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Streamlined Launch and Reentry Licensing Requirements Rulemaking (FAA-2019-0229)

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1. A4A supports safe and efficient integration of Commercial Space users
2. A4A's Critical Principle: Primary aviation users of the National Airspace System (NAS) should not shoulder the costs to allow access for commercial space users
3. FAA must incorporate airspace efficiency considerations (impacts of airspace closures associated with launch) into the licensing process to minimize the negative operational and financial impacts for airlines, passengers, cargo shippers and public.

Impacts & Costs of the Rule

- The FAA projects the following impacts from the rule:
 - Commercial Space launches increasing by 60% or nearly doubling by 2023
 - Increased airspace efficiency impacts as a result of airspace closures associated with launches
 - An FAA study acknowledges that space vehicle operations already “***significantly affect the efficiency*** of flights in the area surrounding each launch or reentry.”
 - FAA did not adequately consider the direct costs (i.e., increased fuel consumption for unique and less efficient flight routes to avoid airspace closed for long time periods around launch areas) or the indirect costs (e.g., personnel and passenger delays) to airlines and their customers
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Commercial Space Impacts

- The DOT Volpe Center study of the impact of the SpaceX Falcon9/Dragon launch from Cape Canaveral Air Force Station and its reentry concluded that flights “experienced statistically significant impacts due to the space operation.”

Flight Impacts of the March 26, 2013 SpaceX Falcon9/Dragon Launch

Impact	Launch	Reentry
Increased Flight Distance	25 – 84 NM	15 – 27 NM
Increased Fuel Consumption	275 – 2,387 lbs.	458 – 576 lbs.
Increased Flight Time	1 – 23 min.	1.5 – 7 min.

Commercial Space Impacts

- MIT International Center for Air Transportation analysis of four Falcon Heavy launches

	1	2	3	4	5
Launch	Atlas V 401	Antares 230	Falcon 9 FT	Falcon Heavy	Total/Avg.
Site	Cape Canaveral	Wallops Isl.	Cape Canaveral	Cape Canaveral	—
Date	Apr. 18, 2017	Nov. 12, 2017	Dec. 15, 2017	Feb. 6, 2018	—
SUA Active (EST)	1031 – 1215 104 min.	0615 – 0930 195 min.	1058 – 1230 92 min.	1355 – 1738 223 min.	—
Payload	ISS Resupply	ISS Resupply	ISS Resupply	Tesla Roadster	—
Number of Aircraft Rerouted	144	91	153	429	817 total 204 average
Increase in Flight Path Distance (nm)	12,228 total 86 avg./flt.	9,011 total 99 avg./flt.	12,866 total 84 avg./flt.	52,919 total 124 avg./flt.	87,024 total 98 avg./flt.
Fuel Burn Increase (gal.)	51,698 total 362 avg./flt.	38,099 total 419 avg./flt.	54,396 total 356 avg./flt.	223,737 total 523 avg./flt.	367,930 total 415 avg./flt.
Flight Time Increase	32 hours 14 mins./flt.	21 hours 14 mins./flt.	33 hours 13 mins./flt.	129 hours 18 mins./flt.	215 hours 15 avg. min./flt.
Flight Cost Increase (USD)	\$191,030 total \$1,336 average	\$137,019 total \$1,506 average	\$199,856 total \$1,306 average	\$810,961 total \$1,895 average	\$1,338,866 \$1,518 avg./flt.

Estimated Impact – Direct Costs with Two Scenarios

- With a conservative increase of **20%** (7 more launches) from actual launches in 2018, far below the FAA's 60% forecast:
 - Over 1,400 aircraft rerouted
 - 357 additional hours of flight time
 - 592,620 additional gallons of fuel consumed
 - \$2.2 million in costs
- If number of commercial space operations **nearly doubles** (32 more launches), which the FAA acknowledges as a potential result :
 - Over 6,500 aircraft rerouted
 - 1,632 additional hours of flight time
 - 2,709,120 additional gallons of fuel consumed
 - \$9.9 million in additional costs annually and \$99 million over the course of 10 years

Indirect Costs

- Airline resources to **plan/manage events, flight crew, maintenance, and aircraft ownership costs**
- **Denied boarding compensation** for denied boarding from aircraft weight restrictions
- **Impacts to other flights and passengers**—e.g., flight delays, flow controls, gate and slot availability, and reduced on-time performance
- **Public health** costs from emissions and exposure to aircraft noise
- **Increased employment costs** resulting from crew scheduling changes, including from limitations on flight and duty times
- **Increased passenger costs**, including time lost from delayed flights, flight cancellations, and missed connections
- **Lost revenue from decreased demand** because passengers avoid air travel due to longer flights, lack of predictability, delays, cancellations, and missed connections
- **Costs from delayed cargo and package delivery** for the public and businesses
- **Lost productivity** for business travelers and increased costs of doing business for other sectors

FAA Air Traffic Management Tools

- It is feasible for the FAA to consider airspace efficiency by implementing air traffic management tools and technologies to achieve optimized integration of commercial space into the NAS
 - Time-Based Launch Procedures - Commercial Space Command Center
 - Space Data Integrator (“SDI”)
 - Hazard Risk Assessment Management (“HRAM”) system or other technologies that improve existing procedures, development of new procedures, ATC surveillance and tracking capabilities, and automated depictions of hazardous areas

Improving Safety & Airspace Integration

- Improving safety of Commercial Space reduces the impact on other aviation users by permitting shorter flight prohibitions (airspace closures) during launches
- Maintain heightened safety standards for the growing commercial space industry and find opportunities for, and encourage the industry to improve safety standards
- Increase the transparency and collaboration within the commercial space industry and with other aviation stakeholders. (Similar to CAST, ASIAS)

Support for NAS

- Commercial space licensees must pay into the system to help cover the costs they are imposing on the system.
- This would be consistent with commercial airlines and general aviation that have long supported the government's air traffic management system and airport improvements through various taxes and fees on the transportation of people and cargo, as well as fuel excise taxes.