

AUTONOMOUS VEHICLES AND THE FUTURE OF TRANSIT FOR
INDIVIDUALS WITH DISABILITIES

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Abstract. Autonomous Vehicles (AVs) are frequently discussed as a boon for individuals with disabilities, yet studies show that such individuals harbor significant reservations about AV technology. In this essay, I argue that such reservations may be well-founded, and that the existing legal regime—which secures the mobility rights of millions of Americans by requiring transit agencies to provide door-to-door paratransit services to eligible riders—is ill-equipped for an autonomous future.

First, I argue that the benefits of AV technologies will accrue primarily to Transportation Network Companies (TNCs), like Uber and Lyft, at the direct expense of public transportation agencies with whom they compete for fares and ridership. But under the Americans with Disabilities Act (ADA), only publicly owned, fixed-route public transportation systems are required to provide subsidized, door-to-door paratransit services. Although TNCs also operate door-to-door services, they are not only able to charge market rates for their services, but are not even required to maintain wheelchair-accessible vehicles under the ADA. Even the most elementary protection of the ADA, which requires certain entities to make “reasonable modifications” for individuals with disabilities—a complex, case-by-case determination that leaves riders with considerable uncertainty as to their rights—may not apply to AV-equipped TNCs.

Lastly, in the absence of any legal obligation to provide services to riders with disabilities, I argue that a combination of practical and legal considerations make it unlikely that AV-equipped TNCs will elect to serve riders with mobility disabilities of their own volition. Both federal regulations and industry standards require that wheelchairs be physically secured while onboard a vehicle, and AV-equipped TNCs looking to serve wheelchair-bound riders would have to choose between providing human assistance with wheelchair restraints (defeating the labor-saving advantage of AVs) or designing a complex automated tie-down system that can accommodate a broad variety of wheelchair designs. Faced with such a choice, it seems likely that AV-equipped TNCs will simply continue their current practice of refusing to serve individuals in wheelchairs.

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In 2015, the AARP and a local disability rights group filed a class action lawsuit against the Maryland Transit Administration (MTA) on behalf of riders with disabilities, alleging that the door-to-door paratransit service operated by MTA violated the Americans with Disabilities Act of 1990 (ADA) by routinely failing to answer requests for service and arbitrarily revoking riders’ access to the service.¹ Two years later, MTA settled the lawsuit with an agreement to overhaul their eligibility process and scheduling procedures.² This was just one of nearly a dozen lawsuits and investigations into paratransit services filed in the past two decades, many alleging a depressingly similar set of facts: unreliable service and difficult scheduling procedures.³ For the approximately 25 million Americans whose disabilities make travelling outside the home difficult, cases like these are about more than fairness and convenience.⁴ Access to mobility determines one’s “ability to participate in urban life, to get to the polls, and to live [one’s life] out in the open.”⁵ The importance of mobility to securing the rights of individuals with disabilities was not lost on Congress, who vested the regulatory authority of the ADA in just three places: the Equal Employment Opportunity Commission, the Attorney General, and the Secretary of Transportation.⁶

Given the high stakes surrounding the mobility rights of people with disabilities, the imperfections in the existing public paratransit system, and the futuristic promises of autonomous vehicle (AV) technologies, it is easy to conclude, as the U.S. Department of Transportation has recently

¹ Kevin Rector, *MTA Sued by Riders with Disabilities over Paratransit Access, Reliability*, BALT. SUN (Jan. 21, 2015, 8:01 PM), <https://www.baltimoresun.com/maryland/bs-md-mta-mobility-lawsuit-20150121-story.html> [<https://perma.cc/9K98-57PA>].

² See Press Release, AARP Foundation & Disability Rights Maryland, Disability Rights Maryland and AARP Foundation Litigation Reach Settlement Agreement on MTA Mobility Paratransit System (Jan. 24, 2017), <https://disabilityrightsmd.org/wp-content/uploads/2017/01/Freeman-Settlement-Press-Release.pdf> [<https://perma.cc/24BP-RCB4>] (detailing various changes resulting from the settlement).

³ See, e.g., U.S. Dep’t of Just., Civil Rights Div., *ADA Enforcement*, ADA.GOV (last visited Feb. 23, 2022) (listing Department of Justice enforcement actions for violations of the ADA’s paratransit regulations brought against the Hawai’i Mass Transit Agency; the City of Jackson, Mississippi; the Muskegon County, Michigan Area Transit System; and the Virgin Islands Department of Public Works); see also U.S. GOV’T ACCOUNTABILITY OFF., GAO-13-17, *ADA PARATRANSIT SERVICES: DEMAND HAS INCREASED, BUT LITTLE IS KNOWN ABOUT COMPLIANCE* (2012) (noting lack of data about paratransit agencies’ compliance with the ADA).

⁴ U.S. DEP’T OF TRANSP., *PREPARING FOR THE FUTURE OF TRANSPORTATION: AUTOMATED VEHICLES 3.0* 29 (2018), <https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf> [<https://perma.cc/U62A-PVQA>].

⁵ KAFUI ABLODE ATTOH, *RIGHTS IN TRANSIT* 57 (2019).

⁶ 42 U.S.C. § 12205a.

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asserted, that AV technology “presents enormous potential for improving the mobility of travelers with disabilities.”⁷ Autonomous vehicles promise greater flexibility and “unprecedented freedom” for individuals with disabilities heretofore “consigned to the vagaries of public transit,” opening new employment opportunities, according to one study, for up to two million people with disabilities.⁸ Why, then, have recent studies found that people with mobility disabilities generally harbor substantial concerns about AV technology?⁹ And should regulators at the local and federal level share those concerns?

In this paper, I suggest that people with disabilities’ concerns about AV technology are well placed, and that federal and municipal officials should take preemptive actions to ensure that their mobility rights are protected. In Part I, I predict that when deployed by Transportation Network Companies (TNCs), AVs will pose a serious and possibly existential threat to existing public transportation systems, including their paratransit services. Based on this premise, I will explain in Part II how the ADA is not equipped to fully protect the mobility rights of individuals with disabilities in the absence of publicly owned fixed-route transportation systems. Finally, Part III will explore whether AV-equipped TNCs have incentives to protect the mobility rights of individuals with disabilities on their own. They do not. As a result of the displacement of public transportation, existing gaps in the ADA’s coverage of transportation, and the lack of incentives for TNCs to provide service for individuals with disabilities on their own initiative, the anticipated onset of AV-equipped TNCs threaten to leave many people with disabilities with fewer mobility options.

I. AVS AND THE FUTURE OF PUBLIC TRANSPORTATION

Regardless of who is first to market with a Level 5 AV,¹⁰ TNCs such as Uber and Lyft will doubtless be early and enthusiastic adopters. As labor costs represent 80% of the per-mile cost of ridesharing services, TNCs—most of which have yet to turn a profit—see AVs as essential to “owning the future of mobility” and moving to a sustainable business model.¹¹ Public transit agencies, on the

⁷ U.S. DEP’T OF TRANSP., *supra* note 3, at 12.

⁸ Ashley Halsey III, *Driverless Cars Promise Far Greater Mobility for the Elderly and People with Disabilities*, WASHINGTON POST (Nov. 23, 2017) https://www.washingtonpost.com/local/trafficandcommuting/driverless-cars-promise-far-greater-mobility-for-the-elderly-and-people-with-disabilities/2017/11/23/6994469c-c4a3-11e7-84bc-5e285c7f4512_story.html [<https://perma.cc/C6HQ-XZFR>]; RUDERMAN FAMILY FOUNDATION, SELF-DRIVING CARS: THE IMPACT ON PEOPLE WITH DISABILITIES 4 (2017).

⁹ See, e.g., Roger Bennett, Rohini Vijaygopal & Rita Kottasz, *Attitudes Towards Autonomous Vehicles Among People with Physical Disabilities*, 127 TRANSP. RSCH. PART A 1, 12 (2019) (“Two-thirds of the sample of people with disabilities held negative or ambivalent views of AVs.”); Jinuk Hwang, Wei Li, Laura Stough, Chanam Lee & Katherine Turnbull, *A Focus Group Study on the Potential of Autonomous Vehicles as a Viable Transportation Option: Perspectives from People with Disabilities and Public Transit Agencies*, 70 TRANSP. RSCH. PART F 260, 270 (2020) (noting that surveyed people with disabilities held concerns about the accessibility and effectiveness of AVs for individuals with disabilities).

¹⁰ As defined in SAE Standard J3016, a Level 5 AV is a vehicle capable of “sustained and unconditional . . . performance . . . of the entire [driving task] without any expectation that a [passenger will have to] intervene.” SOC’Y OF AUTO. ENGR’RS, STANDARD J3016: TAXONOMY AND DEFINITIONS FOR TERMS RELATED TO DRIVING AUTOMATION SYSTEMS FOR ON-ROAD MOTOR VEHICLES 1, 19 tbl.1 (2018).

¹¹ See Sameepa Shetty, *Uber’s Self-Driving Cars are a Key to Its Path to Profitability*, CNBC (Jan. 28, 2020, 2:21 PM), <https://www.cnbc.com/2020/01/28/ubers-self-driving-cars-are-a-key-to-its-path-to-profitability.html>

other hand, are unlikely to be well-positioned to take advantage of AV technology. First, many agencies will probably be reeling from the impact of the COVID-19 pandemic for years to come—if they are able to survive at all. As lost revenues drive service cuts, leading to more lost revenues, public transit agencies face a vicious cycle that could easily lead to a death spiral in the absence of additional emergency funding.¹² Expensive, unproven capital investments such as AV fleets will necessarily take a backseat to day-to-day operating costs. Second, whereas TNCs rely on precarious, politically powerless (for now) “contractor” labor, many transit agencies have unionized workforces with considerable political capital and strong collective bargaining agreements that can better resist the automation of their jobs.¹³ In sum, automation will likely offer substantially more benefits to TNCs than to transit agencies.

The differential benefit of automation will only add to the advantages enjoyed by TNCs over transit agencies. As private entities, TNCs are not required to conduct any of the labor-intensive and time-consuming forecasting, impact analyses, and public participation processes required of publicly owned transit systems under Title VI of the Civil Rights Act, the National Environmental Policy Act, and Executive Order 12898 on Environmental Justice.¹⁴ And, as we shall see, TNCs are relieved of the extraordinary cost burden of providing subsidized, door-to-door transit for riders with disabilities.¹⁵ Moreover, while public transit agencies ordinarily receive around \$13 billion in federal subsidies each year,¹⁶ a single TNC can raise a comparable sum in just four months from venture capital¹⁷—with

[<https://perma.cc/T7V7-L7ZR>]. See also Therese Poletti, *Uber and Lyft are Staging a Ridiculous Race for Fake Profits*, MARKETWATCH (Aug. 5, 2021), <https://www.marketwatch.com/story/uber-and-lyft-are-staging-a-ridiculous-race-for-fake-profits-11628205337> [<https://perma.cc/6FET-5VFG>] (explaining that while TNC Lyft, Inc. showed its first-ever paper profit in the second quarter of 2021, the profit is illusory and “neither Lyft nor Uber look to be any closer to actual GAAP profitability”); Al Root, *Lyft is Profitable Now? What Profit?*, BARRON’S (Aug. 4, 2021) <https://www.barrons.com/articles/lyft-profitable-accounting-adjusted-ebitda-51628111994> (“Under generally accepted accounting principles, though, [Lyft’s quarterly earnings] came in at a loss of almost \$210 million.”).

¹² See Christina Goldbaum & Will Wright, *‘Existential Peril’: Mass Transit Faces Huge Service Cuts Across U.S.*, N.Y. TIMES (Dec. 6, 2020, 5:01 PM), <https://www.nytimes.com/2020/12/06/nyregion/mass-transit-service-cuts-covid.html> [<https://perma.cc/6CUS-9DKK>].

¹³ Compare Kate Conger & Kellen Browning, *A Judge Declared California’s Gig Worker Law Unconstitutional. Now What?*, N.Y. TIMES (Aug. 23, 2021), <https://www.nytimes.com/2021/08/23/technology/california-gig-worker-law-explained.html> [<https://perma.cc/579G-7B79>] with *About Us*, TRANSP. WORKERS UNION OF AM., <https://www.twu.org/about/> [<https://perma.cc/F89L-HHHH>] (last visited Feb. 23, 2022).

¹⁴ See FED. TRANSIT ADMIN., U.S. DEP’T OF TRANSP., CIRCULAR 4702.1B, TITLE VI REQUIREMENTS AND GUIDELINES FOR FEDERAL TRANSIT ADMINISTRATION RECIPIENTS (2012) (outlining requirements for recipients of federal transit funding under Title VI); FED. TRANSIT ADMIN., U.S. DEP’T OF TRANSP., CIRCULAR 4703.1, ENVIRONMENTAL JUSTICE POLICY GUIDANCE FOR FEDERAL TRANSIT ADMINISTRATION RECIPIENTS (2012) (outlining requirements for recipients of federal transit funding under Executive Order 12898); U.S. DEP’T OF TRANSP., ORDER DOT 5610.1C, PROCEDURES FOR CONSIDERING ENVIRONMENTAL IMPACTS (1979) (outlining requirements under NEPA).

¹⁵ See, e.g., Rector, *supra* note 1 (noting that each one-way paratransit trip costs the Maryland Transit Administration \$43.30, for which the MTA charges only \$1.85).

¹⁶ WILLIAM J. MALLETT, CONG. RSCH. SERV., R42706, FEDERAL PUBLIC TRANSPORTATION PROGRAM: IN BRIEF 2 (2021).

¹⁷ Evan Niu, *Uber Has Raised Nearly \$10 Billion in 4 Months. It Needs More.*, MOTLEY FOOL (Sept. 12, 2019, 3:40 PM), <https://www.fool.com/investing/2019/09/12/uber-has-raised-nearly-10-billion-in-four-months-i.aspx> [<https://perma.cc/G68V-TUJJ>].

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significantly fewer strings attached.¹⁸ Finally, automation not only provides a significant boon to TNCs in terms of labor expense savings but also directly increases TNCs' competitiveness vis-à-vis public transit: preliminary research suggests that consumer preference for carsharing over public transit increases significantly when carshare is automated.¹⁹

Of course, if TNCs and public transit were complementary services, this would not be an issue. However, that is emphatically not the case. TNCs are associated with substantial transit ridership losses in markets where they operate, and individual transit agencies have lost tens of millions of dollars per year to TNC competition.²⁰ This is likely not accidental, either: At least one TNC, Uber, has stated in SEC filings that it views itself as a direct competitor to public transportation and its growth depends on "attracting consumers to our platform and away from . . . public transportation."²¹ The twin pressures of TNC competition and the COVID-19 pandemic have placed public transportation in a state of almost unprecedented precarity, and it is not far-fetched to imagine that if current trends continue (or indeed, are accelerated by automation), many areas of the country formerly served by public transit systems will someday have AV-equipped TNCs as the only mobility alternative to driving.

When a region's public transportation network cuts service or suspends operations, paratransit service²² suffers accordingly. ADA-mandated paratransit services are operated exclusively by public transportation agencies, and paratransit service requirements are defined under the ADA solely in reference to the service areas and service levels of the fixed-route public transit network.²³

II. SECURING MOBILITY RIGHTS UNDER THE ADA

The ADA operates with the greatest force to protect the mobility rights of individuals with disabilities in the context of publicly owned, fixed-route transit systems, from large, multi-modal urban transit systems like Philadelphia's SEPTA to smaller, bus-only regional authorities like the Red Rose Transit Authority in Lancaster County, Pennsylvania.²⁴ If AV-equipped TNCs are able to outcompete

¹⁸ See Eric Levitz, *America Has Central Planners. We Just Call them 'Venture Capitalists.'*, N.Y. MAG. (Dec. 3, 2020), <https://nymag.com/intelligencer/2020/12/wework-venture-capital-central-planning.html> [<https://perma.cc/5HB6-D3UW>] (noting that after receiving funding from venture capitalists, WeWork's "governing board ignored warnings from financial analysts and enabled promiscuous spending").

¹⁹ See Christina Pakusch, Gunnar Stevens & Paul Bossauer, *Shared Autonomous Vehicles: Potentials for a Sustainable Mobility and Risks of Unintended Effects*, 52 EPIC SERIES COMPUTING 258, 266 (2018).

²⁰ See, e.g., MICHAEL GRAEHLER, JR., RICHARD ALEXANDER MUCCI & GREGORY D. ERHARDT, UNDERSTANDING THE RECENT TRANSIT RIDERSHIP DECLINE IN MAJOR US CITIES: SERVICE CUTS OR EMERGING MODES? 15 (2018), https://turinschool.eu/files/turinschool/Erhardt_ridesharing.pdf [<https://perma.cc/KEG2-HNC5>]; METRO. AREA PLAN. COUNCIL, THE GROWING CARBON FOOTPRINT OF RIDE-HAILING IN MASSACHUSETTS 1 (2019), <http://www.mapc.org/wp-content/uploads/2019/07/Growing-Carbon-Footprint-of-Ride-hailing-in-MA.pdf> [<https://perma.cc/D3YB-FB2T>] ("MAPC estimates the MBTA lost \$23 million in fare revenue in 2018 as travelers opted for ride-hailing instead of transit. . . .").

²¹ Uber Techs., Inc., Registration Statement (Form S-1) 37, 107 (Apr. 11, 2019).

²² As defined at 49 C.F.R. §§ 37.121-155 (2021).

²³ 49 C.F.R. § 37.121(a) ("[E]ach *public entity* operating a *fixed route system* shall provide paratransit . . . that is comparable to the level of service provided to individuals without disabilities who use the fixed route system") (emphasis added); 49 C.F.R. § 37.131 (defining paratransit service areas in reference to existing bus and rail routes).

²⁴ SOUTHEAST PENNSYLVANIA TRANSPORTATION AUTHORITY, <http://septa.org> [<https://perma.cc/BLK3-WWSF>] (last visited Feb. 23, 2022); RED ROSE TRANSIT AUTHORITY, <http://redrosetransit.com> [<https://perma.cc/J6AG-VBX9>] (last

such systems, individuals with disabilities will no longer be able to assert a legal right to services essential to their mobility.

a. Individuals with Disabilities Will Lose Access to Paratransit

While demand-responsive or privately owned systems (excluding taxis) may be subject to “equivalent service” requirements,²⁵ only fixed-route, publicly owned systems are required to provide paratransit service.²⁶ For individuals with disabilities who qualify for paratransit, this is immensely significant, as the ADA’s paratransit service requirement represents a unique and powerful means for securing their mobility rights. Moreover, because qualifying individuals are generally unable to use the fixed-route system as a result of their disability,²⁷ the protections of the paratransit requirement are especially meaningful for those with the most severe limitations on their mobility.²⁸

Paratransit is unique among the services required by the ADA in that it essentially entitles qualified individuals to a level of service which is, in some important respects, *superior* to that offered to non-disabled riders. First, unlike the station-to-station, fixed-route service offered to non-disabled riders, paratransit is required to provide door-to-door (or curb-to-curb) service to riders.²⁹ In contrast, the “equivalent service” requirements applied to all other operators simply require that the operator bring individuals with disabilities to the *same* destinations as non-disabled customers.³⁰ And while other operators may charge a fare “equivalent” to that charged non-disabled customers, paratransit riders may not be charged more than twice the cost of an equivalent fare *on the fixed-route system*.³¹ In other words, while a private inter-city bus line may charge a rider requiring “equivalent service” the same fare for what is essentially the same service but with a different (accessible) vehicle, the price of paratransit’s door-to-door, demand-responsive service is pegged to the price of a single turnstile swipe on the fixed-route network. As a result, paratransit riders receive door-to-door service at a tiny fraction of the actual cost of such service.³² In addition, whereas requests for “equivalent service” may require any amount

visited Feb. 23, 2022).

²⁵ 49 C.F.R. § 37.77(e); *id.* § 37.105.

²⁶ 49 C.F.R. § 37.121(a); FED. TRANSIT ADMIN., FTA C 4710.1, AMERICANS WITH DISABILITIES ACT (ADA): GUIDANCE 7-4 (2015) (noting that “equivalent service” and paratransit “can have similar characteristics, there is a fundamental difference in the requirements”).

²⁷ 49 C.F.R. § 37.123(e) (listing requirements for ADA paratransit eligibility).

²⁸ Sandra Rosenbloom, *Transportation Patterns and Problems of People with Disabilities*, in *THE FUTURE OF DISABILITY IN AMERICA* 519, 536 (Marilyn J. Field & Alan M. Jette eds., 2007) (noting that for those with “extremely serious disabilities,” paratransit services likely represent “a significant part of [their] transportation resources”).

²⁹ 49 C.F.R. §§ 37.3, 37.129.

³⁰ See 49 C.F.R. § 37.105(c) (requiring equivalent “[g]eographic area of service”); *ADA Requirements for Over-the-Road Bus Companies*, FED. MOTOR CARRIER SAFETY ADMIN. (Aug. 18, 2020), <https://www.fmcsa.dot.gov/regulations/americans-disabilities-act-reporting-and-other-requirements-over-road-bus-companies> [<https://perma.cc/SK9D-NY9S>] (noting that private over-the-road bus companies need only “provide service to the same traveling points” to be considered equivalent). In other words, a public transit agency is obligated to provide door-to-door paratransit service even if the relevant fixed-route transit stations are located blocks away from the rider’s origin and destination; a private fixed-route system would only be obliged to deliver the rider to the same location it would deliver a non-disabled rider.

³¹ 49 C.F.R. §§ 37.105(b), 37.131(c).

³² In 2010, the average fare collected for paratransit service was \$2.09, while the average cost to the transit system per

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of advanced notice so long as the operator requires the same notice for non-disabled customers, the ADA requires paratransit operators to respond to trip requests with as little as a day's notice.³³

As the MTA lawsuit shows, of course, paratransit has not always lived up to its promise. But it is only through the unique obligations placed on publicly owned, fixed-route systems by the ADA that individuals with disabilities have any legal claim to this level of service.

b. AV-Equipped TNCs Are Not Covered by the Wheelchair-Accessible Vehicle (WAV) Requirements of the ADA

Losing access to ADA-guaranteed paratransit service alone would significantly compromise the mobility rights of millions of individuals with disabilities. However, the expansion of AV-equipped TNCs at the expense of existing transit systems will pose an even more serious burden on those with disabilities requiring the use of mobility aids. Not only will such individuals lose access to low-cost, door-to-door paratransit systems, but AV-equipped TNCs may have no obligation to serve them *at all*.

Nearly every provider of transportation services, whether public or private, has an obligation under the ADA to ensure that at least some portion of vehicles purchased are accessible to individuals with disabilities, “including individuals who use wheelchairs.”³⁴ However, the ADA specifically exempts “[p]rivate entities providing taxi service” from this requirement, stating unequivocally that such providers “are not required to purchase or lease accessible automobiles” and need not “purchase [accessible] vehicles other than automobiles.”³⁵ A taxi company is only barred from discriminating against individuals with disabilities “who [are] capable of using the taxi vehicles,” so as long as a taxi fleet is entirely comprised of non-wheelchair-accessible automobiles, it need not provide any service to individuals with wheelchairs.³⁶ Although not a traditional taxi company, the appendix to 49 C.F.R. section 37 makes it clear that an AV-equipped TNC—regardless of whether it owns the AVs outright or relies on “contractor”-supplied vehicles—is covered under the taxi provision.³⁷

c. AV-Equipped TNCs May Not Be Required to Make Reasonable Modifications

Even if AV-equipped TNCs are not subject to the specific wheelchair-accessible vehicle (“WAV”) requirements of the ADA, an individual with a disability may still be entitled to WAV service as a “reasonable modification.”³⁸ However, unlike the WAV regulations of the ADA, which operate as an automatic requirement on covered entities, establishing a reasonable modification is a “highly fact-

ride was \$29.30—a cost differential of over 1000%. U.S. GOV'T ACCOUNTABILITY OFF., GAO-13-17, ADA PARATRANSIT SERVICES: DEMAND HAS INCREASED, BUT LITTLE IS KNOWN ABOUT COMPLIANCE, 22 fig. 6 (2012).

³³ 49 C.F.R. § 37.131(b). *See also id.* § 37 app. D (noting that unlike the paratransit requirements, the “equivalent service” requirement involves “only points of comparison, not substantive criteria”).

³⁴ 49 C.F.R. §§ 37.71-75, 37.77, 37.101(b)-(d), 37.103(b)-(d). The ADA also contains specific design requirements for such vehicles to ensure they are accessible. *See generally id.* § 38.

³⁵ *Id.* § 37.29(b).

³⁶ *Id.* § 37 app. D.

³⁷ *Id.* (“For purposes of this section, other transportation services that involve calling for a car and a driver to take one places (e.g., limousine services . . .) are regarded as taxi services.”).

³⁸ 42 U.S.C. §§ 12182(b)(2)(A)(ii), 12184(b)(2)(A).

specific inquiry” in which the TNC can not only contest the reasonableness of the modification, but also whether such modification would “fundamentally alter” its business.³⁹ A prospective plaintiff considering a “reasonable modification” suit therefore faces significantly more uncertainty and potential litigation expenses in contrast to the relatively straightforward enforcement actions contemplated under section 37.

More importantly, TNCs may not be subject to the requirement to provide “reasonable modification” at all under Title III, the portion of the ADA covering private entities. The “reasonable modification” requirement applies to “public accommodations” under section 12182⁴⁰ and “specified public transportation services” under section 12184,⁴¹ and the status of TNCs under each provision is unresolved. Under TNCs’ existing business models, the TNC controls only the app; the vehicles themselves are owned and operated by driver-“contractors.” Whether this arrangement will continue once TNCs adopt AVs is unclear. Nevertheless, the current system has provided TNCs with cover to dispute their status as either a “public accommodation” under section 12182 or a transportation service covered by section 12184.⁴² First, TNCs have relied on decisions from four circuits holding that a “public accommodation” must be a physical space to argue that their online-only operations (distinct from the physical vehicles owned by their “contractors”) place them outside section 12182.⁴³ TNCs have also argued that they are not “primarily engaged in the business of transporting people” under section 12184 as they are primarily *technology* businesses, not transportation businesses.⁴⁴ Although most courts have been highly skeptical of TNCs’ claims,⁴⁵ no case has reached a final determination on the

³⁹ *Access Living of Metro. Chi. v. Uber Techs., Inc.*, 351 F. Supp. 3d 1141, 1158 (N.D. Ill. 2018) (quoting A.H. by Holzmüller v. Illinois High Sch. Ass’n, 881 F.3d 587, 594 (7th Cir. 2018)); 42 U.S.C. § 12182(b)(2)(A)(ii).

⁴⁰ 42 U.S.C. § 12182(a), (b)(2)(A)(ii).

⁴¹ *Id.* § 12184(a), (b)(2)(A).

⁴² *See, e.g.*, Defendants’ Notice of Motion for Judgment on the Pleadings and Authorities in Support Thereof at 12-15, *Crawford v. Uber Techs., Inc.*, No. 17-cv-02664-RS (N.D. Cal. Dec. 22, 2017), ECF No. 63.

⁴³ *Access Living*, 351 F. Supp. 3d at 1154-55 (citing *Magee v. Coca-Cola Refreshments USA, Inc.*, 833 F.3d 530, 534 (5th Cir. 2016), *Weyer v. Twentieth Century Fox Film Corp.*, 198 F.3d 1104, 1114-15 (9th Cir. 2000), *Ford v. Schering-Plough Corp.*, 145 F.3d 601, 613-14 (3rd Cir. 1998), and *Parker v. Metro. Life Ins. Co.*, 121 F.3d 1006, 1014 (6th Cir. 1997)). *See also* Elizabeth A. Mapelli, *Comment: Inadequate Accessibility: Why Uber Should Be a Public Accommodation Under the Americans with Disabilities Act*, 67 AM. U.L. REV. 1947, 1970-74 (2018) (discussing the “public accommodation” standards as applied to TNCs).

⁴⁴ *See Crawford v. Uber Techs., Inc.*, No. 17-cv-02665-RS, 2018 U.S. Dist. LEXIS 33778, at *11 (N.D. Cal. Mar. 1, 2018) (“Uber views itself as a technology company that is engaged in the business of facilitating networking between drivers and riders.”); Melissa Locker, *Lyft’s Response to ADA Lawsuit: Sorry, We’re “Not in the Transportation Business”*, FAST COMPANY (May 3, 2019), <https://www.fastcompany.com/90343921/lyft-claims-its-not-a-transportation-company-to-avoid-ada-compliance> [<https://perma.cc/3G2F-H7TM>].

⁴⁵ *See, e.g.*, *Crawford*, 2018 U.S. Dist. LEXIS 33778, at *17 (denying Uber’s motion for judgment on the pleadings); *Access Living*, 351 F. Supp. 3d at 1154-1159 (finding that plaintiff had stated plausible claims against Uber under sections 12182 and 12184); *Namisnak v. Uber Techs., Inc.*, 444 F. Supp. 3d 1136, 1143 (N.D. Cal. 2020) (“Uber’s claim that it is ‘not a transportation company’ strains credibility . . .”). *But see* Lydia Turnage, *When Apps Meet the ADA: Ongoing Challenges to Accessibility in the Sharing Economy*, COLUM. J.L. & SOC. PROBS. (Jan. 28, 2020), <http://jlsplaw.columbia.edu/2020/01/28/when-apps-meet-the-ada-ongoing-challenges-to-accessibility-in-the-sharing-economy/> [<https://perma.cc/3KAK-CG8L>] (“[I]t is far from clear whether courts will actually take the step of defining these companies as public accommodations under Title III.”).

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question⁴⁶ and TNCs maintain even in settlement agreements that they are not subject to the ADA.⁴⁷

Even if such arguments are not ultimately persuasive, as noted above even those entities covered by Title III are still able to contest the “reasonableness” of a modification *and* raise a defense of fundamental alteration. This complex proof structure, combined with the forcefulness with which TNCs have resisted coverage under the ADA, will only magnify the expense and uncertainty of bringing Title III reasonable modification claims. As a result, individuals with disabilities who would otherwise be willing to bring a claim under the relatively straightforward requirements of section 37 may be dissuaded from doing so.

III. SECURING MOBILITY RIGHTS OUTSIDE THE ADA

Of course, losing the ability to assert a legal claim for WAV service under the ADA may be less calamitous for individuals with disabilities if AV-equipped TNCs decide to provide such service even in the absence of a legal obligation to do so. However, there are reasons to believe this is unlikely to occur.

Despite professed commitments to accessible service,⁴⁸ TNCs have historically failed to provide meaningful services to individuals requiring WAVs.⁴⁹ At present, Uber and Lyft offer WAV service in just a handful of the largest cities,⁵⁰ sometimes because it is required by municipal ordinances.⁵¹ Even in those cities where WAV service is offered, riders may be charged more and have

⁴⁶ Carmen Carballo, *Tap a Button, Get Denied: Uber's Noncompliance with the ADA*, MINN. L. REV. (Apr. 24, 2020), <https://minnesotalawreview.org/2020/04/24/tap-a-button-get-denied-ubers-noncompliance-with-the-ada/> [<https://perma.cc/3KRZ-PZYM>] (noting that the issue remains unresolved and “Uber does not appear eager for a legal determination”).

⁴⁷ Settlement Agreement Under the Americans with Disabilities Act Between the United States of America and Lyft, Inc., 13 (Jun. 17, 2020), https://www.ada.gov/lyft_sa.html [<https://perma.cc/2QX4-ZBWL>] (Lyft denies that it is subject to the ADA . . .”).

⁴⁸ See *Our Commitment to Accessibility in NYC*, LYFT BLOG (Apr. 29, 2020), <https://www.lyft.com/blog/posts/our-commitment-to-accessibility-in-nyc> [<https://perma.cc/68DM-WRDC>]; Dara Khosrowshahi, *An Improved Experience for Riders in Wheelchairs*, UBER NEWSROOM (Nov. 20, 2018), <https://www.uber.com/newsroom/improved-experience-riders-wheelchairs/> [<https://perma.cc/RE84-MFWE>].

⁴⁹ See, e.g., Molly Taft, *Why Can't Uber and Lyft Be More Wheelchair-Friendly?*, BLOOMBERG CITYLAB (Dec. 11, 2018, 3:17 PM), <https://www.bloomberg.com/news/articles/2018-12-11/uber-promises-to-ramp-up-access-for-wheelchair-users> [<https://perma.cc/93EH-NBPH>] (noting that in 2018, just 554 of approximately 118,000 TNC vehicles in New York City were WAVs).

⁵⁰ See *Do Uber and Lyft Have Wheelchair Accessible Vehicles?*, MOBILITYWORKS (Feb. 24, 2020), <https://www.mobilityworks.com/blog/do-uber-and-lyft-have-wheelchair-accessible-vehicles/> [<https://perma.cc/UHT5-X3TQ>] (noting that Uber's WAV service operates in Boston, Chicago, Los Angeles, New York, Philadelphia, San Francisco, and Washington, D.C., and that Lyft's counterpart is similarly restricted to “available markets”); Annie McDonough, *Disabled Riders Face Scarcity of Accessible Vehicles*, CITY & STATE N.Y. (May 7, 2019), <https://www.cityandstateny.com/articles/policy/transportation/disabled-riders-face-scarcity-of-accessible-vehicles.html> [<https://perma.cc/2WQ6-874D>] (describing the difficulty riders face finding accessible rides outside of New York City).

⁵¹ N.Y. LAW. FOR THE PUB. INT., STILL LEFT BEHIND: FOR-HIRE VEHICLE PROVIDERS IN NEW YORK CITY CONTINUE TO FAIL WHEELCHAIR USERS AND VIOLATE ACCESSIBILITY LAWS 3 (2019), <https://nylpi.org/wp-content/uploads/2019/05/Still-Left-Behind-Report%E2%80%94Updated.pdf> [<https://perma.cc/7LKZ-MFZX>] (“New York

to wait up to five times longer for service.⁵² The current TNC business model, relying on independent “contractors” driving their own personal vehicles, likely explains in part the reluctance to provide WAV service: unless TNCs exert control over the purchasing decisions of “contractors,” TNC fleets will reflect the ordinary passenger car market.⁵³ Additionally, TNCs have a strong incentive to avoid exerting control over vehicle choice, even if it means losing out on fares from individuals with disabilities. In multi-million-dollar lawsuits alleging that TNC drivers are not “contractors” but full employees, “control” is a deciding factor: “the more control an employer exerts over its workers, the more likely those workers are to be classified as employees.”⁵⁴ Whether adoption of AVs will lead TNCs to abandon this business model in favor of directly purchasing and operating AVs remains to be seen.

Even if AV-equipped TNCs are able to exert greater control over fleet composition, significant technological and regulatory challenges may make autonomous WAVs infeasible or at least cost-prohibitive. Designing a WAV would entail much more than simply outfitting an existing AV platform with a ramp or lift. Once inside the vehicle, an individual in a wheelchair must be securely restrained to ensure crash safety using a Wheelchair Tiedown and Occupant Restraint System (WTORS).⁵⁵ Both federal regulations and industry standards set specific design and performance requirements, applicable to both private and commercial vehicles, to ensure WTORS can accommodate the full range of wheelchair forms, from lightweight folding designs to large powered chairs.⁵⁶ Thus, any autonomous WAV intended to transport individuals in wheelchairs will need a WTORS system capable of securely anchoring wheelchairs of varying sizes and shapes.

Both the entry system and the WTORS will be a considerable design challenge for vehicles deployed without any humans onboard, as many individuals with disabilities may be unable to operate a lift, ramp, or WTORS restraint themselves. An AV-equipped TNC would not be permitted under the ADA to deploy a WAV and restrict its use to those who can operate the entry and restraint equipment

City Taxi and Limousine Commission (TLC) rules [require TNCs] to either dispatch a minimum percentage of all trips using wheelchair accessible vehicles (WAVs) or to respond to at least 60% of rider requests for WAVs within 15 minutes . . .”).

⁵² *Id.*

⁵³ See Sasha Lekach, *It's Hard to Get a Wheelchair-Accessible Lyft or Uber in Most Places. Here's Why*, MASHABLE (May 24, 2019), <https://mashable.com/article/lyft-uber-wheelchair-accessible/> [<https://perma.cc/4Y6M-SUDB>] (noting that despite Uber providing instructions to drivers on how to modify their cars to be wheelchair-accessible, the lack of control over driver purchases and the fact that “ride-share drivers aren’t going to suddenly start driving [WAVs] on their own accord” makes guaranteeing WAV service difficult).

⁵⁴ Bryan Casey, *Uber's Dilemma: How the ADA May End the On-Demand Economy*, 12 U. MASS. L. REV. 126, 157 (2017). See also *id.* at 160 (“[T]ruly compelling ADA compliance—through more interventionist measures such as . . . wheelchair-accessible vehicle quotas—would risk jeopardizing the drivers’ classification as independent contractors.”).

⁵⁵ AM. NAT’L STANDARDS INST. & REHAB. ENG’G & ASSISTIVE TECH. SOC’Y N. AM., WHEELCHAIR STANDARDS VOLUME 4: WHEELCHAIRS AND TRANSPORTATION § 18 (2017) (“For people with disabilities [who use wheelchairs], the wheelchair must serve as the vehicle seat. . . . [T]he wheelchair must be effectively secured to the vehicle so that its mass does not add to restraint forces on its occupant . . .”).

⁵⁶ See 49 C.F.R. § 37.165(a), (c) (requiring both public and private entities to provide WTORS in WAVs); 49 C.F.R. § 38.23(d) (setting design requirements for WTORS in specific applications); SOC’Y OF AUTO. ENG’RS, STANDARD J2249: WHEELCHAIR TIEDOWN AND OCCUPANT RESTRAINT SYSTEMS FOR USE IN MOTOR VEHICLES (1999) (setting industry standards for WTORS performance in both “personally licensed motor vehicles” and transit vehicles); REHAB. ENG’G & ASSISTIVE TECH. SOC’Y N. AM., *supra* note 55 (setting industry standards for WTORS in “all types and sizes of motor vehicles” designed “for use with a wide range of wheelchairs”).

themselves and whose wheelchairs are compatible with the WTORS.⁵⁷ Once it deploys WAVs that are accessible to *some* individuals in wheelchairs, the TNC will be required to provide “personnel” to assist *any* individual in a wheelchair “[w]here necessary or upon request” with the entry system or WTORS.⁵⁸ An AV-equipped TNC looking to deploy WAVs therefore has two options: have human “personnel” on standby to provide assistance to individuals in wheelchairs, thereby defeating the labor-saving benefits of AVs; or develop an automated WTORS system capable of satisfactorily restraining a wide variety of wheelchair shapes and sizes so that human assistance is unnecessary. Faced with a choice between a costly, manpower-intensive option (relative to regular AVs) and a costly, technologically complex option, it would be unsurprising if most AV-equipped TNCs take the easy way out and decide not to provide any WAV service at all.

IV. CONCLUSION

The skepticism with which individuals with disabilities view autonomous vehicle technology appears to be well-placed. Under the current ADA, individuals with disabilities who currently rely on low-cost paratransit service and widespread deployment of wheelchair-accessible busses, vans, and trains to secure their mobility rights may lose their legal claims to mobility if AV-equipped TNCs supplant fixed-route public transit systems. Given the dire implications outlined in this paper, Congress and federal regulators should act fast to either preserve existing transit systems (with attendant air quality, environmental, and social justice benefits) or at the very least ensure that TNCs are brought within the scope of the ADA’s coverage.

⁵⁷ 49 C.F.R. § 37.165(d) (“The entity may not deny transportation . . . on the ground that the [wheelchair] cannot be secured or restrained satisfactorily by the vehicle’s securement system.”).

⁵⁸ *Id.* § 37.165(f).