

Shifting Automotive Landscapes: Privacy and the Right to Travel in the Era of Autonomous Motor Vehicles

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I. INTRODUCTION

“Travel, in the younger sort, is a part of education; in the elder, a part of experience.”¹ Time has proven these words, penned by noted English attorney and philosopher Francis Bacon, immortal in their truth. While the ability to travel has always had unique social, political, and economic significance, the ability to move from place to place efficiently has never been as possible—or important—as it is today. Indeed, the U.S. Department of Transportation estimates that the average American travels 36.1 miles, or for almost an hour and a half, every day.² Given the importance of personal transportation to Americans, it is not surprising that the automotive industry is looking to autonomous technology to increase access and ease of transportation.

As society becomes increasingly exposed to innovative transportation methods, particularly autonomous motor vehicles (AMVs), our nation’s policies are quickly showing themselves ineffective in addressing the issues of our modern age.³ United States

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1. JOHN BARTLETT, FAMILIAR QUOTATIONS (10th ed. 1919). Sir Francis Bacon was a noted Renaissance-era English philosopher and attorney. Jürgen Klein, *Francis Bacon*, STAN. ENCYCLOPEDIA PHIL. (Dec. 29, 2003), <http://plato.stanford.edu/entries/francis-bacon/>.

2. *Passenger Travel*, U.S. DEP’T OF TRANSP., http://www.rita.dot.gov/bts/publications/passenger_travel/chapter2 (last visited Jan. 15, 2015).

3. AMVs are also referred to as “driverless cars,” “self-driving cars,” or derivations thereof. This Note opts for the term “autonomous motor vehicles,” as this term more appropriately capture the fundamental nature and capabilities of these technologies. While terms like “driverless” or “self-driving” may have a certain appeal to a consumer base, the

jurisprudence regarding the fundamental right to travel, in particular, does not adequately respond to individuals' modern need to have access to personal transportation.⁴ Today, personal transportation is nearly a prerequisite for numerous forms of employment, access to healthcare, and many other daily needs, and yet courts often refuse to protect the right to personal transportation.⁵ Similarly, a lack of privacy laws protecting information collected by motor vehicles (particularly AMVs) leaves both consumers and manufacturers uncertain of what limitations, if any, will be placed on these information-collecting practices.⁶

It is up to our legislatures and judiciaries to respond to changing dynamics of personal transportation and its technologies. This Note proposes that our nation secure the "fundamental" right to travel in two steps.⁷ First, courts must abandon the single-mode doctrine. This doctrine entertains the legal fiction that as long as one form of transportation is available to an individual, their right to travel has not been infringed, and it erroneously fails to consider practicality.⁸ Second, legislatures should adopt comprehensive protections of consumer privacy when information is collected through AMVs. By requiring anonymization of information collected, manufacturers can assure adequate consumer privacy while providing critical information to help develop safer technologies, regulations, and other practices.⁹ Without adequate privacy protections, consumers are forced to choose between forfeiting access to the outside world and

potential for, and purpose of, these vehicles to operate autonomously is the definitive feature of these vehicles.

4. Throughout this Note, I use "personal transportation," or a derivative of that phrase, to refer to one's individual and independent access to a form of transportation that enables him or her to adequately and reasonably meet his or her daily needs. Some interpret this phrase more broadly to include any means of transportation by which an individual can control his or her destination and the means by which one arrives there. Although such a broad definition includes walking, biking, driving, and much more, my use of the phrase "personal transportation" in this Note does not include non-mechanized methods of transportation.

5. See discussion *infra* Part II.A and accompanying sources.

6. See discussion *infra* Parts II.B.2, II.C.1 and accompanying sources.

7. See sources cited *infra* note 12.

8. See sources cited *infra* note 34 and discussion *infra* Part II.A.

9. See discussion *infra* Part III and accompanying notes.

subjecting themselves to personal privacy invasions, and the right to travel itself is threatened.¹⁰

Context for these issues begins in Part II.A, which explores the early history and jurisprudence surrounding automobile regulations and the right to drive. Part II.B looks at the technological and cultural shifts AMVs bring to our social landscape, as well as privacy concerns emanating therefrom. In Part II.C, I look at modern privacy law, with particular emphasis on privacy law's exponential convergence with the right to travel. Finally, Part III offers suggestions for judges and legislators alike for how to respond to the growing need brought by AMVs to clarify the rights of drivers.

II. HISTORY

A. *The Development of Automobile Regulations and the Right to Drive*

Despite a lack of publicity,¹¹ the right to travel has long been acknowledged as a fundamental constitutional right by United States courts.¹² The right to travel has undergone many transitions, particularly following the advent of the modern automobile, and has become steadily more qualified.¹³ While courts have unanimously agreed that a right to travel exists, the consensus surrounding the

10. See *infra* discussion at Part II.C.2 and accompanying notes.

11. See Kathryn E. Wilhelm, Note, *Freedom of Movement at a Standstill? Toward the Establishment of a Fundamental Right to Intrastate Travel*, 90 B.U. L. REV. 2461, 2462 (2010). The general ignorance of the "right to travel" is notable given its historical significance. The right dates back as early as the signing of the Magna Carta in 1215 and was written about by both Sir William Blackstone and Thomas Jefferson. Richard Sobel, *The Right to Travel and Privacy: Intersecting Fundamental Freedoms*, 30 J. INFO. TECH. & PRIVACY L. 639, 641 (2014).

12. *United States v. Wheeler*, 254 U.S. 281, 292 (1920) ("In all the states, from the beginning down to the adoption of the Articles of Confederation, the citizens thereof possessed the fundamental right, inherent in citizens of all free governments, peacefully to dwell within the limits of their respective states, to move at will from place to place therein, and to have free ingress thereto and egress therefrom, with a consequent authority in the states to forbid and punish violations of this fundamental right.") (citing *Corfeld v. Coryell*, 6 F. Cas. 546 (E.D. Pa. 1823); *Slaughterhouse Cases*, 83 U.S. 36 (1872)).

13. See generally Roger I. Roots, *The Orphaned Right: The Right to Travel by Automobile, 1890–1950*, 30 OKLA. CITY U. L. REV. 245 (2005).

doctrine seemingly stops there.¹⁴ Courts and commentators dispute not only the basis of the right to travel,¹⁵ but also its scope.¹⁶ This has resulted in an opaque right to travel doctrine.

Courts generally acknowledge at least five subsumed rights included in the right to travel.¹⁷ Most pertinent of these subsumed rights to this Note are the rights to “interstate” and “intrastate” travel,¹⁸ which most directly address a motorist’s rights. Of these two rights, the Supreme Court has chosen to only rule on the former,¹⁹

14. The Supreme Court most recently reaffirmed the right in *Saenz v. Roe*, 526 U.S. 489 (1999); 13 CAL. JUR. 3D *Constitutional Law* § 220 (2015) (“A state law implicates the constitutional right to travel when it actually deters such travel, when impeding travel is its primary objective, or when it uses any classification which serves to penalize the exercise of that right.”).

15. 13 CAL. JUR. 3D *Constitutional Law* § 220 (2015) (“The federal commerce power authorizes Congress to legislate for the protection of individuals from violations of civil rights that impinge on their free movement in interstate commerce.”); 4A Ia. Prac., Criminal Procedure § 35:6 (2015) (“[A]t times, the right to travel ‘has been attributed to the Privileges and Immunities Clauses of Article IV and the Fourteenth Amendment and to the Commerce Clause or has been inferred from the federal structure of government created by the Federal Constitution.’”); Timothy Baldwin, *The Constitutional Right to Travel: Are Some Forms of Transportation More Equal than Others?*, 1 NW. J.L. & SOC. POL’Y 213 (2006) (“Many commentators have theorized that the framers assumed the language used in the Articles of Confederation was obviously implicit in the meaning of ‘Privileges and Immunities’ and did not need to be included in the Constitution.”); Andrew M. Schnitzel, Case Comment, *Balancing Police Action Against an Underdeveloped Fundamental Right: Is There A Right to Travel Freely on Public Fora?*, 114 PENN. ST. L. REV. 667, 672–73 (2009) (noting that the Supreme Court has ostensibly found the right to travel in seven different constitutional provisions).

16. While the Supreme Court has taken several occasions to discuss the right to interstate travel, the Court has explicitly declined to extend its rationale to intrastate travel. Baldwin, *supra* note 15, at 213. The result has been a mixed bag of appellate decisions on the existence and framework of a right to intrastate travel. *See infra* notes 17–28 and accompanying text.

17. The five rights subsumed under the general right to travel are: (1) the right to freedom of movement, (2) the right to travel on public fora, (3) the right to intrastate travel, (4) the right to interstate travel, and (5) the right to international travel. Schnitzel, *supra* note 15. Some have made unsuccessful attempts to extrapolate other rights from the general right to travel. *See, e.g.*, *Wright v. City of Jackson*, 506 F.2d 900 (5th Cir. 1975) (“right to commute”); *Ector v. City of Torrance*, 10 Cal.3d 129, 514 P.2d 433 (1973) (same).

18. In its most basic definition, ‘interstate travel’ refers to “travel from one State to another, and necessarily to use [of] the highways and other instrumentalities of interstate commerce in doing so.” By contrast, ‘intrastate travel’ contemplates movement within the borders of a single state. Intrastate travel “is an everyday right, a right we depend on to carry out our daily life activities. It is, at its core, a right of function.” Wilhelm, *supra* note 11, at 2464.

19. Schnitzel, *supra* note 15, at 670–71 (“[T]he Court has never definitively addressed the existence of a right to intrastate travel, explicitly reserving the issue in the 1974 decision *Memorial Hospital v. Maricopa County*, [415 U.S. 250 (1975)] and not considering it since that decision.”).

leaving divergent rulings on the existence and extent of a right to intrastate travel amongst the circuits.²⁰ The Court's limited rulings on interstate travel, however, suggest a high level of deference to the right to travel, as the Court has consistently applied the strict scrutiny standard when determining whether a governmental restriction of the right is constitutional.²¹ Most recently, in an opinion penned by Justice Stevens, the Court outlined three protections vested in the right to travel: (1) the right of a citizen to enter and leave other states, (2) the right to be treated as a welcome visitor rather than an unfriendly alien when in another state, and (3) the right to be treated like other citizens when an individual chooses to reside in another state.²²

Some appellate courts have arrived to the conclusion that the Supreme Court has not yet directly addressed: the rights to interstate and intrastate travel likely intersect.²³ For example, the Second Circuit ruled in *King v. New Rochelle Municipal Housing Authority* that it would be "meaningless" not to find a corresponding right to intrastate travel to the Supreme Court-affirmed right to interstate travel.²⁴ Similarly, after an exhaustive analysis of the various constitutional bases for the right, the Third Circuit stated that "the right to move freely about one's neighborhood or town, even by automobile, is indeed 'implicit in the concept of ordered liberty' and 'deeply rooted in our Nation's history.'"²⁵ Not all courts agree. The Fifth²⁶ and Seventh²⁷ Circuits have held that intrastate travel is

20. See *infra* notes 23–28 and accompanying text.

21. See Wilhelm, *supra* note 11, at 2465 (discussing Supreme Court jurisprudence regarding the right to interstate travel, including its classification as a "fundamental" right and the following application of strict scrutiny to governmental limitations thereof).

22. Saenz v. Roe, 526 U.S. 489, 500 (1999).

23. See Johnson v. City of Cincinnati, 310 F.3d 484, 487 (6th Cir. 2002), *but cf.* Wardwell v. Bd. of Educ., 529 F.2d 625 (6th Cir. 1976).

24. King v. New Rochelle Mun. Hous. Auth., 442 F.2d 646 (2d Cir. 1970).

25. Lutz v. City of York, 899 F.2d 255, 268 (3d Cir. 1990). Notably, the Third Circuit ultimately held that the challenged "cruising ordinance" met its burden of satisfying intermediate scrutiny because the ordinance served a significant government objective. *Id.* at 70.

26. Wright v. City of Jackson, 506 F.2d 900, 901 (5th Cir. 1975).

27. Doe v. City of Lafayette, 377 F.3d 757 (7th Cir. 2004); see also Doe v. Miller, 405 F.3d 700 (8th Cir. 2005) (refusing to affirm or deny a right to intrastate travel).

distinct from interstate travel due to divergent policy concerns.²⁸

Despite the high deference traditionally given to the right to travel generally, courts have consistently refused to establish a general right to drive.²⁹ While the judiciary has acknowledged that motorists should not be impeded by arbitrary restrictions on their right to travel by vehicle,³⁰ many courts have found that the right to travel does not avail itself to any particular form of travel or even to what is most convenient to the traveler.³¹ Therefore, driving regulations are not subject to the strict scrutiny standard applied to the right to interstate travel.³² As a result, travel by motor vehicles is encumbered by a barrage of regulations, controlling, *inter alia*, who can drive and how vehicles are driven.³³ The negative doctrine stating that there is no

28. See, e.g., *Doe v. Miller*, 405 F.3d at 713 (“Other decisions have held that there is no fundamental right to intrastate travel in the context of a bona fide residency requirement imposed as a condition of municipal employment.”) (emphasis in original).

29. Commentaries and case law are replete with instances in which courts have refused to establish a right to drive. See, e.g., Jeffrey Soll, *Should California Prohibit Juvenile Driving: The Constitutional and Practical Considerations*, 26 J. JUV. L. 49, 50 (“The courts have unanimously agreed that an individual does not have a fundamental right to operate a motor vehicle.”); Roots, *supra* note 13, at 267 (noting that traffic bureaus regularly refer to driving as a “privilege”).

30. 20 N.Y. JUR. 2D *Constitutional Law* § 304 (2015); see also *Brinegar v. United States*, 338 U.S. 160, 176–77 (1949) (discussing limitations in the search and seizure context).

31. In *Attorney Gen. of N.Y. v. Soto-Lopez*, 476 U.S. 898, 903 (1986), the Supreme Court held that the right to travel was implicated only when state law deters such travel, when impeding travel is the primary objective, or when state law uses a “classification which serves to penalize the exercise of that right.” Cf. *Miller v. Reed*, 176 F.3d 1202, 1205 (9th Cir. 1999) (“[M]inor burdens impacting interstate travel . . . do not constitute a [constitutional] violation.”); *Green v. Transp. Sec. Admin.*, 351 F. Supp. 2d 1119, 1130 (W.D. Wash. 2005) (finding that individuals’ right to travel is not without governmental impediments); *Gilmore v. Ashcroft*, No. C02-3444 SI, 2004 WL 603530 (N.D. Cal. 2004) (holding that the right to travel does not include the right to use a particular form of travel); *City of Houston v. FAA*, 679 F.2d 1184, 1198 (noting that there is no right to the most convenient form of travel). See generally Baldwin, *supra* note 15, at 216; Soll, *supra* note 29, at 56.

32. See, e.g., *Berberbian v. Petit*, 374 A.2d 791, 794 (R.I. 1977) (“The plaintiff’s argument that the right to operate a motor vehicle is fundamental because of its relation to the fundamental right of interstate travel, is utterly frivolous. The plaintiff is not being prevented from traveling interstate by public transportation, by common carrier, or in a motor vehicle driven by someone with a license to drive it. What is at issue here is not his right to travel interstate, but his right to operate a motor vehicle on the public highways, and we have no hesitation in holding that this is not a fundamental right.”).

33. For an excellent discussion of the history and development of the right to travel, see Sobel, *supra* note 11; see also Carl Watner, *A Short History of Highway and Vehicle Regulations*, VOLUNTARYIST.COM (June 1998), <http://voluntaryist.com/articles/092.html#VCmSTytdXVs>.

generally acknowledged right to use any particular mode of transportation has been referred to as the “single-mode doctrine.”³⁴

The single-mode doctrine has become a favored tool of the courts to overcome challenges to restrictions to particular modes of travel.³⁵ The Ninth Circuit in particular has used the single-mode doctrine to limit individuals’ right to drive,³⁶ as well as to uphold airlines requiring photo identification to fly.³⁷ Nonetheless, many courts have recognized that a particular form of transportation may offer individuals the only feasible means by traveling from one locale to another.³⁸ As with intrastate travel, the Supreme Court has yet to rule substantively on this doctrine.

It is important to note the historic context of the current divergence between constitutional rights to travel and the right to travel by automobile. Early right to travel jurisprudence was much less restrictive, with courts even acknowledging that the right to drive, rather than just the right to travel, is “fundamental.”³⁹ According to Professor Richard Sobel, the reasoning behind early courts’ desire for open borders was “based on the Founders’ desire to structure a federal union under the Constitution to create a strong political union and a common market composed of sovereign states.”⁴⁰ The right to travel was seen as a necessity that united the separate states politically, commercially, and socially.⁴¹

34. For an in depth discussion of the precedent and reasoning behind the lack of a right to choose a mode of transportation, see Baldwin, *supra* note 15, and Sobel, *supra* note 11, at 655–60.

35. Sobel, *supra* note 11, at 655–60.

36. See Miller v. Reed, 176 F.3d at 1205–06.

37. See Gilmore v. Gonzales, 435 F.3d 1125, 1136 (9th Cir. 2006).

38. E.g., Tarhuni v. Holder, 8 F. Supp. 3d 1253, 1271 (D. Ore. 2014) (“While the Constitution does not ordinarily guarantee the right to travel by any particular form of transportation, given that other forms of travel usually remain possible, the fact remains that for international travel, air transport in these modern times is practically the only form of transportation, travel by ship being prohibitively expensive.”) (quoting Ibrahim v. Dept. of Homeland Sec., No. C 06-00545 WHA, 2012 WL 6652362 at *7 (C.D. Calif. 2012)); Sobel, *supra* note 11, at 658–60.

39. See, e.g., Swift v. City of Topeka, 23 P. 1075, 1076 (Kan. 1890); City of Chicago v. Collins, 51 N.E. 907 (Ill. 1898) (discussing importance of right, though not expressly referred to as “fundamental”).

40. Sobel, *supra* note 11, at 648.

41. *Id.* at 648–49.

Today, the right to travel is, if anything, more critical to the functioning of society.⁴² Simple acts such as driving one's own vehicle are often critical to employment,⁴³ health care, and even maintaining family ties.⁴⁴ In fact, narrow interpretations of the right to travel may have a disproportionately adverse impact on the nation's poorest and most vulnerable populations.⁴⁵

Courts that favor a narrow interpretation of the right to travel—either by holding that there is no fundamental right to intrastate travel or by upholding the single-mode doctrine—tend to have similar lines of reasoning: that the operation of a motor vehicle is a matter of state law,⁴⁶ the right to travel is not being impeded as long as alternative modes of transportation are available,⁴⁷ and the Supreme Court's dismissal of intrastate travel cases for want of a federal question precludes consideration.⁴⁸ Courts often find regulations on travel

42. See *supra* note 2 and accompanying text. Counterintuitively, the cited study notes that the average use of passenger vehicles has actually declined in the past decade or so. *Id.* Many factors outside the scope of this Note may have affected this decline, but personal transportation remains an important part of daily life for Americans. See *infra* notes 43–44 and accompanying text.

43. BRIAN MCKENZIE, U.S. CENSUS BUREAU, MODES LESS TRAVELED – BICYCLING AND WALKING TO WORK IN THE UNITED STATES 2008–2012 (May 2014), available at <http://www.census.gov/hhes/commuting/files/2014/acs-25.pdf> (noting that 86.2 percent of commuters drive to work); Baldwin, *supra* note 15, at 219 (noting that more than half of all American jobs are not accessible by public transportation).

44. D'Vera Cohn & Rich Morin, *Who Moves? Who Stays Put? Where's Home?*, PEWRESEARCH (Dec. 28, 2008), <http://www.pewsocialtrends.org/2008/12/17/who-moves-who-stays-put-where-home/> (noting that 38 percent of adults do not consider their residences to be “home,” and that most Americans have moved into a new community at least once).

45. The Ninth Circuit was unfazed by this implication in *Monarch Travel Services, Inc. v. Associated Cultural Clubs, Inc.*, 466 F.2d 552, 554 (9th Cir. 1972) (“A rich man can choose to drive a limousine; a poor man may have to walk. The poor man's lack of choice in his mode of travel may be unfortunate, but it is not unconstitutional.”). Given the limitations of public transportation, which give access to less than half of the jobs in the United States and may not serve the odd hours many are required to work (see *supra* note 43), coupled with the fact that 90 percent of welfare recipients do not have an automobile, the effect of this and like decisions are alarming. Baldwin, *supra* note 15. Baldwin also provides an insightful analysis of how the courts have ruled on right to travel plaintiffs with various socioeconomic backgrounds. *Id.* at 240–43; see also Harry Simon, *Towns Without Pity: A Constitutional and Historical Analysis of Official Efforts to Drive Homeless Persons from American Cities*, 66 TUL. L. REV. 631, 649–56 (1992) (discussing ways in which restrictions on the right to travel affect homeless populations).

46. *E.g.*, *Berberbian v. Petit*, 374 A.2d 791, 794 (R.I. 1977).

47. *E.g.*, *Miller v. Reed*, 176 F.3d 1202, 1205–06 (9th Cir. 1999).

48. *E.g.*, *Wright v. City of Jackson*, 506 F.2d 900, 902–03 (5th Cir. 1975).

generally or on specific modes of transportation reasonably justified in the name of traffic safety,⁴⁹ maintaining the peace,⁵⁰ and tax collection.⁵¹ Nonetheless, an absence of conclusive Supreme Court rulings leaves right to travel jurisprudence, and particularly its application to automobiles, open to change.

B. The Autonomous Motor Vehicle

1. Generally

In what could be one of the largest shakeups to personal transportation and the right to travel since the Model-T, some experts suggest that in as few as five years,⁵² AMVs may enter the marketplace, dramatically improving, *inter alia*, motor vehicle safety and commuter efficiency.⁵³

AMV technologies emerged in a relatively short length of time.⁵⁴ Sources point to the Defense Advanced Research Projects Agency's (DARPA) Grand Challenges in the mid-2000s as the birth of the active effort to develop AMV technologies.⁵⁵ At these challenges, several teams from top universities competed to develop AMVs to

49. "It has been declared that the automobile is a source of danger, and capable of such a high rate of speed, and careless operation, that regulation is necessary to the public." Xenophon P. Huddy, *The Motor Car's Status*, 15 YALE L.J. 83 (1905). Doubtless to anyone that has driven in a major U.S. city, Huddy's observation has proven more true than not!

50. *Marcavage v. City of Phila.*, 778 F. Supp. 2d 556 (M.D. Pa. 2011) ("[O]ne does not have boundless rights to travel where he pleases in a manner disruptive to public, permitted events.").

51. "Burdens placed on travel generally, such as gasoline taxes, or minor burdens impacting interstate travel, such as toll roads, do not constitute a violation of that right, however." *Miller v. Reed*, 176 F.3d at 1205.

52. See Andrew P. Garza, Note, "*Look Ma, No Hands!*": *Wrinkles and Wrecks in the Age of Autonomous Vehicles*, 46 NEW ENG. L. REV. 581, 588 (2012) (noting that several engineers have suggested that AMVs could be "road-ready" by 2020); Andrew R. Swanson, Note, "*Somebody Grab the Wheel!*": *State Autonomous Vehicle Legislation and the Road to a National Regime*, 97 MARQ. L. REV. 1085, 1089 (2014) (also suggesting 2020 as a date for commercial availability).

53. Julia Goodrich, *Driving Miss Daisy: An Autonomous Chauffeur System*, 51 Hous. L. REV. 265, 278–79 (2013) (noting the potential impact of a significant reduction in human error on current motor vehicle collision injuries, as well as potential effects on fuel efficiency and traffic congestion).

54. See *infra* note 57.

55. Swanson, *supra* note 52, at 1093–94; Garza, *supra* note 52, at 587.

navigate an obstacle course. The first time an AMV successfully navigated the course occurred in 2005.⁵⁶ Since the DARPA competitions, AMV technology has grown exponentially—a trajectory likely to continue.⁵⁷ Nearly every major car manufacturer has developed or is in the process of developing AMV-type technologies.⁵⁸ Google, the Internet search-engine giant, is a leader in this emerging industry.⁵⁹

Over the course of just a few years, Google developed its own functional AMV prototype.⁶⁰ As of this writing, Google's iteration taps into the company's extensive mapping database.⁶¹ Google's mapping database allows its AMV technology to navigate public roadways by utilizing existing GPS technologies as well as a number of sensors and cameras (including a top-mounted "LiDAR" that rapidly spins 360 degrees) that continuously survey surroundings and potential hazards.⁶²

Due to the sudden growth of the industry, AMVs are rapidly outpacing current legal frameworks. As of late 2015, twenty-eight states and the District of Columbia have considered legislation "legalizing"⁶³ AMVs to some degree, but only five states and the

56. Swanson, *supra* note 52, at 1093–94; Garza, *supra* note 52, at 587.

57. See, e.g., Heather Kelly, *Driverless Car Tech Gets Serious*, CNN (Apr. 7, 2014), <http://www.cnn.com/2014/01/09/tech/innovation/self-driving-cars-ces/> (noting the recent development of AMV technologies by Audi and BMW); John Greenough, *THE SELF-DRIVING CAR REPORT: Forecasts, Tech Timelines, and the Benefits and Barriers That Will Impact Adoption*, Bus. Insider (July 29, 2015), <http://www.businessinsider.com/report-10-million-self-driving-cars-will-be-on-the-road-by-2020-2015-5>.

58. Kevin Lee, *Driverless Cars Are Legal in California, so What Comes Next?*, TECHRADAR (June 16, 2014), <http://www.techradar.com/us/news/car-tech/the-stop-and-go-story-of-legalizing-driverless-cars-1251056> (“[E]very major car manufacturer—from BMW to Nissan and Honda to Chrysler—have been working on their own technology and driving autonomous vehicles in a much less advertised fashion than Google.”).

59. See *infra* note 60.

60. See generally *Google Self-Driving Car Project*, GOOGLE, <http://www.google.com/selfdrivingcar/> (last visited Oct. 9, 2015).

61. Haydn Shaughnessy, *Why Google Will Lose in Driverless Cars (And Who Will Win)*, Forbes (Feb. 4, 2013), <http://www.forbes.com/sites/haydnshaughnessy/2013/02/04/why-google-will-lose-in-driverless-cars-and-who-will-win/>.

62. Garza, *supra* note 52, at 587–88; Swanson, *supra* note 52, at 1092–93.

63. There has been significant commentary on the degree to which AMVs are “legal.” For example, although regulations of driving are left to the states, the Department of Transportation has issued advisory opinions that driverless cars should only be allowed for testing at this time. John Ribeiro, *Department of Transportation Says Driverless Cars Aren't Ready for Prime Time*, TECH HIVE (May 31, 2013), <http://www.techhive.com/article/2040382/department-of->

District of Columbia have passed legislation to that end.⁶⁴ Between these states, legislation is inconsistent on critical issues, such as whether AMV manufacturers are civilly liable for cases resulting in damages.⁶⁵ Some commentators expect that AMV regulation for commercial use will come in phases,⁶⁶ particularly as public acceptance of AMVs becomes more widespread.

transportation-says-driverless-cars-arent-ready-for-prime-time.html; NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., PRELIMINARY STATEMENT OF POLICY CONCERNING AUTOMATED VEHICLES (2013), available at http://www.nhtsa.gov/staticfiles/rulemaking/pdf/Automated_Vehicles_Policy.pdf. One commentator has explained that “driverless cars are not fully legal, but they’re also not illegal. It depends on the state, the level of autonomy in question and the various regulatory layers that stretch from a state-enforced law to a Federal one.” Nick Statt, *Are Driverless Cars Legal?*, READWRITE (May 31, 2013), <http://readwrite.com/2013/05/31/so-wait-are-driverless-cars-legal>. See generally Bryant Walker Smith, *Automated Vehicles Are Probably Legal in the United States*, 1 TEX. A&M L. REV. 411 (2014), for further discussion.

64. The states that have passed legislation to date are Michigan, Nevada, California, Florida and the District of Columbia. *Automated Driving: Legislative and Regulatory Action*, CENTER FOR INTERNET & SOC’Y, http://cyberlaw.stanford.edu/wiki/index.php/Automated_Driving:_Legislative_and_Regulatory_Action (last visited Oct. 31, 2014) [hereinafter *Automated Driving*]. Compare the United States’ hesitancy to embrace AMVs to the United Kingdom. The United Kingdom has quickly responded to the potential benefits of driverless cars through favorable governmental steps. See Christine Mai-Duc, *Britain Has Ambitious Plan for Driverless Cars, but Roadblocks Remain*, L.A. TIMES (July 30, 2014), <http://www.latimes.com/world/worldnow/la-fg-uk-driverless-cars-regulations-20140730-story.html>; U.K. DEP’T FOR TRANSPORT, THE PATHWAY TO DRIVERLESS CARS (Feb. 2015), available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/401562/pathway-driverless-cars-summary.pdf [hereinafter THE PATHWAY TO DRIVERLESS CARS] (“In this review the Government has set out clear next steps showing how we will continue to ensure the regulatory and legislative framework is there to support the further development and mass production of automated vehicle technologies.”).

65. *Automated Driving*, *supra* note 64; Ryan S. Bewersdorf, *Driverless Car Technology – Legislation Slow to Keep Pace*, 18 NO. 4 CYBERSPACE LAW. 4 (2013) (noting that Michigan and Florida laws do not place civil liability on AMV manufacturers for resulting damages, whereas California and Nevada laws are silent on the issue).

66. *E.g.*, THE PATHWAY TO DRIVERLESS CARS, *supra* note 64 (outlining timeline for regulatory and legislative actions in response to driverless car industry); Garza, *supra* note 52, at 588. Naturally, commentators disagree as to what these phases will look like. One simplified, but persuasive example comes from Andrew Garza:

[G]rowth is likely to proceed in two phases: (1) a transition from manual cars to overridable autonomous vehicles (“OAV”); and (2) a shift to fully autonomous, nonoverridable vehicles when the distribution of OAVs greatly outnumber manual cars.

Garza, *supra* note 52, at 588.

AMV technology likely has a way to go before it will be deemed sufficiently safe to be welcomed by state legislatures.⁶⁷ The public, however, is readier to embrace this new technology. A Cisco report stated that 57 percent of global consumers and 60 percent of US consumers “trust” AMVs.⁶⁸ Some prognosticators predict that 75 percent of vehicles on the road will be AMVs by 2040.⁶⁹

Given AMVs’ projected multitude of personal and societal benefits, these figures may be conservative. AMVs are anticipated to significantly reduce the likelihood of human error on the road, which figures show caused 95 percent of all collisions in 2008.⁷⁰ Additionally, average commute times may decline. The Department of Transportation estimates that the average American spends as long as 51 minutes a day simply commuting, a figure that will, theoretically, be significantly reduced by AMVs.⁷¹ Further, even the time spent in AMVs would be more productive than time spent in manual vehicles, as users could read, use phones, or even use laptops without fear of jeopardizing their or others’ safety.⁷² Finally, AMVs would give access to personal transportation of a vehicle to those

67. At the time of this writing, quite a few issues face the development of AMV technologies. The issues range widely from the philosophical, e.g., Erin Carson, *8 Truths and Myths of Driverless Cars*, TECHREPUBLIC (Sept. 15, 2014), <http://www.techrepublic.com/article/8-truths-and-myths-of-driverless-cars/> (discussing Isaac Asimov’s laws of robotics), to the highly practical, see Goodrich, *supra* note 53, at 276 (discussing issues with driving in reverse).

68. *Consumers Desire More Automated Automobiles, According to Cisco Study*, CISCO SYS. (May 14, 2013), <http://newsroom.cisco.com/press-release-content?articleId=1184392&type=webcontent>; Statt, *supra* note 63.

69. Swanson, *supra* note 52, at 1094.

70. Goodrich, *supra* note 53, at 278; *Driverless Cars . . . The Future is Already Here*, AUTO INS. CENTER, <http://www.autoinsurancecenter.com/driverless-cars...the-future-is-already-here.htm> (last visited Oct. 31, 2014) (suggesting that AMVs could reduce motor vehicle fatalities by 99 percent); NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., NATIONAL MOTOR VEHICLE CRASH CAUSATION SURVEY (July 2008), available at <http://www-nrd.nhtsa.dot.gov/Pubs/811059.PDF> (estimating over two million of the 2.2 million motor vehicle crashes in 2008 were attributable to driver error).

71. Goodrich, *supra* note 53, at 278–79; Swanson, *supra* note 52 at 1087–88.

72. Of course, regulatory schemes may not immediately allow for this benefit to be realized. Compare D.C. CODE § 50-2352 (2013) (requiring AMVs to have “driver seated in the control seat of the vehicle while in operation who is prepared to take control of the autonomous vehicle at any moment”) with THE PATHWAY TO DRIVERLESS CARS, *supra* note 64 (discussing how drivers may “safely use the journey time however they wish, from reading a book to surfing the web, watching a film or just chatting face to face with other passengers”).

who currently are unable to use personal transportation, from the disabled to the young and elderly.⁷³

2. Privacy Concerns

One great obstacle stands in the way of general acceptance of AMVs on our driveways and streets: privacy.⁷⁴ Today, 96 percent of new cars contain event data recorders (EDRs) that store, but do not transmit, crash data such as vehicle speed, brake usage, seat-belt use, and airbag deployment in the seconds immediately before and after a collision.⁷⁵

California law currently requires AMVs to record vehicle operations information.⁷⁶ Some fear that the law opens the door to transmission of drivers' personal information to advertisers,⁷⁷ utilization of the same information by government or private entities in mass surveillance,⁷⁸ or other privacy breaches.⁷⁹

These fears may not be entirely unfounded. Google, a primary AMV manufacturer and designer, was ensnared in controversy when

73. Goodrich, *supra* note 53, at 279; Dan McLaughlin, *17 Ways Driverless Cars Could Change America*, FEDERALIST (July 16, 2014), <http://thefederalist.com/2014/07/16/17-ways-driverless-cars-could-change-america/>. It is also worth noting potential reductions in "drunk driving" fatalities. Ray Massey, *Self-Driving Cars Hit UK Roads*, DAILY MAIL (Feb. 10, 2015), <http://www.dailymail.co.uk/sciencetech/article-2947920/Self-driving-cars-given-green-light-UK-Driverless-vehicles-BOOZE-CRUISE-control-drunk-motorists-future.html>.

74. See generally Dorothy J. Glancy, *Privacy in Autonomous Vehicles*, 52 SANTA CLARA L. REV. 1171 (2012).

75. *A Car Black Box: How Your Car Is Tracking You*, CONSUMER REPS. (July 2014), <http://www.consumerreports.org/cro/magazine/2014/09/how-your-car-is-tracking-you/index.htm> [hereinafter CONSUMER REPS.].

76. CAL. VEH. CODE § 38750 (West 2015); *California Pushes to Finish Driverless Car Rules*, USA TODAY (Mar. 13, 2014, 2:44 PM), <http://www.usatoday.com/story/tech/2014/03/12/california-driverless-car-legislation/6321491/>.

77. Matt Bigler, *California Driverless Car Raises Privacy Concerns*, CBS SF BAY AREA (Sept. 27, 2012, 5:45 PM), <http://sanfrancisco.cbslocal.com/2012/09/27/california-driverless-car-law-raises-privacy-concerns/>.

78. Bianca Bosker, *Google Self-Driving Cars Should Record Driver Moves Despite Privacy Fears, U.S. Official Says*, HUFFINGTON POST (Aug. 28, 2013, 7:33 PM), http://www.huffingtonpost.com/2013/08/28/google-self-driving-cars_n_3826413.html ("A poll released in June by the Alliance of Automobile Manufacturers found that around three-quarters of respondents feared driverless car-manufacturers would use their vehicles' software to record personal data, while 70 percent had concerns their data would be accessible by the government.").

79. See generally Glancy, *supra* note 74.

reports exposed that Google collected and developed a database of users' personal information, such as e-mails and passwords, and similarly "bypass[ed] privacy settings in Apple's Safari browser and . . . maintain[ed]" a database of information on users of its services."⁸⁰ The following illustrates one author's fears with regard to AMVs:

In time, Google will know when you arrive at work each morning, how many times a week you go to Taco Bell, how long you spend at the gym. As illuminating as our searches and other online behavior might be, there's still some room for ambiguity. Maybe you're doing all those searches on "brain tumor" because a relative is sick, or you're doing some sort of report, or you're simply curious. Combine that info with the fact that you start visiting the hospital every week, however, and Google knows you've got cancer.⁸¹

The validity of these concerns is not yet known, however, as it is unclear to what extent individuals will be tracked once AMVs are commercially available.⁸² Fortunately for privacy advocates, there is already some measure of protection of personal information in similar contexts at both the state and federal level.⁸³

80. Greg Beato, *Google's Driverless Future*, REASON (June 2013), <http://reason.com/archives/2013/05/10/googles-driverless-future>.

81. *Id.*

82. Sharon Gaudin, *Privacy Group Wants Google's Driverless Cars Kept Off the Road*, COMPUTERWORLD (May 30, 2012, 6:02 PM), <http://www.computerworld.com/article/2503749/data-privacy/privacy-group-wants-google-s-driverless-cars-kept-off-the-road.html>.

83. Glancy, *supra* note 74, at 1201-03.

Forty-six states, the District of Columbia, Puerto Rico, and the Virgin Islands have enacted such legislation that requires notification and remedial action if personal information is lost or disclosed through a data breach. . . . The Drivers' Privacy Protection Act (DPPA) applies nationwide to personal information required and processed by state departments of motor vehicles for licensing purposes. The DPPA imposes statutory damages for improper use or disclosure of personal information provided for the purposes of licensing drivers and vehicles. The statute protects specified categories of personal information, such as name and address, and provides even more protection for highly sensitive personal information, such as race. . . . Beginning almost ten years ago, a number of states began to enact legislation to restrict access to information recorded by EDRs.

Id. *But see* discussion *infra* Part II.C.1.

C. *The Modern Right to Privacy*

1. Technology

The judiciary most often probes the right to privacy in the context of Fourth Amendment searches, where search limitations are measured by the existence of a “reasonable expectation of privacy.”⁸⁴ One popular mode of analysis that courts use to determine whether individuals have a reasonable expectation of privacy in the information contained within modern technologies is the “binary conception.” Under the binary conception, a reasonable expectation of privacy exists only if no third parties have access to the information sought to be protected.⁸⁵ The courts’ application of this standard to modern technologies, however, has frustrated some privacy advocates.⁸⁶ Some posit that this approach can easily result in a discrepancy between what judges believe to be reasonable expectations of privacy and the public’s expectation of privacy.⁸⁷

The judiciary’s approach to cell phone privacy may illuminate the future of AMV privacy doctrines.⁸⁸ Cell phones have been referred to

84. See *Katz v. United States*, 389 U.S. 347 (1967).

85. Shaun B. Spencer, *The Surveillance Society and the Third-Party Privacy Problem*, 65 S.C. L. REV. 373, 377 (2013). This article also discusses at length the “contextual conception” utilized by some courts and legislatures, a standard that determines reasonable expectations of privacy by inquiring into the circumstances in which the information was shared. *Id.* at 382–83.

86. See, e.g., Brandon T. Crowther, Comment, *(Un)Reasonable Expectation of Digital Privacy*, 2012 B.Y.U. L. REV. 343 (2012).

87. Crowther, *supra* note 86, at 350–51 (“In at least some instances, the [binary conception] serves as a substantial limitation on an individual’s reasonable expectation of privacy. In many cases, it can completely undermine what would appear to be a private situation, as in a discussion with a close friend . . . Four central problems have arisen with the advent of digital technology. These are (1) the increased gap between what level of privacy individuals expect in digital information and what society (i.e. a court) is willing to recognize as reasonable, (2) terms of service agreements that undermine significant privacy interests, (3) the enormous expansion of situations that implicate the [binary conception], and (4) a judiciary that lacks the technical expertise to effectively define digital privacy.”).

88. “Fights over privacy in the self-driving future will focus on many of the same issues that are currently being debated with regard to cellphones.” Timothy B. Lee, *Self-Driving Cars Are a Privacy Nightmare. And It’s Totally Worth It.*, WASH. POST (May 21, 2013), <http://www.washingtonpost.com/blogs/wonkblog/wp/2013/05/21/self-driving-cars-are-a-privacy-nightmare-and-its-totally-worth-it/>; See also Craig Timberg, *Web-Connected Cars Bring Privacy Concerns*, WASH. POST (Mar. 5, 2013), <http://www.washingtonpost.com/business/technology/web-connected-cars-bring-privacy-concerns/2013/03/05/d935d990-80ea-11e2-a350-49866afab>

as “the most privacy-invading device in the world today”⁸⁹ for their ability to divulge users’ personal information to third parties.⁹⁰ By using cell phone towers to triangulate a user’s location, sometimes as precisely as within fifty meters, geolocational tracking through cell phones has also become a favorite tool among many law enforcement agencies.⁹¹ Despite the highly personal nature of the modern cell phone, circuit courts have taken divergent approaches to protecting locational data from law enforcement agencies and other sources.⁹² For example, the Eleventh and Third Circuits and several state courts require warrants for cell phone data, but the Fifth Circuit has held that no reasonable expectation of privacy exists in such information.⁹³ Only recently did the Supreme Court clarify the issue, siding with privacy interests to hold that law enforcement officers must obtain a warrant before conducting a search of a cell phone.⁹⁴

Geolocation and other tracking concerns stem from more than just cell phones, however. In a world where in-vehicle technology is a significant selling point to consumers,⁹⁵ the connectivity of vehicles is predicted to expand well beyond its current levels,⁹⁶ even absent

584_story.html (comparing the future connectivity of automobiles to “giant rolling smartphones”).

89. CONSUMER REPS., *supra* note 75 (quoting Fred Cate, director of the Center for Applied Cybersecurity Research at Indiana University).

90. *See* Theodore F. Claypoole & Richard C. Balough, *Developments in the Law Concerning Geolocational Privacy*, 68 BUS. LAW. 197, 199–200 (2012).

91. Scott W. Turner, *GPS Surveillance, the Right to Privacy, and the Fourth Amendment*, 40 COLO. LAW. 55, 56–57; *see also* *Location Tracking*, AM. CIV. LIBERTIES UNION, <https://www.aclu.org/issues/privacy-technology/location-tracking> (last visited Nov. 3, 2015) (noting the preponderance of law enforcement agencies that regularly use cell phone geolocational tracking).

92. Turner, *supra* note 91, at 56–57.

93. *Id.*; *see also* *United States v. Davis*, No. 12-12928, 573 Fed.Appx. 925 (11th Cir. 2014); Jacob Krastrenakes, *Warrantless Cellphone Location Tracking Is Illegal, US Circuit Rules*, VERGE (June 11, 2014, 5:08 PM), <http://www.theverge.com/2014/6/11/5801238/warrantless-cellphone-location-tracking-illegal-us-court-rules>.

94. *Riley v. California*, 134 S. Ct. 2473 (2014).

95. Craig Trudell, *Mulally: Auto Industry Needs Privacy Boundaries Set by Law*, AUTOMOTIVE NEWS (Jan. 14, 2014, 1:49 PM), <http://www.autonews.com/article/20140114/OEM06/301149857/mulally:-auto-industry-needs-privacy-boundaries-set-by-law> (“In-vehicle technology is the top selling point for 39 percent of car buyers today, more than twice the 14 percent who say their first consideration is traditional performance measures such as power and speed, according to a study that consulting firm Accenture released in December.”).

96. “The number of cars connected to the Internet worldwide will grow more than sixfold to 152 million in 2020 from 23 million now, according to researcher IHS Automotive.” *Id.*;

the introduction of AMVs. In many ways, geolocation is already a major part of modern driving and regulation.⁹⁷ Though the courts and Congress have attempted to protect drivers from unauthorized tracking,⁹⁸ up to 68 percent of consumers remain concerned about privacy and data collection.⁹⁹

2. Converging Travel and Privacy Rights

While in previous generations the rights to privacy and travel could be framed independently, AMVs highlight the manner in which the two rights are increasingly convergent. Insufficient protections of drivers' rights to privacy could deter AMV-based travel.¹⁰⁰ Professor Richard Sobel characterized this fundamental intersection as such:

[A]n individual moving around has the right to be private and anonymous in his or her affairs, free from government intrusion. Hence, the demand for identification, without probable cause that the individual is engaging in an illegal activity, interferes not only with privacy, but also with travel

Timberg, *supra* note 88 (predicting that 60 percent of vehicles will be connected to the Internet by 2017).

97. Claypoole & Balough, *supra* note 90, at 197; *see also* Justin P. Webb, Note, *Car-ving out Notions of Privacy: The Impact of GPS Tracking and Why Maynard Is a Move in the Right Direction*, 95 MARQ. L. REV. 751, 788 (2012) (discussing the need for a modernized GPS structure); Phillip Swarts, *Is Your Car Spying on You? GPS Tracks 'Consumers,' Identity Theft at Risk*, WASH. TIMES (Jan. 7, 2014), <http://www.washingtontimes.com/news/2014/jan/7/no-privacy-behind-the-wheel-your-car-might-be-spyi/?page=all> (noting that all major car manufacturers track driving information but that manufacturers' policies are unclear).

98. Claypoole & Balough, *supra* note 90, at 198, 200 (discussing the effect of *United States v. Jones*, 132 S. Ct. 945 (2012) and subsequent court rulings on vehicle geolocational tracking); Kate Kaye, *Does Your Car Need a Privacy Policy? The AAA Says, Yes*, ADVERTISING AGE (Jan. 16, 2014), <http://adage.com/article/privacy-and-regulation/car-a-privacy-policy-aaa/291133/> (discussing the proposed Driver's Privacy bill seeking to address consumer tracking concerns).

99. Kaye, *supra* note 98; *see also* Joseph B. White, *The Big Worry About Driverless Cars? Losing Privacy*, WALL ST. J. (June 3, 2013, 1:46 PM), <http://blogs.wsj.com/drivers-seat/2013/06/03/the-big-worry-about-driverless-cars-losing-privacy/> ("About 75% of respondents [to a poll regarding AMVs] said they were concerned that companies would use the software that controls a self-driving car to collect personal data, and 70% were worried that data would be shared with the government. Asked whether they were worried that hackers could gain control of a self-driving vehicle, 81% of the respondents replied they were either very or somewhat concerned about that threat, the Alliance says.").

100. *See* White, *supra* note 99 (discussing drivers' inhibitions to use AMVs without suitable privacy protections).

rights. In short, the travel right entails the right to privacy, and it encompasses freedom to travel anonymously and free from governmental infringement. . . . *In the concurrent exercise of two fundamental rights, one right, for example travel (or employment, often travel-related), may not be conditioned on abrogating another right like privacy.*¹⁰¹

Indeed, this intersection of rights has manifested in a multitude of ways, often through the use of the single-mode doctrine.¹⁰² Restrictions on both the rights to privacy and travel include requiring identification to travel, full-body scans and pat-downs, as well as watch-lists and no-fly designations.¹⁰³ For these reasons, it has become increasingly difficult to discuss the right to travel independently of privacy doctrines, particularly with modern modes of transportation and AMVs.

III. ANALYSIS & PROPOSAL.

AMVs will and should shift the jurisprudential landscape for the right to privacy and the right to travel. AMVs are unique among major innovations to transportation in that they have the potential to provide personal transportation to nearly everyone without fear of increased risk of harm based on mental or physical capacities, skill, or other individual-dependent factors. In this way, AMVs offer a level of independence to many in a manner not seen since the advent of affordable, personal vehicles. AMVs also offer the opportunity for safety to be standardized. Given that 95 percent of collisions occur

101. Sobel, *supra* note 11, at 652–53 (emphasis added). To illustrate his point, Professor Sobel cites two Supreme Court cases: *Kolender v. Lawson*, 461 U.S. 352 (1983), and *Hübel v. Sixth Judicial District Court of Nevada*, 542 U.S. 177 (2004). *Id.* at 651–52. In the former, the Supreme Court held that a law requiring loiterers to provide identification at police request was unconstitutional due to vagueness. In his concurrence, Justice Brennan stated that even if the law had not been vague, it would have still been ruled unconstitutional. Sobel extrapolates Brennan’s concurrence to stand for the premise that “the *Kolender* court struck down the requirement to provide identification when involved in legal behavior.” Sobel, *supra* note 11, at 652. *Hübel* similarly involved a state statute that required identification on police request, and the Court concluded that reasonable suspicion and a state statute requiring identification were conditions to police requiring individuals provide identification. *Hübel*, 542 U.S. at 185.

102. Sobel, *supra* note 11, at 660–65. For a reminder of what the single-mode doctrine upholds, see *supra* Part II.A and accompanying notes.

103. *Id.* at 660 (discussing restrictions on air travel).

due to human error,¹⁰⁴ it is reasonable to conclude that the biggest factor in automotive safety is the relative skill and diligence of any particular driver and of those drivers surrounding them. AMVs potentially eliminate skill and competence as factors that may lead to a collision, making all AMVs and driver safety essentially equal and ensuring more safety on the road. Finally, the ability of motorists to use travel time productively (or for other purposes) will likely have numerous, unpredictable benefits on society.¹⁰⁵ Despite this potential, many courts still hold that there is no right to a particular mode of transportation.¹⁰⁶ Given the drastic change in the transportation landscape, such approaches—like the single-mode doctrine—are outdated.

Policy reasons alone command that legislatures revisit transportation policies. AMVs will eliminate, or at least significantly reduce, many of the policy arguments in favor of restricting the use or availability of personal transportation. Whereas concern for public safety and the public well-being originally compelled legislatures and municipalities to adopt driving restrictions based on factors such as age, eyesight, levels of intoxication, and numerous other considerations, AMVs likely make such concerns irrelevant. Indeed, by recognizing that these concerns are irrelevant, to the extent drivers cannot override or otherwise control AMVs when en route to a destination,¹⁰⁷ AMVs should be made available to everyone. This mass availability would potentially open the door for hundreds of thousands of underage, disabled, and otherwise impaired citizens to have access to personal transportation currently unavailable to them. In this way, AMV users should be restricted no more than patrons of taxis, Uber, Lyft, or similar services.

104. See Goodrich, *supra* note 70.

105. See *supra* note 72.

106. See *supra* discussion Part II.A.

107. Since AMV technology is still in a state of flux, it is impossible to offer more than mere conjecture as to how much individual authority over a vehicle a driver will have. For illustrative purposes, I assume that at some point, fully automated vehicles akin to some current train systems will be available. However, I concede that existing restrictions on who is allowed to operate a motor vehicle may need to correspond with the level of control individual drivers have over their vehicle. See *supra* note 72.

As state interests in restricting and regulating personal transportation diminish as technology continues to improve, we are tasked with recognizing that each individual has an inherent right to “drive.”¹⁰⁸ The importance of personal transportation has only increased and will continue to do so.¹⁰⁹ Personal transportation has a significant impact on the quality of life of individuals, as it is often necessary for employment, healthcare, and other basic needs of an individual.¹¹⁰ For many, there are no feasible alternatives to personal transportation.¹¹¹

For this reason, the single-mode doctrine is woefully inadequate and should be abandoned by the courts for both inter- and intrastate travel. By holding that as long as any means of transportation exists, any fundamental right to travel is not infringed, courts entertain a legal fiction that all modes of transportation are equal or, at the very least, attainable. The inequitable nature of this ruling is particularly prominent when the relative economic capabilities of individuals is considered: under the single-mode doctrine, poorer Americans are, effectively, afforded less access to transportation by virtue of their lacking the ability to access and afford alternative modes of transportation.¹¹² While this will always be true to some extent, courts should not use this argument to justify regulations only ostensibly related to the state’s purported interests. Recognizing that some form of individual, personal transportation is becoming more and more of

108. The term “drive” is used loosely here. Riders of AMVs may not drive the vehicle anymore than a customer drives a taxi or a rider drives a subway car.

109. See *supra* discussion Part II.A.

110. See *supra* note 45 for a discussion on the potential class aspects of transportation restrictions.

111. Although public transportation has many advantages and works well for many in a variety of circumstances, it poses significant practical challenges for many. Particularly for those who live in less populated areas or who work in suburban areas, public transportation may not meet their needs. For a thorough look at some of the challenges posed by public transportation and threatening public transportation utility in the future, see BRENDON HEMILY, TRENDS AFFECTING PUBLIC TRANSIT’S EFFECTIVENESS: A REVIEW AND PROPOSED ACTIONS (2004); see also MCKENZIE, *supra* note 43.

112. It is worth noting that some of these effects may not be immediately felt; initial costs for autonomous technology are likely to be high, but as the technology becomes more widespread and safety advances are realized, it will become increasingly likely that governmental entities around the world will encourage growth in this industry through subsidies or other incentives. Further, elimination of driver costs would increase profitability and utility for taxi and ride sharing services such as Uber and Lyft.

a basic need, the conclusion that regulations of each mode of transportation should be assessed on their own merits rather than on a relative basis is nearly compelled. Continued application of the single-mode doctrine only reinforces inequalities of access by potentially forcing those without resources to utilize impractical alternatives.

Abandoning the single-mode doctrine would finally bring travel jurisprudence in line with the historical importance placed on the right to travel. Further, abandoning the single-mode doctrine would be consistent with the Supreme Court's rulings on interstate travel up to this point, which has been deferential of the right to travel. As such, courts should abandon the single-mode doctrine, and rights to personal transportation should be affirmatively recognized.

Of course, any recognized right to drive cannot and should not be absolute. The strict scrutiny test applied by the Supreme Court in interstate travel cases should similarly be applied not only to intrastate travel, but also to the right to drive, allotting the appropriate deference to the right to drive while balancing a need for some level of regulation of AMVs and their use.

Unfortunately, recognition of the right to drive may be insufficient to ensure that an individual's right to travel is protected. To paraphrase Professor Richard Sobel, conditioning one right on the infringement of another in such a way is inequitable, and undermines both rights.¹¹³ To fully protect personal transportation and travel rights, current privacy laws must ensure protection of consumer information obtained by AMVs.

Due to ambiguous privacy laws that cause confusion among consumers, as well as vehicle manufacturers and distributors, state legislatures and Congress must develop a comprehensive scheme for privacy protection in AMVs. The scheme should determine what driver information can be collected, how it is collected, what the information is used for, who it is distributed to, and under what conditions it is distributed. One specific element of this scheme should be anonymization. As advocated for by Professor Dorothy Glancy, anonymization provides a compromise between those that

113. Sobel, *supra* note 11, at 653.

wish to travel in absolute privacy and those who want to use acquired information for commercial or safety purposes.¹¹⁴ Anonymous, encrypted information provides critical safety and user information to governmental and other sources, which may be used in the development of policies and technologies. This information also ensures that individuals' private information is not linked to them. This scheme should also carry sufficient enforcement powers. Entities seeking to use the information provided by AMV technology should be overseen and regulated by an impartial third party.

A privacy scheme for AMVs prays for distinction from that of other technologies, such as the oft-compared cellphone. If privacy protections similar to cellphone privacy laws were applied to AMVs, any anonymization would be undermined by the constant threat of real-time geolocational data collection, which could be used to reveal the identity of almost any particular driver with reasonable certainty. Both cellphones and motor vehicles have the potential to be very personal, and many see either or both as private sanctuaries. Nonetheless, AMVs beg for more protection, on the offset, due to the inherently different nature of the two tools. Cellphones and many other technologies are used, primarily, as tools to communicate with the outside world. This use provides a lower expectation of privacy for the user, and compromised phones can be easily replaced or discarded. In contrast, motor vehicles generally are not adopted with an assumption of outside communication, and are significant investments on behalf of the owner. Such rules are consistent with even some of the least privacy-minded Fourth Amendment rulings. The increasingly fundamental need for personal transportation also underpins the need for more immediate privacy protections on the offset of AMVs in the marketplace.

IV. CONCLUSION

Travel is a facet of our lives that is constantly changing, improving access to the world in ways never before seen. It is reasonable, then, that as major innovations are introduced to the public, our existing legal frameworks to address society's needs are

114. See generally Glancy, *supra* note 74.

questioned and reassessed. It is a mistake continually made by legislatures and courts to treat privacy and general regulatory schemes as distinct issues. The advent of AMVs offers a unique opportunity for government to “get it right” by enacting a comprehensive scheme recognizing that personal transportation is becoming an increasingly fundamental need, and that in order to protect the right to access to such transportation, privacy rights must be defined and adequately enforced.