Testimony of

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Airspace Integration of New Aircraft

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Chairman LoBiondo, Ranking Member Larsen, and Members of the Subcommittee, it is a privilege to be here before you today to discuss Uber's perspective on the future of air traffic and airspace integration of new aircraft.

My name is Thomas Prevot, and I am excited to lead Uber's airspace systems engineering. Our airspace systems will manage both Uber's Elevate initiative, our future uberAIR product that aims to allow anyone to push a button and get an urban air flight, as well as our drone delivery initiative for Uber Eats.

Uber is developing aviation products because we believe aerial ridesharing and drone deliveries have the potential to radically improve urban life. Every year, millions of hours are wasted in traffic on roads globally. In early 2018, INRIX, a Kirkland, Wash.-based traffic technology and data firm, ranked Seattle ninth among cities in the United States for time spent stuck in traffic at 55 hours per year due to congestion. And the *Los Angeles Times* reports L.A., one of our Elevate pilot markets, is the most congested city in the world. For residents of those cities and for the rest of us, moments stuck on the road represent less time with family, fewer hours growing our economies, and more congestion polluting our world.

As a multi-modal transportation company, Uber believes solving these problems is core to our mission of making transportation safe, reliable, and affordable to everyone, everywhere. Just as skyscrapers allowed cities to use limited land more efficiently, urban air transportation will use three-dimensional airspace to alleviate transportation congestion on the ground. We started this journey two years ago, publishing our *Elevate White Paper* to answer the questions: why don't people fly in cities today, and what barriers must be overcome to make such a service possible at scale?

And from our extensive research, we have found that one of the primary challenges in enabling urban air transportation is airspace integration and air traffic management. In order to operate at affordable prices and serve all our potential customers well, we intend to fly thousands of aircraft in each metropolitan area that we serve. The traditional safe, human-centered air traffic system, however, is not designed to manage air traffic at this scale. Therefore, we applaud the National Aeronautics and Space Administration (NASA) and the Federal Aviation Administration (FAA) for developing the novel concepts and technologies for Unmanned Aircraft Systems Traffic Management, commonly abbreviated as UTM.

We further encourage NASA and the FAA to place the highest priority on extending these concepts towards other forms of urban air mobility including small passenger carrying aircraft such as our electric Vertical Take-off and Landing (VTOL) vehicles.

UTM is paving the way for Uber and other companies to drive innovation and develop airspace services that manage the vehicles on our network safely and efficiently without putting an undue burden on existing air traffic operations or air traffic controllers. Our vision is to operate our aircraft along precise virtual route networks that can be dynamically adjusted to the needs of air traffic safety and control, noise and other community considerations as well as air traffic demand. These networks will provide high predictability and transparency of our operations. Our network systems will also constantly monitor each flight with several safety layers handling outlying situations. In developing these systems, we will take a highly systematic approach to integration and validation in simulations and field testing to ensure interoperability with the FAA's air traffic systems as well as other UAS service suppliers.

We have signed two Space Act Agreements with NASA, one for the development of UTM concepts and technologies, and another to explore Urban Air Mobility or UAM. Under the agreement focused on UTM, we are actively collaborating with NASA and a number of other companies to develop and test the information exchange protocols between the FAA's systems and the industry-based UAS service supplier systems. These tests are coordinated by NASA as part of the UTM Technical Capability Level 4 preparations, and utilize simulations to bring the stakeholders together in achieving interoperability before testing these capabilities in the field under the UTM pilot program.

Under our UAM agreement with NASA, we are focused on assessing the impact of new urban air entrants on traditional air traffic operations with the goal of developing procedures and technologies that allow urban air traffic to integrate and scale into the existing operations. To kickstart this area of collaboration, a simulation study will be conducted at NASA Ames Research center in the Silicon Valley in just two weeks. We view this simulation, as well as both our partnerships with NASA, as critical for devising the path for safely sharing the airspace amongst all airspace users.

Additionally, Uber is participating in the UAS Integration Pilot Program (UAS IPP) administered by the Department of Transportation and the FAA. We are proud to be a part of the team, led by the City of San Diego, that was recently selected as one of ten state, local, and tribal governments able to conduct flight tests as part of the pilot program.

We work with many partners in the industry on overcoming the technological barriers to conducting safe and acceptable drone deliveries and are pleased with the exceptional collaboration between industry and the FAA to work through the regulatory barriers associated with operating unmanned vehicles safely over people, with beyond the line of sight operations, and with fewer than one pilot per vehicle.

Beyond the UAS IPP, Uber is excited about the work the FAA is conducting through its Low Altitude Authorization and Notification Capability initiative, more commonly referred to as LAANC. LAANC is an automated application and approval process for airspace authorizations that uses airspace data, including UAS facility maps, to dramatically decrease response times on flight requests from weeks or months to near real-time. We believe the initiative sets the groundwork for the future of drone traffic management and are supportive of its ongoing expansion to 300 air traffic facilities and 500 airports across the country. We encourage the FAA to extend the approach of coordinating airspace access through digital data exchange beyond the static facility maps.

We commend the Department of Transportation on these innovative, future-facing projects and look forward to working with the department on these and other exciting initiatives, including establishing federal rules on remote identification requirements for all drone aircraft.

At Uber, we are investing in urban air transportation because it has the potential to deliver time savings at affordable prices to consumers across the world. We see exceptional demand across all large markets for safe, reliable, fast transportation services, and our network can be an excellent supplement to public and private transit options. The converging forces of improving battery technology, massive utilization, and the outset of reliable autonomous aviation will transform how people and things move around cities across the world. Working with leaders in both the public and private sector we are confident Uber will make a sizable impact on this challenge and bring about a lasting positive change for the world.

Thank you for your time, attention and invitation. I look forward to answering your questions about Uber's vision and approach to air traffic and UAS integration.

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