

At a Glance

S. 919, Space Frontier Act of 2019

As ordered reported by the Senate Committee on Commerce, Science, and Transportation on April 3, 2019

By Fiscal Year, Millions of Dollars	2019	2019-2024	2019-2029
Direct Spending (Outlays)	0	0	0
Revenues	0	0	0
Deficit Effect	0	0	0
Spending Subject to Appropriation (Outlays)	0	232	n.e.
Pay-as-you-go procedures apply?	No	Mandate Effects	
Increases on-budget deficits in any of the four consecutive 10-year periods beginning in 2030?	No	Contains intergovernmental mandate?	Yes, Under Threshold
		Contains private-sector mandate?	Yes, Under Threshold

n.e. = not estimated.

The bill would

- Authorize the appropriation of \$150 million in 2020 for a National Aeronautics and Space Administration (NASA) program promoting the commercial use of the low-Earth orbit
- Redesignate the Office of Space Commerce as the Bureau of Space Commerce and authorize the appropriation of \$10 million annually over the 2020-2024 period for the bureau
- Require entities that launch and operate Earth observation satellites to submit technical and safety information with license applications submitted to the National Oceanic and Atmospheric Administration (NOAA)

Estimated budgetary effects would primarily stem from

- Spending of appropriations authorized for NASA and the Bureau of Space Commerce
- Requirements for the Department of Transportation and NOAA to streamline certain permitting and licensing processes

Detailed estimate begins on the next page.

Bill Summary

S. 919 would authorize appropriations for the National Aeronautics and Space Administration to promote commercial use of the low-Earth orbit and for the Department of Commerce to carry out space commerce activities. (Low-Earth orbit is an Earth centered orbit with an altitude of about 1,200 miles or less.) The bill also would require the Department of Transportation (DOT) and the National Oceanic and Atmospheric Administration to streamline permitting for commercial space transportation and Earth observation. CBO estimates implementing S. 919 would cost \$232 million over the 2019-2024 period, assuming appropriation of the authorized and necessary amounts.

Estimated Federal Cost

The estimated budgetary effect of S. 919 is shown in Table 1. The costs of the legislation fall within budget functions 250 (general science, space, and technology), 300 (natural resources and environment), 370 (commerce and housing credit), and 400 (transportation).

Table 1.
Estimated Increases in Spending Subject to Appropriation Under S. 919

	By Fiscal Year, Millions of Dollars						2019-2024
	2019	2020	2021	2022	2023	2024	
Low-Earth Commercialization Program							
Authorization	0	150	0	0	0	0	150
Estimated Outlays	0	10	20	35	45	40	150
Bureau of Space Commerce							
Authorization	0	10	10	10	10	10	50
Estimated Outlays	0	8	10	10	10	10	48
Regulation of Commercial Space Transportation							
Estimated Authorization	0	6	6	6	6	7	31
Estimated Outlays	0	4	6	6	6	7	29
Regulation of Earth Observation Activities							
Estimated Authorization	0	1	1	1	1	1	5
Estimated Outlays	0	1	1	1	1	1	5
Total Changes							
Estimated Authorization	0	167	17	17	17	18	236
Estimated Outlays	0	23	37	52	62	58	232

Basis of Estimate

For this estimate, CBO assumes that S. 919 will be enacted in late 2019 and that the authorized and necessary amounts will be appropriated each year. Estimated outlays are based on historical spending patterns for similar activities.



Low-Earth Commercialization Program

S. 919 would authorize the appropriation of \$150 million in 2020 for NASA to promote commercial use of the low-Earth orbit. Using information from NASA, CBO expects that under the bill, the agency would study potential launch destinations in the low-Earth orbit, conduct market surveys and workshops, promote private-sector use of the International Space Station (ISS), and provide financial support to industry partners for related research and development. In 2019, NASA allocated \$40 million for such activities. CBO estimates that implementing the provision would cost \$150 million over the 2020-2024 period.

Bureau of Space Commerce

S. 919 would redesignate the Office of Space Commerce, which oversees space commerce policy within the Department of Commerce, as the Bureau of Space Commerce and would direct the bureau to coordinate interagency commercial space activities. The bill would authorize the appropriation of \$10 million annually over the 2020-2024 period for that bureau. CBO expects that most of those amounts would be for additional staff. In 2019, NOAA allocated \$2 million for the Office of Space Commerce. CBO estimates that implementing that provision would cost \$48 million over the 2020-2024 period.

Regulation of Commercial Space Transportation

DOT regulates commercial space transportation by issuing permits and licenses to entities that launch commercial space vehicles or operate related facilities. The agency also oversees the safety of such activities.

Title I of S. 919 would require DOT to streamline and expedite its regulatory activities. In particular, DOT would be required to reduce from 180 days to 90 days the review period for permit and license applications submitted by existing permit or license holders. By February 1, 2020, DOT also would be required to issue a draft rule to revise existing regulations and to streamline regulations for commercial space transportation. Title I also would impose additional administrative and reporting requirements.

Using information from DOT, CBO estimates that implementing title I would cost \$29 million over the 2020-2024 period, primarily to add around 20 new staff members and to purchase computer systems needed to complete reviews of certain applications under the new schedule. That estimate reflects an annual increase of \$6 million, or about 25 percent, over 2019 funding for those purposes.

Regulation of Earth Observation Activities

Title II would change NOAA's licensing of private entities that collect Earth-imaging data from space. The bill would add technical requirements and shorten the timeline for



NOAA's license review. NOAA also would be required to issue new regulations for implementing those changes and to report to the Congress.

Using information from NOAA and considering the timeline and technical aspects of the new review process, CBO estimates that NOAA would need four additional employees with specialized technical abilities to implement title II and additional resources to issue the required regulations. Therefore, CBO estimates that implementing title II would cost \$1 million a year, or \$5 million over the 2020-2024 period. In 2019, NOAA allocated about \$2 million to such licensing activities.

Other Costs

Title III would direct NASA to promote public-private partnerships with small businesses and to report to the Congress on the feasibility of establishing a microgravity national laboratory. Using information on existing activities under the agency's Office of Small Business Programs, and based on the costs of similar tasks, CBO estimates that implementing those provisions would cost less than \$500,000 over the 2020-2024 period.

Current law requires NASA to operate the ISS through 2024. The bill would extend that authorization through 2030. Based on information for recent years, CBO estimates that after 2024, those operations would cost about \$4 billion annually, assuming the appropriation of the necessary amounts.

Pay-As-You-Go Considerations: None.

Increase in Long-Term Deficits: None.

Mandates

S. 919 would impose intergovernmental and private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA) by requiring entities that launch and operate Earth observation satellites to submit technical and safety information to NOAA with their satellite-licensing applications. Those requirements would affect private space companies, such as Space X, and publicly funded entities, such as research universities. Using information from NOAA and companies in the space industry about the costs of complying with current regulations, CBO estimates that the incremental costs of complying with the bill would fall well below the annual thresholds established in UMRA for intergovernmental and private-sector mandates (\$82 million and \$164 million in 2019, respectively, adjusted annually for inflation).



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