# <u>Cooperative Control</u> Autonomous Vehicles, Safety, and Soft Law Regulatory Regimes

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In 2023, a commentator described the autonomous vehicle industry as caught in a "hype cycle" much like a rollercoaster ride.<sup>1</sup> He described the initial excitement and interest in this new technology in its early stages, a "peak of inflated expectations," and then the disappointing journey into a "trough of disillusionment" as the industry experienced setbacks, delays, and challenges.<sup>2</sup> He ended on a hopeful note, however, arguing that the industry is now back on an upward trajectory as it begins to manage expectations, make gradual improvements to the technology, and ultimately "pave the way for a safe, more efficient, and accessible future."<sup>3</sup> However, even though he is probably correct that, despite significant setbacks, the industry will likely ultimately prevail and usher in a revolution in personal transportation worldwide in so doing, his description of this interim period as being one much like a rollercoaster is poignant as development of this technology has indeed been marked by sharp ups and downs.

On the legal front, regulation of the autonomous vehicle industry is perhaps more akin to a funhouse maze. Nobody—not federal lawmakers, not state lawmakers, and not regulatory agencies—seems super clear on where they are going, and the journey has been marked by dead ends, turnarounds, and uncertainty. Regulators have almost thrown up their hands and given up on the endeavor entirely at times, pleading with the industry to help them out of the morass of uncertainty. Currently, it remains uncertain where regulation of this industry will ultimately wind up, and whether it will adequately protect both industry and consumers alike.

The stakes are high. Autonomous vehicles stand to drastically improve highway safety in the U.S. while making vehicle travel easier, less time-consuming, and more accessible to Americans. But, as I have cautioned before at length in prior work, over- or under-regulation of autonomous vehicles could have devastating consequences: either strangling the industry with unnecessary red tape before it has had a chance to design optimal products, or obliterating consumer confidence in autonomous vehicles by allowing unsafe vehicles onto the market.<sup>4</sup> Both possibilities could seriously undermine the autonomous vehicle market before it has had a fair chance to succeed.

In this paper, I seek to resolve this dilemma by proposing an entirely different approach to the autonomous vehicle market: one that would place regulators and lawmakers in the proverbial backseat and allow industry participants themselves to guide and protect the industry

<sup>&</sup>lt;sup>1</sup> Mohsen (Max) Khalkhali, Self-Driving Tech Hype Cycle, LinkedIn, Apr. 3, 2023,

https://www.linkedin.com/pulse/av-hype-cycle-mohsen-khalkhali/.

<sup>&</sup>lt;sup>2</sup> Id.

<sup>&</sup>lt;sup>3</sup> Id.

<sup>&</sup>lt;sup>4</sup> Tracy Hresko Pearl, *The Fourth Amendment in the Age of Autonomous Vehicles*, 30 GEO. MASON L. REV. 179 (2022); Tracy Hresko Pearl, *Compensation at the Crossroads: Autonomous Vehicles & Alternative Victim Compensation Schemes*, 60 WILLIAM & MARY L. REV. 1827 (2019); Tracy Hresko Pearl, *Hands on the Wheel: A Call for Greater Regulation of Semi-Autonomous Cars*, 93 IND. L. J. 713 (2018); Tracy Hresko Pearl, *Fast & Furious: The Misregulation of Driverless Cars*, NYU ANN. SURV. AM. L. 19 (2017).

and consumers by using their deep expertise to develop concrete industry standards. Using the amusement park industry as a case study, I argue that such an approach would likely yield a stronger autonomous vehicle safety record than traditional lawmaking. I also argue that the similarities between the amusement park and autonomous vehicle industries make the case study a strong one in support of a soft law approach.

In Part I, I identify the reasons behind the lagging state of the law with respect to autonomous vehicles and argue that lawmakers are unlikely to be able to address those gaps with any reasonable speed. In Part II, I provide a background on soft law regulation and its strength and weaknesses. In Part III, I explore how industry self-regulation has worked in the amusement park industry and explain why it offers a superior approach to consumer safety. In Part IV, I argue that the similarities between the amusement park and autonomous vehicle industries should give us confidence that industry self-regulation can achieve great success in the latter, as well, and offer a long-term solution that government regulation likely cannot.

## I. The Lagging State of the Law

Safety is arguably the major sticking point with respect to consumer acceptance of the autonomous vehicle industry. Polling consistently shows that consumers are highly skeptical about whether autonomous vehicles can drive better than their human-driver counterparts.<sup>5</sup> Consumers are right to be wary. Both the federal government and state governments have been slow to draft and adopt sensible regulations of either semi-autonomous or fully autonomous vehicles, and scholars, though they may disagree about how the law should adapt to autonomous vehicles, agree that "regulatory lag" is a significant concern in the industry.<sup>6</sup> There are five primary reasons for this lag. First, autonomous vehicles are changing so rapidly that lawmakers struggle to keep up with the pace of development. A 2015 New York Times article observed that "the technology has sprinted ahead so fast that lawmakers are regulators are scrambling to catch up with features like hands-free driving that are now months away, rather than years."<sup>7</sup> The pace of development has only increased since then with great numbers—and a greater variety—of semi-autonomous vehicles becoming available to consumers.

Second, the knowledge gap between regulators and industry is often vast. To some extent, this gap may be, if not deliberate, the function of calculated choices on the part of industry innovators who are highly protective of their intellectual property and thus reticent to share information with outside parties. This gap may also be the product of scientific and

http://www.thecarconnection.com/news/1088225\_would-you-consider-an-autonomous-car-if-it-camewith-a-deep-insurance-discount; Josh Sanburn, *Self-Driving Cars Available by 2019, Report Says*, TIME, Aug. 16, 2012, http://business.time.com/2012/08/16/self-driving-cars-available-by-2019-report-says/.

<sup>&</sup>lt;sup>5</sup> Tom Krishner & Justin Pritchard, *Autonomous Cars Aren't Perfect, But How Safe Must They Be?* ASSOCIATED PRESS, Mar. 17, 2016, <u>http://bigstory.ap.org/article/dea92cb3481247a692be3a5d99f85e23/autonomous-cars-arent-perfect-how-safe-must-they-be</u>.; Richard Read, Would You Consider an Autonomous Car If It Came With a Deep Insurance Discount?, CAR CONNECTION (Nov. 6, 2013),

<sup>&</sup>lt;sup>6</sup> Tracy Pearl, *Fast & Furious: The Misregulation of Driverless Cars*, 73 NYU ANN. SURV. AM. L. 19, 43 (2017); Marcus E. Johnson, *The Drive for Autonomous Vehicles: Idaho's Race to Catch Up*, 59 Advocate 28 (2016) ("Currently, autonomous technology innovations are severely outpacing legislation designed to allow for its use.")

<sup>&</sup>lt;sup>7</sup> Aaron M. Kessler, Hands-Free Cars Take Wheel, and Law Isn't Stopping Them, NY TIMES, May 2, 2015, A1.

technological literacy issues on the part of lawmakers and judges, who frequently hail from non-STEM backgrounds. Either way, it increases the chances that courts and lawmakers may respond to this new technology in ways that harm the autonomous vehicle industry.<sup>8</sup>

Third, the legal and regulatory issues raised by autonomous vehicles are not always as apparent as they might seem. Lawmakers attempting to keep pace with technological development are often forced to create regulatory frameworks based on highly speculative risk assessments and limited data. In such an environment, many lawmakers are inclined to wait rather than risk unduly stymicing emerging technologies by rushing to pass poorly conceived legislation. Indeed, many states have already discovered that hastily drafted autonomous vehicle laws and regulations can be outdated within months of passage.<sup>9</sup>

Fourth, lawmakers often struggle to grasp that differing levels of vehicle automation warrants different regulatory responses. As I have discussed at length in earlier work, the safety challenges posted by semi-autonomous vehicles are separate and distinct from those posed by levels with higher levels of automation.<sup>10</sup> Early National Highway Traffic Safety Administration (NHTSA) guidance did not address semi-autonomous vehicles at all, focusing attention on vehicles with higher levels of automation that were not yet available on the consumer market, while only noting in passing that semi-autonomous vehicles pose troubling regulatory issues.<sup>11</sup> This was a shocking omission given that these vehicles are already on the road, and have been involved in a multitude of accidents.<sup>12</sup>

Fifth and finally, the federal and state division of responsibility for regulating motor vehicles that has long existed has proved challenging for a mode of transportation that inherently challenges all of our existing regulatory regimes. As the New York Times observed in 2015, "Part of why federal and state officials have struggled to define autonomous rules is that the issue cuts across traditional legal turf. The federal government largely regulates vehicle design, such as "Does it meet crash safety standards?"... The states are the ones that have regulated drivers and their behavior .....".<sup>13</sup> In this new situation in which the vehicle itself is both vehicle *and* driver, however, it is unclear whether states or the federal government have regulatory oversight over how these vehicles operate—or which portion(s) of their operating systems over which they may exercise authority. While NHTSA has, in past years, asked states "to allow the [Department of Transportation] alone to regulate the performance of HAV technology and

<sup>&</sup>lt;sup>8</sup> Lindsey Barrett, *Herbie Fully Downloaded: Data-Driven Vehicles and the Automobile Exception*, 106 GEO. L.J. 181, 183 (2017).

<sup>&</sup>lt;sup>9</sup> *See, e.g.*, H.B. 1143, 2016 Leg., 42d Reg. Sess. (La. 2016); S.B. 600, 2015 Gen. Assemb., Reg. Sess. (N.C. 2016); H.B. 1065, 2015 Leg., 64th Leg. Reg. Sess. (N.D. 2015); MICH. COMP. LAWS ANN. § 257.1-.923 (West 2015); MICH. COMP. LAWS ANN. § 600.2949(b) (West 2015); TENN. CODE ANN. § 55-8-202 (2015); TENN. CODE ANN. § 55-9-105(c) (2015); S.B. 1561, 109th Gen. Assemb., 2nd Reg. Sess. (Tenn. 2016); H.B. 1564, 2016 Leg. 109th Reg. Sess. (Tenn. 2016); UTAH CODE ANN. § 41-26-101 to 102 (LexisNexis 2016).

<sup>&</sup>lt;sup>10</sup> See generally Tracy Hresko Pearl, Hands on the Wheel: A Call for Greater Regulation of Semi-Autonomous Cars, 93 INDIANA L. J. 713 (2018).

<sup>&</sup>lt;sup>11</sup> Nat'l Highway Traffic Safety Admin., Federal Automated Vehicles Policy 10 (2016).

<sup>&</sup>lt;sup>12</sup> Sebastian Blanco, *Report: Tesla Autopilot Involved in 736 Crashes Since 2019*, CAR & DRIVER, Jun. 13, 2023, https://www.caranddriver.com/news/a44185487/report-tesla-autopilot-crashes-since-2019/.

<sup>&</sup>lt;sup>13</sup> Aaron M. Kessler, *Hands-Free Cars Take Wheel, and Law Isn't Stopping Them*, NY TIMES, May 2, 2015 (Internal quotations omitted).

vehicles," or "consult with NHTSA" if they decide to proceed with regulation, these pleas have not stopped states from jumping into the regulatory ring and passing autonomous vehicles laws of all sorts. This confusion, in turn, can "make the enforcement of the laws difficult . . . and create anomalous results" rendering manufacturers and programmers incapable of programming their vehicles to comply with state and federal laws that may conflict with one another.<sup>14</sup>

Governance of autonomous vehicles thus presents a formidable challenge for modern states and governmental entities. Given the problems articulated above, the remainder of the paper will explore whether a "soft law" self-regulation approach offers a solution. In particular, it explores whether industry self-regulation can offer effective solutions to regulatory lag. After examining the success that the amusement park industry has had in creating an incredibly strong safety record as a result of industry standard-making and self-regulation, this paper concludes that such an approach could address the regulatory gaps in the autonomous vehicle industry and heighten industry safety.

## III. Soft Law as an Alternative

"Soft law" is a fairly amorphous and ambiguous concept that is arguably best defined by what it is *not* rather than what it is. While "hard" law "involves standardized governmental rule making procedures and outcomes" such as formal legislation and agency rule making,<sup>15</sup> soft law is "a program that creates substantive expectations, but which are not directly enforceable by government" and that may yet "exert significant influence in guiding the behavior of a specific set of actors."<sup>16</sup> Additionally, while soft law instruments may not start out as legally enforceable, their impact can be substantial, and may actually be adopted in whole or in part by lawmakers or regulators later, leading one scholar to conclude "all roads lead to (or through) soft law."<sup>17</sup>

The concept of soft law has historical roots dating back to Roman civilization.<sup>18</sup> However, the modern use and expansion of soft law gained momentum after World War II with the emergence of international organizations such as the United Nations.<sup>19</sup> Over time, the United States and the global community more generally have increasingly recognized the utility of soft law in addressing complex challenges that transcended traditional legal structures, particularly in the emerging technology space.<sup>20</sup> Notes one scholar:

In the wake of the emergence of the Internet, a torrent of new technologies has emerged, challenging a regulatory order built to accommodate a time of less punctuated and rapid

<sup>&</sup>lt;sup>14</sup> Jeffrey K. Gurney, Driving into the Unknown: Examining the Crossroads of Criminal Law and Autonomous Vehicles, 5 WAKE FOREST J.L. & POL'Y 393, 442 (2015)

<sup>&</sup>lt;sup>15</sup> Ryan Hagemann, Jennifer Huddleston Skees, and Adam Thierer, *Soft Law for Hard Problems: The Governance of Emerging Technologies in an Uncertain Future*, 17 COLO. TECH. L.J. 37, 42 (2018).

<sup>&</sup>lt;sup>16</sup> Gary Marchant, Lucille Tournas, and Carlos Ignacio Gutierrez, *Governing Emerging Technologies Through Soft Law: Lessons for Artificial Intelligence*, 61 JURISMETRICS J. 1, 5 (2020).

<sup>&</sup>lt;sup>17</sup> Ryan Hagemann, *New Rules for New Frontiers: Regulating Emerging Technologies in an Era of Soft Law*, 57 Washburn L.J. 235, 255 (2018).

<sup>&</sup>lt;sup>18</sup> *Id.* at 235.

<sup>&</sup>lt;sup>19</sup> Henry Deeb Gabriel, *The Use of Soft Law in the Creation of Legal Norms in International Commercial Law: How Successful Has it Been?*, 40 Mich. J. Int'l L. 413, 414 (2019).

<sup>&</sup>lt;sup>20</sup> Hagemann, *supra* note 17, at 236.

technological change. The increasingly rapid advancement of technological progress has quickly outpaced the ability of regulators to address potential concerns from these emerging innovations . . . Confronted by these new and unique challenges, the modern American regulatory state has been forced to adjust.<sup>21</sup>

Soft law thus now works both in parallel to or in lieu of traditional hard law approaches to regulation depending on the industry.

Various types of soft law exist, each tailored to specific contexts and goals. Some soft law instruments, like declarations and resolutions, articulate shared aspirations and objectives, and create an environment in which norms can be created in a given organization or industry. Other forms of soft law such as guidelines, accreditation standards, and best practices, encourages adherence to a particular set of values or commitments to a set of goals. Similarly, established and widely accepted frameworks can create overarching principles that guide subsequent negotiations and actions, fostering a common understanding among parties. Lastly, process-oriented soft law, such as procedural rules and codes of conduct, facilitates interactions by establishing guidelines for communication and dispute resolution.

While soft law approaches have been successful in many contexts, use of industry-based standards and guidance in the U.S. amusement park industry is a particularly strong example.

## IV. Fixed-Site Rides: A Case Study

The U.S. amusement park industry is vast, wealthy, and powerful. There are well over 600 amusement parks across the country, and the industry as a whole employees over 160,000 people.<sup>22</sup> The annual revenue of amusement parks in the United States is roughly \$25.7 billion per year, with revenue expected to rise to \$29.9 billion by 2028.<sup>23</sup> U.S. consumers are driving this growth, with strong record of amusement park attendance. A 2021 National Safety Council survey, for example, found that more that 300 million people visited amusement parks that year, amounting to over 1.3 *billion* rides taken annually.<sup>24</sup>

While perched precariously on the edge of a steep drop in the front seat of a roller coaster, a rider might reasonably wonder (although perhaps a bit too late!) how safe the activity is, and how much control the government has over the safety of rides at amusement parks, which only seem to get bigger and more thrilling each year. They might be horrified to learn (again, perhaps a bit too late!) that there is no federal oversight of amusement parks and minimal regulation at the state level.<sup>25</sup> It might also concern riders to learn that amusement parks are not generally

<sup>&</sup>lt;sup>21</sup> Id.

<sup>&</sup>lt;sup>22</sup> Thi Le, Amusement Parks in the US: Industry Report, IBISWorld, Jan. 2023,

https://my.ibisworld.com/us/en/industry/71311/about.

<sup>&</sup>lt;sup>23</sup> Id.

<sup>&</sup>lt;sup>24</sup> National Safety Council, North American Fixed-Site Amusement Ride Injury Survey 2021 15 (Aug. 2022).

<sup>&</sup>lt;sup>25</sup> Blake C. Norvell, *Business Regulatory Lessons Learned from Amusement Park Safety Concerns: An Integrated Approach to Business Regulation*, 27 TEMP. J. SCI. TECH. & ENVTL. L. 267, 268 (2008); Ronald J. Cereola & Reginald Foucar-Szocki, *Fixed Site Amusement Rides; Who Regulates Safety?*, 25 HOSPITALITY REVIEW 47, 47

required to report ride-induced injuries to the states or federal government, and that self-regulation is the dominant method of ensuring the safety of such parks.<sup>26</sup>

Worse yet, our hypothetical rider, perched on the edge of a steep drop, might contemplate: ensuring the safety of amusement parks is a highly complex task.<sup>27</sup> Parks typically contain a wide variety of rides, ranging from "bloodcurdling roller coasters with 200-foot drops, to children's rides that slowly move passengers through rooms filled with singing animatronics," to water rides, to more modern virtual reality-type simulation experiences.<sup>28</sup> These rides, moreover, are often *intended* to "shock and stress the body and mind" and give consumers a "thrill." That stress, in fact, is often the primary source of fun for rides, and designers and engineers are creating more elaborate thrill rides to increase that stress and attract visitors to parks:<sup>29</sup>

The quest for thrills has not been limited to roller coasters . . . Popular attractions like free-fall towers, tethered "sky" coasters, and spinning rides are some of the new, popular offerings at these parks. Creators such as S&S Power use pneumatic air to launch riders up and down towers. Others, such as Environmental Tectonics Company (ETC) created the Multiple Arm Centrifuge (MAC) which uses a large centrifuge to expose riders to high, sustained gravitational forces along with visual displays to simulate an environment. Attractions today run the gamut to create immersive and exciting experiences.<sup>30</sup>

The health and safety demands of each ride may thus be unique, requiring deep knowledge both of how the ride operates and how it is likely to impact the human bodies of people ranging from small children to individuals who may be pregnant, elderly, injured, or ill. Injuries, moreover, can arise from three sources of failure: design defects (*e.g.*, a ride subjects riders to too much force), construction problems (*e.g.*, a seatbelt on a ride fails due to improper installation), and/or maintenance problems (*e.g.*, the track of a rollercoaster breaks because it's become too rusty).<sup>31</sup> Given this complexity of factors at amusement parks, the potential for injury or even death—if not managed exceptionally well—is high.

But, our rider can take a deep breath and enjoy the remainder of their ride with glee. Despite the complexity of modern amusement park rides, the lack of federal oversight, and the inconsistency of state regulation, patrons at U.S. amusement parks are extremely unlikely to be

<sup>(2007).</sup> 

<sup>&</sup>lt;sup>26</sup> Id.

<sup>&</sup>lt;sup>27</sup> Brian Avery & Duncan R. Dickson, *Insight into Amusement Park Ride and Device Safety in the United States*, 2 WORLDWIDE HOSPITALITY & TOURISM THEMES 299, 306 (2010).

<sup>&</sup>lt;sup>28</sup> Jeffrey S. Goodfried, *Back on Track: How the California Supreme Court Got It Wrong, and What Legislature Can Do to Fix It,* 27 LOY. L.A. ENT. L. REV. 1, 3 (2007).

<sup>&</sup>lt;sup>29</sup> Tobias Butler, *Rider Beware: Relying on the Courts and A Nationalized Rating System to Address the Duty of Care Owed to Amusement Park Attraction Guests*, 9 VAND. J. ENT. & TECH. L. 369, 370 (2006). <sup>30</sup> *Id.* at 374.

<sup>&</sup>lt;sup>31</sup> Blake C. Norvell, Business Regulatory Lessons Learned from Amusement Park Safety Concerns: An Integrated Approach to Business Regulation, 27 TEMP. J. SCI. TECH. & ENVTL. L. 267, 268–69 (2008).

injured, at least by rides.<sup>32</sup> Indeed, over the last several decades, ride-related injury and fatality rates at amusement parks in the U.S. has been remarkably low.<sup>33</sup> And, perhaps surprisingly, it is the industry itself, and its commitment over the last 40 years to self-regulation, rather than "hard law" that American riders have to thank.<sup>34</sup> In this section, I explore the modern face of amusement park safety and regulation and explain why industry self-regulation has worked.

# A. An Overview of Amusement Park Laws & Regulations

U.S. law divides amusement rides between those that are "moveable," such as county fair and carnival rides that travel from site to site, and those that are "fixed-site," meaning rides located at amusement and theme parks.<sup>35</sup> Initially, it was unclear whether the Consumer Product Safety Commission had regulatory authority over amusement park rides, with some courts holding that amusement rides were consumer products,<sup>i</sup> and others holding that they were not.<sup>36</sup> But, passage of the Safety Amendments of 1981 clarified that federal law regulates only moveable rides, and that regulation of fixed-site rides is left to the states, insurance companies, and the amusement park industry itself.<sup>37</sup>

States vary in the level of regulation they have imposed on fixed-site amusement parks. Some states perform regular inspections of amusement parks, while others rely on private enforcement mechanisms, and a number of states do not regulate amusement parks within their borders at all.<sup>38</sup> Florida, for instance, has historically given significant leeway to amusement parks:

In Florida, if a park employs more than 1000 people, it is exempt from the state's regulatory program. Therefore, state officials may not inspect rides or investigate accidents at large theme parks like Disney World, Universal Studios Orlando, or Busch Gardens. Those parks which employ less than 1000 people, however, must be inspected by a state official semiannually.<sup>39</sup>

Ohio, on the other hand, has incredibly strict regulatory programs for amusement parks and requires rides to be inspected by state officials at least twice a year.<sup>40</sup> Pennsylvania requires

<sup>&</sup>lt;sup>32</sup> See infra notes 73-89.

<sup>&</sup>lt;sup>33</sup> See also Jennifer Kingsley, *High Tech Hunks of Steel: Fixed-Site Amusement Rides and Safety Under State Regulation*, 4 U. PITT. J. TECH. L. POL'Y 1 (2003) ("Injuries do occur, but keep in mind that this is an industry that sees over 320 million visitors per year and estimates that only 1 in 25 million people have a chance of being seriously injured on an amusement park ride.").

<sup>&</sup>lt;sup>34</sup> See infra notes 80-83.

<sup>&</sup>lt;sup>35</sup> Susan J. Reiss, *Amusement Park Safety: Who Should Regulate?*, 5 CARDOZO ARTS & ENT. L.J. 195, 195–96 (1986).

<sup>&</sup>lt;sup>36</sup> Robert K. Bell Enters. v. Consumer Prod. Safety Comm'n, 645 F.2d (10th Cir. 1981); Walt Disney Prods. v. United States Consumer Prod. Safety Comm'n, No. 79-0170 LEW (PX) (C.D. Cal. April 18, 1979), *rev'd on other grounds*, No. 79-3435 (9th Cir. April 22, 1981).

<sup>&</sup>lt;sup>37</sup> Omnibus Budget Reconciliation Act of 1981, Pub. L. No. 97-35, 95 Stat. 724 (1981).

<sup>&</sup>lt;sup>38</sup> Ronald J. Cereola & Reginald Foucar-Szocki, *Fixed Site Amusement Rides; Who Regulates Safety?*, 25 HOSPITALITY REVIEW 47, 51 (2007).

<sup>&</sup>lt;sup>39</sup> Kingsley, *supra* note 33, at 1.

<sup>&</sup>lt;sup>40</sup> Id.

fixed-site ides to be inspected by a qualified inspect monthly.<sup>41</sup> State oversight of fixed-site rides, therefore, ranges from "none" to "significant."

Lawmakers and consumer organizations have tried over the years to increase federal control of amusement parks, arguing that the "diverse and fragmented nature of state regulations, and sometimes the lack thereof," warrants greater national oversight.<sup>42</sup> In 2005, for instance, Congressman Edward Markey proposed the National Amusement Park Safety Act, which would have given the Consumer Product Safety Commission jurisdiction over amusement parks.<sup>43</sup> However, the bill died at the end of the session largely as a result of Republican opposition and lobbying efforts on the part of the amusement park industry and has not been introduced again.<sup>44</sup> Other advocates have proposed creation of a Uniform Model Act governing the regulation of fixed site rides with hopes of creating greater state-to-state consistency in amusement park regulations, but little progress has been made on those efforts, as well.<sup>45</sup>

Injured riders also have the protection of common law, particularly tort law, and can file suit against parks if they are injured.<sup>46</sup> One scholar observes:

A majority of courts have held that standard negligence law is comprehensive and forceful enough to handle issues related to amusement park rides. In most states, courts have held that the standard of care required of amusement ride operators is the care that reasonable and prudent persons would exercise under the circumstances. This standard requires an amusement park to exercise a degree of care in operating a thrill ride commensurate with the dangers of risks created by that particular ride.<sup>47</sup>

Some state courts have even deemed fixed-site rides common carriers and thus subjected them to a higher standard of care under the common law.<sup>48</sup> The problem, of course, is that common law litigation is necessarily retrospective and not a good vessel by which to ensure adequate industry safety standards.<sup>49</sup>

Largely as a result of these gaps in regulation, the industry itself has stepped in to establish safety standards for itself in the ever-evolving and innovating world of amusement park rides.

B. Self-Regulation in the Amusement Park Industry

<sup>&</sup>lt;sup>41</sup> Id.

<sup>&</sup>lt;sup>42</sup> Ronald J. Cereola & Reginald Foucar-Szocki, *Fixed Site Amusement Rides; Who Regulates Safety?*, 25 HOSPITALITY REVIEW 47, 51 (2007).

<sup>&</sup>lt;sup>43</sup> NATIONAL AMUSEMENT PARK SAFETY ACT OF 2005, H.R. 2500, 109th Cong. (2005).

<sup>&</sup>lt;sup>44</sup> Kingsley, *supra* note 33, at 1.

<sup>&</sup>lt;sup>45</sup> Cereola & Foucar-Szocki, *supra* note 42, at 52.

<sup>46</sup> Id. at 48.

<sup>&</sup>lt;sup>47</sup> Jeffrey S. Goodfried, *Back on Track: How the California Supreme Court Got It Wrong, and What Legislature Can Do to Fix It*, 27 LOY. L.A. ENT. L. REV. 1, 16–17 (2007).

<sup>&</sup>lt;sup>48</sup> See Gomez v. The Walt Disney Company, 35 Cal. 4th 1125 (2005); Lyons v. Wagers, 55 Tenn. App. 667; 404 S,W. 2nd 270 (1966); Lewis v. Bucksin Joe's Inc., 156 Colo.46; 396 P.2d 933 (1964); Sand Springs Park v. Schrader, 82 Okla. 244, 198 P. 983 (1921).

<sup>&</sup>lt;sup>49</sup> See John C. P. Goldberg, *Tort Law for Federalists (and the Rest of Us): Private Law in Disguise*, 28 HARV. J.L. & PUB. POL'Y 3, 4 (2004).

Even though amusement and theme parks may be competitors, the industry as a whole has strong incentives to ensure that all parks throughout the U.S. maintain high safety standards and keep ride-related injury and fatality rates as low as possible.<sup>50</sup> As one scholar observes, "Since amusement park profits depend on attracting people, owners and operators want visitors to have confidence that parks maintain high levels of safety. Further incentive is provided by the need to obtain insurance."<sup>51</sup> A high-profile ride accident at one theme park may cause consumers to question the safety of rides at *all* theme parks, driving down revenue for all industry players.<sup>52</sup> Indeed, arguably one of the most significant underpinnings of the "magic" of rides is that they create the *illusion* of danger while riders remain confident in the back of their minds that the endeavor is safe.<sup>53</sup> It is that tension that makes rides fun. But even a small number of news stories about injuries or deaths on rides can very quickly turn that tension on its head and lead consumers to worry that the real illusion is not one of danger, but one of safety. Thus, amusement parks have very strong economic reasons to both attain—and to ensure that their competitors also attain—high safety standards.<sup>54</sup>

As a results of these incentives, "organizations with an emphasis on amusement ride and device safety have dotted the amusement industry landscape and have played an integral part concerning the progression of safety in the industry," by, among other things, creating standards, training, reporting systems, and best practices for amusement park rides, a body of soft law regulation that now exerts enormous influence over the industry.<sup>55</sup> This strong industry commitment to self-regulation, moreover, dates back many decades. Starting in the 1970s with the formation of the American Society of Amusement Park Safety and Security Personnel (ASAPSS), industry members began collaborating and sharing information about ride safety.<sup>56</sup> During the same time period, the American Recreational Equipment Association, which later became known as Amusement Industry Manufacturers and Suppliers (AIMS) also emerged.<sup>57</sup> AIMS hosts annual meetings and classes designed to educate industry professions about proper maintenance and inspection of amusement park rides, as well as provides updates on pressing issues in the industry.<sup>58</sup>

### 1. Most Significant Players & Soft Law Sources

Arguably, the largest and most influential organization in the industry is the International Association of Amusement Parks and Attractions (IAAPA), an organization that represents more than 6,000 members in 100 countries.<sup>59</sup> It holds the largest amusement park industry trade shows

<sup>&</sup>lt;sup>50</sup> Butler, *supra* note 29, at 387–88; Kingsley, *supra* note 23, at 1.

<sup>&</sup>lt;sup>51</sup> Susan J. Reiss, Amusement Park Safety: Who Should Regulate?, 5 CARDOZO ARTS & ENT. L.J. 195, 207 (1986).

<sup>&</sup>lt;sup>52</sup> Butler, *supra* note 29, at 387–88 (2006).

<sup>&</sup>lt;sup>53</sup> Id.

<sup>&</sup>lt;sup>54</sup> Id.

<sup>&</sup>lt;sup>55</sup> Brian Avery & Duncan R. Dickson, *Insight into Amusement Park Ride and Device Safety in the United States*, 2 WORLDWIDE HOSPITALITY & TOURISM THEMES 299, 306 (2010).

<sup>&</sup>lt;sup>56</sup> Id.

<sup>&</sup>lt;sup>57</sup> Id.

<sup>&</sup>lt;sup>58</sup> *Id.* At 306-07.

<sup>&</sup>lt;sup>59</sup> https://www.iaapa.org/about-iaapa/iaapa-

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and works in conjunction with industry organizations in helping members uphold high safety standards by hosting an incident reporting system, regularly holding safety seminars, publishing research, and disseminating information about the latest ride safety standards.<sup>60</sup> Most importantly, the IAAPA was a critical player in development the ASTM standards for the amusement park industry.<sup>61</sup>

ASTM International, formerly known as the American Society for Testing and Materials is "is a globally recognized leader in the development and delivery of voluntary consensus standards."<sup>62</sup> Not just limited to the amusement park industry, the ASTM has over 140 technical standards drafting committees that serve a multitude of industries.<sup>63</sup> In addition to developing industry standards, ASTM also offers certification, technical training programs, and proficiency testing to its members.<sup>64</sup> While ASTM membership and compliance is voluntary, ASTM Standards have proven to be extremely influential in many industries, and trade associations and states have consulted and incorporated many of these standards into laws and regulations.<sup>65</sup>

In the late 1970s, as consumers and the media subjected amusement parks to greater public and legal scrutiny, amusement park owners and operators realized that they needed to increase safety within their industry.<sup>66</sup> Industry leaders, working through the IAAPA, approached the ASTM about developing industry safety standards.<sup>67</sup> What resulted was ASTM F 24 on amusement rides and devices, "the only standards-writing body with exacting safety standards on amusement rides and devices."<sup>68</sup> The standards that resulted from this body "define standard practice in ride design, manufacturing, operation, maintenance, inspection, and accident/incident logging."<sup>69</sup> Compliance with the standards promulgated by F 24 are now common practice within the industry.<sup>70</sup>

The sum total of all these efforts is an industry marked by intensive self-regulation in which owners and operators of amusement parks, "despite being business competitors . . . collect and share testing and safety information with one another" and also voluntarily comply with standards created by a body of experts.<sup>71</sup> The pool of knowledge and experience that results from these information-sharing and compliance efforts, in turn, "flushes out rare and undiscovered risks and enables ride operators to identify and implement the most effective safety

<sup>0</sup>countries.

<sup>&</sup>lt;sup>60</sup> Ronald J. Cereola & Reginald Foucar-Szocki, *Fixed Site Amusement Rides; Who Regulates Safety?*, 25 HOSPITALITY REVIEW 47, 54 (2007).

<sup>&</sup>lt;sup>61</sup> Jennifer Kingsley, *supra* note 23, at 1 (2003).

 <sup>&</sup>lt;sup>62</sup> ASTM International, "Detailed Overview," https://www.astm.org/about/overview/detailed-overview.html.
<sup>63</sup> Id.

<sup>&</sup>lt;sup>64</sup> Id.

<sup>&</sup>lt;sup>65</sup> Kingsley, *supra* note 33, at 1.

<sup>&</sup>lt;sup>66</sup> Brian Avery & Duncan R. Dickson, *Insight into Amusement Park Ride and Device Safety in the United States*, 2 WORLDWIDE HOSPITALITY & TOURISM THEMES 299, 304 (2010).

<sup>&</sup>lt;sup>67</sup> Id.

<sup>&</sup>lt;sup>68</sup> Id.

<sup>&</sup>lt;sup>69</sup> Brian Avery & Duncan R. Dickson, *Insight into Amusement Park Ride and Device Safety in the United States*, 2 WORLDWIDE HOSPITALITY & TOURISM THEMES 299, 311 (2010).

<sup>&</sup>lt;sup>70</sup> Id.

<sup>&</sup>lt;sup>71</sup> Paul Mose, *Wet'n Wild: When Water Rides Should Be Subject to the Highest Duty of Care*, 63 U. KAN. L. REV. 787, 813 (2015).

procedures."72

#### 2. Successes

Better yet, self-regulation in the amusement park industry has both (a) worked to create a highly commendable safety record in the industry, and (b) offered a superior option to federal regulation. With respect to the first, while there are occasionally high profile stories of tragic amusement park ride accidents, these stories are largely few and far between.<sup>73</sup> Fixed-site amusement parks have had a remarkably strong safety record in the U.S. in recent decades.<sup>74</sup> Almost 20 years ago, in 2004 for instance, there were four deaths recorded out of a total 169,100,000 visitors of U.S. amusement parks that year, a ratio of one death for roughly every 42 *million* visitors.<sup>75</sup> Ride safety has improved even further since then, with Americans still "1,000 times more likely to die from being struck by lightning or falling in a bathtub than from a roller coast accident."<sup>76</sup>

With respect to injuries rather than fatalities, in 2023 the IAAPA estimated that "the odds of being seriously injured on a fixed-site ride at a U.S. amusement park are 1 in 15.5 million rides taken."<sup>77</sup> Of those, only five percent of injured riders require hospitalization, meaning that "modern rides are not only significantly safer than early thrill rides, but the modern risk of *serious* injury is also microscopic."<sup>78</sup> This is remarkably strong safety record given the complexity, variety, and intensity of modern rides and the size of the amusement park industry as a whole. Thus, despite what occasional media reports might suggest, riding amusement park rides in the U.S. is overwhelmingly safe, and is safe despite the near total absence of federal regulation and the inconsistency with which states have acted.<sup>79</sup> Self-regulation via industry standards has worked and done so very well.

Additionally, to be clear, it is those industry standards which are responsible for the safety of

<sup>&</sup>lt;sup>72</sup> Id.

<sup>&</sup>lt;sup>73</sup> See e.g., Ronald J. Cereola & Reginald Foucar-Szocki, *Fixed Site Amusement Rides; Who Regulates Safety?*, 25 HOSPITALITY REVIEW 47, 47 (2007) (discussing the 2006 death of a 12-year-old with a likely congenital heart abnormality on a roller coaster at Disney's MGM Studios and the 2006 death of a 45-year-old woman who fell out of a roller coaster at the Magic Springs amusement park in Arkansas); Kristen Martin, *Drowning at Amusement Park Yields \$4 Million Structured Settlement—So Far*, 14 TRIAL EXCELLENCE 8 (2002) (discussing the death of a 28-year-old who drowned after a water ride capsized in four feet of water at Six Flags Over Texas). <sup>74</sup> Brian Avery & Duncan R. Dickson, *Insight into Amusement Park Ride and Device Safety in the United States*, 2 WORLDWIDE HOSPITALITY & TOURISM THEMES 299, 310 (2010).

<sup>&</sup>lt;sup>75</sup> Jeffrey S. Goodfried, *Back on Track: How the California Supreme Court Got It Wrong, and What Legislature Can Do to Fix It,* 27 LOY. L.A. ENT. L. REV. 1, 5 (2007).

<sup>&</sup>lt;sup>76</sup> Mose, *supra* note 71, at 814-15.

<sup>&</sup>lt;sup>77</sup> Eve Chen, *Are Theme Park Rides Safe? What You Should Know if You're Worried About Accidents*, USA TODAY (Mar. 15, 2023), https://www.usatoday.com/story/travel/experience/america/theme-parks/2023/03/15/how-safe-theme-park-rides/11364244002/.

<sup>&</sup>lt;sup>78</sup> Mose, *supra* note 71, at 815; *see also* Denise Majette, *Amusement Park Ride Injury Cases*, 130 AM. JUR. TRIALS 1 (Originally published in 2013)(2019) ("The chance of being seriously injured on a ride at a fixed-site park in the United States was found to be one in nine million. Of the 1,207 ride-related injuries, 59, or less than 5% were serious, meaning an injury resulting in immediate admission and hospitalization in excess of 24 hours for purposes other that medical observation.")(internal quotations and citations omitted).

<sup>&</sup>lt;sup>79</sup> *See* Mose, *supra* note 71, at 814-15.

modern rides. As one scholar observes:

Restraints, emergency shutdown systems, block sensors, anti-rollbacks, machine guards, warnings, fencing, and more have become common place on most amusement rides and devices. Redundant safety systems also play a role in critical areas on amusement rides and devices. Many of these enhancements have come from the identification and sharing of recognized deficiencies since the early 1970s. The efforts of organizations and associations to collect, interpret and distribute the information has led to many of the advancements noted.<sup>80</sup>

ASTM F 24 work on amusement parks is so detailed, in fact, that it has multiple subcommittees working on extremely specific issues like bumper boat safety,<sup>81</sup> aerial adventure courses,<sup>82</sup> and even hayrides.<sup>83</sup> What has resulted is an extremely comprehensive set of standards and guidance on which industry players can rely.

While it is likely impossible to get the number of ride-related injuries and deaths to zero, particularly since many millions of patrons ride rides every year, that small number of remaining incidents, though tragic, should not be a signal that industry self-regulation isn't enough.<sup>84</sup> In 2002, for example, the only documented ride-related fatality occurred in a rider "whose pre-existing brain aneurysm burst during a ride on the Goliath roller coaster at Six Flags Magic Mountain in California," an incident that was likely highly unforeseeable for ride engineers.<sup>85</sup> Similarly, the primary cause of other incidents may be rider misbehavior. In fact, the industry claims that 65% to 85% of all ride accidents are caused by "riders who intentionally or inadvertently break the rules."<sup>86</sup> In 1999, for example, one rider was injured and one rider was killed after forcefully removing their seatbelts on a rollercoaster.<sup>87</sup> While, certainly, ride designers have an obligation to take foreseeable misbehavior into account when designing rides, incidents resulting from extreme behaviors should not be a strike against the industry and its ability to regulate itself.

With respect to self-regulation remaining a superior option to federal regulation in the amusement park industry, one scholar writes that "it is clear that the CPSC has genuine practical problems which prohibit its effective regulation of amusement rides [and that]ß it is uncertain whether any other federal agency has sufficient resources or expertise to adequately regulate the

involved/technical-committees/committee-f24/subcommittee-f24/jurisdiction-f2460.

<sup>&</sup>lt;sup>80</sup> Brian Avery & Duncan R. Dickson, *Insight into Amusement Park Ride and Device Safety in the United States*, 2 WORLDWIDE HOSPITALITY & TOURISM THEMES 299, 305 (2010) (internal citation omitted).

<sup>&</sup>lt;sup>81</sup> ASTM.org, Subcommittee F24.60 on Special Rides/Attractions, https://www.astm.org/get-

<sup>&</sup>lt;sup>82</sup> ASTM.org, Subcommittee F24.61 on Adventure Attractions, https://www.astm.org/get-involved/technical-committees/committee-f24/subcommittee-f24/jurisdiction-f2461.

<sup>&</sup>lt;sup>83</sup> Id.

<sup>&</sup>lt;sup>84</sup> Kingsley, *supra* note 33, at 1.

<sup>&</sup>lt;sup>85</sup> Id.

<sup>&</sup>lt;sup>86</sup> Gene Sloan & Anthony DeBarros, *Park Safety Rules Lax*, USA TODAY, Apr. 7, 2000.

<sup>&</sup>lt;sup>87</sup> Steven Ginsberg, Teen Leaps Off Shockwave Rollercoaster, WASH. POST (Sept. 9, 1999),

https://www.washingtonpost.com/archive/local/1999/09/09/teen-leaps-off-shockwave-roller-coaster/dab589f3-425a-4058-8fb5-d96e355ca0e0/.

amusement ride industry."<sup>88</sup> In fact, that scholar observes, if the federal governments opts to begin regulating amusement parks at some point in the future, safety conditions at those parks could actually *deteriorate* if the federal agencies involved have either budgetary or staffing constraints (as they often do).<sup>89</sup> Federal regulations may be less comprehensive and less demanding then existing industry standards and allow amusement parks to regress to lowest common denominator practices, particularly since compliance with federal regulation is likely to be protective against liability.

Additionally, even states appear to recognize the merits of the existing self-regulation approach. Currently, in lieu of designing their own laws and regulations, 35 states require amusement parks to comply with the ASTM safety standards for fixed-site rides.<sup>90</sup> Such an approach is an eminently sensible one, as it seems highly unlikely that state governments have the money, time, or expertise to develop comprehensive safety standards for the vast array of rides at amusement parks. The best such standards can arguably *only* come from the industry itself, which is better positioned than any other entity to understand and respond to the complexities of ride safety.

## V. Soft Law & Autonomous Vehicles

The amusement park case study should be a particularly compelling one for proponents of soft law in the autonomous vehicle industry given the similarities between the two industries. In fact, the success of soft law in the amusement park industry should inspire confidence in both lawmakers and consumers that it can provide a powerful framework for the promotion of safety in a multitude of contexts in which safety of highly complex machinery is at issue. Three similarities between these two industries, in particular, are notable in the context of advocating for use of soft law.

First, much like amusement parks, members of the autonomous vehicle industry have a strong incentive to maintain exceptionally high safety standards throughout the industry, particularly given its relative newness and the high levels of skepticism amongst members of the general public about AV safety. Indeed, when polling shows that 75% of Americans would be "afraid" to ride in an autonomous vehicle, it is easy to understand how even a small number of high profile AV accidents could sink this relatively nascent industry before it has a real chance to excel in the consumer market.<sup>91</sup> Much like a catastrophic accident at one amusement park can hurt the revenue at others, a high profile accident involving, say, a Waymo autonomous vehicle could be devastating to Tesla and General Motor's efforts to promote their autonomous vehicles, as well.<sup>92</sup>

 <sup>&</sup>lt;sup>88</sup> Susan J. Reiss, Amusement Park Safety: Who Should Regulate?, 5 CARDOZO ARTS & ENT. L.J. 195, 221 (1986).
<sup>89</sup> Id.

<sup>&</sup>lt;sup>90</sup> Saferparks Comparison of State Ride Safety Regulations (2019), https://ridesdatabase.org/wp-content/uploads/2019/12/State-Comparison.pdf.

<sup>&</sup>lt;sup>91</sup> Tom Krishner & Justin Pritchard, *Autonomous Cars Aren't Perfect, But How Safe Must They Be?*, AssocIATED PRESS, Mar. 17, 2016, <u>http://bigstory.ap.org/article/dea92cb3481247a692be3a5d99f85e23/autonomous-cars-arent-perfect-how-safe-must-they-be</u>.

<sup>&</sup>lt;sup>92</sup> See Paul Ingrassia, et. al, How Google is Shaping the Rules of the Driverless Road, REUTERS, Apr. 26, 2016, http://www.reuters.com/investigates/special-report/autos-driverless/.

Second, much like the federal government isn't well-situated to understand the health and safety complexities of the vast number of highly technical amusement park rides throughout the U.S., the federal government is not well-situated to understand the safety complexities of autonomous vehicles, particularly given the rate of development and the number of companies working on this technology simultaneously. Autonomous vehicles—like a growing number of modern rides—use a highly complex variety of cameras, radar systems, laser systems, GPS, and software to operate and navigate, all of which are developing rapidly over time.<sup>93</sup> Additionally, driving itself is a highly complex task even when performed by a human driver, so regulating the application of multiple forms of technology to such a complicated activity is an extremely difficult project to undertake, and involves a vast number of nuanced questions and considerations. The actors best situated to undertake those inquiries are thus the designers and manufacturers of autonomous vehicles themselves who have to grapple with those issues at length during design and are thus most likely to be in possession of the data needed to draw well-supported conclusions. An agency or other governmental institution stepping in post-development is simply not experienced or well-informed enough to do the same.

Third, much like the amusement park industry has had to grapple with a large diversity of rides and attractions, all of which pose distinct safety challenges, the autonomous vehicle industry has been marked since its inception by a variety of approaches and rates of development. As I have noted in prior papers, automakers are taking a variety stances on the development and release of this technology, with some companies only planning to release autonomous vehicles onto the consumer market when they are fully autonomous, and others taking a more gradualist approach in which they release vehicles that slowly increase their level of autonomy over time.<sup>94</sup> Further complicating the situation, companies are developing this technology at different rates. This variety of approaches and rates makes it extremely difficult for lawmakers and regulators to develop any sort of a consistent approach or set of guidelines. But much like the amusement park industry has overcome this challenge through information-sharing and collaboration, the autonomous vehicle industry could do the same, particularly since it has the benefit of insider information, something the government lacks.

While autonomous vehicles are undoubtedly significantly more complex products than roller coasters or water rides, the amusement park's ability to establish sound and effective safety standards for so many different types of rides should give consumers faith that the autonomous vehicle industry can do it for one. Given the shared interest that industry actors' have in ensuring the safety of *every* company's autonomous vehicle product, moreover, consumer should also have confidence that they can do it well.

### **VI.** Policy Recommendations

In light of the discussion above, I offer the following three recommendations with respect to regulation of both semi-autonomous and fully autonomous vehicles, noting that each of them is dependent on the others and that none of these recommendations will work without significant

<sup>&</sup>lt;sup>93</sup> Kyle L. Barringer, *Code Bound and Down . . . A Long Way to Go and A Short Time to Get There: Autonomous Vehicle Legislation in Illinois*, 38 S. ILL. U. L.J. 121, 122-23 (2013)

<sup>&</sup>lt;sup>94</sup> Pearl, *supra* note 4, at 719.

buy-in from industry, the federal government, and state governments.

First, the AV industry itself should take clear and highly public steps to organize and create standards and best practices for itself. Much like amusement parks began banding together into various industry organizations in 1970s, eventually coalescing into several large groups through which formal industry safety standards could be developed, AV companies need to begin this process in earnest. Doing so would have a number of significant benefits: higher levels of safety and a corresponding increase in consumer confidence in the industry and its products, a more flexible (and likely favorable) approach to ensuring safety standards than waiting for the federal government to do the same, and a greater likelihood that both states and the federal government will keep their collective feet off of the back of the industry. For this process to work, however, these industry organizations need to be more than small working groups, think tanks, or biannual meeting groups. A strong majority of industry players need to commit to this process and to the development of concrete standards rather than aspirational guidelines or think pieces.

Second, assuming the first recommendation is adopted, the government—and NHTSA, in particular—need to give the industry the space and time for this process to work. Assuming a good faith commitment to the prompt development of industry standards from a strong majority of industry players, the government should resist pressure to pass laws and regulations that have not been developed via careful industry consideration and collaboration. NHTSA has all but admitted that it is not well-situated to craft meaningful AV regulations and should thus remain reticent to promulgate any further regulations.

Third, to the extent that either the federal government or the state government feel compelled to pass AV safety laws, they should follow the lead of the states that have turned amusement park industry standards into hard law, trusting that the industry itself can issue better and more comprehensive standard that the government could on its own. The same will almost certainly be true of any industry standards created by the AV industry.

More broadly, more work should be done to identify categories of industries that are uniquely well-situated for soft law preeminence. In particular, industries in which injuries or fatalities at the hands of one company are highly likely to decrease consumer confidence in the industry as a whole and drive down revenue for all players seem exceptionally well-suited to adopt the soft law model offered by U.S. amusement parks.