutes into the body of title 51 itself. Section 4 of the bill corrects cross references to the three laws that occur in other titles of the Code. An earlier version of this bill was introduced in the 115th Congress.[9]

Hearings

The Committee did not hold any hearings related to H.R. 5982.

Committee Consideration

On November 17, 2021, the Committee met in open session and ordered the bill, H.R. 5982, favorably reported without an amendment, by a voice vote, a quorum being present.

Committee Votes

No roll call votes occurred during the Committee's consideration of H.R. 5982.

Committee Oversight Findings

In compliance with clause 3(c)(1) of House Rule XIII, the Committee advises that the findings and recommendations of the Committee, based on oversight activities under clause 2(b)(1) of House Rule X, are incorporated in the descriptive portions of this report.

Committee Estimate of Budgetary Effects

Pursuant to clause 3(d)(1) of House Rule XIII, the Committee adopts as its own the cost estimate prepared by the Director of the Congressional Budget Office pursuant to section 402 of the Congressional Budget Act of 1974.

New Budget Authority and Congressional Budget Office Cost Estimate

Pursuant to clause 3(c)(2) of House Rule XIII and section 308(a) of the Congressional Budget Act of 1974, and pursuant to clause (3)(c)(3) of House Rule XIII and section 402 of the Congressional Budget Act of 1974, the Committee has requested but not received from the Director of Congressional Budget Office (CBO) a budgetary analysis and a cost estimate of this bill. Based on CBO's analysis of a similar bill (H.R. 3239) transmitted to the Committee on June 14, 2021, the Committee estimates that H.R. 5982 would have no effect on the federal budget.

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[7] P.L. 111–314

[8] OLRC web site, Positive Law Codification, Title 51, United States Code, https://uscode.house.gov/codification/t51/index.html.

[9] H.R. 6342 (115th Congress).

Duplication of Federal Programs

Pursuant to clause 3(c)(5) of House Rule XIII, no provision of H.R. 5982 establishes or reauthorizes a program of the federal government known to be duplicative of another federal program.

Performance Goals and Objectives

The Committee states that pursuant to clause 3(c)(4) of House Rule XIII, H.R. 5982 would help implement an editorial reclassification to portions of the United States Code, with the goal of improving and modernizing the overall organization of the Code.

Advisory on Earmarks

In accordance with clause 9 of House Rule XXI, H.R. 5982 does not contain any congressional earmarks, limited tax benefits, or limited tariff benefits as defined in clause 9(d), 9(e), or 9(f) of House Rule XXI.

Section-by-Section Analysis

The section-by-section analysis prepared by the OLRC is as follows:

Section-by-Section Analysis

Section 1—Table of Contents

Section 1 of the bill provides a table of contents for the Act.

Section 2—Purposes; Restatement Does Not Change Meaning or Effect of Existing Law

Section 2(a)

Section 2(a) of the bill provides that the purposes are to make revisions in title 51, United States Code, as necessary to keep the title current, and to make technical amendments to improve the United States Code.

Section 2(b)(1)

Section 2(b)(1) of the bill provides that the restatement of existing law does not change the meaning or effect of the existing law (see the explanation above, under the heading "Restatement Does Not Change Meaning or Effect of Existing Law").

Section 2(b)(2)

Section 2(b)(2) of the bill creates a rule of construction to provide that, notwithstanding the plain meaning rule or other rules of statutory construction, a change in wording made in the restatement of existing law serves to clarify the existing law, but not to change the meaning or effect of the existing law. This rule of construction applies whether or not a change in wording is explained by a revision note appearing in a congressional report accompanying the bill. The bill provides that if such a revision note does appear, a court is required to consider the revision note in interpreting the change.

Section 3—Revision of Title 51, United States Code

Section 3(a)

Section 3(a) of the bill makes technical amendments to the title table of contents of title 51, United States Code.

Section 3(b)

Section 3(b) of the bill amends section 20144 of title 51, United States Code. Paragraph (1) amends section 20144(a) of title 51, United States Code, by striking the last sentence ("The Administration may carry out a program to award prizes only in conformity with this section.") in accordance with section 105(b) of the America COMPETES Reauthorization Act of 2010 (Public Law 111–358, 124 Stat. 3993). Paragraph (2) amends section 20144(i)(4) of title 51, United States Code, by striking "Committee on Science and Technology" and inserting "Committee on Science, Space, and Technology" on authority of rule X(1)(p) of the Rules of the House of Representatives, adopted by House Resolution No. 5 (112th Congress, January 5, 2011).

Section 3(c)

Section 3(c) of the bill amends section 20145 of title 51, United States Code, to incorporate a permanent provision from the Science Appropriations Act, 2013 (Public Law 113–6, div. B, title III). Paragraph (1) amends section 20145 of title 51, United States Code, by redesignating subsections (f) and (g) as subsections (g) and (h), respectively. Paragraph (2) amends section 20145 of title 51, United States Code, by inserting a new subsection (f). The source provision citations along with any revision notes are set out below.

SECTION 20145

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
20145(f)	51 U.S.C. 20145 note.	Pub. L. 113–6, div. B, title III (1st, 2d provisos under heading "CONSTRUCTION AND ENVIRONMENTAL COMPLIANCE AND RESTORATION", at 127 Stat. 263), Mar. 26, 2013, 127 Stat. 263.

In subsection (f), the words "hereafter, notwithstanding section 315 of the National Aeronautics and Space Act of 1958 (51 U.S.C. 20145)" are omitted as unnecessary because the provision is being incorporated into permanent law as part of section 20145 of title 51, United States Code, which restates section 315 of the National Aeronautics and Space Act of 1958.

In subsection (f), the words "the Administration construction and environmental compliance and restoration appropriations account" are substituted for "this account" for clarity.

Section 3(d)

Section 3(d) of the bill amends section 20303 of title 51, United States Code. Paragraph (1) amends section 20303(c) of title 51, United States Code, by striking "(42 U.S.C. 16611(d))" and inserting "(Public Law 109–155, 119 Stat. 2900)" to eliminate an obsolete citation. Paragraph (2) amends section 20303 of title 51, United States Code, by redesignating subsection (d) as subsection (e).

Paragraph (3) amends section 20303 of title 51, United States Code, by inserting subsection (d). The source provision citations along with any revision notes are set out below.

SECTION 20303

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
20303(d)	51 U.S.C. 20303 note.	Pub. L. 111–358, title II, §204(b), Jan. 4, 2011, 124 Stat. 3994.

In subsection (d)(1), in the matter before subparagraph (A), the words "Pursuant to the authority provided in title II of the America COMPETES Act (Public Law 110–69)" are omitted as unnecessary because the provision is being incorporated into the restatement of the relevant portion of title II of the America COMPETES Act.

In subsection (d)(1), in the matter before subparagraph (A), the words "to the extent possible" are substituted for "where possible" for clarity.

In subsection (d)(2), the words "expanded efforts and enhancements" are substituted for "these enhancements" for clarity.

Section 3(e)

Section 3(e) of the bill revises chapter 301 of title 51, United States Code, to incorporate new provisions and improve the organization of the chapter.

Section 3(e)(1)

Section 3(e)(1) of the bill amends the heading of chapter 301 of title 51, United States Code.

Section 3(e)(2)

Section 3(e)(2) of the bill amends the table of contents of chapter 301 of title 51, United States Code.

Section 3(e)(3)

Section 3(e)(3) of the bill redesignates certain existing sections of chapter 301 of title 51, United States Code.

Section 3(e)(4)

Section 3(e)(4) of the bill designates subchapters of chapter 301 of title 51, United States Code.

Section 3(e)(5)

Section 3(e)(5) of the bill amends section 30103 (Baselines and cost controls) of title 51, United States Code, as redesignated by section 3(e)(3)(B) of the bill, by striking "Committee on Science and Technology" and inserting "Committee on Science, Space, and Technology", in several places, on authority of rule X(1)(p) of the Rules of the House of Representatives, adopted by House Resolution No. 5 (112th Congress, January 5, 2011).

Section 3(e)(6)

Section 3(e)(6) of the bill enacts sections 30104 and 30105 of title 51, United States Code. The source provision citations along with any revision notes are set out below.

SECTION 30104

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
30104	51 U.S.C. 30103 note.	Pub. L. 102–588, title II, § 210, Nov. 4, 1992, 106 Stat. 5115.

SECTION 30105

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
30105	42 U.S.C. 18442(b).	Pub. L. 111–267, title XII, § 1203(b), Oct. 11, 2010, 124 Stat. 2842.

In subsection (a), the words "Not later than April 30 of each year" are substituted for "Not later than 90 days after the date of enactment of this Act [October 11, 2010], and not later than April 30 of each year thereafter" to eliminate obsolete language.

Section 3(e)(7)

Section 3(e)(7) of the bill amends section 30121 of title 51, United States Code, as redesignated and transferred by section 3(e)(3)(A) of the bill. Subparagraph (A) amends the heading of section 30121 of title 51, United States Code. Subparagraph (B) amends section 30121(b) of title 51, United States Code, in the matter before paragraph (1), by striking "Committee on Science and Technology" and inserting "Committee on Science, Space, and Technology" on authority of rule X(1)(p) of the Rules of the House of Representatives, adopted by House Resolution No. 5 (112th Congress, January 5, 2011).

Section 3(e)(8)

Section 3(e)(8) of the bill enacts sections 30122 and 30123 of title 51, United States Code. The source provision citations along with any revision notes are set out below.

SECTION 30122

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
30122	42 U.S.C. 18384.	Pub. L. 111–267, title VIII, § 805, Oct. 11, 2010, 124 Stat. 2833.

SECTION 30123

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
30123	31 U.S.C. 1105 note.	Pub. L. 100–685, title I, § 104, Nov. 17, 1988, 102 Stat. 4086.

In this section, the words "Each fiscal year" are substituted for "Commencing in fiscal year 1990 and every year thereafter" to eliminate obsolete language.

Section 3(f)

Section 3(f) of the bill amends section 30310 of title 51, United States Code, to correct an erroneous citation.

Section 3(g)

Section 3(g) of the bill enacts section 30311 of title 51, United States Code. The source provision citations along with any revision notes are set out below.

SECTION 30311

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
30311	42 U.S.C. 18444(a) through (c).	Pub. L. 111–267, title XII, § 1206(a) through (c), Oct. 11, 2010, 124 Stat. 2843.

In subparagraph (c)(1), the words "amend acquisition and procurement policy in effect on October 11, 2010, to require the purchase of electronic parts" are substituted for "amend existing acquisition and procurement policy to purchase electronic parts" for clarity.

Section 3(h)

Section 3(h) of the bill enacts sections 30505 and 30506 of title 51, United States Code. The source provision citations along with any revision notes are set out below.

SECTION 30505

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
30505(a)	42 U.S.C. 18445(c).	Pub. L. 111–267, title XII, § 1207, Oct. 11, 2010, 124 Stat. 2844.
30505(b)	42 U.S.C. 18445(a).	
30505(c)	42 U.S.C. 18445(b).	

In subsection (b)(1), the words "On a biennial basis" are substituted for "Not later than 120 days after the date of enactment of this Act [October 11, 2010], and on a biennial basis thereafter" to eliminate obsolete language.

In subsection (b)(2), the reference to "section 3555 of title 44" is substituted for "section 3545 of title 44" to correct an error in the source law. Section 2(a) of the Federal Information Security Modernization Act of 2014 (Public Law 113–283, 128 Stat. 3073) struck section 3545 of title 44, United States Code, and enacted similar provisions as section 3555 of title 44, United States Code.

SECTION 30506

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
30506(a)	51 U.S.C. note prec. 30501.	Pub. L. 111–358, title II, § 203(c), Jan. 4, 2011, 124 Stat. 3994.
30506(b)	(no source)	

Subsection (b) is added for clarity.

Section 3(i)

Section 3(i) of the bill amends section 30704(2) of title 51, United States Code, to update the reference to refer to the relevant provisions of the former Buy American Act, which are now restated in chapter 83 of title 41, United States Code.

Section 3(j)

Section 3(j) of the bill enacts section 30705 of title 51, United States Code. The source provision citations along with any revision notes are set out below.

SECTION 30705

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
30705(a)(1)	(no source)	
30705(a)(2)	51 U.S.C. 30701 note.	Pub. L. 112–239, div. A, title IX, §913(b)(4), Jan. 2, 2013, 126 Stat. 1875.
30705(b)	51 U.S.C. 30701 note.	Pub. L. 112–239, div. A, title IX, §913(a), Jan. 2, 2013, 126 Stat. 1874.
30705(c)	51 U.S.C. 30701 note.	Pub. L. 112–239, div. A, title IX, §913(b)(1) through (3), Jan. 2, 2013, 126 Stat. 1874.

In subsection (a)(1), the definition for "congressional defense committees" is added to carry forward the appropriate definition from section 101(a)(16) of title 10, United States Code, in accordance with section 3 of the National Defense Authorization Act for Fiscal Year 2013 (10 U.S.C. 101 note).

Section 3(k)

Section 3(k) of the bill redesignates chapter 315 of title 51, United States Code, as chapter 399 of title 51, United States Code, and redesignates the sections in the chapter accordingly.

Section 3(l)(1)

Section 3(l)(1) of the bill inserts a new chapter 315 in title 51, United States Code. In new chapter 315 of title 51, United States Code, section 31501 restates selected provisions of section 837 of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10, 131 Stat. 69), which were previously classified to 51 U.S.C. 31502 note. The source provision citations along with any revision notes are set out below.

CHAPTER 315—FACILITIES AND INFRASTRUCTURE

SECTION 31501

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
31501(a)	51 U.S.C. 31502 note.	Pub. L. 115–10, title VIII, §837(b), Mar. 21, 2017, 131 Stat. 70.
31501(b)	51 U.S.C. 31502 note.	Pub. L. 115–10, title VIII, §837(c), Mar. 21, 2017, 131 Stat. 70.
31501(c)	51 U.S.C. 31502 note.	Pub. L. 115–10, title VIII, §837(d), Mar. 21, 2017, 131 Stat. 70.
31501(d)	51 U.S.C. 31502 note.	Pub. L. 115–10, title VIII, §837(e), Mar. 21, 2017, 131 Stat. 71.

Section 3(l)(2)

Section 3(l)(2)(A) of the bill redesignates section 39902 of title 51, United States Code, as redesignated by section 3(k)(3)(B) of the bill, as section 31502 of title 51, United States Code, and transfers it to appear after section 31501 of title 51, United States Code.

Section 3(l)(2)(B) of the bill amends the heading of section 31502 of title 51, United States Code, to conform to the heading used in

the original source law, section 1002 of the National Aeronautics and Space Administration Authorization Act of 2008 (Public Law 110–422, 122 Stat. 4806).

Section 3(l)(2)(C) of the bill makes conforming amendments to chapter 399 of title 51, United States Code.

Section 3(m)

Section 3(m) of the bill amends section 39901 of title 51, United States Code, as redesignated by section 3(k)(3) of the bill, by redesignating the existing text as subsection (a) and adding subsection (b). The source provision citations along with any revision notes are set out below.

SECTION 39901

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
39901(b)	42 U.S.C. 18441(b).	Pub. L. 111–267, title XII, §1202(b), Oct. 11, 2010, 124 Stat. 2841.

Section 3(n)

Section 3(n) of the bill amends section 40308(a) of title 51, United States Code, by striking "(5 App. U.S.C.)." and inserting "(5 U.S.C. App.)." to correct the citation style.

Section 3(o)

Section 3(o) of the bill redesignates chapter 409 of title 51, United States Code, as chapter 499 of title 51, United States Code, and redesignates the sections in the chapter accordingly.

Section 3(p)

Section 3(p) of the bill inserts a new chapter 409 in title 51, United States Code. The new chapter 409 of title 51, United States Code, restates selected provisions of title IX of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2835), which were previously classified to subchapter VIII (§18401 et seq.) of chapter 159 of title 42, United States Code. The source provision citations along with any revision notes are set out below.

CHAPTER 409—AERONAUTICS AND SPACE TECHNOLOGY

SECTION 40901

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
40901	42 U.S.C. 18401.	Pub. L. 111–267, title IX, §902, Oct. 11, 2010, 124 Stat. 2835.

SECTION 40902

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
40902	42 U.S.C. 18402.	Pub. L. 111–267, title IX, §903, Oct. 11, 2010, 124 Stat. 2835.

SECTION 40903

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
40903	42 U.S.C. 18403.	Pub. L. 111–267, title IX, § 904, Oct. 11, 2010, 124 Stat. 2836.

In the matter before paragraph (1), the words "Administration space technology base" are substituted for "Agency space technology base" for clarity. As used in section 904 of the National Aeronautics and Space Administration Authorization Act of 2010, the words "Agency space technology base" refer to the space technology base of the National Aeronautics and Space Administration.

SECTION 40904

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
40904(a)	42 U.S.C. 18404(a).	Pub. L. 111–267, title IX, § 906(a), (b), Oct. 11, 2010, 124 Stat. 2836.
40904(b)	42 U.S.C. 18404(b)(1).	
40904(c)	42 U.S.C. 18404(b)(2).	
40904(d)	42 U.S.C. 18404(b)(3).	
40904(e)	42 U.S.C. 18404(b)(4).	

In subsection (a), in 2 places, the words "or the President's designee" are omitted as unnecessary.

In subsection (d), in the matter before paragraph (1), the words "or the President's designee" are omitted as unnecessary.

In subsection (d), in the matter before paragraph (1), the words "consider the following issues" are substituted for "consider, and include a discussion in the report required by subsection (c), of the following issues" to eliminate obsolete language. Subsection (c) of section 906 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18404(c)), which required reports to be submitted to certain committees of Congress, is repealed as obsolete.

In subsection (e), the words "or the President's designee" are omitted as unnecessary.

SECTION 40905

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
40905(a)	42 U.S.C. 18405(a).	Pub. L. 111–267, title IX, § 907(a) through (d), Oct. 11, 2010, 124 Stat. 2837.
40905(b)	42 U.S.C. 18405(c) (relating to establishment of program).	
40905(c)	42 U.S.C. 18405(b).	
40905(d)	42 U.S.C. 18405(c) (relating to activities of program).	
40905(e)	42 U.S.C. 18405(d).	

In subsection (a), the words "The report entitled Revitalizing NASA's Suborbital Program: Advancing Science, Driving Innovation, and Developing a Workforce (prepared by the Committee on NASA's Suborbital Research Capabilities, Space Studies Board, Division on Engineering and Physical Sciences, National Research Council of the National Academies)" are substituted for "The report of the National Academy of Sciences, Revitalizing NASA's Sub-

orbital Program: Advancing Science, Driving Innovation and Developing Workforce" to provide a more precise reference. (See *http://www.nap.edu/catalog/12862/revitalizing-nasas-suborbital-program-advancing-science-driving-innovation-and-developing*.)

Section 3(q)

Section 3(q) of the bill enacts sections 49910 through 49912 of title 51, United States Code. The source provision citations along with any revision notes are set out below.

SECTION 49910

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
49910(a)	(no source)	
49910(b)	51 U.S.C. note prec. 40901.	Pub. L. 111–358, title II, § 202(b), Jan. 4, 2011, 124 Stat. 3993.
49910(c)	51 U.S.C. note prec. 40901.	Pub. L. 116–283, div. H, title XCIV, § 9406, Jan. 1, 2021, 134 Stat. 4812.

In subsection (a), the definition for "STEM" is added to carry forward the appropriate definition from section 2 of the America COMPETES Reauthorization Act of 2010 (Public Law 111–358, 42 U.S.C. 6621 note).

In subsection (c), the word "Administration" is substituted for "National Aeronautics and Space Administration (referred to in this section as 'NASA')", and the word "Administrator" is substituted for "Administrator of NASA", because the terms "Administrator" and "Administration" are defined in section 10101 of title 51, United States Code.

SECTION 49911

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
49911	51 U.S.C. note prec. 40901.	Pub. L. 115–7, § 3, Feb. 28, 2017, 131 Stat. 13.

SECTION 49912

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
49912	51 U.S.C. note prec. 40901.	Pub. L. 115–303, § 3, Dec. 11, 2018, 132 Stat. 4399.

In this section, the word "Administrator" is substituted for "Administrator of the National Aeronautics and Space Administration (in this section referred to as 'NASA')", and the words "the Administration" are substituted for "NASA", because the terms "Administrator" and "Administration" are defined in section 10101 of title 51, United States Code.

Section 3(r)

Section 3(r) of the bill amends section 50905 of title 51, United States Code. Paragraphs (1) and (2) amend the 2d and 3d sentences, respectively, of section 50905(a)(1) of title 51, United States Code, by striking "subsection (b)(2)(D)" and inserting "subsection (b)(2)(E)" to reflect the redesignation by section 2(c)(10) of the Commercial Space Launch Amendments Act of 2004 (Public Law 108–

492, 118 Stat. 3977). Paragraph (3) amends the last sentence of section 50905(a)(1) of title 51, United States Code, by striking "Committee on Science" and inserting "Committee on Science, Space, and Technology" on authority of rule X(1)(p) of the Rules of the House of Representatives, adopted by House Resolution No. 5 (112th Congress, January 5, 2011). Paragraphs (4) through (6) amend section 50905 of title 51, United States Code, in several places, by striking "the date of enactment of the Commercial Space Launch Amendments Act of 2004" and inserting "December 23, 2004" to reflect the date of enactment of the Act.

Section 3(s)

Section 3(s) of the bill amends section 50922 of title 51, United States Code, in several places, by striking references to "the date of the enactment" and inserting the relevant date.

Section 3(t)

Section 3(t) of the bill amends chapter 515 of title 51, United States Code. Paragraph (1) inserts a table of contents after the chapter heading. Paragraph (2) makes technical amendments to section 51501 of title 51, United States Code, to conform the style used in the section to the style used generally in the title, and to correct a drafting error in the original enactment of the section.

Section 3(u)

Section 3(u) of the bill inserts chapter 517 in title 51, United States Code. Sections 51701 and 51702 of chapter 517 of title 51, United States Code, restate selected provisions of title IV of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2820), which were previously classified to subchapter III (§ 18341 et seq.) of chapter 159 of title 42, United States Code. Sections 51703 through 51705 of chapter 517 of title 51, United States Code, restate selected provisions of title III of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10, 131 Stat. 22), which were previously classified to 51 U.S.C. 50111 note. The source provision citations along with any revision notes are set out below.

CHAPTER 517—DEVELOPMENT AND USE OF COMMERCIAL CARGO AND CREW TRANSPORTATION CAPABILITIES

SECTION 51701

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
51701	42 U.S.C. 18341.	Pub. L. 111–267, title IV, § 401, Oct. 11, 2010, 124 Stat. 2820; Pub. L. 115–10, title III, § 302(f), Mar. 21, 2017, 131 Stat. 26.

SECTION 51702

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
51702 (matter before (1)).	42 U.S.C. 18342(b) (matter before (1)).	Pub. L. 111–267, title IV, § 403(b) (matter before (1)), (1), (3) through (6), Oct. 11, 2010, 124 Stat. 2820, 2821.

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
51702(1)	42 U.S.C. 18342(b)(1).	
51702(2)	42 U.S.C. 18342(b)(3).	
51702(3)	42 U.S.C. 18342(b)(4).	
51702(4)	42 U.S.C. 18342(b)(5).	
51702(5)	42 U.S.C. 18342(b)(6).	

In the matter before paragraph (1), the words "For the duration of the commercial crew development program" are substituted for "beginning in fiscal year 2012 through the duration of the program" for clarity and to eliminate obsolete language.

In paragraph (1), the words "Not later than 60 days after the date of enactment of this Act [October 11, 2010]" are omitted as obsolete.

In paragraph (2)(A), in the matter before clause (i), the reference to "chapter 201 of this title" is substituted for "the National Aeronautics and Space Act of 1958" to update the reference in accordance with section 5 of Public Law 111–314 (51 U.S.C. note prec. 10101).

In paragraph (4), the words "commercially-developed crew transportation capabilities or services" are substituted for "commercially-developed crew transportation capabilities or systems" for consistency with paragraphs (2) and (3).

In paragraph (5), the words "this section and sections 71522 and 71523 of this title" are substituted for "this Act". The permanent provisions of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2805) that are related to authorization for development of a multipurpose crew vehicle are sections 303, 304, 403(b)(in part), and 503(f)(2) of the Act. Those provisions are restated in sections 51702, 71522, and 71523 of title 51, United States Code (i.e., "this section and sections 71522 and 71523 of this title").

SECTION 51703

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
51703	51 U.S.C. 50111 note.	Pub. L. 115–10, title III, § 302(e), Mar. 21, 2017, 131 Stat. 25.

In subsection (a)(1), the words "(meaning a government astronaut as defined in section 50902 of this title)" are added to carry forward the definition of "United States government astronaut" from section 2(12) of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (51 U.S.C. 10101 note).

In subsection (c)(1), the words "(as defined in section 50902 of this title)" are added to carry forward the definition of "government astronaut" from section 2(6) of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (51 U.S.C. 10101 note).

SECTION 51704

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
51704	51 U.S.C. 50111 note.	Pub. L. 115–10, title III, § 302(g), Mar. 21, 2017, 131 Stat. 26.

SECTION 51705

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
51705	51 U.S.C. 50111 note.	Pub. L. 115–10, title III, § 302(h)(2), Mar. 21, 2017, 131 Stat. 26.

Section 3(v)

Section 3(v) of the bill amends section 60304 of title 51, United States Code, by changing the section heading to "Advisory committee", redesignating subsection (a) as the entire section, and striking subsection (b) as obsolete. Subsection (b) required the Administrator of the National Aeronautics and Space Administration to transmit to Congress, not later than December 31, 2009, an evaluation of the effectiveness of the program established under section 60303 of title 51, United States Code. Section 3(v) of the bill also amends section 60304 of title 51, United States Code, by striking "(5 App. U.S.C.)," and inserting "(5 U.S.C. App.)," to correct the citation style.

Section 3(w)

Section 3(w) of the bill enacts sections 60507 through 60510 of title 51, United States Code. The source provision citations along with any revision notes are set out below.

SECTION 60507

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
60507	42 U.S.C. 18371.	Pub. L. 111–267, title VII, § 702, Oct. 11, 2010, 124 Stat. 2830.

In this section, the words "The Director shall provide a report to Congress within 90 days after the date of enactment of this Act [October 11, 2010] on the implementation plan for this mechanism" are omitted as obsolete.

SECTION 60508

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
60508	42 U.S.C. 18372.	Pub. L. 111–267, title VII, § 703, Oct. 11, 2010, 124 Stat. 2830.

In this section, the introductory words "Based on the implementation plan provided to Congress in March 2011" are inserted, and the words "The Administrator of NASA shall provide an implementation plan for this mechanism to Congress within 90 days after the date of enactment of this Act [October 11, 2010]" are omitted, to eliminate obsolete language while retaining a reference to the implementation plan.

SECTION 60509

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
60509	42 U.S.C. 18373.	Pub. L. 111–267, title VII, § 704, Oct. 11, 2010, 124 Stat. 2831.

SECTION 60510

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
60510	42 U.S.C. 18374.	Pub. L. 111–267, title VII, § 706, Oct. 11, 2010, 124 Stat. 2831.

In the section heading, the word "testbed" is substituted for "test-bed" for consistency with section 71525 of title 51, United States Code, restating section 308(c) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18326(c)).

Section 3(x)

Section 3(x) of the bill revises chapter 709 of title 51, United States Code, to incorporate new provisions and to make necessary technical amendments.

Section 3(x)(1)

Section 3(x)(1) of the bill amends the chapter table of contents of chapter 709 of title 51, United States Code.

Section 3(x)(2)

Section 3(x)(2) of the bill makes a technical amendment to section 70902 of title 51, United States Code, to conform a reference to a provision redesignated by section 3(o) of the bill.

Section 3(x)(3)

Section 3(x)(3) of the bill makes a technical amendment to section 70903 of title 51, United States Code, to conform a reference to a provision redesignated by section 3(o) of the bill.

Section 3(x)(4)

Section 3(x)(4) of the bill makes technical amendments to section 70904 of title 51, United States Code, to conform a reference to a provision redesignated by section 3(o) of the bill and to update the name of the Committee on Science, Space, and Technology on authority of rule X(1)(p) of the Rules of the House of Representatives, adopted by House Resolution No. 5 (112th Congress, January 5, 2011).

Section 3(x)(5)

Section 3(x)(5) of the bill enacts sections 70908 through 70912 of title 51, United States Code. Sections 70908 through 70911 of title 51, United States Code, restate selected provisions of title V of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2822), which were previously classified to subchapter IV (§ 18351 et seq.) of chapter 159 of title 42, United States Code. Section 70912 of title 51, United States Code, restates section 301(b) of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10, 131 Stat. 23), which was previously classified to 51 U.S.C. 50111 note. The source provision citations along with any revision notes are set out below.

SECTION 70908

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
70908	442 U.S.C. 18351.	Pub. L. 111–267, title V, § 501, Oct. 11, 2010, 124 Stat. 2822; Pub. L. 114–90, title I, § 114(b)(1), Nov. 25, 2015, 129 Stat. 715; Pub. L. 115–10, title III, § 301(c), Mar. 21, 2017, 131 Stat. 23.

SECTION 70909

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
70909(a)	42 U.S.C. 18352(a).	Pub. L. 111–267, title V, § 502, Oct. 11, 2010, 124 Stat. 2823.
70909(b) (matter before (1)).	42 U.S.C. 18352(b) (matter before (1)).	
70909(b)(1)	142 U.S.C. 18352(b)(1).	
70909(b)(2)(A)	(no source)	
70909(b)(2)(B)	42 U.S.C. 18352(b)(2).	
70909(b)(3)	42 U.S.C. 18352(b)(3).	

In subsection (b)(2)(A), the definition for "near-Earth space" is added to carry forward the appropriate definition from section 3(7) of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2809).

SECTION 70910

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
70910(a)	42 U.S.C. 18353(a).	Pub. L. 111–267, title V, § 503(a), Oct. 11, 2010, 124 Stat. 2823; Pub. L. 114–90, title I, § 114(b)(2)(A), Nov. 25, 2015, 129 Stat. 716.
70910(b)	42 U.S.C. 18353(d).	Pub. L. 111–267, title V, § 503(d), Oct. 11, 2010, 124 Stat. 2825.

SECTION 70911

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
70911	42 U.S.C. 18354.	Pub. L. 111–267, title V, § 504, Oct. 11, 2010, 124 Stat. 2825; Pub. L. 114–90, title I, § 114(b)(3), Nov. 25, 2015, 129 Stat. 716.

In subsection (d)(1), the words "As soon as practicable after the date of the enactment of this Act [October 11, 2010], but not later than October 1, 2011" are omitted as obsolete.

SECTION 70912

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
70912	51 U.S.C. 50111 note.	Pub. L. 115–10, title III, § 301(b), Mar. 21, 2017, 131 Stat. 23.

Section 3(y)

Section 3(y) of the bill amends section 71102(1) of title 51, United States Code, by striking "attaching a tracking device," and inserting "attaching a tracking device to," to correct a grammatical error.

Section 3(z)

Section 3(z) of the bill adds chapter 715 to title 51, United States Code. Chapter 715 of title 51, United States Code, restates selected provisions of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2805) in 4 subchapters.

Subchapter I of chapter 715 of title 51, United States Code, carries forward definitions from section 3 of the Act, which was previously classified to 42 U.S.C. 18302.

Subchapter II of chapter 715 of title 51, United States Code, restates selected provisions of title II of the Act, which were previously classified to subchapter I (§ 18311 et seq.) of chapter 159 of title 42, United States Code.

Subchapter III of chapter 715 of title 51, United States Code, restates selected provisions of title III of the Act, which were previously classified to subchapter II (§ 18321 et seq.) of chapter 159 of title 42, United States Code.

Subchapter IV of chapter 715 of title 51, United States Code, restates selected provisions of title VIII of the Act, which were previously classified to subchapter VII (§ 18381 et seq.) of chapter 159 of title 42, United States Code.

The source provision citations along with any revision notes are set out below.

CHAPTER 715—HUMAN SPACE FLIGHT AND EXPLORATION

Subchapter I—General Provisions

SECTION 71501

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71501	(no source)	

The definitions are added to carry forward applicable definitions from section 3 of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2808).

SUBCHAPTER II—POLICY, GOALS, AND OBJECTIVES

SECTION 71511

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71511	42 U.S.C. 18311.	Pub. L. 111–267, title II, § 201, Oct. 11, 2010, 124 Stat. 2811; Pub. L. 115–10, title III, § 302(d), Mar. 21, 2017, 131 Stat. 25.

SECTION 71512

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71512(a)	42 U.S.C. 18312(a).	Pub. L. 111–267, title II, § 202(a), Oct. 11, 2010, 124 Stat. 2812; Pub. L. 115–10, title IV, § 411, Mar. 21, 2017, 131 Stat. 33.

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71512(b)	42 U.S.C. 18312(b).	Pub. L. 111–267, title II, § 202(b), Oct. 11, 2010, 124 Stat. 2812; Pub. L. 115–10, title IV, § 412, Mar. 21, 2017, 131 Stat. 33.

SUBCHAPTER III—EXPANSION OF HUMAN SPACE FLIGHT BEYOND THE INTERNATIONAL SPACE STATION AND LOW-EARTH ORBIT

SECTION 71521

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71521	42 U.S.C. 18322.	Pub. L. 111–267, title III, § 302, Oct. 11, 2010, 124 Stat. 2814.

In subsection (b)(2), the words "(as of October 11, 2010)" are inserted for clarity.

In subsection (c)(1)(E), the sentence fragment relating to "[t]he capacity for efficient and timely evolution . . . ", which stood alone as subsection (c)(4) in the source law, is incorporated in the list of minimum capability requirements in subsection (c)(1) of the restatement. The restatement conforms to the understood policy, intent, and purpose of the original enactment.

SECTION 71522

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71522	42 U.S.C. 18323.	Pub. L. 111–267, title III, § 303, Oct. 11, 2010, 124 Stat. 2815.

SECTION 71523

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71523(a), (b)	42 U.S.C. 18324.	Pub. L. 111–267, title III, § 304, Oct. 11, 2010, 124 Stat. 2816.
71523(c)	42 U.S.C. 18353(f)(2).	Pub. L. 111–267, title V, § 503(f)(2), Oct. 11, 2010, 124 Stat. 2825.

In subsection (a)(1), in the matter before subparagraph (A) and in subparagraph (B), and in subsection (b)(2), the words "(as of October 11, 2010)" are inserted for clarity.

SECTION 71524

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71524	42 U.S.C. 18325(a), (b).	Pub. L. 111–267, title III, § 305(a), (b), Oct. 11, 2010, 124 Stat. 2817.

In subsection (b)(3) the words "program to develop commercial cargo transportation capabilities" are substituted for "commercial orbital transportation services program" to eliminate obsolete terminology. The Commercial Orbital Transportation Services Program was an initial phase of ongoing efforts relating to the commercial development of cargo transportation capabilities.

SECTION 71525

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71525(a) (matter before (1)).	42 U.S.C. 18326(a) (matter before (1)).	Pub. L. 111–267, title III, §308, Oct. 11, 2010, 124 Stat. 2818.
71525(a)(1)	42 U.S.C. 18326(a)(1).	
71525(a)(2)	42 U.S.C. 18326(a)(2) (except "and applications defining the architecture and design of such missions").	
71525(a)(3)	42 U.S.C. 18326(a)(2) ("and applications defining the architecture and design of such missions").	
71525(a)(4)	42 U.S.C. 18326(a)(3).	
71525(a)(5)	42 U.S.C. 18326(a)(4).	
71525(b)	42 U.S.C. 18326(b).	
71525(c)	42 U.S.C. 18326(c).	
71525(d)	42 U.S.C. 18326(d).	

In subsection (a)(3), the words "missions beyond low-Earth orbit" are substituted for "such missions" for clarity.

In subsection (b)(2), the words "technologies described in paragraph (1)" are substituted for "these technologies" for clarity.

In subsection (c), the words "sections 70908 through 70911 of this title" are substituted for "the provisions of this Act" for clarity. Subsection (c) pertains to utilization of the International Space Station. Within "this Act", meaning the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2805), the relevant provisions relating to utilization of the International Space Station were contained in title V of the Act and restated as sections 70908 through 70911 of title 51, United States Code.

In subsection (d), the word "Administration" is substituted for "agency" for clarity and consistency in title 51, United States Code.

In subsection (d), the words "consistent with the plan required by section 905 of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2836), which outlines how the Administration's space technology program will meet the goal described in section 40903 of this title, including an explanation of how the plan will link to other mission-directorate technology efforts" are substituted for "as authorized by section 905 of this Act" for clarity. Section 905 of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2836) did not authorize an overall agency (i.e., Administration) technology approach. Instead, section 905 of the Act required the National Aeronautics and Space Administration to submit a plan to Congress, within 120 days after October 11, 2010, outlining how the Administration would meet the goal described in section 904 of the Act (and explaining related matters). Section 904 of the Act is restated as section 40903 of title 51, United States Code. The restatement conforms to the understood policy, intent, and purpose of the original enactment.

SUBCHAPTER IV—SPACE SCIENCE

SECTION 71541

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71541	42 U.S.C. 18381.	Pub. L. 111–267, title VIII, § 801, Oct. 11, 2010, 124 Stat. 2832.

In this section, the word "Administration" is substituted for "Agency" for clarity and consistency in title 51, United States Code.

In this section, the words "consistent with the plan required by section 905 of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2836), which outlines how the Administration's space technology program will meet the goal described in section 40903 of this title, including an explanation of how the plan will link to other mission-directorate technology efforts" are substituted for "as authorized in section 905 of this Act" for clarity. Section 905 of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2836) did not authorize an overall Agency (i.e., Administration) technology investment approach. Instead, section 905 of the Act required the National Aeronautics and Space Administration to submit a plan to Congress, within 120 days after October 11, 2010, outlining how the Administration would meet the goal described in section 904 of the Act (and explaining related matters). Section 904 of the Act is restated as section 40903 of title 51, United States Code. The restatement conforms to the understood policy, intent, and purpose of the original enactment.

SECTION 71542

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71542(a)	42 U.S.C. 18382(b).	Pub. L. 111–267, title VIII, § 802(b) through (d), Oct. 11, 2010, 124 Stat. 2832.
71542(b)	42 U.S.C. 18382(c).	
71542(c)	42 U.S.C. 18382(d).	

In subsection (a)(3), the word "Administration" is substituted for "agency" for clarity and consistency in title 51, United States Code.

In subsection (b), the words "(as of October 11, 2010)" are inserted for clarity.

SECTION 71543

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71543	42 U.S.C. 18383.	Pub. L. 111–267, title VIII, § 804, Oct. 11, 2010, 124 Stat. 2833.

In this section, the words "robotic or human in-space servicing and repair" are substituted for "in-space or human servicing and repair" to correct an error in the source law. The source law, section 804 of the National Aeronautics and Space Administration Authorization Act of 2010 (124 Stat. 2833), requires the Administrator of the National Aeronautics and Space Administration to continue to take actions substantially similar to the actions required by a previously enacted provision, i.e., section 70508 of title 51, United States Code, which is a restatement of section 502 of the National

Aeronautics and Space Administration Authorization Act of 2008 (122 Stat. 4791). Both provisions promote the maintenance of alternative capabilities for either "robotic or human" servicing and repair of spacecraft, with all servicing and repair to be performed "in-space" on spacecraft deployed in Earth orbit or at a Lagrangian point.

In this section, the word "Administration" is substituted for "agency" for clarity and consistency in title 51, United States Code.

SECTION 71544

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71544	42 U.S.C. 18385(b).	Pub. L. 111–267, title VIII, § 806(b), Oct. 11, 2010, 124 Stat. 2833.

SECTION 71545

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71545	42 U.S.C. 18386 (1st sentence).	Pub. L. 111–267, title VIII, § 807(1st sentence), Oct. 11, 2010, 124 Stat. 2834.

SECTION 71546

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71546	42 U.S.C. 18387.	Pub. L. 111–267, title VIII, § 808, Oct. 11, 2010, 124 Stat. 2834.

In subsection (a), the words "section 20102(g) of this title" are substituted for "section 102(g) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451(g))" because of section 5(e) of Public Law 111–314 (51 U.S.C. note prec. 10101).

In subsection (b), the words "Consistent with section 71103 of this title" are added for clarity.

Section 3(aa)

Section 3(aa) of the bill adds chapter 717 to title 51, United States Code. Chapter 717 of title 51, United States Code, restates selected provisions of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10, 131 Stat. 18) in 5 subchapters.

Subchapter I of chapter 717 of title 51, United States Code, carries forward definitions from section 2 of the Act, which is classified to 51 U.S.C. 10101 note.

Subchapter II of chapter 717 of title 51, United States Code, restates selected provisions of title IV of the Act, which were previously classified to 51 U.S.C. 20301 note and 51 U.S.C. 20302 note.

Subchapter III of chapter 717 of title 51, United States Code, restates selected provisions of title V of the Act, which were previously classified to 51 U.S.C. 20301 note (except for section 517 of the Act, which was previously classified to 51 U.S.C. 20113 note).

Subchapter IV of chapter 717 of title 51, United States Code, restates selected provisions of title VII of the Act, which were previously classified to 51 U.S.C. 20301 note.

Subchapter V of chapter 717 of title 51, United States Code, restates selected provisions of title VIII of the Act, which were previously classified to 51 U.S.C. 20111 note, 51 U.S.C. 20113 note, 51 U.S.C. note prec. 40901, 51 U.S.C. 50131 note, and 51 U.S.C. 70102 note.

The source provision citations along with any revision notes are set out below.

CHAPTER 717—ADVANCING HUMAN SPACE EXPLORATION

SUBCHAPTER I—GENERAL PROVISIONS

SECTION 71701

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71701	(no source)	

The definitions are added to carry forward applicable definitions from section 2 of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (51 U.S.C. 10101 note).

SUBCHAPTER II—ADVANCING HUMAN DEEP SPACE EXPLORATION

PART A—ASSURING CORE CAPABILITIES FOR EXPLORATION

SECTION 71711

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71711(a)	51 U.S.C. 20301 note.	Pub. L. 115–10, title IV, § 421(b)(2), Mar. 21, 2017, 131 Stat. 36.
71711(b)	51 U.S.C. 20301 note.	Pub. L. 115–10, title IV, § 421(d), Mar. 21, 2017, 131 Stat. 36.
71711(c)	51 U.S.C. 20301 note.	Pub. L. 115–10, title IV, § 421(f), Mar. 21, 2017, 131 Stat. 37.
71711(d)	51 U.S.C. 20301 note.	Pub. L. 115 10, title IV, § 421(g), Mar. 21, 2017, 131 Stat. 37.

PART B—JOURNEY TO MARS

SECTION 71721

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71721	51 U.S.C. 20302 note.	Pub. L. 115–10, title IV, § 432(b), Mar. 21, 2017, 131 Stat. 39.

In subsection (b)(13), the word "include" is omitted from the beginning of paragraph (13) to correct an error in the law.

In subsection (e)(2)(A), the words "capabilities and technologies described in this section" are substituted for "such capabilities and technologies" for clarity.

SUBCHAPTER III—ADVANCING SPACE SCIENCE

SECTION 71731

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71731	51 U.S.C. 20301 note.	Pub. L. 115–10, title V, § 501(b), Mar. 21, 2017, 131 Stat. 48.

SECTION 71732

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71732	51 U.S.C. 20301 note.	Pub. L. 115–10, title V, § 502(b), Mar. 21, 2017, 131 Stat. 48.

SECTION 71733

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71733	51 U.S.C. 20301 note.	Pub. L. 115–10, title V, § 508, Mar. 21, 2017, 131 Stat. 50.

SECTION 71734

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71734	51 U.S.C. 20301 note.	Pub. L. 115–10, title V, § 509, Mar. 21, 2017, 131 Stat. 50.

In subsection (a)(1), the word "universe" is not capitalized. See *Style Guide for NASA History Authors and Editors*, https://history.nasa.gov/printFriendly/styleguide.html.

SECTION 71735

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71735	51 U.S.C. 20113 note.	Pub. L. 115–10, title V, § 517, Mar. 21, 2017, 131 Stat. 54.

SUBCHAPTER IV—SPACE TECHNOLOGY

SECTION 71741

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71741(a)	51 U.S.C. 20301 note.	Pub. L. 115–10, title VII, § 701(c), Mar. 21, 2017, 131 Stat. 56.
71741(b)	51 U.S.C. 20301 note.	Pub. L. 115–10, title VII, § 701(d), Mar. 21, 2017, 131 Stat. 57.

SECTION 71742

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71742(a)	51 U.S.C. 20301 note.	Pub. L. 115–10, title VII, § 702(a), Mar. 21, 2017, 131 Stat. 57.
71742(b)	51 U.S.C. 20301 note.	Pub. L. 115–10, title VII, § 702(b), Mar. 21, 2017, 131 Stat. 57.
71742(c)	51 U.S.C. 20301 note.	Pub. L. 115–10, title VII, § 702(c), Mar. 21, 2017, 131 Stat. 57.
71742(d)	51 U.S.C. 20301 note.	Pub. L. 115–10, title VII, § 702(d), Mar. 21, 2017, 131 Stat. 57.

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71742(e)	51 U.S.C. 20301 note.	Pub. L. 115–10, title VII, § 702(e), Mar. 21, 2017, 131 Stat. 57.
71742(f)	51 U.S.C. 20301 note.	Pub. L. 115–10, title VII, § 702(f)(1), Mar. 21, 2017, 131 Stat. 57.
71742(g)	51 U.S.C. 20301 note.	Pub. L. 115–10, title VII, § 702(h), Mar. 21, 2017, 131 Stat. 58.

In subsection (e), the word "the" is inserted in the phrase "missions conducted by [the] Program" to correct an error in the law.

In subsection (f)(2), the word "of" is inserted in the phrase "the results [of] the projects, programs, and activities" to correct an error in the law.

SUBCHAPTER V—MAXIMIZING EFFICIENCY

PART A—ADMINISTRATION INFORMATION TECHNOLOGY AND CYBERSECURITY

SECTION 71751

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71751	51 U.S.C. 20111 note.	Pub. L. 115–10, title VIII, § 811(a), Mar. 21, 2017, 131 Stat. 58.

In paragraph (4), the words "Administration and mission needs" are substituted for "agency and mission needs", and the words "Administration-wide" are substituted for "agency-wide", for clarity and consistency in title 51, United States Code.

SECTION 71752

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71752	51 U.S.C. 20111 note.	Pub. L. 115–10, title VIII, § 812, Mar. 21, 2017, 131 Stat. 59.

In subsection (c)(2), the word "of" is omitted from the phrase "the Administration will submit to Congress of [sic] a list" to correct an error in the law.

In subsection (c)(3), the words "Administration-wide" are substituted for "agency-wide" for clarity and consistency in title 51, United States Code.

In subsection (c)(4), the word "Administration" is substituted for "agency" for clarity and consistency in title 51, United States Code.

In subsection (c)(6), the words "Administration information" are substituted for "agency information", and the words "Administration information systems" are substituted for "agency information systems", for clarity and consistency in title 51, United States Code.

SECTION 71753

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71753	51 U.S.C. 20111 note.	Pub. L. 115–10, title VIII, § 813(b), Mar. 21, 2017, 131 Stat. 60.

In subsection (b), and in subsection (d)(2), the words "Administration-wide" are substituted for "agency-wide" for clarity and consistency in title 51, United States Code.

In subsection (d), in paragraphs (4) and (5), the word "Administration" is substituted for "agency" for clarity and consistency in title 51, United States Code.

PART B—COLLABORATION AMONG MISSION DIRECTORATES AND OTHER MATTERS

SECTION 71761

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71761	51 U.S.C. 20111 note.	Pub. L. 115–10, title VIII, § 821, Mar. 21, 2017, 131 Stat. 61.

SECTION 71762

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71762	51 U.S.C. 50131 note.	Pub. L. 115–10, title VIII, § 822(c), Mar. 21, 2017, 131 Stat. 62.

SECTION 71763

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71763	51 U.S.C. note prec. 40901.	Pub. L. 115–10, title VIII, § 824(b)(1), Mar. 21, 2017, 131 Stat. 64.

SECTION 71764

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71764	51 U.S.C. 50131 note.	Pub. L. 115–10, title VIII, § 825(c), Mar. 21, 2017, 131 Stat. 65.

SECTION 71765

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71765	51 U.S.C. 70102 note.	Pub. L. 115–10, title VIII, § 826, Mar. 21, 2017, 131 Stat. 65.

SECTION 71766

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
71766(a)	51 U.S.C. 20113 note.	Pub. L. 115–10, title VIII, § 841(b), Mar. 21, 2017, 131 Stat. 72.
71766(b)	51 U.S.C. 20113 note.	Pub. L. 115–10, title VIII, § 841(c), Mar. 21, 2017, 131 Stat. 72.
71766(c)	51 U.S.C. 20113 note.	Pub. L. 115–10, title VIII, § 841(d), Mar. 21, 2017, 131 Stat. 72.
71766(d)	51 U.S.C. 20113 note.	Pub. L. 115–10, title VIII, § 841(e), Mar. 21, 2017, 131 Stat. 72.

In subsection (c), the words "Administration objectives" are substituted for "agency objectives" for clarity and consistency in title 51, United States Code.

Section 3(bb)

Section 3(bb) of the bill amends several sections of title 51, United States Code, and several statutory provisions set out as notes in title 51, United States Code, to update the name of the Committee on Science, Space, and Technology on authority of rule X(1)(p) of the Rules of the House of Representatives, adopted by House Resolution No. 5 (112th Congress, January 5, 2011).

Section 4—Technical Amendments

Section 4 of the bill amends certain provisions of law to update statutory references and correct technical errors.

Section 5—Transitional and Savings Provisions

Section 5 of the bill contains transitional and savings provisions.

Section 6—Repeals

Section 6 of the bill repeals provisions replaced by the bill, along with unnecessary and obsolete provisions (see "Disposition Table" above).

Changes in Existing Law Made by the Bill

Set out below is a comparative print showing changes in existing law made by the bill. Insertions are shown in italic and omissions are surrounded by brackets.

Changes in Existing Law Made by Section 3(a) through (aa) of the Bill (Amending Title 51, United States Code)

TITLE 51—UNITED STATES CODE

* * * * * * *

Subtitle III—Administrative Provisions

[301. Appropriations, Budgets, and Accounting 30101]
301. Funding 30101

* * * * * * *

[315. Miscellaneous 31501]
315. Facilities and Infrastructure 31501
317. Through 397 Reserved
399. Miscellaneous 39901

Subtitle IV—Aeronautics and Space Research and Education

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[409. Miscellaneous 40901]
409. Aeronautics and Space Technology 40901
411 Through 497 Reserved
499. Miscellaneous 49901

Subtitle V—Programs Targeting Commercial Opportunities

* * * * * * *

[513. Space resource commercial exploration and utilization 51301]
[515. Office of Spaceports 51501]
513. Space Resource Commercial Exploration and Utilization 51301
515. Office of Spaceports 51501
517. Development and Use of Commercial Cargo and Crew Transportation Capabilities 51701

* * * * * * *

Subtitle VII—Access to Space

[701. Use of Space Shuttle or Alternatives 70101]
701. Use of Space Launch System or Alternatives 70101

* * * * * *

715. Human Space Flight and Exploration 71501
717. Advancing Human Space Exploration 71701

* * * * * * *

§ 20144. Prize authority

(a) IN GENERAL.—The Administration may carry out a program to competitively award cash prizes to stimulate innovation in basic and applied research, technology development, and prototype demonstration that have the potential for application to the performance of the space and aeronautical activities of the Administration. [The Administration may carry out a program to award prizes only in conformity with this section.]

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(i) FUNDING.—

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(4) NOTICE TO COMMITTEES FOR PRIZE GREATER THAN $50,000,000.—No prize competition under this section may offer a prize in an amount greater than $50,000,000 unless 30 days have elapsed after written notice has been transmitted to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

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§ 20145. Lease of non-excess property

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(f) PROCEEDS.—Proceeds from leases entered into under this section shall be deposited in the Administration construction and environmental compliance and restoration appropriations account. The proceeds shall be available for a period of 5 years, to the extent and in amounts provided in appropriations acts.

[(f)] *(g)* REPORTING REQUIREMENTS.—The Administrator shall submit an annual report by January 31st of each year. The report shall include the following:

(1) VALUE OF ARRANGEMENTS AND EXPENDITURES OF REVENUES.—Information that identifies and quantifies the value of the arrangements and expenditures of revenues received under this section.

(2) AVAILABILITY AND USE OF FUNDS FOR OPERATING PLAN.—The availability and use of funds received under this section for the Administration's operating plan.

[(g)**]** *(h)* SUNSET.—The authority to enter into leases under this section shall expire 10 years after December 26, 2007. The expiration under this subsection of authority to enter into leases under this section shall not affect the validity or term of leases or the Administration's retention of proceeds from leases entered into under this section before the expiration of the authority.

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§ 20303. Contribution to innovation

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(c) BALANCED SCIENCE PROGRAM AND ROBUST AUTHORIZATION LEVELS.—The balanced science program authorized by section 101(d) of the National Aeronautics and Space Administration Authorization Act of 2005 **[**(42 U.S.C. 16611(d))**]** *(Public Law 109–155, 119 Stat. 2900)* shall be an element of the contribution by the Administration to the interagency programs.

(d) EVALUATION AND EXPANSION OF INTERAGENCY CONTRIBUTION.—

(1) IN GENERAL.—The Administrator shall evaluate and, to the extent possible—

(A) expand efforts to maximize the Administration's contribution to interagency efforts to enhance science, technology, engineering, and mathematics education capabilities; and

(B) enhance the Nation's technological excellence and global competitiveness.

(2) IDENTIFICATION IN REPORT.—The Administrator shall identify the expanded efforts and enhancements made under paragraph (1) in the annual reports required by subsection (e).

[(d)**]** *(e)* ANNUAL REPORT.—

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CHAPTER 301—[APPROPRIATIONS, BUDGETS, AND ACCOUNTING] *FUNDING*

[Sec.**]**
[30101. Prior authorization of appropriations required.**]**
[30102. Working capital fund.**]**
[30103. Budgets.**]**
[30104. Baselines and cost controls.**]**

Subchapter I—General Provisions

Sec.
30101. Prior authorization of appropriations required.
30102. Working capital fund.
30103. Baselines and cost controls.
30104. Reports on estimated costs for certain programs.
30105. Annual report on program cost and control.

Subchapter II—Budget Provisions

30121. General budget documentation requirements.
30122. Consideration of decadal surveys.
30123. Two-year budget request with 3d-year estimate.

Subchapter I—General Provisions

§ 30101. Prior authorization of appropriations required

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§ [30104] *30103*. Baselines and cost controls

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(b) CONDITIONS FOR DEVELOPMENT.—

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(2) REPORT.—The Administrator shall transmit a report describing the basis for the determination required under paragraph (1) to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate at least 30 days before entering into a contract for development under a major program.

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(c) MAJOR PROGRAM ANNUAL REPORTS.—

(1) REQUIREMENT.—Annually, at the same time as the President's annual budget submission to Congress, the Administrator shall transmit to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that includes the information required by this section for each major program for which the Administration proposes to expend funds in the subsequent fiscal year. Reports under this paragraph shall be known as Major Program Annual Reports.

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(d) NOTIFICATION.—

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(3) NOTIFICATION OF CONGRESS.—Not later than 15 days after the Administrator receives a written notification under paragraph (2), the Administrator shall transmit the notification to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(e) FIFTEEN PERCENT THRESHOLD.—

(1) DETERMINATION, REPORT, AND INITIATION OF ANALYSIS.—

* * * * * * *

(A) transmit to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, not later

than 15 days after making the determination, a report that includes—

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(2) COMPLETION OF ANALYSIS AND TRANSMITTAL TO COMMITTEES.—The Administration shall complete an analysis initiated under paragraph (1)(B) not later than 6 months after the Administrator makes a determination under this subsection. The Administrator shall transmit the analysis to the **[**Committee on Science and Technology**]** *Committee on Science, Space, and Technology* of the House of Representatives and Committee on Commerce, Science, and Transportation of the Senate not later than 30 days after its completion.

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§ 30104. Reports on estimated costs for certain programs

For each program under the jurisdiction of the Administration for which development costs are expected to exceed $200,000,000, the Administrator shall submit to Congress, at the time of submission of the President's annual budget—

(1) a 5-year budget detailing the estimated development costs of the program; and

(2) an estimate of the life-cycle costs associated with the program.

§ 30105. Annual report on program cost and control

(a) ANNUAL REPORT.—Not later than April 30 of each year, the Administrator shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report on the implementation during the preceding year of the corrective action plan referred to in section 1203(a)(4) of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267).

(b) CONTENTS.—A report under this section shall contain the following:

(1) DESCRIPTION OF OVER-BUDGET OR DELAYED PROGRAMS.—For the year covered by the report, a description of each Administration program that has exceeded its cost baseline by 15 percent or more or is more than 2 years behind its projected development schedule.

(2) CORRECTIVE PLANS.—For each program described under paragraph (1), a plan for a decrease in scope or requirements, or other measures, to be undertaken to control cost and schedule, including any cost monitoring or corrective actions undertaken pursuant to the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155), and the amendments made by that Act.

Subchapter II—Budget Provisions

§ [30103] *30121.* [Budgets] *General budget documentation requirements*

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(b) ADDITIONAL BUDGET INFORMATION UPON REQUEST BY COMMITTEES.—The Administration shall make available, upon request from the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives or the Committee on Commerce, Science, and Transportation of the Senate—

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§ 30122. Consideration of decadal surveys

The Administration shall take into account the current decadal surveys from the National Academies' Space Studies Board when submitting the President's budget request to Congress.

§ 30123. Two-year budget request with 3d-year estimate

Each fiscal year, the President shall submit to Congress a budget request for the Administration that includes—

(1) a budget request for the immediate fiscal year and the following fiscal year; and

(2) budget estimates for the 3d fiscal year.

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CHAPTER 303—CONTRACTING AND PROCUREMENT

Sec.

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30311. Counterfeit parts.

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§ 30310. Exception to alternative fuel procurement requirement

[Section 526(a) of the Energy Independence and Security Act of 2007 (42 U.S.C. 17142(a))] *Section 526 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17142)* does not prohibit the Administration from entering into a contract to purchase a generally available fuel that is not an alternative or synthetic fuel or predominantly produced from a nonconventional petroleum source, if—

* * * * * * *

§ 30311. Counterfeit parts

(a) IN GENERAL.—The Administrator shall plan, develop, and implement a program, in coordination with other Federal agencies, to detect, track, catalog, and reduce the number of counterfeit electronic parts in the Administration supply chain.

(b) REQUIREMENTS.—In carrying out the program, the Administrator shall establish—

(1) counterfeit part identification training for all employees who procure, process, distribute, and install electronic parts that will—

(A) teach employees how to identify counterfeit parts;

(B) educate employees on procedures to follow if they suspect a part is counterfeit;

(C) regularly update employees on new threats, identification techniques, and reporting requirements; and

(D) integrate industry associations, manufacturers, suppliers, and other Federal agencies, as appropriate;

(2) an internal database to track all suspected and confirmed counterfeit electronic parts that will maintain, at a minimum—

(A) companies and individuals known and suspected of selling counterfeit parts;

(B) parts known and suspected of being counterfeit, including lot and date codes, part numbers, and part images;

(C) countries of origin;

(D) sources of reporting;

(E) United States Customs seizures; and

(F) Government-Industry Data Exchange Program reports and other public- or private-sector database notifications; and

(3) a mechanism—

(A) to report all information on suspected and confirmed counterfeit electronic parts to law enforcement agency databases, industry association databases, and other databases; and

(B) to issue bulletins to industry on counterfeit electronic parts and related counterfeit activity.

(c) REVIEW OF PROCUREMENT AND ACQUISITION POLICY.—

(1) IN GENERAL.—In establishing the program, the Administrator shall amend acquisition and procurement policy in effect on October 11, 2010, to require the purchase of electronic parts from trusted or approved manufacturers. To determine trusted or approved manufacturers, the Administrator shall establish a list, assessed and adjusted at least annually, and create criteria for manufacturers to meet in order to be placed on the list.

(2) CRITERIA.—The criteria may include—

(A) authentication or encryption codes;

(B) embedded security markings in parts;

(C) unique, hard-to-copy labels and markings;

(D) identification of distinct lot and serial codes on external packaging;

(E) radio frequency identification embedded into high-value parts;

(F) physical destruction of all defective, damaged, and sub-standard parts that are by-products of the manufacturing process;

(G) testing certifications;

(H) maintenance of procedures for handling any counterfeit parts that slip through;

(I) maintenance of secure facilities to prevent unauthorized access to proprietary information; and

(J) maintenance of product return, buy back, and inventory control practices that limit counterfeiting.

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CHAPTER 305—MANAGEMENT AND REVIEW

Sec.

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30505. Information security.
30506. Workforce development for minority and underrepresented groups.

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§ 30505. Information security

(a) DEFINITION OF INFORMATION INFRASTRUCTURE.—In this section, the term "information infrastructure" means the underlying framework that information systems and assets rely on to process, transmit, receive, or store information electronically, including programmable electronic devices and communications networks and any associated hardware, software, or data.

(b) MONITORING RISK.—

(1) BIENNIAL UPDATE ON SYSTEM IMPLEMENTATION.—On a biennial basis, the chief information officer of the Administration, in coordination with other national security agencies, shall provide to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives—

(A) an update on efforts to implement a system to provide dynamic, comprehensive, real-time information regarding risk of unauthorized remote, proximity, and insider use or access, for all information infrastructure under the responsibility of the chief information officer, and mission-related networks, including contractor networks;

(B) an assessment of whether the system has demonstrably and quantifiably reduced network risk compared with alternative methods of measuring security; and

(C) an assessment of the progress that each center and facility has made toward implementing the system.

(2) EXISTING ASSESSMENTS.—The assessments required of the Inspector General under section 3555 of title 44 shall evaluate the effectiveness of the system described in this subsection.

(c) INFORMATION SECURITY AWARENESS AND EDUCATION.—

(1) IN GENERAL.—In consultation with the Department of Education, other national security agencies, and other agency directorates, the chief information officer shall institute an information security awareness and education program for all operators and users of Administration information infrastructure, with the goal of reducing unauthorized remote, proximity, and insider use or access.

(2) PROGRAM REQUIREMENT.—

(A) BRIEFINGS, EXERCISES, AND EXAMINATIONS.—The program shall include, at a minimum, ongoing classified and unclassified threat-based briefings, and automated exercises and examinations that simulate common attack techniques.

(B) PARTICIPATION.—All agency employees and contractors engaged in the operation or use of agency information infrastructure shall participate in the program.

(C) ACCESS.—Access to Administration information infrastructure shall be granted only to operators and users who regularly satisfy the requirements of the program.

(D) REWARDING ACHIEVEMENT.—The chief human capital officer of the Administration, in consultation with the chief information officer, shall create a system to reward operators and users of agency information infrastructure for continuous high achievement in the program.

§ 30506. Workforce development for minority and underrepresented groups

(a) ADDRESSING IMPEDIMENTS.—To the extent practicable, the Administrator shall take all necessary steps to address any impediments identified in the assessment described in subsection (b).

(b) ASSESSMENT.—The assessment referred to in subsection (a) is the independent assessment of impediments to space science and engineering workforce development for minority and underrepresented groups at the Administration that was prepared under section 203(a) of the America Competes Reauthorization Act of 2010 (Public Law 111–358, 124 Stat. 3994).

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CHAPTER 307—INTERNATIONAL COOPERATION AND COMPETITION

Sec.

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30705. Limitation on international agreements concerning outer space activities.

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§ 30704. Offshore performance of contracts for the procurement of goods and services

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(2) the items and their dollar values for which **[**the Buy American Act (41 U.S.C. 10a et seq.)**]** *chapter 83 of title 41* was waived pursuant to obligations of the United States under international agreements.

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§ 30705. Limitation on international agreements concerning outer space activities

(a) DEFINITIONS.—In this section:

(1) CONGRESSIONAL DEFENSE COMMITTEES.—The term "congressional defense committees" means—

(A) the Committee on Armed Services and the Committee on Appropriations of the Senate; and

(B) the Committee on Armed Services and the Committee on Appropriations of the House of Representatives.

(2) COVERED CONGRESSIONAL COMMITTEES.—The term "covered congressional committees" means—

(A) the Committee on Armed Services, the Committee on Foreign Relations, and the Select Committee on Intelligence of the Senate; and

(B) the Committee on Armed Services, the Committee on Foreign Affairs, and the Permanent Select Committee on Intelligence of the House of Representatives.

(b) CERTIFICATION.—If the United States becomes a signatory to a non-legally binding international agreement concerning an International Code of Conduct for Outer Space Activities or any similar agreement, at the same time as the United States becomes a signatory—

(1) the President shall submit to the congressional defense committees, the Permanent Select Committee on Intelligence of the House of Representatives, and the Select Committee on Intelligence of the Senate a certification that the agreement has no legally binding effect or basis for limiting the activities of the United States in outer space; and

(2) the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and the Director of National Intelligence shall jointly submit to the congressional defense committees a certification that the agreement will be equitable, enhance national security, and have no militarily significant impact on the ability of the United States to conduct military or intelligence activities in space.

(c) BRIEFINGS AND NOTIFICATIONS REQUIRED.—

(1) RESTATEMENT OF POLICY FORMULATION UNDER THE ARMS CONTROL AND DISARMAMENT ACT WITH RESPECT TO OUTER SPACE.—No action may be taken that would obligate the United States to reduce or limit the Armed Forces or armaments of the United States in outer space in a militarily significant manner, except pursuant to the treaty-making power of the President under Article II, Section 2, Clause II of the Constitution or unless authorized by the enactment of further affirmative legislation by Congress.

(2) BRIEFINGS.—

(A) REQUIREMENT.—The Secretary of Defense, the Secretary of State, and the Director of National Intelligence shall jointly provide to the covered congressional committees regular, detailed updates on the negotiation of a non-legally binding international agreement concerning an International Code of Conduct for Outer Space Activities or any similar agreement.

(B) TERMINATION OF REQUIREMENT.—The requirement to provide regular briefings under subparagraph (A) shall terminate on the date on which the United States becomes a signatory to an agreement referred to in subparagraph (A), or on the date on which the President certifies to Congress that the United States is no longer negotiating an agreement referred to in subparagraph (A), whichever is earlier.

(3) NOTIFICATIONS.—If the United States becomes a signatory to a non-legally binding international agreement concerning an International Code of Conduct for Outer Space Activities or any similar agreement, not less than 60 days prior to any action that would obligate the United States to reduce or limit the Armed Forces, armaments, or activities of the United States in outer space, the head of each Department or agency of the Federal Government that would be affected by the action shall sub-

mit to Congress a notice of the action and its effect on the Department or agency.

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CHAPTER 313—HEALTHCARE

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§ 31302. Astronaut healthcare survey

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(b) REPORT.—The Administrator shall transmit a report of the results of the survey to Congress not later than 90 days following completion of the survey.

CHAPTER 315—FACILITIES AND INFRASTRUCTURE

Sec.
31501. Policy and plan.
31502. Maintenance and upgrade of center facilities.

§ 31501. Policy and plan

(a) POLICY.—It is the policy of the United States that the Administration maintain reliable and efficient facilities and infrastructure and that decisions on whether to dispose of, maintain, or modernize existing facilities or infrastructure be made in the context of meeting future Administration needs.

(b) Plan.—

(1) IN GENERAL.—The Administrator shall develop a facilities and infrastructure plan.

(2) GOAL.—The goal of the plan is to position the Administration to have the facilities and infrastructure, including laboratories, tools, and approaches, necessary to meet future Administration and other Federal agencies' laboratory needs.

(3) CONTENTS.—The plan shall identify—

(A) current Administration and other Federal agency laboratory needs;

(B) future Administration research and development and testing needs;

(C) a strategy for identifying facilities and infrastructure that are candidates for disposal, that is consistent with the national strategic direction set forth in—

(i) the National Space Policy;

(ii) the National Aeronautics Research, Development, Test, and Evaluation Infrastructure Plan;

(iii) the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155, 119 Stat. 2895), the National Aeronautics and Space Administration Authorization Act of 2008 (Public Law 110–422, 122 Stat. 4779), and the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2805); and

(iv) the human exploration roadmap under section 71721 of this title;

(D) a strategy for the maintenance, repair, upgrading, and modernization of Administration facilities and infrastructure, including laboratories and equipment;

(E) criteria for—

(i) prioritizing deferred maintenance tasks;

(ii) maintaining, repairing, upgrading, or modernizing Administration facilities and infrastructure; and

(iii) implementing processes, plans, and policies for guiding the Administration's centers on whether to maintain, repair, upgrade, or modernize a facility or infrastructure and for determining the type of instrument to be used;

(F) an assessment of modifications needed to maximize usage of facilities that offer unique and highly specialized benefits to the aerospace industry and the American public; and

(G) implementation steps, including a timeline, milestones, and an estimate of resources required for carrying out the plan.

(c) REQUIREMENT TO ESTABLISH POLICY.—

(1) IN GENERAL.—Not later than 180 days after March 21, 2017, the Administrator shall establish and make publicly available a policy that guides the Administration's use of existing authorities to out-grant, lease, excess to the General Services Administration, sell, decommission, demolish, or otherwise transfer property, facilities, or infrastructure.

(2) CRITERIA.—The policy shall include criteria for the use of authorities, best practices, standardized procedures, and guidelines for how to appropriately manage property, facilities, and infrastructure.

(d) SUBMISSION TO CONGRESS.—Not later than 1 year after March 21, 2017, the Administrator shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives the plan developed under subsection (b).

§ 31502. [Maintenance of facilities] *Maintenance and upgrade of center facilities*

In order to sustain healthy centers that are capable of carrying out the Administration's missions, the Administrator shall ensure that adequate maintenance and upgrading of those center facilities is performed on a regular basis.

CHAPTERS 317 THROUGH 397—RESERVED

CHAPTER [315] *399*—MISCELLANEOUS

Sec.
[31501] *39901.* Orbital debris.
[31502. Maintenance of facilities.]
[31503] *39902.* Laboratory productivity.
[31504] *39903.* Cooperative unmanned aerial vehicle activities.
[31505] *39904.* Development of enhanced-use lease policy.

§ [31501] *39901*. Orbital debris

[The Administrator] (a) TECHNOLOGIES TO DECREASE RISK.—*The Administrator*, in conjunction with the heads of other Federal agencies, shall take steps to develop or acquire technologies that will enable the Administration to decrease the risks associated with orbital debris.

(b) INTERNATIONAL DISCUSSION.—

(1) IN GENERAL.—The Administrator shall, in consultation with such other departments and agencies of the Federal Government as the Administrator considers appropriate, continue and strengthen discussions with the representatives of other space-faring countries, within the Inter-Agency Space Debris Coordination Committee and elsewhere, to deal with orbital debris mitigation.

(2) INTERAGENCY EFFORT.—For purposes of carrying out this subsection, the Director of the Office of Science and Technology Policy, in coordination with the Director of the National Security Council and using the President's Council of Advisors on Science and Technology coordinating mechanism, shall develop an overall strategy for review by the President, with recommendations for proposed international collaborative efforts to address the challenge of orbital debris mitigation.

§ [31503] *39902*. Laboratory productivity

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§ [31504] *39903*. Cooperative unmanned aerial vehicle activities

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§ [31505] *39904*. Development of enhanced-use lease policy

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§ 40308. Space grant review panel

(a) ESTABLISHMENT.—The Administrator shall establish an independent committee known as the space grant review panel, which shall not be subject to the provisions of the Federal Advisory Committee Act [(5 App. U.S.C.)] *(5 U.S.C. App.)*.

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CHAPTER 409—AERONAUTICS AND SPACE TECHNOLOGY

Sec.
40901. Aeronautics research goals.
40902. Research collaboration.
40903. Goal for Administration space technology.
40904. National space technology policy.
40905. Commercial Reusable Suborbital Research Program.

§ 40901. Aeronautics research goals

The Administrator should ensure that the Administration maintains a strong aeronautics research portfolio ranging from funda-

mental research through systems research with specific research goals, including the following:

(1) AIRSPACE CAPACITY.—The Administration's Aeronautics Research Mission Directorate shall address research needs of the Next Generation Air Transportation System, including the ability of the National Airspace System to handle up to 3 times the current travel demand by 2025.

(2) ENVIRONMENTAL SUSTAINABILITY.—The Directorate shall—

(A) consider and pursue concepts to reduce noise, emissions, and fuel consumption while maintaining high safety standards; and

(B) pursue research relating to alternative fuels.

(3) AVIATION SAFETY.—The Directorate shall proactively address safety challenges with new and current air vehicles and with operations in the Nation's current and future air transportation system.

§ 40902. Research collaboration

(a) DEPARTMENT OF DEFENSE.—The Administrator shall continue to coordinate with the Secretary of Defense, through the National Partnership for Aeronautics Testing, to develop and implement joint plans for those elements of the Nation's research, development, testing, and engineering infrastructure that are of common interest and use.

(b) FEDERAL AVIATION ADMINISTRATION.—The Administrator shall continue to coordinate with, and work closely with, the Administrator of the Federal Aviation Administration, under the framework of the Senior Policy Council, in the development of the Next Generation Air Transportation Program. The Administrator shall encourage the Council to explore areas for greater collaboration, including areas in which the Administration can help to accelerate the development and demonstration of NextGen technologies.

§ 40903. Goal for Administration space technology

Building on its Innovative Partnerships Program and other partnering approaches, it is critical that the Administration maintain an Administration space technology base that helps align mission directorate investments and supports long term needs—

(1) to complement mission-directorate funded research; and

(2) where appropriate, to support multiple users.

§ 40904. National space technology policy

(a) IN GENERAL.—The President, in consultation with appropriate Federal agencies, shall develop a national policy to guide the space technology development programs of the United States through 2020. The policy shall include national goals for technology development and shall describe the role and responsibilities of each Federal agency that will carry out the policy. In developing the policy, the President shall utilize external studies that have been conducted on the state of United States technology development and have suggested policies to ensure continued competitiveness.

(b) CONTENT.—At a minimum, the national space technology development policy shall describe for the Administration—

(1) the priority areas of research for technology investment;

(2) the basis on which and the process by which priorities for ensuing fiscal years will be selected;

(3) the facilities and personnel needed to carry out the technology development program; and

(4) the budget assumptions on which the policy is based, which for fiscal years 2011, 2012, and 2013 shall be the authorized level for the Administration's technology program authorized by the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2805).

(c) POLICY PREMISE.—The policy shall be based on the premise that the Federal Government has an established interest in conducting research and development programs that help preserve the role of the United States as a global leader in space technologies and their application.

(d) CONSIDERATIONS.—In developing the national space technology development policy, the President shall consider the following issues:

(1) LONG TERM AND INCREMENTAL DEVELOPMENT.—The extent to which the Administration should focus on long term, high-risk research or more incremental technology development, and the expected impact of that decision on the United States economy.

(2) MILITARY AND COMMERCIAL NEEDS.—The extent to which the Administration should address military and commercial needs.

(3) COORDINATION WITH FEDERAL AGENCIES.—How the Administration will coordinate its technology program with other Federal agencies.

(4) ADMINISTRATION, UNIVERSITY, AND INDUSTRY RESEARCH.—The extent to which the Administration will conduct research in-house, fund university research, and collaborate on industry research and the expected impact of that mix of funding on the supply of United States workers for industry.

(e) CONSULTATION.—In the development of the national space technology development policy, the President shall consult widely with academic and industry experts and with Federal agencies. The Administrator may enter into an arrangement with the National Academy of Sciences to help develop the policy.

§ 40905. Commercial Reusable Suborbital Research Program

(a) FINDING THAT SUBORBITAL SCIENCE MISSIONS ARE CRITICAL.—The report entitled Revitalizing NASA's Suborbital Program: Advancing Science, Driving Innovation, and Developing a Workforce (prepared by the Committee on NASA's Suborbital Research Capabilities, Space Studies Board, Division on Engineering and Physical Sciences, National Research Council of the National Academies) found that suborbital science missions are absolutely critical to building an aerospace workforce capable of meeting the needs of current and future human and robotic space exploration.

(b) ESTABLISHMENT.—The Administrator shall establish a Commercial Reusable Suborbital Research Program within the Space Technology Program.

(c) MANAGEMENT.—The Administrator shall designate an officer or employee of the Space Technology Program to act as the responsible official for the Commercial Reusable Suborbital Research Pro-

gram. The designee shall be responsible for the development of short- and long-term strategic plans for maintaining, renewing, and extending suborbital facilities and capabilities.

(d) ACTIVITIES.—The Commercial Reusable Suborbital Research Program—

(1) shall fund the development of payloads for scientific research, technology development, and education;

(2) shall provide flight opportunities to microgravity environments and suborbital altitudes for the payloads referred to in paragraph (1);

(3) may fund engineering and integration demonstrations, proofs of concept, or educational experiments for commercial reusable vehicle flights; and

(4) shall endeavor to work with the Administration's mission directorates to help achieve the Administration's research, technology, and education goals.

(e) REPORT.—The Administrator shall annually submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report describing progress in carrying out the Commercial Reusable Suborbital Research program, including the number and type of suborbital missions planned in each fiscal year.

(f) AUTHORIZATION.—There is authorized to be appropriated to the Administrator $15,000,000 for each of fiscal years 2011 through 2013 to carry out this section.

CHAPTERS 411 THROUGH 497—RESERVED

CHAPTER [409] *499*—MISCELLANEOUS

Sec.
[40901] *49901.* Science, Space, and Technology Education Trust Fund.
[40902] *49902.* National Aeronautics and Space Administration Endeavor Teacher Fellowship Trust Fund.
[40903] *49903.* Experimental Program to Stimulate Competitive Research-merit grant competition requirements.
[40904] *49904.* Microgravity research.
[40905] *49905.* Program to expand distance learning in rural underserved areas.
[40906] *49906.* Equal access to the Administration's education programs.
[40907] *49907.* Museums.
[40908] *49908.* Continuation of certain education programs.
[40909] *49909.* Compliance with title IX of Education Amendments of 1972.
49910. Programs to support STEM education.
49911. Supporting women's involvement in the fields of aerospace and space exploration.
49912. Internship and fellowship opportunities.

§ [40901] *49901.* Science, Space, and Technology Education Trust Fund

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§ [40902] *49902.* National Aeronautics and Space Administration Endeavor Teacher Fellowship Trust Fund

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§ [40903] *49903*. Experimental Program to Stimulate Competitive Research-merit grant competition requirements

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§ [40904] *49904*. Microgravity research

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§ [40905] *49905*. Program to expand distance learning in rural underserved areas

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§ [40906] *49906*. Equal access to the Administration's education programs

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§ [40907] *49907*. Museums

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§ [40908] *49908*. Continuation of certain education programs

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§ [40909] *49909*. Compliance with title IX of Education Amendments of 1972

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§ 49910. Programs to support STEM education

(a) DEFINITION OF STEM.—In this section, the term "STEM" means the academic and professional disciplines of science, technology, engineering, and mathematics.

(b) EDUCATIONAL PROGRAM GOALS.—The Administration shall develop and maintain educational programs to—

(1) carry out and support research-based programs and activities designed to increase student interest and participation in STEM, including students from minority and underrepresented groups;

(2) improve public literacy in STEM;

(3) employ proven strategies and methods for improving student learning and teaching in STEM;

(4) provide curriculum support materials and other resources that—

(A) are designed to be integrated with comprehensive STEM education;

(B) are aligned with national science education standards; and

(C) promote the adoption and implementation of high-quality education practices that build toward college and career-readiness; and

(5) create and support opportunities for enhanced and ongoing professional development for teachers using best practices that improve the STEM content and knowledge of the teachers, including through programs linking STEM teachers with STEM educators at the higher education level.

(c) CYBERSECURITY IN STEM PROGRAMS.—In carrying out any STEM education program of the Administration, including a program of the Office of STEM Engagement, the Administrator shall, to the maximum extent practicable, encourage the inclusion of cybersecurity education opportunities in the program.

§ 49911. Supporting women's involvement in the fields of aerospace and space exploration

The Administrator shall encourage women and girls to study science, technology, engineering, and mathematics, pursue careers in aerospace, and further advance the Nation's space science and exploration efforts through support of the following initiatives:

(1) NASA GIRLS and NASA BOYS.

(2) Aspire to Inspire.

(3) Summer Institute in Science, Technology, Engineering, and Research.

§ 49912. Internship and fellowship opportunities

Not later than October 1, 2018, the Administrator shall institute a process to encourage the recruitment of qualified candidates who are women or individuals who are underrepresented in the fields of science, technology, engineering, and mathematics (STEM) and computer science for internships and fellowships at the Administration with relevance to the aerospace sector and related fields.

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§ 50905. License applications and requirements

(a) APPLICATIONS.—(1) A person may apply to the Secretary of Transportation for a license or transfer of a license under this chapter in the form and way the Secretary prescribes. Consistent with the public health and safety, safety of property, and national security and foreign policy interests of the United States, the Secretary, not later than 180 days after accepting an application in accordance with criteria established pursuant to subsection [(b)(2)(D)] *(b)(2)(E)*, shall issue or transfer a license if the Secretary decides in writing that the applicant complies, and will continue to comply, with this chapter and regulations prescribed under this chapter. The Secretary shall inform the applicant of any pending issue and action required to resolve the issue if the Secretary has not made a decision not later than 120 days after accepting an application in accordance with criteria established pursuant to subsection [(b)(2)(D)] *(b)(2)(E)*. The Secretary shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a written notice not later than 30 days after any occurrence when the Secretary has not taken action on a license application within the deadline established by this subsection.

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(b) REQUIREMENTS.—

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(4) The holder of a license or a permit under this chapter may launch or reenter crew only if—

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(B) the holder of the license or permit has informed any individual serving as crew in writing, prior to executing any contract or other arrangement to employ that individual (or, in the case of an individual already employed as of [the date of enactment of the Commercial Space Launch Amendments Act of 2004] *December 23, 2004*, as early as possible, but in any event prior to any launch in which the individual will participate as crew), that the United States Government has not certified the launch vehicle as safe for carrying crew or space flight participants; and

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(6)(A) The Secretary may issue regulations requiring space flight participants to undergo an appropriate physical examination prior to a launch or reentry under this chapter. This subparagraph shall cease to be in effect three years after **[**the date of enactment of the Commercial Space Launch Amendments Act of 2004**]** *December 23, 2004*.

(B) The Secretary may issue additional regulations setting reasonable requirements for space flight participants, including medical and training requirements. Such regulations shall not be effective before the expiration of 3 years after **[**the date of enactment of the Commercial Space Launch Amendments Act of 2004**]** *December 23, 2004*.

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§ 50922. Regulations

(a) IN GENERAL.—The Secretary of Transportation, within 9 months after **[**the date of the enactment of this section,**]** *October 28, 1998*, shall issue regulations to carry out this chapter that include—

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(b) REENTRY.—The Secretary of Transportation, within 6 months after **[**the date of the enactment of this section,**]** *October 28, 1998*, shall issue a notice of proposed rulemaking to carry out this chapter that includes—

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(c) AMENDMENTS.—(1) Not later than 12 months after **[**the date of enactment of the Commercial Space Launch Amendments Act of 2004,**]** *December 23, 2004*, the Secretary shall publish proposed regulations to carry out **[**that Act,**]** *the Commercial Space Launch Amendments Act of 2004*, including regulations relating to crew, space flight participants, and permits for launch or reentry of reusable suborbital rockets. Not later than 18 months after **[**such date of enactment,**]** *December 23, 2004*, the Secretary shall issue final regulations.

(2)(A) Starting 3 years after **[**the date of enactment of the Commercial Space Launch Amendments Act of 2004,**]** *December 23, 2004*, the Secretary may issue final regulations chang-

ing the definition of suborbital rocket under this chapter. No such regulation may take effect until 180 days after the Secretary has submitted the regulation to the Congress.

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(d) EFFECTIVE DATE.—

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(2) As soon as practicable after [the date of enactment of the Commercial Space Launch Amendments Act of 2004,] *December 23, 2004,* the Secretary shall issue guidelines or advisory circulars to guide the implementation of [that Act] *the Commercial Space Launch Amendments Act of 2004* until regulations are issued.

(3) Notwithstanding paragraphs (1) and (2), no licenses for the launch or reentry of launch vehicles or reentry vehicles with human beings on board or permits may be issued starting three years after [the date of enactment of the Commercial Space Launch Amendments Act of 2004] *December 23, 2004,* unless the final regulations described in subsection (c) have been issued.

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CHAPTER 515—OFFICE OF SPACEPORTS

Sec.
51501. Establishment of Office of Spaceports.

§ 51501. Establishment of Office of Spaceports

[(e) DEFINITION] *(a) DEFINITION OF SPACEPORT.*—In this section, the term "spaceport" means a launch or reentry site that is operated by an entity licensed by the Secretary of Transportation.

[(a)] *(b) ESTABLISHMENT OF OFFICE.*—Not later than 90 days after [the date of enactment of this section,] *October 5, 2018,* the Secretary of Transportation shall identify, within the Office of Commercial Space Transportation, a centralized policy office to be known as the Office of Spaceports.

[(b)] *(c) FUNCTIONS.*—The Office of Spaceports shall—

(1) support licensing activities for operation of launch and reentry sites;

(2) develop policies that promote infrastructure improvements at spaceports;

(3) provide technical assistance and guidance to spaceports;

(4) promote United States spaceports within the Department; and

(5) strengthen the Nation's competitiveness in commercial space transportation infrastructure and increase resilience for the Federal Government and commercial customers.

[(c)] *(d) RECOGNITION.*—In carrying out the [functions assigned in subsection (b),] *functions assigned in subsection (c),* the Secretary shall recognize the unique needs and distinctions of spaceports that [host]—

(1) host launches to or reentries from orbit; and

(2) are involved in suborbital launch activities.

[(d)]*(e) DIRECTOR.*—The head of the Office of the Associate Administrator for Commercial Space Transportation shall designate a Director of the Office of Spaceports.

CHAPTER 517—DEVELOPMENT AND USE OF COMMERCIAL CARGO AND CREW TRANSPORTATION CAPABILITIES

Sec.
51701. Commercial development of cargo transportation capabilities.
51702. Commercial development of crew transportation capabilities.
51703. Commercial Crew Program.
51704. Policy regarding fair and open competition for space transportation services.
51705. Transparency.

§ 51701. Commercial development of cargo transportation capabilities

The Administrator shall continue to support the existing Commercial Resupply Services program, aimed at enabling the commercial space industry in support of the Administration to develop reliable means of launching cargo and supplies to the International Space Station throughout the duration of the facility's operation. The Administrator may apply funds toward the reduction of risk to the timely start of the services, specifically—

(1) efforts to conduct a flight test;

(2) the acceleration of development; and

(3) the development of the ground infrastructure needed for commercial cargo capability.

§ 51702. Commercial development of crew transportation capabilities

For the duration of the commercial crew development program, the Administrator may support follow-on commercially developed crew transportation systems dependent on the completion of each of the following:

(1) HUMAN RATING REQUIREMENTS.—The Administrator shall develop and make available to the public detailed human rating processes and requirements to guide the design of commercially developed crew transportation capabilities, which requirements shall be at least equivalent to proven requirements for crew transportation in use as of October 11, 2010.

(2) PROCUREMENT SYSTEM REVIEW.—

(A) REVIEW OF CURRENT PRACTICES AND PROCESSES.—The Administrator shall review current Government procurement and acquisition practices and processes, including agreement authorities under chapter 201 of this title, to determine the most cost-effective means of procuring commercial crew transportation capabilities and related services in a manner that ensures appropriate accountability, transparency, and maximum efficiency in the procurement of the capabilities and services. The review shall include identification of proposed measures to address—

(i) risk management and means of indemnification of commercial providers of the capabilities and services;

(ii) quality control;

(iii) safety oversight; and

(iv) the application of Federal oversight processes within the jurisdiction of other Federal agencies.

(B) REVIEW OF PROPOSED PROCUREMENT.—A description of the proposed procurement process and justification of the proposed procurement for its selection shall be included in any proposed initiation of procurement activity for commercially developed crew transportation capabilities and services and shall be subject to review by the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives before the initiation of any competitive process to procure the capabilities or services. In support of the review by the committees, the Comptroller General shall undertake an assessment of the proposed procurement process and provide a report to the committees not later than 90 days after the date on which the Administrator provides the description and justification to the committees.

(3) USE OF GOVERNMENT SUPPLIED CAPABILITIES AND INFRASTRUCTURE.—In evaluating any proposed development activity for commercially developed crew or cargo launch capabilities, the Administrator shall identify the anticipated contribution of Government personnel, expertise, technologies, and infrastructure to be utilized in support of design, development, or operations of the capabilities. This assessment shall include a clear delineation of the full requirements for the commercial crew service (including the contingency for crew rescue). The Administrator shall include details and associated costs of such support as part of any proposed development initiative for the procurement of commercially developed crew or cargo launch capabilities or services.

(4) FLIGHT DEMONSTRATION AND READINESS REQUIREMENTS.—The Administrator shall establish appropriate milestones and minimum performance objectives to be achieved before authority is granted to proceed to the procurement of commercially developed crew transportation capabilities or services. The guidelines shall include a procedure to provide independent assurance of flight safety and flight readiness before the authorization of United States government personnel to participate as crew onboard any commercial launch vehicle developed pursuant to this section.

(5) COMMERCIAL CREW RESCUE CAPABILITIES.—The provision of a commercial capability to provide International Space Station crew services shall include crew rescue requirements, and shall be undertaken through the procurement process initiated in conformance with this section. In the event such development is initiated, the Administrator shall make available any relevant government-owned intellectual property deriving from the development of a multipurpose crew vehicle authorized by this section and sections 71522 and 71523 of this title to commercial entities involved with such crew rescue capability development which shall be relevant to the design of a crew rescue capability. In addition, the Administrator shall seek to ensure that contracts for development of the multipurpose crew vehicle con-

tain provisions for the licensing of relevant intellectual property to participating commercial providers of any crew rescue capability development undertaken pursuant to this section. If one or more contractors involved with development of the multipurpose crew vehicle seek to compete in development of a commercial crew service with crew rescue capability, separate legislative authority must be enacted to enable the Administrator to provide funding for any modifications of the multipurpose crew vehicle necessary to fulfill the International Space Station crew rescue function.

§ 51703. Commercial Crew Program

(a) OBJECTIVE.—The objective of the Commercial Crew Program shall be to assist in the development and certification of commercially provided transportation that—

(1) can carry United States government astronauts (meaning a government astronaut as defined in section 50902 of this title) safely, reliably, and affordably to and from the International Space Station;

(2) can serve as a crew rescue vehicle; and

(3) can accomplish the goals stated in paragraphs (1) and (2) as soon as practicable.

(b) PRIMARY CONSIDERATION.—The objective described in subsection (a) shall be the primary consideration in the acquisition strategy for the Commercial Crew Program.

(c) SAFETY.—

(1) IN GENERAL.—The Administrator shall protect the safety of government astronauts (as defined in section 50902 of this title) by ensuring that each commercially provided transportation system under this section meets all applicable human rating requirements in accordance with section 51702(1) of this title.

(2) LESSONS LEARNED.—Consistent with the findings and recommendations of the Columbia Accident Investigation Board, the Administration shall ensure that safety and the minimization of the probability of loss of crew are the critical priorities of the Commercial Crew Program.

(d) COST MINIMIZATION.—The Administrator shall strive through the competitive selection process to minimize the life cycle cost to the Administration through the planned period of commercially provided crew transportation services.

§ 51704. Policy regarding fair and open competition for space transportation services

It is the policy of the United States that, to foster the competitive development, operation, improvement, and commercial availability of space transportation services, and to minimize the life cycle cost to the Administration, the Administrator shall procure services for Federal Government access to and return from the International Space Station, whenever practicable, via fair and open competition for well-defined, milestone-based, Federal Acquisition Regulation-based contracts under section 71511(a) of this title.

§ 51705. Transparency

The Administrator shall, to the greatest extent practicable and in a manner that does not add costs or schedule delays to the program, ensure all Commercial Crew Program and Commercial Resupply Services Program providers provide evidence-based support for their costs and schedules.

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CHAPTER 603—REMOTE SENSING

Sec.

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[60304. Program evaluation.]
60304. Advisory committee.

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§ 60304. [Program evaluation] Advisory committee

[(a) ADVISORY COMMITTEE.—The Administrator shall] *The Administrator shall* establish an advisory committee, consisting of individuals with appropriate expertise in State, local, regional, and tribal agencies, the university research community, and the remote sensing and other geospatial information industries, to monitor the program established under section 60303 of this title. The advisory committee shall consult with the Federal Geographic Data Committee and other appropriate industry representatives and organizations. Notwithstanding section 14 of the Federal Advisory Committee Act [(5 App. U.S.C.),] *(5 U.S.C. App.),* the advisory committee established under this subsection shall remain in effect until the termination of the program under section 60303 of this title.

[(b) EFFECTIVENESS EVALUATION.—Not later than December 31, 2009, the Administrator shall transmit to Congress an evaluation of the effectiveness of the program established under section 60303 of this title in exploring and promoting the integrated use of sources of remote sensing and other geospatial information to address State, local, regional, and tribal agency needs. Such evaluation shall have been conducted by an independent entity.]

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CHAPTER 605—EARTH SCIENCE

Sec.

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60507. Interagency collaboration implementation approach.
60508. Transitioning experimental research to operations.
60509. Decadal Survey missions implementation for Earth observation.
60510. Instrument testbeds and venture class missions.

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§ 60507. Interagency collaboration implementation approach

The Director of the Office of Science and Technology Policy shall establish a mechanism to ensure greater coordination of the research, operations, and activities relating to civilian Earth observa-

tion of Federal agencies, including the Administration, that have active programs that contribute either directly or indirectly to those areas. The mechanism should include the development of a strategic implementation plan that is updated at least every 3 years with a process for external independent advisory input. The strategic implementation plan should include—

(1) a description of the responsibilities of the various Federal agency roles in Earth observations;

(2) recommended cost-sharing and procurement arrangements between Federal agencies and other entities, including international arrangements; and

(3) a plan for ensuring the provision of sustained, long-term space-based climate observations.

§ 60508. Transitioning experimental research to operations

Based on the implementation plan provided to Congress in March 2011, the Administrator shall coordinate with the Administrator of the National Oceanic and Atmospheric Administration and the Director of the United States Geological Survey to establish a formal mechanism that plans, coordinates, and supports the transitioning of the research findings, assets, and capabilities of the Administration to the operations of the National Oceanic and Atmospheric Administration and the United States Geological Survey. In defining the mechanism, the Administration should consider the establishment of a formal or informal interagency transition office.

§ 60509. Decadal Survey missions implementation for Earth observation

The Administrator shall undertake to implement, as appropriate, missions identified in the National Research Council's Earth Science Decadal Survey within the scope of the funds authorized for the Earth Science Mission Directorate.

§ 60510. Instrument testbeds and venture class missions

The Administrator shall pursue innovative ways to fly instrument-level payloads for early demonstration or as co-manifested payloads. Congress encourages the use of the International Space Station as an accessible platform for the conduct of such activities. Additionally, in order to address the cost and schedule challenges associated with large flight systems, the Administrator should pursue smaller systems to the extent practicable and warranted.

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CHAPTER 709—INTERNATIONAL SPACE STATION

Sec.

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70908. Continuation of the International Space Station.
70909. Maximum utilization of the International Space Station.
70910. Operation, maintenance, and maximum utilization of United States segment.
70911. Management of national laboratory.
70912. Primary objectives of International Space Station program.

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§ 70902. Allocation of International Space Station research budget

The Administrator shall allocate at least 15 percent of the funds budgeted for International Space Station research to ground-based, free-flyer, and International Space Station life and microgravity science research that is not directly related to supporting the human exploration program, consistent with [section 40904] *section 49904* of this title.

§ 70903. International Space Station research

The Administrator shall—

(1) carry out a program of microgravity research consistent with [section 40904] *section 49904* of this title; and

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§ 70904. International Space Station completion

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(b) ELEMENTS, CAPABILITIES, AND CONFIGURATION CRITERIA.—The Administrator shall ensure that the International Space Station will—

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(2) be used for a diverse range of microgravity research, including fundamental, applied, and commercial research, consistent with [section 40904] *section 49904* of this title;

(3) have an ability to support a crew size of at least 6 persons, unless the Administrator transmits to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 60 days after December 30, 2005, a report explaining why such a requirement should not be met, the impact of not meeting the requirement on the International Space Station research agenda and operations and international partner agreements, and what additional funding or other steps would be required to have an ability to support a crew size of at least 6 persons;

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(c) CONTINGENCIES.—

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(2) PLAN.—Before making any change in the International Space Station assembly sequence in effect on December 30, 2005, the Administrator shall transmit to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan to carry out the policy described in paragraph (1).

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§ 70908. Continuation of the International Space Station

(a) POLICY.—It shall be the policy of the United States, in consultation with its international partners in the International Space

Station program, to support full and complete utilization of the International Space Station through at least 2024.

(b) ACTIONS.—In furtherance of the policy set forth in subsection (a), the Administration shall pursue international, commercial, and intragovernmental means to—

(1) maximize International Space Station logistics supply, maintenance, and operational capabilities;

(2) reduce risks to International Space Station systems sustainability; and

(3) offset and minimize United States operations costs relating to the International Space Station.

§ 70909. Maximum utilization of the International Space Station

(a) IN GENERAL.—With assembly of the International Space Station complete, the Administration shall take steps to maximize the productivity and use of the International Space Station with respect to scientific and technological research and development, advancement of space exploration, and international collaboration.

(b) ACTIONS.—In carrying out subsection (a), the Administration shall, at a minimum, undertake the following:

(1) INNOVATIVE USE OF U.S. SEGMENT.—The United States segment of the International Space Station, which has been designated as a national laboratory, shall be developed, managed, and utilized in a manner that enables the effective and innovative use of the facility, as provided in section 70911 of this title.

(2) INTERNATIONAL COOPERATION.—

(A) DEFINITION OF NEAR EARTH SPACE.—In this paragraph, the term "near-Earth space" means the region of space that includes low-Earth orbit and extends out to and includes geo-synchronous orbit.

(B) USE OF INTERNATIONAL SPACE STATION.—The International Space Station shall continue to be utilized as a key component of international efforts to build missions and capabilities that further the development of a human presence beyond near-Earth space and advance United States security and economic goals. The Administrator shall actively seek ways to encourage and enable the use of International Space Station capabilities to support those efforts.

(3) DOMESTIC COLLABORATION.—The operations, management, and utilization of the International Space Station shall be conducted in a manner that provides opportunities for collaboration with other research programs and objectives of the United States Government in cooperation with commercial suppliers, users, and developers.

§ 70910. Operation, maintenance, and maximum utilization of United States segment

(a) IN GENERAL.—The Administrator shall take all actions necessary to ensure the safe and effective operation, maintenance, and maximum utilization of the United States segment of the International Space Station through at least September 30, 2024.

(b) PLANNING, MANAGEMENT, AND SUPPORT.—Utilization of research facilities and capabilities aboard the International Space

Station (other than exploration-related research and technology development facilities and capabilities, and associated ground support and logistics) shall be planned, managed, and supported as provided in section 70911 of this title. Exploration-related research and technology development facilities, capabilities, and associated ground support and logistics shall be planned, managed, and supported by the appropriate Administration organizations and officials in a manner that does not interfere with other activities under section 70911 of this title.

§ 70911. Management of national laboratory

(a) COOPERATIVE AGREEMENT WITH NOT-FOR-PROFIT ORGANIZATION FOR MANAGEMENT OF NATIONAL LABORATORY.—

(1) IN GENERAL.—The Administrator shall provide initial financial assistance and enter into a cooperative agreement with an appropriate organization that is exempt from taxation under section 501(c)(3) of the Internal Revenue Code of 1986 (26 U.S.C. 501(c)(3)) to manage the activities of the International Space Station national laboratory in accordance with this section.

(2) QUALIFICATIONS.—The organization with which the Administrator enters into the cooperative agreement shall develop the capabilities to implement research and development projects utilizing the International Space Station national laboratory and to otherwise manage the activities of the International Space Station national laboratory.

(3) PROHIBITION ON OTHER ACTIVITIES.—The cooperative agreement shall require the organization entering into the agreement to engage exclusively in activities relating to the management of the International Space Station national laboratory and activities that promote its long-term research and development mission as required by this section, without any other organizational objectives or responsibilities on behalf of the organization or any parent organization or other entity.

(b) ADMINISTRATION LIAISON.—

(1) DESIGNATION.—The Administrator shall designate an official or employee of the Space Operations Mission Directorate of the Administration to act as liaison between the Administration and the organization with which the Administrator enters into a cooperative agreement under subsection (a) with regard to the management of the International Space Station national laboratory.

(2) CONSULTATION WITH LIAISON.—The cooperative agreement shall require the organization entering into the agreement to carry out its responsibilities under the agreement in cooperation and consultation with the official or employee designated under paragraph (1).

(c) PLANNING AND COORDINATION OF NATIONAL LABORATORY RESEARCH ACTIVITIES.—The Administrator shall provide initial financial assistance to the organization with which the Administrator enters into a cooperative agreement under subsection (a), in order for the organization to initiate the following:

(1) Planning and coordination of the International Space Station national laboratory research activities.

(2) Development and implementation of guidelines, selection criteria, and flight support requirements for non-Administration scientific utilization of International Space Station research capabilities and facilities available in United States-owned modules of the International Space Station or in partner-owned facilities of the International Space Station allocated to United States utilization by international agreement.

(3) Interaction with and integration of the International Space Station National Laboratory Advisory Committee established under section 70906 of this title with the governance of the organization, and review of recommendations provided by that Committee regarding agreements with non-Administration departments and agencies of the United States Government, academic institutions and consortia, and commercial entities leading to the utilization of the International Space Station national laboratory facilities.

(4) Coordination of transportation requirements in support of the International Space Station national laboratory research and development objectives, including provision for delivery of instruments, logistics support, and related experiment materials, and provision for return to Earth of collected samples, materials, and scientific instruments in need of replacement or upgrade.

(5) Cooperation with the Administration, other departments and agencies of the United States Government, the States, and commercial entities in ensuring the enhancement and sustained operations of non-exploration-related research payload ground support facilities for the International Space Station, including the Space Life Sciences Laboratory, the Space Station Processing Facility, and the Payload Operations Integration Center.

(6) Development and implementation of scientific outreach and education activities designed to ensure effective utilization of International Space Station research capabilities, including the conduct of scientific assemblies, conferences, and other fora for the presentation of research findings, methods, and mechanisms for the dissemination of non-restricted research findings and the development of educational programs, course supplements, and interaction with educational programs at all grade levels, including student-focused research opportunities for conduct of research in the International Space Station national laboratory facilities.

(7) Other matters relating to the utilization of the International Space Station national laboratory facilities for research and development as the Administrator considers appropriate.

(d) RESEARCH CAPACITY ALLOCATION AND INTEGRATION OF RESEARCH PAYLOADS.—

(1) ALLOCATION OF INTERNATIONAL SPACE STATION RESEARCH CAPACITY.—International Space Station national laboratory managed experiments shall be guaranteed access to, and utilization of, not less than 50 percent of the United States research capacity allocation, including power, cold stowage, and requisite crew time onboard the International Space Station through at least September 30, 2024. Access to the International Space Station research capacity includes provision for the ade-

quate upmass and downmass capabilities to utilize the International Space Station research capacity, as available. The Administrator may allocate additional capacity to the International Space Station national laboratory should such capacity be in excess of Administration research requirements.

(2) ADDITIONAL RESEARCH CAPABILITIES.—If any Administration research plan is determined to require research capacity onboard the International Space Station beyond the percentage allocated under paragraph (1), the research plan shall be prepared in the form of a requested research opportunity to be submitted to the process established under this section for the consideration of proposed research within the capacity allocated to the International Space Station national laboratory. A proposal for such a research plan may include the establishment of partnerships with non-Administration institutions eligible to propose research to be conducted within the International Space Station national laboratory capacity. Until at least September 30, 2024, the official or employee designated under subsection (b) may grant an exception to this requirement in the case of a proposed experiment considered essential for purposes of preparing for exploration beyond low-Earth orbit, as determined by joint agreement between the organization with which the Administrator enters into a cooperative agreement under subsection (a) and the official or employee designated under subsection (b).

(3) RESEARCH PRIORITIES AND ENHANCED CAPACITY.—The organization with which the Administrator enters into the cooperative agreement shall consider recommendations of the National Academies Decadal Survey on Biological and Physical Sciences in Space in establishing research priorities and in developing proposed enhancements of research capacity and opportunities for the International Space Station national laboratory.

(4) RESPONSIBILITY FOR RESEARCH PAYLOAD.—The Administration shall retain its roles and responsibilities in providing research payload physical, analytical, and operations integration during pre-flight, post-flight, transportation, and orbital phases essential to ensure safe and effective flight readiness and vehicle integration of research activities approved and prioritized by the organization with which the Administrator enters into the cooperative agreement and the official or employee designated under subsection (b).

§ 70912. Primary objectives of International Space Station program

The primary objectives of the International Space Station program shall be—

(1) to achieve the long term goal and objectives under section 71512 of this title; and

(2) to pursue a research program that advances knowledge and provides other benefits to the Nation.

* * * * * * *

§ 71102. Requests for information

The Administrator shall issue requests for information on—

(1) a low-cost space mission with the purpose of rendezvousing with, [attaching a tracking device,] *attaching a tracking device to*, and characterizing the Apophis asteroid; and

* * * * * * *

CHAPTER 715—HUMAN SPACE FLIGHT AND EXPLORATION

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Subchapter I—General Provisions

§ 71501. Definitions

In this chapter:

(1) CIS-LUNAR SPACE.—The term "cis-lunar space" means the region of space from the Earth out to and including the region around the surface of the Moon.

(2) DEEP SPACE.—The term "deep space" means the region of space beyond cis-lunar space.

(3) NEAR-EARTH SPACE.—The term "near-Earth space" means the region of space that includes low-Earth orbit and extends out to and includes geo-synchronous orbit.

(4) SPACE LAUNCH SYSTEM.—The term "Space Launch System" means the follow-on Government-owned civil launch system developed, managed, and operated by the Administration to serve as a key component to expand human presence beyond low-Earth orbit.

Subchapter II—Policy, Goals, and Objectives

§ 71511. Human space flight policy

(a) USE OF NON-UNITED STATES HUMAN SPACE FLIGHT TRANSPORTATION SERVICES.—

(1) DEFINITIONS.—In this subsection:

(A) COMMERCIAL PROVIDER.—The term "commercial provider" means any person providing human space flight transportation services, primary control of which is held by persons other than the Federal Government, a State or local government, or a foreign government.

(B) QUALIFIED FOREIGN ENTITY.—The term "qualified foreign entity" means a foreign entity that is in compliance with all applicable safety standards and is not prohibited from providing space transportation services under other law.

(C) UNITED STATES COMMERCIAL PROVIDER.—The term "United States commercial provider" means a commercial provider, organized under the laws of the United States or of a State, that is more than 50 percent owned by United States nationals.

(2) IN GENERAL.—The Federal Government may not acquire human space flight transportation services from a foreign entity unless—

(A) no United States Government-operated human space flight capability is available;

(B) no United States commercial provider is available; and

(C) it is a qualified foreign entity.

(3) ARRANGEMENTS WITH FOREIGN ENTITIES.—Nothing in this subsection shall prevent the Administrator from negotiating or entering into human space flight transportation arrangements with foreign entities to ensure safety of flight and continued International Space Station operations.

(b) UNITED STATES HUMAN SPACE FLIGHT CAPABILITIES.—Congress reaffirms the policy stated in section 70501(a) of this title that the United States shall maintain an uninterrupted capability for human space flight and operations in low-Earth orbit, and beyond, as an essential instrument of national security and of the capacity to ensure continued United States participation and leadership in the exploration and utilization of space.

§ 71512. Goals and objectives

(a) LONG-TERM GOALS.—The long-term goals of the human space flight and exploration efforts of the Administration shall be—

(1) to expand permanent human presence beyond low-Earth orbit and to do so, where practical, in a manner involving international, academic, and industry partners;

(2) crewed missions and progress toward achieving the goal in paragraph (1) to enable the potential for subsequent human exploration and the extension of human presence throughout the solar system; and

(3) to enable a capability to extend human presence, including potential human habitation on another celestial body and a thriving space economy in the 21st century.

(b) KEY OBJECTIVES.—The key objectives of the United States for human expansion into space shall be—

(1) to sustain the capability for long-duration presence in low-Earth orbit, initially through continuation of the International Space Station and full utilization of the United States segment of the International Space Station as a national laboratory, and through assisting and enabling an expanded commercial presence in, and access to, low-Earth orbit, as elements of a low-Earth orbit infrastructure;

(2) to determine whether humans can live for extended periods in space with decreasing reliance on Earth, starting with utilization of low-Earth orbit infrastructure, to—

(A) identify potential roles that space resources such as energy and materials can play;

(B) meet national and global needs and challenges such as potential cataclysmic threats; and

(C) explore the viability of and lay the foundation for sustainable economic activities in space;

(3) to maximize the role that human exploration of space can play in—

(A) advancing overall knowledge of the universe;

(B) supporting United States national and economic security and the United States global competitive posture; and

(C) inspiring young people in their educational pursuits;

(4) to build on the cooperative and mutually beneficial framework established by the International Space Station partnership agreements and experience in developing and undertaking programs and meeting objectives designed to realize the goal of human space flight set forth in subsection (a); and

(5) to achieve human exploration of Mars and beyond through the prioritization of those technologies and capabilities best suited for such a mission in accordance with the stepping stone approach to exploration under section 70504 of this title.

Subchapter III—Expansion of Human Space Flight Beyond the International Space Station and Low-Earth Orbit

§ 71521. Space Launch System as follow-on launch vehicle to the space shuttle

(a) POLICY.—It is the policy of the United States that the Administration develop a Space Launch System as a follow-on to the space shuttle that can access cis-lunar space and the regions of space beyond low-Earth orbit in order to enable the United States to participate in global efforts to access and develop that increasingly strategic region.

(b) INITIATION OF DEVELOPMENT.—

(1) IN GENERAL.—As soon as practicable after October 11, 2010, the Administrator shall initiate development of a Space Launch System meeting the minimum capability requirements specified in subsection (c).

(2) MODIFICATION OF CURRENT CONTRACTS.—In order to limit the Administration's termination liability costs and support critical capabilities, the Administrator shall, to the extent practicable, extend or modify existing (as of October 11, 2010) vehicle development and associated contracts necessary to meet the requirement in paragraph (1), including contracts for ground testing of solid rocket motors, if necessary, to ensure their availability for development of the Space Launch System.

(c) MINIMUM CAPABILITY REQUIREMENTS.—

(1) IN GENERAL.—The Space Launch System developed pursuant to subsection (b) shall be designed to have, at a minimum, the following:

(A) The initial capability of the core elements, without an upper stage, of lifting payloads weighing between 70 and 100 tons into low-Earth orbit in preparation for transit for missions beyond low-Earth orbit.

(B) The capability to carry an integrated upper Earth departure stage bringing the total lift capability of the Space Launch System to 130 tons or more.

(C) The capability to lift the multipurpose crew vehicle.

(D) The capability to serve as a backup system for supplying and supporting International Space Station cargo delivery requirements or crew delivery requirements not otherwise met by available commercial or partner-supplied vehicles.

(E) The capacity for efficient and timely evolution, including the incorporation of new technologies, competition of sub-elements, and commercial operations.

(2) FLEXIBILITY.—The Space Launch System shall be designed from inception as a fully integrated vehicle capable of carrying a total payload of 130 tons or more into low-Earth orbit in preparation for transit for missions beyond low-Earth orbit. The Space Launch System shall, to the extent practicable, incorporate capabilities for evolutionary growth to carry heavier payloads. Developmental work and testing of the core elements and the upper stage should proceed in parallel subject to appropriations. Priority should be placed on the core elements with the goal for operational capability for the core elements not later than December 31, 2016.

(3) TRANSITION NEEDS.—The Administrator shall ensure that critical skills and capabilities are retained, modified, and developed, as appropriate, in areas relating to solid and liquid engines, large diameter fuel tanks, rocket propulsion, and other ground test capabilities for an effective transition to the follow-on Space Launch System.

§ 71522. Multipurpose crew vehicle

(a) INITIATION OF DEVELOPMENT.—

(1) IN GENERAL.—The Administrator shall continue the development of a multipurpose crew vehicle to be available as soon as practicable, and no later than for use with the Space Launch System. The vehicle shall continue to advance development of the human safety features, designs, and systems in the Orion project.

(2) GOAL FOR OPERATIONAL CAPABILITY.—It shall be the goal to achieve full operational capability for the transportation ve-

hicle developed pursuant to this subsection by not later than December 31, 2016. For purposes of meeting such goal, the Administrator may undertake a test of the transportation vehicle at the International Space Station before that date.

(b) MINIMUM CAPABILITY REQUIREMENTS.—The multipurpose crew vehicle developed pursuant to subsection (a) shall be designed to have, at a minimum, the following:

(1) The capability to serve as the primary crew vehicle for missions beyond low-Earth orbit.

(2) The capability to conduct regular in-space operations, such as rendezvous, docking, and extra-vehicular activities, in conjunction with payloads delivered by the Space Launch System developed pursuant to section 71521 of this title, or other vehicles, in preparation for missions beyond low-Earth orbit or servicing of assets described in section 71543 of this title, or other assets in cis-lunar space.

(3) The capability to provide an alternative means of delivery of crew and cargo to the International Space Station, in the event other vehicles, whether commercial vehicles or partner-supplied vehicles, are unable to perform that function.

(4) The capacity for efficient and timely evolution, including the incorporation of new technologies, competition of sub-elements, and commercial operations.

§ 71523. Utilization of existing workforce and assets in development of Space Launch System and multipurpose crew vehicle

(a) IN GENERAL.—In developing the Space Launch System pursuant to section 71521 of this title and the multipurpose crew vehicle pursuant to section 71522 of this title, the Administrator shall, to the extent practicable, utilize—

(1) existing (as of October 11, 2010) contracts, investments, workforce, industrial base, and capabilities from the space shuttle and Orion and Ares 1 projects, including—

(A) spacesuit development activities for application to, and coordinated development of, a multipurpose crew vehicle suit and associated life-support requirements with potential development of standard Administration-certified suit and life support systems for use in alternative commercially developed crew transportation systems; and

(B) space shuttle-derived components and Ares 1 components that use existing (as of October 11, 2010) United States propulsion systems, including liquid fuel engines, external tank or tank-related capability, and solid rocket motor engines; and

(2) associated testing facilities in existence or under construction as of October 11, 2010.

(b) DISCHARGE OF REQUIREMENTS.—In meeting the requirements of subsection (a), the Administrator—

(1) shall, to the extent practicable, utilize ground-based manufacturing capability, ground testing activities, launch and operations infrastructure, and workforce expertise;

(2) shall, to the extent practicable, minimize the modification and development of ground infrastructure and maximize the

utilization of existing (as of October 11, 2010) software, vehicle, and mission operations processes;

(3) shall complete construction and activation of the A–3 test stand with a completion goal of September 30, 2013;

(4) may procure, develop, and flight test applicable components; and

(5) shall take appropriate actions to ensure timely and cost-effective development of the Space Launch System and the multipurpose crew vehicle, including the use of a procurement approach that incorporates adequate and effective oversight, the facilitation of contractor efficiencies, and the streamlining of contract and procurement requirements.

(c) CONTINUATION OF CONTRACTOR SUPPORT.—The Administrator may not terminate any contract that provides the system transitions necessary for shuttle-derived hardware to be used on the Space Launch System described in section 71521 of this title or the multipurpose crew vehicle described in section 71522 of this title.

§ 71524. Launch support and infrastructure modernization program

(a) IN GENERAL.—The Administrator shall carry out a program the primary purpose of which is to prepare infrastructure at the Kennedy Space Center that is needed to enable processing and launch of the Space Launch System. Vehicle interfaces and other ground processing and payload integration areas should be simplified to minimize overall costs, enhance safety, and complement the purpose of this section.

(b) ELEMENTS.—The program required by this section shall include—

(1) investments to improve civil and national security operations at the Kennedy Space Center, to enhance the overall capabilities of the Center, and to reduce the long-term cost of operations and maintenance;

(2) measures to provide multi-vehicle support, improvements in payload processing, and partnering at the Kennedy Space Center; and

(3) other measures that the Administrator considers appropriate, including investments to improve launch infrastructure at Administration flight facilities scheduled to launch cargo to the International Space Station under the program to develop commercial cargo transportation capabilities.

§ 71525. Development of technologies and in-space capabilities for beyond near-Earth space missions

(a) DEVELOPMENT AUTHORIZED.—The Administrator may initiate activities to develop the following:

(1) Technologies identified as necessary elements of missions beyond low-Earth orbit.

(2) In-space capabilities such as refueling and storage technology, orbital transfer stages, innovative in-space propulsion technology, communications, and data management that facilitate a broad range of users (including military and commercial).

(3) Applications defining the architecture and design of missions beyond low-Earth orbit.

(4) Spacesuit development and associated life support technology.

(5) Flagship missions.

(b) INVESTMENTS.—In developing technologies and capabilities under subsection (a), the Administrator may make investments in—

(1) space technologies such as advanced propulsion, propellant depots, in situ resource utilization, and robotic payloads or capabilities that enable human missions beyond low-Earth orbit ultimately leading to Mars;

(2) a space-based transfer vehicle including technologies described in paragraph (1) with an ability to conduct space-based operations that provide capabilities—

(A) to integrate with the Space Launch System and other space-based systems;

(B) to provide opportunities for in-space servicing of and delivery to multiple space-based platforms; and

C) to facilitate international efforts to expand human presence to deep space destinations;

(3) advanced life support technologies and capabilities;

(4) technologies and capabilities relating to in-space power, propulsion, and energy systems;

(5) technologies and capabilities relating to in-space propellant transfer and storage;

(6) technologies and capabilities relating to in situ resource utilization; and

(7) expanded research to understand the greatest biological impediments to human deep space missions, especially the radiation challenge.

(c) UTILIZATION OF INTERNATIONAL SPACE STATION AS TESTBED.—The Administrator may utilize the International Space Station as a testbed for any technology or capability developed under subsection (a) in a manner consistent with sections 70908 through 70911 of this title.

(d) COORDINATION.—The Administrator shall coordinate development of technologies and capabilities under this section through an overall Administration technology approach consistent with the plan required by section 905 of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2836), which outlines how the Administration's space technology program will meet the goal described in section 40903 of this title, including an explanation of how the plan will link to other mission-directorate technology efforts.

Subchapter IV—Space Science

§ 71541. Technology development

The Administrator shall ensure that the Science Mission Directorate maintains a long-term technology development program for space and Earth science. That effort should be coordinated with an overall Administration technology investment approach consistent with the plan required by section 905 of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2836), which outlines how the Administration's space technology program will meet the goal described in section

40903 of this title, including an explanation of how the plan will link to other mission-directorate technology efforts.

§ 71542. Suborbital research activities

(a) MANAGEMENT.—The Administrator shall designate an officer or employee of the Science Mission Directorate to act as the responsible official for all Suborbital Research in the Science Mission Directorate. The designee shall be responsible for—

(1) the development of short- and long-term strategic plans for maintaining, renewing, and extending suborbital facilities and capabilities;

(2) monitoring progress toward goals in the plans; and

(3) integration of suborbital activities and workforce development within the Administration, thereby ensuring the long-term recognition of their combined value to the Directorate, to the Administration, and to the Nation.

(b) ESTABLISHMENT OF SUBORBITAL RESEARCH PROGRAM.—The Administrator shall establish a Suborbital Research Program within the Science Mission Directorate that shall include the use of sounding rockets, aircraft, high altitude balloons, suborbital reusable launch vehicles, and commercial launch vehicles to advance science and train the next generation of scientists and engineers in systems engineering and systems integration, which are vital to maintaining critical skills in the aerospace workforce. The program shall integrate existing (as of October 11, 2010) suborbital research programs with orbital missions at the discretion of the designated officer or employee and shall emphasize the participation of undergraduate and graduate students and post-doctoral researchers when formulating announcements of opportunity.

(c) ANNUAL REPORT.—The Administrator shall report annually to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives on the number and type of suborbital missions conducted in each fiscal year and the number of undergraduate and graduate students that participated in the missions.

§ 71543. In-space servicing

The Administrator shall continue to take all necessary steps to ensure that provisions are made for robotic or human in-space servicing and repair of all future observatory-class scientific spacecraft intended to be deployed in Earth-orbit or at a Lagrangian point to the extent practicable and appropriate. The Administrator should ensure that Administration investments and future capabilities for space technology, robotics, and human space flight take the ability to service and repair observatory-class scientific spacecraft into account, as appropriate, and incorporate those capabilities into design and operational plans.

§ 71544. Ongoing restoration of radioisotope thermoelectric generator material production

The Administrator shall, in coordination with the Secretary of Energy, pursue a joint approach beginning in fiscal year 2011 toward restarting and sustaining the domestic production of radioisotope thermoelectric generator material for deep space and other science and exploration missions. Funds authorized by the National

Aeronautics and Space Administration Authorization Act of 2010 for the Administration shall be made available under a reimbursable agreement with the Department of Energy for the purpose of reestablishing facilities to produce fuel required for radioisotope thermoelectric generators to enable future missions.

§ 71545. Coordinated approach for robotic missions

The Administrator shall ensure that the Exploration Systems Mission Directorate and the Space Operations Mission Directorate coordinate with the Science Mission Directorate on an overall approach and plan for interagency and international collaboration on robotic missions that are developed by the Administration or internationally developed, including lunar, Lagrangian, near- Earth orbit, and Mars spacecraft, such as the International Lunar Network.

§ 71546. Near-Earth object survey and policy with respect to threats posed

(a) POLICY REAFFIRMATION.—Congress reaffirms the policy set forth in section 20102(g) of this title relating to surveying near-Earth asteroids and comets.

(b) IMPLEMENTATION.—Consistent with section 71103 of this title, the Director of the Office of Science and Technology Policy shall implement, before September 30, 2012, a policy for notifying Federal agencies and relevant emergency response institutions of an impending near- Earth object threat if near-term public safety is at risk, and assign a Federal agency or agencies to be responsible for protecting the United States and working with the international community on such threats.

CHAPTER 717—ADVANCING HUMAN SPACE EXPLORATION

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Subchapter I—General Provisions

§ 71701. Definitions

In this chapter:

(1) APPROPRIATE COMMITTEES OF CONGRESS.—The term "appropriate committees of Congress" means—

(A) the Committee on Commerce, Science, and Transportation of the Senate; and

(B) the Committee on Science, Space, and Technology of the House of Representatives.

(2) CIS-LUNAR SPACE.—The term "cis-lunar space" means the region of space from the Earth out to and including the region around the surface of the Moon.

(3) DEEP SPACE.—The term "deep space" means the region of space beyond low-Earth orbit, to include cis-lunar space.

(4) ORION.—The term "Orion" means the multipurpose crew vehicle described under section 71522 of this title.

(5) SPACE LAUNCH SYSTEM.—The term "Space Launch System" has the meaning given the term in section 71501 of this title.

Subchapter II—Advancing Human Deep Space Exploration

PART A—ASSURING CORE CAPABILITIES FOR EXPLORATION

§ 71711. Space launch system, Orion, and exploration ground systems

(a) REAFFIRMATION.—Congress reaffirms the policy and minimum capability requirements for the Space Launch System under section 71521 of this title.

(b) CONTINUED DEVELOPMENT OF FULLY INTEGRATED SPACE LAUNCH SYSTEM.—The Administrator shall continue the development of the fully integrated Space Launch System, including an upper stage needed to go beyond low-Earth orbit, in order to safely enable human space exploration of the Moon, Mars, and beyond over the course of the next century as required in section 71521(c) of this title.

(c) EXPLORATION MISSIONS.—The Administrator shall continue development of—

(1) an uncrewed exploration mission to demonstrate the capability of both the Space Launch System and Orion as an integrated system by 2018;

(2) subject to applicable human rating processes and requirements, a crewed exploration mission to demonstrate the Space Launch System, including the Core Stage and Exploration Upper Stages, by 2021;

(3) subsequent missions beginning with EM–3 at operational flight rate sufficient to maintain safety and operational readiness using the Space Launch System and Orion to extend into cis-lunar space and eventually to Mars; and

(4) a deep space habitat as a key element in a deep space exploration architecture along with the Space Launch System and Orion.

(d) OTHER USES.—The Administrator shall assess the utility of the Space Launch System for use by the science community and for other Federal Government launch needs, including consideration of overall cost and schedule savings from reduced transit times and increased science returns enabled by the unique capabilities of the Space Launch System.

PART B—JOURNEY TO MARS

§ 71721. Human exploration roadmap

(a) IN GENERAL.—The Administrator shall develop a human exploration roadmap, including a critical decision plan, to expand human presence beyond low-Earth orbit to the surface of Mars and beyond, considering potential interim destinations such as cis-lunar space and the moons of Mars.

(b) SCOPE.—The human exploration roadmap shall include—

(1) an integrated set of exploration, science, and other goals and objectives of a United States human space exploration program to achieve the long-term goal of human missions near or on the surface of Mars in the 2030s;

(2) opportunities for international, academic, and industry partnerships for exploration-related systems, services, research, and technology if those opportunities provide cost-savings, accelerate program schedules, or otherwise benefit the goals and objectives developed under paragraph (1);

(3) sets and sequences of precursor missions in cis-lunar space and other missions or activities necessary—

(A) to demonstrate the proficiency of the capabilities and technologies identified under paragraph (4); and

(B) to meet the goals and objectives developed under paragraph (1), including anticipated timelines and missions for the Space Launch System and Orion;

(4) an identification of the specific capabilities and technologies, including the Space Launch System, Orion, a deep space habitat, and other capabilities, that facilitate the goals and objectives developed under paragraph (1);

(5) a description of how cis-lunar elements, objectives, and activities advance the human exploration of Mars;

(6) an assessment of potential human health and other risks, including radiation exposure;

(7) mitigation plans, whenever possible, to address the risks identified in paragraph (6);

(8) a description of those technologies already under development across the Federal Government or by other entities that facilitate the goals and objectives developed under paragraph (1);

(9) a specific process for the evolution of the capabilities of the fully integrated Orion with the Space Launch System and a description of how these systems facilitate the goals and objectives developed under paragraph (1) and demonstrate the capabilities and technologies described in paragraph (4);

(10) a description of the capabilities and technologies that need to be demonstrated or research data that could be gained through the utilization of the International Space Station and the status of the development of such capabilities and technologies;

(11) a framework for international cooperation in the development of all capabilities and technologies identified under this section, including an assessment of the risks posed by relying on international partners for capabilities and technologies on the critical path of development;

(12) a process for partnering with nongovernmental entities using Space Act Agreements or other acquisition instruments for future human space exploration; and

(13) information on the phasing of planned intermediate destinations, Mars mission risk areas and potential risk mitigation approaches, technology requirements and phasing of required technology development activities, the management strategy to be followed, related International Space Station activities, planned international collaborative activities, potential commercial contributions, and other activities relevant to the achievement of the goal established in this section.

(c) CONSIDERATIONS.—In developing the human exploration roadmap, the Administrator shall consider—

(1) using key exploration capabilities, namely the Space Launch System and Orion;

(2) using existing commercially available technologies and capabilities or those technologies and capabilities being developed by industry for commercial purposes;

(3) establishing an organizational approach to ensure collaboration and coordination among the Administration's mission directorates under section 71761 of this title, when appropriate, including to collect and return to Earth a sample from the Martian surface;

(4) building upon the initial uncrewed mission, EM–1, and first crewed mission, EM–2, of the Space Launch System and Orion to establish a sustainable cadence of missions extending human exploration missions into cis-lunar space, including anticipated timelines and milestones;

(5) developing the robotic and precursor missions and activities that will demonstrate, test, and develop key technologies and capabilities essential for achieving human missions to Mars, including long-duration human operations beyond low-Earth orbit, space suits, solar electric propulsion, deep space

habitats, environmental control life support systems, Mars lander and ascent vehicle, entry, descent, landing, ascent, Mars surface systems, and in-situ resource utilization;

(6) demonstrating and testing 1 or more habitat modules in cis-lunar space to prepare for Mars missions;

(7) using public-private, firm fixed-price partnerships, where practicable;

(8) collaborating with international, academic, and industry partners, when appropriate;

(9) any risks to human health and sensitive onboard technologies, including radiation exposure;

(10) any risks identified through research outcomes under the Administration Human Research Program's Behavioral Health Element; and

(11) the recommendations and ideas of several independently developed reports or concepts that describe potential Mars architectures or concepts and identify Mars as the long-term goal for human space exploration, including the reports described under section 431 of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10, 131 Stat. 38).

(d) CRITICAL DECISION PLAN ON HUMAN SPACE EXPLORATION.—As part of the human exploration roadmap, the Administrator shall include a critical decision plan—

(1) identifying and defining key decisions guiding human space exploration priorities and plans that need to be made before June 30, 2020, including decisions that may guide human space exploration capability development, precursor missions, long-term missions, and activities;

(2) defining decisions needed to maximize efficiencies and resources for reaching the near-, intermediate-, and long-term goals and objectives of human space exploration; and

(3) identifying and defining timelines and milestones for a sustainable cadence of missions beginning with EM–3 for the Space Launch System and Orion to extend human exploration from cis-lunar space to the surface of Mars.

(e) REPORTS.—

(1) INITIAL HUMAN EXPLORATION ROADMAP.—The Administrator shall submit to the appropriate committees of Congress—

(A) an initial human exploration roadmap, including a critical decision plan, before December 1, 2017; and

(B) an updated human exploration roadmap periodically as the Administrator considers necessary but not less than biennially.

(2) CONTENTS.—Each human exploration roadmap under this subsection shall include a description of—

(A) the achievements and goals accomplished in the process of developing capabilities and technologies described in this section during the 2-year period prior to the submission of the human exploration roadmap; and

(B) the expected goals and achievements in the following 2-year period.

(3) SUBMISSION WITH BUDGET.—Each human exploration roadmap under this section shall be included in the budget for

that fiscal year transmitted to Congress under section 1105(a) of title 31.

Subchapter III—Advancing Space Science

§ 71731. Policy on maintaining balanced space science portfolio

It is the policy of the United States to ensure, to the extent practicable, a steady cadence of large, medium, and small science missions.

§ 71732. Mission priorities for planetary science

(a) IN GENERAL.—In accordance with the priorities established in the most recent Planetary Science Decadal Survey, the Administrator shall ensure, to the greatest extent practicable, the completion of a balanced set of Discovery, New Frontiers, and Flagship missions at the cadence recommended by the most recent Planetary Science Decadal Survey.

(b) MISSION PRIORITY ADJUSTMENTS.—Consistent with the set of missions described in subsection (a), and while maintaining the continuity of scientific data and steady development of capabilities and technologies, the Administrator may seek, if necessary, adjustments to mission priorities, schedule, and scope in light of changing budget projections.

§ 71733. Extrasolar planet exploration strategy

(a) STRATEGY.—

(1) IN GENERAL.—The Administrator shall enter into an arrangement with the National Academies to develop a science strategy for the study and exploration of extrasolar planets, including the use of the Transiting Exoplanet Survey Satellite, the James Webb Space Telescope, a potential Wide-Field Infrared Survey Telescope mission, or any other telescope, spacecraft, or instrument, as appropriate.

(2) REQUIREMENTS.—The strategy shall—

(A) outline key scientific questions;

(B) identify the most promising research in the field;

(C) indicate the extent to which the mission priorities in existing decadal surveys address the key extrasolar planet research and exploration goals;

(D) identify opportunities for coordination with international partners, commercial partners, and not-for-profit partners; and

(E) make recommendations regarding the activities under subparagraphs (A) through (D), as appropriate.

(b) USE OF STRATEGY.—The Administrator shall use the strategy—

(1) to inform roadmaps, strategic plans, and other activities of the Administration as they relate to extrasolar planet research and exploration; and

(2) to provide a foundation for future activities and initiatives related to extrasolar planet research and exploration.

(c) REPORT TO CONGRESS.—Not later than 18 months after March 21, 2017, the National Academies shall submit to the Administrator

and to the appropriate committees of Congress a report containing the strategy developed under subsection (a).

§ 71734. Astrobiology strategy

(a) STRATEGY.—

(1) IN GENERAL.—The Administrator shall enter into an arrangement with the National Academies to develop a science strategy for astrobiology that would outline key scientific questions, identify the most promising research in the field, and indicate the extent to which the mission priorities in existing decadal surveys address the search for life's origin, evolution, distribution, and future in the universe.

(2) RECOMMENDATIONS.—The strategy shall include recommendations for coordination with international partners.

(b) USE OF STRATEGY.—The Administrator shall use the strategy developed under subsection (a) in planning and funding research and other activities and initiatives in the field of astrobiology.

(c) REPORT TO CONGRESS.—Not later than 18 months after March 21, 2017, the National Academies shall submit to the Administrator and to the appropriate committees of Congress a report containing the strategy developed under subsection (a).

§ 71735. Collaboration

The Administration shall continue to develop first-of-a-kind instruments that, once proved, can be transitioned to other agencies for operations. Whenever responsibilities for the development of sensors or for measurements are transferred to the Administration from another agency, the Administration shall seek, to the extent possible, to be reimbursed for the assumption of such responsibilities.

Subchapter IV—Space Technology

§ 71741. Space technology infusion

(a) POLICY.—It is the policy of the United States that the Administrator shall develop technologies to support the Administration's core missions, as described in section 2(3) of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2807), and support sustained investments in early stage innovation, fundamental research, and technologies to expand the boundaries of the national aerospace enterprise.

(b) PROPULSION TECHNOLOGIES.—A goal of propulsion technologies developed under subsection (a) shall be to significantly reduce human travel time to Mars.

§ 71742. Space technology program

(a) SPACE TECHNOLOGY PROGRAM AUTHORIZED.—The Administrator shall conduct a space technology program (referred to in this section as the "Program") to research and develop advanced space technologies that could deliver innovative solutions across the Administration's space exploration and science missions.

(b) CONSIDERATIONS.—In conducting the Program, the Administrator shall consider—

(1) the recommendations of the National Academies' review of the Administration's Space Technology roadmaps and priorities; and

(2) the applicable enabling aspects of the stepping stone approach to exploration under section 70504 of this title.

(c) REQUIREMENTS.—In conducting the Program, the Administrator shall—

(1) to the extent practicable, use a competitive process to select research and development projects;

(2) to the extent practicable and appropriate, use small satellites and the Administration's suborbital and ground-based platforms to demonstrate space technology concepts and developments; and

(3) as appropriate, partner with other Federal agencies, universities, private industry, and foreign countries.

(d) SMALL BUSINESS PROGRAMS.—The Administrator shall organize and manage the Administration's Small Business Innovation Research Program and Small Business Technology Transfer Program within the Program.

(e) NONDUPLICATION CERTIFICATION.—The Administrator shall submit a budget for each fiscal year, as transmitted to Congress under section 1105(a) of title 31, that avoids duplication of projects, programs, or missions conducted by the Program with other projects, programs, or missions conducted by another office or directorate of the Administration.

(f) COLLABORATION, COORDINATION, AND ALIGNMENT.—The Administrator shall—

(1) ensure that the Administration's projects, programs, and activities in support of technology research and development of advanced space technologies are fully coordinated and aligned;

(2) ensure that the results of the projects, programs, and activities under paragraph (1) are shared and leveraged within the Administration; and

(3) ensure that the organizational responsibility for research and development activities in support of human space exploration not initiated as of March 21, 2017, is established on the basis of a sound rationale.

(g) ANNUAL REPORT.—The Administrator shall include in the Administration's annual budget request for each fiscal year the rationale for assigning organizational responsibility for, in the year prior to the budget fiscal year, each initiated project, program, and mission focused on research and development of advanced technologies for human space exploration.

Subchapter V—Maximizing Efficiency

PART A—ADMINISTRATION INFORMATION TECHNOLOGY AND CYBERSECURITY

§ 71751. Information technology governance

The Administrator shall, in a manner that reflects the unique nature of the Administration's mission and expertise—

(1) ensure the Administration Chief Information Officer, mission directorates, and centers have appropriate roles in the management, governance, and oversight processes related to in-

formation technology operations and investments and information security programs for the protection of Administration systems;

(2) ensure the Administration Chief Information Officer has the appropriate resources and insight to oversee Administration information technology and information security operations and investments;

(3) provide an information technology program management framework to increase the efficiency and effectiveness of information technology investments, including relying on metrics for identifying and reducing potential duplication, waste, and cost;

(4) improve the operational linkage between the Administration Chief Information Officer and each Administration mission directorate, center, and mission support office to ensure both Administration and mission needs are considered in Administration-wide information technology and information security management and oversight;

(5) review the portfolio of information technology investments and spending, including information technology-related investments included as part of activities within Administration mission directorates that may not be considered information technology, to ensure investments are recognized and reported appropriately based on guidance from the Office of Management and Budget;

(6) consider appropriate revisions to the charters of information technology boards and councils that inform information technology investment and operation decisions; and

(7) consider whether the Administration Chief Information Officer should have a seat on any boards or councils described in paragraph (6).

§ 71752. Information technology strategic plan

(a) IN GENERAL.—Subject to subsection (b), the Administrator shall develop an information technology strategic plan to guide Administration information technology management and strategic objectives.

(b) REQUIREMENTS.—In developing the strategic plan, the Administrator shall ensure that the strategic plan addresses—

(1) the deadline under section 306(a) of title 5; and

(2) the requirements under section 3506 of title 44.

(c) CONTENTS.—The strategic plan shall address, in a manner that reflects the unique nature of the Administration's mission and expertise—

(1) near- and long-term goals and objectives for leveraging information technology;

(2) a plan for how the Administration will submit to Congress a list of information technology projects, including completion dates and risk levels in accordance with guidance from the Office of Management and Budget;

(3) an implementation overview for an Administration-wide approach to information technology investments and operations, including reducing barriers to cross-center collaboration;

(4) coordination by the Administration Chief Information Officer with centers and mission directorates to ensure that infor-

mation technology policies are effectively and efficiently implemented across the Administration;

(5) a plan to increase the efficiency and effectiveness of information technology investments, including a description of how unnecessarily duplicative, wasteful, legacy, or outdated information technology across the Administration will be identified and eliminated, and a schedule for the identification and elimination of such information technology;

(6) a plan for improving the information security of Administration information and Administration information systems, including improving security control assessments and role-based security training of employees; and

(7) submission by the Administration to Congress of information regarding high risk projects and cybersecurity risks.

(d) CONGRESSIONAL OVERSIGHT.—The Administrator shall submit to the appropriate committees of Congress the strategic plan under subsection (a) and any updates to the strategic plan.

§ 71753. Information security plan for cybersecurity

(a) IN GENERAL.—Not later than 1 year after March 21, 2017, the Administrator shall implement the information security plan developed under subsection (b) and take such further actions as the Administrator considers necessary to improve the information security system in accordance with this section.

(b) INFORMATION SECURITY PLAN.—Subject to subsections (c) and (d), the Administrator shall develop an Administration-wide information security plan to enhance information security for Administration information and information infrastructure.

(c) REQUIREMENTS.—In developing the plan under subsection (b), the Administrator shall ensure that the plan—

(1) reflects the unique nature of the Administration's mission and expertise;

(2) is informed by policies, standards, guidelines, and directives on information security required for Federal agencies;

(3) is consistent with the standards and guidelines under section 11331 of title 40; and

(4) meets applicable National Institute of Standards and Technology information security standards and guidelines.

(d) CONTENTS.—The plan shall address—

(1) an overview of the requirements of the information security system;

(2) an Administration-wide risk management framework for information security;

(3) a description of the information security system management controls and common controls that are necessary to ensure compliance with information security-related requirements;

(4) an identification and assignment of roles, responsibilities, and management commitment for information security at the Administration;

(5) coordination among organizational entities, including between each center, facility, mission directorate, and mission support office, and among Administration entities responsible for different aspects of information security;

(6) the need to protect the information security of mission-critical systems and activities and high-impact and moderate-impact information systems; and

(7) a schedule of frequent reviews and updates, as necessary, of the plan.

PART B—COLLABORATION AMONG MISSION DIRECTORATES AND OTHER MATTERS

§ 71761. Collaboration among mission directorates

The Administrator shall encourage an interdisciplinary approach among all Administration mission directorates and divisions, whenever appropriate, for projects or missions—

(1) to improve coordination, and encourage collaboration and early planning on scope;

(2) to determine areas of overlap or alignment;

(3) to find ways to leverage across divisional perspectives to maximize outcomes; and

(4) to be more efficient with resources and funds.

§ 71762. Administration launch capabilities collaboration

The Administrator shall pursue a strategy for acquisition of crewed transportation services and non-crewed launch services that continues to enhance communication, collaboration, and coordination between the Launch Services Program and the Commercial Crew Program.

§ 71763. Education and outreach

The Administrator shall continue engagement with the public and education opportunities for students via all the Administration's mission directorates to the maximum extent practicable.

§ 71764. Leveraging commercial satellite servicing capabilities across mission directorates

The Administrator shall—

(1) identify orbital assets in both the Science Mission Directorate and the Human Exploration and Operations Mission Directorate that could benefit from satellite servicing-related technologies; and

(2) work across all Administration mission directorates to evaluate opportunities for the private sector to perform such services or advance technical capabilities by leveraging the technologies and techniques developed by Administration programs and other industry programs.

§ 71765. Flight opportunities

(a) DEVELOPMENT OF PAYLOADS.—

(1) IN GENERAL.—In order to conduct necessary research, the Administrator shall continue and, as the Administrator considers appropriate, expand the development of technology payloads for—

(A) scientific research; and

(B) investigating new or improved capabilities.

(2) FUNDS.—For the purpose of carrying out paragraph (1), the Administrator shall make funds available for—

(A) flight testing;
(B) payload development; and
(C) hardware related to subparagraphs (A) and (B).

(b) REAFFIRMATION OF POLICY.—Congress reaffirms that the Administrator should provide flight opportunities for payloads to microgravity environments and suborbital altitudes as authorized by section 40905 of this title.

§ 71766. Space Act Agreements

(a) FUNDED SPACE ACT AGREEMENTS.—To the extent appropriate, the Administrator shall seek to maximize the value of contributions provided by other parties under a funded Space Act Agreement in order to advance the Administration's mission.

(b) NON-EXCLUSIVITY.—

(1) IN GENERAL.—The Administrator shall, to the greatest extent practicable, issue each Space Act Agreement—

(A) except as provided in paragraph (2), on a nonexclusive basis;

(B) in a manner that ensures all non-government parties have equal access to Administration resources; and

(C) exercising reasonable care not to reveal unique or proprietary information.

(2) EXCLUSIVITY.—If the Administrator determines an exclusive arrangement is necessary, the Administrator shall, to the greatest extent practicable, issue the Space Act Agreement—

(A) utilizing a competitive selection process when exclusive arrangements are necessary; and

(B) pursuant to public announcements when exclusive arrangements are necessary.

(c) TRANSPARENCY.—The Administrator shall publicly disclose on the Administration's website and make available in a searchable format each Space Act Agreement, including an estimate of committed Administration resources and the expected benefits to Administration objectives for each agreement, with appropriate redactions for proprietary, sensitive, or classified information, not later than 60 days after such agreement is signed by the parties.

(d) ANNUAL REPORTS.—

(1) REQUIREMENT.—Not later than 90 days after the end of each fiscal year, the Administrator shall submit to the appropriate committees of Congress a report on the use of Space Act Agreement authority by the Administration during the previous fiscal year.

(2) CONTENTS.—The report shall include for each Space Act Agreement in effect at the time of the report—

(A) an indication of whether the agreement is a reimbursable, non- reimbursable, or funded Space Act Agreement;

(B) a description of—

(i) the subject and terms;
(ii) the parties;
(iii) the responsible—
(I) mission directorate;
(II) center; or
(III) headquarters element;
(iv) the value;
(v) the extent of the cost sharing among Federal Government and non-Federal sources;

(vi) the time period or schedule; and

(vii) all milestones; and (C) an indication of whether the agreement was renewed during the previous fiscal year.

(3) ANTICIPATED AGREEMENTS.—The report shall include a list of all anticipated reimbursable, non-reimbursable, and funded Space Act Agreements for the upcoming fiscal year.

(4) CUMULATIVE PROGRAM BENEFITS.—The report shall include, with respect to each Space Act Agreement covered by the report, a summary of—

(A) the technology areas in which research projects were conducted under that agreement;

(B) the extent to which the use of that agreement—

(i) has contributed to a broadening of the technology and industrial base available for meeting Administration needs; and

(ii) has fostered within the technology and industrial base new relationships and practices that support the United States; and

(C) the total amount of value received by the Federal Government during the fiscal year under that agreement.

Changes in Existing Law Made by Section 3(bb)(1) of the Bill

(1) a period of 30 days has passed after the receipt by the Speaker and the ⟦Committee on Science and Technology⟧ Committee on Science, Space, and Technology of the House of Representatives and the President and the Committee on Commerce, Science, and Transportation of the Senate of a report by the Administrator or the Administrator's designee containing a full and complete statement of the action proposed to be taken and the facts and circumstances relied upon in support of such action; or

Changes in Existing Law Made by Section 3(bb)(2) of the Bill

(a) NOTICE OF REPROGRAMMING.—If any funds authorized by this Act are subject to a reprogramming action that requires notice to be provided to the Appropriations Committees of the House of Representatives and the Senate, notice of such action shall concurrently be provided to the ⟦Committee on Science⟧ *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(b) NOTICE OF REORGANIZATION.—The Administrator shall provide notice to the ⟦Committees on Science and Appropriations⟧ *Committee on Science, Space, and Technology and the Committee on Appropriations* of the House of Representatives, and the Committees on Commerce, Science, and Transportation and Appropriations of the Senate, not later than 30 days before any major reorganization of any program, project, or activity of the National Aeronautics and Space Administration.

Changes in Existing Law Made by Section 3(bb)(3) of the Bill

(b) REPORTS TO CONGRESS.—The Administrator shall in January of each year report to the ⟦Committee on Science and Technology⟧ *Committee on Science, Space, and Technology* and the Committee

on Appropriations of the House of Representatives and the Committee on Commerce, Science, and Transportation and the Committee on Appropriations of the Senate the projected aggregate contingent liability of the Government under termination provisions of any contract authorized in this section through the next fiscal year. The authority of the Administration to enter into and to maintain the contract authorized hereunder shall remain in effect unless repealed by legislation enacted by Congress.

Changes in Existing Law Made by Section 3(bb)(4) of the Bill

(c) REPORT.—Not later than one year after October 15, 2008, and annually thereafter, the Administrator shall submit a report to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the efforts and accomplishments of the program established under subsection (a) in support of the Administration's Innovative Partnerships Program. As part of the report, the Administrator shall provide—

Changes in Existing Law Made by Section 3(bb)(5) of the Bill

(b) REPORT.—A report on the assessment carried out under subsection (a) shall be transmitted to the House of Representatives [Committee on Science and Technology] *Committee on Science, Space, and Technology* and the Senate Committee on Commerce, Science, and Transportation not later than 15 months after the date of enactment of this Act.

Changes in Existing Law Made by Section 3(bb)(6) of the Bill

(a) IN GENERAL.—The Administrator shall transmit to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate an implementation plan describing the Administration's approach for obtaining, implementing, and sharing lessons learned and best practices for its major programs and projects not later than 180 days after December 30, 2005. The implementation plan shall be updated and maintained to ensure that it is current and consistent with the burgeoning culture of learning and safety that is emerging at the Administration.

Changes in Existing Law Made by Section 3(bb)(7)(A) of the Bill

(a) IN GENERAL.—Not later than 1 year after December 30, 2005, the Administrator shall transmit to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan describing steps to be taken by the Administration to protect from retaliation Administration employees who raise concerns about substantial and specific dangers to public health and safety or about substantial and specific factors that could threaten the success of a mission. The plan shall be designed to ensure that Administration employees have the full protection required by law. The Administrator shall implement the plan not more than 1 year after its transmittal.

Changes in Existing Law Made by Section 3(bb)(7)(B) of the Bill

(d) REPORT.—Not later than February 15 of each year beginning February 15, 2007, the Administrator shall transmit a report to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on the concerns described in subsection (a) that were raised during the previous fiscal year. At a minimum, the report shall provide—

Changes in Existing Law Made by Section 3(bb)(8) of the Bill

(c) REPORTS.—Not later than March 1 of each year, beginning with the first fiscal year after December 30, 2005, the Administrator shall transmit a report to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate—

Changes in Existing Law Made by Section 3(bb)(9)(A) of the Bill

(2) REPORTS.—(A) Not later than April 1, 2006, the Administrator shall transmit a plan to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the activities that will be undertaken as part of the national awareness campaign required by paragraph (1) and the expected cost of those activities. NASA may undertake activities as part of the national awareness campaign prior to the transmittal of the plan required by this subparagraph, but the plan shall include a description of any activities undertaken prior to the transmittal and the estimated cost of those activities.

Changes in Existing Law Made by Section 3(bb)(9)(B) of the Bill

(B) Not later than three years after the date of enactment of this Act, the Administrator shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate an assessment of the impact of the national awareness campaign.

Changes in Existing Law Made by Section 3(bb)(9)(C) of the Bill

(b) BUDGET INFORMATION.—Not later than April 30, 2006, the Administrator shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report describing—

Changes in Existing Law Made by Section 3(bb)(9)(D) of the Bill

(3) SCHEDULE.—The Administrator shall transmit the plan under this subsection to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than February 17, 2007.

Changes in Existing Law Made by Section 3(bb)(9)(E) of the Bill

(d) JOINT DARK ENERGY MISSION.—The Administrator and the Director of the Department of Energy Office of Science shall jointly transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, not later than July 15, 2006, a report on plans for a Joint Dark Energy Mission. The report shall include the amount of funds each agency intends to expend on the Joint Dark Energy Mission for each of the fiscal years 2007 through 2011, and any specific milestones for the development and launch of the Mission.

Changes in Existing Law Made by Section 3(bb)(9)(F) of the Bill

(2) REPORT.—Not later than one year after the date of enactment of this Act, the Director of the Office of Science and Technology Policy shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that—

Changes in Existing Law Made by Section 3(bb)(10) of the Bill

(b) REPORT.—Every 2 years, the Administrator shall submit a report to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the efforts by the Administrator to ensure equal access for minority and economically disadvantaged students under this section and the results of such efforts. As part of the report, the Administrator shall provide—

Changes in Existing Law Made by Section 3(bb)(11) of the Bill

(1) IN GENERAL.—A missile described in subsection (c) may be converted for use as a space transportation vehicle by the Federal Government if, except as provided in paragraph (2) and at least 30 days before such conversion, the agency seeking to use the missile as a space transportation vehicle transmits to the Committee on Armed Services and the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives, and to the Committee on Armed Services and the Committee on Commerce, Science, and Transportation of the Senate, a certification that the use of such missile—

Changes in Existing Law Made by Section 3(bb)(12) of the Bill

(a) CHARGES.—The Administrator shall establish a policy of charging users of the Administration's test facilities for the costs associated with their tests at a level that is competitive with alternative test facilities. The Administrator shall not implement a policy of seeking full cost recovery for a facility until at least 30 days after transmitting a notice to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

Changes in Existing Law Made by Section 3(bb)(13) of the Bill

The Secretary of Commerce shall submit an annual report on the activities of the Office, including planned programs and expenditures, to the Committee on Commerce, Science, and Transportation of the Senate and the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives.

Changes in Existing Law Made by Section 3(bb)(14) of the Bill

(b) REPORT.—The Administrator shall transmit a report to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the strategy developed under subsection (a) not later than 90 days after the date of enactment of this Act. The report shall provide, at a minimum—

Changes in Existing Law Made by Section 3(bb)(15) of the Bill

(a) A person may apply to the Secretary of Transportation for an experimental permit under this section in the form and manner the Secretary prescribes. Consistent with the protection of the public health and safety, safety of property, and national security and foreign policy interests of the United States, the Secretary, not later than 120 days after receiving an application pursuant to this section, shall issue a permit if the Secretary decides in writing that the applicant complies, and will continue to comply, with this chapter and regulations prescribed under this chapter. The Secretary shall inform the applicant of any pending issue and action required to resolve the issue if the Secretary has not made a decision not later than 90 days after receiving an application. The Secretary shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and Committee on Commerce, Science, and Transportation of the Senate a written notice not later than 15 days after any occurrence when the Secretary has failed to act on a permit within the deadline established by this section.

Changes in Existing Law Made by Section 3(bb)(16) of the Bill

(d) ANNUAL REPORT.—(1) Not later than November 15 of each year, the Secretary of Transportation shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives a report on current determinations made under subsection (c) of this section related to all issued licenses and the reasons for the determinations.

Changes in Existing Law Made by Section 3(bb)(17) of the Bill

(b) COORDINATION REPORT.—Not later than February 15 of each year, the Administrator and the Administrator of the National Oceanic and Atmospheric Administration shall jointly transmit a report to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on how the Earth science programs of the Administration and the National Oceanic and Atmospheric Administration

will be coordinated during the fiscal year following the fiscal year in which the report is transmitted.

Changes in Existing Law Made by Section 3(bb)(18)(A) of the Bill

(b) PLAN.—Not later than 180 days after the date of enactment of this Act, the Administrator shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan describing how NASA will proceed with its human space flight programs, which, at a minimum, shall describe—

Changes in Existing Law Made by Section 3(bb)(18)(B) of the Bill

(c) PERSONNEL.—The Administrator shall consult with other appropriate Federal agencies and with NASA contractors and employees to develop a transition plan for any Federal and contractor personnel engaged in the Space Shuttle program who can no longer be retained because of the retirement of the Space Shuttle. The plan shall include actions to assist Federal and contractor personnel in taking advantage of training, retraining, job placement and relocation programs, and any other actions that NASA will take to assist the employees. The plan shall also describe how the Administrator will ensure that NASA and its contractors will have an appropriate complement of employees to allow for the safest possible use of the Space Shuttle through its final flight. The Administrator shall transmit the plan to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than March 31, 2006.

Changes in Existing Law Made by Section 3(bb)(19) of the Bill

(c) PLAN.—The Administrator shall provide to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and to the Committee on Commerce, Science, and Transportation of the Senate, not later than December 1, 2000, a plan to implement the program established under subsection (a).

Changes in Existing Law Made by Section 3(bb)(20) of the Bill

(b) REPORT.—Not later than 1 year after the date of the enactment of this Act, the Administrator shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the results of the study conducted under this section.

Changes in Existing Law Made by Section 3(bb)(21) of the Bill

(b) IMPLEMENTATION PLAN.—Not later than September 30, 2001, the Administrator shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives an implementation plan to incorporate the use of a non-government organization for the International Space Station. The implementation plan shall include—

Changes in Existing Law Made by Section 4(a) of the Bill (Amending Section 914 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (Public Law 108–375, 5 U.S.C. 552 note))

(b) LAND REMOTE SENSING INFORMATION DEFINED.—In this section, the term "land remote sensing information"—

(1) means any data that—

(A) are collected by land remote sensing; and

(B) are prohibited from sale to customers other than the United States Government and United States Government-approved customers for reasons of national security pursuant to the terms of an operating license issued pursuant to [the Land Remote Sensing Policy Act of 1992 (15 U.S.C. 5601 et seq.);] *chapter 601 of title 51, United States Code*; and

* * * * * * *

(e) ADDITIONAL DEFINITION.—In this section, the term "land remote sensing" has the meaning given such term in [section 3 of the Land Remote Sensing Policy Act of 1992 (15 U.S.C. 5602).] *section 60101 of title 51, United States Code*.

Changes in Existing Law Made by Section 4(b)(1) of the Bill (Amending the Table of Contents of Chapter 123 of Title 28, United States Code)

Sec.
[1932] *1933.* Revocation of earned release credit.

Changes in Existing Law Made by Section 4(b)(2) of the Bill (Redesignating Section 1932 (relating to revocation of earned release credit) of Title 28, United States Code, as Section 1933)

§ [1932] *1933.* Revocation of earned release credit

Changes in Existing Law Made by Section 4(c) of the Bill (Amending Section 1(4) of Public Law 107–74 (31 U.S.C. 1113 note))

(4) [Section 206 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2476).] *Section 20116 of title 51, United States Code.*

Changes in Existing Law Made by Section 4(d) of the Bill (Amending the Table of Contents of Title 36, United States Code)

Sec.
23. United States Holocaust Memorial [Council] *Museum* 2301

* * * * * * *

307. Board [For] *for* Fundamental Education 30701

Changes in Existing Law Made by Section 4(e)(1) of the Bill (Amending Section 602(b)(1) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18362(b)(1)))

(1) UTILIZATION OF VEHICLE ASSETS.—In carrying out subsection (a), the Administrator shall, to the maximum extent practicable, utilize workforce, assets, and infrastructure of the Space Shuttle program in efforts relating to the initiation of a follow-on Space Launch System developed pursuant to [section 302 of this Act.] *section 71521 of title 51, United States Code.*

Changes in Existing Law Made by Section 4(e)(2) of the Bill (Amending Section 603 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18363))

SEC. 603. DISPOSITION OF ORBITER VEHICLES.

(a) IN GENERAL.—Upon the termination of the Space Shuttle program as provided in section 602, the Administrator shall decommission any remaining Space Shuttle orbiter vehicles according to established safety and historic preservation procedures prior to their designation as surplus government property. The orbiter vehicles shall be made available and located for display and maintenance through a competitive procedure established pursuant to the disposition plan developed under section 613(a) of the National Aeronautics and Space Administration Authorization Act of 2008 [(42 U.S.C. 17761(a)),] *(51 U.S.C. 70501 note)*, with priority consideration given to eligible applicants meeting all conditions of that plan which would provide for the display and maintenance of orbiters at locations with the best potential value to the public, including where the location of the orbiters can advance educational opportunities in science, technology, engineering, and mathematics disciplines, and with an historical relationship with either the launch, flight operations, or processing of the Space Shuttle orbiters or the retrieval of NASA manned space vehicles, or significant contributions to human space flight. The Smithsonian Institution, which, as of the date of enactment of this Act, houses the Space Shuttle Enterprise, shall determine any new location for the Enterprise.

(b) DISPLAY AND MAINTENANCE.—The orbiter vehicles made available under subsection (a) shall be displayed and maintained through agreements and procedures established pursuant to section 613(a) of the National Aeronautics and Space Administration Authorization Act of 2008 [(42 U.S.C. 17761(a)).] *(51 U.S.C. 70501 note)*.

Changes in Existing Law Made by Section 4(f)(1) of the Bill (Amending Section 2 of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10, 51 U.S.C. 10101 note))

SEC. 2. DEFINITIONS.

In this Act:

* * * * * * *

(8) ISS MANAGEMENT ENTITY.—The term "ISS management entity" means the organization with which the Administrator has a cooperative agreement under [section 504(a) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18354(a)).] *section 70911(a) of title 51, United States Code.*

* * * * * * *

(10) ORION.—The term "Orion" means the multipurpose crew vehicle described under [section 303 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18323).] *section 71522 of title 51, United States Code*.

* * * * * * *

(11) SPACE LAUNCH SYSTEM.—The term "Space Launch System" has the meaning given the term in [section 3 of the Na-

tional Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18302).] *section 71501 of title 51, United States Code.*

Changes in Existing Law Made by Section 4(f)(2) of the Bill (Amending Section 20302(c) of Title 51, United States Code)

(c) DEFINITIONS.—In this section:

(1) ORION.—The term "Orion" means the multipurpose crew vehicle described under [section 303 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18323).] *section 71522 of this title.*

(2) SPACE LAUNCH SYSTEM.—The term "Space Launch System" [means has the meaning] *has the meaning* given the term in [section 3 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18302).] *section 71501 of this title.*

Changes in Existing Law Made by Section 4(f)(3) of the Bill (Amending Section 202 of the National Space Grant College and Fellowship Act (Public Law 100–147, title II, 51 U.S.C. 40301 note))

SEC. 202. [The Congress finds] *(a) Congress finds* that—

(1) the vitality of the Nation and the quality of life of the citizens of the Nation depend increasingly on the understanding, assessment, development, and utilization of space resources;

(2) research and development of space science, space technology, and space commercialization will contribute to the quality of life, national security, and the enhancement of commerce;

(3) the understanding and development of the space frontiers require a broad commitment and an intense involvement on the part of the Federal Government in partnership with State and local governments, private industry, universities, organizations, and individuals concerned with the exploration and utilization of space;

(4) the National Aeronautics and Space Administration, through the national space grant college and fellowship program, offers the most suitable means for such commitment and involvement through the promotion of activities that will result in greater understanding, assessment, development, and utilization; and

(5) Federal support of the establishment, development, and operation of programs and projects by space grant colleges, space grant regional consortia, institutions of higher education, institutes, laboratories, and other appropriate public and private entities is the most cost-effective way to promote such activities.

(b) The definitions in section 40302 of title 51, United States Code, apply in this section.

Changes in Existing Law Made by Section 4(f)(4) of the Bill (Amending Section 50111(c)(2) of Title 51, United States Code)

(c) ISS TRANSITION PLAN.—

* * * * * * *

(2) REPORTS.—Not later than December 1, 2017, and biennially thereafter until 2023, the Administrator shall submit to

the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report that includes—

* * * * * * *

(E) the criteria used to determine whether the ISS is meeting the objective under [section 301(b)(2) of the National Aeronautics and Space Administration Transition Authorization Act of 2017;] *section 70912(2) of this title;*

* * * * * * *

(G) any necessary contributions that ISS extension would make to enabling execution of the human exploration roadmap under [section 432 of the National Aeronautics and Space Administration Transition Authorization Act of 2017;] *section 71721 of this title;*

* * * * * * *

(J) an evaluation of the feasible and preferred service life of the ISS beyond the period described in [section 503 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18353),] *section 70910 of this title*, through at least 2028, as a unique scientific, commercial, and space exploration-related facility, including—

Changes in Existing Law Made by Section 4(f)(5) of the Bill (Amending Section 302(c)(1) of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10, 51 U.S.C. 50111 note))

SEC. 302. TRANSPORTATION TO ISS.

(c) REAFFIRMATION.—Congress reaffirms—

(1) its commitment to the use of a commercially developed, private sector launch and delivery system to the ISS for crew missions as expressed in the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155; 119 Stat. 2895), the National Aeronautics and Space Administration Authorization Act of 2008 (Public Law 110–422; 122 Stat. 4779), and the National Aeronautics and Space Administration Authorization Act of 2010 [(42 U.S.C. 18301 et seq.)] *(Public Law 111–267; 124 Stat. 2805);* and

Changes in Existing Law Made by Section 4(f)(6) of the Bill (Amending Section 501 of the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1993 (Public Law 102–588, 51 U.S.C. 50501 note))

SEC. 501. FINDINGS.

[The Congress finds that—]

(a) DEFINITIONS.—The definitions in section 50501 of title 51, United States Code, apply in this section.

(b) IN GENERAL.—Congress finds that—

Changes in Existing Law Made by Section 4(f)(7) of the Bill (Amending Section 70501(a)(2) of Title 51, United States Code)

(a) POLICY STATEMENT.—

* * * * * * *

(2) beyond low-Earth orbit once the capabilities described in [section 421(f) of the National Aeronautics and Space Adminis-

tration Transition Authorization Act of 2017] *section 71711(c) of this title* become available.

Changes in Existing Law Made by Section 4(f)(8) of the Bill (Amending Section 70504(a) of Title 51, United States Code)

(a) IN GENERAL.—The Administration—

(1) may conduct missions to intermediate destinations in sustainable steps in accordance with section 20302(b) of this title, and on a timetable determined by the availability of funding, in order to achieve the objective of human exploration of Mars specified in [section 202(b)(5) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18312(b)(5));] *section 71512(b)(5) of this title;* and

(2) shall incorporate any such missions into the human exploration roadmap under [section 432 of the National Aeronautics and Space Administration Transition Authorization Act of 2017.] *section 71721 of this title.*

Changes in Existing Law Made by Section 6 of the Bill (Repealing Section 104 of the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1989 (Public Law 100–685, 31 U.S.C. 1105 note))

[Sec. 104. Commencing in fiscal year 1990 and every year thereafter, the President shall submit to Congress a budget request for the National Aeronautics and Space Administration for the immediate fiscal year and the following fiscal year, and include budget estimates for the third fiscal year.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Section 210 of the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1993 (Public Law 102–588, 51 U.S.C. 30103 note))

[SEC. 210. TRANSMISSION OF BUDGET ESTIMATES.

The Administrator shall, at the time of submission of the President's annual budget, transmit to the Congress—

(1) a five-year budget detailing the estimated development costs for each individual program under the jurisdiction of the National Aeronautics and Space Administration for which development costs are expected to exceed $200,000,000; and

(2) an estimate of the life-cycle costs associated with each such program.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Selected Provisions of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 42 U.S.C. 18311 et seq.))

SEC. 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "National Aeronautics and Space Administration Authorization Act of 2010".

* * * * * * *

[SEC. 201. UNITED STATES HUMAN SPACE FLIGHT POLICY.

(a) USE OF NON-UNITED STATES HUMAN SPACE FLIGHT TRANSPORTATION SERVICES.—

(1) IN GENERAL.—The Federal Government may not acquire human space flight transportation services from a foreign entity unless—

(A) no United States Government-operated human space flight capability is available;

(B) no United States commercial provider is available; and

(C) it is a qualified foreign entity.

(2) DEFINITIONS.—In this subsection:

(A) COMMERCIAL PROVIDER.—The term "commercial provider" means any person providing human space flight transportation services, primary control of which is held by persons other than the Federal Government, a State or local government, or a foreign government.

(B) QUALIFIED FOREIGN ENTITY.—The term "qualified foreign entity" means a foreign entity that is in compliance with all applicable safety standards and is not prohibited from providing space transportation services under other law.

(C) UNITED STATES COMMERCIAL PROVIDER.—The term "United States commercial provider" means a commercial provider, organized under the laws of the United States or of a State, that is more than 50 percent owned by United States nationals.

(3) ARRANGEMENTS WITH FOREIGN ENTITIES.—Nothing in this subsection shall prevent the Administrator from negotiating or entering into human space flight transportation arrangements with foreign entities to ensure safety of flight and continued ISS operations.

(b) UNITED STATES HUMAN SPACE FLIGHT CAPABILITIES.—Congress reaffirms the policy stated in section 501(a) of the National Aeronautics and Space Administration Authorization Act of 2005 (42 U.S.C. 16761(a)), that the United States shall maintain an uninterrupted capability for human space flight and operations in low-Earth orbit, and beyond, as an essential instrument of national security and of the capacity to ensure continued United States participation and leadership in the exploration and utilization of space.]

[SEC. 202. GOALS AND OBJECTIVES.

(a) LONG-TERM GOALS.—The long-term goals of the human space flight and exploration efforts of NASA shall be—

(1) to expand permanent human presence beyond low-Earth orbit and to do so, where practical, in a manner involving international, academic, and industry partners;

(2) crewed missions and progress toward achieving the goal in paragraph (1) to enable the potential for subsequent human exploration and the extension of human presence throughout the solar system; and

(3) to enable a capability to extend human presence, including potential human habitation on another celestial body and a thriving space economy in the 21st Century.

(b) KEY OBJECTIVES.—The key objectives of the United States for human expansion into space shall be—

(1) to sustain the capability for long-duration presence in low-Earth orbit, initially through continuation of the ISS and full utilization of the United States segment of the ISS as a National Laboratory, and through assisting and enabling an expanded commercial presence in, and access to, low-Earth orbit, as elements of a low-Earth orbit infrastructure;

(2) to determine if humans can live in an extended manner in space with decreasing reliance on Earth, starting with utilization of low-Earth orbit infrastructure, to identify potential roles that space resources such as energy and materials may play, to meet national and global needs and challenges, such as potential cataclysmic threats, and to explore the viability of and lay the foundation for sustainable economic activities in space;

(3) to maximize the role that human exploration of space can play in advancing overall knowledge of the universe, supporting United States national and economic security and the United States global competitive posture, and inspiring young people in their educational pursuits;

(4) to build upon the cooperative and mutually beneficial framework established by the ISS partnership agreements and experience in developing and undertaking programs and meeting objectives designed to realize the goal of human space flight set forth in subsection (a); and

(5) to achieve human exploration of Mars and beyond through the prioritization of those technologies and capabilities best suited for such a mission in accordance with the stepping stone approach to exploration under section 70504 of title 51, United States Code.]

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SEC. 301. HUMAN SPACE FLIGHT BEYOND LOW EARTH ORBIT.

* * * * * * *

[(b) REPORT ON INTERNATIONAL COLLABORATION.—

(1) REPORT REQUIRED.—Not later than 120 days after the date of enactment of this Act, the Administrator shall submit to the appropriate committees of Congress a report on the following assets and capabilities:

(A) Any effort by NASA to expand and ensure effective international collaboration on the ISS.

(B) The efforts of NASA, including its approach and progress, in defining near-term, cis-lunar space human missions.

(2) NASA CONTRIBUTIONS.—In preparing the report required by paragraph (1), the Administrator shall assume that NASA will contribute to the efforts described in that paragraph the following:

(A) A Space Launch System.

(B) A multi-purpose crew vehicle.

(C) Such other technology elements the Administrator may consider appropriate, and which the Administrator shall specifically identify in the report.]

[SEC. 302. SPACE LAUNCH SYSTEM AS FOLLOW ON LAUNCH VEHICLE TO THE SPACE SHUTTLE.

(a) UNITED STATES POLICY.—It is the policy of the United States that NASA develop a Space Launch System as a follow-on to the Space Shuttle that can access cis-lunar space and the regions of space beyond low-Earth orbit in order to enable the United States to participate in global efforts to access and develop this increasingly strategic region.

(b) INITIATION OF DEVELOPMENT.—

(1) IN GENERAL.—The Administrator shall, as soon as practicable after the date of the enactment of this Act, initiate development of a Space Launch System meeting the minimum capabilities requirements specified in subsection (c).

(2) MODIFICATION OF CURRENT CONTRACTS.—In order to limit NASA's termination liability costs and support critical capabilities, the Administrator shall, to the extent practicable, extend or modify existing vehicle development and associated contracts necessary to meet the requirements in paragraph (1), including contracts for ground testing of solid rocket motors, if necessary, to ensure their availability for development of the Space Launch System.

(c) MINIMUM CAPABILITY REQUIREMENTS.—

(1) IN GENERAL.—The Space Launch System developed pursuant to subsection (b) shall be designed to have, at a minimum, the following:

(A) The initial capability of the core elements, without an upper stage, of lifting payloads weighing between 70 tons and 100 tons into low-Earth orbit in preparation for transit for missions beyond low-Earth orbit.

(B) The capability to carry an integrated upper Earth departure stage bringing the total lift capability of the Space Launch System to 130 tons or more.

(C) The capability to lift the multipurpose crew vehicle.

(D) The capability to serve as a backup system for supplying and supporting ISS cargo requirements or crew delivery requirements not otherwise met by available commercial or partner-supplied vehicles.

(2) FLEXIBILITY.—The Space Launch System shall be designed from inception as a fully-integrated vehicle capable of carrying a total payload of 130 tons or more into low-Earth orbit in preparation for transit for missions beyond low-Earth orbit. The Space Launch System shall, to the extent practicable, incorporate capabilities for evolutionary growth to carry heavier payloads. Developmental work and testing of the core elements and the upper stage should proceed in parallel subject to appropriations. Priority should be placed on the core elements with the goal for operational capability for the core elements not later than December 31, 2016.

(3) TRANSITION NEEDS.—The Administrator shall ensure critical skills and capabilities are retained, modified, and developed, as appropriate, in areas related to solid and liquid engines, large diameter fuel tanks, rocket propulsion, and other ground test capabilities for an effective transition to the follow-on Space Launch System.

(4) The capacity for efficient and timely evolution, including the incorporation of new technologies, competition of sub-elements, and commercial operations.]

[SEC. 303. MULTI PURPOSE CREW VEHICLE.

(a) INITIATION OF DEVELOPMENT.—

(1) IN GENERAL.—The Administrator shall continue the development of a multi-purpose crew vehicle to be available as soon as practicable, and no later than for use with the Space Launch System. The vehicle shall continue to advance develop-

ment of the human safety features, designs, and systems in the Orion project.

(2) GOAL FOR OPERATIONAL CAPABILITY.—It shall be the goal to achieve full operational capability for the transportation vehicle developed pursuant to this subsection by not later than December 31, 2016. For purposes of meeting such goal, the Administrator may undertake a test of the transportation vehicle at the ISS before that date.

(b) MINIMUM CAPABILITY REQUIREMENTS.—The multi-purpose crew vehicle developed pursuant to subsection (a) shall be designed to have, at a minimum, the following:

(1) The capability to serve as the primary crew vehicle for missions beyond low-Earth orbit.

(2) The capability to conduct regular in-space operations, such as rendezvous, docking, and extra-vehicular activities, in conjunction with payloads delivered by the Space Launch System developed pursuant to section 302, or other vehicles, in preparation for missions beyond low-Earth orbit or servicing of assets described in section 804, or other assets in cis-lunar space.

(3) The capability to provide an alternative means of delivery of crew and cargo to the ISS, in the event other vehicles, whether commercial vehicles or partner-supplied vehicles, are unable to perform that function.

(4) The capacity for efficient and timely evolution, including the incorporation of new technologies, competition of sub-elements, and commercial operations.]

[SEC. 304. UTILIZATION OF EXISTING WORKFORCE AND ASSETS IN DEVELOPMENT OF SPACE LAUNCH SYSTEM AND MULTIPURPOSE CREW VEHICLE.

(a) IN GENERAL.—In developing the Space Launch System pursuant to section 302 and the multi-purpose crew vehicle pursuant to section 303, the Administrator shall, to the extent practicable utilize—

(1) existing contracts, investments, workforce, industrial base, and capabilities from the Space Shuttle and Orion and Ares 1 projects, including—

(A) space-suit development activities for application to, and coordinated development of, a multi-purpose crew vehicle suit and associated life-support requirements with potential development of standard NASA-certified suit and life support systems for use in alternative commercially-developed crew transportation systems; and

(B) Space Shuttle-derived components and Ares 1 components that use existing United States propulsion systems, including liquid fuel engines, external tank or tank-related capability, and solid rocket motor engines; and

(2) associated testing facilities, either in being or under construction as of the date of enactment of this Act.

(b) DISCHARGE OF REQUIREMENTS.—In meeting the requirements of subsection (a), the Administrator—

(1) shall, to the extent practicable, utilize ground-based manufacturing capability, ground testing activities, launch and operations infrastructure, and workforce expertise;

(2) shall, to the extent practicable, minimize the modification and development of ground infrastructure and maximize the utilization of existing software, vehicle, and mission operations processes;

(3) shall complete construction and activation of the A–3 test stand with a completion goal of September 30, 2013;

(4) may procure, develop, and flight test applicable components; and

(5) shall take appropriate actions to ensure timely and cost-effective development of the Space Launch System and the multi-purpose crew vehicle, including the use of a procurement approach that incorporates adequate and effective oversight, the facilitation of contractor efficiencies, and the streamlining of contract and procurement requirements.]

[SEC. 305. NASA LAUNCH SUPPORT AND INFRASTRUCTURE MODERNIZATION PROGRAM.

(a) IN GENERAL.—The Administrator shall carry out a program the primary purpose of which is to prepare infrastructure at the Kennedy Space Center that is needed to enable processing and launch of the Space Launch System. Vehicle interfaces and other ground processing and payload integration areas should be simplified to minimize overall costs, enhance safety, and complement the purpose of this section.

(b) ELEMENTS.—The program required by this section shall include—

(1) investments to improve civil and national security operations at the Kennedy Space Center, to enhance the overall capabilities of the Center, and to reduce the long term cost of operations and maintenance;

(2) measures to provide multi-vehicle support, improvements in payload processing, and partnering at the Kennedy Space Center; and

(3) such other measures, including investments to improve launch infrastructure at NASA flight facilities scheduled to launch cargo to the ISS under the commercial orbital transportation services program as the Administrator may consider appropriate.

(c) REPORT ON NASA LAUNCH SUPPORT AND INFRASTRUCTURE MODERNIZATION PROGRAM.—

(1) REPORT REQUIRED.—Not later than 120 days after the date of the enactment of this Act, the Administrator shall submit to the appropriate committees of Congress a report on the plan for the implementation of the NASA launch support and infrastructure modernization program.

(2) ELEMENTS.—The report required by this subsection shall include—

(A) a description of the ground infrastructure plan tied to the Space Launch System and potential ground investment activities at other NASA centers related to supporting the development of the Space Launch System;

(B) a description of proposed initiatives intended to be conducted jointly or in cooperation with Cape Canaveral Air Force Station, Florida, or other installations or components of the United States Government; and

(C) a description of plans to use funds authorized to be appropriated by this Act to improve non-NASA facilities, which plans shall include a business plan outlining the nature and scope of investments planned by other parties.]

* * * * * * *

[SEC. 308. DEVELOPMENT OF TECHNOLOGIES AND IN-SPACE CAPABILITIES FOR BEYOND NEAR EARTH SPACE MISSIONS.

(a) DEVELOPMENT AUTHORIZED.—The Administrator may initiate activities to develop the following:

(1) Technologies identified as necessary elements of missions beyond low-Earth orbit.

(2) In-space capabilities such as refueling and storage technology, orbital transfer stages, innovative in-space propulsion technology, communications, and data management that facilitate a broad range of users (including military and commercial) and applications defining the architecture and design of such missions.

(3) Spacesuit development and associated life support technology.

(4) Flagship missions.

(b) INVESTMENTS.—In developing technologies and capabilities under subsection (a), the Administrator may make investments—

(1) in space technologies such as advanced propulsion, propellant depots, in situ resource utilization, and robotic payloads or capabilities that enable human missions beyond low-Earth orbit ultimately leading to Mars;

(2) in a space-based transfer vehicle including these technologies with an ability to conduct space-based operations that provide capabilities—

(A) to integrate with the Space Launch System and other space-based systems;

(B) to provide opportunities for in-space servicing of and delivery to multiple space-based platforms; and

(C) to facilitate international efforts to expand human presence to deep space destinations;

(3) in advanced life support technologies and capabilities;

(4) in technologies and capabilities relating to in-space power, propulsion, and energy systems;

(5) in technologies and capabilities relating to in-space propellant transfer and storage;

(6) in technologies and capabilities relating to in situ resource utilization; and

(7) in expanded research to understand the greatest biological impediments to human deep space missions, especially the radiation challenge.

(c) UTILIZATION OF ISS AS TESTBED.—The Administrator may utilize the ISS as a testbed for any technology or capability developed under subsection (a) in a manner consistent with the provisions of this Act.

(d) COORDINATION.—The Administrator shall coordinate development of technologies and capabilities under this section through an overall agency technology approach, as authorized by section 905 of this Act.]

* * * * * * *

[SEC. 401. COMMERCIAL CARGO DEVELOPMENT PROGRAM

The Administrator shall continue to support the existing Commercial Resupply Services program, aimed at enabling the commercial space industry in support of NASA to develop reliable means of launching cargo and supplies to the ISS throughout the duration of the facility's operation. The Administrator may apply funds towards the reduction of risk to the timely start of these services, specifically—

(1) efforts to conduct a flight test;

(2) accelerate development; and

(3) develop the ground infrastructure needed for commercial cargo capability.**]**

* * * * * * *

[SEC. 403. REQUIREMENTS APPLICABLE TO DEVELOPMENT OF COMMERCIAL CREW TRANSPORTATION CAPABILITIES AND SERVICES.

(a) FY 2011 CONTRACTS AND PROCUREMENT AGREEMENTS.—

(1) IN GENERAL.—Except as provided in paragraph (2), the Administrator may not execute a contract or procurement agreement with respect to follow-on commercial crew services during fiscal year 2011.

(2) EXCEPTION.—Notwithstanding paragraph (1), the Administrator may execute a contract or procurement agreement with respect to follow-on commercial crew services during fiscal year 2011 if—

(A) the requirements of paragraphs (1), (2), and (3) of subsection (b) are met; and

(B) the total amount involved for all such contracts and procurement agreements executed during fiscal year 2011 does not exceed $50,000,000 for fiscal year 2011.

(b) SUPPORT.—The Administrator may, beginning in fiscal year 2012 through the duration of the program, support follow-on commercially-developed crew transportation systems dependent upon the completion of each of the following:

(1) HUMAN RATING REQUIREMENTS.—Not later than 60 days after the date of the enactment of this Act, the Administrator shall develop and make available to the public detailed human rating processes and requirements to guide the design of commercially-developed crew transportation capabilities, which requirements shall be at least equivalent to proven requirements for crew transportation in use as of the date of the enactment of this Act.

(2) COMMERCIAL MARKET ASSESSMENT.—Not later than 180 days after the date of the enactment of this Act, the Administrator shall submit to the appropriate committees of Congress an assessment, conducted, in coordination with the Federal Aviation Administration's Office of Commercial Space Transportation, for purposes of this paragraph, of the potential non-Government market for commercially-developed crew and cargo transportation systems and capabilities, including an assessment of the activities associated with potential private sector utilization of the ISS research and technology development capabilities and other potential activities in low-Earth orbit.

(3) PROCUREMENT SYSTEM REVIEW.—The Administrator shall review current Government procurement and acquisition prac-

tices and processes, including agreement authorities under the National Aeronautics and Space Act of 1958, to determine the most cost-effective means of procuring commercial crew transportation capabilities and related services in a manner that ensures appropriate accountability, transparency, and maximum efficiency in the procurement of such capabilities and services, which review shall include an identification of proposed measures to address risk management and means of indemnification of commercial providers of such capabilities and services, and measures for quality control, safety oversight, and the application of Federal oversight processes within the jurisdiction of other Federal agencies. A description of the proposed procurement process and justification of the proposed procurement for its selection shall be included in any proposed initiation of procurement activity for commercially-developed crew transportation capabilities and services and shall be subject to review by the appropriate committees of Congress before the initiation of any competitive process to procure such capabilities or services. In support of the review by such committees, the Comptroller General shall undertake an assessment of the proposed procurement process and provide a report to the appropriate committees of Congress within 90 days after the date on which the Administrator provides the description and justification to such committees.

(4) USE OF GOVERNMENT SUPPLIED CAPABILITIES AND INFRASTRUCTURE.—In evaluating any proposed development activity for commercially-developed crew or cargo launch capabilities, the Administrator shall identify the anticipated contribution of government personnel, expertise, technologies, and infrastructure to be utilized in support of design, development, or operations of such capabilities. This assessment shall include a clear delineation of the full requirements for the commercial crew service (including the contingency for crew rescue). The Administrator shall include details and associated costs of such support as part of any proposed development initiative for the procurement of commercially-developed crew or cargo launch capabilities or services.

(5) FLIGHT DEMONSTRATION AND READINESS REQUIREMENTS.—The Administrator shall establish appropriate milestones and minimum performance objectives to be achieved before authority is granted to proceed to the procurement of commercially-developed crew transportation capabilities or systems. The guidelines shall include a procedure to provide independent assurance of flight safety and flight readiness before the authorization of United States government personnel to participate as crew onboard any commercial launch vehicle developed pursuant to this section.

(6) COMMERCIAL CREW RESCUE CAPABILITIES.—The provision of a commercial capability to provide ISS crew services shall include crew rescue requirements, and shall be undertaken through the procurement process initiated in conformance with this section. In the event such development is initiated, the Administrator shall make available any relevant government-owned intellectual property deriving from the development of a multi-purpose crew vehicle authorized by this Act to commer-

cial entities involved with such crew rescue capability development which shall be relevant to the design of a crew rescue capability. In addition, the Administrator shall seek to ensure that contracts for development of the multi-purpose crew vehicle contain provisions for the licensing of relevant intellectual property to participating commercial providers of any crew rescue capability development undertaken pursuant to this section. If one or more contractors involved with development of the multi-purpose crew vehicle seek to compete in development of a commercial crew service with crew rescue capability, separate legislative authority must be enacted to enable the Administrator to provide funding for any modifications of the multi-purpose crew vehicle necessary to fulfill the ISS crew rescue function.]

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[SEC. 501. CONTINUATION OF THE INTERNATIONAL SPACE STATION.

(a) POLICY OF THE UNITED STATES.—It shall be the policy of the United States, in consultation with its international partners in the ISS program, to support full and complete utilization of the ISS through at least 2024.

(b) NASA ACTION.—In furtherance of the policy set forth in subsection (a), NASA shall—

(1) pursue international, commercial, and intragovernmental means to maximize ISS logistics supply, maintenance, and operational capabilities, reduce risks to ISS systems sustainability, and offset and minimize United States operations costs relating to the ISS;

(2) utilize, to the extent practicable, the ISS for the development of capabilities and technologies needed for the future of human space exploration beyond low-Earth orbit; and

(3) utilize, if practical and cost effective, the ISS for Science Mission Directorate missions in low-Earth orbit.]

[SEC. 502. MAXIMUM UTILIZATION OF THE INTERNATIONAL SPACE STATION.

(a) IN GENERAL.—With assembly of the ISS complete, NASA shall take steps to maximize the productivity and use of the ISS with respect to scientific and technological research and development, advancement of space exploration, and international collaboration.

(b) NASA ACTIONS.—In carrying out subsection (a), NASA shall, at a minimum, undertake the following:

(1) INNOVATIVE USE OF U.S. SEGMENT.—The United States segment of the ISS, which has been designated as a National Laboratory, shall be developed, managed and utilized in a manner that enables the effective and innovative use of such facility, as provided in section 504.

(2) INTERNATIONAL COOPERATION.—The ISS shall continue to be utilized as a key component of international efforts to build missions and capabilities that further the development of a human presence beyond near-Earth space and advance United States security and economic goals. The Administrator shall actively seek ways to encourage and enable the use of ISS capabilities to support these efforts.

(3) DOMESTIC COLLABORATION.—The operations, management, and utilization of the ISS shall be conducted in a manner that provides opportunities for collaboration with other research programs and objectives of the United States Government in cooperation with commercial suppliers, users, and developers.]

SEC. 503. MAINTENANCE OF THE UNITED STATES SEGMENT AND ASSURANCE OF CONTINUED OPERATIONS OF THE INTERNATIONAL SPACE STATION.

[(a) IN GENERAL.—The Administrator shall take all actions necessary to ensure the safe and effective operation, maintenance, and maximum utilization of the United States segment of the ISS through at least September 30, 2024.]

* * * * * * *

[(d) UTILIZATION OF RESEARCH FACILITIES AND CAPABILITIES.—Utilization of research facilities and capabilities aboard the ISS (other than exploration-related research and technology development facilities and capabilities, and associated ground support and logistics), shall be planned, managed, and supported as provided in section 504. Exploration-related research and technology development facilities, capabilities, and associated ground support and logistics shall be planned, managed, and supported by the appropriate NASA organizations and officials in a manner that does not interfere with other activities under section 504.

(e) SPACE SHUTTLE MISSION TO ISS.—

(1) SPACE SHUTTLE MISSION.—The Administrator shall fly the Launch-On-Need Shuttle mission currently designated in the Shuttle Flight Manifest dated February 28, 2010, to the ISS in fiscal year 2011, but no earlier than June 1, 2011, unless required earlier by an operations contingency, and pending the results of the assessment required by paragraph (2) and the determination under paragraph (3)(A).

(2) ASSESSMENT OF SAFE MEANS OF RETURN.—The Administrator shall provide for an assessment by the NASA Engineering and Safety Center of the procedures and plans developed to ensure the safety of the Space Shuttle crew, and alternative means of return, in the event the Space Shuttle is damaged or otherwise unable to return safely to Earth.

(3) SCHEDULE AND PAYLOAD.—The determination of the schedule and payload for the mission authorized by paragraph (1) shall take into account the following:

(A) The supply and logistics delivery requirements of the ISS.

(B) The findings of the study required by paragraph (2).

(4) FUNDS.—Amounts authorized to be appropriated by section 101(2)(B) shall be available for the mission authorized by paragraph (1).

(f) SPACE SHUTTLE MANIFEST FLIGHT ASSURANCE.—

(1) IN GENERAL.—The Administrator shall take all actions necessary to preserve Space Shuttle launch capability through fiscal year 2011 in a manner that enables the launch, at a minimum, of missions and primary payloads in the Shuttle flight manifest as of February 28, 2010.

(2) CONTINUATION OF CONTRACTOR SUPPORT.—The Administrator may not terminate any contract that provides the sys-

tem transitions necessary for shuttle-derived hardware to be used on either the multi-purpose crew vehicle described in section 303 or the Space Launch System described in section 302.]

[SEC. 504. MANAGEMENT OF THE ISS NATIONAL LABORATORY

(a) COOPERATIVE AGREEMENT WITH NOT-FOR PROFIT ENTITY FOR MANAGEMENT OF NATIONAL LABORATORY.—

(1) IN GENERAL.—The Administrator shall provide initial financial assistance and enter into a cooperative agreement with an appropriate organization that is exempt from taxation under section 501(c)(3) of the Internal Revenue Code of 1986 to manage the activities of the ISS national laboratory in accordance with this section.

(2) QUALIFICATIONS.—The organization with which the Administrator enters into the cooperative agreement shall develop the capabilities to implement research and development projects utilizing the ISS national laboratory and to otherwise manage the activities of the ISS national laboratory.

(3) PROHIBITION ON OTHER ACTIVITIES.—The cooperative agreement shall require the organization entering into the agreement to engage exclusively in activities relating to the management of the ISS national laboratory and activities that promote its long term research and development mission as required by this section, without any other organizational objectives or responsibilities on behalf of the organization or any parent organization or other entity.

(b) NASA LIAISON.—

(1) DESIGNATION.—The Administrator shall designate an official or employee of the Space Operations Mission Directorate of NASA to act as liaison between NASA and the organization with which the Administrator enters into a cooperative agreement under subsection (a) with regard to the management of the ISS national laboratory.

(2) CONSULTATION WITH LIAISON.—The cooperative agreement shall require the organization entering into the agreement to carry out its responsibilities under the agreement in cooperation and consultation with the official or employee designated under paragraph (1).

(c) PLANNING AND COORDINATION OF ISS NATIONAL LABORATORY RESEARCH ACTIVITIES.—The Administrator shall provide initial financial assistance to the organization with which the Administrator enters into a cooperative agreement under subsection (a), in order for the organization to initiate the following:

(1) Planning and coordination of the ISS national laboratory research activities.

(2) Development and implementation of guidelines, selection criteria, and flight support requirements for non-NASA scientific utilization of ISS research capabilities and facilities available in United States-owned modules of the ISS or in partner-owned facilities of the ISS allocated to United States utilization by international agreement.

(3) Interaction with and integration of the International Space Station National Laboratory Advisory Committee established under section 602 of the National Aeronautics and Space Administration Authorization Act of 2008 (42 U.S.C. 17752)

with the governance of the organization, and review recommendations provided by that Committee regarding agreements with non-NASA departments and agencies of the United States Government, academic institutions and consortia, and commercial entities leading to the utilization of the ISS national laboratory facilities.

(4) Coordination of transportation requirements in support of the ISS national laboratory research and development objectives, including provision for delivery of instruments, logistics support, and related experiment materials, and provision for return to Earth of collected samples, materials, and scientific instruments in need of replacement or upgrade.

(5) Cooperation with NASA, other departments and agencies of the United States Government, the States, and commercial entities in ensuring the enhancement and sustained operations of non-exploration-related research payload ground support facilities for the ISS, including the Space Life Sciences Laboratory, the Space Station Processing Facility and Payload Operations Integration Center.

(6) Development and implementation of scientific outreach and education activities designed to ensure effective utilization of ISS research capabilities including the conduct of scientific assemblies, conferences, and other fora for the presentation of research findings, methods, and mechanisms for the dissemination of non-restricted research findings and the development of educational programs, course supplements, interaction with educational programs at all grade levels, including student-focused research opportunities for conduct of research in the ISS national laboratory facilities.

(7) Such other matters relating to the utilization of the ISS national laboratory facilities for research and development as the Administrator may consider appropriate.

(d) RESEARCH CAPACITY ALLOCATION AND INTEGRATION OF RESEARCH PAYLOADS.—

(1) ALLOCATION OF ISS RESEARCH CAPACITY.—As soon as practicable after the date of enactment of this Act, but not later than October 1, 2011, ISS national laboratory managed experiments shall be guaranteed access to, and utilization of, not less than 50 percent of the United States research capacity allocation, including power, cold stowage, and requisite crew time onboard the ISS through at least September 30, 2024. Access to the ISS research capacity includes provision for the adequate upmass and downmass capabilities to utilize the ISS research capacity, as available. The Administrator may allocate additional capacity to the ISS national laboratory should such capacity be in excess of NASA research requirements.

(2) ADDITIONAL RESEARCH CAPABILITIES.—If any NASA research plan is determined to require research capacity onboard the ISS beyond the percentage allocated under paragraph (1), such research plan shall be prepared in the form of a requested research opportunity to be submitted to the process established under this section for the consideration of proposed research within the capacity allocated to the ISS national laboratory. A proposal for such a research plan may include the establishment of partnerships with non-NASA institutions eligible to

propose research to be conducted within the ISS national laboratory capacity. Until at least September 30, 2024, the official or employee designated under subsection (b) may grant an exception to this requirement in the case of a proposed experiment considered essential for purposes of preparing for exploration beyond low-Earth orbit, as determined by joint agreement between the organization with which the Administrator enters into a cooperative agreement under subsection (a) and the official or employee designated under subsection (b).

(3) RESEARCH PRIORITIES AND ENHANCED CAPACITY.—The organization with which the Administrator enters into the cooperative agreement shall consider recommendations of the National Academies Decadal Survey on Biological and Physical Sciences in Space in establishing research priorities and in developing proposed enhancements of research capacity and opportunities for the ISS national laboratory.

(4) RESPONSIBILITY FOR RESEARCH PAYLOAD.—NASA shall retain its roles and responsibilities in providing research payload physical, analytical, and operations integration during preflight, post-flight, transportation, and orbital phases essential to ensure safe and effective flight readiness and vehicle integration of research activities approved and prioritized by the organization with which the Administrator enters into the cooperative agreement and the official or employee designated under subsection (b).]

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[SEC. 702. INTERAGENCY COLLABORATION IMPLEMENTATION APPROACH.

The Director of OSTP shall establish a mechanism to ensure greater coordination of the research, operations, and activities relating to civilian Earth observation of those Agencies, including NASA, that have active programs that either contribute directly or indirectly to these areas. This mechanism should include the development of a strategic implementation plan that is updated at least every 3 years, and includes a process for external independent advisory input. This plan should include a description of the responsibilities of the various Agency roles in Earth observations, recommended cost-sharing and procurement arrangements between Agencies and other entities, including international arrangements, and a plan for ensuring the provision of sustained, long term space-based climate observations. The Director shall provide a report to Congress within 90 days after the date of enactment of this Act on the implementation plan for this mechanism.]

[SEC. 703. TRANSITIONING EXPERIMENTAL RESEARCH TO OPERATIONS.

The Administrator shall coordinate with the Administrator of NOAA and the Director of the United States Geological Survey to establish a formal mechanism that plans, coordinates, and supports the transitioning of NASA research findings, assets, and capabilities to NOAA operations and United States Geological Survey operations. In defining this mechanism, NASA should consider the establishment of a formal or informal Interagency Transition Office. The Administrator of NASA shall provide an implementation plan

for this mechanism to Congress within 90 days after the date of enactment of this Act.]

[SEC. 704. DECADAL SURVEY MISSIONS IMPLEMENTATION FOR EARTH OBSERVATION.

The Administrator shall undertake to implement, as appropriate, missions identified in the National Research Council's Earth Science Decadal Survey within the scope of the funds authorized for the Earth Science Mission Directorate.]

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[SEC. 706. INSTRUMENT TEST-BEDS AND VENTURE CLASS MISSIONS.

The Administrator shall pursue innovative ways to fly instrument-level payloads for early demonstration or as co-manifested payloads. The Congress encourages the use of the ISS as an accessible platform for the conduct of such activities. Additionally, in order to address the cost and schedule challenges associated with large flight systems, NASA should pursue smaller systems where practicable and warranted.]

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[SEC. 801. TECHNOLOGY DEVELOPMENT.

The Administrator shall ensure that the Science Mission Directorate maintains a long term technology development program for space and Earth science. This effort should be coordinated with an overall Agency technology investment approach, as authorized in section 905 of this Act.]

SEC. 802. SUBORBITAL RESEARCH ACTIVITIES.

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[(b) MANAGEMENT.—The Administrator shall designate an officer or employee of the Science Mission Directorate to act as the responsible official for all Suborbital Research in the Science Mission Directorate. The designee shall be responsible for the development of short- and long term strategic plans for maintaining, renewing and extending suborbital facilities and capabilities, monitoring progress towards goals in the plans, and be responsible for integration of suborbital activities and workforce development within the agency, thereby ensuring the long term recognition of their combined value to the directorate, to NASA, and to the Nation.

(c) ESTABLISHMENT OF SUBORBITAL RESEARCH PROGRAM.—The Administrator shall establish a Suborbital Research Program within the Science Mission Directorate that shall include the use of sounding rockets, aircraft, high altitude balloons, suborbital reusable launch vehicles, and commercial launch vehicles to advance science and train the next generation of scientists and engineers in systems engineering and systems integration which are vital to maintaining critical skills in the aerospace workforce. The program shall integrate existing suborbital research programs with orbital missions at the discretion of the designated officer or employee and shall emphasize the participation of undergraduate and graduate students and post-doctoral researchers when formulating announcements of opportunity.

(d) REPORT.—The Administrator shall report to the appropriate committees of Congress on the number and type of suborbital missions conducted in each fiscal year and the number of under-

graduate and graduate students participating in the missions. The report shall be made annually for each fiscal year under this section.

(e) AUTHORIZATION.—There are authorized to be appropriated to the Administrator such sums as may be necessary to carry out this section.]

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[SEC. 804. IN-SPACE SERVICING.

The Administrator shall continue to take all necessary steps to ensure that provisions are made for in-space or human servicing and repair of all future observatory-class scientific spacecraft intended to be deployed in Earth-orbit or at a Lagrangian point to the extent practicable and appropriate. The Administrator should ensure that agency investments and future capabilities for space technology, robotics, and human space flight take the ability to service and repair these spacecraft into account, where appropriate, and incorporate such capabilities into design and operational plans.]

[SEC. 805. DECADAL RESULTS.

NASA shall take into account the current decadal surveys from the National Academies' Space Studies Board when submitting the President's budget request to the Congress.]

SEC. 806. ON-GOING RESTORATION OF RADIOISOTOPE THERMOELECTRIC GENERATOR MATERIAL PRODUCTION.

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[(b) IN GENERAL.—The Administrator shall, in coordination with the Secretary of Energy, pursue a joint approach beginning in fiscal year 2011 towards restarting and sustaining the domestic production of radioisotope thermoelectric generator material for deep space and other science and exploration missions. Funds authorized by this Act for NASA shall be made available under a reimbursable agreement with the Department of Energy for the purpose of reestablishing facilities to produce fuel required for radioisotope thermoelectric generators to enable future missions.

(c) REPORT.—Within 120 days after the date of enactment of this Act, the Administrator and the Secretary of Energy shall submit a joint report to the appropriate committees of Congress on coordinated agreements, planned implementation, and anticipated schedule, production quantities, and mission applications under this section.]

[SEC. 807. COLLABORATION WITH ESMD AND SOMD ON ROBOTIC MISSIONS.

The Administrator shall ensure that the Exploration Systems Mission Directorate and the Space Operations Mission Directorate coordinate with the Science Mission Directorate on an overall approach and plan for interagency and international collaboration on robotic missions that are NASA or internationally developed, including lunar, Lagrangian, near-Earth orbit, and Mars spacecraft, such as the International Lunar Network. Within 90 days after the date of enactment of this Act, the Administrator shall provide a plan to the appropriate committees of Congress for implementation of the collaborative approach required by this section. The Administrator may not cancel or initiate any Exploration Systems Mission

Directorate or Science Mission Directorate robotic project before the plan is submitted to the appropriate committees of Congress.]

[SEC. 808. NEAR-EARTH OBJECT SURVEY AND POLICY WITH RESPECT TO THREATS POSED.

(a) POLICY REAFFIRMATION.—Congress reaffirms the policy set forth in section 102(g) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451(g)) relating to surveying near-Earth asteroids and comets.

(b) IMPLEMENTATION.—The Director of the OSTP shall implement, before September 30, 2012, a policy for notifying Federal agencies and relevant emergency response institutions of an impending near-Earth object threat if near-term public safety is at risk, and assign a Federal agency or agencies to be responsible for protecting the United States and working with the international community on such threats.]

SEC. 809. SPACE WEATHER.

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(b) ACTION REQUIRED.—The Director of OSTP shall—

[(1) improve the Nation's ability to prepare, avoid, mitigate, respond to, and recover from potentially devastating impacts of space weather events;

(2) coordinate the operational activities of the National Space Weather Program Council members, including the NOAA Space Weather Prediction Center and the U.S. Air Force Weather Agency; and]

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[SEC. 902. AERONAUTICS RESEARCH GOALS.

The Administrator should ensure that NASA maintains a strong aeronautics research portfolio ranging from fundamental research through systems research with specific research goals, including the following:

(1) AIRSPACE CAPACITY.—NASA's Aeronautics Research Mission Directorate shall address research needs of the Next Generation Air Transportation System, including the ability of the National Airspace System to handle up to 3 times the current travel demand by 2025.

(2) ENVIRONMENTAL SUSTAINABILITY.—The Directorate shall consider and pursue concepts to reduce noise, emissions, and fuel consumption while maintaining high safety standards and shall pursue research related to alternative fuels.

(3) AVIATION SAFETY.—The Directorate shall proactively address safety challenges with new and current air vehicles and with operations in the Nation's current and future air transportation system.]

[SEC. 903. RESEARCH COLLABORATION.

(a) DEPARTMENT OF DEFENSE.—The Administrator shall continue to coordinate with the Secretary of Defense, through the National Partnership for Aeronautics Testing, to develop and implement joint plans for those elements of the Nation's research, development, testing, and engineering infrastructure that are of common interest and use.

(b) FEDERAL AVIATION ADMINISTRATION.—The Administrator shall continue to coordinate with, and work closely with, the Ad-

ministrator of the Federal Aviation Administration, under the framework of the Senior Policy Council, in development of the Next Generation Air Transportation Program. The Administrator shall encourage the Council to explore areas for greater collaboration, including areas where NASA can help to accelerate the development and demonstration of NextGen technologies.]

[SEC. 904. GOAL FOR AGENCY SPACE TECHNOLOGY.

It is critical that NASA maintain an Agency space technology base that helps align mission directorate investments and supports long term needs to complement mission-directorate funded research and support, where appropriate, multiple users, building upon its Innovative Partnerships Program and other partnering approaches.]

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[SEC. 906. NATIONAL SPACE TECHNOLOGY POLICY.

(a) IN GENERAL.—The President or the President's designee, in consultation with appropriate Federal agencies, shall develop a national policy to guide the space technology development programs of the United States through 2020. The policy shall include national goals for technology development and shall describe the role and responsibilities of each Federal agency that will carry out the policy. In developing the policy, the President or the President's designee shall utilize external studies that have been conducted on the state of United States technology development and have suggested policies to ensure continued competitiveness.

(b) CONTENT.—

(1) At a minimum, the national space technology development policy shall describe for NASA—

(A) the priority areas of research for technology investment;

(B) the basis on which and the process by which priorities for ensuing fiscal years will be selected;

(C) the facilities and personnel needed to carry out the technology development program; and

(D) the budget assumptions on which the policy is based, which for fiscal years 2011, 2012, and 2013 shall be the authorized level for NASA's technology program authorized by this Act.

(2) The policy shall be based on the premise that the Federal Government has an established interest in conducting research and development programs that help preserve the role of the United States as a global leader in space technologies and their application.

(3) CONSIDERATIONS.—In developing the national space technology development policy, the President or the President's designee shall consider, and include a discussion in the report required by subsection (c), of the following issues:

(A) The extent to which NASA should focus on long term, high-risk research or more incremental technology development, and the expected impact of that decision on the United States economy.

(B) The extent to which NASA should address military and commercial needs.

(C) How NASA will coordinate its technology program with other Federal agencies.

(D) The extent to which NASA will conduct research in-house, fund university research, and collaborate on industry research and the expected impact of that mix of funding on the supply of United States workers for industry.

(4) CONSULTATION.—In the development of the national space technology development policy, the President or the President's designee shall consult widely with academic and industry experts and with other Federal agencies. The Administrator may enter into an arrangement with the National Academy of Sciences to help develop the policy.

(c) REPORT.—

(1) POLICY.—Not later than 1 year after the date of enactment of this Act, the President shall transmit a report setting forth national space technology policy to the appropriate committees of Congress and to the Senate Committee on Appropriations and the House of Representatives Committee on Appropriations.

(2) IMPLEMENTATION.—Not later than 60 days after the President transmits the report required by paragraph (1) to the Congress, the Administrator shall transmit a report to the same committees describing how NASA will carry out the policy.]

[SEC. 907. COMMERCIAL REUSABLE SUBORBITAL RESEARCH PROGRAM.

(a) IN GENERAL.—The report of the National Academy of Sciences, Revitalizing NASA's Suborbital Program: Advancing Science, Driving Innovation and Developing Workforce, found that suborbital science missions were absolutely critical to building an aerospace workforce capable of meeting the needs of current and future human and robotic space exploration.

(b) MANAGEMENT.—The Administrator shall designate an officer or employee of the Space Technology Program to act as the responsible official for the Commercial Reusable Suborbital Research Program in the Space Technology Program. The designee shall be responsible for the development of short- and long term strategic plans for maintaining, renewing and extending suborbital facilities and capabilities.

(c) ESTABLISHMENT.—The Administrator shall establish a Commercial Reusable Suborbital Research Program within the Space Technology Program that shall fund the development of payloads for scientific research, technology development, and education, and shall provide flight opportunities for those payloads to microgravity environments and suborbital altitudes. The Commercial Reusable Suborbital Research Program may fund engineering and integration demonstrations, proofs of concept, or educational experiments for commercial reusable vehicle flights. The program shall endeavor to work with NASA's Mission Directorates to help achieve NASA's research, technology, and education goals.

(d) REPORT.—The Administrator shall submit a report annually to the appropriate committees of Congress describing progress in carrying out the Commercial Reusable Suborbital Research program, including the number and type of suborbital missions planned in each fiscal year.

(e) AUTHORIZATION.—There are authorized to be appropriated to the Administrator $15,000,000 for each of fiscal years 2011 through 2013 to carry out this section.]

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SEC. 1202. NATIONAL AND INTERNATIONAL ORBITAL DEBRIS MITIGATION.

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[(b) INTERNATIONAL DISCUSSION.—

(1) IN GENERAL.—The Administrator shall, in consultation with such other departments and agencies of the Federal Government as the Administrator considers appropriate, continue and strengthen discussions with the representatives of other space-faring countries, within the Inter-Agency Space Debris Coordination Committee and elsewhere, to deal with this orbital debris mitigation.

(2) INTERAGENCY EFFORT.—For purposes of carrying out this subsection, the Director of OSTP, in coordination with the Director of the National Security Council and using the President's Council of Advisors on Science and Technology coordinating mechanism, shall develop an overall strategy for review by the President, with recommendations for proposed international collaborative efforts to address this challenge.]

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SEC. 1203. REPORTS ON PROGRAM AND COST ASSESSMENT AND CONTROL ASSESSMENT.

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[(b) REPORTS.—

(1) REPORTS REQUIRED.—Not later than 90 days after the date of the enactment of this Act, and not later than April 30 of each year thereafter, the Administrator shall submit to the appropriate committees of Congress a report on the implementation during the preceding year for the corrective action plan referred to in subsection (a)(4).

(2) ELEMENTS.—Each report under this subsection shall set forth, for the year covered by such report, the following:

(A) A description of each NASA program that has exceeded its cost baseline by 15 percent or more or is more than 2 years behind its projected development schedule.

(B) For each program specified under subparagraph (A), a plan for such decrease in scope or requirements, or other measures, to be undertaken to control cost and schedule, including any cost monitoring or corrective actions undertaken pursuant to the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155), and the amendments made by that Act.]

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[SEC. 1206. COUNTERFEIT PARTS.

(a) IN GENERAL.—The Administrator shall plan, develop, and implement a program, in coordination with other Federal agencies, to detect, track, catalog, and reduce the number of counterfeit electronic parts in the NASA supply chain.

(b) REQUIREMENTS.—In carrying out the program, the Administrator shall establish—

(1) counterfeit part identification training for all employees that procure, process, distribute, and install electronic parts that will—

(A) teach employees how to identify counterfeit parts;

(B) educate employees on procedures to follow if they suspect a part is counterfeit;

(C) regularly update employees on new threats, identification techniques, and reporting requirements; and

(D) integrate industry associations, manufacturers, suppliers, and other Federal agencies, as appropriate;

(2) an internal database to track all suspected and confirmed counterfeit electronic parts that will maintain, at a minimum—

(A) companies and individuals known and suspected of selling counterfeit parts;

(B) parts known and suspected of being counterfeit, including lot and date codes, part numbers, and part images;

(C) countries of origin;

(D) sources of reporting;

(E) United States Customs seizures; and

(F) Government-Industry Data Exchange Program reports and other public or private sector database notifications; and

(3) a mechanism to report all information on suspected and confirmed counterfeit electronic parts to law enforcement agencies, industry associations, and other databases, and to issue bulletins to industry on counterfeit electronic parts and related counterfeit activity.

(c) REVIEW OF PROCUREMENT AND ACQUISITION POLICY.—

(1) IN GENERAL.—In establishing the program, the Administrator shall amend existing acquisition and procurement policy to purchase electronic parts from trusted or approved manufacturers. To determine trusted or approved manufacturers, the Administrator shall establish a list, assessed and adjusted at least annually, and create criteria for manufacturers to meet in order to be placed onto the list.

(2) CRITERIA.—The criteria may include—

(A) authentication or encryption codes;

(B) embedded security markings in parts;

(C) unique, harder to copy labels and markings;

(D) identifying distinct lot and serial codes on external packaging;

(E) radio frequency identification embedded into high-value parts;

(F) physical destruction of all defective, damaged, and sub-standard parts that are by-products of the manufacturing process;

(G) testing certifications;

(H) maintenance of procedures for handling any counterfeit parts that slip through;

(I) maintenance of secure facilities to prevent unauthorized access to proprietary information; and

(J) maintenance of product return, buy back, and inventory control practices that limit counterfeiting.

(d) REPORT TO CONGRESS.—Within one year after the date of enactment of this Act, the Administrator shall report on the progress of implementing this section to the appropriate committees of Congress.]

[SEC. 1207. INFORMATION SECURITY.

(a) MONITORING RISK.—

(1) UPDATE ON SYSTEM IMPLEMENTATION.—Not later than 120 days after the date of enactment of this Act, and on a biennial basis thereafter, the chief information officer of NASA, in coordination with other national security agencies, shall provide to the appropriate committees of Congress—

(A) an update on efforts to implement a system to provide dynamic, comprehensive, real-time information regarding risk of unauthorized remote, proximity, and insider use or access, for all information infrastructure under the responsibility of the chief information officer, and mission-related networks, including contractor networks;

(B) an assessment of whether the system has demonstrably and quantifiably reduced network risk compared to alternative methods of measuring security; and

(C) an assessment of the progress that each center and facility has made toward implementing the system.

(2) EXISTING ASSESSMENTS.—The assessments required of the Inspector General under section 3545 of title 44, United States Code, shall evaluate the effectiveness of the system described in this subsection.

(b) INFORMATION SECURITY AWARENESS AND EDUCATION.—

(1) IN GENERAL.—In consultation with the Department of Education, other national security agencies, and other agency directorates, the chief information officer shall institute an information security awareness and education program for all operators and users of NASA information infrastructure, with the goal of reducing unauthorized remote, proximity, and insider use or access.

(2) PROGRAM REQUIREMENTS.—

(A) The program shall include, at a minimum, ongoing classified and unclassified threat-based briefings, and automated exercises and examinations that simulate common attack techniques.

(B) All agency employees and contractors engaged in the operation or use of agency information infrastructure shall participate in the program.

(C) Access to NASA information infrastructure shall only be granted to operators and users who regularly satisfy the requirements of the program.

(D) The chief human capital officer of NASA, in consultation with the chief information officer, shall create a system to reward operators and users of agency information infrastructure for continuous high achievement in the program.

(c) INFORMATION INFRASTRUCTURE DEFINED.—In this section, the term "information infrastructure" means the underlying framework that information systems and assets rely on to process, transmit, receive, or store information electronically, including programmable

electronic devices and communications networks and any associated hardware, software, or data.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Selected Provisions of the America COMPETES Reauthorization Act of 2010 (Public Law 111–358))

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—this Act may be cited as the "America COMPETES Reauthorization Act of 2010" or the "America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Reauthorization Act of 2010".

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SEC. 202. NASA'S CONTRIBUTION TO EDUCATION.

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[(b) EDUCATIONAL PROGRAM GOALS.—NASA shall develop and maintain educational programs—

(1) to carry out and support research based programs and activities designed to increase student interest and participation in STEM, including students from minority and underrepresented groups;

(2) to improve public literacy in STEM;

(3) that employ proven strategies and methods for improving student learning and teaching in STEM;

(4) to provide curriculum support materials and other resources that—

(A) are designed to be integrated with comprehensive STEM education;

(B) are aligned with national science education standards;

(C) promote the adoption and implementation of high-quality education practices that build toward college and career-readiness; and

(5) to create and support opportunities for enhanced and ongoing professional development for teachers using best practices that improve the STEM content and knowledge of the teachers, including through programs linking STEM teachers with STEM educators at the higher education level.]

SEC. 203. ASSESSMENT OF IMPEDIMENTS TO SPACE SCIENCE AND ENGINEERING WORKFORCE DEVELOPMENT FOR MINORITY AND UNDERREPRESENTED GROUPS AT NASA.

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[(c) IMPLEMENTATION.—To the extent practicable, the Administrator shall take all necessary steps to address any impediments identified in the assessment.]

SEC. 204. INTERNATIONAL SPACE STATION'S CONTRIBUTION TO NATIONAL COMPETITIVENESS ENHANCEMENT.

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[(b) EVALUATION AND ASSESSMENT OF NASA'S INTERAGENCY CONTRIBUTION.—Pursuant to the authority provided in title II of the America COMPETES Act (Public Law 110—69), the Administrator shall evaluate and, where possible, expand efforts to maximize NASA's contribution to interagency efforts to enhance science, technology, engineering, and mathematics education capabilities,

and to enhance the Nation's technological excellence and global competitiveness. The Administrator shall identify these enhancements in the annual reports required by section 2001(e) of that Act (42 U.S.C. 16611a(e)).]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Section 913(a), (b) of the National Defense Authorization Act for Fiscal Year 2013 (Public Law 112–239, 51 U.S.C. 30701 note))

SEC. 913. LIMITATION ON INTERNATIONAL AGREEMENTS CONCERNING OUTER SPACE ACTIVITIES.

[(a) CERTIFICATION REQUIRED.—If the United States becomes a signatory to a non-legally binding international agreement concerning an International Code of Conduct for Outer Space Activities or any similar agreement, at the same time as the United States becomes such a signatory—

(1) the President shall submit to the congressional defense committees, the Permanent Select Committee on Intelligence of the House of Representatives, and the Select Committee on Intelligence of the Senate a certification that such agreement has no legally-binding effect or basis for limiting the activities of the United States in outer space; and

(2) the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and the Director of National Intelligence shall jointly submit to the congressional defense committees a certification that such agreement will be equitable, enhance national security, and have no militarily significant impact on the ability of the United States to conduct military or intelligence activities in space.

(b) BRIEFINGS AND NOTIFICATIONS REQUIRED.—

(1) RESTATEMENT OF POLICY FORMULATION UNDER THE ARMS CONTROL AND DISARMAMENT ACT WITH RESPECT TO OUTER SPACE.—No action shall be taken that would obligate the United States to reduce or limit the Armed Forces or armaments of the United States in outer space in a militarily significant manner, except pursuant to the treaty-making power of the President set forth in Article II, Section 2, Clause II of the Constitution or unless authorized by the enactment of further affirmative legislation by the Congress of the United States.

(2) BRIEFINGS.—

(A) REQUIREMENT.—The Secretary of Defense, the Secretary of State, and the Director of National Intelligence shall jointly provide to the covered congressional committees regular, detailed updates on the negotiation of a non-legally binding international agreement concerning an International Code of Conduct for Outer Space Activities or any similar agreement.

(B) TERMINATION OF REQUIREMENT.—The requirement to provide regular briefings under subparagraph (A) shall terminate on the date on which the United States becomes a signatory to an agreement referred to in subparagraph (A), or on the date on which the President certifies to Congress that the United States is no longer negotiating an agreement referred to in subparagraph (A), whichever is earlier.

(3) NOTIFICATIONS.—If the United States becomes a signatory to a non-legally binding international agreement con-

cerning an International Code of Conduct for Outer Space Activities or any similar agreement, not less than 60 days prior to any action that will obligate the United States to reduce or limit the Armed Forces or armaments or activities of the United States in outer space, the head of each Department or agency of the Federal Government that is affected by such action shall submit to Congress notice of such action and the effect of such action on such Department or agency.

(4) DEFINITION.—In this subsection, the term "covered congressional committees'" means—

(A) the Committee on Armed Services, the Committee on Foreign Affairs, and the Permanent Select Committee on Intelligence of the House of Representatives; and

(B) the Committee on Armed Services, the Committee on Foreign Relations, and the Select Committee on Intelligence of the Senate.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing 1st and 2d provisos under heading "CONSTRUCTION AND ENVIRONMENTAL COMPLIANCE AND RESTORATION" (at 127 Stat. 263) in the Science Appropriations Act, 2013 (Public Law 113–6, div. B, title III, 51 U.S.C. 20145 note))

[*Provided*, That hereafter, notwithstanding section 315 of the National Aeronautics and Space Act of 1958 (see 51 U.S.C. 20145), all proceeds from leases entered into under that section shall be deposited into this account; *Provided further*, That such proceeds shall be available for a period of 5 years to the extent and in amounts as provided in annual appropriations Acts;]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Section 3 of the Inspiring the Next Space Pioneers, Innovators, Researchers, and Explorers (INSPIRE) Women Act (Public Law 115–7, 51 U.S.C. note prec. 40901))

[SEC. 3. SUPPORTING WOMEN'S INVOLVEMENT IN THE FIELDS OF AEROSPACE AND SPACE EXPLORATION.

The Administrator of the National Aeronautics and Space Administration shall encourage women and girls to study science, technology, engineering, and mathematics, pursue careers in aerospace, and further advance the Nation's space science and exploration efforts through support of the following initiatives:

(1) NASA GIRLS and NASA BOYS.

(2) Aspire to Inspire.

(3) Summer Institute in Science, Technology, Engineering, and Research.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Selected Provisions of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10))

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "National Aeronautics and Space Administration Transition Authorization Act of 2017".

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SEC. 301. OPERATION OF THE ISS.

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[(b) OBJECTIVES.—The primary objectives of the ISS program shall be—

(1) to achieve the long term goal and objectives under section 202 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18312); and

(2) to pursue a research program that advances knowledge and provides other benefits to the Nation.]

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SEC. 302. TRANSPORTATION TO ISS.

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[(e) COMMERCIAL CREW PROGRAM.—

(1) OBJECTIVE.—The objective of the Commercial Crew Program shall be to assist in the development and certification of commercially provided transportation that—

(A) can carry United States government astronauts safely, reliably, and affordably to and from the ISS;

(B) can serve as a crew rescue vehicle; and

(C) can accomplish subparagraphs (A) and (B) as soon as practicable.

(2) PRIMARY CONSIDERATION.—The objective described in paragraph (1) shall be the primary consideration in the acquisition strategy for the Commercial Crew Program.

(3) SAFETY.—

(A) IN GENERAL.—The Administrator shall protect the safety of government astronauts by ensuring that each commercially provided transportation system under this subsection meets all applicable human rating requirements in accordance with section 403(b)(1) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18342(b)(1)).

(B) LESSONS LEARNED.—Consistent with the findings and recommendations of the Columbia Accident Investigation Board, the Administration shall ensure that safety and the minimization of the probability of loss of crew are the critical priorities of the Commercial Crew Program.

(4) COST MINIMIZATION.—The Administrator shall strive through the competitive selection process to minimize the life cycle cost to the Administration through the planned period of commercially provided crew transportation services.]

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[(g) COMPETITION.—It is the policy of the United States that, to foster the competitive development, operation, improvement, and commercial availability of space transportation services, and to minimize the life cycle cost to the Administration, the Administrator shall procure services for Federal Government access to and return from the ISS, whenever practicable, via fair and open competition for well-defined, milestone-based, Federal Acquisition Regulation-based contracts under section 201(a) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18311(a)).]

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(h) TRANSPARENCY.—

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[(2) IN GENERAL.—The Administrator shall, to the greatest extent practicable and in a manner that does not add costs or schedule delays to the program, ensure all Commercial Crew Program and Commercial Resupply Services Program providers provide evidence-based support for their costs and schedules.]

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SEC. 421. SPACE LAUNCH SYSTEM, ORION, AND EXPLORATION GROUND SYSTEMS.

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(b) SPACE LAUNCH SYSTEM.—

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[(2) REAFFIRMATION.—Congress reaffirms the policy and minimum capability requirements for the Space Launch System under section 302 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322).]

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[(d) IN GENERAL.—The Administrator shall continue the development of the fully integrated Space Launch System, including an upper stage needed to go beyond low-Earth orbit, in order to safely enable human space exploration of the Moon, Mars, and beyond over the course of the next century as required in section 302(c) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322(c)).]

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[(f) EXPLORATION MISSIONS.—The Administrator shall continue development of—

(1) an uncrewed exploration mission to demonstrate the capability of both the Space Launch System and Orion as an integrated system by 2018;

(2) subject to applicable human rating processes and requirements, a crewed exploration mission to demonstrate the Space Launch System, including the Core Stage and Exploration Upper Stages, by 2021;

(3) subsequent missions beginning with EM–3 at operational flight rate sufficient to maintain safety and operational readiness using the Space Launch System and Orion to extend into cis-lunar space and eventually to Mars; and

(4) a deep space habitat as a key element in a deep space exploration architecture along with the Space Launch System and Orion.

(g) OTHER USES.—The Administrator shall assess the utility of the Space Launch System for use by the science community and for other Federal Government launch needs, including consideration of overall cost and schedule savings from reduced transit times and increased science returns enabled by the unique capabilities of the Space Launch System.]

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SEC. 432. HUMAN EXPLORATION ROADMAP.

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[(b) HUMAN EXPLORATION ROADMAP.—

(1) IN GENERAL.—The Administrator shall develop a human exploration roadmap, including a critical decision plan, to expand human presence beyond low-Earth orbit to the surface of Mars and beyond, considering potential interim destinations such as cis-lunar space and the moons of Mars.

(2) SCOPE.—The human exploration roadmap shall include—

(A) an integrated set of exploration, science, and other goals and objectives of a United States human space exploration program to achieve the long-term goal of human missions near or on the surface of Mars in the 2030s;

(B) opportunities for international, academic, and industry partnerships for exploration-related systems, services, research, and technology if those opportunities provide cost-savings, accelerate program schedules, or otherwise benefit the goals and objectives developed under subparagraph (A);

(C) sets and sequences of precursor missions in cis-lunar space and other missions or activities necessary—

(i) to demonstrate the proficiency of the capabilities and technologies identified under subparagraph (D); and

(ii) to meet the goals and objectives developed under subparagraph (A), including anticipated timelines and missions for the Space Launch System and Orion;

(D) an identification of the specific capabilities and technologies, including the Space Launch System, Orion, a deep space habitat, and other capabilities, that facilitate the goals and objectives developed under subparagraph (A);

(E) a description of how cis-lunar elements, objectives, and activities advance the human exploration of Mars;

(F) an assessment of potential human health and other risks, including radiation exposure;

(G) mitigation plans, whenever possible, to address the risks identified in subparagraph (F);

(H) a description of those technologies already under development across the Federal Government or by other entities that facilitate the goals and objectives developed under subparagraph (A);

(I) a specific process for the evolution of the capabilities of the fully integrated Orion with the Space Launch System and a description of how these systems facilitate the goals and objectives developed under subparagraph (A) and demonstrate the capabilities and technologies described in subparagraph (D);

(J) a description of the capabilities and technologies that need to be demonstrated or research data that could be gained through the utilization of the ISS and the status of the development of such capabilities and technologies;

(K) a framework for international cooperation in the development of all capabilities and technologies identified under this section, including an assessment of the risks posed by relying on international partners for capabilities and technologies on the critical path of development;

(L) a process for partnering with nongovernmental entities using Space Act Agreements or other acquisition instruments for future human space exploration; and

(M) include information on the phasing of planned intermediate destinations, Mars mission risk areas and potential risk mitigation approaches, technology requirements and phasing of required technology development activities, the management strategy to be followed, related ISS activities, planned international collaborative activities, potential commercial contributions, and other activities relevant to the achievement of the goal established in this section.

(3) CONSIDERATIONS.—In developing the human exploration roadmap, the Administrator shall consider—

(A) using key exploration capabilities, namely the Space Launch System and Orion;

(B) using existing commercially available technologies and capabilities or those technologies and capabilities being developed by industry for commercial purposes;

(C) establishing an organizational approach to ensure collaboration and coordination among NASA's Mission Directorates under section 821, when appropriate, including to collect and return to Earth a sample from the Martian surface;

(D) building upon the initial uncrewed mission, EM–1, and first crewed mission, EM–2, of the Space Launch System and Orion to establish a sustainable cadence of missions extending human exploration missions into cis-lunar space, including anticipated timelines and milestones;

(E) developing the robotic and precursor missions and activities that will demonstrate, test, and develop key technologies and capabilities essential for achieving human missions to Mars, including long-duration human operations beyond low-Earth orbit, space suits, solar electric propulsion, deep space habitats, environmental control life support systems, Mars lander and ascent vehicle, entry, descent, landing, ascent, Mars surface systems, and in-situ resource utilization;

(F) demonstrating and testing 1 or more habitat modules in cis-lunar space to prepare for Mars missions;

(G) using public-private, firm fixed-price partnerships, where practicable;

(H) collaborating with international, academic, and industry partners, when appropriate;

(I) any risks to human health and sensitive onboard technologies, including radiation exposure;

(J) any risks identified through research outcomes under the NASA Human Research Program's Behavioral Health Element; and

(K) the recommendations and ideas of several independently developed reports or concepts that describe potential Mars architectures or concepts and identify Mars as the long-term goal for human space exploration, including the reports described under section 431.

(4) CRITICAL DECISION PLAN ON HUMAN SPACE EXPLORATION.—As part of the human exploration roadmap, the Administrator shall include a critical decision plan—

(A) identifying and defining key decisions guiding human space exploration priorities and plans that need to be made before June 30, 2020, including decisions that may guide human space exploration capability development, precursor missions, long-term missions, and activities;

(B) defining decisions needed to maximize efficiencies and resources for reaching the near, intermediate, and long-term goals and objectives of human space exploration; and

(C) identifying and defining timelines and milestones for a sustainable cadence of missions beginning with EM–3 for the Space Launch System and Orion to extend human exploration from cis-lunar space to the surface of Mars.

(5) REPORTS.—

(A) INITIAL HUMAN EXPLORATION ROADMAP.—The Administrator shall submit to the appropriate committees of Congress—

(i) an initial human exploration roadmap, including a critical decision plan, before December 1, 2017; and

(ii) an updated human exploration roadmap periodically as the Administrator considers necessary but not less than biennially.

(B) CONTENTS.—Each human exploration roadmap under this paragraph shall include a description of—

(i) the achievements and goals accomplished in the process of developing such capabilities and technologies during the 2-year period prior to the submission of the human exploration roadmap; and

(ii) the expected goals and achievements in the following 2-year period.

(C) SUBMISSION WITH BUDGET.—Each human exploration roadmap under this section shall be included in the budget for that fiscal year transmitted to Congress under section 1105(a) of title 31, United States Code.]

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SEC. 501. MAINTAINING A BALANCED SPACE SCIENCE PORTFOLIO.

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[(b) POLICY.—It is the policy of the United States to ensure, to the extent practicable, a steady cadence of large, medium, and small science missions.]

SEC. 502. PLANETARY SCIENCE.

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[(b) MISSION PRIORITIES.—

(1) IN GENERAL.—In accordance with the priorities established in the most recent Planetary Science Decadal Survey, the Administrator shall ensure, to the greatest extent practicable, the completion of a balanced set of Discovery, New Frontiers, and Flagship missions at the cadence recommended by the most recent Planetary Science Decadal Survey.

(2) MISSION PRIORITY ADJUSTMENTS.—Consistent with the set of missions described in paragraph (1), and while maintaining the continuity of scientific data and steady development of capabilities and technologies, the Administrator may seek, if necessary, adjustments to mission priorities, schedule, and scope in light of changing budget projections.]

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[SEC. 508. EXTRASOLAR PLANET EXPLORATION STRATEGY.

(a) STRATEGY.—

(1) IN GENERAL.—The Administrator shall enter into an arrangement with the National Academies to develop a science strategy for the study and exploration of extrasolar planets, including the use of the Transiting Exoplanet Survey Satellite, the James Webb Space Telescope, a potential Wide-Field Infrared Survey Telescope mission, or any other telescope, spacecraft, or instrument, as appropriate.

(2) REQUIREMENTS.—The strategy shall—

(A) outline key scientific questions;

(B) identify the most promising research in the field;

(C) indicate the extent to which the mission priorities in existing decadal surveys address the key extrasolar planet research and exploration goals;

(D) identify opportunities for coordination with international partners, commercial partners, and not-for-profit partners; and

(E) make recommendations regarding the activities under subparagraphs (A) through (D), as appropriate.

(b) USE OF STRATEGY.—The Administrator shall use the strategy—

(1) to inform roadmaps, strategic plans, and other activities of the Administration as they relate to extrasolar planet research and exploration; and

(2) to provide a foundation for future activities and initiatives related to extrasolar planet research and exploration.

(c) REPORT TO CONGRESS.—Not later than 18 months after the date of enactment of this Act, the National Academies shall submit to the Administrator and to the appropriate committees of Congress a report containing the strategy developed under subsection (a).]

[SEC. 509. ASTROBIOLOGY STRATEGY.

(a) STRATEGY.—

(1) IN GENERAL.—The Administrator shall enter into an arrangement with the National Academies to develop a science strategy for astrobiology that would outline key scientific questions, identify the most promising research in the field, and indicate the extent to which the mission priorities in existing decadal surveys address the search for life's origin, evolution, distribution, and future in the Universe.

(2) RECOMMENDATIONS.—The strategy shall include recommendations for coordination with international partners.

(b) USE OF STRATEGY.—The Administrator shall use the strategy developed under subsection (a) in planning and funding research and other activities and initiatives in the field of astrobiology.

(c) REPORT TO CONGRESS.—Not later than 18 months after the date of enactment of this Act, the National Academies shall submit to the Administrator and to the appropriate committees of Congress a report containing the strategy developed under subsection (a).]

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[SEC. 517. COLLABORATION.

The Administration shall continue to develop first-of-a-kind instruments that, once proved, can be transitioned to other agencies for operations. Whenever responsibilities for the development of sensors or for measurements are transferred to the Administration from another agency, the Administration shall seek, to the extent possible, to be reimbursed for the assumption of such responsibilities.]

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SEC. 701. SPACE TECHNOLOGY INFUSION.

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[(c) POLICY.—It is the policy of the United States that the Administrator shall develop technologies to support the Administration's core missions, as described in section 2(3) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18301(3)), and support sustained investments in early stage innovation, fundamental research, and technologies to expand the boundaries of the national aerospace enterprise.

(d) PROPULSION TECHNOLOGIES.—A goal of propulsion technologies developed under subsection (c) shall be to significantly reduce human travel time to Mars.]

SEC. 702. SPACE TECHNOLOGY PROGRAM.

[(a) SPACE TECHNOLOGY PROGRAM AUTHORIZED.—The Administrator shall conduct a space technology program (referred to in this section as the "Program") to research and develop advanced space technologies that could deliver innovative solutions across the Administration's space exploration and science missions.]

[(b) CONSIDERATIONS.—In conducting the Program, the Administrator shall consider—

(1) the recommendations of the National Academies' review of the Administration's Space Technology roadmaps and priorities; and

(2) the applicable enabling aspects of the stepping stone approach to exploration under section 70504 of title 51, United States Code.]

[(c) REQUIREMENTS.—In conducting the Program, the Administrator shall—

(1) to the extent practicable, use a competitive process to select research and development projects;

(2) to the extent practicable and appropriate, use small satellites and the Administration's suborbital and ground-based platforms to demonstrate space technology concepts and developments; and

(3) as appropriate, partner with other Federal agencies, universities, private industry, and foreign countries.]

[(d) SMALL BUSINESS PROGRAMS.—The Administrator shall organize and manage the Administration's Small Business Innovation Research Program and Small Business Technology Transfer Program within the Program.]

[(e) NONDUPLICATION CERTIFICATION.—The Administrator shall submit a budget for each fiscal year, as transmitted to Congress under section 1105(a) of title 31, United States Code, that avoids duplication of projects, programs, or missions conducted by Program with other projects, programs, or missions conducted by another office or directorate of the Administration.]

(f) COLLABORATION, COORDINATION, AND ALIGNMENT.—

[(1) IN GENERAL.—The Administrator shall—

(A) ensure that the Administration's projects, programs, and activities in support of technology research and development of advanced space technologies are fully coordinated and aligned;

(B) ensure that the results the projects, programs, and activities under subparagraph (A) are shared and leveraged within the Administration; and

(C) ensure that the organizational responsibility for research and development activities in support of human space exploration not initiated as of the date of enactment of this Act is established on the basis of a sound rationale.]

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[(h) ANNUAL REPORT.—The Administrator shall include in the Administration's annual budget request for each fiscal year the rationale for assigning organizational responsibility for, in the year prior to the budget fiscal year, each initiated project, program, and mission focused on research and development of advanced technologies for human space exploration.]

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SEC. 811. INFORMATION TECHNOLOGY GOVERNANCE.

[(a) IN GENERAL.—The Administrator shall, in a manner that reflects the unique nature of NASA's mission and expertise—

(1) ensure the NASA Chief Information Officer, Mission Directorates, and Centers have appropriate roles in the management, governance, and oversight processes related to information technology operations and investments and information security programs for the protection of NASA systems;

(2) ensure the NASA Chief Information Officer has the appropriate resources and insight to oversee NASA information technology and information security operations and investments;

(3) provide an information technology program management framework to increase the efficiency and effectiveness of information technology investments, including relying on metrics for identifying and reducing potential duplication, waste, and cost;

(4) improve the operational linkage between the NASA Chief Information Officer and each NASA mission directorate, center, and mission support office to ensure both agency and mission needs are considered in agency-wide information technology and information security management and oversight;

(5) review the portfolio of information technology investments and spending, including information technology-related investments included as part of activities within NASA mission directorates that may not be considered information technology, to ensure investments are recognized and reported appropriately based on guidance from the Office of Management and Budget;

(6) consider appropriate revisions to the charters of information technology boards and councils that inform information technology investment and operation decisions; and

(7) consider whether the NASA Chief Information Officer should have a seat on any boards or councils described in paragraph (6).]

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[SEC. 812. INFORMATION TECHNOLOGY STRATEGIC PLAN.

(a) IN GENERAL.—Subject to subsection (b), the Administrator shall develop an information technology strategic plan to guide NASA information technology management and strategic objectives.

(b) REQUIREMENTS.—In developing the strategic plan, the Administrator shall ensure that the strategic plan addresses—

(1) the deadline under section 306(a) of title 5, United States Code; and

(2) the requirements under section 3506 of title 44, United States Code.

(c) CONTENTS.—The strategic plan shall address, in a manner that reflects the unique nature of NASA's mission and expertise—

(1) near and long-term goals and objectives for leveraging information technology;

(2) a plan for how NASA will submit to Congress of a list of information technology projects, including completion dates and risk level in accordance with guidance from the Office of Management and Budget;

(3) an implementation overview for an agency-wide approach to information technology investments and operations, including reducing barriers to cross-center collaboration;

(4) coordination by the NASA Chief Information Officer with centers and mission directorates to ensure that information technology policies are effectively and efficiently implemented across the agency;

(5) a plan to increase the efficiency and effectiveness of information technology investments, including a description of how unnecessarily duplicative, wasteful, legacy, or outdated information technology across NASA will be identified and eliminated, and a schedule for the identification and elimination of such information technology;

(6) a plan for improving the information security of agency information and agency information systems, including improving security control assessments and role-based security training of employees; and

(7) submission by NASA to Congress of information regarding high risk projects and cybersecurity risks.

(d) CONGRESSIONAL OVERSIGHT.—The Administrator shall submit to the appropriate committees of Congress the strategic plan under subsection (a) and any updates thereto.]

SEC. 813. CYBERSECURITY.

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[(b) INFORMATION SECURITY PLAN.—

(1) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Administrator shall implement the information security plan developed under paragraph (2) and take such further actions as the Administrator considers necessary to improve the information security system in accordance with this section.

(2) INFORMATION SECURITY PLAN.—Subject to paragraphs (3) and (4), the Administrator shall develop an agency-wide information security plan to enhance information security for NASA information and information infrastructure.

(3) REQUIREMENTS.—In developing the plan under paragraph (2), the Administrator shall ensure that the plan—

(A) reflects the unique nature of NASA's mission and expertise;

(B) is informed by policies, standards, guidelines, and directives on information security required for Federal agencies;

(C) is consistent with the standards and guidelines under section 11331 of title 40, United States Code; and

(D) meets applicable National Institute of Standards and Technology information security standards and guidelines.

(4) CONTENTS.—The plan shall address—

(A) an overview of the requirements of the information security system;

(B) an agency-wide risk management framework for information security;

(C) a description of the information security system management controls and common controls that are necessary to ensure compliance with information security-related requirements;

(D) an identification and assignment of roles, responsibilities, and management commitment for information security at the agency;

(E) coordination among organizational entities, including between each center, facility, mission directorate, and mission support office, and among agency entities responsible for different aspects of information security;

(F) the need to protect the information security of mission-critical systems and activities and high-impact and moderate-impact information systems; and

(G) a schedule of frequent reviews and updates, as necessary, of the plan.]

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[SEC. 821. COLLABORATION AMONG MISSION DIRECTORATES.

The Administrator shall encourage an interdisciplinary approach among all NASA mission directorates and divisions, whenever appropriate, for projects or missions—

(1) to improve coordination, and encourage collaboration and early planning on scope;

(2) to determine areas of overlap or alignment;

(3) to find ways to leverage across divisional perspectives to maximize outcomes; and

(4) to be more efficient with resources and funds.]

SEC. 822. NASA LAUNCH CAPABILITIES COLLABORATION.

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[(c) IN GENERAL.—The Administrator shall pursue a strategy for acquisition of crewed transportation services and non-crewed launch services that continues to enhance communication, collaboration, and coordination between the Launch Services Program and the Commercial Crew Program.]

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SEC. 824. EDUCATION AND OUTREACH.

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(b) CONTINUATION OF EDUCATION AND OUTREACH ACTIVITIES AND PROGRAMS.—

[(1) IN GENERAL.—The Administrator shall continue engagement with the public and education opportunities for students via all the Administration's mission directorates to the maximum extent practicable.]

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SEC. 825. LEVERAGING COMMERCIAL SATELLITE SERVICING CAPABILITIES ACROSS MISSION DIRECTORATES.

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[(c) LEVERAGING OF CAPABILITIES.—The Administrator shall—

(1) identify orbital assets in both the Science Mission Directorate and the Human Exploration and Operations Mission Directorate that could benefit from satellite servicing-related technologies; and

(2) work across all NASA mission directorates to evaluate opportunities for the private sector to perform such services or advance technical capabilities by leveraging the technologies and techniques developed by NASA programs and other industry programs.]

[SEC. 826. FLIGHT OPPORTUNITIES.

(a) DEVELOPMENT OF PAYLOADS.—

(1) IN GENERAL.—In order to conduct necessary research, the Administrator shall continue and, as the Administrator considers appropriate, expand the development of technology payloads for—

(A) scientific research; and

(B) investigating new or improved capabilities.

(2) FUNDS.—For the purpose of carrying out paragraph (1), the Administrator shall make funds available for—

(A) flight testing;

(B) payload development; and

(C) hardware related to subparagraphs (A) and (B).

(b) REAFFIRMATION OF POLICY.—Congress reaffirms that the Administrator should provide flight opportunities for payloads to

microgravity environments and suborbital altitudes as authorized by section 907 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18405).]

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SEC. 837. FACILITIES AND INFRASTRUCTURE.

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[(b) POLICY.—It is the policy of the United States that the Administration maintain reliable and efficient facilities and infrastructure and that decisions on whether to dispose of, maintain, or modernize existing facilities or infrastructure be made in the context of meeting future Administration needs.]

[(c) PLAN.—

(1) IN GENERAL.—The Administrator shall develop a facilities and infrastructure plan.

(2) GOAL.—The goal of the plan is to position the Administration to have the facilities and infrastructure, including laboratories, tools, and approaches, necessary to meet future Administration and other Federal agencies' laboratory needs.

(3) CONTENTS.—The plan shall identify—

(A) current Administration and other Federal agency laboratory needs;

(B) future Administration research and development and testing needs;

(C) a strategy for identifying facilities and infrastructure that are candidates for disposal, that is consistent with the national strategic direction set forth in—

(i) the National Space Policy;

(ii) the National Aeronautics Research, Development, Test, and Evaluation Infrastructure Plan;

(iii) the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155; 119 Stat. 2895), National Aeronautics and Space Administration Authorization Act of 2008 (Public Law 110–422; 122 Stat. 4779), and National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18301 et seq.); and

(iv) the human exploration roadmap under section 432 of this Act;

(D) a strategy for the maintenance, repair, upgrading, and modernization of Administration facilities and infrastructure, including laboratories and equipment;

(E) criteria for—

(i) prioritizing deferred maintenance tasks;

(ii) maintaining, repairing, upgrading, or modernizing Administration facilities and infrastructure; and

(iii) implementing processes, plans, and policies for guiding the Administration's Centers on whether to maintain, repair, upgrade, or modernize a facility or infrastructure and for determining the type of instrument to be used;

(F) an assessment of modifications needed to maximize usage of facilities that offer unique and highly specialized benefits to the aerospace industry and the American public; and

(G) implementation steps, including a timeline, milestones, and an estimate of resources required for carrying out the plan.]

[(d) REQUIREMENT TO ESTABLISH POLICY.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Administrator shall establish and make publicly available a policy that guides the Administration's use of existing authorities to out-grant, lease, excess to the General Services Administration, sell, decommission, demolish, or otherwise transfer property, facilities, or infrastructure.

(2) CRITERIA.—The policy shall include criteria for the use of authorities, best practices, standardized procedures, and guidelines for how to appropriately manage property, facilities, and infrastructure.]

[(e) SUBMISSION TO CONGRESS.—Not later than 1 year after the date of enactment of this Act, the Administrator shall submit to the appropriate committees of Congress the plan developed under subsection (c).]

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SEC. 841. SPACE ACT AGREEMENTS.

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[(b) FUNDED SPACE ACT AGREEMENTS.—To the extent appropriate, the Administrator shall seek to maximize the value of contributions provided by other parties under a funded Space Act Agreement in order to advance NASA's mission.]

[(c) NON-EXCLUSIVITY.—

(1) IN GENERAL.—The Administrator shall, to the greatest extent practicable, issue each Space Act Agreement—

(A) except as provided in paragraph (2), on a nonexclusive basis;

(B) in a manner that ensures all non-government parties have equal access to NASA resources; and

(C) exercising reasonable care not to reveal unique or proprietary information.

(2) EXCLUSIVITY.—If the Administrator determines an exclusive arrangement is necessary, the Administrator shall, to the greatest extent practicable, issue the Space Act Agreement—

(A) utilizing a competitive selection process when exclusive arrangements are necessary; and

(B) pursuant to public announcements when exclusive arrangements are necessary.]

[(d) TRANSPARENCY.—The Administrator shall publicly disclose on the Administration's website and make available in a searchable format each Space Act Agreement, including an estimate of committed NASA resources and the expected benefits to agency objectives for each agreement, with appropriate redactions for proprietary, sensitive, or classified information, not later than 60 days after such agreement is signed by the parties.]

[(e) ANNUAL REPORTS.—

(1) REQUIREMENT.—Not later than 90 days after the end of each fiscal year, the Administrator shall submit to the appropriate committees of Congress a report on the use of Space Act

Agreement authority by the Administration during the previous fiscal year.

(2) CONTENTS.—The report shall include for each Space Act Agreement in effect at the time of the report—

(A) an indication of whether the agreement is a reimbursable, nonreimbursable, or funded Space Act Agreement;

(B) a description of—

(i) the subject and terms;

(ii) the parties;

(iii) the responsible—

(I) Mission Directorate;

(II) Center; or

(III) headquarters element;

(iv) the value;

(v) the extent of the cost sharing among Federal Government and nonFederal sources;

(vi) the time period or schedule; and

(vii) all milestones; and (C) an indication of whether the agreement was renewed during the previous fiscal year.

(3) ANTICIPATED AGREEMENTS.—The report shall include a list of all anticipated reimbursable, non-reimbursable, and funded Space Act Agreements for the upcoming fiscal year.

(4) CUMULATIVE PROGRAM BENEFITS.—The report shall include, with respect to each Space Act Agreement covered by the report, a summary of—

(A) the technology areas in which research projects were conducted under that agreement;

(B) the extent to which the use of that agreement—

(i) has contributed to a broadening of the technology and industrial base available for meeting Administration needs; and

(ii) has fostered within the technology and industrial base new relationships and practices that support the United States; and

(C) the total amount of value received by the Federal Government during the fiscal year under that agreement.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Selected Provisions of the Women in Aerospace Education Act (Public Law 115–303))

SECTION 1. SHORT TITLE.

This Act may be cited as the "Women in Aerospace Education Act".

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[SEC. 3. NASA INTERNSHIP AND FELLOWSHIP OPPORTUNITIES.

Not later than October 1, 2018, the Administrator of the National Aeronautics and Space Administration (in this section referred to as "NASA") shall institute a process to encourage the recruitment of qualified candidates who are women or individuals who are underrepresented in the fields of science, technology, engineering, and mathematics (STEM) and computer science for internships and fellowships at NASA with relevance to the aerospace sector and related fields.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Section 9406 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283))

[SEC. 9406. CYBERSECURITY IN STEM PROGRAMS OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.

In carrying out any STEM education program of the National Aeronautics and Space Administration (referred to in this section as "NASA"), including a program of the Office of STEM Engagement, the Administrator of NASA shall, to the maximum extent practicable, encourage the inclusion of cybersecurity education opportunities in such program.**]**

Changes in Existing Law Made by the Bill, as Reported

In compliance with clause 3(e) of House Rule XIII, changes in existing law made by the bill, H.R. 5982, as reported, are shown as follows:

CHANGES IN EXISTING LAW MADE BY THE BILL

Set out below is a comparative print showing changes in existing law made by the bill. Insertions are shown in italic and omissions are surrounded by brackets.

Changes in Existing Law Made by Section 3(a) through (aa) of the Bill (Amending Title 51, United States Code)

TITLE 51—UNITED STATES CODE

* * * * * * *

Subtitle III—Administrative Provisions

[301. Appropriations, Budgets, and Accounting 30101**]**
301. Funding 30101

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[315. Miscellaneous 31501**]**
315. Facilities and Infrastructure 31501
317. Through 397 Reserved
399. Miscellaneous 39901

Subtitle IV—Aeronautics and Space Research and Education

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[409. Miscellaneous 40901**]**
409. Aeronautics and Space Technology 40901
411 Through 497 Reserved
499. Miscellaneous 49901

Subtitle V—Programs Targeting Commercial Opportunities

* * * * * * *

[513. Space resource commercial exploration and utilization 51301**]**
[515. Office of Spaceports 51501**]**

513. Space Resource Commercial Exploration and Utilization 51301
515. Office of Spaceports 51501
517. Development and Use of Commercial Cargo and Crew Transportation Capabilities 51701

* * * * * * *

Subtitle VII—Access to Space

[701. Use of Space Shuttle or Alternatives 70101]
701. Use of Space Launch System or Alternatives 70101

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715. Human Space Flight and Exploration 71501
717. Advancing Human Space Exploration 71701

* * * * * * *

§ 20144. Prize authority

(a) IN GENERAL.—The Administration may carry out a program to competitively award cash prizes to stimulate innovation in basic and applied research, technology development, and prototype demonstration that have the potential for application to the performance of the space and aeronautical activities of the Administration. [The Administration may carry out a program to award prizes only in conformity with this section.]

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(i) FUNDING.—

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(4) NOTICE TO COMMITTEES FOR PRIZE GREATER THAN $50,000,000.—No prize competition under this section may offer a prize in an amount greater than $50,000,000 unless 30 days have elapsed after written notice has been transmitted to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

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§ 20145. Lease of non-excess property

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(f) PROCEEDS.—Proceeds from leases entered into under this section shall be deposited in the Administration construction and environmental compliance and restoration appropriations account. The proceeds shall be available for a period of 5 years, to the extent and in amounts provided in appropriations acts.

[(f)] *(g)* REPORTING REQUIREMENTS.—The Administrator shall submit an annual report by January 31st of each year. The report shall include the following:

(1) VALUE OF ARRANGEMENTS AND EXPENDITURES OF REVENUES.—Information that identifies and quantifies the value of the arrangements and expenditures of revenues received under this section.

(2) AVAILABILITY AND USE OF FUNDS FOR OPERATING PLAN.—The availability and use of funds received under this section for the Administration's operating plan.

[(g)] *(h)* SUNSET.—The authority to enter into leases under this section shall expire 10 years after December 26, 2007. The expiration under this subsection of authority to enter into leases under this section shall not affect the validity or term of leases or the Administration's retention of proceeds from leases entered into under this section before the expiration of the authority.

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§ 20303. Contribution to innovation

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(c) BALANCED SCIENCE PROGRAM AND ROBUST AUTHORIZATION LEVELS.—The balanced science program authorized by section 101(d) of the National Aeronautics and Space Administration Authorization Act of 2005 [(42 U.S.C. 16611(d))] *(Public Law 109–155, 119 Stat. 2900)* shall be an element of the contribution by the Administration to the interagency programs.

(d) EVALUATION AND EXPANSION OF INTERAGENCY CONTRIBUTION.—

(1) IN GENERAL.—The Administrator shall evaluate and, to the extent possible—

(A) expand efforts to maximize the Administration's contribution to interagency efforts to enhance science, technology, engineering, and mathematics education capabilities; and

(B) enhance the Nation's technological excellence and global competitiveness.

(2) IDENTIFICATION IN REPORT.—The Administrator shall identify the expanded efforts and enhancements made under paragraph (1) in the annual reports required by subsection (e).

[(d)] *(e)* ANNUAL REPORT.—

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CHAPTER 301—[APPROPRIATIONS, BUDGETS, AND ACCOUNTING] *FUNDING*

[Sec.]
[30101. Prior authorization of appropriations required.]
[30102. Working capital fund.]
[30103. Budgets.]
[30104. Baselines and cost controls.]

Subchapter I—General Provisions

Sec.
30101. Prior authorization of appropriations required.
30102. Working capital fund.
30103. Baselines and cost controls.
30104. Reports on estimated costs for certain programs.
30105. Annual report on program cost and control.

Subchapter II—Budget Provisions

30121. General budget documentation requirements.

30122. Consideration of decadal surveys.
30123. Two-year budget request with 3d-year estimate.

Subchapter I—General Provisions

§ 30101. Prior authorization of appropriations required

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§ [30104] *30103*. Baselines and cost controls

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(b) CONDITIONS FOR DEVELOPMENT.—

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(2) REPORT.—The Administrator shall transmit a report describing the basis for the determination required under paragraph (1) to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate at least 30 days before entering into a contract for development under a major program.

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(c) MAJOR PROGRAM ANNUAL REPORTS.—

(1) REQUIREMENT.—Annually, at the same time as the President's annual budget submission to Congress, the Administrator shall transmit to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that includes the information required by this section for each major program for which the Administration proposes to expend funds in the subsequent fiscal year. Reports under this paragraph shall be known as Major Program Annual Reports.

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(d) NOTIFICATION.—

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(3) NOTIFICATION OF CONGRESS.—Not later than 15 days after the Administrator receives a written notification under paragraph (2), the Administrator shall transmit the notification to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(e) FIFTEEN PERCENT THRESHOLD.—

(1) DETERMINATION, REPORT, AND INITIATION OF ANALYSIS.—

* * * * * * *

(A) transmit to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, not later than 15 days after making the determination, a report that includes—

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(2) COMPLETION OF ANALYSIS AND TRANSMITTAL TO COMMITTEES.—The Administration shall complete an analysis initiated under paragraph (1)(B) not later than 6 months after the Administrator makes a determination under this subsection. The Administrator shall transmit the analysis to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and Committee on Commerce, Science, and Transportation of the Senate not later than 30 days after its completion.

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§ 30104. Reports on estimated costs for certain programs

For each program under the jurisdiction of the Administration for which development costs are expected to exceed $200,000,000, the Administrator shall submit to Congress, at the time of submission of the President's annual budget—

(1) a 5-year budget detailing the estimated development costs of the program; and

(2) an estimate of the life-cycle costs associated with the program.

§ 30105. Annual report on program cost and control

(a) ANNUAL REPORT.—Not later than April 30 of each year, the Administrator shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report on the implementation during the preceding year of the corrective action plan referred to in section 1203(a)(4) of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267).

(b) CONTENTS.—A report under this section shall contain the following:

(1) DESCRIPTION OF OVER-BUDGET OR DELAYED PROGRAMS.—For the year covered by the report, a description of each Administration program that has exceeded its cost baseline by 15 percent or more or is more than 2 years behind its projected development schedule.

(2) CORRECTIVE PLANS.—For each program described under paragraph (1), a plan for a decrease in scope or requirements, or other measures, to be undertaken to control cost and schedule, including any cost monitoring or corrective actions undertaken pursuant to the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155), and the amendments made by that Act.

Subchapter II—Budget Provisions

§ [30103] *30121.* [Budgets] *General budget documentation requirements*

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(b) ADDITIONAL BUDGET INFORMATION UPON REQUEST BY COMMITTEES.—The Administration shall make available, upon request from the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives or

the Committee on Commerce, Science, and Transportation of the Senate—

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§ 30122. Consideration of decadal surveys

The Administration shall take into account the current decadal surveys from the National Academies' Space Studies Board when submitting the President's budget request to Congress.

§ 30123. Two-year budget request with 3d-year estimate

Each fiscal year, the President shall submit to Congress a budget request for the Administration that includes—

(1) a budget request for the immediate fiscal year and the following fiscal year; and

(2) budget estimates for the 3d fiscal year.

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CHAPTER 303—CONTRACTING AND PROCUREMENT

Sec.

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30311. Counterfeit parts.

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§ 30310. Exception to alternative fuel procurement requirement

[Section 526(a) of the Energy Independence and Security Act of 2007 (42 U.S.C. 17142(a))] *Section 526 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17142)* does not prohibit the Administration from entering into a contract to purchase a generally available fuel that is not an alternative or synthetic fuel or predominantly produced from a nonconventional petroleum source, if—

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§ 30311. Counterfeit parts

(a) IN GENERAL.—The Administrator shall plan, develop, and implement a program, in coordination with other Federal agencies, to detect, track, catalog, and reduce the number of counterfeit electronic parts in the Administration supply chain.

(b) REQUIREMENTS.—In carrying out the program, the Administrator shall establish—

(1) counterfeit part identification training for all employees who procure, process, distribute, and install electronic parts that will—

(A) teach employees how to identify counterfeit parts;

(B) educate employees on procedures to follow if they suspect a part is counterfeit;

(C) regularly update employees on new threats, identification techniques, and reporting requirements; and

(D) integrate industry associations, manufacturers, suppliers, and other Federal agencies, as appropriate;

(2) an internal database to track all suspected and confirmed counterfeit electronic parts that will maintain, at a minimum—

(A) companies and individuals known and suspected of selling counterfeit parts;

(B) parts known and suspected of being counterfeit, including lot and date codes, part numbers, and part images;

(C) countries of origin;

(D) sources of reporting;

(E) United States Customs seizures; and

(F) Government-Industry Data Exchange Program reports and other public- or private-sector database notifications; and (3) a mechanism—

(A) to report all information on suspected and confirmed counterfeit electronic parts to law enforcement agency databases, industry association databases, and other databases; and

(B) to issue bulletins to industry on counterfeit electronic parts and related counterfeit activity.

(c) REVIEW OF PROCUREMENT AND ACQUISITION POLICY.—

(1) IN GENERAL.—In establishing the program, the Administrator shall amend acquisition and procurement policy in effect on October 11, 2010, to require the purchase of electronic parts from trusted or approved manufacturers. To determine trusted or approved manufacturers, the Administrator shall establish a list, assessed and adjusted at least annually, and create criteria for manufacturers to meet in order to be placed on the list.

(2) CRITERIA.—The criteria may include—

(A) authentication or encryption codes;

(B) embedded security markings in parts;

(C) unique, hard-to-copy labels and markings;

(D) identification of distinct lot and serial codes on external packaging;

(E) radio frequency identification embedded into high-value parts;

(F) physical destruction of all defective, damaged, and sub-standard parts that are by-products of the manufacturing process;

(G) testing certifications;

(H) maintenance of procedures for handling any counterfeit parts that slip through;

(I) maintenance of secure facilities to prevent unauthorized access to proprietary information; and

(J) maintenance of product return, buy back, and inventory control practices that limit counterfeiting.

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CHAPTER 305—MANAGEMENT AND REVIEW

Sec.

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30505. Information security.

30506. Workforce development for minority and underrepresented groups.

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§ 30505. Information security

(a) DEFINITION OF INFORMATION INFRASTRUCTURE.—In this section, the term "information infrastructure" means the underlying framework that information systems and assets rely on to process, transmit, receive, or store information electronically, including programmable electronic devices and communications networks and any associated hardware, software, or data.

(b) MONITORING RISK.—

(1) BIENNIAL UPDATE ON SYSTEM IMPLEMENTATION.—On a biennial basis, the chief information officer of the Administration, in coordination with other national security agencies, shall provide to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives—

(A) an update on efforts to implement a system to provide dynamic, comprehensive, real-time information regarding risk of unauthorized remote, proximity, and insider use or access, for all information infrastructure under the responsibility of the chief information officer, and mission-related networks, including contractor networks;

(B) an assessment of whether the system has demonstrably and quantifiably reduced network risk compared with alternative methods of measuring security; and

(C) an assessment of the progress that each center and facility has made toward implementing the system.

(2) EXISTING ASSESSMENTS.—The assessments required of the Inspector General under section 3555 of title 44 shall evaluate the effectiveness of the system described in this subsection.

(c) INFORMATION SECURITY AWARENESS AND EDUCATION.—

(1) IN GENERAL.—In consultation with the Department of Education, other national security agencies, and other agency directorates, the chief information officer shall institute an information security awareness and education program for all operators and users of Administration information infrastructure, with the goal of reducing unauthorized remote, proximity, and insider use or access.

(2) PROGRAM REQUIREMENT.—

(A) BRIEFINGS, EXERCISES, AND EXAMINATIONS.—The program shall include, at a minimum, ongoing classified and unclassified threat-based briefings, and automated exercises and examinations that simulate common attack techniques.

(B) PARTICIPATION.—All agency employees and contractors engaged in the operation or use of agency information infrastructure shall participate in the program.

(C) ACCESS.—Access to Administration information infrastructure shall be granted only to operators and users who regularly satisfy the requirements of the program.

(D) REWARDING ACHIEVEMENT.—The chief human capital officer of the Administration, in consultation with the chief information officer, shall create a system to reward operators and users of agency information infrastructure for continuous high achievement in the program.

§ 30506. Workforce development for minority and underrepresented groups

(a) ADDRESSING IMPEDIMENTS.—To the extent practicable, the Administrator shall take all necessary steps to address any impediments identified in the assessment described in subsection (b).

(b) ASSESSMENT.—The assessment referred to in subsection (a) is the independent assessment of impediments to space science and engineering workforce development for minority and underrepresented groups at the Administration that was prepared under section 203(a) of the America Competes Reauthorization Act of 2010 (Public Law 111–358, 124 Stat. 3994).

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CHAPTER 307—INTERNATIONAL COOPERATION AND COMPETITION

Sec.

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§30705. Limitation on international agreements concerning outer space activities.

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§ 30704. Offshore performance of contracts for the procurement of goods and services

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(2) the items and their dollar values for which **[**the Buy American Act (41 U.S.C. 10a et seq.)**]** *chapter 83 of title 41* was waived pursuant to obligations of the United States under international agreements.

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§ 30705. Limitation on international agreements concerning outer space activities

(a) DEFINITIONS.—In this section:

(1) CONGRESSIONAL DEFENSE COMMITTEES.—The term "congressional defense committees" means—

(A) the Committee on Armed Services and the Committee on Appropriations of the Senate; and

(B) the Committee on Armed Services and the Committee on Appropriations of the House of Representatives.

(2) COVERED CONGRESSIONAL COMMITTEES.—The term "covered congressional committees" means—

(A) the Committee on Armed Services, the Committee on Foreign Relations, and the Select Committee on Intelligence of the Senate; and

(B) the Committee on Armed Services, the Committee on Foreign Affairs, and the Permanent Select Committee on Intelligence of the House of Representatives.

(b) CERTIFICATION.—If the United States becomes a signatory to a non-legally binding international agreement concerning an International Code of Conduct for Outer Space Activities or any similar agreement, at the same time as the United States becomes a signatory—

(1) the President shall submit to the congressional defense committees, the Permanent Select Committee on Intelligence of the House of Representatives, and the Select Committee on Intelligence of the Senate a certification that the agreement has no legally binding effect or basis for limiting the activities of the United States in outer space; and

(2) the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and the Director of National Intelligence shall jointly submit to the congressional defense committees a certification that the agreement will be equitable, enhance national security, and have no militarily significant impact on the ability of the United States to conduct military or intelligence activities in space.

(c) BRIEFINGS AND NOTIFICATIONS REQUIRED.—

(1) RESTATEMENT OF POLICY FORMULATION UNDER THE ARMS CONTROL AND DISARMAMENT ACT WITH RESPECT TO OUTER SPACE.—No action may be taken that would obligate the United States to reduce or limit the Armed Forces or armaments of the United States in outer space in a militarily significant manner, except pursuant to the treaty- making power of the President under Article II, Section 2, Clause II of the Constitution or unless authorized by the enactment of further affirmative legislation by Congress.

(2) BRIEFINGS.—

(A) REQUIREMENT.—The Secretary of Defense, the Secretary of State, and the Director of National Intelligence shall jointly provide to the covered congressional committees regular, detailed updates on the negotiation of a non-legally binding international agreement concerning an International Code of Conduct for Outer Space Activities or any similar agreement.

(B) TERMINATION OF REQUIREMENT.—The requirement to provide regular briefings under subparagraph (A) shall terminate on the date on which the United States becomes a signatory to an agreement referred to in subparagraph (A), or on the date on which the President certifies to Congress that the United States is no longer negotiating an agreement referred to in subparagraph (A), whichever is earlier.

(3) NOTIFICATIONS.—If the United States becomes a signatory to a non-legally binding international agreement concerning an International Code of Conduct for Outer Space Activities or any similar agreement, not less than 60 days prior to any action that would obligate the United States to reduce or limit the Armed Forces, armaments, or activities of the United States in outer space, the head of each Department or agency of the Federal Government that would be affected by the action shall submit to Congress a notice of the action and its effect on the Department or agency.

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CHAPTER 313—HEALTHCARE

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§ 31302. Astronaut healthcare survey

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(b) REPORT.—The Administrator shall transmit a report of the results of the survey to Congress not later than 90 days following completion of the survey.

CHAPTER 315—FACILITIES AND INFRASTRUCTURE

Sec.
31501. Policy and plan.
31502. Maintenance and upgrade of center facilities.

§ 31501. Policy and plan

(a) POLICY.—It is the policy of the United States that the Administration maintain reliable and efficient facilities and infrastructure and that decisions on whether to dispose of, maintain, or modernize existing facilities or infrastructure be made in the context of meeting future Administration needs.

(b) PLAN.—

(1) IN GENERAL.—The Administrator shall develop a facilities and infrastructure plan.

(2) GOAL.—The goal of the plan is to position the Administration to have the facilities and infrastructure, including laboratories, tools, and approaches, necessary to meet future Administration and other Federal agencies' laboratory needs.

(3) CONTENTS.—The plan shall identify—

(A) current Administration and other Federal agency laboratory needs;

(B) future Administration research and development and testing needs;

(C) a strategy for identifying facilities and infrastructure that are candidates for disposal, that is consistent with the national strategic direction set forth in—

(i) the National Space Policy;

(ii) the National Aeronautics Research, Development, Test, and Evaluation Infrastructure Plan;

(iii) the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155, 119 Stat. 2895), the National Aeronautics and Space Administration Authorization Act of 2008 (Public Law 110–422, 122 Stat. 4779), and the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2805); and

(iv) the human exploration roadmap under section 71721 of this title;

(D) a strategy for the maintenance, repair, upgrading, and modernization of Administration facilities and infrastructure, including laboratories and equipment;

(E) criteria for—

(i) prioritizing deferred maintenance tasks;

(ii) maintaining, repairing, upgrading, or modernizing Administration facilities and infrastructure; and

(iii) implementing processes, plans, and policies for guiding the Administration's centers on whether to maintain, repair, upgrade, or modernize a facility or infrastructure and for determining the type of instrument to be used;

(F) an assessment of modifications needed to maximize usage of facilities that offer unique and highly specialized benefits to the aerospace industry and the American public; and

(G) implementation steps, including a timeline, milestones, and an estimate of resources required for carrying out the plan.

(c) REQUIREMENT TO ESTABLISH POLICY.—

(1) IN GENERAL.—Not later than 180 days after March 21, 2017, the Administrator shall establish and make publicly available a policy that guides the Administration's use of existing authorities to out-grant, lease, excess to the General Services Administration, sell, decommission, demolish, or otherwise transfer property, facilities, or infrastructure.

(2) CRITERIA.—The policy shall include criteria for the use of authorities, best practices, standardized procedures, and guidelines for how to appropriately manage property, facilities, and infrastructure.

(d) SUBMISSION TO CONGRESS.—Not later than 1 year after March 21, 2017, the Administrator shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives the plan developed under subsection (b).

§ 31502. [Maintenance of facilities] *Maintenance and upgrade of center facilities*

In order to sustain healthy centers that are capable of carrying out the Administration's missions, the Administrator shall ensure that adequate maintenance and upgrading of those center facilities is performed on a regular basis.

CHAPTERS 317 THROUGH 397—RESERVED

CHAPTER [315] 399—MISCELLANEOUS

Sec.
[31501] *39901*. Orbital debris.
[31502. Maintenance of facilities.]
[31503] *39902*. Laboratory productivity.
[31504] *39903*. Cooperative unmanned aerial vehicle activities.
[31505] *39904*. Development of enhanced-use lease policy.

§ [31501] *39901*. Orbital debris

[The Administrator] *(a) TECHNOLOGIES TO DECREASE RISK.—The Administrator*, in conjunction with the heads of other Federal agencies, shall take steps to develop or acquire technologies that will enable the Administration to decrease the risks associated with orbital debris.

(b) INTERNATIONAL DISCUSSION.—

(1) IN GENERAL.—The Administrator shall, in consultation with such other departments and agencies of the Federal Government as the Administrator considers appropriate, continue

and strengthen discussions with the representatives of other space-faring countries, within the Inter-Agency Space Debris Coordination Committee and elsewhere, to deal with orbital debris mitigation.

(2) INTERAGENCY EFFORT.—For purposes of carrying out this subsection, the Director of the Office of Science and Technology Policy, in coordination with the Director of the National Security Council and using the President's Council of Advisors on Science and Technology coordinating mechanism, shall develop an overall strategy for review by the President, with recommendations for proposed international collaborative efforts to address the challenge of orbital debris mitigation.

§ [31503] *39902*. Laboratory productivity

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§ [31504] *39903*. Cooperative unmanned aerial vehicle activities

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§ [31505] *39904*. Development of enhanced-use lease policy

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§ 40308. Space grant review panel

(a) ESTABLISHMENT.—The Administrator shall establish an independent committee known as the space grant review panel, which shall not be subject to the provisions of the Federal Advisory Committee Act [(5 App. U.S.C.)] *(5 U.S.C. App.)*.

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CHAPTER 409—AERONAUTICS AND SPACE TECHNOLOGY

Sec.
40901. Aeronautics research goals.
40902. Research collaboration.
40903. Goal for Administration space technology.
40904. National space technology policy.
40905. Commercial Reusable Suborbital Research Program.

§ 40901. Aeronautics research goals

The Administrator should ensure that the Administration maintains a strong aeronautics research portfolio ranging from fundamental research through systems research with specific research goals, including the following:

(1) AIRSPACE CAPACITY.—The Administration's Aeronautics Research Mission Directorate shall address research needs of the Next Generation Air Transportation System, including the ability of the National Airspace System to handle up to 3 times the current travel demand by 2025.

(2) ENVIRONMENTAL SUSTAINABILITY.—The Directorate shall—

(A) consider and pursue concepts to reduce noise, emissions, and fuel consumption while maintaining high safety standards; and

(B) pursue research relating to alternative fuels.

(3) AVIATION SAFETY.—The Directorate shall proactively address safety challenges with new and current air vehicles and with operations in the Nation's current and future air transportation system.

§ 40902. Research collaboration

(a) DEPARTMENT OF DEFENSE.—The Administrator shall continue to coordinate with the Secretary of Defense, through the National Partnership for Aeronautics Testing, to develop and implement joint plans for those elements of the Nation's research, development, testing, and engineering infrastructure that are of common interest and use.

(b) FEDERAL AVIATION ADMINISTRATION.—The Administrator shall continue to coordinate with, and work closely with, the Administrator of the Federal Aviation Administration, under the framework of the Senior Policy Council, in the development of the Next Generation Air Transportation Program. The Administrator shall encourage the Council to explore areas for greater collaboration, including areas in which the Administration can help to accelerate the development and demonstration of NextGen technologies.

§ 40903. Goal for Administration space technology

Building on its Innovative Partnerships Program and other partnering approaches, it is critical that the Administration maintain an Administration space technology base that helps align mission directorate investments and supports long term needs—

(1) to complement mission-directorate funded research; and

(2) where appropriate, to support multiple users.

§ 40904. National space technology policy

(a) IN GENERAL.—The President, in consultation with appropriate Federal agencies, shall develop a national policy to guide the space technology development programs of the United States through 2020. The policy shall include national goals for technology development and shall describe the role and responsibilities of each Federal agency that will carry out the policy. In developing the policy, the President shall utilize external studies that have been conducted on the state of United States technology development and have suggested policies to ensure continued competitiveness.

(b) CONTENT.—At a minimum, the national space technology development policy shall describe for the Administration—

(1) the priority areas of research for technology investment;

(2) the basis on which and the process by which priorities for ensuing fiscal years will be selected;

(3) the facilities and personnel needed to carry out the technology development program; and

(4) the budget assumptions on which the policy is based, which for fiscal years 2011, 2012, and 2013 shall be the authorized level for the Administration's technology program authorized by the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2805).

(c) POLICY PREMISE.—The policy shall be based on the premise that the Federal Government has an established interest in con-

ducting research and development programs that help preserve the role of the United States as a global leader in space technologies and their application.

(d) CONSIDERATIONS.—In developing the national space technology development policy, the President shall consider the following issues:

(1) LONG TERM AND INCREMENTAL DEVELOPMENT.—The extent to which the Administration should focus on long term, high-risk research or more incremental technology development, and the expected impact of that decision on the United States economy.

(2) MILITARY AND COMMERCIAL NEEDS.—The extent to which the Administration should address military and commercial needs.

(3) COORDINATION WITH FEDERAL AGENCIES.—How the Administration will coordinate its technology program with other Federal agencies.

(4) ADMINISTRATION, UNIVERSITY, AND INDUSTRY RESEARCH.—The extent to which the Administration will conduct research in-house, fund university research, and collaborate on industry research and the expected impact of that mix of funding on the supply of United States workers for industry.

(e) CONSULTATION.—In the development of the national space technology development policy, the President shall consult widely with academic and industry experts and with Federal agencies. The Administrator may enter into an arrangement with the National Academy of Sciences to help develop the policy.

§ 40905. Commercial Reusable Suborbital Research Program

(a) FINDING THAT SUBORBITAL SCIENCE MISSIONS ARE CRITICAL.—The report entitled Revitalizing NASA's Suborbital Program: Advancing Science, Driving Innovation, and Developing a Workforce (prepared by the Committee on NASA's Suborbital Research Capabilities, Space Studies Board, Division on Engineering and Physical Sciences, National Research Council of the National Academies) found that suborbital science missions are absolutely critical to building an aerospace workforce capable of meeting the needs of current and future human and robotic space exploration.

(b) ESTABLISHMENT.—The Administrator shall establish a Commercial Reusable Suborbital Research Program within the Space Technology Program.

(c) MANAGEMENT.—The Administrator shall designate an officer or employee of the Space Technology Program to act as the responsible official for the Commercial Reusable Suborbital Research Program. The designee shall be responsible for the development of short- and long-term strategic plans for maintaining, renewing, and extending suborbital facilities and capabilities.

(d) ACTIVITIES.—The Commercial Reusable Suborbital Research Program—

(1) shall fund the development of payloads for scientific research, technology development, and education;

(2) shall provide flight opportunities to microgravity environments and suborbital altitudes for the payloads referred to in paragraph (1);

(3) may fund engineering and integration demonstrations, proofs of concept, or educational experiments for commercial reusable vehicle flights; and

(4) shall endeavor to work with the Administration's mission directorates to help achieve the Administration's research, technology, and education goals.

(e) REPORT.—The Administrator shall annually submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report describing progress in carrying out the Commercial Reusable Suborbital Research program, including the number and type of suborbital missions planned in each fiscal year.

(f) AUTHORIZATION.—There is authorized to be appropriated to the Administrator $15,000,000 for each of fiscal years 2011 through 2013 to carry out this section.

CHAPTERS 411 THROUGH 497—RESERVED

CHAPTER [409] *499*—MISCELLANEOUS

Sec.
[40901] *49901*. Science, Space, and Technology Education Trust Fund.
[40902] *49902*. National Aeronautics and Space Administration Endeavor Teacher Fellowship Trust Fund.
[40903] *49903*. Experimental Program to Stimulate Competitive Research-merit grant competition requirements.
[40904] *49904*. Microgravity research.
[40905] *49905*. Program to expand distance learning in rural underserved areas.
[40906] *49906*. Equal access to the Administration's education programs.
[40907] *49907*. Museums.
[40908] *49908*. Continuation of certain education programs.
[40909] *49909*. Compliance with title IX of Education Amendments of 1972.
49910. Programs to support STEM education.
49911. Supporting women's involvement in the fields of aerospace and space exploration.
49912. Internship and fellowship opportunities.

§ [40901] *49901*. Science, Space, and Technology Education Trust Fund

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§ [40902] *49902*. National Aeronautics and Space Administration Endeavor Teacher Fellowship Trust Fund

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§ [40903] *49903*. Experimental Program to Stimulate Competitive Research-merit grant competition requirements

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§ [40904] *49904*. Microgravity research

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§ [40905] *49905*. Program to expand distance learning in rural underserved areas

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§ [40906] *49906*. Equal access to the Administration's education programs

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§ [40907] *49907*. Museums

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§ [40908] *49908*. Continuation of certain education programs

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§ [40909] *49909*. Compliance with title IX of Education Amendments of 1972

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§ 49910. Programs to support STEM education

(a) DEFINITION OF STEM.—In this section, the term "STEM" means the academic and professional disciplines of science, technology, engineering, and mathematics.

(b) EDUCATIONAL PROGRAM GOALS.—The Administration shall develop and maintain educational programs to—

(1) carry out and support research-based programs and activities designed to increase student interest and participation in STEM, including students from minority and underrepresented groups;

(2) improve public literacy in STEM;

(3) employ proven strategies and methods for improving student learning and teaching in STEM;

(4) provide curriculum support materials and other resources that—

(A) are designed to be integrated with comprehensive STEM education;

(B) are aligned with national science education standards; and

(C) promote the adoption and implementation of high-quality education practices that build toward college and career-readiness; and

(5) create and support opportunities for enhanced and ongoing professional development for teachers using best practices that improve the STEM content and knowledge of the teachers, including through programs linking STEM teachers with STEM educators at the higher education level.

(c) CYBERSECURITY IN STEM PROGRAMS.—In carrying out any STEM education program of the Administration, including a program of the Office of STEM Engagement, the Administrator shall, to the maximum extent practicable, encourage the inclusion of cybersecurity education opportunities in the program.

§ 49911. Supporting women's involvement in the fields of aerospace and space exploration

The Administrator shall encourage women and girls to study science, technology, engineering, and mathematics, pursue careers in aerospace, and further advance the Nation's space science and exploration efforts through support of the following initiatives:

(1) NASA GIRLS and NASA BOYS.

(2) Aspire to Inspire.

(3) Summer Institute in Science, Technology, Engineering, and Research.

§ 49912. Internship and fellowship opportunities

Not later than October 1, 2018, the Administrator shall institute a process to encourage the recruitment of qualified candidates who are women or individuals who are underrepresented in the fields of science, technology, engineering, and mathematics (STEM) and computer science for internships and fellowships at the Administration with relevance to the aerospace sector and related fields.

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§ 50905. License applications and requirements

(a) APPLICATIONS.—(1) A person may apply to the Secretary of Transportation for a license or transfer of a license under this chapter in the form and way the Secretary prescribes. Consistent with the public health and safety, safety of property, and national security and foreign policy interests of the United States, the Secretary, not later than 180 days after accepting an application in accordance with criteria established pursuant to subsection ⟦(b)(2)(D)⟧ *(b)(2)(E)*, shall issue or transfer a license if the Secretary decides in writing that the applicant complies, and will continue to comply, with this chapter and regulations prescribed under this chapter. The Secretary shall inform the applicant of any pending issue and action required to resolve the issue if the Secretary has not made a decision not later than 120 days after accepting an application in accordance with criteria established pursuant to subsection ⟦(b)(2)(D)⟧ *(b)(2)(E)*. The Secretary shall transmit to the ⟦Committee on Science⟧ *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a written notice not later than 30 days after any occurrence when the Secretary has not taken action on a license application within the deadline established by this subsection.

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(b) REQUIREMENTS.—

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(4) The holder of a license or a permit under this chapter may launch or reenter crew only if—

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(B) the holder of the license or permit has informed any individual serving as crew in writing, prior to executing any contract or other arrangement to employ that individual (or, in the case of an individual already employed as of ⟦the date of enactment of the Commercial Space Launch Amendments Act of 2004⟧ *December 23, 2004*, as early as possible, but in any event prior to any launch in which the individual will participate as crew), that the United States Government has not certified the launch ve-

hicle as safe for carrying crew or space flight participants; and

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(6)(A) The Secretary may issue regulations requiring space flight participants to undergo an appropriate physical examination prior to a launch or reentry under this chapter. This subparagraph shall cease to be in effect three years after [the date of enactment of the Commercial Space Launch Amendments Act of 2004] *December 23, 2004*.

(B) The Secretary may issue additional regulations setting reasonable requirements for space flight participants, including medical and training requirements. Such regulations shall not be effective before the expiration of 3 years after ⟦the date of enactment of the Commercial Space Launch Amendments Act of 2004⟧ *December 23, 2004*.

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§ 50922. Regulations

(a) IN GENERAL.—The Secretary of Transportation, within 9 months after ⟦the date of the enactment of this section,⟧ *October 28, 1998*, shall issue regulations to carry out this chapter that include—

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(b) REENTRY.—The Secretary of Transportation, within 6 months after ⟦the date of the enactment of this section,⟧ *October 28, 1998*, shall issue a notice of proposed rulemaking to carry out this chapter that includes—

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(c) AMENDMENTS.—(1) Not later than 12 months after ⟦the date of enactment of the Commercial Space Launch Amendments Act of 2004,⟧ *December 23, 2004*, the Secretary shall publish proposed regulations to carry out ⟦that Act,⟧ *the Commercial Space Launch Amendments Act of 2004*, including regulations relating to crew, space flight participants, and permits for launch or reentry of reusable suborbital rockets. Not later than 18 months after ⟦such date of enactment,⟧ *December 23, 2004*, the Secretary shall issue final regulations.

(2)(A) Starting 3 years after ⟦the date of enactment of the Commercial Space Launch Amendments Act of 2004,⟧ *December 23, 2004*, the Secretary may issue final regulations changing the definition of suborbital rocket under this chapter. No such regulation may take effect until 180 days after the Secretary has submitted the regulation to the Congress.

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(d) EFFECTIVE DATE.—

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(2) As soon as practicable after ⟦the date of enactment of the Commercial Space Launch Amendments Act of 2004,⟧ *December 23, 2004*, the Secretary shall issue guidelines or advisory circulars to guide the implementation of ⟦that Act⟧ *the Commercial Space Launch Amendments Act of 2004* until regulations are issued.

(3) Notwithstanding paragraphs (1) and (2), no licenses for the launch or reentry of launch vehicles or reentry vehicles with human beings on board or permits may be issued starting three years after [the date of enactment of the Commercial Space Launch Amendments Act of 2004] *December 23, 2004*, unless the final regulations described in subsection (c) have been issued.

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CHAPTER 515—OFFICE OF SPACEPORTS

Sec.
51501. Establishment of Office of Spaceports.

§ 51501. Establishment of Office of Spaceports

[(e) DEFINITION]*(a) DEFINITION OF SPACEPORT.*—In this section, the term "spaceport" means a launch or reentry site that is operated by an entity licensed by the Secretary of Transportation.

[(a)]*(b)* ESTABLISHMENT OF OFFICE.—Not later than 90 days after [the date of enactment of this section,]*October 5, 2018*, the Secretary of Transportation shall identify, within the Office of Commercial Space Transportation, a centralized policy office to be known as the Office of Spaceports.

[(b)]*(c)* FUNCTIONS.—The Office of Spaceports shall—

(1) support licensing activities for operation of launch and reentry sites;

(2) develop policies that promote infrastructure improvements at spaceports;

(3) provide technical assistance and guidance to spaceports;

(4) promote United States spaceports within the Department; and

(5) strengthen the Nation's competitiveness in commercial space transportation infrastructure and increase resilience for the Federal Government and commercial customers.

[(c)]*(d)* RECOGNITION.—In carrying out the [functions assigned in subsection (b),] *functions assigned in subsection (c)*, the Secretary shall recognize the unique needs and distinctions of spaceports that [host]—

(1) *host* launches to or reentries from orbit; and

(2) are involved in suborbital launch activities.

[(d)]*(e)* DIRECTOR.—The head of the Office of the Associate Administrator for Commercial Space Transportation shall designate a Director of the Office of Spaceports.

CHAPTER 517—DEVELOPMENT AND USE OF COMMERCIAL CARGO AND CREW TRANSPORTATION CAPABILITIES

Sec.
51701. Commercial development of cargo transportation capabilities.
51702. Commercial development of crew transportation capabilities.
51703. Commercial Crew Program.
51704. Policy regarding fair and open competition for space transportation services.
51705. Transparency.

§ 51701. Commercial development of cargo transportation capabilities

The Administrator shall continue to support the existing Commercial Resupply Services program, aimed at enabling the commercial space industry in support of the Administration to develop reliable means of launching cargo and supplies to the International Space Station throughout the duration of the facility's operation. The Administrator may apply funds toward the reduction of risk to the timely start of the services, specifically—

(1) efforts to conduct a flight test;

(2) the acceleration of development; and

(3) the development of the ground infrastructure needed for commercial cargo capability.

§ 51702. Commercial development of crew transportation capabilities

For the duration of the commercial crew development program, the Administrator may support follow-on commercially developed crew transportation systems dependent on the completion of each of the following:

(1) HUMAN RATING REQUIREMENTS.—The Administrator shall develop and make available to the public detailed human rating processes and requirements to guide the design of commercially developed crew transportation capabilities, which requirements shall be at least equivalent to proven requirements for crew transportation in use as of October 11, 2010.

(2) PROCUREMENT SYSTEM REVIEW.—

(A) REVIEW OF CURRENT PRACTICES AND PROCESSES.—The Administrator shall review current Government procurement and acquisition practices and processes, including agreement authorities under chapter 201 of this title, to determine the most cost-effective means of procuring commercial crew transportation capabilities and related services in a manner that ensures appropriate accountability, transparency, and maximum efficiency in the procurement of the capabilities and services. The review shall include identification of proposed measures to address—

(i) risk management and means of indemnification of commercial providers of the capabilities and services;

(ii) quality control;

(iii) safety oversight; and

(iv) the application of Federal oversight processes within the jurisdiction of other Federal agencies.

(B) REVIEW OF PROPOSED PROCUREMENT.—A description of the proposed procurement process and justification of the proposed procurement for its selection shall be included in any proposed initiation of procurement activity for commercially developed crew transportation capabilities and services and shall be subject to review by the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives before the initiation of any competitive process to procure the capabilities or services. In support of the review by the committees, the Comptroller General shall undertake an assessment of the proposed pro-

curement process and provide a report to the committees not later than 90 days after the date on which the Administrator provides the description and justification to the committees.

(3) USE OF GOVERNMENT SUPPLIED CAPABILITIES AND INFRASTRUCTURE.—In evaluating any proposed development activity for commercially developed crew or cargo launch capabilities, the Administrator shall identify the anticipated contribution of Government personnel, expertise, technologies, and infrastructure to be utilized in support of design, development, or operations of the capabilities. This assessment shall include a clear delineation of the full requirements for the commercial crew service (including the contingency for crew rescue). The Administrator shall include details and associated costs of such support as part of any proposed development initiative for the procurement of commercially developed crew or cargo launch capabilities or services.

(4) FLIGHT DEMONSTRATION AND READINESS REQUIREMENTS.—The Administrator shall establish appropriate milestones and minimum performance objectives to be achieved before authority is granted to proceed to the procurement of commercially developed crew transportation capabilities or services. The guidelines shall include a procedure to provide independent assurance of flight safety and flight readiness before the authorization of United States government personnel to participate as crew onboard any commercial launch vehicle developed pursuant to this section.

(5) COMMERCIAL CREW RESCUE CAPABILITIES.—The provision of a commercial capability to provide International Space Station crew services shall include crew rescue requirements, and shall be undertaken through the procurement process initiated in conformance with this section. In the event such development is initiated, the Administrator shall make available any relevant government-owned intellectual property deriving from the development of a multipurpose crew vehicle authorized by this section and sections 71522 and 71523 of this title to commercial entities involved with such crew rescue capability development which shall be relevant to the design of a crew rescue capability. In addition, the Administrator shall seek to ensure that contracts for development of the multipurpose crew vehicle contain provisions for the licensing of relevant intellectual property to participating commercial providers of any crew rescue capability development undertaken pursuant to this section. If one or more contractors involved with development of the multipurpose crew vehicle seek to compete in development of a commercial crew service with crew rescue capability, separate legislative authority must be enacted to enable the Administrator to provide funding for any modifications of the multipurpose crew vehicle necessary to fulfill the International Space Station crew rescue function.

§ 51703. Commercial Crew Program

(a) OBJECTIVE.—The objective of the Commercial Crew Program shall be to assist in the development and certification of commercially provided transportation that—

(1) can carry United States government astronauts (meaning a government astronaut as defined in section 50902 of this title) safely, reliably, and affordably to and from the International Space Station;

(2) can serve as a crew rescue vehicle; and

(3) can accomplish the goals stated in paragraphs (1) and (2) as soon as practicable.

(b) PRIMARY CONSIDERATION.—The objective described in subsection (a) shall be the primary consideration in the acquisition strategy for the Commercial Crew Program.

(c) SAFETY.—

(1) IN GENERAL.—The Administrator shall protect the safety of government astronauts (as defined in section 50902 of this title) by ensuring that each commercially provided transportation system under this section meets all applicable human rating requirements in accordance with section 51702(1) of this title.

(2) LESSONS LEARNED.—Consistent with the findings and recommendations of the Columbia Accident Investigation Board, the Administration shall ensure that safety and the minimization of the probability of loss of crew are the critical priorities of the Commercial Crew Program.

(d) COST MINIMIZATION.—The Administrator shall strive through the competitive selection process to minimize the life cycle cost to the Administration through the planned period of commercially provided crew transportation services.

§ 51704. Policy regarding fair and open competition for space transportation services

It is the policy of the United States that, to foster the competitive development, operation, improvement, and commercial availability of space transportation services, and to minimize the life cycle cost to the Administration, the Administrator shall procure services for Federal Government access to and return from the International Space Station, whenever practicable, via fair and open competition for well-defined, milestone-based, Federal Acquisition Regulation-based contracts under section 71511(a) of this title.

§ 51705. Transparency

The Administrator shall, to the greatest extent practicable and in a manner that does not add costs or schedule delays to the program, ensure all Commercial Crew Program and Commercial Resupply Services Program providers provide evidence-based support for their costs and schedules.

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CHAPTER 603—REMOTE SENSING

Sec.

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[60304. Program evaluation.]
60304. Advisory committee.

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§ 60304. [Program evaluation] *Advisory committee*

[(a) ADVISORY COMMITTEE.—The Administrator shall] *The Administrator shall* establish an advisory committee, consisting of individuals with appropriate expertise in State, local, regional, and tribal agencies, the university research community, and the remote sensing and other geospatial information industries, to monitor the program established under section 60303 of this title. The advisory committee shall consult with the Federal Geographic Data Committee and other appropriate industry representatives and organizations. Notwithstanding section 14 of the Federal Advisory Committee Act [(5 App. U.S.C.),] *(5 U.S.C. App.)*, the advisory committee established under this subsection shall remain in effect until the termination of the program under section 60303 of this title.

[(b) EFFECTIVENESS EVALUATION.—Not later than December 31, 2009, the Administrator shall transmit to Congress an evaluation of the effectiveness of the program established under section 60303 of this title in exploring and promoting the integrated use of sources of remote sensing and other geospatial information to address State, local, regional, and tribal agency needs. Such evaluation shall have been conducted by an independent entity.]

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CHAPTER 605—EARTH SCIENCE

Sec.

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60507. Interagency collaboration implementation approach.
60508. Transitioning experimental research to operations.
60509. Decadal Survey missions implementation for Earth observation.
60510. Instrument testbeds and venture class missions.

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§ 60507. Interagency collaboration implementation approach

The Director of the Office of Science and Technology Policy shall establish a mechanism to ensure greater coordination of the research, operations, and activities relating to civilian Earth observation of Federal agencies, including the Administration, that have active programs that contribute either directly or indirectly to those areas. The mechanism should include the development of a strategic implementation plan that is updated at least every 3 years with a process for external independent advisory input. The strategic implementation plan should include—

(1) a description of the responsibilities of the various Federal agency roles in Earth observations;

(2) recommended cost-sharing and procurement arrangements between Federal agencies and other entities, including international arrangements; and

(3) a plan for ensuring the provision of sustained, long-term space-based climate observations.

§ 60508. Transitioning experimental research to operations

Based on the implementation plan provided to Congress in March 2011, the Administrator shall coordinate with the Administrator of

the National Oceanic and Atmospheric Administration and the Director of the United States Geological Survey to establish a formal mechanism that plans, coordinates, and supports the transitioning of the research findings, assets, and capabilities of the Administration to the operations of the National Oceanic and Atmospheric Administration and the United States Geological Survey. In defining the mechanism, the Administration should consider the establishment of a formal or informal interagency transition office.

§ 60509. Decadal Survey missions implementation for Earth observation

The Administrator shall undertake to implement, as appropriate, missions identified in the National Research Council's Earth Science Decadal Survey within the scope of the funds authorized for the Earth Science Mission Directorate.

§ 60510. Instrument testbeds and venture class missions

The Administrator shall pursue innovative ways to fly instrument-level payloads for early demonstration or as co-manifested payloads. Congress encourages the use of the International Space Station as an accessible platform for the conduct of such activities. Additionally, in order to address the cost and schedule challenges associated with large flight systems, the Administrator should pursue smaller systems to the extent practicable and warranted.

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CHAPTER 709—INTERNATIONAL SPACE STATION

Sec.

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70908. Continuation of the International Space Station.
70909. Maximum utilization of the International Space Station.
70910. Operation, maintenance, and maximum utilization of United States segment.
70911. Management of national laboratory.
70912. Primary objectives of International Space Station program.

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§ 70902. Allocation of International Space Station research budget

The Administrator shall allocate at least 15 percent of the funds budgeted for International Space Station research to ground-based, free-flyer, and International Space Station life and microgravity science research that is not directly related to supporting the human exploration program, consistent with **[**section 40904**]** *section 49904* of this title.

§ 70903. International Space Station research

The Administrator shall—

(1) carry out a program of microgravity research consistent with **[**section 40904**]** *section 49904* of this title; and

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§ 70904. International Space Station completion

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(b) ELEMENTS, CAPABILITIES, AND CONFIGURATION CRITERIA.—The Administrator shall ensure that the International Space Station will—

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(2) be used for a diverse range of microgravity research, including fundamental, applied, and commercial research, consistent with [section 40904] *section 49904* of this title;

(3) have an ability to support a crew size of at least 6 persons, unless the Administrator transmits to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than 60 days after December 30, 2005, a report explaining why such a requirement should not be met, the impact of not meeting the requirement on the International Space Station research agenda and operations and international partner agreements, and what additional funding or other steps would be required to have an ability to support a crew size of at least 6 persons;

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(c) CONTINGENCIES.—

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(2) PLAN.—Before making any change in the International Space Station assembly sequence in effect on December 30, 2005, the Administrator shall transmit to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan to carry out the policy described in paragraph (1).

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§ 70908. Continuation of the International Space Station

(a) POLICY.—It shall be the policy of the United States, in consultation with its international partners in the International Space Station program, to support full and complete utilization of the International Space Station through at least 2024.

(b) ACTIONS.—In furtherance of the policy set forth in subsection (a), the Administration shall pursue international, commercial, and intragovernmental means to—

(1) maximize International Space Station logistics supply, maintenance, and operational capabilities;

(2) reduce risks to International Space Station systems sustainability; and

(3) offset and minimize United States operations costs relating to the International Space Station.

§ 70909. Maximum utilization of the International Space Station

(a) IN GENERAL.—With assembly of the International Space Station complete, the Administration shall take steps to maximize the

productivity and use of the International Space Station with respect to scientific and technological research and development, advancement of space exploration, and international collaboration.

(b) ACTIONS.—In carrying out subsection (a), the Administration shall, at a minimum, undertake the following:

(1) INNOVATIVE USE OF U.S. SEGMENT.—The United States segment of the International Space Station, which has been designated as a national laboratory, shall be developed, managed, and utilized in a manner that enables the effective and innovative use of the facility, as provided in section 70911 of this title.

(2) INTERNATIONAL COOPERATION.—

(A) DEFINITION OF NEAR-EARTH SPACE.—In this paragraph, the term "near-Earth space" means the region of space that includes low-Earth orbit and extends out to and includes geo-synchronous orbit.

(B) USE OF INTERNATIONAL SPACE STATION.—The International Space Station shall continue to be utilized as a key component of international efforts to build missions and capabilities that further the development of a human presence beyond near-Earth space and advance United States security and economic goals. The Administrator shall actively seek ways to encourage and enable the use of International Space Station capabilities to support those efforts.

(3) DOMESTIC COLLABORATION.—The operations, management, and utilization of the International Space Station shall be conducted in a manner that provides opportunities for collaboration with other research programs and objectives of the United States Government in cooperation with commercial suppliers, users, and developers.

§ 70910. Operation, maintenance, and maximum utilization of United States segment

(a) IN GENERAL.—The Administrator shall take all actions necessary to ensure the safe and effective operation, maintenance, and maximum utilization of the United States segment of the International Space Station through at least September 30, 2024.

(b) PLANNING, MANAGEMENT, AND SUPPORT.—Utilization of research facilities and capabilities aboard the International Space Station (other than exploration-related research and technology development facilities and capabilities, and associated ground support and logistics) shall be planned, managed, and supported as provided in section 70911 of this title. Exploration-related research and technology development facilities, capabilities, and associated ground support and logistics shall be planned, managed, and supported by the appropriate Administration organizations and officials in a manner that does not interfere with other activities under section 70911 of this title.

§ 70911. Management of national laboratory

(a) COOPERATIVE AGREEMENT WITH NOT-FOR-PROFIT ORGANIZATION FOR MANAGEMENT OF NATIONAL LABORATORY.—

(1) IN GENERAL.—The Administrator shall provide initial financial assistance and enter into a cooperative agreement with an appropriate organization that is exempt from taxation under

section 501(c)(3) of the Internal Revenue Code of 1986 (26 U.S.C. 501(c)(3)) to manage the activities of the International Space Station national laboratory in accordance with this section.

(2) QUALIFICATIONS.—The organization with which the Administrator enters into the cooperative agreement shall develop the capabilities to implement research and development projects utilizing the International Space Station national laboratory and to otherwise manage the activities of the International Space Station national laboratory.

(3) PROHIBITION ON OTHER ACTIVITIES.—The cooperative agreement shall require the organization entering into the agreement to engage exclusively in activities relating to the management of the International Space Station national laboratory and activities that promote its long-term research and development mission as required by this section, without any other organizational objectives or responsibilities on behalf of the organization or any parent organization or other entity.

(b) ADMINISTRATION LIAISON.—

(1) DESIGNATION.—The Administrator shall designate an official or employee of the Space Operations Mission Directorate of the Administration to act as liaison between the Administration and the organization with which the Administrator enters into a cooperative agreement under subsection (a) with regard to the management of the International Space Station national laboratory.

(2) CONSULTATION WITH LIAISON.—The cooperative agreement shall require the organization entering into the agreement to carry out its responsibilities under the agreement in cooperation and consultation with the official or employee designated under paragraph (1).

(c) PLANNING AND COORDINATION OF NATIONAL LABORATORY RESEARCH ACTIVITIES.—The Administrator shall provide initial financial assistance to the organization with which the Administrator enters into a cooperative agreement under subsection (a), in order for the organization to initiate the following:

(1) Planning and coordination of the International Space Station national laboratory research activities.

(2) Development and implementation of guidelines, selection criteria, and flight support requirements for non-Administration scientific utilization of International Space Station research capabilities and facilities available in United States-owned modules of the International Space Station or in partner-owned facilities of the International Space Station allocated to United States utilization by international agreement.

(3) Interaction with and integration of the International Space Station National Laboratory Advisory Committee established under section 70906 of this title with the governance of the organization, and review of recommendations provided by that Committee regarding agreements with non-Administration departments and agencies of the United States Government, academic institutions and consortia, and commercial entities leading to the utilization of the International Space Station national laboratory facilities.

(4) Coordination of transportation requirements in support of the International Space Station national laboratory research and development objectives, including provision for delivery of instruments, logistics support, and related experiment materials, and provision for return to Earth of collected samples, materials, and scientific instruments in need of replacement or upgrade.

(5) Cooperation with the Administration, other departments and agencies of the United States Government, the States, and commercial entities in ensuring the enhancement and sustained operations of non-exploration-related research payload ground support facilities for the International Space Station, including the Space Life Sciences Laboratory, the Space Station Processing Facility, and the Payload Operations Integration Center.

(6) Development and implementation of scientific outreach and education activities designed to ensure effective utilization of International Space Station research capabilities, including the conduct of scientific assemblies, conferences, and other fora for the presentation of research findings, methods, and mechanisms for the dissemination of non-restricted research findings and the development of educational programs, course supplements, and interaction with educational programs at all grade levels, including student-focused research opportunities for conduct of research in the International Space Station national laboratory facilities.

(7) Other matters relating to the utilization of the International Space Station national laboratory facilities for research and development as the Administrator considers appropriate.

(d) RESEARCH CAPACITY ALLOCATION AND INTEGRATION OF RESEARCH PAYLOADS.—

(1) ALLOCATION OF INTERNATIONAL SPACE STATION RESEARCH CAPACITY.—International Space Station national laboratory managed experiments shall be guaranteed access to, and utilization of, not less than 50 percent of the United States research capacity allocation, including power, cold stowage, and requisite crew time onboard the International Space Station through at least September 30, 2024. Access to the International Space Station research capacity includes provision for the adequate upmass and downmass capabilities to utilize the International Space Station research capacity, as available. The Administrator may allocate additional capacity to the International Space Station national laboratory should such capacity be in excess of Administration research requirements.

(2) ADDITIONAL RESEARCH CAPABILITIES.—If any Administration research plan is determined to require research capacity onboard the International Space Station beyond the percentage allocated under paragraph (1), the research plan shall be prepared in the form of a requested research opportunity to be submitted to the process established under this section for the consideration of proposed research within the capacity allocated to the International Space Station national laboratory. A proposal for such a research plan may include the establishment of partnerships with non-Administration institutions eligible to propose research to be conducted within the International Space

Station national laboratory capacity. Until at least September 30, 2024, the official or employee designated under subsection (b) may grant an exception to this requirement in the case of a proposed experiment considered essential for purposes of preparing for exploration beyond low-Earth orbit, as determined by joint agreement between the organization with which the Administrator enters into a cooperative agreement under subsection (a) and the official or employee designated under subsection (b).

(3) RESEARCH PRIORITIES AND ENHANCED CAPACITY.—The organization with which the Administrator enters into the cooperative agreement shall consider recommendations of the National Academies Decadal Survey on Biological and Physical Sciences in Space in establishing research priorities and in developing proposed enhancements of research capacity and opportunities for the International Space Station national laboratory.

(4) RESPONSIBILITY FOR RESEARCH PAYLOAD.—The Administration shall retain its roles and responsibilities in providing research payload physical, analytical, and operations integration during pre-flight, post-flight, transportation, and orbital phases essential to ensure safe and effective flight readiness and vehicle integration of research activities approved and prioritized by the organization with which the Administrator enters into the cooperative agreement and the official or employee designated under subsection (b).

§ 70912. Primary objectives of International Space Station program

The primary objectives of the International Space Station program shall be—

(1) to achieve the long term goal and objectives under section 71512 of this title; and

(2) to pursue a research program that advances knowledge and provides other benefits to the Nation.

* * * * * * *

§ 71102. Requests for information

The Administrator shall issue requests for information on—

(1) a low-cost space mission with the purpose of rendezvousing with, [attaching a tracking device,] *attaching a tracking device to,* and characterizing the Apophis asteroid; and

* * * * * * *

CHAPTER 715—HUMAN SPACE FLIGHT AND EXPLORATION

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Subchapter I—General Provisions

§ 71501. Definitions

In this chapter:

(1) CIS LUNAR SPACE.—The term "cis-lunar space" means the region of space from the Earth out to and including the region around the surface of the Moon.

(2) DEEP SPACE.—The term "deep space" means the region of space beyond cis-lunar space.

(3) NEAR-EARTH SPACE.—The term "near-Earth space" means the region of space that includes low-Earth orbit and extends out to and includes geo-synchronous orbit.

(4) SPACE LAUNCH SYSTEM.—The term "Space Launch System" means the follow-on Government-owned civil launch system developed, managed, and operated by the Administration to serve as a key component to expand human presence beyond low-Earth orbit.

Subchapter II—Policy, Goals, and Objectives

§ 71511. Human space flight policy

(a) USE OF NON-UNITED STATES HUMAN SPACE FLIGHT TRANSPORTATION SERVICES.—

(1) DEFINITIONS.—In this subsection:

(A) COMMERCIAL PROVIDER.—The term "commercial provider" means any person providing human space flight transportation services, primary control of which is held by persons other than the Federal Government, a State or local government, or a foreign government.

(B) QUALIFIED FOREIGN ENTITY.—The term "qualified foreign entity" means a foreign entity that is in compliance with all applicable safety standards and is not prohibited from providing space transportation services under other law.

(C) UNITED STATES COMMERCIAL PROVIDER.—The term "United States commercial provider" means a commercial provider, organized under the laws of the United States or of a State, that is more than 50 percent owned by United States nationals.

(2) IN GENERAL.—The Federal Government may not acquire human space flight transportation services from a foreign entity unless—

(A) no United States Government-operated human space flight capability is available;

(B) no United States commercial provider is available; and

(C) it is a qualified foreign entity.

(3) ARRANGEMENTS WITH FOREIGN ENTITIES.—Nothing in this subsection shall prevent the Administrator from negotiating or entering into human space flight transportation arrangements with foreign entities to ensure safety of flight and continued International Space Station operations.

(b) UNITED STATES HUMAN SPACE FLIGHT CAPABILITIES.—Congress reaffirms the policy stated in section 70501(a) of this title that the United States shall maintain an uninterrupted capability for human space flight and operations in low-Earth orbit, and beyond, as an essential instrument of national security and of the capacity to ensure continued United States participation and leadership in the exploration and utilization of space.

§ 71512. Goals and objectives

(a) LONG-TERM GOALS.—The long-term goals of the human space flight and exploration efforts of the Administration shall be—

(1) to expand permanent human presence beyond low-Earth orbit and to do so, where practical, in a manner involving international, academic, and industry partners;

(2) crewed missions and progress toward achieving the goal in paragraph (1) to enable the potential for subsequent human exploration and the extension of human presence throughout the solar system; and

(3) to enable a capability to extend human presence, including potential human habitation on another celestial body and a thriving space economy in the 21st century.

(b) KEY OBJECTIVES.—The key objectives of the United States for human expansion into space shall be—

(1) to sustain the capability for long-duration presence in low-Earth orbit, initially through continuation of the International Space Station and full utilization of the United States segment of the International Space Station as a national laboratory, and through assisting and enabling an expanded commercial presence in, and access to, low-Earth orbit, as elements of a low-Earth orbit infrastructure;

(2) to determine whether humans can live for extended periods in space with decreasing reliance on Earth, starting with utilization of low-Earth orbit infrastructure, to—

(A) identify potential roles that space resources such as energy and materials can play;

(B) meet national and global needs and challenges such as potential cataclysmic threats; and

(C) explore the viability of and lay the foundation for sustainable economic activities in space;

(3) to maximize the role that human exploration of space can play in—

(A) advancing overall knowledge of the universe;

(B) supporting United States national and economic security and the United States global competitive posture; and

(C) inspiring young people in their educational pursuits;

(4) to build on the cooperative and mutually beneficial framework established by the International Space Station partnership agreements and experience in developing and undertaking programs and meeting objectives designed to realize the goal of human space flight set forth in subsection (a); and

(5) to achieve human exploration of Mars and beyond through the prioritization of those technologies and capabilities best suited for such a mission in accordance with the stepping stone approach to exploration under section 70504 of this title.

Subchapter III—Expansion of Human Space Flight Beyond the International Space Station and Low-Earth Orbit

§ 71521. Space Launch System as follow-on launch vehicle to the space shuttle

(a) POLICY.—It is the policy of the United States that the Administration develop a Space Launch System as a follow-on to the space shuttle that can access cis-lunar space and the regions of space beyond low-Earth orbit in order to enable the United States to participate in global efforts to access and develop that increasingly strategic region.

(b) INITIATION OF DEVELOPMENT.—

(1) IN GENERAL.—As soon as practicable after October 11, 2010, the Administrator shall initiate development of a Space Launch System meeting the minimum capability requirements specified in subsection (c).

(2) MODIFICATION OF CURRENT CONTRACTS.—In order to limit the Administration's termination liability costs and support critical capabilities, the Administrator shall, to the extent practicable, extend or modify existing (as of October 11, 2010) vehicle development and associated contracts necessary to meet the requirement in paragraph (1), including contracts for ground testing of solid rocket motors, if necessary, to ensure their availability for development of the Space Launch System.

(c) MINIMUM CAPABILITY REQUIREMENTS.—

(1) IN GENERAL.—The Space Launch System developed pursuant to subsection (b) shall be designed to have, at a minimum, the following:

(A) The initial capability of the core elements, without an upper stage, of lifting payloads weighing between 70 and 100 tons into low-Earth orbit in preparation for transit for missions beyond low-Earth orbit.

(B) The capability to carry an integrated upper Earth departure stage bringing the total lift capability of the Space Launch System to 130 tons or more.

(C) The capability to lift the multipurpose crew vehicle.

(D) The capability to serve as a backup system for supplying and supporting International Space Station cargo delivery requirements or crew delivery requirements not otherwise met by available commercial or partner-supplied vehicles.

(E) The capacity for efficient and timely evolution, including the incorporation of new technologies, competition of sub-elements, and commercial operations.

(2) FLEXIBILITY.—The Space Launch System shall be designed from inception as a fully integrated vehicle capable of carrying a total payload of 130 tons or more into low-Earth orbit in preparation for transit for missions beyond low-Earth orbit. The Space Launch System shall, to the extent practicable, incorporate capabilities for evolutionary growth to carry heavier payloads. Developmental work and testing of the core elements and the upper stage should proceed in parallel subject to appropriations. Priority should be placed on the core elements with the goal for operational capability for the core elements not later than December 31, 2016.

(3) TRANSITION NEEDS.—The Administrator shall ensure that critical skills and capabilities are retained, modified, and developed, as appropriate, in areas relating to solid and liquid engines, large diameter fuel tanks, rocket propulsion, and other ground test capabilities for an effective transition to the follow-on Space Launch System.

§ 71522. Multipurpose crew vehicle

(a) INITIATION OF DEVELOPMENT.—

(1) IN GENERAL.—The Administrator shall continue the development of a multipurpose crew vehicle to be available as soon as practicable, and no later than for use with the Space Launch System. The vehicle shall continue to advance development of the human safety features, designs, and systems in the Orion project.

(2) GOAL FOR OPERATIONAL CAPABILITY.—It shall be the goal to achieve full operational capability for the transportation vehicle developed pursuant to this subsection by not later than December 31, 2016. For purposes of meeting such goal, the Administrator may undertake a test of the transportation vehicle at the International Space Station before that date.

(b) MINIMUM CAPABILITY REQUIREMENTS.—The multipurpose crew vehicle developed pursuant to subsection (a) shall be designed to have, at a minimum, the following:

(1) The capability to serve as the primary crew vehicle for missions beyond low-Earth orbit.

(2) The capability to conduct regular in-space operations, such as rendezvous, docking, and extra-vehicular activities, in conjunction with payloads delivered by the Space Launch System developed pursuant to section 71521 of this title, or other vehicles, in preparation for missions beyond low-Earth orbit or servicing of assets described in section 71543 of this title, or other assets in cis-lunar space.

(3) The capability to provide an alternative means of delivery of crew and cargo to the International Space Station, in the

event other vehicles, whether commercial vehicles or partner-supplied vehicles, are unable to perform that function.

(4) The capacity for efficient and timely evolution, including the incorporation of new technologies, competition of sub-elements, and commercial operations.

§ 71523. Utilization of existing workforce and assets in development of Space Launch System and multipurpose crew vehicle

(a) IN GENERAL.—In developing the Space Launch System pursuant to section 71521 of this title and the multipurpose crew vehicle pursuant to section 71522 of this title, the Administrator shall, to the extent practicable, utilize—

(1) existing (as of October 11, 2010) contracts, investments, workforce, industrial base, and capabilities from the space shuttle and Orion and Ares 1 projects, including—

(A) spacesuit development activities for application to, and coordinated development of, a multipurpose crew vehicle suit and associated life-support requirements with potential development of standard Administration-certified suit and life support systems for use in alternative commercially developed crew transportation systems; and

(B) space shuttle-derived components and Ares 1 components that use existing (as of October 11, 2010) United States propulsion systems, including liquid fuel engines, external tank or tank-related capability, and solid rocket motor engines; and

(2) associated testing facilities in existence or under construction as of October 11, 2010.

(b) DISCHARGE OF REQUIREMENTS.—In meeting the requirements of subsection (a), the Administrator—

(1) shall, to the extent practicable, utilize ground-based manufacturing capability, ground testing activities, launch and operations infrastructure, and workforce expertise;

(2) shall, to the extent practicable, minimize the modification and development of ground infrastructure and maximize the utilization of existing (as of October 11, 2010) software, vehicle, and mission operations processes;

(3) shall complete construction and activation of the A–3 test stand with a completion goal of September 30, 2013;

(4) may procure, develop, and flight test applicable components; and

(5) shall take appropriate actions to ensure timely and cost-effective development of the Space Launch System and the multipurpose crew vehicle, including the use of a procurement approach that incorporates adequate and effective oversight, the facilitation of contractor efficiencies, and the streamlining of contract and procurement requirements.

(c) CONTINUATION OF CONTRACTOR SUPPORT.—The Administrator may not terminate any contract that provides the system transitions necessary for shuttle-derived hardware to be used on the Space Launch System described in section 71521 of this title or the multipurpose crew vehicle described in section 71522 of this title.

§ 71524. Launch support and infrastructure modernization program

(a) IN GENERAL.—The Administrator shall carry out a program the primary purpose of which is to prepare infrastructure at the Kennedy Space Center that is needed to enable processing and launch of the Space Launch System. Vehicle interfaces and other ground processing and payload integration areas should be simplified to minimize overall costs, enhance safety, and complement the purpose of this section.

(b) ELEMENTS.—The program required by this section shall include—

(1) investments to improve civil and national security operations at the Kennedy Space Center, to enhance the overall capabilities of the Center, and to reduce the long-term cost of operations and maintenance;

(2) measures to provide multi-vehicle support, improvements in payload processing, and partnering at the Kennedy Space Center; and

(3) other measures that the Administrator considers appropriate, including investments to improve launch infrastructure at Administration flight facilities scheduled to launch cargo to the International Space Station under the program to develop commercial cargo transportation capabilities.

§ 71525. Development of technologies and in-space capabilities for beyond near-Earth space missions

(a) DEVELOPMENT AUTHORIZED.—The Administrator may initiate activities to develop the following:

(1) Technologies identified as necessary elements of missions beyond low-Earth orbit.

(2) In-space capabilities such as refueling and storage technology, orbital transfer stages, innovative in-space propulsion technology, communications, and data management that facilitate a broad range of users (including military and commercial).

(3) Applications defining the architecture and design of missions beyond low-Earth orbit.

(4) Spacesuit development and associated life support technology.

(5) Flagship missions.

(b) INVESTMENTS.—In developing technologies and capabilities under subsection (a), the Administrator may make investments in—

(1) space technologies such as advanced propulsion, propellant depots, in situ resource utilization, and robotic payloads or capabilities that enable human missions beyond low-Earth orbit ultimately leading to Mars;

(2) a space-based transfer vehicle including technologies described in paragraph (1) with an ability to conduct space-based operations that provide capabilities—

(A) to integrate with the Space Launch System and other space-based systems;

(B) to provide opportunities for in-space servicing of and delivery to multiple space-based platforms; and

(C) to facilitate international efforts to expand human presence to deep space destinations;

(3) advanced life support technologies and capabilities;

(4) technologies and capabilities relating to in-space power, propulsion, and energy systems;

(5) technologies and capabilities relating to in-space propellant transfer and storage;

(6) technologies and capabilities relating to in situ resource utilization; and

(7) expanded research to understand the greatest biological impediments to human deep space missions, especially the radiation challenge.

(c) UTILIZATION OF INTERNATIONAL SPACE STATION AS TESTBED.—The Administrator may utilize the International Space Station as a testbed for any technology or capability developed under subsection (a) in a manner consistent with sections 70908 through 70911 of this title.

(d) COORDINATION.—The Administrator shall coordinate development of technologies and capabilities under this section through an overall Administration technology approach consistent with the plan required by section 905 of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2836), which outlines how the Administration's space technology program will meet the goal described in section 40903 of this title, including an explanation of how the plan will link to other mission-directorate technology efforts.

Subchapter IV—Space Science

§ 71541. Technology development

The Administrator shall ensure that the Science Mission Directorate maintains a long-term technology development program for space and Earth science. That effort should be coordinated with an overall Administration technology investment approach consistent with the plan required by section 905 of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2836), which outlines how the Administration's space technology program will meet the goal described in section 40903 of this title, including an explanation of how the plan will link to other mission-directorate technology efforts.

§ 71542. Suborbital research activities

(a) MANAGEMENT.—The Administrator shall designate an officer or employee of the Science Mission Directorate to act as the responsible official for all Suborbital Research in the Science Mission Directorate. The designee shall be responsible for—

(1) the development of short- and long-term strategic plans for maintaining, renewing, and extending suborbital facilities and capabilities;

(2) monitoring progress toward goals in the plans; and

(3) integration of suborbital activities and workforce development within the Administration, thereby ensuring the long-term recognition of their combined value to the Directorate, to the Administration, and to the Nation.

(b) ESTABLISHMENT OF SUBORBITAL RESEARCH PROGRAM.—The Administrator shall establish a Suborbital Research Program with-

in the Science Mission Directorate that shall include the use of sounding rockets, aircraft, high altitude balloons, suborbital reusable launch vehicles, and commercial launch vehicles to advance science and train the next generation of scientists and engineers in systems engineering and systems integration, which are vital to maintaining critical skills in the aerospace workforce. The program shall integrate existing (as of October 11, 2010) suborbital research programs with orbital missions at the discretion of the designated officer or employee and shall emphasize the participation of undergraduate and graduate students and post-doctoral researchers when formulating announcements of opportunity.

(c) ANNUAL REPORT.—The Administrator shall report annually to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives on the number and type of suborbital missions conducted in each fiscal year and the number of undergraduate and graduate students that participated in the missions.

§ 71543. In-space servicing

The Administrator shall continue to take all necessary steps to ensure that provisions are made for robotic or human in-space servicing and repair of all future observatory-class scientific spacecraft intended to be deployed in Earth-orbit or at a Lagrangian point to the extent practicable and appropriate. The Administrator should ensure that Administration investments and future capabilities for space technology, robotics, and human space flight take the ability to service and repair observatory-class scientific spacecraft into account, as appropriate, and incorporate those capabilities into design and operational plans.

§ 71544. Ongoing restoration of radioisotope thermoelectric generator material production

The Administrator shall, in coordination with the Secretary of Energy, pursue a joint approach beginning in fiscal year 2011 toward restarting and sustaining the domestic production of radioisotope thermoelectric generator material for deep space and other science and exploration missions. Funds authorized by the National Aeronautics and Space Administration Authorization Act of 2010 for the Administration shall be made available under a reimbursable agreement with the Department of Energy for the purpose of reestablishing facilities to produce fuel required for radioisotope thermoelectric generators to enable future missions.

§ 71545. Coordinated approach for robotic missions

The Administrator shall ensure that the Exploration Systems Mission Directorate and the Space Operations Mission Directorate coordinate with the Science Mission Directorate on an overall approach and plan for interagency and international collaboration on robotic missions that are developed by the Administration or internationally developed, including lunar, Lagrangian, near-Earth orbit, and Mars spacecraft, such as the International Lunar Network.

§ 71546. Near-Earth object survey and policy with respect to threats posed

(a) POLICY REAFFIRMATION.—Congress reaffirms the policy set forth in section 20102(g) of this title relating to surveying near-Earth asteroids and comets.

(b) IMPLEMENTATION.—Consistent with section 71103 of this title, the Director of the Office of Science and Technology Policy shall implement, before September 30, 2012, a policy for notifying Federal agencies and relevant emergency response institutions of an impending near-Earth object threat if near-term public safety is at risk, and assign a Federal agency or agencies to be responsible for protecting the United States and working with the international community on such threats.

CHAPTER 717—ADVANCING HUMAN SPACE EXPLORATION

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Subchapter I—General Provisions

§ 71701. Definitions

In this chapter:

(1) APPROPRIATE COMMITTEES OF CONGRESS.—The term "appropriate committees of Congress" means—

(A) the Committee on Commerce, Science, and Transportation of the Senate; and

(B) the Committee on Science, Space, and Technology of the House of Representatives.

(2) CIS-LUNAR SPACE.—The term "cis-lunar space" means the region of space from the Earth out to and including the region around the surface of the Moon.

(3) DEEP SPACE.—The term "deep space" means the region of space beyond low-Earth orbit, to include cis-lunar space.

(4) ORION.—The term "Orion" means the multipurpose crew vehicle described under section 71522 of this title.

(5) SPACE LAUNCH SYSTEM.—The term "Space Launch System" has the meaning given the term in section 71501 of this title.

Subchapter II—Advancing Human Deep Space Exploration

PART A—ASSURING CORE CAPABILITIES FOR EXPLORATION

§ 71711. Space launch system, Orion, and exploration ground systems

(a) REAFFIRMATION.—Congress reaffirms the policy and minimum capability requirements for the Space Launch System under section 71521 of this title.

(b) CONTINUED DEVELOPMENT OF FULLY INTEGRATED SPACE LAUNCH SYSTEM.—The Administrator shall continue the development of the fully integrated Space Launch System, including an upper stage needed to go beyond low-Earth orbit, in order to safely enable human space exploration of the Moon, Mars, and beyond over the course of the next century as required in section 71521(c) of this title.

(c) EXPLORATION MISSIONS.—The Administrator shall continue development of—

(1) an uncrewed exploration mission to demonstrate the capability of both the Space Launch System and Orion as an integrated system by 2018;

(2) subject to applicable human rating processes and requirements, a crewed exploration mission to demonstrate the Space Launch System, including the Core Stage and Exploration Upper Stages, by 2021;

(3) subsequent missions beginning with EM–3 at operational flight rate sufficient to maintain safety and operational readiness using the Space Launch System and Orion to extend into cis-lunar space and eventually to Mars; and

(4) a deep space habitat as a key element in a deep space exploration architecture along with the Space Launch System and Orion.

(d) OTHER USES.—The Administrator shall assess the utility of the Space Launch System for use by the science community and for other Federal Government launch needs, including consideration of overall cost and schedule savings from reduced transit times and increased science returns enabled by the unique capabilities of the Space Launch System.

PART B—JOURNEY TO MARS

§ 71721. Human exploration roadmap

(a) IN GENERAL.—The Administrator shall develop a human exploration roadmap, including a critical decision plan, to expand human presence beyond low-Earth orbit to the surface of Mars and beyond, considering potential interim destinations such as cis-lunar space and the moons of Mars.

(b) SCOPE.—The human exploration roadmap shall include—

(1) an integrated set of exploration, science, and other goals and objectives of a United States human space exploration program to achieve the long-term goal of human missions near or on the surface of Mars in the 2030s;

(2) opportunities for international, academic, and industry partnerships for exploration-related systems, services, research, and technology if those opportunities provide cost-savings, accelerate program schedules, or otherwise benefit the goals and objectives developed under paragraph (1);

(3) sets and sequences of precursor missions in cis-lunar space and other missions or activities necessary—

(A) to demonstrate the proficiency of the capabilities and technologies identified under paragraph (4); and

(B) to meet the goals and objectives developed under paragraph (1), including anticipated timelines and missions for the Space Launch System and Orion;

(4) an identification of the specific capabilities and technologies, including the Space Launch System, Orion, a deep space habitat, and other capabilities, that facilitate the goals and objectives developed under paragraph (1);

(5) a description of how cis-lunar elements, objectives, and activities advance the human exploration of Mars;

(6) an assessment of potential human health and other risks, including radiation exposure;

(7) mitigation plans, whenever possible, to address the risks identified in paragraph (6);

(8) a description of those technologies already under development across the Federal Government or by other entities that facilitate the goals and objectives developed under paragraph (1);

(9) a specific process for the evolution of the capabilities of the fully integrated Orion with the Space Launch System and a description of how these systems facilitate the goals and objectives developed under paragraph (1) and demonstrate the capabilities and technologies described in paragraph (4);

(10) a description of the capabilities and technologies that need to be demonstrated or research data that could be gained

through the utilization of the International Space Station and the status of the development of such capabilities and technologies;

(11) a framework for international cooperation in the development of all capabilities and technologies identified under this section, including an assessment of the risks posed by relying on international partners for capabilities and technologies on the critical path of development;

(12) a process for partnering with nongovernmental entities using Space Act Agreements or other acquisition instruments for future human space exploration; and

(13) information on the phasing of planned intermediate destinations, Mars mission risk areas and potential risk mitigation approaches, technology requirements and phasing of required technology development activities, the management strategy to be followed, related International Space Station activities, planned international collaborative activities, potential commercial contributions, and other activities relevant to the achievement of the goal established in this section.

(c) CONSIDERATIONS.—In developing the human exploration roadmap, the Administrator shall consider—

(1) using key exploration capabilities, namely the Space Launch System and Orion;

(2) using existing commercially available technologies and capabilities or those technologies and capabilities being developed by industry for commercial purposes;

(3) establishing an organizational approach to ensure collaboration and coordination among the Administration's mission directorates under section 71761 of this title, when appropriate, including to collect and return to Earth a sample from the Martian surface;

(4) building upon the initial uncrewed mission, EM–1, and first crewed mission, EM–2, of the Space Launch System and Orion to establish a sustainable cadence of missions extending human exploration missions into cis-lunar space, including anticipated timelines and milestones;

(5) developing the robotic and precursor missions and activities that will demonstrate, test, and develop key technologies and capabilities essential for achieving human missions to Mars, including long-duration human operations beyond low-Earth orbit, space suits, solar electric propulsion, deep space habitats, environmental control life support systems, Mars lander and ascent vehicle, entry, descent, landing, ascent, Mars surface systems, and in-situ resource utilization;

(6) demonstrating and testing 1 or more habitat modules in cis-lunar space to prepare for Mars missions;

(7) using public-private, firm fixed-price partnerships, where practicable;

(8) collaborating with international, academic, and industry partners, when appropriate;

(9) any risks to human health and sensitive onboard technologies, including radiation exposure;

(10) any risks identified through research outcomes under the Administration Human Research Program's Behavioral Health Element; and

(11) the recommendations and ideas of several independently developed reports or concepts that describe potential Mars architectures or concepts and identify Mars as the long-term goal for human space exploration, including the reports described under section 431 of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10, 131 Stat. 38).

(d) CRITICAL DECISION PLAN ON HUMAN SPACE EXPLORATION.—As part of the human exploration roadmap, the Administrator shall include a critical decision plan—

(1) identifying and defining key decisions guiding human space exploration priorities and plans that need to be made before June 30, 2020, including decisions that may guide human space exploration capability development, precursor missions, long-term missions, and activities;

(2) defining decisions needed to maximize efficiencies and resources for reaching the near-, intermediate-, and long-term goals and objectives of human space exploration; and

(3) identifying and defining timelines and milestones for a sustainable cadence of missions beginning with EM–3 for the Space Launch System and Orion to extend human exploration from cis-lunar space to the surface of Mars.

(e) REPORTS.—

(1) INITIAL HUMAN EXPLORATION ROADMAP.—The Administrator shall submit to the appropriate committees of Congress—

(A) an initial human exploration roadmap, including a critical decision plan, before December 1, 2017; and

(B) an updated human exploration roadmap periodically as the Administrator considers necessary but not less than biennially.

(2) CONTENTS.—Each human exploration roadmap under this subsection shall include a description of—

(A) the achievements and goals accomplished in the process of developing capabilities and technologies described in this section during the 2-year period prior to the submission of the human exploration roadmap; and

(B) the expected goals and achievements in the following 2-year period.

(3) SUBMISSION WITH BUDGET.—Each human exploration roadmap under this section shall be included in the budget for that fiscal year transmitted to Congress under section 1105(a) of title 31.

Subchapter III—Advancing Space Science

§ 71731. Policy on maintaining balanced space science portfolio

It is the policy of the United States to ensure, to the extent practicable, a steady cadence of large, medium, and small science missions.

§ 71732. Mission priorities for planetary science

(a) IN GENERAL.—In accordance with the priorities established in the most recent Planetary Science Decadal Survey, the Adminis-

trator shall ensure, to the greatest extent practicable, the completion of a balanced set of Discovery, New Frontiers, and Flagship missions at the cadence recommended by the most recent Planetary Science Decadal Survey.

(b) MISSION PRIORITY ADJUSTMENTS.—Consistent with the set of missions described in subsection (a), and while maintaining the continuity of scientific data and steady development of capabilities and technologies, the Administrator may seek, if necessary, adjustments to mission priorities, schedule, and scope in light of changing budget projections.

§ 71733. Extrasolar planet exploration strategy

(a) STRATEGY.—

(1) IN GENERAL.—The Administrator shall enter into an arrangement with the National Academies to develop a science strategy for the study and exploration of extrasolar planets, including the use of the Transiting Exoplanet Survey Satellite, the James Webb Space Telescope, a potential Wide-Field Infrared Survey Telescope mission, or any other telescope, spacecraft, or instrument, as appropriate.

(2) REQUIREMENTS.—The strategy shall—

(A) outline key scientific questions;

(B) identify the most promising research in the field;

(C) indicate the extent to which the mission priorities in existing decadal surveys address the key extrasolar planet research and exploration goals;

(D) identify opportunities for coordination with international partners, commercial partners, and not-for-profit partners; and

(E) make recommendations regarding the activities under subparagraphs (A) through (D), as appropriate.

(b) USE OF STRATEGY.—The Administrator shall use the strategy—

(1) to inform roadmaps, strategic plans, and other activities of the Administration as they relate to extrasolar planet research and exploration; and

(2) to provide a foundation for future activities and initiatives related to extrasolar planet research and exploration.

(c) REPORT TO CONGRESS.—Not later than 18 months after March 21, 2017, the National Academies shall submit to the Administrator and to the appropriate committees of Congress a report containing the strategy developed under subsection (a).

§ 71734. Astrobiology strategy

(a) STRATEGY.—

(1) IN GENERAL.—The Administrator shall enter into an arrangement with the National Academies to develop a science strategy for astrobiology that would outline key scientific questions, identify the most promising research in the field, and indicate the extent to which the mission priorities in existing decadal surveys address the search for life's origin, evolution, distribution, and future in the universe.

(2) RECOMMENDATIONS.—The strategy shall include recommendations for coordination with international partners.

(b) USE OF STRATEGY.—The Administrator shall use the strategy developed under subsection (a) in planning and funding research and other activities and initiatives in the field of astrobiology.

(c) REPORT TO CONGRESS.—Not later than 18 months after March 21, 2017, the National Academies shall submit to the Administrator and to the appropriate committees of Congress a report containing the strategy developed under subsection (a).

§ 71735. Collaboration

The Administration shall continue to develop first-of-a-kind instruments that, once proved, can be transitioned to other agencies for operations. Whenever responsibilities for the development of sensors or for measurements are transferred to the Administration from another agency, the Administration shall seek, to the extent possible, to be reimbursed for the assumption of such responsibilities.

Subchapter IV—Space Technology

§ 71741. Space technology infusion

(a) POLICY.—It is the policy of the United States that the Administrator shall develop technologies to support the Administration's core missions, as described in section 2(3) of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 124 Stat. 2807), and support sustained investments in early stage innovation, fundamental research, and technologies to expand the boundaries of the national aerospace enterprise.

(b) PROPULSION TECHNOLOGIES.—A goal of propulsion technologies developed under subsection (a) shall be to significantly reduce human travel time to Mars.

§ 71742. Space technology program

(a) SPACE TECHNOLOGY PROGRAM AUTHORIZED.—The Administrator shall conduct a space technology program (referred to in this section as the "Program") to research and develop advanced space technologies that could deliver innovative solutions across the Administration's space exploration and science missions.

(b) CONSIDERATIONS.—In conducting the Program, the Administrator shall consider—

(1) the recommendations of the National Academies' review of the Administration's Space Technology roadmaps and priorities; and

(2) the applicable enabling aspects of the stepping stone approach to exploration under section 70504 of this title.

(c) REQUIREMENTS.—In conducting the Program, the Administrator shall—

(1) to the extent practicable, use a competitive process to select research and development projects;

(2) to the extent practicable and appropriate, use small satellites and the Administration's suborbital and ground-based platforms to demonstrate space technology concepts and developments; and

(3) as appropriate, partner with other Federal agencies, universities, private industry, and foreign countries.

(d) SMALL BUSINESS PROGRAMS.—The Administrator shall organize and manage the Administration's Small Business Innovation Research Program and Small Business Technology Transfer Program within the Program.

(e) NONDUPLICATION CERTIFICATION.—The Administrator shall submit a budget for each fiscal year, as transmitted to Congress under section 1105(a) of title 31, that avoids duplication of projects, programs, or missions conducted by the Program with other projects, programs, or missions conducted by another office or directorate of the Administration.

(f) COLLABORATION, COORDINATION, AND ALIGNMENT.—The Administrator shall—

(1) ensure that the Administration's projects, programs, and activities in support of technology research and development of advanced space technologies are fully coordinated and aligned;

(2) ensure that the results of the projects, programs, and activities under paragraph (1) are shared and leveraged within the Administration; and

(3) ensure that the organizational responsibility for research and development activities in support of human space exploration not initiated as of March 21, 2017, is established on the basis of a sound rationale.

(g) ANNUAL REPORT.—The Administrator shall include in the Administration's annual budget request for each fiscal year the rationale for assigning organizational responsibility for, in the year prior to the budget fiscal year, each initiated project, program, and mission focused on research and development of advanced technologies for human space exploration.

Subchapter V—Maximizing Efficiency

PART A—ADMINISTRATION INFORMATION TECHNOLOGY AND CYBERSECURITY

§ 71751. Information technology governance

The Administrator shall, in a manner that reflects the unique nature of the Administration's mission and expertise—

(1) ensure the Administration Chief Information Officer, mission directorates, and centers have appropriate roles in the management, governance, and oversight processes related to information technology operations and investments and information security programs for the protection of Administration systems;

(2) ensure the Administration Chief Information Officer has the appropriate resources and insight to oversee Administration information technology and information security operations and investments;

(3) provide an information technology program management framework to increase the efficiency and effectiveness of information technology investments, including relying on metrics for identifying and reducing potential duplication, waste, and cost;

(4) improve the operational linkage between the Administration Chief Information Officer and each Administration mission directorate, center, and mission support office to ensure both Administration and mission needs are considered in Adminis-

tration-wide information technology and information security management and oversight;

(5) review the portfolio of information technology investments and spending, including information technology-related investments included as part of activities within Administration mission directorates that may not be considered information technology, to ensure investments are recognized and reported appropriately based on guidance from the Office of Management and Budget;

(6) consider appropriate revisions to the charters of information technology boards and councils that inform information technology investment and operation decisions; and

(7) consider whether the Administration Chief Information Officer should have a seat on any boards or councils described in paragraph (6).

§ 71752. Information technology strategic plan

(a) IN GENERAL.—Subject to subsection (b), the Administrator shall develop an information technology strategic plan to guide Administration information technology management and strategic objectives.

(b) REQUIREMENTS.—In developing the strategic plan, the Administrator shall ensure that the strategic plan addresses—

(1) the deadline under section 306(a) of title 5; and

(2) the requirements under section 3506 of title 44.

(c) CONTENTS.—The strategic plan shall address, in a manner that reflects the unique nature of the Administration's mission and expertise—

(1) near- and long-term goals and objectives for leveraging information technology;

(2) a plan for how the Administration will submit to Congress a list of information technology projects, including completion dates and risk levels in accordance with guidance from the Office of Management and Budget;

(3) an implementation overview for an Administration-wide approach to information technology investments and operations, including reducing barriers to cross-center collaboration;

(4) coordination by the Administration Chief Information Officer with centers and mission directorates to ensure that information technology policies are effectively and efficiently implemented across the Administration;

(5) a plan to increase the efficiency and effectiveness of information technology investments, including a description of how unnecessarily duplicative, wasteful, legacy, or outdated information technology across the Administration will be identified and eliminated, and a schedule for the identification and elimination of such information technology;

(6) a plan for improving the information security of Administration information and Administration information systems, including improving security control assessments and role-based security training of employees; and

(7) submission by the Administration to Congress of information regarding high risk projects and cybersecurity risks.

(d) CONGRESSIONAL OVERSIGHT.—The Administrator shall submit to the appropriate committees of Congress the strategic plan under subsection (a) and any updates to the strategic plan.

§ 71753. Information security plan for cybersecurity

(a) IN GENERAL.—Not later than 1 year after March 21, 2017, the Administrator shall implement the information security plan developed under subsection (b) and take such further actions as the Administrator considers necessary to improve the information security system in accordance with this section.

(b) INFORMATION SECURITY PLAN.—Subject to subsections (c) and (d), the Administrator shall develop an Administration-wide information security plan to enhance information security for Administration information and information infrastructure.

(c) REQUIREMENTS.—In developing the plan under subsection (b), the Administrator shall ensure that the plan—

(1) reflects the unique nature of the Administration's mission and expertise;

(2) is informed by policies, standards, guidelines, and directives on information security required for Federal agencies;

(3) is consistent with the standards and guidelines under section 11331 of title 40; and

(4) meets applicable National Institute of Standards and Technology information security standards and guidelines.

(d) CONTENTS.—The plan shall address—

(1) an overview of the requirements of the information security system;

(2) an Administration-wide risk management framework for information security;

(3) a description of the information security system management controls and common controls that are necessary to ensure compliance with information security-related requirements;

(4) an identification and assignment of roles, responsibilities, and management commitment for information security at the Administration;

(5) coordination among organizational entities, including between each center, facility, mission directorate, and mission support office, and among Administration entities responsible for different aspects of information security;

(6) the need to protect the information security of mission-critical systems and activities and high-impact and moderate-impact information systems; and

(7) a schedule of frequent reviews and updates, as necessary, of the plan.

PART B—COLLABORATION AMONG MISSION DIRECTORATES AND OTHER MATTERS

§ 71761. Collaboration among mission directorates

The Administrator shall encourage an interdisciplinary approach among all Administration mission directorates and divisions, whenever appropriate, for projects or missions—

(1) to improve coordination, and encourage collaboration and early planning on scope;

(2) to determine areas of overlap or alignment;

(3) to find ways to leverage across divisional perspectives to maximize outcomes; and

(4) to be more efficient with resources and funds.

§ 71762. Administration launch capabilities collaboration

The Administrator shall pursue a strategy for acquisition of crewed transportation services and non-crewed launch services that continues to enhance communication, collaboration, and coordination between the Launch Services Program and the Commercial Crew Program.

§ 71763. Education and outreach

The Administrator shall continue engagement with the public and education opportunities for students via all the Administration's mission directorates to the maximum extent practicable.

§ 71764. Leveraging commercial satellite servicing capabilities across mission directorates

The Administrator shall—

(1) identify orbital assets in both the Science Mission Directorate and the Human Exploration and Operations Mission Directorate that could benefit from satellite servicing-related technologies; and

(2) work across all Administration mission directorates to evaluate opportunities for the private sector to perform such services or advance technical capabilities by leveraging the technologies and techniques developed by Administration programs and other industry programs.

§ 71765. Flight opportunities

(a) DEVELOPMENT OF PAYLOADS.—

(1) IN GENERAL.—In order to conduct necessary research, the Administrator shall continue and, as the Administrator considers appropriate, expand the development of technology payloads for—

(A) scientific research; and

(B) investigating new or improved capabilities.

(2) FUNDS.—For the purpose of carrying out paragraph (1), the Administrator shall make funds available for—

(A) flight testing;

(B) payload development; and

(C) hardware related to subparagraphs (A) and (B).

(b) REAFFIRMATION OF POLICY.—Congress reaffirms that the Administrator should provide flight opportunities for payloads to microgravity environments and suborbital altitudes as authorized by section 40905 of this title.

§ 71766. Space Act Agreements

(a) FUNDED SPACE ACT AGREEMENTS.—To the extent appropriate, the Administrator shall seek to maximize the value of contributions provided by other parties under a funded Space Act Agreement in order to advance the Administration's mission.

(b) NON-EXCLUSIVITY.—

(1) IN GENERAL.—The Administrator shall, to the greatest extent practicable, issue each Space Act Agreement—

(A) except as provided in paragraph (2), on a nonexclusive basis;

(B) in a manner that ensures all non-government parties have equal access to Administration resources; and

(C) exercising reasonable care not to reveal unique or proprietary information.

(2) EXCLUSIVITY.—If the Administrator determines an exclusive arrangement is necessary, the Administrator shall, to the greatest extent practicable, issue the Space Act Agreement—

(A) utilizing a competitive selection process when exclusive arrangements are necessary; and

(B) pursuant to public announcements when exclusive arrangements are necessary.

(c) TRANSPARENCY.—The Administrator shall publicly disclose on the Administration's website and make available in a searchable format each Space Act Agreement, including an estimate of committed Administration resources and the expected benefits to Administration objectives for each agreement, with appropriate redactions for proprietary, sensitive, or classified information, not later than 60 days after such agreement is signed by the parties.

(d) ANNUAL REPORTS.—

(1) REQUIREMENT.—Not later than 90 days after the end of each fiscal year, the Administrator shall submit to the appropriate committees of Congress a report on the use of Space Act Agreement authority by the Administration during the previous fiscal year.

(2) CONTENTS.—The report shall include for each Space Act Agreement in effect at the time of the report—

(A) an indication of whether the agreement is a reimbursable, non reimbursable, or funded Space Act Agreement;

(B) a description of—

(i) the subject and terms;

(ii) the parties;

(iii) the responsible—

(I) mission directorate;

(II) center; or

(III) headquarters element;

(iv) the value;

(v) the extent of the cost sharing among Federal Government and non-Federal sources;

(vi) the time period or schedule; and

(vii) all milestones; and

(C) an indication of whether the agreement was renewed during the previous fiscal year.

(3) ANTICIPATED AGREEMENTS.—The report shall include a list of all anticipated reimbursable, non-reimbursable, and funded Space Act Agreements for the upcoming fiscal year.

(4) CUMULATIVE PROGRAM BENEFITS.—The report shall include, with respect to each Space Act Agreement covered by the report, a summary of—

(A) the technology areas in which research projects were conducted under that agreement;

(B) the extent to which the use of that agreement—

(i) has contributed to a broadening of the technology and industrial base available for meeting Administration needs; and

(ii) has fostered within the technology and industrial base new relationships and practices that support the United States; and

(C) the total amount of value received by the Federal Government during the fiscal year under that agreement.

Changes in Existing Law Made by Section 3(bb)(1) of the Bill

(1) a period of 30 days has passed after the receipt by the Speaker and the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the President and the Committee on Commerce, Science, and Transportation of the Senate of a report by the Administrator or the Administrator's designee containing a full and complete statement of the action proposed to be taken and the facts and circumstances relied upon in support of such action; or

Changes in Existing Law Made by Section 3(bb)(2) of the Bill

(a) NOTICE OF REPROGRAMMING.—If any funds authorized by this Act are subject to a reprogramming action that requires notice to be provided to the Appropriations Committees of the House of Representatives and the Senate, notice of such action shall concurrently be provided to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(b) NOTICE OF REORGANIZATION.—The Administrator shall provide notice to the [Committees on Science and Appropriations] *Committee on Science, Space, and Technology and the Committee on Appropriations* of the House of Representatives, and the Committees on Commerce, Science, and Transportation and Appropriations of the Senate, not later than 30 days before any major reorganization of any program, project, or activity of the National Aeronautics and Space Administration.

Changes in Existing Law Made by Section 3(bb)(3) of the Bill

(b) REPORTS TO CONGRESS.—The Administrator shall in January of each year report to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* and the Committee on Appropriations of the House of Representatives and the Committee on Commerce, Science, and Transportation and the Committee on Appropriations of the Senate the projected aggregate contingent liability of the Government under termination provisions of any contract authorized in this section through the next fiscal year. The authority of the Administration to enter into and to maintain the contract authorized hereunder shall remain in effect unless repealed by legislation enacted by Congress.

Changes in Existing Law Made by Section 3(bb)(4) of the Bill

(c) REPORT.—Not later than one year after October 15, 2008, and annually thereafter, the Administrator shall submit a report to the [Committee on Science and Technology] *Committee on Science,*

Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the efforts and accomplishments of the program established under subsection (a) in support of the Administration's Innovative Partnerships Program. As part of the report, the Administrator shall provide—

Changes in Existing Law Made by Section 3(bb)(5) of the Bill

(b) REPORT.—A report on the assessment carried out under subsection (a) shall be transmitted to the House of Representatives ⟦Committee on Science and Technology⟧ *Committee on Science, Space, and Technology* and the Senate Committee on Commerce, Science, and Transportation not later than 15 months after the date of enactment of this Act.

Changes in Existing Law Made by Section 3(bb)(6) of the Bill

(a) IN GENERAL.—The Administrator shall transmit to the ⟦Committee on Science and Technology⟧ *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate an implementation plan describing the Administration's approach for obtaining, implementing, and sharing lessons learned and best practices for its major programs and projects not later than 180 days after December 30, 2005. The implementation plan shall be updated and maintained to ensure that it is current and consistent with the burgeoning culture of learning and safety that is emerging at the Administration.

Changes in Existing Law Made by Section 3(bb)(7)(A) of the Bill

(a) IN GENERAL.—Not later than 1 year after December 30, 2005, the Administrator shall transmit to the ⟦Committee on Science and Technology⟧ *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan describing steps to be taken by the Administration to protect from retaliation Administration employees who raise concerns about substantial and specific dangers to public health and safety or about substantial and specific factors that could threaten the success of a mission. The plan shall be designed to ensure that Administration employees have the full protection required by law. The Administrator shall implement the plan not more than 1 year after its transmittal.

Changes in Existing Law Made by Section 3(bb)(7)(B) of the Bill

(d) REPORT.—Not later than February 15 of each year beginning February 15, 2007, the Administrator shall transmit a report to the ⟦Committee on Science and Technology⟧ *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on the concerns described in subsection (a) that were raised during the previous fiscal year. At a minimum, the report shall provide—

Changes in Existing Law Made by Section 3(bb)(8) of the Bill

(c) REPORTS.—Not later than March 1 of each year, beginning with the first fiscal year after December 30, 2005, the Adminis-

trator shall transmit a report to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate—

Changes in Existing Law Made by Section 3(bb)(9)(A) of the Bill

(2) REPORTS.—(A) Not later than April 1, 2006, the Administrator shall transmit a plan to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the activities that will be undertaken as part of the national awareness campaign required by paragraph (1) and the expected cost of those activities. NASA may undertake activities as part of the national awareness campaign prior to the transmittal of the plan required by this subparagraph, but the plan shall include a description of any activities undertaken prior to the transmittal and the estimated cost of those activities.

Changes in Existing Law Made by Section 3(bb)(9)(B) of the Bill

(B) Not later than three years after the date of enactment of this Act, the Administrator shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate an assessment of the impact of the national awareness campaign.

Changes in Existing Law Made by Section 3(bb)(9)(C) of the Bill

(b) BUDGET INFORMATION.—Not later than April 30, 2006, the Administrator shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report describing—

Changes in Existing Law Made by Section 3(bb)(9)(D) of the Bill

(3) SCHEDULE.—The Administrator shall transmit the plan under this subsection to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than February 17, 2007.

Changes in Existing Law Made by Section 3(bb)(9)(E) of the Bill

(d) JOINT DARK ENERGY MISSION.—The Administrator and the Director of the Department of Energy Office of Science shall jointly transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, not later than July 15, 2006, a report on plans for a Joint Dark Energy Mission. The report shall include the amount of funds each agency intends to expend on the Joint Dark Energy Mission for each of the fiscal years 2007 through 2011, and any specific milestones for the development and launch of the Mission.

Changes in Existing Law Made by Section 3(bb)(9)(F) of the Bill

(2) REPORT.—Not later than one year after the date of enactment of this Act, the Director of the Office of Science and Tech-

nology Policy shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report that—

Changes in Existing Law Made by Section 3(bb)(10) of the Bill

(b) REPORT.—Every 2 years, the Administrator shall submit a report to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the efforts by the Administrator to ensure equal access for minority and economically disadvantaged students under this section and the results of such efforts. As part of the report, the Administrator shall provide—

Changes in Existing Law Made by Section 3(bb)(11) of the Bill

(1) IN GENERAL.—A missile described in subsection (c) may be converted for use as a space transportation vehicle by the Federal Government if, except as provided in paragraph (2) and at least 30 days before such conversion, the agency seeking to use the missile as a space transportation vehicle transmits to the Committee on Armed Services and the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives, and to the Committee on Armed Services and the Committee on Commerce, Science, and Transportation of the Senate, a certification that the use of such missile—

Changes in Existing Law Made by Section 3(bb)(12) of the Bill

(a) CHARGES.—The Administrator shall establish a policy of charging users of the Administration's test facilities for the costs associated with their tests at a level that is competitive with alternative test facilities. The Administrator shall not implement a policy of seeking full cost recovery for a facility until at least 30 days after transmitting a notice to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

Changes in Existing Law Made by Section 3(bb)(13) of the Bill

The Secretary of Commerce shall submit an annual report on the activities of the Office, including planned programs and expenditures, to the Committee on Commerce, Science, and Transportation of the Senate and the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives.

Changes in Existing Law Made by Section 3(bb)(14) of the Bill

(b) REPORT.—The Administrator shall transmit a report to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate describing the strategy developed under subsection (a) not later than 90 days after the date of enactment of this Act. The report shall provide, at a minimum—

Changes in Existing Law Made by Section 3(bb)(15) of the Bill

(a) A person may apply to the Secretary of Transportation for an experimental permit under this section in the form and manner the Secretary prescribes. Consistent with the protection of the public health and safety, safety of property, and national security and foreign policy interests of the United States, the Secretary, not later than 120 days after receiving an application pursuant to this section, shall issue a permit if the Secretary decides in writing that the applicant complies, and will continue to comply, with this chapter and regulations prescribed under this chapter. The Secretary shall inform the applicant of any pending issue and action required to resolve the issue if the Secretary has not made a decision not later than 90 days after receiving an application. The Secretary shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and Committee on Commerce, Science, and Transportation of the Senate a written notice not later than 15 days after any occurrence when the Secretary has failed to act on a permit within the deadline established by this section.

Changes in Existing Law Made by Section 3(bb)(16) of the Bill

(d) ANNUAL REPORT.—(1) Not later than November 15 of each year, the Secretary of Transportation shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives a report on current determinations made under subsection (c) of this section related to all issued licenses and the reasons for the determinations.

Changes in Existing Law Made by Section 3(bb)(17) of the Bill

(b) COORDINATION REPORT.—Not later than February 15 of each year, the Administrator and the Administrator of the National Oceanic and Atmospheric Administration shall jointly transmit a report to the [Committee on Science and Technology] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on how the Earth science programs of the Administration and the National Oceanic and Atmospheric Administration will be coordinated during the fiscal year following the fiscal year in which the report is transmitted.

Changes in Existing Law Made by Section 3(bb)(18)(A) of the Bill

(b) PLAN.—Not later than 180 days after the date of enactment of this Act, the Administrator shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a plan describing how NASA will proceed with its human space flight programs, which, at a minimum, shall describe—

Changes in Existing Law Made by Section 3(bb)(18)(B) of the Bill

(c) PERSONNEL.—The Administrator shall consult with other appropriate Federal agencies and with NASA contractors and employees to develop a transition plan for any Federal and contractor personnel engaged in the Space Shuttle program who can no longer be

retained because of the retirement of the Space Shuttle. The plan shall include actions to assist Federal and contractor personnel in taking advantage of training, retraining, job placement and relocation programs, and any other actions that NASA will take to assist the employees. The plan shall also describe how the Administrator will ensure that NASA and its contractors will have an appropriate complement of employees to allow for the safest possible use of the Space Shuttle through its final flight. The Administrator shall transmit the plan to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate not later than March 31, 2006.

Changes in Existing Law Made by Section 3(bb)(19) of the Bill

(c) PLAN.—The Administrator shall provide to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and to the Committee on Commerce, Science, and Transportation of the Senate, not later than December 1, 2000, a plan to implement the program established under subsection (a).

Changes in Existing Law Made by Section 3(bb)(20) of the Bill

(b) REPORT.—Not later than 1 year after the date of the enactment of this Act, the Administrator shall transmit to the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report on the results of the study conducted under this section.

Changes in Existing Law Made by Section 3(bb)(21) of the Bill

(b) IMPLEMENTATION PLAN.—Not later than September 30, 2001, the Administrator shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the [Committee on Science] *Committee on Science, Space, and Technology* of the House of Representatives an implementation plan to incorporate the use of a non-government organization for the International Space Station. The implementation plan shall include—

Changes in Existing Law Made by Section 4(a) of the Bill (Amending Section 914 of the Ronald W. Reagan National Defense Authorization Act for Fiscal Year 2005 (Public Law 108–375, 5 U.S.C. 552 note))

(b) LAND REMOTE SENSING INFORMATION DEFINED.—In this section, the term "land remote sensing information"—

(1) means any data that—

(A) are collected by land remote sensing; and

(B) are prohibited from sale to customers other than the United States Government and United States Government-approved customers for reasons of national security pursuant to the terms of an operating license issued pursuant to [the Land Remote Sensing Policy Act of 1992 (15 U.S.C. 5601 et seq.);] *chapter 601 of title 51, United States Code;* and

* * * * * * *

(e) ADDITIONAL DEFINITION.—In this section, the term "land remote sensing" has the meaning given such term in [section 3 of the

Land Remote Sensing Policy Act of 1992 (15 U.S.C. 5602).] *section 60101 of title 51, United States Code.*

Changes in Existing Law Made by Section 4(b)(1) of the Bill (Amending the Table of Contents of Chapter 123 of Title 28, United States Code)

Sec.
[1932] *1933.* Revocation of earned release credit.

Changes in Existing Law Made by Section 4(b)(2) of the Bill (Redesignating Section 1932 (relating to revocation of earned release credit) of Title 28, United States Code, as Section 1933)

§ [1932] *1933*. Revocation of earned release credit

Changes in Existing Law Made by Section 4(c) of the Bill (Amending Section 1(4) of Public Law 107–74 (31 U.S.C. 1113 note))

(4) [Section 206 of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2476).] *Section 20116 of title 51, United States Code*.

Changes in Existing Law Made by Section 4(d) of the Bill (Amending the Table of Contents of Title 36, United States Code)

Sec.
23. United States Holocaust Memorial [Council] Museum 2301

* * * * * * *

307. Board [For] *for* Fundamental Education 30701

Changes in Existing Law Made by Section 4(e)(1) of the Bill (Amending Section 602(b)(1) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18362(b)(1)))

(1) UTILIZATION OF VEHICLE ASSETS.—In carrying out subsection (a), the Administrator shall, to the maximum extent practicable, utilize workforce, assets, and infrastructure of the Space Shuttle program in efforts relating to the initiation of a follow-on Space Launch System developed pursuant to [section 302 of this Act.] *section 71521 of title 51, United States Code.*

Changes in Existing Law Made by Section 4(e)(2) of the Bill (Amending Section 603 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18363))

SEC. 603. DISPOSITION OF ORBITER VEHICLES.

(a) IN GENERAL.—Upon the termination of the Space Shuttle program as provided in section 602, the Administrator shall decommission any remaining Space Shuttle orbiter vehicles according to established safety and historic preservation procedures prior to their designation as surplus government property. The orbiter vehicles shall be made available and located for display and maintenance through a competitive procedure established pursuant to the disposition plan developed under section 613(a) of the National Aeronautics and Space Administration Authorization Act of 2008 [(42 U.S.C. 17761(a)),] *(51 U.S.C. 70501 note),* with priority consideration given to eligible applicants meeting all conditions of that plan which would provide for the display and maintenance of orbiters at locations with the best potential value to the public, including where the location of the orbiters can advance educational opportunities in science, technology, engineering, and mathematics disciplines, and with an historical relationship with either the launch, flight operations, or processing of the Space Shuttle orbit-

ers or the retrieval of NASA manned space vehicles, or significant contributions to human space flight. The Smithsonian Institution, which, as of the date of enactment of this Act, houses the Space Shuttle Enterprise, shall determine any new location for the Enterprise.

(b) DISPLAY AND MAINTENANCE.—The orbiter vehicles made available under subsection (a) shall be displayed and maintained through agreements and procedures established pursuant to section 613(a) of the National Aeronautics and Space Administration Authorization Act of 2008 [(42 U.S.C. 17761(a)).] *(51 U.S.C. 70501 note).*

Changes in Existing Law Made by Section 4(f)(1) of the Bill (Amending Section 2 of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10, 51 U.S.C. 10101 note))

SEC. 2. DEFINITIONS.

In this Act:

* * * * * * *

(8) ISS MANAGEMENT ENTITY.—The term "ISS management entity" means the organization with which the Administrator has a cooperative agreement under [section 504(a) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18354(a)).] *section 70911(a) of title 51, United States Code.*

* * * * * * *

(10) ORION.—The term "Orion" means the multipurpose crew vehicle described under [section 303 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18323).] *section 71522 of title 51, United States Code.*

* * * * * * *

(11) SPACE LAUNCH SYSTEM.—The term "Space Launch System" has the meaning given the term in [section 3 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18302).] *section 71501 of title 51, United States Code.*

Changes in Existing Law Made by Section 4(f)(2) of the Bill (Amending Section 20302(c) of Title 51, United States Code)

(c) DEFINITIONS.—In this section:

(1) ORION.—The term "Orion" means the multipurpose crew vehicle described under [section 303 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18323).] *section 71522 of this title.*

(2) SPACE LAUNCH SYSTEM.—The term "Space Launch System" [means has the meaning] has the meaning given the term in [section 3 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18302).] *section 71501 of this title.*

Changes in Existing Law Made by Section 4(f)(3) of the Bill (Amending Section 202 of the National Space Grant College and Fellowship Act (Public Law 100–147, title II, 51 U.S.C. 40301 note))

SEC. 202. [The Congress finds] *(a) Congress finds* that—

(1) the vitality of the Nation and the quality of life of the citizens of the Nation depend increasingly on the understanding, assessment, development, and utilization of space resources;

(2) research and development of space science, space technology, and space commercialization will contribute to the quality of life, national security, and the enhancement of commerce;

(3) the understanding and development of the space frontiers require a broad commitment and an intense involvement on the part of the Federal Government in partnership with State and local governments, private industry, universities, organizations, and individuals concerned with the exploration and utilization of space;

(4) the National Aeronautics and Space Administration, through the national space grant college and fellowship program, offers the most suitable means for such commitment and involvement through the promotion of activities that will result in greater understanding, assessment, development, and utilization; and

(5) Federal support of the establishment, development, and operation of programs and projects by space grant colleges, space grant regional consortia, institutions of higher education, institutes, laboratories, and other appropriate public and private entities is the most cost-effective way to promote such activities.

(b) The definitions in section 40302 of title 51, United States Code, apply in this section.

Changes in Existing Law Made by Section 4(f)(4) of the Bill (Amending Section 50111(c)(2) of Title 51, United States Code)

(c) ISS TRANSITION PLAN.—

* * * * * * *

(2) REPORTS.—Not later than December 1, 2017, and biennially thereafter until 2023, the Administrator shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report that includes—

* * * * * * *

(E) the criteria used to determine whether the ISS is meeting the objective under [section 301(b)(2) of the National Aeronautics and Space Administration Transition Authorization Act of 2017;] *section 70912(2) of this title;*

* * * * * * *

(G) any necessary contributions that ISS extension would make to enabling execution of the human exploration roadmap under [section 432 of the National Aeronautics and Space Administration Transition Authorization Act of 2017;] *section 71721 of this title;*

* * * * * * *

(J) an evaluation of the feasible and preferred service life of the ISS beyond the period described in [section 503 of the National Aeronautics and Space Administration Au-

thorization Act of 2010 (42 U.S.C. 18353),] *section 70910 of this title,* through at least 2028, as a unique scientific, commercial, and space exploration-related facility, including—

Changes in Existing Law Made by Section 4(f)(5) of the Bill (Amending Section 302(c)(1) of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10, 51 U.S.C. 50111 note))

SEC. 302. TRANSPORTATION TO ISS.

* * * * * * *

(c) REAFFIRMATION.—Congress reaffirms—

(1) its commitment to the use of a commercially developed, private sector launch and delivery system to the ISS for crew missions as expressed in the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155; 119 Stat. 2895), the National Aeronautics and Space Administration Authorization Act of 2008 (Public Law 110–422; 122 Stat. 4779), and the National Aeronautics and Space Administration Authorization Act of 2010 [(42 U.S.C. 18301 et seq.)] *(Public Law 111–267; 124 Stat. 2805)*; and

Changes in Existing Law Made by Section 4(f)(6) of the Bill (Amending Section 501 of the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1993 (Public Law 102–588, 51 U.S.C. 50501 note))

SEC. 501. FINDINGS.

[The Congress finds that—]

(a) DEFINITIONS.—The definitions in section 50501 of title 51, United States Code, apply in this section.

(b) IN GENERAL.—Congress finds that—

Changes in Existing Law Made by Section 4(f)(7) of the Bill (Amending Section 70501(a)(2) of Title 51, United States Code)

(a) POLICY STATEMENT.—

* * * * * * *

(2) beyond low-Earth orbit once the capabilities described in [section 421(f) of the National Aeronautics and Space Administration Transition Authorization Act of 2017] *section 71711(c) of this title* become available.

Changes in Existing Law Made by Section 4(f)(8) of the Bill (Amending Section 70504(a) of Title 51, United States Code)

(a) IN GENERAL.—The Administration—

(1) may conduct missions to intermediate destinations in sustainable steps in accordance with section 20302(b) of this title, and on a timetable determined by the availability of funding, in order to achieve the objective of human exploration of Mars specified in [section 202(b)(5) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18312(b)(5));] *section 71512(b)(5) of this title;* and

(2) shall incorporate any such missions into the human exploration roadmap under [section 432 of the National Aeronautics and Space Administration Transition Authorization Act of 2017.] *section 71721 of this title*.

Changes in Existing Law Made by Section 6 of the Bill (Repealing Section 104 of the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1989 (Public Law 100–685, 31 U.S.C. 1105 note))

[SEC. 104. Commencing in fiscal year 1990 and every year thereafter, the President shall submit to Congress a budget request for the National Aeronautics and Space Administration for the immediate fiscal year and the following fiscal year, and include budget estimates for the third fiscal year.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Section 210 of the National Aeronautics and Space Administration Authorization Act, Fiscal Year 1993 (Public Law 102–588, 51 U.S.C. 30103 note))

[SEC. 210. TRANSMISSION OF BUDGET ESTIMATES.

The Administrator shall, at the time of submission of the President's annual budget, transmit to the Congress—

(1) a five-year budget detailing the estimated development costs for each individual program under the jurisdiction of the National Aeronautics and Space Administration for which development costs are expected to exceed $200,000,000; and

(2) an estimate of the life-cycle costs associated with each such program.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Selected Provisions of the National Aeronautics and Space Administration Authorization Act of 2010 (Public Law 111–267, 42 U.S.C. 18311 et seq.))

SEC. 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "National Aeronautics and Space Administration Authorization Act of 2010".

* * * * * * *

[SEC. 201. UNITED STATES HUMAN SPACE FLIGHT POLICY.

(a) USE OF NON-UNITED STATES HUMAN SPACE FLIGHT TRANSPORTATION SERVICES.—

(1) IN GENERAL.—The Federal Government may not acquire human space flight transportation services from a foreign entity unless—

(A) no United States Government-operated human space flight capability is available;

(B) no United States commercial provider is available; and

(C) it is a qualified foreign entity.

(2) DEFINITIONS.—In this subsection:

(A) COMMERCIAL PROVIDER.—The term "commercial provider" means any person providing human space flight transportation services, primary control of which is held by persons other than the Federal Government, a State or local government, or a foreign government.

(B) QUALIFIED FOREIGN ENTITY.—The term "qualified foreign entity" means a foreign entity that is in compliance with all applicable safety standards and is not prohibited from providing space transportation services under other law.

(C) UNITED STATES COMMERCIAL PROVIDER.—The term "United States commercial provider" means a commercial provider, organized under the laws of the United States or

of a State, that is more than 50 percent owned by United States nationals.

(3) ARRANGEMENTS WITH FOREIGN ENTITIES.—Nothing in this subsection shall prevent the Administrator from negotiating or entering into human space flight transportation arrangements with foreign entities to ensure safety of flight and continued ISS operations.

(b) UNITED STATES HUMAN SPACE FLIGHT CAPABILITIES.—Congress reaffirms the policy stated in section 501(a) of the National Aeronautics and Space Administration Authorization Act of 2005 (42 U.S.C. 16761(a)), that the United States shall maintain an uninterrupted capability for human space flight and operations in low-Earth orbit, and beyond, as an essential instrument of national security and of the capacity to ensure continued United States participation and leadership in the exploration and utilization of space.]

[SEC. 202. GOALS AND OBJECTIVES.

(a) LONG-TERM GOALS.—The long-term goals of the human space flight and exploration efforts of NASA shall be—

(1) to expand permanent human presence beyond low-Earth orbit and to do so, where practical, in a manner involving international, academic, and industry partners;

(2) crewed missions and progress toward achieving the goal in paragraph (1) to enable the potential for subsequent human exploration and the extension of human presence throughout the solar system; and

(3) to enable a capability to extend human presence, including potential human habitation on another celestial body and a thriving space economy in the 21st Century.

(b) KEY OBJECTIVES.—The key objectives of the United States for human expansion into space shall be—

(1) to sustain the capability for long-duration presence in low-Earth orbit, initially through continuation of the ISS and full utilization of the United States segment of the ISS as a National Laboratory, and through assisting and enabling an expanded commercial presence in, and access to, low-Earth orbit, as elements of a low-Earth orbit infrastructure;

(2) to determine if humans can live in an extended manner in space with decreasing reliance on Earth, starting with utilization of low-Earth orbit infrastructure, to identify potential roles that space resources such as energy and materials may play, to meet national and global needs and challenges, such as potential cataclysmic threats, and to explore the viability of and lay the foundation for sustainable economic activities in space;

(3) to maximize the role that human exploration of space can play in advancing overall knowledge of the universe, supporting United States national and economic security and the United States global competitive posture, and inspiring young people in their educational pursuits;

(4) to build upon the cooperative and mutually beneficial framework established by the ISS partnership agreements and experience in developing and undertaking programs and meeting objectives designed to realize the goal of human space flight set forth in subsection (a); and

(5) to achieve human exploration of Mars and beyond through the prioritization of those technologies and capabilities best suited for such a mission in accordance with the stepping stone approach to exploration under section 70504 of title 51, United States Code.]

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SEC. 301. HUMAN SPACE FLIGHT BEYOND LOW EARTH ORBIT.

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[(b) REPORT ON INTERNATIONAL COLLABORATION.—

(1) REPORT REQUIRED.—Not later than 120 days after the date of enactment of this Act, the Administrator shall submit to the appropriate committees of Congress a report on the following assets and capabilities:

(A) Any effort by NASA to expand and ensure effective international collaboration on the ISS.

(B) The efforts of NASA, including its approach and progress, in defining near- term, cis-lunar space human missions.

(2) NASA CONTRIBUTIONS.—In preparing the report required by paragraph (1), the Administrator shall assume that NASA will contribute to the efforts described in that paragraph the following:

(A) A Space Launch System.

(B) A multi-purpose crew vehicle.

(C) Such other technology elements the Administrator may consider appropriate, and which the Administrator shall specifically identify in the report.]

[SEC. 302. SPACE LAUNCH SYSTEM AS FOLLOW ON LAUNCH VEHICLE TO THE SPACE SHUTTLE.

(a) UNITED STATES POLICY.—It is the policy of the United States that NASA develop a Space Launch System as a follow-on to the Space Shuttle that can access cis-lunar space and the regions of space beyond low-Earth orbit in order to enable the United States to participate in global efforts to access and develop this increasingly strategic region.

(b) INITIATION OF DEVELOPMENT.—

(1) IN GENERAL.—The Administrator shall, as soon as practicable after the date of the enactment of this Act, initiate development of a Space Launch System meeting the minimum capabilities requirements specified in subsection (c).

(2) MODIFICATION OF CURRENT CONTRACTS.—In order to limit NASA's termination liability costs and support critical capabilities, the Administrator shall, to the extent practicable, extend or modify existing vehicle development and associated contracts necessary to meet the requirements in paragraph (1), including contracts for ground testing of solid rocket motors, if necessary, to ensure their availability for development of the Space Launch System.

(c) MINIMUM CAPABILITY REQUIREMENTS.—

(1) IN GENERAL.—The Space Launch System developed pursuant to subsection (b) shall be designed to have, at a minimum, the following:

(A) The initial capability of the core elements, without an upper stage, of lifting payloads weighing between 70 tons and 100 tons into low-Earth orbit in preparation for transit for missions beyond low-Earth orbit.

(B) The capability to carry an integrated upper Earth departure stage bringing the total lift capability of the Space Launch System to 130 tons or more.

(C) The capability to lift the multipurpose crew vehicle.

(D) The capability to serve as a backup system for supplying and supporting ISS cargo requirements or crew delivery requirements not otherwise met by available commercial or partner-supplied vehicles.

(2) FLEXIBILITY.—The Space Launch System shall be designed from inception as a fully-integrated vehicle capable of carrying a total payload of 130 tons or more into low- Earth orbit in preparation for transit for missions beyond low-Earth orbit. The Space Launch System shall, to the extent practicable, incorporate capabilities for evolutionary growth to carry heavier payloads. Developmental work and testing of the core elements and the upper stage should proceed in parallel subject to appropriations. Priority should be placed on the core elements with the goal for operational capability for the core elements not later than December 31, 2016.

(3) TRANSITION NEEDS.—The Administrator shall ensure critical skills and capabilities are retained, modified, and developed, as appropriate, in areas related to solid and liquid engines, large diameter fuel tanks, rocket propulsion, and other ground test capabilities for an effective transition to the follow-on Space Launch System.

(4) The capacity for efficient and timely evolution, including the incorporation of new technologies, competition of sub-elements, and commercial operations.]

[SEC. 303. MULTI PURPOSE CREW VEHICLE.

(a) INITIATION OF DEVELOPMENT.—

(1) IN GENERAL.—The Administrator shall continue the development of a multi- purpose crew vehicle to be available as soon as practicable, and no later than for use with the Space Launch System. The vehicle shall continue to advance development of the human safety features, designs, and systems in the Orion project.

(2) GOAL FOR OPERATIONAL CAPABILITY.—It shall be the goal to achieve full operational capability for the transportation vehicle developed pursuant to this subsection by not later than December 31, 2016. For purposes of meeting such goal, the Administrator may undertake a test of the transportation vehicle at the ISS before that date.

(b) MINIMUM CAPABILITY REQUIREMENTS.—The multi-purpose crew vehicle developed pursuant to subsection (a) shall be designed to have, at a minimum, the following:

(1) The capability to serve as the primary crew vehicle for missions beyond low-Earth orbit.

(2) The capability to conduct regular in-space operations, such as rendezvous, docking, and extra-vehicular activities, in conjunction with payloads delivered by the Space Launch System developed pursuant to section 302, or other vehicles, in

preparation for missions beyond low-Earth orbit or servicing of assets described in section 804, or other assets in cis-lunar space.

(3) The capability to provide an alternative means of delivery of crew and cargo to the ISS, in the event other vehicles, whether commercial vehicles or partner-supplied vehicles, are unable to perform that function.

(4) The capacity for efficient and timely evolution, including the incorporation of new technologies, competition of sub-elements, and commercial operations.]

[SEC. 304. UTILIZATION OF EXISTING WORKFORCE AND ASSETS IN DEVELOPMENT OF SPACE LAUNCH SYSTEM AND MULTIPURPOSE CREW VEHICLE.

(a) IN GENERAL.—In developing the Space Launch System pursuant to section 302 and the multi-purpose crew vehicle pursuant to section 303, the Administrator shall, to the extent practicable utilize—

(1) existing contracts, investments, workforce, industrial base, and capabilities from the Space Shuttle and Orion and Ares 1 projects, including—

(A) space-suit development activities for application to, and coordinated development of, a multi-purpose crew vehicle suit and associated life-support requirements with potential development of standard NASA-certified suit and life support systems for use in alternative commercially-developed crew transportation systems; and

(B) Space Shuttle-derived components and Ares 1 components that use existing United States propulsion systems, including liquid fuel engines, external tank or tank-related capability, and solid rocket motor engines; and

(2) associated testing facilities, either in being or under construction as of the date of enactment of this Act.

(b) DISCHARGE OF REQUIREMENTS.—In meeting the requirements of subsection (a), the Administrator—

(1) shall, to the extent practicable, utilize ground-based manufacturing capability, ground testing activities, launch and operations infrastructure, and workforce expertise;

(2) shall, to the extent practicable, minimize the modification and development of ground infrastructure and maximize the utilization of existing software, vehicle, and mission operations processes;

(3) shall complete construction and activation of the A–3 test stand with a completion goal of September 30, 2013;

(4) may procure, develop, and flight test applicable components; and

(5) shall take appropriate actions to ensure timely and cost-effective development of the Space Launch System and the multi-purpose crew vehicle, including the use of a procurement approach that incorporates adequate and effective oversight, the facilitation of contractor efficiencies, and the streamlining of contract and procurement requirements.]

[SEC. 305. NASA LAUNCH SUPPORT AND INFRASTRUCTURE MODERNIZATION PROGRAM.

(a) IN GENERAL.—The Administrator shall carry out a program the primary purpose of which is to prepare infrastructure at the

Kennedy Space Center that is needed to enable processing and launch of the Space Launch System. Vehicle interfaces and other ground processing and payload integration areas should be simplified to minimize overall costs, enhance safety, and complement the purpose of this section.

(b) ELEMENTS.—The program required by this section shall include—

(1) investments to improve civil and national security operations at the Kennedy Space Center, to enhance the overall capabilities of the Center, and to reduce the long term cost of operations and maintenance;

(2) measures to provide multi-vehicle support, improvements in payload processing, and partnering at the Kennedy Space Center; and

(3) such other measures, including investments to improve launch infrastructure at NASA flight facilities scheduled to launch cargo to the ISS under the commercial orbital transportation services program as the Administrator may consider appropriate.

(c) REPORT ON NASA LAUNCH SUPPORT AND INFRASTRUCTURE MODERNIZATION PROGRAM.—

(1) REPORT REQUIRED.—Not later than 120 days after the date of the enactment of this Act, the Administrator shall submit to the appropriate committees of Congress a report on the plan for the implementation of the NASA launch support and infrastructure modernization program.

(2) ELEMENTS.—The report required by this subsection shall include—

(A) a description of the ground infrastructure plan tied to the Space Launch System and potential ground investment activities at other NASA centers related to supporting the development of the Space Launch System;

(B) a description of proposed initiatives intended to be conducted jointly or in cooperation with Cape Canaveral Air Force Station, Florida, or other installations or components of the United States Government; and

(C) a description of plans to use funds authorized to be appropriated by this Act to improve non-NASA facilities, which plans shall include a business plan outlining the nature and scope of investments planned by other parties.]

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[SEC. 308. DEVELOPMENT OF TECHNOLOGIES AND IN-SPACE CAPABILITIES FOR BEYOND NEAR-EARTH SPACE MISSIONS.

(a) DEVELOPMENT AUTHORIZED.—The Administrator may initiate activities to develop the following:

(1) Technologies identified as necessary elements of missions beyond low-Earth orbit.

(2) In-space capabilities such as refueling and storage technology, orbital transfer stages, innovative in-space propulsion technology, communications, and data management that facilitate a broad range of users (including military and commercial) and applications defining the architecture and design of such missions.

(3) Spacesuit development and associated life support technology.

(4) Flagship missions.

(b) INVESTMENTS.—In developing technologies and capabilities under subsection (a), the Administrator may make investments—

(1) in space technologies such as advanced propulsion, propellant depots, in situ resource utilization, and robotic payloads or capabilities that enable human missions beyond low-Earth orbit ultimately leading to Mars;

(2) in a space-based transfer vehicle including these technologies with an ability to conduct space-based operations that provide capabilities—

(A) to integrate with the Space Launch System and other space-based systems;

(B) to provide opportunities for in-space servicing of and delivery to multiple space-based platforms; and

(C) to facilitate international efforts to expand human presence to deep space destinations;

(3) in advanced life support technologies and capabilities;

(4) in technologies and capabilities relating to in-space power, propulsion, and energy systems;

(5) in technologies and capabilities relating to in-space propellant transfer and storage;

(6) in technologies and capabilities relating to in situ resource utilization; and

(7) in expanded research to understand the greatest biological impediments to human deep space missions, especially the radiation challenge.

(c) UTILIZATION OF ISS AS TESTBED.—The Administrator may utilize the ISS as a testbed for any technology or capability developed under subsection (a) in a manner consistent with the provisions of this Act.

(d) COORDINATION.—The Administrator shall coordinate development of technologies and capabilities under this section through an overall agency technology approach, as authorized by section 905 of this Act.]

* * * * * * *

[SEC. 401. COMMERCIAL CARGO DEVELOPMENT PROGRAM

The Administrator shall continue to support the existing Commercial Resupply Services program, aimed at enabling the commercial space industry in support of NASA to develop reliable means of launching cargo and supplies to the ISS throughout the duration of the facility's operation. The Administrator may apply funds towards the reduction of risk to the timely start of these services, specifically—

(1) efforts to conduct a flight test;

(2) accelerate development; and

(3) develop the ground infrastructure needed for commercial cargo capability.]

* * * * * * *

[SEC. 403. REQUIREMENTS APPLICABLE TO DEVELOPMENT OF COMMERCIAL CREW TRANSPORTATION CAPABILITIES AND SERVICES.

(a) FY 2011 CONTRACTS AND PROCUREMENT AGREEMENTS.—

(1) IN GENERAL.—Except as provided in paragraph (2), the Administrator may not execute a contract or procurement agreement with respect to follow-on commercial crew services during fiscal year 2011.

(2) EXCEPTION.—Notwithstanding paragraph (1), the Administrator may execute a contract or procurement agreement with respect to follow-on commercial crew services during fiscal year 2011 if—

(A) the requirements of paragraphs (1), (2), and (3) of subsection (b) are met; and

(B) the total amount involved for all such contracts and procurement agreements executed during fiscal year 2011 does not exceed $50,000,000 for fiscal year 2011.

(b) SUPPORT.—The Administrator may, beginning in fiscal year 2012 through the duration of the program, support follow-on commercially-developed crew transportation systems dependent upon the completion of each of the following:

(1) HUMAN RATING REQUIREMENTS.—Not later than 60 days after the date of the enactment of this Act, the Administrator shall develop and make available to the public detailed human rating processes and requirements to guide the design of commercially-developed crew transportation capabilities, which requirements shall be at least equivalent to proven requirements for crew transportation in use as of the date of the enactment of this Act.

(2) COMMERCIAL MARKET ASSESSMENT.—Not later than 180 days after the date of the enactment of this Act, the Administrator shall submit to the appropriate committees of Congress an assessment, conducted, in coordination with the Federal Aviation Administration's Office of Commercial Space Transportation, for purposes of this paragraph, of the potential non-Government market for commercially-developed crew and cargo transportation systems and capabilities, including an assessment of the activities associated with potential private sector utilization of the ISS research and technology development capabilities and other potential activities in low-Earth orbit.

(3) PROCUREMENT SYSTEM REVIEW.—The Administrator shall review current Government procurement and acquisition practices and processes, including agreement authorities under the National Aeronautics and Space Act of 1958, to determine the most cost-effective means of procuring commercial crew transportation capabilities and related services in a manner that ensures appropriate accountability, transparency, and maximum efficiency in the procurement of such capabilities and services, which review shall include an identification of proposed measures to address risk management and means of indemnification of commercial providers of such capabilities and services, and measures for quality control, safety oversight, and the application of Federal oversight processes within the jurisdiction of other Federal agencies. A description of the proposed procurement process and justification of the proposed procurement for its selection shall be included in any proposed initiation of procurement activity for commercially- developed crew transportation capabilities and services and shall be subject to review by the appropriate committees of Congress before the ini-

tiation of any competitive process to procure such capabilities or services. In support of the review by such committees, the Comptroller General shall undertake an assessment of the proposed procurement process and provide a report to the appropriate committees of Congress within 90 days after the date on which the Administrator provides the description and justification to such committees.

(4) USE OF GOVERNMENT SUPPLIED CAPABILITIES AND INFRASTRUCTURE.—In evaluating any proposed development activity for commercially-developed crew or cargo launch capabilities, the Administrator shall identify the anticipated contribution of government personnel, expertise, technologies, and infrastructure to be utilized in support of design, development, or operations of such capabilities. This assessment shall include a clear delineation of the full requirements for the commercial crew service (including the contingency for crew rescue). The Administrator shall include details and associated costs of such support as part of any proposed development initiative for the procurement of commercially-developed crew or cargo launch capabilities or services.

(5) FLIGHT DEMONSTRATION AND READINESS REQUIREMENTS.—The Administrator shall establish appropriate milestones and minimum performance objectives to be achieved before authority is granted to proceed to the procurement of commercially developed crew transportation capabilities or systems. The guidelines shall include a procedure to provide independent assurance of flight safety and flight readiness before the authorization of United States government personnel to participate as crew onboard any commercial launch vehicle developed pursuant to this section.

(6) COMMERCIAL CREW RESCUE CAPABILITIES.—The provision of a commercial capability to provide ISS crew services shall include crew rescue requirements, and shall be undertaken through the procurement process initiated in conformance with this section. In the event such development is initiated, the Administrator shall make available any relevant government-owned intellectual property deriving from the development of a multi-purpose crew vehicle authorized by this Act to commercial entities involved with such crew rescue capability development which shall be relevant to the design of a crew rescue capability. In addition, the Administrator shall seek to ensure that contracts for development of the multi-purpose crew vehicle contain provisions for the licensing of relevant intellectual property to participating commercial providers of any crew rescue capability development undertaken pursuant to this section. If one or more contractors involved with development of the multi-purpose crew vehicle seek to compete in development of a commercial crew service with crew rescue capability, separate legislative authority must be enacted to enable the Administrator to provide funding for any modifications of the multi-purpose crew vehicle necessary to fulfill the ISS crew rescue function.]

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[SEC. 501. CONTINUATION OF THE INTERNATIONAL SPACE STATION.

(a) POLICY OF THE UNITED STATES.—It shall be the policy of the United States, in consultation with its international partners in the ISS program, to support full and complete utilization of the ISS through at least 2024.

(b) NASA ACTION.—In furtherance of the policy set forth in subsection (a), NASA shall—

(1) pursue international, commercial, and intragovernmental means to maximize ISS logistics supply, maintenance, and operational capabilities, reduce risks to ISS systems sustainability, and offset and minimize United States operations costs relating to the ISS;

(2) utilize, to the extent practicable, the ISS for the development of capabilities and technologies needed for the future of human space exploration beyond low-Earth orbit; and

(3) utilize, if practical and cost effective, the ISS for Science Mission Directorate missions in low-Earth orbit.]

[SEC. 502. MAXIMUM UTILIZATION OF THE INTERNATIONAL SPACE STATION.

(a) IN GENERAL.—With assembly of the ISS complete, NASA shall take steps to maximize the productivity and use of the ISS with respect to scientific and technological research and development, advancement of space exploration, and international collaboration.

(b) NASA ACTIONS.—In carrying out subsection (a), NASA shall, at a minimum, undertake the following:

(1) INNOVATIVE USE OF U.S. SEGMENT.—The United States segment of the ISS, which has been designated as a National Laboratory, shall be developed, managed and utilized in a manner that enables the effective and innovative use of such facility, as provided in section 504.

(2) INTERNATIONAL COOPERATION.—The ISS shall continue to be utilized as a key component of international efforts to build missions and capabilities that further the development of a human presence beyond near-Earth space and advance United States security and economic goals. The Administrator shall actively seek ways to encourage and enable the use of ISS capabilities to support these efforts.

(3) DOMESTIC COLLABORATION.—The operations, management, and utilization of the ISS shall be conducted in a manner that provides opportunities for collaboration with other research programs and objectives of the United States Government in cooperation with commercial suppliers, users, and developers.]

SEC. 503. MAINTENANCE OF THE UNITED STATES SEGMENT AND ASSURANCE OF CONTINUED OPERATIONS OF THE INTERNATIONAL SPACE STATION.

[(a) IN GENERAL.—The Administrator shall take all actions necessary to ensure the safe and effective operation, maintenance, and maximum utilization of the United States segment of the ISS through at least September 30, 2024.]

* * * * * * *

[(d) UTILIZATION OF RESEARCH FACILITIES AND CAPABILITIES.—Utilization of research facilities and capabilities aboard the ISS

(other than exploration-related research and technology development facilities and capabilities, and associated ground support and logistics), shall be planned, managed, and supported as provided in section 504. Exploration-related research and technology development facilities, capabilities, and associated ground support and logistics shall be planned, managed, and supported by the appropriate NASA organizations and officials in a manner that does not interfere with other activities under section 504.

(e) SPACE SHUTTLE MISSION TO ISS.—

(1) SPACE SHUTTLE MISSION.—The Administrator shall fly the Launch-On-Need Shuttle mission currently designated in the Shuttle Flight Manifest dated February 28, 2010, to the ISS in fiscal year 2011, but no earlier than June 1, 2011, unless required earlier by an operations contingency, and pending the results of the assessment required by paragraph (2) and the determination under paragraph (3)(A).

(2) ASSESSMENT OF SAFE MEANS OF RETURN.—The Administrator shall provide for an assessment by the NASA Engineering and Safety Center of the procedures and plans developed to ensure the safety of the Space Shuttle crew, and alternative means of return, in the event the Space Shuttle is damaged or otherwise unable to return safely to Earth.

(3) SCHEDULE AND PAYLOAD.—The determination of the schedule and payload for the mission authorized by paragraph (1) shall take into account the following:

(A) The supply and logistics delivery requirements of the ISS.

(B) The findings of the study required by paragraph (2).

(4) FUNDS.—Amounts authorized to be appropriated by section 101(2)(B) shall be available for the mission authorized by paragraph (1).

(f) SPACE SHUTTLE MANIFEST FLIGHT ASSURANCE.—

(1) IN GENERAL.—The Administrator shall take all actions necessary to preserve Space Shuttle launch capability through fiscal year 2011 in a manner that enables the launch, at a minimum, of missions and primary payloads in the Shuttle flight manifest as of February 28, 2010.

(2) CONTINUATION OF CONTRACTOR SUPPORT.—The Administrator may not terminate any contract that provides the system transitions necessary for shuttle-derived hardware to be used on either the multi-purpose crew vehicle described in section 303 or the Space Launch System described in section 302.]

[SEC. 504. MANAGEMENT OF THE ISS NATIONAL LABORATORY

(a) COOPERATIVE AGREEMENT WITH NOT-FOR PROFIT ENTITY FOR MANAGEMENT OF NATIONAL LABORATORY.—

(1) IN GENERAL.—The Administrator shall provide initial financial assistance and enter into a cooperative agreement with an appropriate organization that is exempt from taxation under section 501(c)(3) of the Internal Revenue Code of 1986 to manage the activities of the ISS national laboratory in accordance with this section.

(2) QUALIFICATIONS.—The organization with which the Administrator enters into the cooperative agreement shall develop the capabilities to implement research and development

projects utilizing the ISS national laboratory and to otherwise manage the activities of the ISS national laboratory.

(3) PROHIBITION ON OTHER ACTIVITIES.—The cooperative agreement shall require the organization entering into the agreement to engage exclusively in activities relating to the management of the ISS national laboratory and activities that promote its long term research and development mission as required by this section, without any other organizational objectives or responsibilities on behalf of the organization or any parent organization or other entity.

(b) NASA LIAISON.—

(1) DESIGNATION.—The Administrator shall designate an official or employee of the Space Operations Mission Directorate of NASA to act as liaison between NASA and the organization with which the Administrator enters into a cooperative agreement under subsection (a) with regard to the management of the ISS national laboratory.

(2) CONSULTATION WITH LIAISON.—The cooperative agreement shall require the organization entering into the agreement to carry out its responsibilities under the agreement in cooperation and consultation with the official or employee designated under paragraph (1).

(c) PLANNING AND COORDINATION OF ISS NATIONAL LABORATORY RESEARCH ACTIVITIES.—The Administrator shall provide initial financial assistance to the organization with which the Administrator enters into a cooperative agreement under subsection (a), in order for the organization to initiate the following:

(1) Planning and coordination of the ISS national laboratory research activities.

(2) Development and implementation of guidelines, selection criteria, and flight support requirements for non-NASA scientific utilization of ISS research capabilities and facilities available in United States-owned modules of the ISS or in partner-owned facilities of the ISS allocated to United States utilization by international agreement.

(3) Interaction with and integration of the International Space Station National Laboratory Advisory Committee established under section 602 of the National Aeronautics and Space Administration Authorization Act of 2008 (42 U.S.C. 17752) with the governance of the organization, and review recommendations provided by that Committee regarding agreements with non-NASA departments and agencies of the United States Government, academic institutions and consortia, and commercial entities leading to the utilization of the ISS national laboratory facilities.

(4) Coordination of transportation requirements in support of the ISS national laboratory research and development objectives, including provision for delivery of instruments, logistics support, and related experiment materials, and provision for return to Earth of collected samples, materials, and scientific instruments in need of replacement or upgrade.

(5) Cooperation with NASA, other departments and agencies of the United States Government, the States, and commercial entities in ensuring the enhancement and sustained operations of non-exploration-related research payload ground support fa-

cilities for the ISS, including the Space Life Sciences Laboratory, the Space Station Processing Facility and Payload Operations Integration Center.

(6) Development and implementation of scientific outreach and education activities designed to ensure effective utilization of ISS research capabilities including the conduct of scientific assemblies, conferences, and other fora for the presentation of research findings, methods, and mechanisms for the dissemination of non-restricted research findings and the development of educational programs, course supplements, interaction with educational programs at all grade levels, including student-focused research opportunities for conduct of research in the ISS national laboratory facilities.

(7) Such other matters relating to the utilization of the ISS national laboratory facilities for research and development as the Administrator may consider appropriate.

(d) RESEARCH CAPACITY ALLOCATION AND INTEGRATION OF RESEARCH PAYLOADS.—

(1) ALLOCATION OF ISS RESEARCH CAPACITY.—As soon as practicable after the date of enactment of this Act, but not later than October 1, 2011, ISS national laboratory managed experiments shall be guaranteed access to, and utilization of, not less than 50 percent of the United States research capacity allocation, including power, cold stowage, and requisite crew time onboard the ISS through at least September 30, 2024. Access to the ISS research capacity includes provision for the adequate upmass and downmass capabilities to utilize the ISS research capacity, as available. The Administrator may allocate additional capacity to the ISS national laboratory should such capacity be in excess of NASA research requirements.

(2) ADDITIONAL RESEARCH CAPABILITIES.—If any NASA research plan is determined to require research capacity onboard the ISS beyond the percentage allocated under paragraph (1), such research plan shall be prepared in the form of a requested research opportunity to be submitted to the process established under this section for the consideration of proposed research within the capacity allocated to the ISS national laboratory. A proposal for such a research plan may include the establishment of partnerships with non-NASA institutions eligible to propose research to be conducted within the ISS national laboratory capacity. Until at least September 30, 2024, the official or employee designated under subsection (b) may grant an exception to this requirement in the case of a proposed experiment considered essential for purposes of preparing for exploration beyond low-Earth orbit, as determined by joint agreement between the organization with which the Administrator enters into a cooperative agreement under subsection (a) and the official or employee designated under subsection (b).

(3) RESEARCH PRIORITIES AND ENHANCED CAPACITY.—The organization with which the Administrator enters into the cooperative agreement shall consider recommendations of the National Academies Decadal Survey on Biological and Physical Sciences in Space in establishing research priorities and in developing proposed enhancements of research capacity and opportunities for the ISS national laboratory.

(4) RESPONSIBILITY FOR RESEARCH PAYLOAD.—NASA shall retain its roles and responsibilities in providing research payload physical, analytical, and operations integration during preflight, post-flight, transportation, and orbital phases essential to ensure safe and effective flight readiness and vehicle integration of research activities approved and prioritized by the organization with which the Administrator enters into the cooperative agreement and the official or employee designated under subsection (b).]

* * * * * * *

[SEC. 702. INTERAGENCY COLLABORATION IMPLEMENTATION APPROACH.

The Director of OSTP shall establish a mechanism to ensure greater coordination of the research, operations, and activities relating to civilian Earth observation of those Agencies, including NASA, that have active programs that either contribute directly or indirectly to these areas. This mechanism should include the development of a strategic implementation plan that is updated at least every 3 years, and includes a process for external independent advisory input. This plan should include a description of the responsibilities of the various Agency roles in Earth observations, recommended cost-sharing and procurement arrangements between Agencies and other entities, including international arrangements, and a plan for ensuring the provision of sustained, long term space-based climate observations. The Director shall provide a report to Congress within 90 days after the date of enactment of this Act on the implementation plan for this mechanism.]

[SEC. 703. TRANSITIONING EXPERIMENTAL RESEARCH TO OPERATIONS.

The Administrator shall coordinate with the Administrator of NOAA and the Director of the United States Geological Survey to establish a formal mechanism that plans, coordinates, and supports the transitioning of NASA research findings, assets, and capabilities to NOAA operations and United States Geological Survey operations. In defining this mechanism, NASA should consider the establishment of a formal or informal Interagency Transition Office. The Administrator of NASA shall provide an implementation plan for this mechanism to Congress within 90 days after the date of enactment of this Act.]

[SEC. 704. DECADAL SURVEY MISSIONS IMPLEMENTATION FOR EARTH OBSERVATION.

The Administrator shall undertake to implement, as appropriate, missions identified in the National Research Council's Earth Science Decadal Survey within the scope of the funds authorized for the Earth Science Mission Directorate.]

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[SEC. 706. INSTRUMENT TEST BEDS AND VENTURE CLASS MISSIONS.

The Administrator shall pursue innovative ways to fly instrument-level payloads for early demonstration or as co-manifested payloads. The Congress encourages the use of the ISS as an accessible platform for the conduct of such activities. Additionally, in order to address the cost and schedule challenges associated with

large flight systems, NASA should pursue smaller systems where practicable and warranted.]

* * * * * * *

[SEC. 801. TECHNOLOGY DEVELOPMENT.

The Administrator shall ensure that the Science Mission Directorate maintains a long term technology development program for space and Earth science. This effort should be coordinated with an overall Agency technology investment approach, as authorized in section 905 of this Act.]

SEC. 802. SUBORBITAL RESEARCH ACTIVITIES.

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[(b) MANAGEMENT.—The Administrator shall designate an officer or employee of the Science Mission Directorate to act as the responsible official for all Suborbital Research in the Science Mission Directorate. The designee shall be responsible for the development of short- and long term strategic plans for maintaining, renewing and extending suborbital facilities and capabilities, monitoring progress towards goals in the plans, and be responsible for integration of suborbital activities and workforce development within the agency, thereby ensuring the long term recognition of their combined value to the directorate, to NASA, and to the Nation.

(c) ESTABLISHMENT OF SUBORBITAL RESEARCH PROGRAM.—The Administrator shall establish a Suborbital Research Program within the Science Mission Directorate that shall include the use of sounding rockets, aircraft, high altitude balloons, suborbital reusable launch vehicles, and commercial launch vehicles to advance science and train the next generation of scientists and engineers in systems engineering and systems integration which are vital to maintaining critical skills in the aerospace workforce. The program shall integrate existing suborbital research programs with orbital missions at the discretion of the designated officer or employee and shall emphasize the participation of undergraduate and graduate students and post-doctoral researchers when formulating announcements of opportunity.

(d) REPORT.—The Administrator shall report to the appropriate committees of Congress on the number and type of suborbital missions conducted in each fiscal year and the number of undergraduate and graduate students participating in the missions. The report shall be made annually for each fiscal year under this section.

(e) AUTHORIZATION.—There are authorized to be appropriated to the Administrator such sums as may be necessary to carry out this section.]

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[SEC. 804. IN SPACE SERVICING.

The Administrator shall continue to take all necessary steps to ensure that provisions are made for in-space or human servicing and repair of all future observatory-class scientific spacecraft intended to be deployed in Earth-orbit or at a Lagrangian point to the extent practicable and appropriate. The Administrator should ensure that agency investments and future capabilities for space technology, robotics, and human space flight take the ability to

service and repair these spacecraft into account, where appropriate, and incorporate such capabilities into design and operational plans.]

[SEC. 805. DECADAL RESULTS.

NASA shall take into account the current decadal surveys from the National Academies' Space Studies Board when submitting the President's budget request to the Congress.]

SEC. 806. ON GOING RESTORATION OF RADIOISOTOPE THERMOELECTRIC GENERATOR MATERIAL PRODUCTION.

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[(b) IN GENERAL.—The Administrator shall, in coordination with the Secretary of Energy, pursue a joint approach beginning in fiscal year 2011 towards restarting and sustaining the domestic production of radioisotope thermoelectric generator material for deep space and other science and exploration missions. Funds authorized by this Act for NASA shall be made available under a reimbursable agreement with the Department of Energy for the purpose of reestablishing facilities to produce fuel required for radioisotope thermoelectric generators to enable future missions.

(c) REPORT.—Within 120 days after the date of enactment of this Act, the Administrator and the Secretary of Energy shall submit a joint report to the appropriate committees of Congress on coordinated agreements, planned implementation, and anticipated schedule, production quantities, and mission applications under this section.]

[SEC. 807. COLLABORATION WITH ESMD AND SOMD ON ROBOTIC MISSIONS.

The Administrator shall ensure that the Exploration Systems Mission Directorate and the Space Operations Mission Directorate coordinate with the Science Mission Directorate on an overall approach and plan for interagency and international collaboration on robotic missions that are NASA or internationally developed, including lunar, Lagrangian, near-Earth orbit, and Mars spacecraft, such as the International Lunar Network. Within 90 days after the date of enactment of this Act, the Administrator shall provide a plan to the appropriate committees of Congress for implementation of the collaborative approach required by this section. The Administrator may not cancel or initiate any Exploration Systems Mission Directorate or Science Mission Directorate robotic project before the plan is submitted to the appropriate committees of Congress.]

[SEC. 808. NEAR EARTH OBJECT SURVEY AND POLICY WITH RESPECT TO THREATS POSED.

(a) POLICY REAFFIRMATION.—Congress reaffirms the policy set forth in section 102(g) of the National Aeronautics and Space Act of 1958 (42 U.S.C. 2451(g)) relating to surveying near-Earth asteroids and comets.

(b) IMPLEMENTATION.—The Director of the OSTP shall implement, before September 30, 2012, a policy for notifying Federal agencies and relevant emergency response institutions of an impending near-Earth object threat if near-term public safety is at risk, and assign a Federal agency or agencies to be responsible for protecting the United States and working with the international community on such threats.]

SEC. 809. SPACE WEATHER.

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(b) ACTION REQUIRED.—The Director of OSTP shall—

[(1) improve the Nation's ability to prepare, avoid, mitigate, respond to, and recover from potentially devastating impacts of space weather events;

(2) coordinate the operational activities of the National Space Weather Program Council members, including the NOAA Space Weather Prediction Center and the U.S. Air Force Weather Agency; and]

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[SEC. 902. AERONAUTICS RESEARCH GOALS.

The Administrator should ensure that NASA maintains a strong aeronautics research portfolio ranging from fundamental research through systems research with specific research goals, including the following:

(1) AIRSPACE CAPACITY.—NASA's Aeronautics Research Mission Directorate shall address research needs of the Next Generation Air Transportation System, including the ability of the National Airspace System to handle up to 3 times the current travel demand by 2025.

(2) ENVIRONMENTAL SUSTAINABILITY.—The Directorate shall consider and pursue concepts to reduce noise, emissions, and fuel consumption while maintaining high safety standards and shall pursue research related to alternative fuels.

(3) AVIATION SAFETY.—The Directorate shall proactively address safety challenges with new and current air vehicles and with operations in the Nation's current and future air transportation system.]

[SEC. 903. RESEARCH COLLABORATION.

(a) DEPARTMENT OF DEFENSE.—The Administrator shall continue to coordinate with the Secretary of Defense, through the National Partnership for Aeronautics Testing, to develop and implement joint plans for those elements of the Nation's research, development, testing, and engineering infrastructure that are of common interest and use.

(b) FEDERAL AVIATION ADMINISTRATION.—The Administrator shall continue to coordinate with, and work closely with, the Administrator of the Federal Aviation Administration, under the framework of the Senior Policy Council, in development of the Next Generation Air Transportation Program. The Administrator shall encourage the Council to explore areas for greater collaboration, including areas where NASA can help to accelerate the development and demonstration of NextGen technologies.]

[SEC. 904. GOAL FOR AGENCY SPACE TECHNOLOGY.

It is critical that NASA maintain an Agency space technology base that helps align mission directorate investments and supports long term needs to complement mission-directorate funded research and support, where appropriate, multiple users, building upon its Innovative Partnerships Program and other partnering approaches.]

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[SEC. 906. NATIONAL SPACE TECHNOLOGY POLICY.

(a) IN GENERAL.—The President or the President's designee, in consultation with appropriate Federal agencies, shall develop a national policy to guide the space technology development programs of the United States through 2020. The policy shall include national goals for technology development and shall describe the role and responsibilities of each Federal agency that will carry out the policy. In developing the policy, the President or the President's designee shall utilize external studies that have been conducted on the state of United States technology development and have suggested policies to ensure continued competitiveness.

(b) CONTENT.—

(1) At a minimum, the national space technology development policy shall describe for NASA—

(A) the priority areas of research for technology investment;

(B) the basis on which and the process by which priorities for ensuing fiscal years will be selected;

(C) the facilities and personnel needed to carry out the technology development program; and

(D) the budget assumptions on which the policy is based, which for fiscal years 2011, 2012, and 2013 shall be the authorized level for NASA's technology program authorized by this Act.

(2) The policy shall be based on the premise that the Federal Government has an established interest in conducting research and development programs that help preserve the role of the United States as a global leader in space technologies and their application.

(3) CONSIDERATIONS.—In developing the national space technology development policy, the President or the President's designee shall consider, and include a discussion in the report required by subsection (c), of the following issues:

(A) The extent to which NASA should focus on long term, high-risk research or more incremental technology development, and the expected impact of that decision on the United States economy.

(B) The extent to which NASA should address military and commercial needs.

(C) How NASA will coordinate its technology program with other Federal agencies.

(D) The extent to which NASA will conduct research inhouse, fund university research, and collaborate on industry research and the expected impact of that mix of funding on the supply of United States workers for industry.

(4) CONSULTATION.—In the development of the national space technology development policy, the President or the President's designee shall consult widely with academic and industry experts and with other Federal agencies. The Administrator may enter into an arrangement with the National Academy of Sciences to help develop the policy.

(c) REPORT.—

(1) POLICY.—Not later than 1 year after the date of enactment of this Act, the President shall transmit a report setting forth national space technology policy to the appropriate com-

mittees of Congress and to the Senate Committee on Appropriations and the House of Representatives Committee on Appropriations.

(2) IMPLEMENTATION.—Not later than 60 days after the President transmits the report required by paragraph (1) to the Congress, the Administrator shall transmit a report to the same committees describing how NASA will carry out the policy.]

[SEC. 907. COMMERCIAL REUSABLE SUBORBITAL RESEARCH PROGRAM.

(a) IN GENERAL.—The report of the National Academy of Sciences, Revitalizing NASA's Suborbital Program: Advancing Science, Driving Innovation and Developing Workforce, found that suborbital science missions were absolutely critical to building an aerospace workforce capable of meeting the needs of current and future human and robotic space exploration.

(b) MANAGEMENT.—The Administrator shall designate an officer or employee of the Space Technology Program to act as the responsible official for the Commercial Reusable Suborbital Research Program in the Space Technology Program. The designee shall be responsible for the development of short- and long term strategic plans for maintaining, renewing and extending suborbital facilities and capabilities.

(c) ESTABLISHMENT.—The Administrator shall establish a Commercial Reusable Suborbital Research Program within the Space Technology Program that shall fund the development of payloads for scientific research, technology development, and education, and shall provide flight opportunities for those payloads to microgravity environments and suborbital altitudes. The Commercial Reusable Suborbital Research Program may fund engineering and integration demonstrations, proofs of concept, or educational experiments for commercial reusable vehicle flights. The program shall endeavor to work with NASA's Mission Directorates to help achieve NASA's research, technology, and education goals.

(d) REPORT.—The Administrator shall submit a report annually to the appropriate committees of Congress describing progress in carrying out the Commercial Reusable Suborbital Research program, including the number and type of suborbital missions planned in each fiscal year.

(e) AUTHORIZATION.—There are authorized to be appropriated to the Administrator $15,000,000 for each of fiscal years 2011 through 2013 to carry out this section.]

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SEC. 1202. NATIONAL AND INTERNATIONAL ORBITAL DEBRIS MITIGATION.

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[(b) INTERNATIONAL DISCUSSION.—

(1) IN GENERAL.—The Administrator shall, in consultation with such other departments and agencies of the Federal Government as the Administrator considers appropriate, continue and strengthen discussions with the representatives of other space-faring countries, within the Inter-Agency Space Debris Coordination Committee and elsewhere, to deal with this orbital debris mitigation.

(2) INTERAGENCY EFFORT.—For purposes of carrying out this subsection, the Director of OSTP, in coordination with the Director of the National Security Council and using the President's Council of Advisors on Science and Technology coordinating mechanism, shall develop an overall strategy for review by the President, with recommendations for proposed international collaborative efforts to address this challenge.]

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SEC. 1203. REPORTS ON PROGRAM AND COST ASSESSMENT AND CONTROL ASSESSMENT.

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[(b) REPORTS.—

(1) REPORTS REQUIRED.—Not later than 90 days after the date of the enactment of this Act, and not later than April 30 of each year thereafter, the Administrator shall submit to the appropriate committees of Congress a report on the implementation during the preceding year for the corrective action plan referred to in subsection (a)(4).

(2) ELEMENTS.—Each report under this subsection shall set forth, for the year covered by such report, the following:

(A) A description of each NASA program that has exceeded its cost baseline by 15 percent or more or is more than 2 years behind its projected development schedule.

(B) For each program specified under subparagraph (A), a plan for such decrease in scope or requirements, or other measures, to be undertaken to control cost and schedule, including any cost monitoring or corrective actions undertaken pursuant to the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155), and the amendments made by that Act.]

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[SEC. 1206. COUNTERFEIT PARTS.

(a) IN GENERAL.—The Administrator shall plan, develop, and implement a program, in coordination with other Federal agencies, to detect, track, catalog, and reduce the number of counterfeit electronic parts in the NASA supply chain.

(b) REQUIREMENTS.—In carrying out the program, the Administrator shall establish—

(1) counterfeit part identification training for all employees that procure, process, distribute, and install electronic parts that will—

(A) teach employees how to identify counterfeit parts;

(B) educate employees on procedures to follow if they suspect a part is counterfeit;

(C) regularly update employees on new threats, identification techniques, and reporting requirements; and

(D) integrate industry associations, manufacturers, suppliers, and other Federal agencies, as appropriate;

(2) an internal database to track all suspected and confirmed counterfeit electronic parts that will maintain, at a minimum—

(A) companies and individuals known and suspected of selling counterfeit parts;

(B) parts known and suspected of being counterfeit, including lot and date codes, part numbers, and part images;

(C) countries of origin;

(D) sources of reporting;

(E) United States Customs seizures; and

(F) Government-Industry Data Exchange Program reports and other public or private sector database notifications; and

(3) a mechanism to report all information on suspected and confirmed counterfeit electronic parts to law enforcement agencies, industry associations, and other databases, and to issue bulletins to industry on counterfeit electronic parts and related counterfeit activity.

(c) REVIEW OF PROCUREMENT AND ACQUISITION POLICY.—

(1) IN GENERAL.—In establishing the program, the Administrator shall amend existing acquisition and procurement policy to purchase electronic parts from trusted or approved manufacturers. To determine trusted or approved manufacturers, the Administrator shall establish a list, assessed and adjusted at least annually, and create criteria for manufacturers to meet in order to be placed onto the list.

(2) CRITERIA.—The criteria may include—

(A) authentication or encryption codes;

(B) embedded security markings in parts;

(C) unique, harder to copy labels and markings;

(D) identifying distinct lot and serial codes on external packaging;

(E) radio frequency identification embedded into high-value parts;

(F) physical destruction of all defective, damaged, and sub-standard parts that are by-products of the manufacturing process;

(G) testing certifications;

(H) maintenance of procedures for handling any counterfeit parts that slip through;

(I) maintenance of secure facilities to prevent unauthorized access to proprietary information; and

(J) maintenance of product return, buy back, and inventory control practices that limit counterfeiting.

(d) REPORT TO CONGRESS.—Within one year after the date of enactment of this Act, the Administrator shall report on the progress of implementing this section to the appropriate committees of Congress.]

[SEC. 1207. INFORMATION SECURITY.

(a) MONITORING RISK.—

(1) UPDATE ON SYSTEM IMPLEMENTATION.—Not later than 120 days after the date of enactment of this Act, and on a biennial basis thereafter, the chief information officer of NASA, in coordination with other national security agencies, shall provide to the appropriate committees of Congress—

(A) an update on efforts to implement a system to provide dynamic, comprehensive, real-time information regarding risk of unauthorized remote, proximity, and insider use or access, for all information infrastructure under the responsibility of the chief information officer,

and mission-related networks, including contractor networks;

(B) an assessment of whether the system has demonstrably and quantifiably reduced network risk compared to alternative methods of measuring security; and

(C) an assessment of the progress that each center and facility has made toward implementing the system.

(2) EXISTING ASSESSMENTS.—The assessments required of the Inspector General under section 3545 of title 44, United States Code, shall evaluate the effectiveness of the system described in this subsection.

(b) INFORMATION SECURITY AWARENESS AND EDUCATION.—

(1) IN GENERAL.—In consultation with the Department of Education, other national security agencies, and other agency directorates, the chief information officer shall institute an information security awareness and education program for all operators and users of NASA information infrastructure, with the goal of reducing unauthorized remote, proximity, and insider use or access.

(2) PROGRAM REQUIREMENTS.—

(A) The program shall include, at a minimum, ongoing classified and unclassified threat-based briefings, and automated exercises and examinations that simulate common attack techniques.

(B) All agency employees and contractors engaged in the operation or use of agency information infrastructure shall participate in the program.

(C) Access to NASA information infrastructure shall only be granted to operators and users who regularly satisfy the requirements of the program.

(D) The chief human capital officer of NASA, in consultation with the chief information officer, shall create a system to reward operators and users of agency information infrastructure for continuous high achievement in the program.

(c) INFORMATION INFRASTRUCTURE DEFINED.—In this section, the term "information infrastructure" means the underlying framework that information systems and assets rely on to process, transmit, receive, or store information electronically, including programmable electronic devices and communications networks and any associated hardware, software, or data.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Selected Provisions of the America COMPETES Reauthorization Act of 2010 (Public Law 111–358))

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—this Act may be cited as the "America COMPETES Reauthorization Act of 2010" or the "America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Reauthorization Act of 2010".

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SEC. 202. NASA'S CONTRIBUTION TO EDUCATION.

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[(b) EDUCATIONAL PROGRAM GOALS.—NASA shall develop and maintain educational programs—

(1) to carry out and support research based programs and activities designed to increase student interest and participation in STEM, including students from minority and underrepresented groups;

(2) to improve public literacy in STEM;

(3) that employ proven strategies and methods for improving student learning and teaching in STEM;

(4) to provide curriculum support materials and other resources that—

(A) are designed to be integrated with comprehensive STEM education;

(B) are aligned with national science education standards;

(C) promote the adoption and implementation of high-quality education practices that build toward college and career-readiness; and

(5) to create and support opportunities for enhanced and ongoing professional development for teachers using best practices that improve the STEM content and knowledge of the teachers, including through programs linking STEM teachers with STEM educators at the higher education level.]

SEC. 203. ASSESSMENT OF IMPEDIMENTS TO SPACE SCIENCE AND ENGINEERING WORKFORCE DEVELOPMENT FOR MINORITY AND UNDERREPRESENTED GROUPS AT NASA.

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[(c) IMPLEMENTATION.—To the extent practicable, the Administrator shall take all necessary steps to address any impediments identified in the assessment.]

SEC. 204. INTERNATIONAL SPACE STATION'S CONTRIBUTION TO NATIONAL COMPETITIVENESS ENHANCEMENT.

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[(b) EVALUATION AND ASSESSMENT OF NASA'S INTERAGENCY CONTRIBUTION.—Pursuant to the authority provided in title II of the America COMPETES Act (Public Law 110–69), the Administrator shall evaluate and, where possible, expand efforts to maximize NASA's contribution to interagency efforts to enhance science, technology, engineering, and mathematics education capabilities, and to enhance the Nation's technological excellence and global competitiveness. The Administrator shall identify these enhancements in the annual reports required by section 2001(e) of that Act (42 U.S.C. 16611a(e)).]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Section 913(a), (b) of the National Defense Authorization Act for Fiscal Year 2013 (Public Law 112–239, 51 U.S.C. 30701 note))

SEC. 913. LIMITATION ON INTERNATIONAL AGREEMENTS CONCERNING OUTER SPACE ACTIVITIES.

[(a) CERTIFICATION REQUIRED.—If the United States becomes a signatory to a non-legally binding international agreement concerning an International Code of Conduct for Outer Space Activities or any similar agreement, at the same time as the United States becomes such a signatory—

(1) the President shall submit to the congressional defense committees, the Permanent Select Committee on Intelligence of the House of Representatives, and the Select Committee on Intelligence of the Senate a certification that such agreement has no legally-binding effect or basis for limiting the activities of the United States in outer space; and

(2) the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and the Director of National Intelligence shall jointly submit to the congressional defense committees a certification that such agreement will be equitable, enhance national security, and have no militarily significant impact on the ability of the United States to conduct military or intelligence activities in space.

(b) BRIEFINGS AND NOTIFICATIONS REQUIRED.—

(1) RESTATEMENT OF POLICY FORMULATION UNDER THE ARMS CONTROL AND DISARMAMENT ACT WITH RESPECT TO OUTER SPACE.—No action shall be taken that would obligate the United States to reduce or limit the Armed Forces or armaments of the United States in outer space in a militarily significant manner, except pursuant to the treaty-making power of the President set forth in Article II, Section 2, Clause II of the Constitution or unless authorized by the enactment of further affirmative legislation by the Congress of the United States.

(2) BRIEFINGS.—

(A) REQUIREMENT.—The Secretary of Defense, the Secretary of State, and the Director of National Intelligence shall jointly provide to the covered congressional committees regular, detailed updates on the negotiation of a non-legally binding international agreement concerning an International Code of Conduct for Outer Space Activities or any similar agreement.

(B) TERMINATION OF REQUIREMENT.—The requirement to provide regular briefings under subparagraph (A) shall terminate on the date on which the United States becomes a signatory to an agreement referred to in subparagraph (A), or on the date on which the President certifies to Congress that the United States is no longer negotiating an agreement referred to in subparagraph (A), whichever is earlier.

(3) NOTIFICATIONS.—If the United States becomes a signatory to a non-legally binding international agreement concerning an International Code of Conduct for Outer Space Activities or any similar agreement, not less than 60 days prior to any action that will obligate the United States to reduce or limit the Armed Forces or armaments or activities of the United States in outer space, the head of each Department or agency of the Federal Government that is affected by such action shall submit to Congress notice of such action and the effect of such action on such Department or agency.

(4) DEFINITION.—In this subsection, the term "covered congressional committees" means—

(A) the Committee on Armed Services, the Committee on Foreign Affairs, and the Permanent Select Committee on Intelligence of the House of Representatives; and

(B) the Committee on Armed Services, the Committee on Foreign Relations, and the Select Committee on Intelligence of the Senate.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing 1st and 2d provisos under heading "CONSTRUCTION AND ENVIRONMENTAL COMPLIANCE AND RESTORATION" (at 127 Stat. 263) in the Science Appropriations Act, 2013 (Public Law 113–6, div. B, title III, 51 U.S.C. 20145 note))

[Provided, That hereafter, notwithstanding section 315 of the National Aeronautics and Space Act of 1958 (see 51 U.S.C. 20145), all proceeds from leases entered into under that section shall be deposited into this account; *Provided further*, That such proceeds shall be available for a period of 5 years to the extent and in amounts as provided in annual appropriations Acts;]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Section 3 of the Inspiring the Next Space Pioneers, Innovators, Researchers, and Explorers (INSPIRE) Women Act (Public Law 115–7, 51 U.S.C. note prec. 40901))

[SEC. 3. SUPPORTING WOMEN'S INVOLVEMENT IN THE FIELDS OF AEROSPACE AND SPACE EXPLORATION.

The Administrator of the National Aeronautics and Space Administration shall encourage women and girls to study science, technology, engineering, and mathematics, pursue careers in aerospace, and further advance the Nation's space science and exploration efforts through support of the following initiatives:

(1) NASA GIRLS and NASA BOYS.

(2) Aspire to Inspire.

(3) Summer Institute in Science, Technology, Engineering, and Research.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Selected Provisions of the National Aeronautics and Space Administration Transition Authorization Act of 2017 (Public Law 115–10))

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "National Aeronautics and Space Administration Transition Authorization Act of 2017".

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SEC. 301. OPERATION OF THE ISS.

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[(b) OBJECTIVES.—The primary objectives of the ISS program shall be—

(1) to achieve the long term goal and objectives under section 202 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18312); and

(2) to pursue a research program that advances knowledge and provides other benefits to the Nation.]

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SEC. 302. TRANSPORTATION TO ISS.

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[(e) COMMERCIAL CREW PROGRAM.—

(1) OBJECTIVE.—The objective of the Commercial Crew Program shall be to assist in the development and certification of commercially provided transportation that—

(A) can carry United States government astronauts safely, reliably, and affordably to and from the ISS;

(B) can serve as a crew rescue vehicle; and

(C) can accomplish subparagraphs (A) and (B) as soon as practicable.

(2) PRIMARY CONSIDERATION.—The objective described in paragraph (1) shall be the primary consideration in the acquisition strategy for the Commercial Crew Program.

(3) SAFETY.—

(A) IN GENERAL.—The Administrator shall protect the safety of government astronauts by ensuring that each commercially provided transportation system under this subsection meets all applicable human rating requirements in accordance with section 403(b)(1) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18342(b)(1)).

(B) LESSONS LEARNED.—Consistent with the findings and recommendations of the Columbia Accident Investigation Board, the Administration shall ensure that safety and the minimization of the probability of loss of crew are the critical priorities of the Commercial Crew Program.

(4) COST MINIMIZATION.—The Administrator shall strive through the competitive selection process to minimize the life cycle cost to the Administration through the planned period of commercially provided crew transportation services.]

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[(g) COMPETITION.—It is the policy of the United States that, to foster the competitive development, operation, improvement, and commercial availability of space transportation services, and to minimize the life cycle cost to the Administration, the Administrator shall procure services for Federal Government access to and return from the ISS, whenever practicable, via fair and open competition for well-defined, milestone-based, Federal Acquisition Regulation- based contracts under section 201(a) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18311(a)).]

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(h) TRANSPARENCY.—

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[(2) IN GENERAL.—The Administrator shall, to the greatest extent practicable and in a manner that does not add costs or schedule delays to the program, ensure all Commercial Crew Program and Commercial Resupply Services Program providers provide evidence- based support for their costs and schedules.]

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SEC. 421. SPACE LAUNCH SYSTEM, ORION, AND EXPLORATION GROUND SYSTEMS.

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(b) SPACE LAUNCH SYSTEM.—

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[(2) REAFFIRMATION.—Congress reaffirms the policy and minimum capability requirements for the Space Launch System under section 302 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322).]

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[(d) IN GENERAL.—The Administrator shall continue the development of the fully integrated Space Launch System, including an upper stage needed to go beyond low-Earth orbit, in order to safely enable human space exploration of the Moon, Mars, and beyond over the course of the next century as required in section 302(c) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18322(c)).]

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[(f) EXPLORATION MISSIONS.—The Administrator shall continue development of—

(1) an uncrewed exploration mission to demonstrate the capability of both the Space Launch System and Orion as an integrated system by 2018;

(2) subject to applicable human rating processes and requirements, a crewed exploration mission to demonstrate the Space Launch System, including the Core Stage and Exploration Upper Stages, by 2021;

(3) subsequent missions beginning with EM—3 at operational flight rate sufficient to maintain safety and operational readiness using the Space Launch System and Orion to extend into cis-lunar space and eventually to Mars; and

(4) a deep space habitat as a key element in a deep space exploration architecture along with the Space Launch System and Orion.

(g) OTHER USES.—The Administrator shall assess the utility of the Space Launch System for use by the science community and for other Federal Government launch needs, including consideration of overall cost and schedule savings from reduced transit times and increased science returns enabled by the unique capabilities of the Space Launch System.]

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SEC. 432. HUMAN EXPLORATION ROADMAP.

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[(b) HUMAN EXPLORATION ROADMAP.—

(1) IN GENERAL.—The Administrator shall develop a human exploration roadmap, including a critical decision plan, to expand human presence beyond low-Earth orbit to the surface of Mars and beyond, considering potential interim destinations such as cis- lunar space and the moons of Mars.

(2) SCOPE.—The human exploration roadmap shall include—

(A) an integrated set of exploration, science, and other goals and objectives of a United States human space exploration program to achieve the long-term goal of human missions near or on the surface of Mars in the 2030s;

(B) opportunities for international, academic, and industry partnerships for exploration-related systems, services, research, and technology if those opportunities provide cost-savings, accelerate program schedules, or otherwise benefit the goals and objectives developed under subparagraph (A);

(C) sets and sequences of precursor missions in cis-lunar space and other missions or activities necessary—

(i) to demonstrate the proficiency of the capabilities and technologies identified under subparagraph (D); and

(ii) to meet the goals and objectives developed under subparagraph (A), including anticipated timelines and missions for the Space Launch System and Orion;

(D) an identification of the specific capabilities and technologies, including the Space Launch System, Orion, a deep space habitat, and other capabilities, that facilitate the goals and objectives developed under subparagraph (A);

(E) a description of how cis-lunar elements, objectives, and activities advance the human exploration of Mars;

(F) an assessment of potential human health and other risks, including radiation exposure;

(G) mitigation plans, whenever possible, to address the risks identified in subparagraph (F);

(H) a description of those technologies already under development across the Federal Government or by other entities that facilitate the goals and objectives developed under subparagraph (A);

(I) a specific process for the evolution of the capabilities of the fully integrated Orion with the Space Launch System and a description of how these systems facilitate the goals and objectives developed under subparagraph (A) and demonstrate the capabilities and technologies described in subparagraph (D);

(J) a description of the capabilities and technologies that need to be demonstrated or research data that could be gained through the utilization of the ISS and the status of the development of such capabilities and technologies;

(K) a framework for international cooperation in the development of all capabilities and technologies identified under this section, including an assessment of the risks posed by relying on international partners for capabilities and technologies on the critical path of development;

(L) a process for partnering with nongovernmental entities using Space Act Agreements or other acquisition instruments for future human space exploration; and

(M) include information on the phasing of planned intermediate destinations, Mars mission risk areas and potential risk mitigation approaches, technology requirements and phasing of required technology development activities, the management strategy to be followed, related ISS activities, planned international collaborative activities, potential commercial contributions, and other activities rel-

evant to the achievement of the goal established in this section.

(3) CONSIDERATIONS.—In developing the human exploration roadmap, the Administrator shall consider—

(A) using key exploration capabilities, namely the Space Launch System and Orion;

(B) using existing commercially available technologies and capabilities or those technologies and capabilities being developed by industry for commercial purposes;

(C) establishing an organizational approach to ensure collaboration and coordination among NASA's Mission Directorates under section 821, when appropriate, including to collect and return to Earth a sample from the Martian surface;

(D) building upon the initial uncrewed mission, EM–1, and first crewed mission, EM–2, of the Space Launch System and Orion to establish a sustainable cadence of missions extending human exploration missions into cis-lunar space, including anticipated timelines and milestones;

(E) developing the robotic and precursor missions and activities that will demonstrate, test, and develop key technologies and capabilities essential for achieving human missions to Mars, including long-duration human operations beyond low-Earth orbit, space suits, solar electric propulsion, deep space habitats, environmental control life support systems, Mars lander and ascent vehicle, entry, descent, landing, ascent, Mars surface systems, and in-situ resource utilization;

(F) demonstrating and testing 1 or more habitat modules in cis-lunar space to prepare for Mars missions;

(G) using public-private, firm fixed-price partnerships, where practicable;

(H) collaborating with international, academic, and industry partners, when appropriate;

(I) any risks to human health and sensitive onboard technologies, including radiation exposure;

(J) any risks identified through research outcomes under the NASA Human Research Program's Behavioral Health Element; and

(K) the recommendations and ideas of several independently developed reports or concepts that describe potential Mars architectures or concepts and identify Mars as the long-term goal for human space exploration, including the reports described under section 431.

(4) CRITICAL DECISION PLAN ON HUMAN SPACE EXPLORATION.—As part of the human exploration roadmap, the Administrator shall include a critical decision plan—

(A) identifying and defining key decisions guiding human space exploration priorities and plans that need to be made before June 30, 2020, including decisions that may guide human space exploration capability development, precursor missions, long-term missions, and activities;

(B) defining decisions needed to maximize efficiencies and resources for reaching the near, intermediate, and

long-term goals and objectives of human space exploration; and

(C) identifying and defining timelines and milestones for a sustainable cadence of missions beginning with EM—3 for the Space Launch System and Orion to extend human exploration from cis-lunar space to the surface of Mars.

(5) REPORTS.—

(A) INITIAL HUMAN EXPLORATION ROADMAP.—The Administrator shall submit to the appropriate committees of Congress—

(i) an initial human exploration roadmap, including a critical decision plan, before December 1, 2017; and

(ii) an updated human exploration roadmap periodically as the Administrator considers necessary but not less than biennially.

(B) CONTENTS.—Each human exploration roadmap under this paragraph shall include a description of—

(i) the achievements and goals accomplished in the process of developing such capabilities and technologies during the 2-year period prior to the submission of the human exploration roadmap; and

(ii) the expected goals and achievements in the following 2-year period.

(C) SUBMISSION WITH BUDGET.—Each human exploration roadmap under this section shall be included in the budget for that fiscal year transmitted to Congress under section 1105(a) of title 31, United States Code.]

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SEC. 501. MAINTAINING A BALANCED SPACE SCIENCE PORTFOLIO.

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[(b) POLICY.—It is the policy of the United States to ensure, to the extent practicable, a steady cadence of large, medium, and small science missions.]

SEC. 502. PLANETARY SCIENCE.

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[(b) MISSION PRIORITIES.—

(1) IN GENERAL.—In accordance with the priorities established in the most recent Planetary Science Decadal Survey, the Administrator shall ensure, to the greatest extent practicable, the completion of a balanced set of Discovery, New Frontiers, and Flagship missions at the cadence recommended by the most recent Planetary Science Decadal Survey.

(2) MISSION PRIORITY ADJUSTMENTS.—Consistent with the set of missions described in paragraph (1), and while maintaining the continuity of scientific data and steady development of capabilities and technologies, the Administrator may seek, if necessary, adjustments to mission priorities, schedule, and scope in light of changing budget projections.]

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[SEC. 508. EXTRASOLAR PLANET EXPLORATION STRATEGY.

(a) STRATEGY.—

(1) IN GENERAL.—The Administrator shall enter into an arrangement with the National Academies to develop a science strategy for the study and exploration of extrasolar planets, including the use of the Transiting Exoplanet Survey Satellite, the James Webb Space Telescope, a potential Wide-Field Infrared Survey Telescope mission, or any other telescope, spacecraft, or instrument, as appropriate.

(2) REQUIREMENTS.—The strategy shall—

(A) outline key scientific questions;

(B) identify the most promising research in the field;

(C) indicate the extent to which the mission priorities in existing decadal surveys address the key extrasolar planet research and exploration goals;

(D) identify opportunities for coordination with international partners, commercial partners, and not-for-profit partners; and

(E) make recommendations regarding the activities under subparagraphs (A) through (D), as appropriate.

(b) USE OF STRATEGY.—The Administrator shall use the strategy—

(1) to inform roadmaps, strategic plans, and other activities of the Administration as they relate to extrasolar planet research and exploration; and

(2) to provide a foundation for future activities and initiatives related to extrasolar planet research and exploration.

(c) REPORT TO CONGRESS.—Not later than 18 months after the date of enactment of this Act, the National Academies shall submit to the Administrator and to the appropriate committees of Congress a report containing the strategy developed under subsection (a).]

[SEC. 509. ASTROBIOLOGY STRATEGY.

(a) STRATEGY.—

(1) IN GENERAL.—The Administrator shall enter into an arrangement with the National Academies to develop a science strategy for astrobiology that would outline key scientific questions, identify the most promising research in the field, and indicate the extent to which the mission priorities in existing decadal surveys address the search for life's origin, evolution, distribution, and future in the Universe.

(2) RECOMMENDATIONS.—The strategy shall include recommendations for coordination with international partners.

(b) USE OF STRATEGY.—The Administrator shall use the strategy developed under subsection (a) in planning and funding research and other activities and initiatives in the field of astrobiology.

(c) REPORT TO CONGRESS.—Not later than 18 months after the date of enactment of this Act, the National Academies shall submit to the Administrator and to the appropriate committees of Congress a report containing the strategy developed under subsection (a).]

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[SEC. 517. COLLABORATION.

The Administration shall continue to develop first-of-a-kind instruments that, once proved, can be transitioned to other agencies for operations. Whenever responsibilities for the development of

sensors or for measurements are transferred to the Administration from another agency, the Administration shall seek, to the extent possible, to be reimbursed for the assumption of such responsibilities.]

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SEC. 701. SPACE TECHNOLOGY INFUSION.

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[(c) POLICY.—It is the policy of the United States that the Administrator shall develop technologies to support the Administration's core missions, as described in section 2(3) of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18301(3)), and support sustained investments in early stage innovation, fundamental research, and technologies to expand the boundaries of the national aerospace enterprise.

(d) PROPULSION TECHNOLOGIES.—A goal of propulsion technologies developed under subsection (c) shall be to significantly reduce human travel time to Mars.]

SEC. 702. SPACE TECHNOLOGY PROGRAM.

[(a) SPACE TECHNOLOGY PROGRAM AUTHORIZED.—The Administrator shall conduct a space technology program (referred to in this section as the "Program") to research and develop advanced space technologies that could deliver innovative solutions across the Administration's space exploration and science missions.]

[(b) CONSIDERATIONS.—In conducting the Program, the Administrator shall consider—

(1) the recommendations of the National Academies' review of the Administration's Space Technology roadmaps and priorities; and

(2) the applicable enabling aspects of the stepping stone approach to exploration under section 70504 of title 51, United States Code.]

[(c) REQUIREMENTS.—In conducting the Program, the Administrator shall—

(1) to the extent practicable, use a competitive process to select research and development projects;

(2) to the extent practicable and appropriate, use small satellites and the Administration's suborbital and ground-based platforms to demonstrate space technology concepts and developments; and

(3) as appropriate, partner with other Federal agencies, universities, private industry, and foreign countries.]

[(d) SMALL BUSINESS PROGRAMS.—The Administrator shall organize and manage the Administration's Small Business Innovation Research Program and Small Business Technology Transfer Program within the Program.]

[(e) NONDUPLICATION CERTIFICATION.—The Administrator shall submit a budget for each fiscal year, as transmitted to Congress under section 1105(a) of title 31, United States Code, that avoids duplication of projects, programs, or missions conducted by Program with other projects, programs, or missions conducted by another office or directorate of the Administration.]

(f) COLLABORATION, COORDINATION, AND ALIGNMENT.—

[(1) IN GENERAL.—The Administrator shall—

(A) ensure that the Administration's projects, programs, and activities in support of technology research and development of advanced space technologies are fully coordinated and aligned;

(B) ensure that the results the projects, programs, and activities under subparagraph (A) are shared and leveraged within the Administration; and

(C) ensure that the organizational responsibility for research and development activities in support of human space exploration not initiated as of the date of enactment of this Act is established on the basis of a sound rationale.]

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[(h) ANNUAL REPORT.—The Administrator shall include in the Administration's annual budget request for each fiscal year the rationale for assigning organizational responsibility for, in the year prior to the budget fiscal year, each initiated project, program, and mission focused on research and development of advanced technologies for human space exploration.]

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SEC. 811. INFORMATION TECHNOLOGY GOVERNANCE.

[(a) IN GENERAL.—The Administrator shall, in a manner that reflects the unique nature of NASA's mission and expertise—

(1) ensure the NASA Chief Information Officer, Mission Directorates, and Centers have appropriate roles in the management, governance, and oversight processes related to information technology operations and investments and information security programs for the protection of NASA systems;

(2) ensure the NASA Chief Information Officer has the appropriate resources and insight to oversee NASA information technology and information security operations and investments;

(3) provide an information technology program management framework to increase the efficiency and effectiveness of information technology investments, including relying on metrics for identifying and reducing potential duplication, waste, and cost;

(4) improve the operational linkage between the NASA Chief Information Officer and each NASA mission directorate, center, and mission support office to ensure both agency and mission needs are considered in agency-wide information technology and information security management and oversight;

(5) review the portfolio of information technology investments and spending, including information technology-related investments included as part of activities within NASA mission directorates that may not be considered information technology, to ensure investments are recognized and reported appropriately based on guidance from the Office of Management and Budget;

(6) consider appropriate revisions to the charters of information technology boards and councils that inform information technology investment and operation decisions; and

(7) consider whether the NASA Chief Information Officer should have a seat on any boards or councils described in paragraph (6).]

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[SEC. 812. INFORMATION TECHNOLOGY STRATEGIC PLAN.

(a) IN GENERAL.—Subject to subsection (b), the Administrator shall develop an information technology strategic plan to guide NASA information technology management and strategic objectives.

(b) REQUIREMENTS.—In developing the strategic plan, the Administrator shall ensure that the strategic plan addresses—

(1) the deadline under section 306(a) of title 5, United States Code; and

(2) the requirements under section 3506 of title 44, United States Code.

(c) CONTENTS.—The strategic plan shall address, in a manner that reflects the unique nature of NASA's mission and expertise—

(1) near and long-term goals and objectives for leveraging information technology;

(2) a plan for how NASA will submit to Congress of a list of information technology projects, including completion dates and risk level in accordance with guidance from the Office of Management and Budget;

(3) an implementation overview for an agency-wide approach to information technology investments and operations, including reducing barriers to cross-center collaboration;

(4) coordination by the NASA Chief Information Officer with centers and mission directorates to ensure that information technology policies are effectively and efficiently implemented across the agency;

(5) a plan to increase the efficiency and effectiveness of information technology investments, including a description of how unnecessarily duplicative, wasteful, legacy, or outdated information technology across NASA will be identified and eliminated, and a schedule for the identification and elimination of such information technology;

(6) a plan for improving the information security of agency information and agency information systems, including improving security control assessments and role-based security training of employees; and

(7) submission by NASA to Congress of information regarding high risk projects and cybersecurity risks.

(d) CONGRESSIONAL OVERSIGHT.—The Administrator shall submit to the appropriate committees of Congress the strategic plan under subsection (a) and any updates thereto.]

SEC. 813. CYBERSECURITY.

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[(b) INFORMATION SECURITY PLAN.—

(1) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Administrator shall implement the information security plan developed under paragraph (2) and take such further actions as the Administrator considers nec-

essary to improve the information security system in accordance with this section.

(2) INFORMATION SECURITY PLAN.—Subject to paragraphs (3) and (4), the Administrator shall develop an agency-wide information security plan to enhance information security for NASA information and information infrastructure.

(3) REQUIREMENTS.—In developing the plan under paragraph (2), the Administrator shall ensure that the plan—

(A) reflects the unique nature of NASA's mission and expertise;

(B) is informed by policies, standards, guidelines, and directives on information security required for Federal agencies;

(C) is consistent with the standards and guidelines under section 11331 of title 40, United States Code; and

(D) meets applicable National Institute of Standards and Technology information security standards and guidelines.

(4) CONTENTS.—The plan shall address—

(A) an overview of the requirements of the information security system;

(B) an agency-wide risk management framework for information security;

(C) a description of the information security system management controls and common controls that are necessary to ensure compliance with information security-related requirements;

(D) an identification and assignment of roles, responsibilities, and management commitment for information security at the agency;

(E) coordination among organizational entities, including between each center, facility, mission directorate, and mission support office, and among agency entities responsible for different aspects of information security;

(F) the need to protect the information security of mission-critical systems and activities and high-impact and moderate-impact information systems; and

(G) a schedule of frequent reviews and updates, as necessary, of the plan.]

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[SEC. 821. COLLABORATION AMONG MISSION DIRECTORATES.

The Administrator shall encourage an interdisciplinary approach among all NASA mission directorates and divisions, whenever appropriate, for projects or missions—

(1) to improve coordination, and encourage collaboration and early planning on scope;

(2) to determine areas of overlap or alignment;

(3) to find ways to leverage across divisional perspectives to maximize outcomes; and

(4) to be more efficient with resources and funds.]

SEC. 822. NASA LAUNCH CAPABILITIES COLLABORATION.

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[(c) IN GENERAL.—The Administrator shall pursue a strategy for acquisition of crewed transportation services and non-crewed

launch services that continues to enhance communication, collaboration, and coordination between the Launch Services Program and the Commercial Crew Program.]

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SEC. 824. EDUCATION AND OUTREACH.

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(b) CONTINUATION OF EDUCATION AND OUTREACH ACTIVITIES AND PROGRAMS.—

[(1) IN GENERAL.—The Administrator shall continue engagement with the public and education opportunities for students via all the Administration's mission directorates to the maximum extent practicable.]

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SEC. 825. LEVERAGING COMMERCIAL SATELLITE SERVICING CAPABILITIES ACROSS MISSION DIRECTORATES.

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[(c) LEVERAGING OF CAPABILITIES.—The Administrator shall—

(1) identify orbital assets in both the Science Mission Directorate and the Human Exploration and Operations Mission Directorate that could benefit from satellite servicing-related technologies; and

(2) work across all NASA mission directorates to evaluate opportunities for the private sector to perform such services or advance technical capabilities by leveraging the technologies and techniques developed by NASA programs and other industry programs.]

[SEC. 826. FLIGHT OPPORTUNITIES.

(a) DEVELOPMENT OF PAYLOADS.—

(1) IN GENERAL.—In order to conduct necessary research, the Administrator shall continue and, as the Administrator considers appropriate, expand the development of technology payloads for—

(A) scientific research; and

(B) investigating new or improved capabilities.

(2) FUNDS.—For the purpose of carrying out paragraph (1), the Administrator shall make funds available for—

(A) flight testing;

(B) payload development; and

(C) hardware related to subparagraphs (A) and (B).

(b) REAFFIRMATION OF POLICY.—Congress reaffirms that the Administrator should provide flight opportunities for payloads to microgravity environments and suborbital altitudes as authorized by section 907 of the National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18405).]

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SEC. 837. FACILITIES AND INFRASTRUCTURE.

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[(b) POLICY.—It is the policy of the United States that the Administration maintain reliable and efficient facilities and infrastructure and that decisions on whether to dispose of, maintain, or

modernize existing facilities or infrastructure be made in the context of meeting future Administration needs.]

[(c) PLAN.—

(1) IN GENERAL.—The Administrator shall develop a facilities and infrastructure plan.

(2) GOAL.—The goal of the plan is to position the Administration to have the facilities and infrastructure, including laboratories, tools, and approaches, necessary to meet future Administration and other Federal agencies' laboratory needs.

(3) CONTENTS.—The plan shall identify—

(A) current Administration and other Federal agency laboratory needs;

(B) future Administration research and development and testing needs;

(C) a strategy for identifying facilities and infrastructure that are candidates for disposal, that is consistent with the national strategic direction set forth in—

(i) the National Space Policy;

(ii) the National Aeronautics Research, Development, Test, and Evaluation Infrastructure Plan;

(iii) the National Aeronautics and Space Administration Authorization Act of 2005 (Public Law 109–155; 119 Stat. 2895), National Aeronautics and Space Administration Authorization Act of 2008 (Public Law 110–422; 122 Stat. 4779), and National Aeronautics and Space Administration Authorization Act of 2010 (42 U.S.C. 18301 et seq.); and (iv) the human exploration roadmap under section 432 of this Act;

(D) a strategy for the maintenance, repair, upgrading, and modernization of Administration facilities and infrastructure, including laboratories and equipment;

(E) criteria for—

(i) prioritizing deferred maintenance tasks;

(ii) maintaining, repairing, upgrading, or modernizing Administration facilities and infrastructure; and

(iii) implementing processes, plans, and policies for guiding the Administration's Centers on whether to maintain, repair, upgrade, or modernize a facility or infrastructure and for determining the type of instrument to be used;

(F) an assessment of modifications needed to maximize usage of facilities that offer unique and highly specialized benefits to the aerospace industry and the American public; and

(G) implementation steps, including a timeline, milestones, and an estimate of resources required for carrying out the plan.]

[(d) REQUIREMENT TO ESTABLISH POLICY.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Administrator shall establish and make publicly available a policy that guides the Administration's use of existing authorities to out-grant, lease, excess to the General Services Administration, sell, decommission, demolish, or otherwise transfer property, facilities, or infrastructure.

(2) CRITERIA.—The policy shall include criteria for the use of authorities, best practices, standardized procedures, and guidelines for how to appropriately manage property, facilities, and infrastructure.]

[(e) SUBMISSION TO CONGRESS.—Not later than 1 year after the date of enactment of this Act, the Administrator shall submit to the appropriate committees of Congress the plan developed under subsection (c).]

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SEC. 841. SPACE ACT AGREEMENTS.

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[(b) FUNDED SPACE ACT AGREEMENTS.—To the extent appropriate, the Administrator shall seek to maximize the value of contributions provided by other parties under a funded Space Act Agreement in order to advance NASA's mission.]

[(c) NON-EXCLUSIVITY.—

(1) IN GENERAL.—The Administrator shall, to the greatest extent practicable, issue each Space Act Agreement—

(A) except as provided in paragraph (2), on a nonexclusive basis;

(B) in a manner that ensures all non-government parties have equal access to NASA resources; and

(C) exercising reasonable care not to reveal unique or proprietary information.

(2) EXCLUSIVITY.—If the Administrator determines an exclusive arrangement is necessary, the Administrator shall, to the greatest extent practicable, issue the Space Act Agreement—

(A) utilizing a competitive selection process when exclusive arrangements are necessary; and

(B) pursuant to public announcements when exclusive arrangements are necessary.]

[(d) TRANSPARENCY.—The Administrator shall publicly disclose on the Administration's website and make available in a searchable format each Space Act Agreement, including an estimate of committed NASA resources and the expected benefits to agency objectives for each agreement, with appropriate redactions for proprietary, sensitive, or classified information, not later than 60 days after such agreement is signed by the parties.]

[(e) ANNUAL REPORTS.—

(1) REQUIREMENT.—Not later than 90 days after the end of each fiscal year, the Administrator shall submit to the appropriate committees of Congress a report on the use of Space Act Agreement authority by the Administration during the previous fiscal year.

(2) CONTENTS.—The report shall include for each Space Act Agreement in effect at the time of the report—

(A) an indication of whether the agreement is a reimbursable, non reimbursable, or funded Space Act Agreement;

(B) a description of—

(i) the subject and terms;

(ii) the parties;

(iii) the responsible—

(I) Mission Directorate;

(II) Center; or

(III) headquarters element;

(iv) the value;

(v) the extent of the cost sharing among Federal Government and non-Federal sources;

(vi) the time period or schedule; and

(vii) all milestones; and

(C) an indication of whether the agreement was renewed during the previous fiscal year.

(3) ANTICIPATED AGREEMENTS.—The report shall include a list of all anticipated reimbursable, non-reimbursable, and funded Space Act Agreements for the upcoming fiscal year.

(4) CUMULATIVE PROGRAM BENEFITS.—The report shall include, with respect to each Space Act Agreement covered by the report, a summary of—

(A) the technology areas in which research projects were conducted under that agreement;

(B) the extent to which the use of that agreement—

(i) has contributed to a broadening of the technology and industrial base available for meeting Administration needs; and

(ii) has fostered within the technology and industrial base new relationships and practices that support the United States; and

(C) the total amount of value received by the Federal Government during the fiscal year under that agreement.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Selected Provisions of the Women in Aerospace Education Act (Public Law 115–303))

SECTION 1. SHORT TITLE.

This Act may be cited as the "Women in Aerospace Education Act".

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[SEC. 3. NASA INTERNSHIP AND FELLOWSHIP OPPORTUNITIES.

Not later than October 1, 2018, the Administrator of the National Aeronautics and Space Administration (in this section referred to as "NASA") shall institute a process to encourage the recruitment of qualified candidates who are women or individuals who are underrepresented in the fields of science, technology, engineering, and mathematics (STEM) and computer science for internships and fellowships at NASA with relevance to the aerospace sector and related fields.]

Changes in Existing Law Made by Section 6 of the Bill (Repealing Section 9406 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116–283))

[SEC. 9406. CYBERSECURITY IN STEM PROGRAMS OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.

In carrying out any STEM education program of the National Aeronautics and Space Administration (referred to in this section as "NASA"), including a program of the Office of STEM Engagement, the Administrator of NASA shall, to the maximum extent

practicable, encourage the inclusion of cybersecurity education opportunities in such program.]

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