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Chapter 570: Paving the Way for Autonomous Vehicles

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Vehicle

Chapter 570: Paving the Way for Autonomous Vehicles

Danielle Lenth

Code Section Affected

Vehicle Code § 38750 (new).
SB 1298 (Padilla); 2012 STAT. Ch. 570.

I. INTRODUCTION

It is difficult to overstate the automobile’s impact on the modern world.¹ Yet each year, harrowing statistics remind drivers that this incredible advancement has not come without risks; 32,885 deaths resulted from car accidents in the United States in 2010 (2,700 of those occurring in California), and car accidents remain the number one cause of death for people ages five to thirty-four.² These accidents and their devastating effects are so common that eliminating them seems hardly possible; yet proponents of a new technology contend that possibility is quickly becoming reality.³ This technology, formally known as “autonomous driving technology,” allows a vehicle to operate completely on its own without any manual assistance from a human.⁴ The self-driving car, as one designer describes it, “never gets distracted, never gets drunk, . . . [and] always does the right thing.”⁵ While the concept may sound outlandish, something we would expect to see only in a rerun of *The Jetsons*,⁶ the technology is very real

1. See, e.g., *Automobile in American Life and Society*, UNIV. OF MICH.–DEARBORN & BENSON FORD RESEARCH CTR. (2010), <http://www.autolife.umd.umich.edu/> (on file with the *McGeorge Law Review*) (describing the impact of the automobile on all facets of society, including race, gender, labor, and the environment); Greg Botelho, *The Car that Changed the World*, CNN (Aug. 10, 2004), http://articles.cnn.com/2004-08-06/us/model.t.1_henry-ford-model-ts-business-model?s=PM:US (on file with the *McGeorge Law Review*) (arguing that the widespread introduction of motorized vehicles through the Ford Model T “propelled” man “to unprecedented success”).

2. See SENATE RULES COMMITTEE, COMMITTEE ANALYSIS OF SB 1298, at 3 (May 17, 2012) (quoting the National Highway Safety Traffic Administration).

3. See generally Tom Vanderbilt, *Mapping the Road Ahead for Autonomous Cars*, WIRED (Feb. 8, 2012, 6:30 AM), <http://www.wired.com/autopia/2012/02/autonomous-vehicles-q-and-a/> (on file with the *McGeorge Law Review*) (discussing the likelihood of the widespread use of autonomous vehicles in the near future).

4. FACT SHEET, SB 1298—PADILLA: AUTONOMOUS VEHICLES (Apr. 16, 2012) [hereinafter FACT SHEET] (on file with the *McGeorge Law Review*).

5. *Padilla—SB 1298 Autonomous Vehicle Standards*, YOUTUBE (Mar. 1, 2012) http://www.youtube.com/watch?v=U_XmypoGIY [hereinafter Padilla Press Conference] (on file with the *McGeorge Law Review*) (quoting Andrew Levandoski, Google Project Manager).

6. See *id.* (likening new autonomous vehicle technology to something one might see on *The Jetsons*); *The Jetsons*, TV.COM, <http://www.tv.com/shows/the-jetsons/> (follow “More+” hyperlink) (last visited June 15, 2012) (on file with the *McGeorge Law Review*) (The Jetsons were an average family living life in a future world

2013 / Vehicle

and developers are gearing toward presenting it to consumers.⁷ These so-called “robot cars” develop from many of the existing features in modern cars today, such as cruise control, self-parking, and emergency braking.⁸ Developers of the technology and vehicle manufacturers argue that these cars will significantly reduce traffic accidents.⁹ They also claim that drivers can look forward to decreased traffic and fuel emissions.¹⁰

The reality of robot cars excites many, while terrifying others.¹¹ Regardless of one’s view on the technology, one thing is clear: driverless vehicles will permanently change the driving world.¹² Thus, a few states have already begun to regulate this new technology.¹³ Chapter 570 is California’s version of such legislation.¹⁴ Its purpose is to regulate testing and driving of autonomous vehicles on California’s public roadways.¹⁵ Chapter 570 has received widespread bipartisan support;¹⁶ although, it is not without criticism.¹⁷

complete with “flying space cars” and “instant transport tubes.”).

7. See Padilla Press Conference, *supra* note 5 (discussing the likelihood of the widespread use of autonomous vehicles in the near future).

8. Press Release, Alex Padilla, Cal. State Senate, California Senate Paves Way for Driverless Cars (May 21, 2012) [hereinafter Padilla Press Release] (on file with the *McGeorge Law Review*).

9. Sebastian Thrun: *Google’s Driverless Cars*, TED (March 2011), http://www.ted.com/talks/lang/en/sebastian_thrun_google_s_driverless_car.html [hereinafter *Sebastian Thrun*] (on file with the *McGeorge Law Review*); see also Padilla Press Release, *supra* note 8 (stating that “Google, BMW, Audi[,] and Volvo are all developing driverless technology with the goal of greater safety”).

10. Padilla Press Conference, *supra* note 5.

11. Compare Tom Vanderbilt, *Five Reasons The Robo-Car Haters Are Wrong*, WIRED (Feb. 9, 2012), <http://www.wired.com/autopia/2012/02/robo-car-haters-are-wrong/> (on file with the *McGeorge Law Review*) (noting the benefits autonomous vehicles will offer), with Letter from Jamie Court, President of Consumer Watchdog & John M. Simpson, Privacy Project Dir. of Consumer Watchdog, Consumer Watchdog, to Alex Padilla, Senator, Cal. State Senate (May 30, 2012) [hereinafter Consumer Watchdog Letter] (on file with the *McGeorge Law Review*) (listing their fear that this technology opens the door to serious “privacy risks” for consumers).

12. See generally SENATOR ALEX PADILLA, SB 1298 AUTONOMOUS VEHICLES QUESTION AND ANSWER 2 (2012) [hereinafter Q & A] (on file with the *McGeorge Law Review*) (explaining the importance of passing legislation to handle the differences accompanying autonomous vehicles on the road); see also Sebastian Thrun, *supra* note 9 (stating Thrun looks “forward to a time when generations after us look back at us and say how ridiculous it was that humans were driving cars”).

13. See NEV. ADMIN. CODE §§ 482A.010–482A.290 (2012) (regulating the use of autonomous vehicles); FLA. STAT. ANN. §§ 316.85–316.86 (West 2012) (regulating and defining autonomous vehicles).

14. See CAL. VEH. CODE § 38750 (enacted by Chapter 570) (regulating the use of autonomous vehicles).

15. See SENATE RULES COMMITTEE, COMMITTEE ANALYSIS OF SB 1298, at 4 (May 17, 2012) (“The author introduced this bill to enable California to join other states in establishing safe testing and operation standards for autonomous vehicles.”).

16. Senate Floor Vote of SB 1298, Unofficial Ballot (May 21, 2012), http://www.leginfo.ca.gov/pub/11-12/bill/sen/sb_1251-1300/sb_1298_vote_20120521_0146PM_sen_floor.html (on file with the *McGeorge Law Review*) (Chapter 570 passed the Senate with a 37–0 vote.).

17. See generally Consumer Watchdog Letter, *supra* note 11 (noting the organization’s opposition to Chapter 570 because of its potential to exploit consumers’ private lives for advertising profit).

II. LEGAL BACKGROUND

Chapter 570 exists at the frontier of autonomous vehicle legislation in California.¹⁸ While the California Vehicle Code currently authorizes the California Highway Patrol to place special safety regulations on certain kinds of vehicles,¹⁹ no code sections specifically regulate autonomous vehicles.²⁰ Before Chapter 570, manufacturers of autonomous vehicles strove to operate in accordance with general California Vehicle Code provisions, such as those requiring attentiveness.²¹ The Code defines a vehicle as “a device by which any person or property may be propelled, moved, or drawn upon a highway”;²² an autonomous vehicle does this and much more.²³ No code provision “require[s] that a person drive [the] vehicle.”²⁴ Across the United States, only two states have passed autonomous vehicle legislation: Nevada²⁵ and Florida.²⁶ As of March 2013, the following states have considered similar legislation, but did not enact these bills into law: Colorado,²⁷ Oklahoma,²⁸ and New Jersey.²⁹ Manufacturers are also encouraging federal lawmakers to create nationwide autonomous vehicle legislation in the near future.³⁰

18. See FACT SHEET, *supra* note 4, at 2 (stating that “[c]urrent California law is silent on autonomous vehicle technology”).

19. See, e.g., CAL. VEH. CODE § 2429.5 (West 2000) (mandating special certification requirements for “farm labor vehicle drivers”); *id.* § 2420 (requiring motorcycle manufacturers to submit certification of “gross brake horsepower” to the California Highway Patrol); *id.* § 2807 (ordering school buses to undergo inspection by the California Highway Patrol once a year to ensure compliance with the law’s “construction, design, equipment, and color” restrictions).

20. SENATE RULES COMMITTEE, COMMITTEE ANALYSIS OF SB 1298, at 1 (May 17, 2012).

21. Tom Vanderbilt, *Navigating the Legality of Autonomous Vehicles*, WIRED (Feb. 7, 2012), <http://www.wired.com/autopia/2012/02/autonomous-vehicle-legality/> (on file with the *McGeorge Law Review*). Google’s Product Manager Anthony Levandowski explains that because California law is “silent” on autonomous vehicles, the company simply made sure to stay “within the law” by always having a driver behind the wheel setting the speed and ready to immediately take over control. *Id.*

22. VEH. § 670.

23. Padilla Press Conference, *supra* note 5.

24. SENATE RULES COMMITTEE, COMMITTEE ANALYSIS OF SB 1298, at 1 (May 17, 2012).

25. NEV. ADMIN. CODE §§ 482A.010–482A.290 (2012).

26. FLA. STAT. ANN. §§ 316.85–316.86 (West 2012).

27. SB 13-016, 69th Leg., 1st Reg. Sess. (Colo. 2013).

28. HB 3007, 53d Leg., 2d Reg. Sess. (Okla. 2012).

29. AB 2757, 2012 Leg., 2012–2013 Reg. Sess. (N.J. 2012). As this article goes to press, the Arizona, Hawaii, Michigan, New Hampshire, Oregon, and Washington legislatures are considering autonomous vehicle legislation. HB 2167, 2013 Leg., 2013–2014 Reg. Sess. (Ariz. 2013); HB 1461, 2013 Leg., 2013–2014 Reg. Sess. (Haw. 2013); SB 169, 2013 Leg., 2013–2014 Reg. Sess. (Mich. 2013); HB 444, 2013 Leg., 2013–2014 Reg. Sess. (N.H. 2013); HB 2428, 2013 Leg., 2013–2014 Reg. Sess. (Or. 2013); HB 1439, 2013 Leg., 2013–2014 Reg. Sess. (Wash. 2013).

30. See Jason Slu, *Google Takes Autonomous Car to Washington D.C. in Search of Country Wide Legalization*, AUTOGUIDE.COM (May 16, 2012), <http://www.autoguide.com/auto-news/2012/05/google-takes-autonomous-car-to-washington-d-c-in-search-of-country-wide-legalization.html> (on file with the *McGeorge Law Review*) (noting Google’s “main focus right now is to prove [the technology’s] benefits to lawmakers” in Washington D.C.). While Congress has yet to introduce federal legislation, the United States Military began

2013 / Vehicle

III. CHAPTER 570

Chapter 570 regulates the testing and operation of autonomous vehicles on California's public roads.³¹ The legislation defines an autonomous vehicle as one "equipped with autonomous technology";³² this technology only includes installed equipment capable of fully operating the vehicle without human monitoring or action.³³ The term autonomous vehicle does not encompass "collision avoidance systems" that merely offer assistance to an active driver.³⁴ Chapter 570 permits operating an autonomous vehicle for testing purposes by a driver possessing the specific, required license.³⁵ A designated test driver for the autonomous vehicle's manufacturer³⁶ may operate the vehicle, provided the manufacturer maintains insurance of five-million dollars and has certified that certain requirements are satisfied.³⁷ These requirements include a "visual indicator" that the technology is employed,³⁸ an "easily accessible" device for disengaging the technology,³⁹ and a safety alert system to warn the operator when the autonomous technology fails.⁴⁰ In the event of a technology failure, the vehicle's system must command the driver to take over operation of the vehicle; if this is impossible, the autonomous technology must be able to come to a "complete stop."⁴¹ In addition, the vehicle's technology must be capable of recording and storing activity "for at least 30 seconds" prior to an accident occurring.⁴²

supporting autonomous vehicles in the 1980s; the Pentagon's Defense Advanced Research Projects Agency (DARPA) financed the Autonomous Land Vehicle, the first vehicle to use "laser radar and computer vision." Michael Stephens, *Autonomous Cars: New Age of the Modern Automobile*, HUBPAGES BLOG, <http://ithabise.hubpages.com/hub/Autonomous-Cars-New-Age-of-the-Modern-Automobile> (last visited May 30, 2012) (on file with the *McGeorge Law Review*). DARPA created "a long distance competition for driverless cars" in 2004, called the Grand Challenge, to encourage civilian development of the technology and Congress authorized a \$1 million dollar prize for the winner. *Id.*

31. CAL. VEH. CODE § 38750 (enacted by Chapter 570).

32. *Id.* § 38750(a)(2)(A) (enacted by Chapter 570).

33. *Id.* § 38750(a)(1) (enacted by Chapter 570).

34. *Id.* § 38750(a)(2)(B) (enacted by Chapter 570).

35. *Id.* § 38750(b) (enacted by Chapter 570).

36. *Id.* § 38750(a)(5) (enacted by Chapter 570). These test drivers include the vehicle manufacturer's employees, contractors, or other designees. *Id.* A manufacturer is defined as one who originally "manufactures a vehicle and equips" it with autonomous technology, or one who is not the original maker of the vehicle, but later installs autonomous technology onto it. *Id.*

37. *Id.* § 38750(b)(1)–(3) (enacted by Chapter 570). The manufacturer must submit certification of these requirements, along with certification that the company has tested the vehicle on public roads and maintains five-million dollars in insurance. *Id.* § 38750(b)(3), (c) (enacted by Chapter 570).

38. *Id.* § 38750(c)(1)(B) (enacted by Chapter 570).

39. *Id.* § 38750(c)(1)(A) (enacted by Chapter 570).

40. *Id.* § 38750(c)(1)(C) (enacted by Chapter 570).

41. *Id.* § 38750(c)(1)(C)(i)–(ii) (enacted by Chapter 570).

42. *Id.* § 38750(c)(1)(G) (enacted by Chapter 570).

McGeorge Law Review / Vol. 44

More generally, the autonomous vehicle's technology must comport with all state and federally mandated safety and performance standards and regulations.⁴³ To this effect, the technology may not adversely affect any of the vehicle's features designed to meet these criteria.⁴⁴ Finally, Chapter 570 grants the Department of the California Highway Patrol, in conjunction with the Department of Motor Vehicles, the right to recommend to the legislature additional safety requirements for the operation of autonomous vehicles.⁴⁵

IV. ANALYSIS

The automobile's crucial role in modern California indicates that Chapter 570's implementation will have a widespread effect.⁴⁶ To analyze this impact, this article first explains the technology itself and assesses the many positive benefits of autonomous vehicles that researchers believe will redefine California's roadways.⁴⁷ Supporters of Chapter 570 list promoting these benefits here in California as the legislation's primary purpose, though not all critics are convinced such benefits will come to fruition.⁴⁸

A. *Autonomous Vehicle Technology*

While the concept may seem incredibly modern, much of the technology implemented by autonomous vehicles already exists in vehicles driven today.⁴⁹ Generally, manufacturers include a combination of six main technologies in their designs: cameras, lasers, global positioning systems (GPS), radar, drive-by-wire technology, and a computer.⁵⁰ However, before autonomous vehicles operate on roadways, the route must be "mapped and logged in to the car's computer."⁵¹ Sebastian Thrun, Software Engineer at Google and the Director of the Stanford Artificial Intelligence Lab, explains that manually operated vehicles must collect these comprehensive maps to ensure the autonomous vehicle's driving precision

43. *Id.* § 38750(c)(1)(E) (enacted by Chapter 570).

44. *Id.* § 38750(c)(1)(F) (enacted by Chapter 570).

45. *Id.* § 38750(d)(3) (enacted by Chapter 570).

46. See Margaret Rock, *How Driverless Cars Will Change Your Commute*, MOBILEMEDIA (Oct. 1, 2012), <http://www.mobiledia.com/news/164404.html> (discussing the importance of educating consumers on the technology).

47. Padilla Press Release, *supra* note 8; Padilla Press Conference, *supra* note 5.

48. Padilla Press Conference, *supra* note 5; see also Vanderbilt, *Mapping the Road Ahead for Autonomous Cars*, *supra* note 3 (discussing the potential problems with autonomous vehicles).

49. See Padilla Press Release, *supra* note 8 (noting that "semi-autonomous technologies including adaptive cruise control, lane departure warning systems, pre-collision braking and self-parking" are all used in autonomous vehicles).

50. Q & A, *supra* note 12, at 5.

51. *Id.*

2013 / Vehicle

and accuracy.⁵² The culmination of these technologies leads Thrun to believe autonomous vehicles are the “perfect driving mechanism.”⁵³ Though the technology has only been developing for roughly thirty years,⁵⁴ in California alone, autonomous cars have driven “more than two hundred thousand miles,”⁵⁵ with limited or no manual assistance by the car’s operator.⁵⁶ One of Google’s autonomous cars has even completed a journey from San Francisco to Los Angeles without a single interference by the driver.⁵⁷ Globally, the technology is also rapidly progressing; in Abu Dhabi, for example, a form of the technology, known as Personal Rapid Transit electric vehicles, provides entirely driver-less transportation for the public in certain areas.⁵⁸

B. *On the Road with Autonomous Vehicle Technology*

In California, supporters of this technology offer an extensive list of the benefits the state can expect from the widespread introduction of autonomous vehicles: increased safety for drivers, traffic and emissions reduction, and job growth.⁵⁹ Since autonomous vehicle technology removes the component of human error, the most common cause of accidents, supporters maintain that nearly all traffic accidents will be avoided.⁶⁰ Proponents of the autonomous technology also acknowledge its subsidiary benefits of traffic and emissions reductions as well as job growth.⁶¹ For example, Sebastian Thrun observes that autonomous vehicles’ heightened precision and quickened response time will allow for decreased lane sizes and shorter distances between cars.⁶² In California, this will lead to a substantial decrease in daily traffic commutes and thus lessen emissions.⁶³ Those supporting the advance of autonomous vehicles in California note that the state is “uniquely positioned” as the home to many of these

52. *Sebastian Thrun, supra note 9.*

53. *Id.*

54. *Professor Schmidhuber’s Highlights of Robot Car History*, IDSIA, <http://www.idsia.ch/~juergen/robotcars.html> (last visited May 30, 2012) (on file with the *McGeorge Law Review*).

55. Padilla Press Release, *supra note 8.*

56. Padilla Press Conference, *supra note 5.*

57. *Sebastian Thrun, supra note 9.*

58. Bryan Walsh, *Masdar City, the World’s Greenest City?*, TIME (Jan. 25, 2011), <http://www.time.com/time/health/article/0,8599,2043934,00.html> (on file with the *McGeorge Law Review*).

59. Padilla Press Release, *supra note 8*; Padilla Press Conference, *supra note 5.*

60. *Sebastian Thrun, supra note 9.*

61. *Id.*; SENATE RULES COMMITTEE, COMMITTEE ANALYSIS OF SB 1298, at 4 (May 17, 2012).

62. *Sebastian Thrun, supra note 9.*

63. *See id.* (implementing autonomous technology during daily commutes will save the “2.4 billion gallons of gasoline wasted” during traffic jams).

McGeorge Law Review / Vol. 44

vehicles' manufacturers.⁶⁴ They argue that becoming one of the first states to pass this legislation will increase job growth in the state.⁶⁵

Yet the above projections, while thoroughly researched, remain merely hypothetical for the moment.⁶⁶ And while the testing done so far has been entirely positive,⁶⁷ not everyone is certain that introducing the vehicles will be an immediate success.⁶⁸ For example, experts worry that despite manufacturers' assurances, the emergency warning system will not work in practice.⁶⁹ According to Ralf Herrtwich, head of Telematic Research Laboratory, when an emergency occurs, such as an obstacle entering the road, the situation is "so spontaneous there's little room for such a cascade of warnings."⁷⁰ Donald Norman, an author and consultant of autonomous technology, warns that the situation is different than in aviation, where skillful pilots have been trained to immediately take over in an emergency; on the road, there are "unskilled drivers" who are untrained and may not have been paying attention.⁷¹ Moreover, he argues that pilots are "five miles up . . . [and] may have a minute or two" before the emergency occurs, whereas driving emergencies are often instantaneous.⁷²

C. Changing Gears with Chapter 570

Supporters of Chapter 570 believe it will bring incredible benefits to California roadways.⁷³ In spite of this, some critics remain concerned that the legislation will invade the privacy of drivers.⁷⁴

64. SENATE RULES COMMITTEE, COMMITTEE ANALYSIS OF SB 1298, at 4 (May 17, 2012).

65. *Id.*; see also Chuck Squatriglia, *California Lawmaker Wants Rules for Robo-Cars*, WIRED (Feb. 29, 2012), <http://www.wired.com/autopia/2012/02/padilla-robo-cars-sb-1298/> (on file with the *McGeorge Law Review*) (stating that supporters believe "California, with its thriving tech sector, is the perfect testbed for such technology").

66. See Vanderbilt, *Mapping the Road Ahead for Autonomous Cars*, *supra* note 3 ("[D]espite the rapid advances [in autonomous vehicles.] . . . we're still a long way from the day we're letting the robot drive.").

67. Not a single accident has occurred while using the autonomous vehicle technology so far. Q & A, *supra* note 12, at 7.

68. See Vanderbilt, *Mapping the Road Ahead for Autonomous Cars*, *supra* note 3 (interviewing experts who state that there are many factors that need to be considered still for autonomous vehicles to actually succeed).

69. *Id.*

70. *Id.*

71. *Id.*

72. *Id.*

73. Q & A, *supra* note 12 (quoting Senator Padilla as saying, "[i]t is important to develop standards and performance requirements for the . . . operation of autonomous vehicles in the state of California," because "[a]utonomous vehicle technology has the potential to significantly reduce traffic fatalities and injuries. It also has the potential to increase fuel efficiency, reduce traffic congestion, and increase highway capacity.").

74. Consumer Watchdog Letter, *supra* note 11.

2013 / Vehicle

1. *A Step in the Right Direction*

The excitement surrounding autonomous vehicle technology is also present in the introduction of Chapter 570.⁷⁵ However, because much of the discussion regarding the effects of autonomous vehicle technology is inherently speculative for now, the effects of the legislation are as well; this is exemplified by Senator Padilla's use of the word "potential" when referring to Chapter 570's ability to save thousands of lives each year as the primary reason for his support.⁷⁶ He also argues that Chapter 570 may lead to job growth in California, as well as decreased traffic and fuel emissions in the state.⁷⁷ All of these statements demonstrate the necessarily conditional nature of the arguments, as Chapter 570 presently applies to only a very limited class of drivers.⁷⁸ Test drivers working for autonomous vehicle manufacturers, often on closed courses, are currently the only ones operating these vehicles and are the only class authorized to drive these vehicles under the new legislation.⁷⁹ Thus, the many benefits autonomous technology developers predict will accompany the widespread use of the vehicles will not result simply from Chapter 570's enactment, but will require further technology and legislation.⁸⁰

2. *Placating Critics' Concerns*

Despite its preemptive nature, Senator Padilla argues that Chapter 570 is a crucial step in the right direction, considering the new law to be vital, proactive legislation.⁸¹ He explains that legislation is often behind the turn of technology,⁸²

75. See Sarah Rich, *Driverless Cars on California Roads Could Be Regulated*, GOV'T TECH. (Mar. 1, 2012), <http://www.govtech.com/technology/Driverless-Cars-on-California-Roads-Could-be-Regulated-.html> (on file with the *McGeorge Law Review*) (citing Google employees as saying they are "really excited about seeing Sen. Padilla's work . . . enable the groundwork for consumers to have access to this wonderful, new technology"); see also American Guardian Warranty, *Autonomous Cars Gain Speed After California Senate Vote*, AM. GUARDIAN WARRANTY SERVS., INC. (June 8, 2012), <http://www.americanguardianwarrantyblog.com/> (on file with the *McGeorge Law Review*) ("Exciting times are ahead in the development of autonomous cars. California Senate has approved Senate Bill 1298, which brings the reality of self-driving cars closer to the public.").

76. Doug Newcomb, *Privacy Group Voice Concerns over Google-Backed Autonomous Vehicle Legislation*, WIRED (June 1, 2012, 3:23 PM), <http://www.wired.com/autopia/tag/autonomous-vehicles/> (on file with the *McGeorge Law Review*) (quoting Padilla as saying that Chapter 570 exists as a "matter of safety"). Padilla argues that despite the many advancements in automobile safety in the past century, accidents still occur far too frequently and are almost always attributable to human error. Padilla Press Conference, *supra* note 5.

77. Q & A, *supra* note 12.

78. CAL. VEH. CODE § 38750(b)(1)–(3) (enacted by Chapter 570); see also Padilla Press Conference, *supra* note 5 (making projections as to when the vehicles will be available, but acknowledging that currently it remains unavailable to the public).

79. Padilla Press Conference, *supra* note 5.

80. See Vanderbilt, *Mapping the Road Ahead for Autonomous Cars*, *supra* note 3 (interviewing experts on what the technology has yet to accomplish).

81. Padilla Press Conference, *supra* note 5 (noting that too often automobile technology legislation is

McGeorge Law Review / Vol. 44

citing the twelve-year gap between the common use of vehicles and the introduction of the stop sign as an example of the dangers of retroactive regulation in transportation.⁸³ The legislation attempts to avoid repeating such a hazardous scenario by “establishing safety requirements well before [autonomous vehicles] are commercially available.”⁸⁴

There is visible wisdom to this approach; consider, for example, the stream of legislation sweeping the states prohibiting cell phone use while driving.⁸⁵ Cell phones are a relatively new technology but have already led to disturbing effects in the driving world, with some studies estimating “twenty-eight percent of traffic accidents occur when people talk on cellphones or send text messages while driving.”⁸⁶ One hopes Chapter 570 can sidestep such a disastrous learning period by creating safety regulations before this new technology becomes commonly available; but as the cell phone debacle has demonstrated, it is often impossible to predict a new technology’s negative consequences.⁸⁷

The legislation has received bipartisan support, in part because of the author’s willingness to incorporate critics’ concerns.⁸⁸ Opponents of Nevada’s autonomous vehicle legislation recently expressed apprehension that its definition of “autonomous vehicles” is “unclear” and broad, potentially encompassing self-parking vehicles; these vehicles, whose manufacturers did not intend for them to be autonomous, would then be required to meet the heightened standards the legislation places on autonomous vehicles.⁸⁹ Chapter 570 sidesteps this issue by “expressly exempting ‘vehicle[s] equipped with [systems] that enhance safety or provide driver assistance, but are not capable, collectively or singularly, of driving the vehicle[s] without the active control and continuous

retroactive, which is why he introduced Chapter 570).

82. Q & A, *supra* note 12.

83. *Id.*

84. *Id.*

85. See Kathleen Michen, *Cell Phones, Texting, and Driving: State Laws*, NOLO, <http://www.nolo.com/legal-encyclopedia/cell-phones-texting-driving-state-laws-29774.html> (last visited Jan. 13, 2013) (on file with the *McGeorge Law Review*) (“Talking on a cell phone or texting while driving has become commonplace, but states are cracking down.”).

86. Ashley Hasley III, *28 Percent of Accidents Involve Talking, Texting on Cellphones*, WASH. POST (Jan. 13, 2010), <http://www.washingtonpost.com/wpdyn/content/article/2010/01/12/AR2010011202218.html> (on file with the *McGeorge Law Review*).

87. Dario Salvucci, *Driver Distraction Research*, DEP’T OF COMPUTER SCI., DREXEL UNIV., <https://www.cs.drexel.edu/~salvucci/distraction.html> (last visited June 15, 2012) (on file with the *McGeorge Law Review*) (explaining that while engineers have tools to for “making predictions,” such tools have been difficult to apply to technologies like cell phones that involve “cognition and behavior”).

88. Telephone Interview with John Mann, Commc’ns Dir. for Cal. State Senator Alex Padilla (May 30, 2012) [hereinafter John Mann Interview] (notes on file with the *McGeorge Law Review*).

89. Ryan Calo, *Nevada Bill Would Pave the Road to Autonomous Cars*, STANFORD CTR. FOR INTERNET & SOC’Y BLOG (Apr. 27, 2011), <http://cyberlaw.stanford.edu/node/6663> (on file with the *McGeorge Law Review*); Yana Welinder, *California Considers Regulation of Autonomous Vehicles*, JOLT DIGEST (Mar. 26, 2012), <http://www.jolt.harvard.edu/digest/legislation/2230> (on file with the *McGeorge Law Review*).

2013 / Vehicle

monitoring of a human operator.”⁹⁰ A provision requiring all autonomous vehicles to harbor a black box capable of recording data from at least thirty seconds before an accident was also inserted to combat criticisms that driverless vehicle collisions will trigger litigation chaos.⁹¹ This information will later clarify, in potential litigation, whether the accident was the result of the technology or the driver, so that the correct area of tort law may be applied.⁹²

3. Future Privacy Issues

Despite this support, not everyone is satisfied with the final version of Chapter 570.⁹³ Consumer Watchdog, a nonprofit organization, objected to the legislation’s lack of private information safeguards.⁹⁴ Specifically, their concerns center on Google’s involvement with the legislation.⁹⁵ The organization claims that Google’s motivation lies in its desire to acquire “voluminous personal information about [consumers] and [their] movements” to assist in personalizing advertisements to achieve increased profits.⁹⁶ Consumer Watchdog warns that Google will be free to monitor drivers’ private lives as it does on the Internet.⁹⁷ Again, these concerns are somewhat premature, as Google is not currently marketing their vehicles to the public.⁹⁸ However, Chapter 570 is a step toward such sales taking place in the future.⁹⁹

V. CONCLUSION

While Chapter 570 may generate plenty of debate over the much larger idea of robotic vehicles, the legislation remains limited in its application until

90. Welinder, *supra* note 89 (citing CAL. VEH. CODE § 38750(a)(2)(B) (enacted by Chapter 570)).

91. VEH. § 38750(c)(1)(G) (enacted by Chapter 570); John Mann Interview, *supra* note 88; *see also* John Markoff, *Collision in the Making Between Self-Driving Cars and How the World Works*, N.Y. TIMES (Jan. 23, 2012), <http://www.nytimes.com/2012/01/24/technology/googles-autonomous-vehicles-draw-skepticism-at-legal-symposium.html> (on file with the *McGeorge Law Review*) (noting that “legal liability . . . challenges may pose far more problems than the technological ones”).

92. Knowing whether the driver or the technology was at fault will help clarify whether plaintiffs should bring a negligence or a products liability suit. *See Q & A, supra* note 12, at 10 (stating that the “black box” will “record all data from the vehicle”). “[L]iability in the area of autonomous vehicles would be addressed by the current system of tort and common law governing product defects.” *Id.*

93. *See* Jerry Hirsch, *Self-Drive Autos Raise Privacy Concerns*, L.A. TIMES (May 31, 2012), <http://articles.latimes.com/2012/may/31/business/la-fi-autos-self-driving-20120531> (on file with the *McGeorge Law Review*) (listing Consumer Watchdog as an opponent to Chapter 570).

94. Consumer Watchdog Letter, *supra* note 11.

95. *Id.*

96. *Id.*

97. *Id.*

98. Padilla Press Conference, *supra* note 5.

99. *See* Rich, *supra* note 75 (quoting Google employees expressing their excitement over Chapter 570 laying the groundwork for future consumer access to their autonomous vehicles).

McGeorge Law Review / Vol. 44

manufacturers release the vehicles to the public.¹⁰⁰ Whether autonomous vehicle technology will create the driving world its developers envision—one free from injury and accident, while rich in efficiency and freedom—remains a mystery for now.¹⁰¹

However, it is clear that the continued success of the technology will hinge in part on continued government acceptance, as legislation represents a vital avenue for fostering a world of autonomous vehicles.¹⁰² Chapter 570, while a substantial victory for autonomous vehicle proponents in California, is only one small building block.¹⁰³ Ultimate success will require not only similar legislation in the forty-seven remaining states and at the federal level,¹⁰⁴ but also further development in this relatively new technology.¹⁰⁵

100. Even in Nevada, where legislation has existed for over a year, the first license to drive autonomous vehicles was only issued to Google in May of 2012. Cyrus Farivar, *Google Gets License to Test Drive Autonomous Cars on Nevada Roads*, ARSTECHNICA (May 7, 2012), <http://arstechnica.com/tech-policy/2012/05/google-gets-license-to-test-drive-autonomous-cars-on-nevada-roads/> (on file with the *McGeorge Law Review*). Having created special license plates for widespread use, the DMV reminds the public that consumer use of the technology is still in the future. *Id.*

101. See Vanderbilt, *Mapping the Road Ahead for Autonomous Cars*, *supra* note 3 (listing the many projected benefits of the technology but interviewing experts highlighting the roadblocks for achieving autonomous vehicles).

102. See Slu, *supra* note 30 (noting Google's "main focus right now is to prove [the technology's] benefits to lawmakers" in Washington D.C.).

103. See Jonathon Ramsey, *California Senate Votes to Bring Autonomous Cars Closer to Reality*, AUTOBLOG (May 23, 2012, 8:28 AM), <http://www.autoblog.com/2012/05/23/california-senate-votes-to-bring-autonomous-cars-closer-to-reality/> (on file with the *McGeorge Law Review*) (stating that with the passage of Chapter 570 by the Senate, "California is on its way to taking a ride with the autonomous car").

104. See Vanderbilt, *Mapping the Road Ahead for Autonomous Cars*, *supra* note 3 (according to Ralf Herrtwich, along with the development of the technology, success will hinge on the government's granting manufacturers the ability to put the vehicles on the road); see also Andrei Nedelea, *Google Self-Driving Car Law Passes California Senate*, AUTOEVOLUTION (May 23, 2012), <http://www.autoevolution.com/news/google-self-driving-car-law-passes-california-senate-45279.html> (on file with the *McGeorge Law Review*) (claiming that "Google's push of its autonomous car legislation seems relentless" and that the "rest of the country" will soon adopt similar legislation as a result).

105. See Markoff, *supra* note 91 (discussing the "technological barriers" that autonomous vehicles have yet to overcome).