

“Somebody Grab the Wheel!”: State Autonomous Vehicle Legislation and the Road to a National Regime

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“SOMEBODY GRAB THE WHEEL!”: STATE AUTONOMOUS VEHICLE LEGISLATION AND THE ROAD TO A NATIONAL REGIME

This Comment critically analyzes bills, statutes, and regulations that govern the use of autonomous vehicles. Autonomous vehicles, also known as self-driving cars, represent the future of personal transportation. States have begun to regulate the testing and implantation of this technology onto public highways, and the federal government has suggested baseline regulations for states to consider when proposing future legislation. First, this Comment provides a brief overview of autonomous vehicle technology, as well as the pros and cons of a self-driving vehicle. Second, this Comment analyzes both enacted and proposed legislation at the state level. This Comment then recommends various provisions that states should implement in future legislation and cautions against the inclusion of various provisions that will impede the implementation of autonomous vehicle technology. This Comment also offers a brief look at the possible effect that international agreements may have on the commercial availability of autonomous vehicles. Finally, this Comment argues that the National Highway Transportation Safety Administration should exercise its regulatory authority to provide a national regulatory regime regarding autonomous vehicles.

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I. INTRODUCTION

The implementation of any new and innovative technology opens the door to many questions regarding liability concerns of both the innovator and the user.¹ Technology has expanded at an incredible rate in both the twentieth and now twenty-first centuries.² Consider, for example, that after thousands of years of technological development, the first manned flight in a heavier than air vehicle occurred in only 1903,³ but it took only another fifty-eight years for humanity to put a man in space and safely return him to earth.⁴ Now, just over fifty years after the first manned space flight, people rely on orbiting technology for everything from getting directions, to making a phone call, to reading the newest e-book.⁵ Consequently, it is difficult for the law to maintain the break-neck speed at which technology is racing ahead.

One of the biggest leaps forward likely to impact the everyday lives of people is the autonomous car.⁶ The United States Department of

1. Kyle Graham, *Of Frightened Horses and Autonomous Vehicles: Tort Law and Its Assimilation of Innovations*, 52 SANTA CLARA L. REV. 1241, 1242 (2012) (noting that laws concerning new technology “do not spring immediately into existence” in their final, workable form).

2. Ulrick E. Speerstra et al., *Management of Technology: Setting the Scene, in MANAGING TECHNOLOGY AND INNOVATION: AN INTRODUCTION* 3, 3 (Robert M. Verburg et al. eds., 2006). “At the beginning of the twenty-first century the pace of scientific and technical knowledge production has increased in such an unprecedented way that some even speak of a ‘technology explosion.’” *Id.* (quoting W. Bradley Zehner II, *The Management of Technology (MOT) Degree: A Bridge between Technology and Strategic Management*, 12 TECH. ANALYSIS & STRATEGIC MGMT. 283, 283 (2000)). The authors also note that the world today is more technologically minded than in the past, with over 95% of all scientists and engineers who have ever lived working today. *Id.*

3. Orville Wright’s Diary D, December 15–17 (Dec. 17, 1903), in 1 THE PAPERS OF WILBUR AND ORVILLE WRIGHT: INCLUDING THE CHANUTE-WRIGHT LETTERS AND OTHER PAPERS OF OCTAVE CHANUTE 394, 395 (Marvin W. McFarland ed. 1953).

4. MARTIN J. COLLINS & SMITHSONIAN DIV. OF SPACE HISTORY, SPACE RACE: THE U.S.-U.S.S.R. COMPETITION TO REACH THE MOON 46 (1999) (“On 12 April 1961, the Soviets stunned the world again by sending a human into space. Cosmonaut Yuri Gagarin circled the Earth once in his Vostok spacecraft and returned safely.”).

5. See THOM STONE, INTRODUCTION TO SATELLITE COMMUNICATIONS TECHNOLOGY FOR NREN (2004), available at <http://aps.nas.nasa.gov/assets/pdf/techreports/2004/nas-04-009.pdf>; see also U.S. OFFICE OF TECH. ASSESSMENT, CIVILIAN SPACE POLICY AND APPLICATIONS 105–09 (1982).

6. NEV. REV. STAT. ANN. § 482A.030 (LexisNexis 2013) (defining an “autonomous vehicle” as “a motor vehicle that is equipped with autonomous technology”); *id.* § 482A.025 (defining “autonomous technology” as “technology which is installed on a motor vehicle and which has the capability to drive the motor vehicle without the active control or monitoring of a human operator”); Sebastian Thrun, *What We’re Driving At*, GOOGLE: OFFICIAL BLOG

Transportation estimates that the average person spends about fifty-one minutes commuting each working day.⁷ With the implementation of autonomous, self-driving vehicles, the average person can significantly increase his productivity.⁸ More importantly, autonomous vehicles will save lives.⁹ According to the United States Census Bureau, there were 33,808 traffic fatalities in the year 2009.¹⁰ This figure was down significantly from the 2005 figure of 43,510 traffic fatalities;¹¹ however, the use of autonomous vehicle technology has the ability to significantly reduce these figures much in the same way that seat belts and airbags have.¹² The overwhelming majority of auto accidents occur as a result of human error.¹³ Thus, any change that can reduce the necessity of the

(Oct. 9, 2010), <http://googleblog.blogspot.com/2010/10/what-were-driving-at.html> [hereinafter *What We're Driving At*] (stating that this technology can increase safety while freeing up commuter time and decreasing the environmental impact that current personal vehicle usage produces); see also Peter Valdes-Dapena, *Nissan Plans to Sell Self-Driving Cars by 2020*, CNN MONEY (Aug. 27, 2013, 2:29 PM), http://money.cnn.com/2013/08/27/autos/nissan-autonomous-car/index.html?source=cnn_bin (noting that autonomous vehicles should be commercially available across a range of models within ten to twelve years).

7. See ALAN E. PISARSKI, TRANSP. RESEARCH BD., COMMUTING IN AMERICA: THE THIRD NATIONAL REPORT ON COMMUTING PATTERNS AND TRENDS 102 tbl.3-40 (2006), available at <http://onlinepubs.trb.org/onlinepubs/nchrp/ciaiii.pdf>; see also Sebastian Thrun, Dir., Stanford Artificial Intelligence Lab, Address at TED2011: Google's Driverless Car (Mar. 2011) available at http://www.ted.com/talks/sebastian_thrun_google_s_driverless_car.html [hereinafter Thrun Address at TED2011] (noting that, in the United States alone, commuting results in about four billion lost hours).

8. See H.R. 1461, 27th Leg., Reg. Sess. § 1 (Haw. 2013) (suggesting that the use of autonomous vehicles will save people time).

9. See Haw. H.R. 1461 § 1 (noting that allowing the use of autonomous vehicles will “save time, lives, and money” and “may significantly increase vehicular traffic flow and improve transportation safety”); see also *What We're Driving At*, *supra* note 6. “According to the World Health Organization, more than 1.2 million lives are lost every year in road traffic accidents. [Google] believe[s] [its autonomous vehicle] technology has the potential to cut that number, perhaps by as much as half.” *Id.*

10. U.S. CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES: 2012, at 693 tbl.1104 (2012), available at <http://www.census.gov/compendia/statab/2012/tables/12s1103.pdf> (defining “traffic fatality” as a death that occurs within thirty days of the accident).

11. *Id.*

12. See NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., U.S. DEP'T OF TRANSP., PUB. NO. 810 621, OCCUPANT PROTECTION TRAFFIC SAFETY FACTS: 2005 DATA 3, 5 (2005), available at <http://www-nrd.nhtsa.dot.gov/pubs/810621.pdf> (describing the impact that seat belts and airbags have had on decreased rates of death due to traffic accidents).

13. Haw. H.R. 1461 § 1 (noting that “human error accounts for up to ninety-five per cent of vehicular collisions”); NIDHI KALRA ET AL., LIABILITY AND REGULATION OF AUTONOMOUS VEHICLE TECHNOLOGIES 1 (2009).

driver, and hence the human error, will have a major impact on the safety of roadways.¹⁴

Autonomous vehicles have the potential to be commercially available by 2020.¹⁵ In fact, major players in the automotive and technology fields have already begun developing and testing autonomous vehicles.¹⁶ Not only are major car manufacturers considering using autonomous vehicle technology, but Google, which has been testing autonomous vehicles, unveiled that its autonomous vehicles had logged over 140,000 miles by October 2010.¹⁷ The stated goal of the project is to “prevent traffic accidents, free up people’s time and reduce carbon emissions by fundamentally changing car use.”¹⁸ It has been reported that Google’s autonomous cars have now logged over 300,000 miles with zero accidents occurring while the computer was driving the vehicle.¹⁹ In fact, the only documented accident that a Google car has been involved in was a “fender bender” that occurred when the human operator was in control of the vehicle.²⁰

14. KALRA ET AL., *supra* note 13, at 1; *see also* Andrew P. Garza, Note, “*Look Ma, No Hands!*”: Wrinkles and Wrecks in the Age of Autonomous Vehicles, 46 NEW ENG. L. REV. 581, 605–08 (2012); *see also* Thrun Address at TED2011, *supra* note 7. Thrun gave a presentation regarding Google’s new driverless car technology and noted that:

[D]riving accidents are the number one cause of death for young people[.] And . . . almost all of those are due to human error and not machine error, and can therefore be prevented by machines[.] . . . [W]e could change the capacity of highways by a factor of two or three if we didn’t rely on human precision on staying in the lane . . . therefore [we] drive a little bit closer together on a little bit narrower lanes, and do away with all traffic jams on highways[.]

Id.

15. Valdes-Dapena, *supra* note 6 (noting that Nissan anticipates that it will have a commercially available autonomous vehicle by 2020).

16. Jonathan Oosting, *Michigan Gives Green Light to Autonomous Vehicle Testing Despite Concerns from Google*, MLIVE.COM (Dec. 13, 2013, 8:24 AM), http://www.mlive.com/politics/index.ssf/2013/12/michigan_gives_green_light_to.html (noting that Toyota and Detroit’s “Big Three” have begun testing autonomous technologies); *What We’re Driving At*, *supra* note 6.

17. *What We’re Driving At*, *supra* note 6.

18. *Id.*; *see also* NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., U.S. DEP’T OF TRANSP., PRELIMINARY STATEMENT OF POLICY CONCERNING AUTOMATED VEHICLES 1 (2013), *available at* http://www.nhtsa.gov/staticfiles/rulemaking/pdf/Automated_Vehicles_Policy.pdf [hereinafter PRELIMINARY STATEMENT] (expressing the NHTSA’s belief that autonomous vehicles will increase efficiency, decrease accidents, and decrease emissions).

19. Heather Kelly, *Self-Driving Cars Now Legal in California*, CNN.COM (Oct. 30, 2012, 12:30 PM), <http://www.cnn.com/2012/09/25/tech/innovation/self-driving-car-california/index.html>.

20. *Id.*

Nevada is the only state that currently has active regulations regarding the actual implementation of autonomous vehicle technology onto its roads.²¹ Several jurisdictions have, however, passed legislation requiring the respective motor vehicle departments to pass regulations that allow autonomous vehicles on roadways within these jurisdictions,²² and several other states introduced legislation regarding autonomous vehicle testing.²³ Part II will look at the process of going from human drivers to autonomous vehicles. This Part will discuss the technology currently in use for autonomous vehicle testing, and it will cover some of the safety precautions that this technology is meant to ensure. Part III examines the legislation that has been passed in Nevada, California, Florida, Michigan, and the District of Columbia requiring regulations for autonomous vehicle testing and it will examine the regulation that has been promulgated by the Nevada Department of Motor Vehicles regarding autonomous vehicle testing. In addition, it will examine legislation that has been proposed in other states that have considered implementing autonomous vehicle testing. Part IV provides a brief look at the Geneva Convention on Road Traffic and any impact that it will have on the implementation of autonomous vehicles. Finally, Part V calls for national regulation of autonomous vehicles before piecemeal state legislation becomes a hindrance to the introduction of these vehicles. Specifically, it looks at the ability of a federal agency to preempt state common law remedies when instituting regulations and the positive or negative implications that may stem from this ability in the context of autonomous vehicles. It also examines both current National Highway Traffic Safety Administration (NHTSA) safety regulations and various provisions of the Nevada regulation to ensure

21. See NEV. ADMIN. CODE ch. 482A (2014).

22. See CAL. VEH. CODE § 38750(d) (West Supp. 2014); D.C. CODE § 50-2352 (2014); FLA. STAT. ANN. § 316.86(3) (West Supp. 2013); MICH. COMP. LAWS ANN. § 257.655 (West Supp. 2014); NEV. REV. STAT. ANN. § 482A.100 (LexisNexis 2013).

23. H.R. 2167, 51st Leg., 1st Reg. Sess. (Ariz. 2013); H.R. 2679, 50th Leg., 2d Reg. Sess. (Ariz. 2012); S. 13-016, 69th Gen. Assemb., 1st Reg. Sess. (Colo. 2013); H.R. 1461, 27th Leg., Reg. Sess. (Haw. 2013); H.R. Res. 163, 26th Leg., Reg. Sess. (Haw. 2012); H.R. 3369, 188th Gen. Ct., Reg. Sess. (Mass. 2013); H.R. File 1580, 88th Leg., Reg. Sess. (Minn. 2013); H.R. 444, 163d Gen. Ct., 2013 Reg. Sess. (N.H. 2013); S. 2898, 215th Leg., 2d Ann. Sess. (N.J. 2013); Assemb. 3020, 215th Leg., 1st Ann. Sess. (N.J. 2012); S. 4912, 236th Leg., 2013–2014 Reg. Sess. (N.Y. 2013); H.R. 3007, 53d Leg., 2d Sess. (Okla. 2012); H.R. 2428, 77th Leg. Assemb., 2013 Reg. Sess. (Or. 2013); H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. (S.C. 2013); H.R. 2932, 83d Leg., Reg. Sess. (Tex. 2013); H.R. 1649, 63d Leg., 2013 Reg. Sess. (Wash. 2013); H.R. 1439, 63d Leg., 2013 Reg. Sess. (Wash. 2013); S. 80, 2013–2014 Leg., 101st Reg. Sess. (Wis. 2013).

comprehensive, workable safety regulations. In fact, the NHTSA has issued a preliminary statement concerning autonomous vehicles that categorizes autonomous vehicle technology into five different levels of vehicle automation.²⁴

Any regulations pertaining to autonomous vehicles must ensure the safety of both the vehicle’s occupants and other drivers. Additionally, as these vehicles are likely to make the roads safer, the regulations should encourage manufacturers to pursue this technology and assuage any fears that manufacturers, operators, and the general public may have. To ensure that autonomous vehicles have the desired effect of increasing public safety,²⁵ the NHTSA will have to work in conjunction with, and should encourage the implementation of, state legislation.²⁶

II. THE PROCESS OF GOING FROM HUMAN DRIVER TO FULL AUTONOMY

It appears that the implementation of autonomous vehicles onto the roadways will proceed in certain ordered steps. Initially, the use of autonomous vehicles will be confined to overridable autonomous vehicles that will drive themselves but allow the driver to take over control of the vehicle at any point.²⁷ These overridable autonomous vehicles will be the first step on what should be the path to fully autonomous vehicles that do not require a driver in the vehicle at any point,²⁸ and constitute the focus of this Comment.

Overall, the implementation of autonomous vehicles should proceed in two ordered steps. First, states should continue to enact legislation concerning the testing of autonomous vehicles.²⁹ Pursuant to such

24. PRELIMINARY STATEMENT, *supra* note 18, at 4–5 (stating that the levels of vehicle automation range from “vehicles that do not have any of their control systems automated (level 0) through fully automated vehicles (level 4)”).

25. See *What We’re Driving At*, *supra* note 6.

26. Stephen P. Wood et al., *The Potential Regulatory Challenges of Increasingly Autonomous Motor Vehicles*, 52 SANTA CLARA L. REV. 1423, 1436 (2012) (discussing how the NHTSA already works in conjunction with states to “ensure that certain basic safety equipment on vehicles remains intact and functional”).

27. See Garza, *supra* note 14, at 588.

28. KALRA ET AL., *supra* note 13, at 1 (stating that implementation of this autonomous technology could allow cars to perform a “valet capacity” that would allow the car to run errands for the owner while not engaged in the actual transport of a natural person); Garza, *supra* note 14, at 588.

29. See, e.g., FLA. STAT. ANN. § 316.86 (West Supp. 2013); MICH. COMP. LAWS ANN. § 257.665 (West Supp. 2014).

legislation, state motor vehicle departments will propose and enact regulations governing the requirements that must be met to test autonomous vehicles and to ensure the safety of the public while these vehicles are tested.³⁰ After establishing the overall safety and practicality of autonomous vehicles, the second step of the autonomous vehicle regulatory process should be federal regulation through the NHTSA. This second step will involve the NHTSA promulgating national safety standards covering any vehicle originally manufactured as an autonomous vehicle or converted from a manual to an autonomous vehicle. At this second step, the national regulations promulgated by the NHTSA should provide an overall, comprehensive regime that will encourage manufacturers to enter this field and will ensure implementation of autonomous vehicle technology. This two-step process will, first, allow for safe testing of autonomous vehicles in a variety of environments while, second, providing a national regulatory program for these vehicles.

The technology involved in autonomous vehicles will have to interact with other drivers on the road, pedestrians, and traffic signals. Using the Google car as an example, we are able to see how this technology interacts with itself and with other drivers on the roadway. The Google car uses a “laser range finder” (“Velodyne 64-beam laser”³¹) that is “mounted on the roof of the car” to read the surrounding terrain and generate a three-dimensional map.³² The maps that the car is relying on are the Google Maps that are collected by manually driven camera cars.³³ The autonomous car is also equipped with several other sensors besides the laser range finder mounted on the roof of the vehicle, including a set of four radar systems that are mounted on the car’s bumpers and allow it to “see” a distance sufficient to “deal with fast traffic on freeways.”³⁴ Additionally, the car contains a camera that is located near the rear-view mirror and is used to detect traffic lights and a GPS unit, inertial measuring unit, and a wheel encoder, which

30. See, e.g., NEV. ADMIN. CODE ch. 482A (2014).

31. Erico Guizzo, *How Google’s Self-Driving Car Works*, IEEE SPECTRUM (Oct. 18, 2011, 9:00 AM), <http://spectrum.ieee.org/automaton/robotics/artificial-intelligence/how-google-self-driving-car-works>.

32. *Id.*

33. Garza, *supra* note 14, at 587 (citing *What We’re Driving At*, *supra* note 6).

34. Guizzo, *supra* note 31.

determines the location of the vehicle and keeps track of the vehicle’s movements.³⁵

Although the idea of autonomous vehicles is not new,³⁶ the development of autonomous technology did not begin in earnest until 2004, when the first autonomous vehicle competition, the DARPA Grand Challenge, occurred.³⁷ Fifteen teams competed in the first DARPA Grand Challenge in 2004, but none of the autonomous vehicles that entered were able to complete more than five percent, about eight miles, of the course.³⁸ At the next DARPA Grand Challenge, held in 2005, five vehicles completed a 132-mile desert course while operating autonomously.³⁹ As shown by the differences in the results of the 2004 and 2005 Grand Challenges, autonomous technology advances at a rapid rate. Both the 2004 and 2005 Grand Challenges took place in a rural environment.⁴⁰ DARPA then held an Urban Challenge that required autonomous vehicles to successfully navigate a more dynamic urban environment, which included “follow[ing] public traffic laws, safe entry into traffic flow, passing through busy intersections, passing stocked vehicles, U-turns, and finding an alternate route if encountering a blocked route.”⁴¹ The Urban Challenge was designed to ensure that the autonomous vehicles had “the ability . . . to operate safely and effectively in populated, busy areas.”⁴² Successful completion of the Urban Challenge established that autonomous vehicles can safely operate in urban environments and that they have the ability to safely interact with and operate in dynamic environments. However, the

35. *Id.*

36. Rachael Roseman, Note, *When Autonomous Vehicles Take Over the Road: Rethinking the Expansion of the Fourth Amendment in a Technology-Driven World*, 20 RICH. J.L. & TECH. 3, ¶ 6 (2013), available at <http://jolt.richmond.edu/?p=1667> (noting that the discussion regarding autonomous vehicles “started in 1939 at the World’s Fair where General Motors showcased its *Futurama* exhibit predicting [that autonomous vehicles] would be standard by the 1960s”).

37. *Id.* ¶ 7 (noting that the Defense Advanced Research Projects Agency (DARPA) issued a public challenge for the development of autonomous vehicle technology).

38. Marsha Walton, *Robots Fail to Complete Grand Challenge*, CNN.COM (May 6, 2004, 10:44 AM), <http://www.cnn.com/2004/TECH/ptech/03/14/darpa.race/index.html>.

39. Steve Russell, *DARPA Grand Challenge Winner: Stanley the Robot!*, POPULAR MECHANICS (Jan. 9, 2006, 12:00 AM), <http://www.popularmechanics.com/technology/engineering/robots/2169012>.

40. Roseman, *supra* note 36, ¶¶ 7–8.

41. Christian Berger et al., *Introduction to EXPERIENCE FROM THE DARPA URBAN CHALLENGE* 3, 6 (Christopher Rouff & Mike Hinchey eds., 2012).

42. *Id.*

Urban Challenge “did not require [autonomous vehicles] to detect or react to traffic signals or pedestrians—a feat necessary before [autonomous vehicles] can be sold to the general public.”⁴³

Today, less than ten years after the first successful completion of a DARPA Grand Challenge, automobile manufacturers are developing autonomous technologies.⁴⁴ In fact, it has been predicted that approximately seventy-five percent of vehicles on the road will be autonomous by 2040.⁴⁵ Given the rapid rate of technological development in this field, regulation is necessary to ensure the ordered, timely, and safety-conscious development and implementation of autonomous vehicles onto the nation’s roadways.

There are several levels of technological development that vehicles will proceed through before reaching full automation.⁴⁶ The NHTSA has defined five levels of vehicle automation ranging from no automation at level 0 to full self-driving automation at level 4.⁴⁷ Level 3 and 4 vehicles represent the levels of automation that offer the most safety benefits to the public.⁴⁸ At these levels, the vehicle controls most, or all, driving functions without requiring the driver to constantly monitor the vehicle.⁴⁹ Because of the potential safety benefits provided by vehicles at these levels of automation, continuing research is focused on these areas, and future state and federal regulations should specifically govern level 3 and 4 autonomous vehicles.⁵⁰

III. CURRENT LEGISLATIVE ADVOCACY BY THE STATES IN THE FIELD OF AUTONOMOUS VEHICLE TECHNOLOGY

Any time new technology is implemented, there is a risk that the innovative process will be hampered due to overarching liability

43. Roseman, *supra* note 36, ¶ 8.

44. *See id.* ¶¶ 10–11 (discussing various autonomous technologies that automobile manufacturers are currently developing, including manufacturers such as BMW, Volvo, General Motors, and Toyota).

45. *Id.* ¶ 11 (citing Doug Newcomb, *You Won’t Need a Driver’s License by 2040*, WIRE, (Sept. 17, 2012, 1:42 PM), <http://www.wired.com/autopia/2012/09/ieee-autonomous-2040/>).

46. *See* PRELIMINARY STATEMENT, *supra* note 18, at 4–5.

47. *Id.*

48. *See id.* at 5.

49. *Id.*

50. *See id.* at 6.

concerns.⁵¹ These concerns in the realm of autonomous vehicles will likely stem from a multitude of sources, including drivers, insurers, and manufacturers.⁵² These concerns can be mitigated by state legislatures, the federal government, or both adopting regulations that clearly provide a legal scheme on which manufacturers, innovators, consumers, and investors can rely. Driver and insurer concerns will not likely prevent this technology from coming to the market any faster;⁵³ instead, it is likely the concerns of manufacturers that may prevent this technology from quickly reaching its full potential in the marketplace.⁵⁴

Current product liability laws may be sufficient to govern the introduction of autonomous vehicle technology.⁵⁵ Historically, manufacturers have had concerns over the implementation of safety devices—seat belts,⁵⁶ airbags,⁵⁷ and cruise control⁵⁸—but manufacturers have benefitted from the implementation of these technologies.⁵⁹ These historical lessons and the resulting law that developed out of those

51. Garza, *supra* note 14, at 605–09 (noting that manufacturer concerns stemming from autonomous vehicle implementation are likely outweighed by the reduced liability that will result from the overall safety that these vehicles provide).

52. KALRA ET AL., *supra* note 13, at 17.

53. *Id.* at 19–21 (explaining that the majority of liability stemming from the use of automobiles arises due to human error, and that insurers will likely embrace autonomous technology because it will likely reduce the costs of insuring drivers).

54. *Id.* at 22–32; *see also* Garza, *supra* note 14, at 581 (“[M]anufacturers have been historically reluctant to incorporate safety technologies because of liability concerns . . .”).

55. *See* Garza, *supra* note 14, at 583, 600–05.

56. *Id.* at 595–97 (noting that although Ford Motor Company spearheaded the efforts to include safety belts in cars, not all manufacturers were as enthused; specifically, “General Motors ‘consistently contested the value of belts, tried to minimize their importance for the industry and attempted to discourage their adoption’” (quoting Edward M. Swartz et al., *Seat-Belt Injury Litigation: Defective Restraint Systems Can Result in Serious Injury*, TRIAL, Nov. 1988, at 46, 47–48) (internal quotation marks omitted)).

57. *Id.* at 597–98 (stating that manufacturers were hesitant to adopt the use of airbags as commonplace in automobiles “because of both ‘technological uncertainties’ and the ‘threat of product liability’” (quoting Murray Mackay, *Liability, Safety, and Innovation in the Automotive Industry*, in THE LIABILITY MAZE: THE IMPACT OF LIABILITY LAW ON SAFETY AND INNOVATION 191, 214–15 (Peter W. Huber & Robert E. Litan eds., 1991))).

58. *Id.* at 598–600. Safety experts, and manufacturers, were wary of cruise control and “concerned that a driver ‘with literally nothing to do except steer and ruminate’ would be ‘more likely to drop off for 40 fatal winks.’” *Id.* at 599 (footnote omitted) (quoting Frank Rowsome Jr., *Educated Gas Pedal Keeps the Cops Away*, POPULAR SCI., Jan. 1954, at 166, 169; Frank Rowsome Jr., *What It’s Like to Drive an Auto-Pilot Car*, POPULAR SCI., Apr. 1958, at 105, 106). Also, there were concerns that cruise control technology may keep the throttle open and lead to wrecks. *Id.* at 599.

59. *Id.* at 606.

product liability cases may apply in the same manner to autonomous vehicle law, and such an ordered result could help to assuage manufacturer concerns regarding liability.⁶⁰

This leads to the question: Why speculate on how courts will approach this novel issue and risk implementation of inconsistent and confusing case law when the legislature can address this issue before it arises? As one scholar notes, “there are false starts and lengthy delays in the development of . . . principles” relating to the issue of liability stemming from the implementation of any new technology.⁶¹ So, if this technology will save many lives,⁶² the states should provide a regulatory scheme that will encourage the implementation of autonomous vehicle technology in a safe, efficient, and timely manner. State legislatures have begun addressing autonomous technology, and the Nevada Department of Motor Vehicles has already adopted autonomous vehicle regulations.⁶³

A. Currently Enacted State Legislation for the Testing of Autonomous Vehicles

Several states—Nevada, California, Florida, and Michigan—and the District of Columbia have already anticipated the implementation of autonomous vehicles by enacting laws specifically regarding their use.⁶⁴ In addition to the four states that have already explicitly legalized⁶⁵ the testing of autonomous vehicles, several state legislatures introduced autonomous vehicle legislation in 2012 and 2013. The state legislatures

60. *Id.*

61. Graham, *supra* note 1, at 1242.

62. See KALRA ET AL., *supra* note 13, at 1; Garza, *supra* note 14, at 584; *What We’re Driving At*, *supra* note 6.

63. NEV. ADMIN. CODE ch. 482A (2014).

64. CAL. VEH. CODE § 38750 (West Supp. 2014); D.C. CODE § 50-2352 (2014); MICH. COMP. LAWS ANN. §§ 257.663, 257.665 (West Supp. 2014); FLA. STAT. ANN. § 316.86 (West Supp. 2013); NEV. REV. STAT. ANN. § 482A.100 (LexisNexis 2013); see also Kelly, *supra* note 19; David Shepardson, *Michigan Legislature Approves Autonomous Vehicle Testing*, DETROIT NEWS (Dec. 13, 2013, 8:40 PM), <http://www.detroitnews.com/article/20131213/AUT001/312130117>; Stephen Williams, *Who’s Driving That Thing? In Nevada, Perhaps Nobody*, N.Y. TIMES WHEELS BLOG (June 29, 2011, 6:00 AM), <http://wheels.blogs.nytimes.com/2011/06/29/whos-driving-that-thing-in-nevada-perhaps-nobody/>.

65. See BRYANT WALKER SMITH, AUTOMATED VEHICLES ARE PROBABLY LEGAL IN THE UNITED STATES 95 (2012) (arguing that even absent explicit legislation at the state level, autonomous vehicles can likely be operated on public streets as “[c]urrent law probably does not prohibit automated vehicles” it may just “discourage their introduction or complicate their operation”).

of Hawaii, New Jersey, and Oklahoma proposed legislation in 2012 to legalize autonomous vehicle use and testing.⁶⁶ Arizona also introduced legislation regarding autonomous vehicles; however, the bill failed in committee in February 2012.⁶⁷ The Arizona House of Representatives reintroduced legislation regarding autonomous vehicles in January 2013.⁶⁸ Hawaii and New Jersey also reintroduced autonomous vehicle legislation in 2013 after the 2012 bills did not pass in each state.⁶⁹ In fact, following the influx of proposed legislation in 2012, Washington,⁷⁰ Oregon,⁷¹ Colorado,⁷² New Hampshire,⁷³ Wisconsin,⁷⁴ South Carolina,⁷⁵

66. H.R. Res. 163, 26th Leg., Reg. Sess. (Haw. 2012); Assemb. 3020, 215th Leg., 1st Ann. Sess. (N.J. 2012); H.R. 3007, 53d Leg., 2d Sess. (Okla. 2012).

67. H.R. COMM. ON TRANSP., MINUTES OF MEETING: FEBRUARY 9, 2012, H.R., 50th Leg., 2d Reg. Sess., at 1, 8–9 (Ariz. 2012).

68. H.R. 2167, 51st Leg., 1st Reg. Sess. (Ariz. 2013); *Bill Status Overview: HB2167*, ARIZ. ST. LEGIS., http://www.azleg.gov/FormatDocument.asp?inDoc=/legtext/51leg/1r/bills/hb2167o.asp&Session_ID=110 (last visited Feb. 24, 2014).

69. H.R. 1461, 27th Leg., Reg. Sess. § 1 (Haw. 2013) (stating that “[t]he purpose of this Act is to authorize, for testing purposes, the operation of autonomous vehicles in [Hawaii]”); S. 2898, 215th Leg., 2d Ann. Sess. (N.J. 2013) (directing the New Jersey Motor Vehicle Commission to “establish a driver’s license endorsement for the operation of autonomous vehicles” and directing the Chief Administrator to establish regulations authorizing the use of autonomous vehicles).

70. H.R. 1439, 63d Leg., 2013 Reg. Sess. (Wash. 2013) (finding that autonomous vehicles “offer significant potential safety, mobility, and commercial benefits for individuals and businesses in the state and elsewhere” and that these vehicles “have been operated safely on public roads in other states in recent years by companies developing and testing this technology”).

71. H.R. 2428, 77th Leg. Assemb., 2013 Reg. Sess. (Or. 2013). The bill summary provides that it “[e]stablishes process for issuance of certificate of approval for operating autonomous vehicles on highways [in Oregon]. Prescribes vehicle and operator requirements for autonomous vehicles.” *Id.*

72. S. 13-016, 69th Gen. Assemb., 1st Reg. Sess. (Colo. 2013) (noting that “[t]he general assembly intends to encourage the adaptation and use of self-driving vehicles on our roadways”).

73. H.R. 444, 163d Gen. Ct., 2013 Reg. Sess. (N.H. 2013) (establishing “a committee to study the use of autonomous vehicles” in New Hampshire).

74. S. 80, 2013–2014 Leg., 101st Reg. Sess. (Wis. 2013) (specifying that autonomous vehicles may not be operated on highways in the state of Wisconsin unless the vehicle complies with the requirements specified in the bill).

75. H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. (S.C. 2013) (stating that the purpose of the “act is to insure public safety in the research and development of the fledgling autonomous vehicle industry by setting forth a statutory framework that protects the public while encouraging research, innovation, and economic development opportunities within South Carolina in coordination with other national and global initiatives”).

New York,⁷⁶ Michigan,⁷⁷ Massachusetts,⁷⁸ Texas,⁷⁹ and Minnesota⁸⁰ introduced legislation regarding autonomous vehicle use and testing in 2013.

The enacted legislation in Nevada and California require each state's department of motor vehicles (DMV) to adopt regulations regarding the operation of autonomous vehicles in the state.⁸¹ Nevada's DMV adopted regulations on February 15, 2012.⁸² California's law requires its DMV to adopt autonomous vehicle regulations as soon as practicable, but no later than January 1, 2015.⁸³ California's DMV actually proposed autonomous vehicle regulations on November 29, 2013.⁸⁴

The adopted legislation in Florida requires the Florida Department of Highway Safety and Motor Vehicles (DHSMV) to prepare a report outlining the safe use of autonomous vehicles and provide recommendations regarding autonomous vehicle use.⁸⁵ Of the three states that have enacted legislation, only Nevada's DMV has currently adopted regulations regarding autonomous vehicle usage.⁸⁶ The California and Florida departments have not, to date, adopted regulations as required pursuant to each state's legislation. California's enactment gives its DMV until January 1, 2015, to adopt relevant regulations,⁸⁷ and the Florida enactment gave its DHSMV until

76. S. 4912, 236th Leg., 2013–2014 Reg. Sess. (N.Y. 2013) (noting that the legislature “intends to encourage and support the safe development, testing and operation of motor vehicles with autonomous technology upon the public highways of the state” through this bill).

77. Act of Dec. 20, 2013, 2013 Mich. Pub. Act 231 (codified at MICH. COMP. LAWS ANN. §§ 257.2b, 257.35a, 257.244, 257.602b, 257.663, 257.665, 257.666, 257.817 (West Supp. 2014)) (establishing requirements for operating autonomous vehicles and defining relevant terms).

78. H.R. 3369, 188th Gen. Ct., Reg. Sess. (Mass. 2013) (expanding the general laws of Massachusetts to specifically regulate autonomous vehicles).

79. H.R. 2932, 83d Leg., Reg. Sess. (Tex. 2013) (amending the state Transportation Code to define terms relating to autonomous vehicles and requiring that the state department of transportation to establish rules authorizing the use of such vehicles on public roadways).

80. H.R. File 1580, 88th Leg., Reg. Sess. (Minn. 2013) (requiring the “commissioner of transportation [to] evaluate policies and develop a proposal for legislation governing regulation of autonomous vehicles”).

81. CAL. VEH. CODE § 38750(d)(1) (West Supp. 2014); NEV. REV. STAT. ANN. § 482A.100 (LexisNexis 2013).

82. NEV. ADMIN. CODE ch. 482A (2014).

83. CAL. VEH. CODE § 38750(d)(1).

84. 48–Z Cal. Regulatory Notice Reg. 1868 (Nov. 29, 2013).

85. FLA. STAT. ANN. § 316.86(3) (West Supp. 2013).

86. See NEV. ADMIN. CODE ch. 482A.

87. CAL. VEH. CODE § 38750(d)(1).

February 12, 2014, to submit a report to the President of the Florida Senate and the Speaker of the Florida House of Representatives, which was submitted on February 10, 2014.⁸⁸ As previously mentioned, however, California’s DMV proposed regulations on November 29, 2013, but noted that it still has until January 1, 2015, to actually adopt the regulations.⁸⁹

The District of Columbia has also enacted a bill governing autonomous vehicles.⁹⁰ The legislation in the District of Columbia allows for the operation of autonomous vehicles on streets, roads, and public thoroughfares within the District.⁹¹ The legislation requires that the autonomous vehicle be an overridable autonomous vehicle, one that allows the driver to assume control over the vehicle at any time.⁹² Another requirement is that the vehicle has a driver who is “seated in the control seat of the vehicle while in operation who is prepared to take control of the autonomous vehicle at any moment.”⁹³ Interestingly, the original bill proposed to require that the autonomous vehicle operate on alternative fuels.⁹⁴

88. FLA. STAT. ANN. § 316.86(3); JULIE L. JONES, FLA. DEP’T OF HIGHWAY SAFETY & MOTOR VEHICLES, AUTONOMOUS VEHICLE REPORT (2014), *available at* <http://www.flhsmv.gov/html/HSMVAutonomousVehicleReport2014.pdf> (proposing “no changes to existing Florida laws and rules” in order to “encourage innovation and foster a positive business environment”).

89. 48–Z Cal. Regulatory Notice Reg. 1868 (Nov. 29, 2013); *see also* CAL. VEH. CODE § 38750(d)(1).

90. Autonomous Vehicle Act of 2012, 60 D.C. Reg. 2119 (Feb. 22, 2013) (codified at D.C. CODE §§ 50-2351 to -2354 (2014)).

91. D.C. CODE §§ 50-2351 to -2352.

92. *Id.* § 50-2352(1).

93. *Id.* § 50-2352(2).

94. B. 19-931, 2012 D.C. Council, 42d Meeting § 3(a)(5) (D.C. 2012); *see also* 42 U.S.C. § 13211(2) (2006). Section 13211(2) defines alternative fuel as:

methanol, denatured ethanol, and other alcohols; mixtures containing 85 percent or more (or such other percentage, but not less than 70 percent, as determined by the Secretary, by rule, to provide for requirements relating to cold start, safety, or vehicle functions) by volume of methanol, denatured ethanol, and other alcohols with gasoline or other fuels; natural gas, including liquid fuels domestically produced from natural gas; liquefied petroleum gas; hydrogen; coal-derived liquid fuels; fuels (other than alcohol) derived from biological materials; electricity (including electricity from solar energy); and any other fuel the Secretary determines, by rule, is substantially not petroleum and would yield substantial energy security benefits and substantial environmental benefits[.]

Id. While the codified version of the bill does not include the requirement that the autonomous vehicles operate on alternative fuels, such a requirement furthers, to a greater

B. Proposed State Legislation for the Testing and Use of Autonomous Vehicles

States are proposing autonomous vehicle legislation at an ever-increasing rate;⁹⁵ however, only one state that introduced legislation in 2013 enacted it,⁹⁶ and of the twenty-one jurisdictions that have proposed autonomous vehicle legislation since 2012, only four have enacted the legislation.⁹⁷ It is unclear why states are reluctant to enact autonomous vehicle legislation in its currently proposed form. The bulk of the legislation requires the director of the state's DMV, or its equivalent, to propose regulations and policies, which need not be enacted.⁹⁸ Moreover, states should recognize that regulatory programs are important in this area because it is likely that autonomous vehicles are not currently prohibited under state law.⁹⁹ A look at proposed legislation provides some insight into the areas that most concern state legislators and the provisions that should and should not be included in future legislation.

More autonomous vehicle bills are introduced every year; since the introduction of the first autonomous vehicle legislation in 2011,¹⁰⁰ the rate that autonomous vehicle legislation has been introduced has been growing fervently. In the two years following Nevada's initial proposed legislation in 2011, four other jurisdictions introduced and enacted

degree, one positive goal that autonomous vehicle usage seeks to achieve for the environment, namely, a reduction of carbon emission and a reduction of energy consumption. *See What We're Driving At, supra* note 6.

95. *See supra* notes 22–23 and accompanying text. One state, Nevada, introduced autonomous vehicle legislation in 2011, six states and the District of Columbia introduced autonomous vehicle legislation in 2012, and fourteen states introduced or reintroduced autonomous vehicle legislation in 2013. *See supra* notes 22–23 and accompanying text.

96. Act of Dec. 20, 2013, 2013 Mich. Pub. Act 231 (codified at MICH. COMP. LAWS ANN. §§ 257.2b, 257.35a, 257.244, 257.602b, 257.663, 257.665, 257.666, 257.817 (West Supp. 2014)).

97. Act of Sept. 25, 2012, 2012 Cal. Stat. 5004 (codified at CAL. VEH. CODE § 38750 (West Supp. 2014)); Autonomous Vehicle Act of 2012, 60 D.C. Reg. 2119 (Feb. 22, 2013) (codified at D.C. CODE §§ 50-2351 to -2354 (2014)); Act of Apr. 13, 2012, 2012 Fla. Laws 1223 (codified at FLA. STAT. ANN. § 316.86 (West Supp. 2013)); 2013 Mich. Pub. Act 231.

98. *See, e.g.*, CAL. VEH. CODE § 38750(d)(1); FLA. STAT. ANN. § 316.86(3); MICH. COMP. LAWS ANN. § 257.665(3).

99. *See generally* SMITH, *supra* note 65. *But see* S. 80, 2013–2014 Leg., 101st Reg. Sess. (Wis. 2013) (prohibiting the operation of autonomous vehicles operating in autonomous mode on highways in Wisconsin unless certain conditions are met).

100. Act of June 16, 2011, ch. 472, § 8, 2011 Nev. Stat. 2873, 2876 (codified as amended at NEV. REV. STAT. ANN. § 482A.100 (LexisNexis 2013)).

autonomous vehicle legislation.¹⁰¹ In addition to California and Florida, which introduced and enacted legislation in 2012, four other states introduced autonomous vehicle legislation in 2012.¹⁰² Thus, legislation was introduced in seven jurisdictions (six states and the District of Columbia) in 2012, and nearly half of those jurisdictions enacted the proposed legislation.¹⁰³

Continuing this trend, fourteen jurisdictions either introduced or reintroduced autonomous vehicle legislation in 2013.¹⁰⁴ As of the end of 2013, however, only one of the states that introduced legislation in 2013 had enacted it.¹⁰⁵ The surprisingly quick rise in proposed autonomous vehicle legislation may be based, at least in part, on the promulgation of regulations by Nevada’s DMV, which took effect on March 1, 2012,¹⁰⁶ and the enactment of legislation in other jurisdictions. This effect is apparent from the proposed legislation out of Oregon and Washington. Oregon’s proposed legislation specifically cites the safe use of autonomous vehicles on California roadways in the introductory section of the bill.¹⁰⁷ Similarly, Washington’s proposed legislation notes that “[a]utonomous vehicles have been operated safely on public roads in other states in recent years.”¹⁰⁸ Thus, the influx of legislation can be linked back to the success of the first initiative relating to autonomous vehicles, and it is likely that autonomous vehicle legislation will continue to be introduced at the state level throughout the country.

101. 2012 Cal. Stat. 5004; Autonomous Vehicle Act of 2012 (D.C.); 2012 Fla. Laws 1223; 2013 Mich. Pub. Act 231. The bills in California, Florida, and the District of Columbia were introduced in 2012 and the bill in Michigan was introduced in 2013.

102. H.R. 2679, 50th Leg., 2d Reg. Sess. (Ariz. 2012); H.R. Res. 163, 26th Leg., Reg. Sess. (Haw. 2012); Assemb. 3020, 215th Leg., 1st Ann. Sess. (N.J. 2012); H.R. 3007, 53d Leg., 2d Sess. (Okla. 2012).

103. 2012 Cal. Stat. 5004; Autonomous Vehicle Act of 2012 (D.C.); 2012 Fla. Laws 1223.

104. H.R. 2167, 51st Leg., 1st Reg. Sess. (Ariz. 2013); S. 13-016, 69th Gen. Assemb., 1st Reg. Sess. (Colo. 2013); 2013 Mich. Pub. Act 231; H.R. 1461, 27th Leg., Reg. Sess. (Haw. 2013); H.R. 3369, 188th Gen. Ct., Reg. Sess. (Mass. 2013); H.R. File 1580, 88th Leg., Reg. Sess. (Minn. 2013); H.R. 444, 163d Gen. Ct., 2013 Reg. Sess. (N.H. 2013); S. 2898, 215th Leg., 2d Ann. Sess. (N.J. 2013); S. 4912, 236th Leg., 2013–2014 Reg. Sess. (N.Y. 2013); H.R. 2428, 77th Leg. Assemb., 2013 Reg. Sess. (Or. 2013); H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. (S.C. 2013); H.R. 2932, 83d Leg., Reg. Sess. (Tex. 2013); H.R. 1649, 63d Leg., 2013 Reg. Sess. (Wash. 2013); H.R. 1439, 63d Leg., 2013 Reg. Sess. (Wash. 2013); Wis. S. 80.

105. Michigan is the only state that introduced autonomous vehicle legislation in 2013 and enacted that legislation by December 31, 2013. 2013 Mich. Pub. Act 231.

106. NEV. ADMIN. CODE ch. 482A (2014).

107. Or. H.R. 2428.

108. Wash. H.R. 1439 § 1(2).

Also worth noting is the fact that proposed autonomous vehicle legislation has not been centered in states with more temperate climates.¹⁰⁹ Testing autonomous vehicles in conditions ranging from dry to icy and flat to steep allows these vehicles to be subjected to all conditions that they are likely to encounter and allows states to have more confidence in specifically allowing these vehicles to be used by consumers, not just in testing. Additionally, allowing testing in a variety of climates gives both the federal and state governments a comprehensive view of the safety benefits that these vehicles provide and will lead to faster implementation on a commercial scale.

1. Unpassed State Legislation Proposed in 2012

Several states proposed autonomous vehicle legislation in 2012 that either failed or were never passed. California, Florida, the District of Columbia, Oklahoma, New Jersey, Arizona, and Hawaii all introduced proposed legislation in 2012.¹¹⁰ California, Florida, and the District of Columbia all passed the proposed legislation, while the proposed legislation in Oklahoma and Arizona failed in committee and the proposed legislation in New Jersey was withdrawn.¹¹¹

In Oklahoma, the House of Representatives proposed a new law that would require the Department of Public Safety (DPS) to adopt rules that allow autonomous vehicles, as defined in the statute, to be operated on highways within the state.¹¹² Like the legislation that was

109. Legislation has been introduced from Minnesota in the north to Texas in the south and from New York in the east to California in the west. *See* Act of Sept. 25, 2012, 2012 Cal. Stat. 5004 (codified at CAL. VEH. CODE § 38750 (West Supp. 2014)); Minn. H.R. File 1580; N.Y. S. 4912; Tex. H.R. 2932.

110. H.R. 2679, 50th Leg., 2d Reg. Sess. (Ariz. 2012); 2012 Cal. Stat. 5004; Act of Apr. 13, 2012, 2012 Fla. Laws 1223 (codified at FLA. STAT. ANN. § 316.86 (West Supp. 2013)); H.R. Res. 163, 26th Leg., Reg. Sess. (Haw. 2012); Assemb. 3020, 215th Leg., 1st Ann. Sess. (N.J. 2012); H.R. 3007, 53d Leg., 2d Sess. (Okla. 2012).

111. H.R. COMM. ON TRANSP., MINUTES OF MEETING: FEBRUARY 9, 2012, H.R., 50th Leg., 2d Reg. Sess., at 1, 8–9 (Ariz. 2012); N.J. LEGIS. DIGEST, 215-24.24, 1st Ann. Sess., at 4 (2012) (introducing the bill on June 7, 2012); N.J. LEGIS. DIGEST, 215-25.1, 2d Ann. Sess., at 3 (2013) (withdrawing the bill on January 8, 2013); H. JOURNAL, H.R. 53-1, 2d Reg. Sess., at 127 (Okla. 2012) (listing the bill's first reading); H. JOURNAL, H.R. 53-2, 2d Reg. Sess., at 182 (Okla. 2012) (listing the bill's second reading). Hawaii's proposed legislation was a recommendation by the house that was adopted by the Committee on Transportation and led to proposed Hawaiian legislation in 2013. *See* H.R. STANDING COMM. ON TRANSP., COMMITTEE REPORT, H.R. 26-1381-12, 2012 Reg. Sess. (Haw. 2012).

112. Okla. H.R. 3007 § 2 (defining “autonomous vehicle” as “a motor vehicle that uses artificial intelligence, sensors and global positioning system coordinates to drive itself without the active intervention of a human operator”).

adopted in Nevada, California, and Florida, the legislation in Oklahoma required that the state’s DPS adopt rules that authorize and regulate the use of autonomous vehicles within the state.¹¹³ In addition, the proposed legislation anticipates protection of residents located in populous areas by requiring that the DPS “[r]estrict the testing of autonomous vehicles to specified geographic areas,”¹¹⁴ likely regions with low population density.

The New Jersey Assembly introduced proposed legislation on June 7, 2012, that permits operation and testing of autonomous vehicles on the highways, roads, and streets of the state.¹¹⁵ Like the legislation that was adopted in Nevada, California, and Florida,¹¹⁶ the legislation that was introduced in New Jersey requires the state’s Motor Vehicle Commission (MVC) to adopt regulations that allow for the testing of autonomous vehicles.¹¹⁷ The MVC is also required to adopt regulations that govern the requirements surrounding the operation of such vehicles, the necessary insurance required for testing and operating, the minimum safety standards, the requirements to be met for testing, and the geographical restrictions on testing such vehicles.¹¹⁸ Like the proposed legislation in Oklahoma, an important part of the proposed New Jersey legislation relates to the geographical limitations on the testing of these vehicles.¹¹⁹ In fact, this is a very important requirement in states with high population densities, like New Jersey,¹²⁰ because such a requirement gives nervous officials and constituents peace-of-mind

113. *Id.* (“The Department [of Public Safety] shall adopt rules authorizing the operation of autonomous vehicles on highways within the State of Oklahoma.”); *see also* CAL. VEH. CODE § 38750(d); FLA. STAT. ANN. § 316.86(3) (West Supp. 2013); NEV. REV. STAT. ANN. § 482A.100 (LexisNexis 2013).

114. *See* Okla. H.R. 3007 § 2.

115. N.J. Assemb. 3020.

116. *Compare id.*, with CAL. VEH. CODE § 38750(d)(2), FLA. STAT. ANN. § 316.86(3), and NEV. REV. STAT. ANN. § 482A.100.

117. N.J. Assemb. 3020.

118. *Id.*

119. *Id.*

120. *Resident Population Data—2010 Census: Population Density*, U.S. CENSUS BUREAU, <http://www.census.gov/2010census/data/apportionment-dens-text.php> (last visited May 21, 2014). As of the 2010 United States Census, New Jersey is the most densely populated state in the United States, with Oklahoma being the thirty-fifth most densely populated. *Id.*

that these vehicles will not be used in the most densely populated areas.¹²¹

Like the other legislation introduced in 2012, the proposed legislation in Arizona required the Director of the Arizona Department of Transportation to adopt rules authorizing the use of autonomous vehicles in Arizona.¹²² The proposed legislation also defined “artificial intelligence,” “autonomous vehicle,” and “sensor.”¹²³ These definitions all relate to defining the type of vehicle that will be governed by the proposed legislation.

Hawaii also introduced proposed autonomous vehicle legislation in 2012.¹²⁴ The proposed legislation in Hawaii was, however, much more rudimentary than other legislation proposed in 2012. Unlike other proposed legislation, the proposed Hawaiian legislation does not set a date by which regulations need be adopted, and it does not offer any definitions.¹²⁵ The Hawaiian bill set forth reasons why autonomous vehicles should be tested in the state, including the benefits of autonomous vehicles and the fact that Nevada had already passed laws allowing the testing of autonomous vehicles.¹²⁶ The bill called for the Hawaii Department of Transportation to review any policies and procedures relating to driverless cars and to report its findings to the state legislature.¹²⁷

121. See, e.g., Mike Masnick, *Hilarious Attack Ad in Florida Suggests that Legalizing Autonomous Vehicles Puts Old People at Risk*, TECHDIRT (Aug. 16, 2012, 1:31 PM), <http://www.techdirt.com/articles/20120816/02114020071/hilarious-attack-ad-florida-suggests-that-legalizing-autonomous-vehicles-puts-old-people-risk.shtml> (discussing a political ad in Florida that states that driverless cars are more dangerous than manual cars); Richard Read, *Would You Consider an Autonomous Car If It Came With a Deep Insurance Discount?*, CAR CONNECTION (Nov. 6, 2013), http://www.thecarconnection.com/news/1088225_would-you-consider-an-autonomous-car-if-it-came-with-a-deep-insurance-discount (discussing a CarInsurance.com survey of 2,000 drivers that reveals that 75% of the drivers surveyed feel they can drive a vehicle better than a computer (citing Mark Vallet, *Survey: Drivers Ready to Trust Robot Cars?*, CARINSURANCE.COM (Nov. 1, 2013), <http://www.carinsurance.com/Articles/autonomous-cars-ready.aspx>)). Such fears are unfounded as Google’s current data shows that autonomous vehicles are actually much safer than human-driven vehicles. See Kelly, *supra* note 19 (noting that Google’s autonomous vehicles have driven more than 300,000 miles without an accident occurring in autonomous mode with the only collision occurring when the human occupant overrode the vehicle’s autonomous mode).

122. H.R. 2679, 50th Leg., 2d Reg. Sess. § 1 (Ariz. 2012).

123. *Id.*

124. H.R. Res. 163, 26th Leg., Reg. Sess. (Haw. 2012).

125. See *id.*

126. *Id.*

127. *Id.*

2. State Legislation Proposed in 2013

The promulgation of regulations by Nevada’s DMV has led to an increase in proposed autonomous vehicle legislation throughout the country. The number of jurisdictions that proposed autonomous vehicle legislation exactly doubled from the year 2012 to the year 2013.¹²⁸ Three of the states where autonomous vehicle legislation failed in 2012 reintroduced such legislation in 2013—Arizona, New Jersey, and Hawaii.¹²⁹ In addition, eleven other states introduced autonomous vehicle legislation in 2013.¹³⁰

a. Legislation Reintroduced in 2013

Autonomous vehicle legislation was proposed in Arizona, New Jersey, and Hawaii in 2012, but the proposed legislation did not pass in any of these states.¹³¹ In 2013, the respective state legislatures reintroduced autonomous vehicle legislation in each state.¹³² Of the 2013 legislation, Arizona’s 2013 legislation included some alterations while Hawaii’s legislation was completely revamped to be more consistent with other proposed legislation.¹³³ New Jersey’s proposed legislation, however, included no changes from the 2012 version and was reintroduced verbatim.¹³⁴

The proposed autonomous vehicle legislation from 2013 in Arizona is meant to amend title 28, chapter 3 of the Arizona Revised Statutes,

128. *See supra* notes 102–04 and accompanying text.

129. *See* H.R. 2167, 51st Leg., 1st Reg. Sess. (Ariz. 2013); H.R. 1461, 27th Leg., Reg. Sess. (Haw. 2013); S. 2898, 215th Leg., 2d Ann. Sess. (N.J. 2013).

130. *See* S. 13-016, 69th Gen. Assemb., 1st Reg. Sess. (Colo. 2013); H.R. 3369, 188th Gen. Ct., Reg. Sess. (Mass. 2013); 2013 Mich. Pub. Act 231 (codified at MICH. COMP. LAWS ANN. §§ 257.2b, 257.35a, 257.244, 257.602b, 257.663, 257.665, 257.666, 257.817 (West Supp. 2014)); H.R. File 1580, 88th Leg., Reg. Sess. (Minn. 2013); H.R. 444, 163d Gen. Ct., 2013 Reg. Sess. (N.H. 2013); S. 4912, 236th Leg., 2013–2014 Reg. Sess. (N.Y. 2013); H.R. 2428, 77th Leg. Assemb., 2013 Reg. Sess. (Or. 2013); H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. (S.C. 2013); H.R. 2932, 83d Leg., Reg. Sess. (Tex. 2013); H.R. 1649, 63d Leg., 2013 Reg. Sess. (Wash. 2013); H.R. 1439, 63d Leg., 2013 Reg. Sess. (Wash. 2013); S. 80, 2013–2014 Leg., 101st Reg. Sess. (Wis. 2013).

131. H.R. 2679, 50th Leg., 2d Reg. Sess. (Ariz. 2012); Haw. H.R. Res. 163; Assemb. 3020, 215th Leg., 1st Ann. Sess. (N.J. 2012).

132. Ariz. H.R. 2167; Haw. H.R. 1461; N.J. S. 2898.

133. *Compare* Ariz. H.R. 2679, *with* Ariz. H.R. 2167; *compare* Haw. H.R. Res. 163, *with* Haw. H.R. 1461.

134. *Compare* N.J. S. 2898, *with* N.J. Assemb. 3020.

and it defines both “autonomous motor vehicle”¹³⁵ and “autonomous technology.”¹³⁶ The Arizona bill requires that a human operator is present inside any autonomous vehicle when the vehicle is being tested.¹³⁷ Interestingly, the bill seems focused on liability as one of its major concerns, ranging from operator to manufacturer liability.¹³⁸ Regarding manufacturer liability, the bill provides that if a third party should convert a motor vehicle into an autonomous vehicle, then the original manufacturer of the vehicle is immune from liability due to conversion of the original manual vehicle to an autonomous vehicle.¹³⁹ This provision should alleviate fears that any manufacturers may have in allowing others to convert their vehicles to fully autonomous vehicles; although, it is not, on its face, designed to encourage new manufacturers to enter the field. In addition, like the legislation in Nevada, California, and Florida, the legislation in Arizona requires the Arizona DMV to submit a report recommending any further legislative or regulatory actions that may need to be taken regarding autonomous vehicles.¹⁴⁰

Interestingly, the Arizona bill anticipates that the federal government, through the NHTSA, will adopt regulations concerning

135. Ariz. H.R. 2167 § 1 (defining “autonomous motor vehicle” as “any motor vehicle that is equipped with autonomous technology”).

136. *Id.* (defining “autonomous technology” as “technology that is installed on a motor vehicle and that has the capability to drive the motor vehicle without active control or monitoring by a human operator”).

137. *Id.*

138. *Id.* (providing that “a person is deemed to be the operator of an autonomous motor vehicle operating in autonomous mode if the person engages the motor vehicle’s autonomous technology, regardless of whether the person is physically present in the motor vehicle while the motor vehicle is operating in autonomous mode”).

139. *Id.* The provision specifically provides that:

If a third party converts a motor vehicle into an autonomous motor vehicle, the original manufacturer of that motor vehicle shall not be liable in and shall have a defense to and be dismissed from any legal action brought against the original manufacturer by any person who is injured due to an alleged motor vehicle defect caused by the conversion of the motor vehicle or by equipment installed by the converter, unless the alleged defect was present in the motor vehicle as originally manufactured.

Id.

140. *Id.* § 2. Compare CAL. VEH. CODE § 38750(d)(3) (West Supp. 2014), FLA. STAT. ANN. § 316.86(3) (West Supp. 2013), and NEV. REV. STAT. ANN. § 482A.100 (LexisNexis 2013), with Ariz. H.R. 2167 § 2 (“By April 1, 2015, the department of transportation shall submit a report . . . recommending additional legislative or regulatory action that may be required for the safe testing and operation of motor vehicles equipped with autonomous technology . . .”).

autonomous vehicles and that any such federal regulations will preempt the Arizona law if those federal regulations are found to conflict with the state regulations.¹⁴¹ This unique provision is one that other states should consider adding to proposed legislation because the federal government will regulate these vehicles at some point and this specific provision prevents possible conflict between state and federal regulation and specifically acknowledges that the federal regulations control.

The Hawaiian House of Representatives proposed an autonomous vehicle bill in 2013 after the proposed 2012 bill failed to pass.¹⁴² In the legislative findings, the bill specifically notes that “human error accounts for up to ninety-five per cent of vehicular collisions,” and that “[t]he Centers for Disease Control reports that crash-related death costs in Hawaii are approximately \$124,000,000 every year.”¹⁴³ Like other proposed legislation, the proposed bill in Hawaii requires the director to adopt rules regulating autonomous vehicles by January 2, 2015.¹⁴⁴ Additionally, the proposed bill provides definitions relating to autonomous vehicles and autonomous technology and the process by which manufacturers can apply to test vehicles in Hawaii.¹⁴⁵ Like the proposed 2013 legislation in Arizona, the proposed legislation in Hawaii specifically states that original manufacturers are not liable for actions brought by persons injured due to the vehicle operating in autonomous mode when the vehicle was converted from non-autonomous to autonomous by a third party.¹⁴⁶

A unique provision of the Hawaiian bill provides that it regulates level 3 and 4 vehicles.¹⁴⁷ This level of regulation appears to be consistent with the NHTSA’s preliminary policy statement regarding autonomous vehicles.¹⁴⁸ Level 3 and 4 automation are the two highest levels of

141. See Ariz. H.R. 2167 § 1.

142. See H.R. 1461, 27th Leg., Reg. Sess. (Haw. 2013); see also *supra* text accompanying notes 124–27.

143. Haw. H.R. 1461 § 1.

144. *Id.* § 2 (proposing statutory section 286-E(a)).

145. *Id.* § 2 (proposing statutory sections 286-A and 286-B).

146. *Id.* § 2 (proposing statutory section 286-D); see also Ariz. H.R. 2167 § 1.

147. Haw. H.R. 1461 § 2 (proposing statutory section 286-B(b)(1)).

148. PRELIMINARY STATEMENT, *supra* note 18, at 10 (“Several states have enacted legislation expressly authorizing operation of ‘autonomous’ vehicles within their borders under certain conditions. Generally, these laws seem to contemplate vehicle automation at Levels 3 and 4 Accordingly, [the NHTSA] recommendations are tailored to Levels 3 and 4 automation.”).

automation that a vehicle can have.¹⁴⁹ Presumably all proposed legislation will regulate level 3 and 4 vehicles as opposed to level 0, 1, and 2 vehicles, which require a driver to pay constant attention, because level 3 and 4 vehicles require minimal to no driver oversight to operate.¹⁵⁰

b. Legislation Originally Introduced in 2013

Eleven states introduced new autonomous vehicle legislation in 2013.¹⁵¹ Of those eleven, only one has enacted the proposed legislation.¹⁵² A thorough reading of the legislation proposed in 2013 shows that the bills are quite similar to one another. Additionally, a comparison of the bills and the enacted Nevada regulations shows the influence that the regulations have had on the text of the proposed bills. As shown below, the bills are generally similar with some slight variations and it is apparent from the text of each bill that the safety of the public is the main concern meant to be addressed by these bills. However, some of the bills were more basic and did not provide specific information relating to autonomous vehicles. For example, both New Hampshire and Minnesota have proposed basic legislation.¹⁵³ New Hampshire's legislation establishes a committee to study autonomous vehicles, but does not include any definitional information or any specific regulations relating to autonomous vehicles.¹⁵⁴ Similar to New Hampshire's legislation, Minnesota's legislation requires the commissioner of transportation to evaluate policies relating to autonomous vehicles and develop proposals relating to autonomous vehicles, but it also suffers from the same flaws as the New Hampshire

149. *See id.* at 5.

150. *See id.* at 5, 10.

151. *See supra* note 130.

152. Act of Dec. 20, 2013, 2013 Mich. Pub. Act 231 (codified at MICH. COMP. LAWS ANN. §§ 257.2b, 257.35a, 257.244, 257.602b, 257.663, 257.665, 257.666, 257.817 (West Supp. 2014)).

153. H.R. File 1580, 88th Leg., Reg. Sess. (Minn. 2013); H.R. 444, 163d Gen. Ct., 2013 Reg. Sess. (N.H. 2013).

154. *See generally* N.H. H.R. 444 (establishing a committee to study the use of autonomous vehicles, the membership and reimbursement for serving on the committee, the duties of the committee, the chairperson and what constitutes a quorum, and the date by which the committee should report to the state legislature).

legislation in that it fails to provide any definitions or further specific provisions.¹⁵⁵

The proposed legislation in Washington acknowledges that testing and operation of autonomous vehicles is not currently prohibited under Washington law, and it notes that the purpose of the proposed legislation is to create guidelines that will ensure that these vehicles are operated in a “safe manner.”¹⁵⁶ Interestingly, Washington acknowledges that such vehicles are not currently prohibited, which is likely true across all states.¹⁵⁷ On the contrary, Wisconsin’s proposed bill states that the use of autonomous vehicles is barred unless certain requirements are met.¹⁵⁸

The most extensive section of most of the proposed legislation provides definitions for “autonomous vehicle”¹⁵⁹ and “manufacturer of an autonomous vehicle.”¹⁶⁰ The proposed legislation in Washington would also require the state patrol to adopt rules regarding the operation of autonomous vehicles.¹⁶¹ By affirmatively stating that the

155. *See generally* Minn. H.R. File 1580 § 1 (directing the commissioner of transportation to evaluate policies and propose legislation governing autonomous vehicles and establishing a date by which the commissioner shall submit the proposal).

156. H.R. 1439, 63d Leg., 2013 Reg. Sess. § 1(3) (Wash. 2013) (“Washington . . . desires to encourage the current and future development, testing, and operation of autonomous vehicles on the public roads of the state.”).

157. SMITH, *supra* note 65, at 3 (noting that “[s]tate vehicle codes probably do not prohibit—but may complicate—automated driving”).

158. S. 80, 2013–2014 Leg., 101st Reg. Sess. § 1 (Wis. 2013).

159. Wash. H.R. 1439 § 2(3)(a) (defining “autonomous vehicle” as “a motor vehicle that uses computers, sensors, and other technology and devices to enable the vehicle to safely operate without the active control and continuous monitoring of a human operator”).

160. *Id.* § 2(3)(b) (defining “manufacturer of an autonomous vehicle” as “the person that manufactures the autonomous vehicle as an originally completed vehicle or . . . the person that modifies [a] vehicle to convert it to an autonomous vehicle”).

161. *Id.* § 3. Section 3 of the proposed legislation provides that the regulation:

[M]ust include, but not be limited to, the following:

(1) A licensed driver must operate an autonomous vehicle at all times during its operation;

(2) An autonomous vehicle must comply with the federal motor vehicle safety standards;

(3) A licensed driver is legally responsible for the autonomous vehicle for traffic infractions and criminal offenses in the same manner as a driver of a nonautonomous vehicle;

(4) A commercial vehicle may not be an autonomous vehicle; and

“driver” of the autonomous vehicle is subject to criminal liability in the same manner as a driver of any non-autonomous vehicle,¹⁶² Washington appears to be anticipating the criminal liability issues that are likely to arise given the dichotomy between driver responsibilities when operating autonomous versus non-autonomous vehicles.¹⁶³ A companion bill in Washington provides that the department must give recommendations to the state legislature on June 30, 2026, a period allowing much longer review than the bills introduced in other states.¹⁶⁴ In addition, the bill states that the department is to “provide written notice to the legislature when large scale production and retail sale of vehicles controlled by autonomous technology appears imminent,”¹⁶⁵ which in conjunction with the June 30, 2026, recommendation date, indicates that while Washington is currently anticipating testing of these vehicles, it is also preparing for their eventual entry into the marketplace.

In Oregon, the proposed legislation, like that enacted in Nevada, California, and Florida, gives key definitions; the Oregon legislation provides definitions for “autonomous system,”¹⁶⁶ “autonomous

(5) An autonomous vehicle must be a single vehicle only and be restricted from towing operations.

Id.

162. *Id.* (“A licensed driver is legally responsible for the autonomous vehicle for traffic infractions and criminal offenses in the same manner as a driver of a nonautonomous vehicle.”). Interestingly, Smith notes that current state vehicle codes may impose liability on the “operator” of a vehicle for the vehicle’s actions. SMITH, *supra* note 65, at 75 (stating that the Texas vehicle code states that “a reference to an operator includes a reference to the vehicle operated by the operator if the reference imposes a duty or provides a limitation on the movement or other operation of that vehicle” (quoting TEX. TRANSP. CODE ANN. § 545.002 (West 2011)) (internal quotation marks omitted)).

163. See Frank Douma & Sarah Aue Palodichuk, *Criminal Liability Issues Created by Autonomous Vehicles*, 52 SANTA CLARA L. REV. 1157, 1158–59, 1163–67 (2012) (discussing criminal liability issues that are likely to arise given the use of autonomous vehicles; specifically, the authors discuss strict liability crimes, such as speeding, drunk driving, and the use of an autonomous vehicle to commit “autonomous crime”).

164. Compare H.R. 1649, 63d Leg., 2013 Reg. Sess. § 6(1) (Wash. 2013), with H.R. 3369, 188th Gen. Ct., Reg. Sess. § 1 (Mass. 2013) (directing the division of highway safety to submit a report by February 12, 2015), and S. 4912, 236th Leg., 2013–2014 Reg. Sess. (N.Y. 2013); H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. § 1 (S.C. 2013) (directing the department to adopt regulations by January 1, 2015).

165. Wash. H.R. 1649 § 6(2).

166. H.R. 2428, 77th Leg. Assemb., 2013 Reg. Sess. § 2(1) (Or. 2013) (defining “autonomous system” as “a system that enables the operation of a motor vehicle without active physical control or monitoring by a human operator”).

vehicle,”¹⁶⁷ and “manufacturer.”¹⁶⁸ To use or test an autonomous vehicle in Oregon, under the proposed legislation, the “operator” must possess a driver’s license of the type that is necessary to operate such a vehicle if it were not autonomous.¹⁶⁹ This specific provision appears consistently in proposed autonomous vehicle legislation.¹⁷⁰ Requiring that the operator of an autonomous vehicle possess a valid driver’s license may seem superfluous beyond the testing stage; however, this is actually an important provision at both the testing and commercial stages. The operator of an autonomous vehicle will likely be the one responsible for any liability that arises out of the use of the vehicle.¹⁷¹ By ensuring that the operator of such a vehicle is a licensed driver, the state is further protecting the populace and ensuring that those that activate the autonomous technology have at least the baseline skills and knowledge necessary to safely operate such a vehicle.

In addition, during the testing phase, the operator has to be in the driver’s seat, allowing for easy override of the autonomous system, and

167. *Id.* § 2(2) (defining “autonomous vehicle” as “a motor vehicle equipped with an autonomous system”).

168. *Id.* § 2(3) (defining “manufacturer” as “any person that builds autonomous vehicles or installs autonomous systems in motor vehicles that were not originally built as autonomous vehicles”).

169. *Id.* § 5(1).

170. *E.g.*, S. 4912, 236th Leg., 2013–2014 Reg. Sess. (N.Y. 2013); H.R. 2932, 83d Leg., Reg. Sess. § 2 (Tex. 2013); S. 80, 2013–2014 Leg., 101st Reg. Sess. § 4 (Wis. 2013).

171. *See* MICH. COMP. LAWS ANN. § 257.817 (West Supp. 2014) (“A manufacturer of automated technology is immune from civil liability for damages that arise out of any modification made by another person to a motor vehicle or an automated motor vehicle, or to any automated technology”); H.R. 1439, 63d Leg., 2013 Reg. Sess. § 3(3) (Wash. 2013) (specifying that “[a] licensed driver is legally responsible for the autonomous vehicle for traffic infractions and criminal offenses in the same manner as a driver of a nonautonomous vehicle”); Douma & Palodichuk, *supra* note 163, at 1158 (noting that “the criminal liability regime will have to significantly change in order to accommodate the new technology”). The “operator” of the vehicle will generally be the person who activates the autonomous technology even if that person is not physically present in the vehicle. *See* MICH. COMP. LAWS ANN. § 257.36(b) (defining “operator” as the person who “[o]perates an automated motor vehicle upon a highway or street”); H.R. 3369, 188th Gen. Ct., Reg. Sess. (Mass. 2013) (stating that “a person shall be deemed to be the operator of an autonomous vehicle operating in autonomous mode when the person causes the vehicle’s autonomous technology to engage, regardless of whether the person is physically present in the vehicle while the vehicle is operating in autonomous mode”); H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. § 1 (S.C. 2013) (defining “operator” as “the person who is seated in the driver’s seat, or if there is no person in the driver’s seat, causes the autonomous technology to engage”).

the operator must continuously monitor the operation of the vehicle.¹⁷² Like the regulation promulgated by Nevada's DMV, Oregon's proposed legislation includes a provision that anticipates tort suits that may arise due to accidents involving these vehicles.¹⁷³ The proposed legislation in Oregon requires the Oregon Department of Transportation to promulgate rules and standards regarding autonomous vehicle testing, although no deadline is given for when these rules need to be enacted.¹⁷⁴

The section of the Oregon proposed legislation that is most helpful to those states contemplating legislation, which should be included in all coming regulations and legislation, pertains to disengaging the autonomous technology.¹⁷⁵ By including this subsection, Oregon's legislature provides a simple guide to manufacturers, while relieving any latent driver fears of runaway vehicles. By specifying the manner in which the operator is notified of a system failure, the method of indicating if the autonomous system is in operation, and how the operator can override the autonomous system, Oregon is providing specific, statewide guidelines for ensuring the safety of these vehicles.¹⁷⁶

172. Or. H.R. 2428 § 5(2). By adopting this particular provision, for autonomous vehicles to be "tested and used on the highways," Oregon appears to be negating some of the championed advantages of autonomous vehicle use, such as increased leisure time or productivity. *Id.* § 5. Although this requirement is prudent, and necessary, at the testing stage, it will need to be reformed once these vehicles are commonplace to ensure that the vehicles come to their full potential. Additionally, this provision, like the one out of the District of Columbia, may give rise to negligence as a matter of law if there is a failure of the autonomous technology and the "driver" does not take control of the vehicle due to inattentiveness. *See infra* notes 201–04 and accompanying text; *see also* Shahtout v. Emco Garbage Co., 695 P.2d 897, 899 (Or. 1985) (in banc) (noting that negligence as a matter of law is a theory whereupon the legal standard of conduct is fixed by a governmental regulation).

173. *Compare* NEV. ADMIN. CODE § 482A.190.2(a) (2014) (requiring vehicles to have a mechanism "to capture and store the autonomous technology sensor data for at least 30 seconds before a collision occurs between the autonomous vehicle and another vehicle, object or natural person while the vehicle is operating in autonomous mode"), *with* Or. H.R. 2428 § 4(3) ("An autonomous vehicle may be operated on the highways of this state only if the autonomous vehicle has a system that captures and stores the autonomous system sensor data for the vehicle for at least 30 seconds before a collision occurs.").

174. Or. H.R. 2428 § 3(3).

175. *See id.* § 4(1).

176. *Id.*

An autonomous vehicle may be tested and used on the highways of this state only if:

- (a) The autonomous vehicle has a mechanism to engage and disengage the autonomous system that is easily accessible to the operator;
- (b) The autonomous vehicle has a visual indicator inside the autonomous vehicle to indicate when the autonomous system is engaged;

The most important of these provisions are the two that provide for easy manual override “using the brake, the accelerator or the steering wheel”¹⁷⁷ and that the autonomous vehicle will pull itself over if the operator is unable to gain control of the vehicle in the event of a system failure or an emergency.¹⁷⁸ These two provisions are so important because they allow the operator to easily override the system without having to do anything more than begin driving the car in a normal manner. Additionally, it allows an incapacitated or disabled passenger to confidently ride in a car operating in a ferrying capacity, although this is not possible under the current proposed legislation,¹⁷⁹ as the car will be able to pull itself over and come to a stop if it experiences a technological failure.¹⁸⁰

Like the proposed legislation in Oregon, Colorado’s proposed legislation includes the very important section that outlines what the guidance system must be capable of and the ways that the autonomous system can be overridden.¹⁸¹ The Colorado proposed legislation also, like Oregon’s, provides that the driver be able to override the

(c) The autonomous vehicle has a failure alert system to notify the operator if a system failure is detected;

(d)(A) The failure alert system allows the operator to take immediate manual control of the autonomous vehicle when a failure of the autonomous system or other emergency is detected; or

(B) The failure alert system stops the autonomous vehicle if the operator does not or is unable to take immediate manual control of the vehicle when a failure of the autonomous system or other emergency is detected;

(e) The operator may take manual control of the autonomous vehicle in more than one manner, including but not limited to, using the brake, the accelerator or the steering wheel; and

(f) The failure alert system must clearly indicate when the autonomous system is disengaged.

Id. § 4(1).

177. *Id.* § 4(1)(e).

178. *See id.* § 4(1)(d)(B).

179. *See id.* § 5(2) (requiring that the operator have a driver’s license and that the operator is “capable of taking over immediate manual control of the autonomous vehicle in the event of a failure of the autonomous system or other emergency”).

180. David Sedgwick, *BMW Works on Hands-Free Lane Changes*, AUTO. NEWS EUR., (Jan. 17, 2014), <http://europe.autonews.com/article/20140117/ANE/301179999/bmw-works-on-hands-free-lane-changes>.

181. *Compare* S. 13-016, 69th Gen. Assemb., 1st Reg. Sess. § 4 (Colo. 2013), *with* Or. H.R. 2428.

autonomous system through the use of an easily identifiable switch or by assuming control of the vehicle through “use[] [of] the brake, attempts to steer, or use[] [of] the override switch.”¹⁸²

Similarly, the proposed legislation in New York provides that autonomous vehicles registered in New York must comply with relevant federal standards and regulations, and the vehicles must have a means to engage or disengage the vehicle’s autonomous mode that is easily accessible to the operator.¹⁸³ Unlike the more specific provisions in Oregon and Colorado, however, the New York legislation does not provide specific means by which the technology may be overridden. Although Oregon’s more specific approach may appear to be the preferable approach because it gives specific notice to manufacturers of what is or is not required,¹⁸⁴ at the testing stage, the approach taken by New York is more appropriate. A more general statement, that the vehicle must have easily accessible and identifiable override features, is preferable at the testing stage. This general statement allows manufacturers and innovators to develop the most intuitive override features and allows for uniform features across all such vehicles regardless of the state that the vehicle is registered in. The more general

182. Colo. S. 13-016 § 4. The subsection reads that:

[A] person shall not drive a motor vehicle by means of a guidance system unless the system:

- (a) Is capable of operating safely in conformity with traffic law;
- (b) Has an override switch that, when activated by the driver, immediately returns manual control to the driver;
- (c) Immediately returns manual control to the driver when the driver uses the brake, attempts to steer, or uses the override switch;
- (d) Has an indicator that is clearly visible to the driver and shows whether the system is engaged;
- (e) Is capable of detecting whether the driver is manually controlling the vehicle; and
- (f) Upon detecting a system failure, immediately alerts the driver and brings the motor vehicle to a stop unless the driver takes manual control.

Id.

183. S. 4912, 236th Leg., 2013–2014 Reg. Sess. (N.Y. 2013).

184. Or. H.R. 2428; H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. § 1 (S.C. 2013) (specifying that the operator be able to take control of the vehicle “in multiple manners, including, without limitation, through the use of the brake, the accelerator pedal, or the steering wheel”).

approach appears to be the favored approach for legislation proposed in 2013.¹⁸⁵

Another key area that is addressed by some of the proposed legislation relates to the liability that may arise from a failure of the autonomous technology. The Colorado proposed legislation, like other proposed legislation, anticipates the likelihood of tort suits arising from the use of autonomous vehicles, and it lays liability upon the driver in the same manner as if the driver was in manual control of the vehicle.¹⁸⁶ Although owners may be wary of technology that could lead to personal liability due to that person merely activating the vehicle, the main purpose of the liability sections of these bills is to alleviate manufacturer concerns. Similar to the reintroduced Arizona legislation, several states have attempted to temper manufacturer concerns by limiting manufacturer liability for vehicles that may be retrofitted to become autonomous.¹⁸⁷ For example, New York provides that if a third party converts a non-autonomous vehicle into an autonomous vehicle, then the original manufacturer “shall have an absolute defense to and shall

185. See, e.g., MICH. COMP. LAWS ANN. § 257.665(2)(b) (West Supp. 2014) (stating that an autonomous vehicle must have “[a]n individual [who] is present in the vehicle while it is being operated . . . and that individual has the ability to monitor the vehicle’s performance and, if necessary, immediately take control of the vehicle’s movements”); S. 80, 2013–2014 Leg., 101st Reg. Sess. § 1 (Wis. 2013) (stating that an autonomous vehicle must have “a means to engage and disengage the autonomous technology that is easily accessible to the operator”).

186. Colo. S. 13-016 § 4 (“The driver is responsible for any damage caused by a motor vehicle being driven by means of a guidance system to the same degree as if the driver were manually driving the motor vehicle.”). Like the similar provision in Washington’s proposed legislation, H.R. 1439, 63d Leg., 2013 Reg. Sess. § 3(3) (Wash. 2013), this provision appears to be attempting to circumvent any potential criminal and tort liability issues that will arise in the context of autonomous vehicles, see Colo. S. 13-016 § 4. See also Douma & Palodichuk, *supra* note 163, at 1158–59, 1163–67 (discussing criminal liability issues that may arise in the context of autonomous vehicles); Gary E. Marchant & Rachel A. Lindor, *The Coming Collision Between Autonomous Vehicles and the Liability System*, 52 SANTA CLARA L. REV. 1321, 1326–30 (2012) (discussing who will be held liable in the context of tort cases arising from the use of autonomous vehicles).

187. H.R. 2167, 51st Leg., 1st Reg. Sess. § 1 (Ariz. 2013); e.g., D.C. CODE § 50-2353 (2014); FLA. STAT. ANN. § 316.86(2) (West Supp. 2013); see also John Frank Weaver, *Autonomous Car Legislation Backs Google’s Vision of the Future Over Ford’s . . . for Now*, SLATE (Nov. 22, 2013, 4:13 PM), http://www.slate.com/blogs/future_tense/2013/11/22/autonomous_car_legislation_backs_google_s_vision_of_the_future_over_ford.html (“Laws in Florida and D.C. limit auto manufacturers’ liability when an outfitted car is in an accident, assigning it instead to the party that installed the autonomous technology.”).

be discharged from any cause of action commenced . . . for damages due to an alleged . . . defect caused by the conversion of such vehicle.”¹⁸⁸

One important provision that has begun to appear after the enactment of autonomous vehicle regulations in Nevada requires data capture for the thirty-second period leading up to any collision involving an autonomous vehicle.¹⁸⁹ The proposed legislation in both Wisconsin and South Carolina require that the vehicle capture autonomous technology sensor data for the thirty-second period preceding a collision.¹⁹⁰ In addition, both Wisconsin and South Carolina require that the data be stored in a read-only format to prevent any tampering that may occur.¹⁹¹ Although it is apparent from the text that this data is being captured to determine causation in any suit that may arise from the use of an autonomous vehicle, South Carolina’s proposed legislation is more specific in that it requires the data to be preserved for three years after the date of the collision,¹⁹² which is the South Carolina statute of limitations for both personal injury and property damage.¹⁹³ By requiring data capture and specifying the length of time that the data must be maintained, the state legislatures are providing a mechanism by which unnecessary litigation may be avoided by capturing the cause of the accident, which should provide ease-of-mind to manufacturers, owners, and others who may come into contact with these vehicles.

The fact that so many states are proposing legislation, or continuing to attempt to pass the same legislation multiple times,¹⁹⁴ offers a glimpse of how the states are beginning to view this lifesaving technology. A careful reading of these bills gives the reader a sense that the states are

188. N.Y. S. 4912; *see also* H.R. 3369, 188th Gen. Ct., Reg. Sess. § 1 (Mass. 2013) (providing that the original manufacturer “shall have a defense to and be dismissed from” actions stemming from defects caused by the vehicle’s conversion to an autonomous vehicle).

189. *E.g.*, CAL. VEH. CODE § 38750(c)(1)(G)(West Supp. 2014); NEV. ADMIN. CODE § 482A.110.2(b) (2014).

190. H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. § 1 (S.C. 2013); Wis. S. 80 § 1.

191. *See* S.C. H.R. 4015 § 1; Wis. S. 80 § 1.

192. S.C. H.R. 4015 § 1.

193. S.C. CODE ANN. § 15-3-530(3), (5) (2005) (setting a three year statute of limitations for personal injury actions and actions to recover for damage to personal property).

194. *See generally* H.R. 2167, 51st Leg., 1st Reg. Sess. (Ariz. 2013). Arizona had initially proposed legislation regarding autonomous vehicle regulation in 2012; however, that proposed legislation failed in committee. *See* H.R. 2679, 50th Leg., 2d Reg. Sess. (Ariz. 2012); H.R. COMM. ON TRANSP., MINUTES OF MEETING: FEBRUARY 9, 2012, H.R., 50th Leg., 2d Reg. Sess., at 1, 8–9 (Ariz. 2012). Arizona’s House of Representatives then introduced an expanded autonomous vehicle bill in January 2013. *See* Ariz. H.R. 2167; *Bill Status Overview: HB2167*, *supra* note 68.

attempting to get out ahead of this new technology, while regulating it in a way that will ensure the safety of drivers of both autonomous and manual vehicles. There are several provisions included in these bills that both state and federal regulatory agencies should consider implementing in future regulation.¹⁹⁵ Proposing such legislation is a step in the right direction, and the states must continue moving forward; thus, a look at the Nevada regulation, which has already been promulgated due to Nevada’s autonomous vehicle legislation, provides an insight into what form other regulations may take, and a look at its strengths and weaknesses will assist other state regulatory agencies in drafting future regulations.

C. Implementation of Autonomous Vehicle Testing Regulation in Nevada

The legislation that has been either proposed or enacted in the previously mentioned jurisdictions¹⁹⁶ is a step in the right direction; however, although the legislation addresses some concerns that the public and manufacturers may have regarding autonomous vehicle use, the legislation is lacking in other areas. Thus, it is necessary to look to the regulation enacted by Nevada’s DMV as a guide because this is the only regulation that has been drafted in any jurisdiction. The regulation does anticipate the hindering of existing vehicles, the possible malfunctions that may require user override, and the uncertainty of blame that may result from a tort suit.

There are several considerations that state legislatures should take into account when creating new legislation specific to autonomous vehicles. One specific concern that the Nevada regulation does not address is the minimum requirements for obtaining a license to operate an autonomous vehicle.¹⁹⁷ The regulation requires the payment of certain fees to apply for a license to operate an autonomous vehicle, specifically in a testing capacity.¹⁹⁸

195. See, e.g., S. 13-016, 69th Gen. Assemb., 1st Reg. Sess. § 4 (Colo. 2013) (proscribing methods of overriding the system and vehicle action in case of system failure and no action by the operator and giving driver liability); H.R. 2428, 77th Leg. Assemb., 2013 Reg. Sess. §§ 4–5, 7 (Or. 2013) (proscribing how a driver can override the autonomous system and what the vehicle must do in case of system failure, requiring storage of system data in case of a collision, and noting manufacturer liability).

196. See *supra* Part III.A–B.

197. See NEV. ADMIN. CODE ch. 482A (2014).

198. *Id.* § 482A.110.4.

The adopted regulation in Nevada attempts to address the possible liability issues before it becomes necessary for courts to attempt to solve these same issues.¹⁹⁹ Initially, the Nevada regulation specifies that it is not designed to inhibit the use of any semi-autonomous technology that is already available to the public such as “a safety system or driver assistance system, including, without limitation, a system to provide electronic blind spot assistance, crash avoidance, emergency braking, parking assistance, adaptive cruise control, lane keep assistance, lane departure warnings and traffic jam and queuing assistance.”²⁰⁰ By limiting what types of vehicles these statutes apply to, specifically excluding those cars that may already be on the road, the regulation avoids a potential issue with existing drivers becoming unexpectedly regulated by a new legal regime.

Driver liability appears to be a foremost concern for the legislators proposing autonomous vehicle legislation. The violation of a statute can raise a presumption of negligence via negligence *per se*.²⁰¹ Take a common example envisioned for these vehicles: the owner of the vehicle gets in the car, but instead of alertly monitoring the vehicle and road, that person uses the commute to catch up on work, catch up on sleep, or just relax after a stressful day. So what happens when that vehicle is then involved in an accident while the driver of the autonomous vehicle was sleeping in the operator’s seat, and the occupants of the other vehicle are injured? Applying section 286 of the *Restatement (Second) of Torts* to the provision in the District of Columbia legislation, for

199. *See id.* § 482A.190.2(a) (requiring that each autonomous vehicle be equipped with a device that can record how the autonomous technology was functioning “for at least 30 seconds before a collision occurs”).

200. *Id.* § 482A.010; *see also* MICH. COMP. LAWS ANN. § 257.2b(1) (West Supp. 2014) (defining “automated motor vehicle” in a way that excludes vehicles that have similar safety features); H.R. 1439, 63d Leg., 2013 Reg. Sess. § 2(3)(a) (Wash. 2013) (excluding preexisting vehicles from the definition of “autonomous vehicle” that have the same sorts of semi-autonomous technology as that contemplated by the Nevada regulation). *But see* S. 2898, 215th Leg., 2d Ann. Sess. (N.J. 2013) (defining “autonomous vehicle” in such a way that does not explicitly exclude vehicles equipped with the sort of semi-autonomous technology contemplated by the Nevada regulation).

201. RESTATEMENT (SECOND) OF TORTS § 286 (1965); *see also* *McCracken v. Walls-Kaufman*, 717 A.2d 346 (D.C. 1998).

Violation of a statute may give rise to a civil cause of action, and may constitute negligence *per se* if the statute is meant to promote safety, if the plaintiff is “‘a member of the class to be protected’ by the statute,” and if the defendant is a person “upon whom the statute imposes specific duties.”
Id. at 354 (quoting *Marusa v. District of Columbia*, 484 F.2d 828, 834 (D.C. Cir. 1973)).

example, a court may adopt those provisions as the standard of conduct of a reasonable person.²⁰² The provision in the *Restatement* applies if the purpose of the legislation is:

- (a) to protect a class of persons which includes the one whose interest is invaded, and
- (b) to protect the particular interest which is invaded, and
- (c) to protect that interest against the kind of harm which has resulted, and
- (d) to protect that interest against the particular hazard from which the harm results.²⁰³

Thus, applying these requirements to the District of Columbia legislation, it becomes apparent that the driver will likely be presumed negligent in the case of such an accident.²⁰⁴ In fact, the adopted legislation in California also requires that the “driver . . . be seated in the driver’s seat, monitoring the safe operation of the autonomous vehicle, and capable of taking over immediate manual control.”²⁰⁵

Requiring the driver of an autonomous vehicle to continuously monitor the vehicle and to be prepared to take over in case of emergency makes logical sense at the testing stage. At this stage, the technology is, by definition, new, and requires close monitoring to ensure that it performs in the manner that it is expected to. However, this approach should not be adopted for final regulations that are promulgated regarding the public use of these vehicles. Instead, a more workable approach involves placing liability on manufacturers for any unforeseen failures of the autonomous technology, while placing

202. RESTATEMENT (SECOND) OF TORTS § 286 (1965).

203. *Id.*

204. *See* D.C. CODE § 50-2352 (2014). This is true because most of the proposed legislation states that it is intended to ensure the safety of these vehicles. *See, e.g.*, S. 13-016, 69th Gen. Assemb., 1st Reg. Sess. § 1 (Colo. 2013) (noting the need to safely expand use of these vehicles); H.R. 1461, 27th Leg., Reg. Sess. § (Haw. 2013) (recognizing that human error accounts for the vast majority of automobile collisions and that “[o]ne possible mechanism for improving these statistics is the use of autonomous or ‘driverless’ motor vehicles, which have the potential to save time, lives, and money”); H.R. 2428, 77th Leg. Assembly, 2013 Reg. Sess. § 3(5) (Or. 2013) (stating that the department determines if, and when, these vehicles are safe); Wash. H.R. 1439 § 1(3) (noting that the legislature seeks to ensure safe operation and testing of autonomous vehicles).

205. CAL. VEH. CODE § 38750(b)(2) (West Supp. 2014) (addressing driver preparedness in the context of testing autonomous vehicles).

liability on “operators” for malfunctions that the operator is aware of due to the vehicle warning them that a failure may occur or that the vehicle needs to be checked. This approach is generally consistent with the current products liability regime regarding automobiles.²⁰⁶

The Nevada regulation also clearly evinces a concern for the safety of the other drivers on the road. The regulation requires that any applicant who wishes to test autonomous vehicle technology in the state have a switch that can easily disengage the autonomous technology and allow for the driver to reassert control over the vehicle,²⁰⁷ and that the vehicle have a safety system that alerts the operator whenever there is a failure of the autonomous technology.²⁰⁸ Additionally, the regulation requires that “at least two persons are physically present in an autonomous vehicle at all times that the autonomous vehicle is being tested.”²⁰⁹ Those persons required to be in the vehicle during testing are also required to have a valid driver’s license and must be trained in the operation of such a vehicle.²¹⁰

One interesting aspect of the Nevada regulation that has a potential bearing on the issue of liability is the requirement that any autonomous vehicle:

[Have] a separate mechanism in addition to, and separate from, any other mechanism required by law, to capture and store the autonomous technology sensor data for at least 30 seconds before a collision occurs between the autonomous vehicle and another vehicle, object or natural person while the vehicle is operating in autonomous mode. The autonomous technology sensor data must be captured and stored in a read-only format by

206. See, e.g., Allan E. Korpela, Annotation, *Failure to Warn as Basis of Liability Under Doctrine of Strict Liability in Tort*, 53 A.L.R.3d 239, 281 (1973); see also Garza, *supra* note 14, at 600–05, 616.

207. NEV. ADMIN. CODE § 482A.190.2(b) (2014); see also *id.* § 482A.190.2(g) (requiring that the operator be able to override the autonomous system “in multiple manners, including, without limitation, through the use of the brake, the accelerator pedal and the steering wheel”).

208. *Id.* § 482A.190.2(d).

209. *Id.* § 482A.130.1.

210. *Id.* § 482A.130.2(a)–(b); see also H.R. 3369, 188th Gen. Ct., Reg. Sess. § 1 (Mass. 2013) (stating that “[a] person who possesses a valid driver license may operate an autonomous vehicle in autonomous mode”); H.R. 2428, 77th Leg. Assemb., 2013 Reg. Sess. § 5(1) (Or. 2013) (requiring that any operator of an autonomous vehicle “possess[] the proper class of license for the type of autonomous vehicle being tested”); H.R. 2932, 83d Leg., Reg. Sess. § 2 (Tex. 2013) (designating that “[a] person who operates an autonomous motor vehicle . . . must possess a valid driver’s license”).

the mechanism so that the data is retained until extracted from the mechanism by an external device capable of downloading and storing the data. Such data must be preserved for 3 years after the date of the collision. The provisions of this paragraph do not authorize or require the modification of any other mechanism to record data that is installed on the autonomous vehicle in compliance with federal law.²¹¹

The requirement that this mechanism is separate from, and in addition to, any other data-gathering device, which would presumably have experimental purposes, shows that the Nevada DMV is already anticipating a situation wherein these autonomous vehicles are involved in accidents. The implementation of such a provision may be intended to ease any pressure that the courts may face in making decisions regarding tort liability.²¹² In fact, the effect that Nevada’s regulation has had on recently proposed legislation is apparent in this section. The proposed legislation in both South Carolina and Wisconsin requires that the autonomous vehicle be able to capture and store sensor data for at least thirty seconds before any collision.²¹³

One part of the Nevada regulation that is particularly noteworthy, and a part that is likely to be reflected in all other regulations that are to be forthcoming from other states that have passed laws allowing for autonomous car testing, is the requirement that the licensee must submit, with his application for a testing license, a certificate for testing in a specific geographic location within the state.²¹⁴ To apply for additional territories, the licensee must prove to the department, beforehand, that the autonomous vehicle is “capable of being driven in the conditions of the proposed geographic location in compliance with the traffic laws and other laws applicable to drivers and motor vehicles” that are operated within the state.²¹⁵ This provision of the regulation is of particular importance, especially in those states that may be contemplating legislation, because it allows the state to control the testing and alleviate any potential constituent fears regarding autonomous vehicle testing. This is especially true in those states that

211. NEV. ADMIN. CODE § 482A.190.2(a).

212. *See generally* Graham, *supra* note 1 (discussing the evolution of case law when there is any new technological innovation that does not clearly fit within predefined legal notions).

213. H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. § 1 (S.C. 2013); S. 80, 2013–2014 Leg., 101st Reg. Sess. § 1 (Wis. 2013).

214. NEV. ADMIN. CODE § 482A.120.

215. *Id.* § 482A.120.2.

are more likely to have adverse weather conditions, such as snow and ice.²¹⁶

Ensuring the safety of these vehicles, for both the occupants and other commuters, is the most important hurdle to pass in getting these vehicles on the road. By prescribing the minimum methods that must be incorporated in an autonomous vehicle so that the driver can override the autonomous system,²¹⁷ the Nevada regulation is ensuring that drivers, and others on the road, know that these vehicles are safe and have a guaranteed, consistent means to change between autonomous and manual control.

State motor vehicle departments should continue to promulgate regulations similar to the Nevada regulations. The Nevada regulations are a necessary step in allowing the testing of autonomous vehicles on public roadways, which will lead to the eventual commercial availability of autonomous vehicles. Such state regulations, however, should apply at only the testing stage for autonomous vehicles. Once autonomous vehicles have been successfully tested pursuant to state regulations in a variety of environments, then initial state regulation will have essentially run its useful course. At that point, further state regulation will likely prove to be a hindrance to the full-commercial implementation of autonomous vehicles. Instead, once the safety and practicality of autonomous vehicles has been proven pursuant to state regulations, the federal government, through the NHTSA, should promulgate national regulations to provide comprehensive regulations for manufacturers and upfitters²¹⁸ throughout the country.

216. Approximately twenty-three percent of annual vehicle crashes are weather related. *How Do Weather Events Impact Roads?*, FED. HIGHWAY ADMIN., http://www.ops.fhwa.dot.gov/weather/q1_roadimpact.htm (last visited May 15, 2014).

217. NEV. ADMIN. CODE § 482A.190.2(g) (providing that the autonomous vehicle must “allow[] the operator to take control of the autonomous vehicle in multiple manners, including, without limitation, through the use of the brake, the accelerator pedal and the steering wheel and alerts the operator that the autonomous mode has been disengaged”).

218. *See, e.g., id.* § 482A.190. Michigan’s autonomous vehicle statute defines “upfitter” as “a person that modifies a motor vehicle after it was manufactured by installing automated technology in that motor vehicle to convert it to an automated vehicle.” MICH. COMP. LAWS ANN. § 257.2b(5) (West Supp. 2014).

IV. EFFECT OF THE GENEVA CONVENTION ON ANY AUTONOMOUS VEHICLE LEGISLATION ENACTED IN THE UNITED STATES

The implementation of any state or federal regulations regarding autonomous vehicles will likely be subject to the Geneva Convention on Road Traffic.²¹⁹ Article 8 of the Geneva Convention on Road Traffic establishes uniform rules for road safety in the international context.²²⁰ The United States ratified the Geneva Convention on Road Traffic on August 30, 1950, and the treaty entered into force on March 26, 1952.²²¹

Article 8 of the Geneva Convention on Road Traffic (1949) provides: “Every vehicle . . . shall have a driver.”²²² Thus, under this Convention, a vehicle is required to have a person driving the vehicle or who is in actual physical control of the vehicle at all times.²²³ The Convention also defines “driver” as “any person who drives a vehicle, including cycles, or guides draught, pack or saddle animals or herds or flocks on a road, or who is in actual physical control of the same.”²²⁴ This provision will not affect state regulation regarding autonomous vehicles used by residents of the state within such state; however, it will have an effect upon any possible international use of these vehicles.²²⁵

The Geneva Convention on Road Traffic may hinder the use of autonomous vehicles because the United States Constitution provides that:

This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby²²⁶

Thus, under the Supremacy Clause, “state laws . . . must yield: ‘In every such case, the act of Congress or treaty is supreme; and the law of the

219. Geneva Convention on Road Traffic art. 1, Sept. 19, 1949, 3 U.S.T. 3008, 125 U.N.T.S. 3.

220. *Id.* at art. 8; SMITH, *supra* note 65, at 14 (stating that “[t]he 1949 Geneva Convention on Road Traffic . . . promotes road safety by establishing uniform rules”).

221. Geneva Convention on Road Traffic, *supra* note 219.

222. *Id.* at art. 8.

223. *See id.*

224. *Id.* at art. 4.

225. *Id.* at art. 1 (stating that “[w]hile reserving its jurisdiction over the use of its own roads, each Contracting State agrees to the use of its roads for international traffic under the conditions set out in this Convention”).

226. U.S. CONST. art. VI, cl. 2.

State, though enacted in the exercise of powers not controverted, must yield to it.”²²⁷

Professor Smith of Stanford’s Center for Internet and Society has discussed the possibility that Article 8 may be binding as federal law, whether it is self-executing or not.²²⁸ It is likely that the Geneva Convention’s driver requirement was directed toward pack animals and animals towing carts, as these are capable of reaching their destination without a human driver, while automobiles were not capable of this feat.²²⁹ Additionally, it has been posited that a vehicle may have a driver even if no person is physically present in the automobile.²³⁰ In fact, the Geneva Convention may be interpreted such that a person may be a driver so long as they indirectly control the vehicle.²³¹

Smith further posits that there are domestic responses that may allow the United States to circumvent the requirements of the Geneva Convention.²³² Congress may enact legislation that is directly contrary to the requirements of Article 8; however, such an enactment “would also place the United States in breach of its international obligations.”²³³ Alternatively, the executive has the power to “denounce the treaty pursuant to article 32; this would both relieve the United States of its international obligations and, arguably, negate the treaty’s domestic

227. *United States v. Locke*, 529 U.S. 89, 100 (2000) (deciding that certain provisions of the state of Washington’s regulations regarding certain maritime procedures were preempted by federal regulation because Congress intended for federal regulation to be the sole source of regulation in this area) (quoting *Sinnot v. Davenport*, 63 U.S. (22 How.) 227, 243 (1859)).

228. *See* SMITH, *supra* note 65, at 34–43 (discussing the possibility that Article 8 is binding and enforceable as federal law); *see also id.* at 41 (noting that Justice Breyer has stated that “the Geneva Convention’s provisions regarding the ‘rights and obligations of drivers’ ‘are of the sort that this Court has found self-executing’” (quoting *Medellin v. Texas*, 552 U.S. 491 app. B at 570, 574 (2008) (Breyer, J., dissenting))); *Bryant Walker Smith*, CTR. FOR INTERNET & SOC’Y, <http://cyberlaw.stanford.edu/about/people/bryant-walker-smith> (last visited Apr. 5, 2014).

229. SMITH, *supra* note 65, at 18 (noting that “[i]n 1949 . . . deliberately requiring a motor vehicle to have a driver would have seemed as important as deliberately requiring that vehicle to maintain contact with the ground”).

230. *Id.* at 22 (“An automated vehicle might . . . have multiple simultaneous drivers, including a person who is physically or electronically positioned to provide real-time input to the vehicle, a person who turns on or dispatches the vehicle, or a person who initiates or customizes that automated operation.”).

231. *Id.* at 23–28.

232. *See id.* at 42–43.

233. *Id.* at 42 (citing *Comm. of U.S. Citizens Living in Nicaragua v. Reagan*, 859 F.2d 929 (D.C. Cir. 1988)).

effect.”²³⁴ Rather than the United States risking a breach of its international obligations, however, a preferable approach is to have the individual states “shape how these provisions are interpreted at the domestic and international levels.”²³⁵ States may shape the interpretations of these provisions through establishing a good-faith practice.²³⁶ Smith posits that a state legislature may establish such good-faith practice by providing a specific provision in proposed legislation that finds that the use of autonomous vehicles is consistent with Article 8:

The Legislature hereby finds that automated operation of vehicles under the conditions prescribed herein is consistent with article 8 of the Convention on Road Traffic because (1) such operation has the potential to significantly improve highway safety, one of the objects of the Convention; (2) this State shall make such operation reasonably knowable to the foreign visitors contemplated by the Convention; (3) the Convention implicitly permits indirect control over vehicles and animals; (4) there shall remain a licensed driver of each vehicle who shall be able to specify or accept the parameters of operation; and (5) these parameters shall be consistent with the traffic laws of this State.²³⁷

Although the Geneva Convention on Road Traffic will affect the possible use of autonomous vehicles when it comes to international travel,²³⁸ it will likely not affect the regulatory scheme in place in the states, and should not be viewed as a hindrance by manufacturers and developers of this technology. It is important for states to be aware of the possibility that the Geneva Convention may affect the implementation of autonomous vehicles. On the whole, Article 8 must be considered in promulgating regulation, however, it will likely not prevent implementation of this life-saving technology.

234. *Id.* at 43 (footnote omitted).

235. *Id.*

236. *Id.*

237. *Id.* at 88 (providing model draft language for states contemplating autonomous vehicle legislation).

238. *Is Canada Ready for Self-Driving Cars?*, CBC.ca (Sep. 1, 2013, 7:12 PM), <http://www.cbc.ca/news/canada/is-canada-ready-for-self-driving-cars-1.1342091> (discussing the lack of legislation addressing autonomous vehicles in Canada); see also Michael Mui, *Blurry Legalities for Autonomous Vehicles in Canada*, 24 Hours Vancouver (Aug. 21, 2013, 1:42 PM), <http://vancouver.24hrs.ca/2013/08/13/blurry-legalities-for-autonomous-vehicles-in-canada>.

V. NHTSA REGULATION IN CONJUNCTION WITH STATE REGULATION OF AUTONOMOUS VEHICLES

The next step regarding regulation of autonomous vehicles, after state regulation at the testing stage, is federal regulation of autonomous vehicles. There is already a federal agency in place that has the ability to pass regulations that will serve minimum requirements with which these vehicles must comply in order to be considered road ready—the NHTSA.²³⁹ The NHTSA already bills itself as “responsible for reducing deaths, injuries and economic losses resulting from motor vehicle crashes.”²⁴⁰ Thus, according to its own mission and the safety enhancement that autonomous vehicles will provide, the NHTSA is already in a position to speed the process of getting this safety feature on the road.

States have already begun to anticipate federal regulation of autonomous vehicle technology. One provision that appears in 2013 legislation that specifically anticipates the likely path that regulation of autonomous technology will take provides for federal preemption of any state provisions that are in conflict with federal regulations.²⁴¹ While states are regulating and will continue to regulate the testing of autonomous vehicles, the federal government, through the NHTSA, will eventually institute a nationwide regulatory scheme. For example, South Carolina’s proposed legislation provides that “Federal regulations promulgated by the [NHTSA] shall supersede the provisions of this chapter when found to be in conflict with any other state law or regulation.”²⁴² By specifying that the federal regulations will supersede any state provisions in conflict with the federal regulations, the states are specifically avoiding any possible future uncertainty regarding the applicable regulations.

Additionally, states appear to be anticipating the preferable two-step approach to the regulation of autonomous vehicles. After the safety

239. *About NHTSA*, NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., <http://www.nhtsa.gov/About> (last visited Feb. 10, 2013).

240. *Who We Are and What We Do*, NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., <http://www.nhtsa.gov/About+NHTSA/Who+We+Are+and+What+We+Do> (last visited Feb. 10, 2013); *see also* Highway Safety Act of 1970, Pub. L. No. 91-605, § 202, 84 Stat. 1713, 1739 (codified as amended at 49 U.S.C. § 105 (2006)) (establishing the NHTSA).

241. *See, e.g.*, H.R. 2167, 51st Leg., 1st Reg. Sess., § 1 (Ariz. 2013) (providing that NHTSA regulations shall supersede any state regulations found to be in conflict with the NHTSA regulations); H.R. 3369, 188th Gen. Ct., Reg. Sess. § 1 (Mass. 2013) (same).

242. H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. § 1 (S.C. 2013).

and practicality of autonomous vehicles has been established through testing conducted pursuant to state regulations in the first step, the federal government will establish a national regulatory regime for autonomous vehicles. The NHTSA will establish rules and regulations covering autonomous vehicles, and these rules and regulations will supersede state regulations while having been informed by the state regulations that were in place at the testing stage.

A. *The NHTSA and Regulation of Motor Vehicles*

Federal regulation of automobiles began as early as 1966 with the passage of the National Traffic and Motor Vehicle Safety Act of 1966 (Safety Act).²⁴³ The stated purpose of the current Safety Act is to “reduce traffic accidents and deaths and injuries resulting from traffic accidents.”²⁴⁴ To have authority to prescribe safety regulations over motor vehicles, Congress relies upon the powers granted to it in the Commerce Clause.²⁴⁵ Under the Commerce Clause, Congress has the power to regulate anything that passes in interstate commerce, and it is also an implicit prohibition on the states from regulating interstate commerce.²⁴⁶ Thus, under the Commerce Clause, Congress has the power to regulate instrumentalities of interstate commerce, one of which is motor vehicles.²⁴⁷ It is, therefore, within Congress’s power to regulate motor vehicles, and it is within Congress’s power to proscribe regulations relating to autonomous vehicles, a power that it has delegated to the NHTSA.

Under the Safety Act, there cannot be any “manufacture for sale, [sale], offer for sale, introduc[tion] or deliver[y] for introduction in interstate commerce, or import into the United States” of any motor vehicle that does not comply with the safety standards promulgated by

243. National Traffic and Motor Vehicle Safety Act of 1966, Pub. L. No. 89-563, 80 Stat. 718, (codified as amended at 49 U.S.C. §§ 30101–03, 30111–26, 30141–47, 30161–69); PRODUCTS LIABILITY PRACTICE GUIDE § 92.04(1) (John F. Vargo & Matthew Bender eds., rev. ed. 2014) (discussing regulation of the automobile industry).

244. 49 U.S.C. § 30101 (stating that in order for the Safety Act to achieve its goal of reducing accidents and deaths it is necessary for it to give standards for vehicle safety when such vehicles are used in interstate commerce).

245. U.S. CONST. art. I, § 8, cl. 3 (stating that Congress has the power “[t]o regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes”).

246. See Donald H. Regan, *The Supreme Court and State Protectionism: Making Sense of the Dormant Commerce Clause*, 84 MICH. L. REV. 1091, 1099–100 (1986).

247. *Id.* at 1185.

the NHTSA under the powers given to it by the Safety Act.²⁴⁸ Thus, any motor vehicle, autonomous or not, must comply with the current federal safety standards to be legally sold in the United States, provided that it is sold or used in interstate commerce. Congress has the ability to regulate “instrumentalities of interstate commerce” and “activities that substantially affect interstate commerce.”²⁴⁹ The regulation of automobiles, even if built using completely intrastate components and materials, falls under regulation of instrumentalities used in interstate commerce because automobiles qualify as such instrumentalities.²⁵⁰

Under the Safety Act, the Secretary of Transportation is obligated to propose safety standards that motor vehicles must meet.²⁵¹ It is the NHTSA that disseminates the Federal Motor Vehicle Safety Standards (FMVSS).²⁵² The FMVSS include such categories as “crash avoidance, crash worthiness, post-crash, and other standards.”²⁵³ The FMVSS are estimated to have saved hundreds of thousands of lives and prevented even more from suffering injury.²⁵⁴ Implementation of FMVSS relating

248. See 49 U.S.C. § 30112(a)(1); see also STEPHEN G. BREYER, REGULATION AND ITS REFORM 96 (1982) (noting that the NHTSA promulgated the first twenty safety standards just four months after the Safety Act had been enacted).

249. *Gonzales v. Raich*, 545 U.S. 1, 16–17 (2005).

250. *United States v. Mandel*, 647 F.3d 710, 722 (7th Cir. 2011) (stating that “[a]utomobiles are designed to move people and goods over distances both long and short, and as such they play a crucial role in interstate commerce”); see also *United States v. Bishop*, 66 F.3d 569, 588 (3d Cir. 1995) (observing that “[i]nstrumentalities differ from other objects that affect interstate commerce because they are used as a means of transporting goods and people across state lines. Trains and planes are inherently mobile; highways and bridges, though static, are critical to the movement of automobiles,” and as such, “[i]t would be anomalous . . . to recognize these categories of instrumentalities but to suggest that the similarly mobile automobile is not also an instrumentality of interstate commerce”). It is worth noting, however, that those cases discussed federal jurisdiction that was conferred vis-à-vis the use of an automobile in intrastate commerce. *Mandel*, 647 F.3d at 720; *Bishop*, 66 F.3d at 590. On the contrary, the NHTSA is regulating the manufacture of vehicles and the safety measures that must be in place in new vehicles. See NHTSA Federal Motor Vehicle Safety Standards, 49 C.F.R. § 571.7 (2012).

251. 49 U.S.C. § 30111(a).

252. PRODUCTS LIABILITY PRACTICE GUIDE, *supra* note 243, § 92.04(2)(b)(i).

253. See JULIAN WEBER, AUTOMOTIVE DEVELOPMENT PROCESSES: PROCESSES FOR SUCCESSFUL CUSTOMER ORIENTED VEHICLE DEVELOPMENT 111 (2009) (“[O]ver 85 standards have been established, divided in crash avoidance, crash worthiness, post-crash, and other standards.”); see also 49 C.F.R. pt. 571.

254. CHARLES J. KAHANE, NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., REP. NO. DOT HS 809 833, LIVES SAVED BY THE FEDERAL MOTOR VEHICLE SAFETY STANDARDS AND OTHER VEHICLE SAFETY TECHNOLOGIES, 1960–2002: PASSENGER CARS AND LIGHT TRUCKS 185 (2004), available at <http://www.nhtsa.gov/cars/rules/regrev/evaluate/809833.html>

to autonomous vehicles will, potentially, also have the ability to save more lives by ensuring a smooth and uniform advancement and regulation of autonomous vehicles entering the marketplace. By ensuring that autonomous vehicles adhere to minimum federal standards, the NHTSA can bring these lifesaving vehicles to the public in a more timely fashion by providing manufacturers with a uniform national system of minimal safety requirements.

The focus of the NHTSA has been, and will continue to be, the prevention of traffic fatalities and accidents through the promulgation of the FMVSS that manufacturers must follow in the manufacture and sale of motor vehicles.²⁵⁵ The FMVSS are generally designed to enhance the safety of a vehicle’s occupants during an accident;²⁵⁶ however, there are also other programs that ensure that motor vehicle design improvements are effective and efficient.²⁵⁷

Any regulations and minimal requirements for autonomous vehicles would necessarily be in addition to any current standards that motor vehicles must comply with. It is not unprecedented for the NHTSA to propose regulations for unique types of vehicles. For instance, the NHTSA has recently proposed a rule that would set minimum sound requirements for hybrid and fully electric vehicles.²⁵⁸ Like other rules promulgated by the NHTSA, this rule is intended to reduce deaths and injuries and is estimated to “eliminate 2,800 injuries every year and save

(estimating that the FMVSS have saved 328,551 lives from 1960 to 2002); Joan Claybrook & David Bollier, *The Hidden Benefits of Regulation: Disclosing the Auto Safety Payoff*, 3 YALE J. ON REG. 87, 87–88 (1985) (noting how these relatively unknown regulations are saving lives while those whose lives are saved generally chalk it up to “good luck” (internal quotation marks omitted)).

255. Claybrook & Bollier, *supra* note 254, at 100.

256. *Id.* at 110.

257. *Id.* at 110–11 (discussing the “highway safety programs” which affect individual motorists and seek to differ pre-crash behavior, which can contribute to accidents, and driver behavior that can differ the severity of the harm that is suffered during an accident). These programs include things such as the highway speed limit and public service announcements regarding safety belt use. *Id.*

258. NHTSA Minimum Sound Requirements for Hybrid and Electric Vehicles, 78 Fed. Reg. 2798 (proposed Jan. 14, 2013) (to be codified at 49 C.F.R. pts. 571, 585); *NHTSA Proposes Minimum Sound Requirements for Electric and Hybrid Vehicles*, AFTERMARKETNEWS (Jan. 9, 2013), http://www.aftermarketnews.com/Item/108743/nhtsa_proposes_minimum_sound_requirements_for_electric_and_hybrid_vehicles.aspx; *What Is a Hybrid Vehicle?*, WHAT-IS-WHAT?COM, http://what-is-what.com/what_is/hybrid_vehicle.html (last visited May 15, 2014) (“A hybrid car is an automobile that has two or more major sources of propulsion power. Most hybrid cars currently marketed to consumers have both conventional gasoline and electric motors . . .”).

roughly 35 lives.”²⁵⁹ The proposed requirement will likely provide a benefit to pedestrians and bicyclists alike, while providing a negligible benefit to other motorists.²⁶⁰ This particular regulation in the context of distinctly modern technology demonstrates the NHTSA’s rulemaking power and its ability to react to and address specific issues regarding the modern vehicle. Additionally, the regulation of autonomous vehicles will provide an even larger overall benefit to motorists and pedestrians alike. Thus, such regulation should be even more in the national consciousness, and regulation must be forthcoming to facilitate the implementation of such technology.

In the realm of requiring that new safety technologies be included in vehicles, there was initial manufacturer pushback to NHTSA regulations regarding the implementation of both seat belts and airbags.²⁶¹ Manufacturers fear that these new technologies may lead to an increase in manufacturer liability.²⁶² Although a look at past manufacturer reaction to the implementation of new technology may be informative from a litigation standpoint, it will be decidedly less so in the context of autonomous vehicles implementation. This is because the NHTSA regulations regarding seat belts and airbags affected all manufacturers and their production of any new vehicles.²⁶³ Conversely, any regulations that the NHTSA promulgates regarding autonomous vehicles will not impact all newly manufactured vehicles; instead, the regulations will apply only to those vehicles that are either manufactured as autonomous vehicles or converted from non-autonomous to autonomous vehicles.²⁶⁴ Thus, because any regulations regarding autonomous vehicles will affect only those manufacturers that choose to produce autonomous vehicles, manufacturer pushback of the sort seen surrounding seat belt and airbag implementation is unlikely.

259. *NHTSA Proposes Minimum Sound Requirements for Electric and Hybrid Vehicles*, *supra* note 258.

260. Press Release, Nat’l Highway Traffic Safety Admin., U.S. Department of Transportation Proposes New Minimum Requirements for Hybrid and Electric Vehicles (Jan. 7, 2013), *available at* <http://www.nhtsa.gov/About+NHTSA/Press+Releases/DOT+Proposes+New+Minimum+Sound+Requirements+for+Hybrid+and+Electric+Vehicles>.

261. Garza, *supra* note 14, at 595–98.

262. *Id.* at 595 (noting that General Motors was particularly resistant to the implementation of seat belts and attempted to downplay their lifesaving potential).

263. *See id.* at 596–97 (noting that the NHTSA’s regulations regarding seat belt and airbag installment is mandatory for all new cars).

264. *See* PRELIMINARY STATEMENT, *supra* note 18, at 10–14 (discussing regulation recommendations focused on autonomous technologies).

This is why it is important for the NHTSA to not just ensure the safety of these vehicles, but it must also provide a comprehensive, uniform set of regulations that are easy for manufacturers to follow and implement to ensure that manufacturers are willing to voluntarily subject themselves to this regulatory regime and continue down the path that state legislation has already begun to open.

B. The NHTSA’s Ability to Preempt State Regulation

If, and when, the federal government steps into the regulation of autonomous vehicle technology, the question of preemption will arise: Should the federal government preempt state regulations governing autonomous vehicles? There have already been policy suggestions out of the California PATH Program at the University of California that the federal government “could consider creating a comprehensive regulatory regime” to govern the use of autonomous vehicle technology.²⁶⁵ In addition to creating this comprehensive regulatory scheme, the policy suggestion goes on to recommend that the federal government “should also consider preempting inconsistent state-court tort remedies.”²⁶⁶ The report warns, however, that the preemption must be accompanied by a comprehensive regulatory scheme, unlike the current state regulations, which relate to the testing stage,²⁶⁷ to ensure that the regulation speeds “development and utilization of this technology.”²⁶⁸

265. KALRA ET AL., *supra* note 13, at 46–47 (making several policy suggestions ranging from greater consumer education regarding this technology to a preemptive federal scheme, implemented before states begin to attempt to regulate this technology on their own).

266. *Id.* at 47; *see also supra* notes 162–63, 201–04 and accompanying text.

267. *See* CAL. VEH. CODE § 38750(b) (West Supp. 2014) (specifying that “[a]n autonomous vehicle may be operated on public roads for testing purposes”); FLA. STAT. ANN. § 316.86(1) (West Supp. 2013) (stating that “[v]ehicles equipped with autonomous technology may be operated on roads in this state by employees, contractors, or other persons designated by manufacturers of autonomous technology for the purpose of testing the technology”); MICH. COMP. LAWS ANN. § 257.244(3) (West Supp. 2014) (declaring that “a manufacturer of automated technology may operate or otherwise move . . . an automated motor vehicle upon a street or highway solely to transport or test automated technology”); NEV. REV. STAT. ANN. § 482A.100.2(d) (LexisNexis 2013) (requiring that promulgated regulations “[p]rovide for the testing of autonomous vehicles”). *But see* D.C. CODE § 50-2352 (2014) (failing to limit the use of autonomous vehicles to testing and providing that “autonomous vehicle[s] may operate on a public roadway” in the District if it meets certain requirements).

268. KALRA ET AL., *supra* note 13, at 47.

At this point, it becomes useful to look to previous regulatory schemes and arguments regarding their preemption of state tort laws. The NHTSA has “authority to prescribe safety standards for new motor vehicles and new motor vehicle equipment” so long as the standards “reduce traffic accidents, deaths, and injuries on the nation’s roads.”²⁶⁹ If the NHTSA enacts a FMVSS, then any state law that speaks to that particular safety regulation is preempted, provided that the state standard is not identical to the FMVSS.²⁷⁰ Preemption of state laws by their federal counterpart has, however, been an issue that dates back to the creation of the NHTSA.²⁷¹ There have been questions regarding whether the regulation from the NHTSA actually does preempt state common law tort actions stemming from defects in products that fall within the regulation.²⁷² It has been noted that Congress has the ability to clarify questions of state preemption by merely specifying whether the legislation it is passing actually does preempt state laws;²⁷³ however,

269. U.S. GEN. ACCOUNTING OFFICE, U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-01-225, MOTOR VEHICLE SAFETY: NHTSA’S ABILITY TO DETECT AND RECALL DEFECTIVE REPLACEMENT CRASH PARTS IS LIMITED 5, 15 (2001).

270. 49 U.S.C. § 30103(b)(1) (2006) (“When a motor vehicle safety standard is in effect under this chapter, a State or a political subdivision of a State may prescribe or continue in effect a standard applicable to the same aspect of performance of a motor vehicle or motor vehicle equipment *only if* the standard is identical to the standard prescribed under this chapter.” (emphasis added)); PRODUCTS LIABILITY PRACTICE GUIDE, *supra* note 243, § 92.04(4).

271. *See, e.g.*, PRODUCTS LIABILITY PRACTICE GUIDE, *supra* note 243, § 92.04(4); Ralph Nader & Joseph A. Page, *Automobile-Design Liability and Compliance with Federal Standards*, 64 GEO. WASH. L. REV. 415, 426–52 (1996); Catherine M. Sharkey, *Inside Agency Preemption*, 110 MICH. L. REV. 521, 532–45 (2012) [hereinafter *Inside Agency Preemption*]; Ellen L. Theroff, Note, *Preemption of Airbag Litigation: Just a Lot of Hot Air?*, 76 VA. L. REV. 577, 577–78 (1990).

272. *See* Linda S. Mullenix, *Strange Bedfellows: The Politics of Preemption*, 59 CASE W. RES. L. REV. 837, 853 (2009); Catherine M. Sharkey, *Preemption by Preamble: Federal Agencies and the Federalization of Tort Law*, 56 DEPAUL L. REV. 227, 228, 233–37 (2007) (analyzing the “aggressive stances adopted by the [Consumer Product Safety Commission], the NHTSA, and the [Food and Drug Administration]” when it comes to preemption of state tort laws and specifically discussing the NHTSA) [hereinafter *Preemption by Preamble*]; Theroff, *supra* note 271, at 577–79 (discussing whether NHTSA regulations regarding airbags actually preempt state common law actions and, if they do, whether that is the appropriate path to take).

273. *Inside Agency Preemption*, *supra* note 271, at 523. However, state bills relating to autonomous vehicles have, as previously discussed, specifically stated that any provisions that conflict with NHTSA regulations are to be preempted. *See, e.g.*, S. 4912, 236th Leg., 2013–2014 Reg. Sess. (N.Y. 2013).

Congress generally does not specify whether preemption occurs and, instead, leaves the question of interpretation up to the courts.²⁷⁴

One area that the NHTSA has promulgated regulations in is the use of “passive restraints” in vehicles, such as seat belts and airbags.²⁷⁵ The Supreme Court has noted that federal law may preempt state law in three ways.²⁷⁶ First, Congress has the power to explicitly state that the legislation it enacts is intended to preempt state laws.²⁷⁷ Second, the Court noted that Congress does not need to use explicit language to preempt state law; instead, “Congress may indicate an intent to occupy an entire field of regulation, in which case the States must leave all regulatory activity in that area to the Federal Government.”²⁷⁸ The Court also noted that the federal government intends to regulate “an entire field of regulation” when it would be impossible to conform to both the state and the federal regulation that speaks on a particular matter.²⁷⁹ Third, even where Congress does not intend to preempt state law, it may preempt it nonetheless, so far as “the state law actually conflicts with federal law.”²⁸⁰ Alternatively, state laws are preempted when such laws “stand[] as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress.”²⁸¹

A primary preemption case concerning NHTSA regulations was recently before the Supreme Court.²⁸² In deciding *Geier v. American*

274. *Inside Agency Preemption*, *supra* note 271, at 523.

275. NHTSA Federal Motor Vehicle Safety Standards, 49 C.F.R. § 571.208(S4.1.5.3), (S4.1.5.5.1) (2012); *Preemption by Preamble*, *supra* note 272, at 234; *see also* Garza, *supra* note 14, at 595–600 (discussing safety-device development in the motor vehicle industry and the struggles that arose throughout, specifically with regard to product liability lawsuits stemming from such regulation).

276. *Mich. Canners & Freezers Ass’n v. Agric. Mktg. & Bargaining Bd.*, 467 U.S. 461, 469, 478 (1984) (holding that the state law at issue was preempted by the Agricultural Fair Practices Act of 1967 even though the Act did not contain any preemptive language and actually affirmatively stated “that it ‘shall not be construed to change or modify existing State law’” (quoting 7 U.S.C. § 2305(d) (1982))).

277. *Id.*

278. *Id.*

279. *Id.* at 469.

280. *Id.* (“Such a conflict arises when compliance with both state and federal law is impossible . . .”); *see also* Theroff, *supra* note 271, at 579–80 (quoting *Mich. Canners & Freezers Ass’n*, 467 U.S. at 469).

281. *Mich. Canners & Freezers Ass’n*, 467 U.S. at 469 (internal quotation marks omitted) (quoting *Hines v. Davidowitz*, 312 U.S. 52, 67 (1941)).

282. *See Geier v. Am. Honda Motor Co.*, 529 U.S. 861 (2000).

Honda Motor Co., the Court had to determine if FMVSS 208²⁸³ preempted a state common law action against a motor vehicle manufacturer.²⁸⁴ The Court determined that even though Congress had not explicitly preempted state legislation, state tort actions based in the common law were effectively preempted because otherwise, state laws may premise liability “upon the presence of the very . . . requirements that federal law requires.”²⁸⁵ Following the Court’s reasoning, it becomes apparent that this regulation fell under the third way that Congress may preempt state law, it “conflict[ed] with federal law.”²⁸⁶ Nonetheless, it has been posited that the NHTSA has not been very aggressive in asserting the preemptive weight, if any, that its provisions have.²⁸⁷

Some had thought that the formerly lax approach that the NHTSA has taken to preemption of state tort claims may have come to an end and that any regulation that the NHTSA promulgates with regard to autonomous vehicles may come about as part of a regulatory scheme that contains explicit preemption language.²⁸⁸ Interestingly, the current proposed legislation in several jurisdictions specify that their requirements for autonomous vehicles will be automatically preempted by any regulations promulgated by the NHTSA that conflict with the state’s regulations.²⁸⁹ The NHTSA has, however, taken both pro-preemption²⁹⁰ and anti-preemption²⁹¹ stances in litigation regarding its

283. NHTSA Federal Motor Vehicle Safety Standards, 49 C.F.R. § 571.208 (2012) (regulating occupant crash protection systems).

284. *Geier*, 529 U.S. at 864–65; *Preemption by Preamble*, *supra* note 272, at 234 (citing *Geier*, 529 U.S. 861).

285. *See Geier*, 529 U.S. at 871–72, 886 (holding that a state tort law requiring airbags in the vehicle at issue was preempted as the FMVSS regarding airbags did not require airbags in the particular vehicle at issue).

286. *See id.* at 882, 886.

287. *Preemption by Preamble*, *supra* note 272, at 235.

288. *See KALRA ET AL.*, *supra* note 13, at 47; *Preemption by Preamble*, *supra* note 272, at 236.

289. *E.g.*, H.R. 2167, 51st Leg., 1st Reg. Sess. § 1 (Ariz. 2013); S. 4912, 236th Leg., 2013–2014 Reg. Sess. (N.Y. 2013); H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. § 1 (S.C. 2013). By specifically providing that their regulations will be preempted by any NHTSA regulations, these states appear to be anticipating federal regulation of this emerging field in the near future.

290. *See Geier*, 529 U.S. 883.

291. *Williamson v. Mazda Motor of Am., Inc.*, 131 S. Ct. 1131, 1139 (2011); *see also Inside Agency Preemption*, *supra* note 271, at 545 (noting that the NHTSA argued to the Court that “there was no ‘affirmative[] encouraging’ of diverse forms of seatbelts, and a

rulemaking. Thus, it will likely depend on the NHTSA’s research and findings on whether any autonomous vehicle regulations should preempt state laws. The NHTSA should define very specific minimum safety standards and have an explicit preemption provision to ensure a smooth, rapid movement of autonomous vehicles into the marketplace.

The NHTSA has the rulemaking power to regulate aftermarket parts,²⁹² which will be the parts used by upfitters to convert manual vehicles to autonomous vehicles. The broad authority granted to the NHTSA enables it to set safety standards governing both originally manufactured autonomous vehicles and the aftermarket conversion of a vehicle into an autonomous vehicle.²⁹³ “States are also involved in the regulation of aftermarket crash parts”²⁹⁴ State involvement in this area²⁹⁵ stems from the fact that the NHTSA has not developed safety standards for such parts, as it “has not determined that these parts pose a significant safety concern.”²⁹⁶ Unlike aftermarket crash parts, however, aftermarket parts used to convert a manual vehicle to an autonomous vehicle do pose a significant safety concern if those parts are faulty. Thus, the NHTSA should promulgate safety standards that cover both original and aftermarket autonomous technologies; however, if the NHTSA determines that states should have the ability to promulgate autonomous vehicle standards, such state standards should be limited to aftermarket autonomous technologies.

Even where the NHTSA specifically promulgates preemptive rules, some states may wish to implement more restrictive standards than the federal standards. For example, state legislatures may desire different or additional methods for overriding the vehicle’s autonomous mode,

Federal Motor Vehicle Safety Standard should normally be read to be no more than a ‘minimum standard’” (quoting Brief for the United States as Amicus Curiae Supporting Petitioners at 18, *Williamson v. Mazda Motor of Am., Inc.*, 131 S. Ct. 1131 (2011) (No. 08-1314) (alteration in original)).

292. U.S. GEN. ACCOUNTING OFFICE, *supra* note 269, at 5 (stating that the “NHTSA has broad authority to set safety standards for aftermarket crash parts”).

293. *See id.* (noting that the “NHTSA may set motor vehicle safety standards for vehicle systems . . . as well as for an entire vehicle”).

294. *Id.* at 9 (“40 states have enacted some form of legislation governing the use of aftermarket crash parts in vehicle repairs. . . . For example, 33 states require that written repair estimates contain a disclosure statement notifying consumers that aftermarket crash parts will be used in the repair” (footnote omitted)).

295. *See* OHIO REV. CODE ANN. § 1345.81 (LexisNexis 2012) (defining “Aftermarket crash part” as “a replacement for any of the nonmechanical sheet metal or plastic parts that generally constitute the exterior of a motor vehicle, including inner and outer panels”).

296. U.S. GEN. ACCOUNTING OFFICE, *supra* note 269, at 15.

requirements for what the vehicle will do in the event of a technology failure, or data capture requirements. Using California as an example, it currently has special authority to enact stricter emission standards for motor vehicles with a model year of 2009 or later.²⁹⁷ A look at California's stricter standards offers a glimpse at the process that states must take to acquire a waiver of preemption.

California initially requested "a waiver of preemption under Clean Air Act . . . section 209(b) for its Greenhouse Gas Emission Regulations" in late 2005.²⁹⁸ The Environmental Protection Agency (EPA) denied the waiver request in 2008,²⁹⁹ but California requested the EPA to reconsider the waiver denial,³⁰⁰ and the President directed the EPA to assess whether denial of the waiver was appropriate in light of the Clean Air Act.³⁰¹ The EPA eventually granted the waiver of preemption to allow California to enact stricter standards than the federal standards.³⁰² There are three criteria by which the EPA can deny California's request for a waiver. First, California's standards must, overall, be at least as protective as the federal standards³⁰³ and the state's determination that the standards are at least as protective must not be arbitrary and capricious.³⁰⁴ Second, the state must need the "standards to meet compelling and extraordinary conditions."³⁰⁵ Finally, the state

297. EPA Notice of Decision Granting a Waiver of Clean Air Act Preemption for California's 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicles, 74 Fed. Reg. 32744, 32746 (July 8, 2009).

298. Letter from Catherine Witherspoon, Exec. Officer, Cal. Env't Prot. Agency, Air Res. Bd., to Stephen L. Johnson, Admin., U.S. Env't Prot. Agency (Dec. 21, 2005), *available at* <http://www.regulations.gov/contentStreamer?objectId=090000648023a45d&disposition=attachment&contentType=pdf>.

299. EPA Notice of Decision Denying a Waiver of Clean Air Act Preemption for California's 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicles, 73 Fed. Reg. 12156, 12168 (Mar. 6, 2008).

300. Letter from Mary D. Nichols, Chairman, Cal. Env't Prot. Agency, Air. Res. Bd., to Lisa P. Jackson, Adm'r.-Designate, U.S. Env't Prot. Agency (Jan. 21, 2009), *available at* <http://www.arb.ca.gov/newsrel/arbwaiverrequest.pdf>.

301. Memorandum for the Administrator of the Environmental Protection Agency, 74 Fed. Reg. 4905 (Jan. 28, 2009) (directing the EPA to "assess whether [its] decision to deny a waiver based on California's application was appropriate in light of the Clean Air Act").

302. EPA Notice of Decision Granting a Waiver of Clean Air Act Preemption for California's 2009 and Subsequent Model Year Greenhouse Gas Emission Standards for New Motor Vehicles, 74 Fed. Reg. at 32783.

303. 42 U.S.C. § 7543(b)(1) (2006).

304. *Id.* § 7543(b)(1)(A).

305. *Id.* § 7543(b)(1)(B).

standards must not be inconsistent with any regulations prescribed by the EPA.³⁰⁶

It is unwise to allow a state to acquire a waiver to NHTSA preemption of state regulations as to original manufacturers, as manufacturers will likely comply with federal regulations and avoid sales in the stricter state; however, it may be practicable for states to institute stricter safety standards for vehicles that are converted to autonomous mode by upfitters. In that instance, it is understandable that states may desire stricter standards because there is conceivably more room for a technological error when a vehicle is converted to an autonomous vehicle than when the vehicle is originally manufactured with autonomous capabilities. If the federal government determines that states should be able to acquire a waiver of preemption, then the waiver should be subject to the same requirements that a waiver of Clean Air Act preemption is subject to.³⁰⁷

Application of the three-prong approach to the denial of waivers under the Clean Air Act to the world of autonomous vehicles will ensure that differing state standards will be truly necessary. Employing this approach, it is unlikely that a state would need increased autonomous vehicle safety standards “to meet compelling and extraordinary conditions.”³⁰⁸ This is true because the regulations promulgated by the NHTSA will be designed to ensure the safe operation of autonomous vehicles on all United States roadways, in any terrain, from mountainous to flat, and in any condition, from icy to dry. Thus, it is unlikely that any state will be able to show the necessary “compelling and extraordinary conditions” to qualify for a waiver. If, however, an instance should arise where such “compelling and extraordinary conditions” exists, then the states will have a mechanism whereby they can petition the NHTSA for a waiver of preemption of state standards. Under the suggested regime, states will be able to raise concerns regarding autonomous vehicle standards in an orderly fashion, while allowing the NHTSA the ability to reconsider its regulations and preventing prohibitive regulations at the state level. In addition,

306. *Id.* § 7543(b)(1)(C); *see also id.* § 7521(a) (directing the administrator to prescribe “standards applicable to the emission of any air pollutant from any class or classes of new motor vehicles or new motor vehicle engines, which in his judgment cause, or contribute to, air pollution which may reasonably be anticipated to endanger public health or welfare”); *id.* § 7601 (clarifying “administrator” is the administrator of the EPA).

307. *See id.* § 7543(b)(1).

308. *See id.* § 7543(b)(1)(B).

limiting the waiver of preemption to state regulations concerning upfitters will allow states to address additional regulation towards vehicles that were not initially designed to operate as autonomous vehicles. Such a limitation allows states to address any concerns regarding the safety of autonomous vehicles, while also preventing states from hindering the implementation of these vehicles by original manufacturers.

Overall, the NHTSA will promulgate safety standards that should explicitly preempt state regulations of autonomous vehicles. The NHTSA regulations will provide a national regulatory regime that will delineate minimum safety standards for autonomous vehicles. It is necessary to have a comprehensive national regime regulating autonomous vehicles; however, the federal government should also allow states a path to enact stricter regulations to ensure the safety of the public. Thus, the most attractive path involves the NHTSA specifically preempting state regulations, while any congressional enactment will allow states to apply for a waiver of preemption regarding upfitters of vehicles but not original manufacturers.

C. Current FMVSS and Possible Application to the World of Autonomous Vehicle Regulation

A look at the current FMVSS regarding seat belts and airbags is informative when determining what the NHTSA should promulgate regarding autonomous vehicles. In any case, these safety standards will apply to autonomous vehicles as they “appl[y] to passenger cars, multipurpose passenger vehicles, trucks, and buses.”³⁰⁹ FMVSS 208 requires that all currently manufactured cars are equipped with seat belts and that those belts and assemblies conform to other relevant safety standards, such as FMVSS 209.³¹⁰ This standard also provides specific testing requirements that safety systems must comply with, as laid out in each safety standard.³¹¹

Looking at the current safety regulations promulgated by the NHTSA, it becomes apparent that the NHTSA will likely specify certain technological requirements that autonomous vehicles must have to be considered available for manufacture and sale in the United States. The

309. NHTSA Federal Motor Vehicle Safety Standards, 49 C.F.R. § 571.208(S3)(a) (2012) (requiring occupant crash protection).

310. *Id.* §§ 571.208(S4.1.5.5.1), 571.209.

311. *See id.* § 571.208(S5).

current regulation passed by Nevada’s DMV is useful as a guide to determine what provisions the NHTSA should consider adopting for any standards it may promulgate. As previously noted, the Nevada regulation regarding autonomous vehicle testing and usage contains specific provisions that the NHTSA would be wise to consider to ensure the safety and practicality of these vehicles.³¹²

The most important device that the Nevada regulation requires, which the NHTSA should implement in its regulations, is the provision that requires a device that allows the autonomous vehicle to be easily overridden by the driver.³¹³ Allowing the vehicle to be easily interchanged between autonomous and manual mode ensures that the vehicle can be safely operated, even if the autonomous technology suffers some sort of breakdown or glitch. In addition to merely requiring such a mechanism, the NHTSA must also set specifications regarding its operability.³¹⁴ Like FMVSS 209, which requires that seat belt assemblies be such that they can be adjusted to accommodate a person sized between a “5th-percentile adult female to . . . a 95th-percentile adult male,”³¹⁵ any regulation concerning an overridable mechanism must make the mechanism operable by a wide range of users. To ensure that safety regulations are effective, especially for cars that can drive themselves, the NHTSA must ensure that all types of drivers are able to override the autonomous mechanism and take control of the vehicle in an emergency situation. Ensuring that the override mechanism is easily accessible by any person, regardless of size, while allowing that person to continue to focus on the road,³¹⁶ will advance the NHTSA’s mission of “reduc[ing] traffic accidents and

312. *See supra* Part III.C; *see also* NEV. ADMIN. CODE § 482A.190.2(b),(d)–(e) (2014) (relating to a switch to activate the autonomous technology, an alert system in the event of autonomous technology failure, and a provision specifying that the autonomous technology cannot interfere with any federally regulated safety equipment).

313. NEV. ADMIN. CODE § 482A.190.2(b).

314. *See id.* § 482A.190.2(g) (specifying the different ways that an operator can override the vehicle’s autonomous system); S. 13-016, 69th Gen. Assemb., 1st Reg. Sess. § 4 (Colo. 2013) (specifying ways for the operator to manually override); S. 80, 2013–2014 Leg., 101st Reg. Sess. § 1 (Wis. 2013) (stating that autonomous vehicles must have “a means to engage and disengage the autonomous technology that is easily accessible to the operator” to legally operate on state highways and streets).

315. NHTSA Federal Motor Vehicle Safety Standards, 49 C.F.R. § 571.209(g)(1) (regulating seat belt assemblies).

316. NEV. ADMIN. CODE § 482A.190.2(b).

deaths and injuries resulting from traffic accidents”³¹⁷ by ensuring that a driver is never less in control of the vehicle than if they were in manual control of the vehicle for the entirety of any journey.

Additionally, to be effective, any NHTSA regulations regarding the overridability of autonomous vehicle technology will have to incorporate and rephrase the language used in FMVSS 101,³¹⁸ or FMVSS 101 will have to be amended to include autonomous vehicle controls to those that are regulated by the standard.³¹⁹ By incorporating autonomous language into old standards, in addition to creating new standards specific to autonomous vehicles, the NHTSA will be effectively creating a comprehensive scheme that will allow for the safe operation of such vehicles on public roadways.

The specific provision that the NHTSA should draw from and incorporate in nearly the same form that it appears in the Nevada regulation specifically outlines the minimum methods in which a driver can override the vehicle’s autonomous system.³²⁰ Outlining several, though not exclusive, means that allow the driver to override the vehicle’s autonomous mode will ensure uniformity among the vehicles and enhance safety for the public. Additionally, the NHTSA should include a provision regarding the vehicle’s own actions if the operator is unable to take control of the vehicle.³²¹ By requiring that autonomous

317. 49 U.S.C. § 30101 (2006) (stating that to achieve the Act’s goal of reducing accidents and deaths it is necessary for it to give standards for vehicle safety when such vehicles are used in interstate commerce).

318. 49 C.F.R. § 571.101(S1) (defining the scope of the standard as “specif[ying] performance requirements for location, identification, color, and illumination of motor vehicle controls, telltales and indicators”).

319. *See id.* § 571.101(S3). This section notes that it “applies to passenger cars, multipurpose passenger vehicles, trucks, and buses.” *Id.* An additional notation to this section that provides that this section applies to vehicles that integrate autonomous technology will prevent future concern regarding the application of these standards to such vehicles, even though autonomous vehicles will likely fall under one of the noted types of vehicles that the section applies to.

320. *See* NEV. ADMIN. CODE § 482A.190.2(g).

321. *E.g., id.* § 482A.190.2(d)(2) (requiring that “[i]f the operator is unable to take control of or is not physically present in the autonomous vehicle, [the vehicle] is equipped with technology to cause the autonomous vehicle to safely move out of traffic and come to a stop”); H.R. 1461, 27th Leg., Reg. Sess. § 2 (Haw. 2013) (proposing statutory section 286-B(b)(2)(C), which would require that an autonomous vehicle must have “a backup mechanism that forces the vehicle to a complete stop if the operator does not or is unable to take control of the autonomous vehicle” in the event of an autonomous technology failure); H.R. 2428, 77th Leg. Assemb., 2013 Reg. Sess. § 4(1)(d)(B) (Or. 2013) (specifying that “[t]he failure alert system stops the autonomous vehicle if the operator does not or is unable to take

vehicle recognize when a system failure is about to occur and safely exit the stream of traffic and come to a stop, this particular regulation will allow people to have a higher comfort level with operating the vehicle in autonomous mode, and, by raising that comfort level, it will possibly lead to quicker acceptance of these vehicles operating in a fully autonomous manner and to full realization of these vehicle’s operational capacity.

The next provision of the Nevada regulation that the NHTSA should incorporate into any safety requirements regarding autonomous vehicles is a requirement that the car itself alert the driver when “a technology failure is detected.”³²² This provision does not so much relate to the viability of the autonomous technology itself, as it allows for the continued safe operation of an autonomous vehicle in the event that a failure does occur. Ensuring that automobile manufacturers install a device that is up to NHTSA standards will likely have the same effect as ensuring that seat belts and airbags are up to NHTSA standards.³²³ To be effective, any standard regarding this device will need to be modeled after FMVSS 101, regarding the location of controls and the backlighting and identification of such controls.³²⁴ Although such a warning system will not be a “control”³²⁵ per se, it will be something that must be required in these vehicles to ensure safety, and requiring that the warning device is backlit and in a location that is easily noticeable by any driver will help to ensure the worth and effectiveness of the warning indicator.

immediate manual control of the vehicle when a failure of the autonomous system or other emergency is detected”).

322. NEV. ADMIN. CODE § 482A.190.2(d).

323. *Seat Belts*, NAT’L SAFETY COUNCIL, http://www.nsc.org/safety_road/DriverSafety/Pages/SeatBelts.aspx (last visited May 15, 2014). “Seat belts saved more than 75,000 lives from 2004 to 2008.” *Id.* (citing NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., U.S. DEP’T OF TRANSP., PUB. NO. 811 153, CRASH STATS TRAFFIC SAFETY FACTS: LIVES SAVED IN 2008 BY RESTRAINT USE AND MINIMUM DRINKING AGE LAWS 1 (2010), available at <http://www-nrd.nhtsa.dot.gov/Pubs/811153.PDF>). “Between 1987 and 2008, front air bags saved more than 25,700 passengers . . .” NAT’L SAFETY COUNCIL, AIRBAGS (2009), available at http://www.nsc.org/safety_road/DriverSafety/Documents/Airbags.pdf.

324. 49 C.F.R. § 571.101(S1).

325. See 3 THE OXFORD ENGLISH DICTIONARY 851–52 (Clarendon Press, 2d ed. 1989) (defining “control” as “[t]he fact of controlling, or of checking and directing action; the function or power of directing and regulating; domination, command, sway”). Thus, such a warning system will not be a control because it will just alert the driver and will not actually have any “checking [or] directing action” over the actual use of the controls. *Id.*

The Nevada regulations are an interesting starting point when analyzing what national regulations are necessary for autonomous vehicles. In fact, the NHTSA has begun researching safety principles that may be implemented for autonomous vehicles.³²⁶ It is necessary to recognize, however, that the Nevada regulations are merely a starting point in the realm of testing autonomous vehicles. The NHTSA should acknowledge that, while states are capable of regulating autonomous vehicles at the testing stage, the federal government is well-suited to regulate these vehicles once they become commercially viable. Therefore, while considering state regulations in drafting its regulations for autonomous vehicles, the NHTSA needs to be specific in informing stakeholders³²⁷ that it will promulgate overriding autonomous vehicle regulations for any use beyond the testing stage.

D. Current NHTSA Policy Regarding Autonomous Vehicles and Recommendations to State Policymakers

The NHTSA has recognized that autonomous vehicles are the future, and it recognizes that regulation, at both the state and federal levels, is necessary to ensure the most efficient implementation of these vehicles.³²⁸ According to the NHTSA's current categorization for levels of automation in autonomous vehicles,³²⁹ state legislation is primarily focused on level 3 and 4 vehicles.³³⁰

The NHTSA has expressed concern regarding detailed state regulation of autonomous vehicles for purposes other than testing.³³¹ While the NHTSA recognizes that states have begun regulating vehicles

326. See PRELIMINARY STATEMENT, *supra* note 18, at 3.

327. See *id.* at 1–2 (describing “stakeholders” as the states and companies seeking to develop autonomous vehicle technology).

328. See *id.* at 1, 10.

329. See *id.* at 4–5.

330. *Id.* at 10 (stating that “[g]enerally, [state] laws seem to contemplate vehicle automation at Levels 3 and 4”); see also H.R. 1461, 27th Leg., Reg. Sess. § 2 (Haw. 2013) (proposing statutory section 286-B(b)(1), which would specify that the bill covers level 3 and 4 autonomous vehicles). A level 3 vehicle allows “the driver to cede full control of all safety-critical functions under certain traffic or environmental conditions and in those conditions to rely heavily on the vehicle to monitor for changes in those conditions requiring transition back to driver control.” PRELIMINARY STATEMENT, *supra* note 18, at 5. A level 4 vehicle “is designed to perform all safety-critical driving functions and monitor roadway conditions for an entire trip By design, safe operation rests solely on the automated vehicle system.” *Id.*

331. *Id.* at 10.

that encompass level 3 and 4 automation, it states that “the agency believes that regulation of the technical performance of automated vehicles is premature at this time.”³³² Because of the influx of proposed state legislation relating to autonomous vehicles, the NHTSA has issued recommendations to the states regarding any future state legislation for the testing of autonomous vehicles.³³³

The NHTSA has offered four distinct recommendations to state legislators, including “Recommendations for Licensing Drivers to Operate Self-Driving Vehicles for Testing”; “Recommendations for State Regulations Governing Testing of Self-Driving Vehicles”; “Recommended Basic Principles for Testing of Self-Driving Vehicles”; and “Regulations Governing the Operation of Self-Driving Vehicles for Purposes Other than Testing.”³³⁴ These recommendations appear to be in line with the legislation that has been previously enacted.

First, the NHTSA recommends that the states ensure that the operator of an autonomous vehicle is competent to operate such a vehicle through a special driver’s license endorsement and through certification by the manufacturer that the testing operator has completed a sufficient training course regarding control of these vehicles.³³⁵ Requiring a specific licensing endorsement and training for the operator ensures the safe operation of these vehicles and the safety of the public at large.

Second, the NHTSA offers recommendations regarding the actual testing of autonomous vehicles on state roadways.³³⁶ The NHTSA recommends that states require manufacturers to certify that the vehicles have been successfully tested for a certain number of miles on a closed track and to submit a plan about how the manufacturer intends to safely test the vehicles.³³⁷ In addition, the NHTSA recommends that

332. *Id.*

333. *See id.* at 10–14.

334. *Id.*

335. *Id.* at 11; *see also* MICH. COMP. LAWS ANN. § 257.665(2)(c) (West Supp. 2014) (requiring a driver’s license to operate an autonomous vehicle); NEV. ADMIN. CODE § 482A.110 (2014) (specifying a new driver’s license endorsement for operation of an autonomous vehicle); *id.* § 482A.130.2(b) (stating that the operator “[m]ust be trained in the operation of the autonomous vehicle and have received instruction concerning the capabilities and limitations of the autonomous vehicle”).

336. PRELIMINARY STATEMENT, *supra* note 18, at 11–12.

337. *See id.* at 11; *see also* NEV. ADMIN. CODE § 482A.110.3(b) (requiring manufacturers to submit satisfactory proof that the manufacturer has successfully driven an autonomous vehicle for at least 10,000 miles).

states limit the testing of autonomous vehicles to certain geographical locations and in safe conditions.³³⁸ Another recommendation from the NHTSA is that states require manufacturers to inform the state in the event that the autonomous vehicle prompts the driver to take manual control of the vehicle while the vehicle is operating in autonomous mode or of any accident or near accident that the autonomous vehicle is involved in “while operating in or transitioning out of self-driving mode.”³³⁹

Third, the NHTSA recommends that states implement regulations that ensure the safe testing of these vehicles.³⁴⁰ The NHTSA, however, “does not recommend that states attempt to establish safety standards for self-driving vehicles technologies, which are in the early stages of development.”³⁴¹ The recommendations involve giving the driver a variety of methods to override the autonomous technology and ensuring that the vehicles be able to alert the driver in the event of a technology failure.³⁴² Additionally, the NHTSA specifically states that the implementation of autonomous technology must not disable any federally required safety features.³⁴³ The recommendations also state that the vehicle should capture and store information in the event a collision occurs while the vehicle is operating in autonomous mode.³⁴⁴

Finally, the NHTSA addresses state regulations governing autonomous vehicles for purposes other than testing.³⁴⁵ The NHTSA recommends that states do not authorize the operation of autonomous vehicles for purposes other than testing at this time.³⁴⁶ It does note,

338. PRELIMINARY STATEMENT, *supra* note 18, at 12.

339. *See id.* at 12. If an autonomous vehicle prompts the driver to take manual control of the vehicle this could indicate either that the autonomous technology suffered some sort of failure or that the vehicle cannot operate autonomously due to some outside condition, such as snow or ice. *See id.* In either event, this data will allow states to better evaluate autonomous technologies and better develop the body of law regulating this technology.

340. *Id.* at 12–14.

341. *Id.* at 12.

342. *Id.* at 13.

343. *Id.*

344. *Id.* at 14; *see also* NEV. ADMIN. CODE § 482A.190.2(a) (2014) (requiring that autonomous vehicles be equipped with a mechanism that captures and stores data for at least 30 seconds before a collision); H.R. 4015, 120th Gen. Assemb., 1st Reg. Sess. § 1 (S.C. 2013) (requiring collection and storage of pre-collision data); S. 80, 2013–2014 Leg., 101st Reg. Sess. § 1 (Wis. 2013) (same).

345. PRELIMINARY STATEMENT, *supra* note 18, at 14.

346. *Id.*

however, that if a state desires to authorize general use of autonomous vehicles it should “at a minimum . . . require that a properly licensed driver . . . be seated in the driver’s seat and be available at all times in order to operate the vehicle in situations in which the automated technology is not able to safely control the vehicle.”³⁴⁷ This recommendation appears to be in line with the current autonomous vehicle legislation that has been enacted in several states, which limit the use of autonomous vehicles to testing at this stage.³⁴⁸

The NHTSA recommendations are a step in the right direction, as such recommendations acknowledge the importance of autonomous vehicles and the rise of state legislation. In fact, the NHTSA acknowledges that “confusion or disarray on the safety issues would be a significant impediment to the development of these technologies.”³⁴⁹ The preliminary statement, however, does not go far enough in delineating the future development and regulation of autonomous vehicles. The preliminary statement acknowledges that the first step in implementing this technology is to have states regulate the testing of autonomous vehicles.³⁵⁰ The NHTSA should, however, specify that it will promulgate safety standards when autonomous vehicles are close to commercial viability. Thus, the second step in implementing this technology is for the NHTSA to promulgate national standards governing autonomous vehicles and the safety requirements that must be implemented to allow these vehicles on public roadways. This two-step process allows for extensive testing of this new technology while ensuring that autonomous vehicles are subject to a national regime that will allow for their smooth, efficient transition into everyday life.

347. *Id.*

348. *E.g.*, CAL. VEH. CODE § 38750(b) (West Supp. 2014) (specifying that “[a]n autonomous vehicle may be operated on public roads for testing purposes”); FLA. STAT. ANN. § 316.86(1) (West Supp. 2013) (stating that “[v]ehicles equipped with autonomous technology may be operated on roads in this state by employees, contractors, or other persons designated by manufacturers of autonomous technology for the purpose of testing the technology”); MICH. COMP. LAWS ANN. § 257.665(2)(c) (West Supp. 2014) (declaring that “[t]he individual operating the [automated] vehicle [must be] . . . licensed to operate a motor vehicle in the United States”); NEV. REV. STAT. ANN. § 482A.100.2(d) (LexisNexis 2013) (requiring that promulgated regulations “[p]rovide for the testing of autonomous vehicles”).

349. PRELIMINARY STATEMENT, *supra* note 18, at 1.

350. *See id.* at 1–3 (noting that states and manufacturers “have asked NHTSA to provide recommendations on how to safely conduct . . . testing on public highways”).

VI. CONCLUSION

Autonomous vehicle technology is likely the next big advancement in the world of everyday transportation. This technology has the potential to save thousands of lives in the future. Before this technology becomes widely, commercially available, however, there is still going to be a stage of extensive testing, and indeed, states have already begun to promulgate legislation relating to the testing of such vehicles.³⁵¹ Some of the enacted and proposed legislation also attempts to anticipate both civil and criminal liabilities that will likely arise due to autonomous vehicle use.³⁵² In an effort to ensure the safety of these vehicles in all road conditions, more states, specifically those with varying climates ranging from dry to wet to icy, should conduct investigations into this technology and consider adopting legislation that requires their respective motor vehicle agencies to pass regulations allowing for the testing of autonomous vehicles in particular geographical areas. Allowing regulation will permit a state to monitor the progress of this technology, ensure the safety of its citizens, and allow continued improvement of safety on its roadways.

To date, however, no states have adopted extensive regulation regarding particular safety provisions for autonomous vehicle technology. This lack of current regulation presents a unique opportunity for both state and federal legislation. State legislatures should begin putting safety regulations into place while these vehicles, and the technology, is still in the testing phase; however, this presents an even better opportunity for the federal government to step in and begin regulation of this area, without encountering any preemption issues that have affected previous NHTSA regulations. First, Congress should insert an affirmative preemption clause in any sort of legislation that is to come forth relating the manufacture and sale of autonomous vehicles. Second, Congress and the NHTSA should act now, before autonomous vehicles are being manufactured and sold, to prevent resistance from the

351. See *supra* Part III.A.

352. See, e.g., S. 13-016, 69th Gen. Assemb., 1st Reg. Sess. § 4 (Colo. 2013) (stating that the driver of an autonomous vehicle is liable to the same extent as the driver that manually operates a vehicle); S. 4912, 236th Leg., 2013–2014 Reg. Sess. (N.Y. 2013) (granting original manufacturers of the vehicle an absolute defense to any liability that arises due to operation of the vehicle in autonomous mode, if the original manufacturer was not the one who converted the vehicle to an autonomous vehicle); H.R. 2428, 77th Leg. Assemb., 2013 Reg. Sess. § 4(3) (Or. 2013) (requiring storage of system sensor data for at least the thirty seconds preceding a collision).

motor vehicle industry and delays in any tort legislation that may result from the use of autonomous vehicles.

Therefore, the best approach to autonomous vehicle legislation is twofold. First, states should continue to promote autonomous vehicle testing by passing legislation that specifically requires their motor vehicle agency to adopt regulations regarding and allowing autonomous vehicle testing.³⁵³ Second, the federal government should pass safety regulations for autonomous vehicle technology as soon as is feasible. By passing regulations before the vehicles have come to market, the federal government will be taking the easiest approach to regulating this new technology. Passing federal regulations on this matter will smooth the advance of this progressive, life-saving technology, and state regulations regarding testing will allow for a quicker transition to our city streets and public highways.

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353. Specifically, the states should look to the particular safety provisions promulgated under the Nevada regulation. *See* NEV. ADMIN. CODE §§ 482A.130, 482A.190 (2014) (outlining specific safety requirements for an autonomous vehicle to be legal on the streets of Nevada; particularly, an override switch, easy access to methods of override, system failure warnings, methods of overriding the autonomous system, and vehicle behavior in the event of a system failure and no manual override).

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