**Study of the Feasibility of Wheelchair Restraint Systems in Passenger Aircraft**
**Sponsor's Remarks to the Study Committee – February 5, 2020**
**by Mario B. Damiani, U.S. Access Board**

## Introduction

**Distinguished members of the Study Committee; colleagues from the Transportation Research Board and the National Academies of Science, Engineering, and Medicine; representatives of the Department of Transportation and other Federal agencies; and guests attending in person or remotely –**

**Good morning and thank you for joining us. My name is Mario Damiani, and I serve as the Technical Point of Contact for the United States Access Board, the sponsor of this Study on the Feasibility of Wheelchair Restraint Systems in Passenger Aircraft.**

**The Access Board is an independent Federal agency that promotes equality for individuals with disabilities through leadership in accessible design and the development of accessibility guidelines and standards. The Board is structured to function as a coordinating body among federal agencies and to directly represent the public, particularly people with disabilities.**

**The agency was established by Section 502 of the Rehabilitation Act of 1973, with the original mandate of ensuring access to federal facilities for individuals with disabilities through the enforcement of accessibility standards. Since then, the Board's role has expanded significantly and the Board now: serves as a leading source of information on accessible design; develops and maintains design criteria; and provides technical assistance and training on those criteria and on accessible design. The Board's varied work has focused on the accessibility of such areas as the built environment, public rights-of-way, medical diagnostic equipment, and information technology.**

**The Board also has statutory authority to investigate and examine alternative approaches to the transportation barriers confronting individuals with disabilities, particularly with respect to public transportation (including air, water, and surface transportation, whether interstate, foreign, intrastate, or local) and to ensure that public conveyances are readily accessible to, and usable by, individuals with physical disabilities. It is with this authority that the Board has developed design requirements for transit facilities and vehicles, passenger vessels, aircraft boarding chairs, and, most recently, onboard wheelchairs.**

## Background and Origins of Study

**Congress had this background in mind when – in the FAA Reauthorization Act of 2018 – it tasked the Board with conducting this study. Section 432 of the Act requires the Access Board – in consultation with the Department of Transportation (DOT) and other stakeholders – to conduct a research study and issue a report exploring two discrete topics: (1) "the feasibility of in-cabin wheelchair restraint systems"; and (2) if feasible, the ways in which wheelchairs (and their users) "can be accommodated with in-cabin wheelchair restraint systems." It is worth noting that other sections in the statute call for the investigation of such issues as airport accessibility, including wayfinding and amenities, air carrier training policies for the assistance of passengers with disabilities, ticketing, seat assignments, and the stowage and transport of mobility devices.**

**But why was Congress interested in the concept of wheelchair restraint systems specifically? To answer that question, it is necessary to examine the context of modern air travel, both generally and as it impacts individuals with disabilities. In its 2017 World Air Transport Statistics, the International Air Transport Association, IATA, noted that "airlines connected a record number**

**of cities worldwide, providing regular services to over 20,000 city pairs….” In addition, system-wide, airlines carried 4.1 billion passengers on scheduled services – of whom 632 million, 18.6%, were U.S. citizens. At the time, IATA’s Director General and Chief Executive Officer, Alexandre de Juniac, noted that “Flying has never been more accessible. And this is liberating people to explore more of our planet for work, leisure, and education. Aviation is the business of freedom.”**

**Unfortunately, even though individuals with disabilities have the same interest in and need for traveling by air, many of them, particularly passengers who use wheelchairs, face certain challenges and inequities in air travel that place them on an uneven footing when it comes to achieving the freedom and independence enjoyed by air travelers without disabilities.**

- **First, the very fact that individuals must transfer out of their wheelchairs at all presents challenges that include the risk of injury and severe discomfort, since seating and positioning systems on wheelchairs are often customized to address the individual’s safety, comfort, and specific medical needs.**

- **Second, in order to be situated in a standard aircraft seat as required, passengers who use wheelchairs must transfer or be physically lifted out of their wheelchairs into aircraft boarding chairs, and then transfer or be lifted out of the aircraft boarding chairs into the aircraft seat – and vice versa when deplaning – all of which cause strain and discomfort and carry the risk of injury, especially since most transfers are not conducted by trained medical personnel or caregivers but rather by airport or airline personnel or ground crew staff with little or no training.**

- **Third, because passengers who use wheelchairs cannot board and deplane independently, they are forced to endure long waits for assistance in deplaning (which can result in additional pain and discomfort as well as missed connections or pre-arranged appointments with ground transportation providers). As reported more than once by various media outlets, on rare occasions, passengers have faced the prospect of no assistance being provided. This, in turn, has resulted in passengers having no other option other than to get on the floor of the aircraft and crawl down the aisle.**

- **Fourth, when passengers' unoccupied wheelchairs are moved to the loading area and into the cargo hold for stowage during flight (again, often by staff with little or no training on how to handle such delicate equipment), they are frequently mishandled, damaged, or destroyed – all of which can lead to stress, discomfort, injury, and complete lack of mobility. According to Department of Transportation, the U.S. domestic airlines damaged or mishandled approximately 8,600 wheelchairs and scooters from January 2019 to October 2019 (*Air Travel Consumer Reports*, May – December 2019).**

**These are just some of the reasons why advocacy groups like All Wheels Up, Flying Disabled, and the Paralyzed Veterans of America, who you will be hearing from directly later today, have called for a focus on solutions to allow air passengers who use wheelchairs to remain in their wheelchairs in aircraft cabins for the duration of a flight. This would eliminate the need for transfers and associated delay, the physical pain and other challenges posed by sitting in standard aircraft seats, and the risk of damage to mobility devices.**

**Rationale for Commissioning the National Academies of Science, Engineering, and Medicine**

**While the Access Board has a long history of examining transportation-related accessibility issues and developing solutions that have resulted in increased accessibility for millions of Americans, to fulfill our mandate under the FAA Reauthorization Act, we knew that the plethora of hyper-technical, complex aeronautical and engineering issues surrounding the use of wheelchair restraints in commercial passenger aircraft required identifying a suitable research partner capable of conducting the sort of study mandated by Congress. And we knew that the Transportation Research Board and National Academies have earned a solid reputation over many decades as the nation's premier sources of independent, expert advice on scientific, engineering, medical, and transportation issues - including those related to transportation. That reputation is based on four pillars:**

**The first is expertise.** **Federal agencies have long called on the Academies to inform their policymaking activities, and the Academies have undertaken numerous groundbreaking studies on "some of the most pressing challenges facing the nation and the world." As a program unit of the National Academies, TRB draws**

**on more than 6,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia to facilitate the exchange of information on transportation practice and policy, stimulating research and disseminating results, and encouraging the implementation of new technologies.**

**The second is independence. As a third-party research entity, TRB has no stake in, and therefore will remain agnostic as to, the results of the study – as is the case with all of its research studies. TRB does not take direction from any outside entities (including the Access Board) in how its studies are to be conducted or how its determinations are developed, vetted, and published. In the context of a feasibility study such as that called for by Congress, TRB is uniquely positioned to look at many technologically complex issues and gather information from a variety of sources – taking into account what may be sometimes disparate or competing views held by the Department of Transportation, Federal Aviation Administration, aircraft manufacturers, airlines, and disability advocates. TRB's studies and reports are free of bias, undue influence, and partisan positions.**

**The third is objectivity. TRB and the Academies apply an established, rigid system of checks and balances "at every step in the study process to protect the integrity of the reports and to maintain public confidence in them." For example, TRB ensures that committee members are both free of conflicts and representative of balanced perspectives "so that the committee can carry out its charge objectively and credibly." In light of the fact that the issues contemplated by the study could impact the lives and livelihoods of millions of individuals, and carry tremendous import for all facets of the air travel industry, the objectivity of the study is paramount, and TRB, by virtue of its insulated deliberative process and track record of conducting objective, evidence-based research, is uniquely qualified to provide impartial findings on this important topic to Congress and the public.**

**Finally, TRB and the Academies require their study reports to be validated by independent, external reviewers to ensure that they are responsive to the research questions, presented accurately and effectively, and free of bias – all of which allow the study results to be quickly accepted as authoritative by Congress, executive agencies, and practitioners in transportation policy.**

**In short, the Access Board commissioned TRB and the National Academies because of their reputation for rigorous, independent research on transportation issues affecting millions of Americans.**

**Expectations/Statement of Task**

**As noted above, the FAA Reauthorization Act calls for this study to examine the feasibility of wheelchair restraint systems and, depending on that analysis, how those systems could be used to accommodate those who use wheelchairs. That feasibility analysis is the linchpin of this study, and it must be broad enough to capture the various technological, aeronautical, and engineering issues surrounding the feasibility of restraint systems, but likewise narrow enough to exclude the non-technical issues like cost or revenue impacts.**

**As set out in the Statement of Task, this committee must examine: 1) the feasibility of using a restrained, occupied wheelchair seat as an aircraft seat; 2) the feasibility of strengthening or modifying the floor structure of the aircraft's passenger cabin to accommodate a wheelchair; 3) the feasibility of removing standard aircraft seats to create the space needed for a wheelchair; and 4) the feasibility of the locking/restraint mechanism for adequately securing the wheelchair**

**to the floor of the cabin. Of course, the analysis must consider these issues in the aircraft certification environment, and take into account the technical issues surrounding injury criteria limits for seating, different specifications for cabin floors, the impact of seat removal on the aircraft's structural integrity, and system's performance during takeoff, landing, and inflight movement (including turbulence) and all emergency and survivable crash environments, in addition to emergency landings.**

**Conclusion**

**I am happy to take your questions, but before I do let me express the gratitude of the Access Board – on behalf of our Executive Director David Capozzi and Director of our Office of Technical and Information Services, Dave Yanchulis. First to the team from TRB and the Academies (Tom, Melissa, Tracy, Anusha) for their partnership; second to the advocates who have lobbied for this issue to be examined; third to Congress for entrusting the Board with the responsibility for the study; and finally to Dr. Jette and all other committee members for their willingness to take time out of their busy schedules to join us (in person or remotely) – strictly in a volunteer capacity – and offer their wealth of expertise in the pursuit of this important research question. THANK YOU.**

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