

# SHOULD LAW SUBSIDIZE DRIVING?

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*A century ago, captains of industry and their allies in government launched a social experiment in urban America: the abandonment of mass transit in favor of a new personal technology, the private automobile. Decades of investment in this shift have created a car-centric landscape with Dickensian consequences. In the United States, motor vehicles are now the leading killer of children and the top producer of greenhouse gases. Each year, they rack up trillions of dollars in direct and indirect costs and claim nearly 100,000 American lives via crashes and pollution, with the most vulnerable paying a disproportionate price. The appeal of the car's convenience and the failure to effectively manage it has created a public health catastrophe. Many of the automobile's social costs originate in individual preferences, but an overlooked amount is encouraged—indeed enforced—by law. Yes, the United States is car-dependent by choice. But it is also car-dependent by law. This Article conceptualizes this problem and offers a way out. It begins by identifying a submerged, disconnected system of rules that furnish indirect yet extravagant subsidies to driving. These subsidies lower the price of driving by comprehensively reassigning its costs to non-drivers and society at large. They are found in every field of law, from traffic law to land use regulation to tax, tort, and environmental law. Law's role is not primary, and at times it is even constructive. But where it is destructive, it is uniquely so: Law not only inflames a public health crisis but legitimizes it, ensuring the continuing dominance of the car. The Article urges a reorientation of law away from this system of automobile supremacy in favor of consensus social priorities, such as health, prosperity, and equity.*

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## INTRODUCTION

*“Undoubtedly, the right of locomotion, the right to remove from one place to another according to inclination, is an attribute of personal liberty.”*

—Chief Justice Melville Fuller, 1900<sup>1</sup>

*“The paradox of transportation in the late twentieth century is that while it became possible to travel to the moon, it also became impossible, in many cases, to walk across the street.”*

—Joell Vanderwagen, 1995<sup>2</sup>

There's little question that the car is now central to American life. But missing from our collective understanding of this sticky truism is the role of the legal system. America is car-centric—indeed car-dependent—by law.

In the United States, motor vehicles create more greenhouse gas emissions<sup>3</sup> and kill more children<sup>4</sup> than any other cause. They rack up trillions of dollars in direct and indirect costs annually, ranging from time lost in traffic to decreased brain function in urban children<sup>5</sup> to cancers and other debilitating conditions caused by exhaust emissions, tire and brake pad wear, and road construction.<sup>6</sup> Singled out are vul-

<sup>1</sup> William v. Fears, 179 U.S. 270, 274 (1900).

<sup>2</sup> Joell Vanderwagen, *Coming Down to Earth*, in BEYOND THE CAR 137, 137 (Sue Zielinski & Gordon Laird eds., 1995).

<sup>3</sup> *Sources of Greenhouse Gas Emissions*, U.S. ENVTL. PROT. AGENCY, <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions> (last visited Nov. 1, 2019) (“The transportation sector generates the largest share of greenhouse gas emissions. Greenhouse gas emissions from transportation primarily come from burning fossil fuel for our cars, trucks, ships, trains, and planes.”).

<sup>4</sup> See Rebecca M. Cunningham et al., *The Major Causes of Death in Children and Adolescents in the United States*, 379 NEW ENG. J. MED. 2468, 2468 (2018) (“Motor vehicle crashes were the leading cause of death for children and adolescents, representing 20% of all deaths . . . ”).

<sup>5</sup> HEATHER ADAIR-ROHANI ET AL., WORLD HEALTH ORG., AIR POLLUTION AND CHILD HEALTH: PRESCRIBING CLEAN AIR 55 (2018), [http://www.who.int/ceh/publications/Advance-copy-Oct24\\_18150\\_Air-Pollution-and-Child-Health-merged-compressed.pdf](http://www.who.int/ceh/publications/Advance-copy-Oct24_18150_Air-Pollution-and-Child-Health-merged-compressed.pdf) (“Three systematic reviews concluded that there is an association between exposure to [ambient air pollution], especially pollutants emitted from vehicles, and impaired neurodevelopment in children.”); see also *infra* Section III.A.1.

<sup>6</sup> See Theodoros Grigoratos & Giorgio Martini, *Non-Exhaust Traffic Related Emissions. Brake and Tyre Wear PM*, JRC SCI. & POL'Y REP. (2014), (“Exhaust and non-exhaust sources contribute almost equally to total traffic-related [particulate matter] . . . emissions. Brake, tyre and road wear along with road dust resuspension have been

nerable people—including children, seniors, the poor, people of color, and people with disabilities—whom our car-first transport regime immiserates,<sup>7</sup> impoverishes,<sup>8</sup> and kills<sup>9</sup> with uncommon frequency and precision. Cars’ convenience exacts an enormous social cost. Every year, nearly 100,000 Americans are killed by either car crashes (40,000) or car pollution (58,300).<sup>10</sup> Measured by the U.S. Department

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recognized as the most important non-exhaust traffic related sources, . . . relative contributions to non-exhaust traffic related emissions rang[e] between 16–55% (brake wear), 5–30% (tyre wear) and 28–59% (road dust resuspension.”); *see also infra* Section III.A.1.

<sup>7</sup> See, e.g., FED. HIGHWAY ADMIN., FHWA NHTS BRIEF 2014: MOBILITY CHALLENGES FOR HOUSEHOLDS IN POVERTY (2014), <https://nhts.ornl.gov/briefs/PovertyBrief.pdf> (documenting the elevated incidence and effects of myriad barriers to mobility faced by households in poverty, especially African American and Latino households).

<sup>8</sup> See, e.g., David A. King et al., *The Poverty of the Carless: Toward Universal Auto Access*, J. PLAN. EDUC. & RES. 1 (Feb. 1, 2019), <https://journals.sagepub.com/doi/10.1177/0739456X18823252> (attributing “the falling socioeconomic status of American households without private vehicles and the continuing financial burden that cars present for low-income households that own them” to the “auto-orientation of America’s built environment, which forces people to either spend heavily on cars or risk being locked out of the economy”); Andrew F. Haughwout et al., *Just Released: Auto Loans in High Gear*, FED. RES. BANK N.Y.: LIBERTY STREET ECON. (Feb. 12, 2019), <https://libertystreeteconomics.newyorkfed.org/2019/02/just-released-auto-loans-in-high-gear.html> (showing high rates of serious delinquency on auto loans by borrowers with already-low credit scores); Karen Weese, Opinion, *Why It Costs So Much To Be Poor in America*, WASH. POST (Jan. 25, 2018), <https://www.washingtonpost.com/news/posteverything/wp/2018/01/25/why-it-costs-so-much-to-be-poor-in-america> (noting elevated vehicle financing costs for poor people).

<sup>9</sup> See, e.g., KATHRYN S. QUICK & GUILLERMO E. NARVÁEZ, UNIV. OF MINN., ROADWAY SAFETY INST., UNDERSTANDING ROADWAY SAFETY IN AMERICAN INDIAN RESERVATIONS: PERCEPTIONS AND MANAGEMENT OF RISK BY COMMUNITY, TRIBAL GOVERNMENTS, AND OTHER SAFETY LEADERS 1 (2018), <http://www.cts.umn.edu/Publications/ResearchReports/reportdetail.html?id=2720> (concluding that Native Americans are at the highest risk of motor-vehicle-related death of all racial groups); SMART GROWTH AM. & NAT'L COMPLETE STS. COAL., DANGEROUS BY DESIGN 17 (2019), <https://smartgrowthamerica.org/app/uploads/2019/01/Dangerous-by-Design-2019-FINAL.pdf> (“Even after controlling for differences in population size and walking rates, we see that drivers strike and kill [a] people over age 50, [b] Black or African American people, [c] American Indian or Alaska Native people, and [d] people walking in communities with lower median household incomes at much higher rates.” (emphasis added)); *see also id.* (noting that the level of pedestrian danger “for older adults age 50 and above is more than a third higher than it is for the general population, and for people age 75 and up it is almost twice as high”); Cunningham et al., *supra* note 4, at 2468 (identifying motor vehicle crashes as the leading cause of death for children); John D. Kraemer & Connor S. Benton, *Disparities in Road Crash Mortality Among Pedestrians Using Wheelchairs in the USA: Results of a Capture–Recapture Analysis*, BMJ OPEN (Nov. 20, 2015), <https://bmjopen.bmjjournals.org/content/bmjopen/5/11/e008396.full.pdf> (determining that pedestrian wheelchair users are killed by motorists at a rate thirty-six percent higher than the overall pedestrian population).

<sup>10</sup> See Fabio Caiazzo et al., *Air Pollution and Early Deaths in the United States. Part I: Quantifying the Impact of Major Sectors in 2005*, 79 ATMOSPHERIC ENV’T 198, 207 (2013)

of Transportation's own formula, the cost of crash fatalities alone is \$384 billion annually.<sup>11</sup> The indirect costs, which have never been calculated rigorously, are likely far higher.

While America's car-centrism originated upstream from law in a mix of policy and popular preferences, law has played an unlikely and, in some cases, unintended role in cementing it. There exists a vast system of legal rules that offer indirect yet extravagant subsidies to driving, artificially lowering its price by offloading its costs onto non-drivers and society at large. Rules embedded across nearly every field of law privilege the motorist and, collectively, build a discriminatory legal structure with no name.<sup>12</sup>

That structure is "automobile supremacy." It is constructed by diverse bodies of law including traffic regulation, land use law, criminal law, torts, insurance law, environmental law, vehicle safety rules, and even tax law, all of which provide incentives to cooperate with the dominant transport mode and punishment for those who defect. The incentives and disincentives are delivered in the form of legal subsidies. Cumulatively, these subsidies do more than shift costs; they legitimate a state of choice deprivation and inequity, serving as an excuse for the status quo's many curable flaws and injustices.

Subsidies, in economic terms, are government policies or expenditures that reduce the cost of an activity relative to a given baseline. The Child Tax Credit and the scientific research grant are familiar

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(finding 58,300 premature deaths annually in the United States attributable to auto pollution, with an estimated average loss of 12 life years per mortality); *2018 Marks Third Straight Year that Motor Vehicle Deaths Are Estimated to Have Reached 40,000*, NAT'L SAFETY COUNCIL (Feb. 13, 2019), <https://www.nsc.org/in-the-newsroom/2018-marks-third-straight-year-that-motor-vehicle-deaths-are-estimated-to-have-reached-40-000> (reporting U.S. auto crash death levels at or above 40,000 annually for a three-year period). The National Safety Council (which supplied the 40,000 figure) methodology for measuring crash deaths counts those who die from a crash within the following year, and for this reason is slightly higher than the figure reported by the National Highway Safety Administration (which, among other things, only counts fatalities within 30 days of the crash and does not count fatalities that take place in driveways, parking lots, or private roads). See *Comparison of NSC and NHTSA Estimates*, NAT'L SAFETY COUNCIL INJ. FACTS, <https://injuryfacts.nsc.org/motor-vehicle/overview/comparison-of-nsc-and-nhtsa-estimates> (last visited Mar. 10, 2020).

<sup>11</sup> The U.S. Department of Transportation has established a process for computing the value of a statistical life for the purpose of "assessing the benefits of preventing fatalities." See U.S. DEP'T OF TRANSP., Revised Departmental Guidance 2016: Treatment of the Value of Preventing Fatalities and Injuries in Preparing Economic Analyses 1 (Aug. 8, 2016), <https://www.transportation.gov/sites/dot.gov/files/docs/2016%20Revised%20Value%20of%20a%20Statistical%20Life%20Guidance.pdf>. Last updated in 2016, this figure is \$9.6 million per life. *Id.* Multiplying this figure by 40,000 annual deaths gives \$384 billion.

<sup>12</sup> Cf. BETTY FRIEDAN, THE FEMININE MYSTIQUE 15 (W.W. Norton & Company, Inc. 1997) (1963) (describing society's treatment of women).

examples<sup>13</sup>: Relative to a base case of no credit or grant, the former lowers the cost of raising a child, while the latter underwrites scientific innovation. But a subsidy need not consist of a fiscal transfer, and need not be intended as a subsidy. Many examples of subsidies (and their opposite, taxes)<sup>14</sup> shift incentives in these ways. For example, a military draft operates as a tax<sup>15</sup> by conscripting some people into a job they would not otherwise take. If conscription is ordered, exemptions for college students operate, in turn, as a subsidy for institutions of higher education.<sup>16</sup>

Law is one mechanism for establishing rules that subsidize. These rules do not usually entail a direct fiscal transfer from the state, but rather lower the cost of an activity relative to a counterfactual baseline by changing the legal conditions under which it occurs. Thus, compared with the regime it largely supplanted, corporate law subsidizes business activity by allowing owners to limit their personal liability through incorporation. Similarly, medical malpractice damage caps subsidize the practice of medicine relative to a world where such damages are not limited.<sup>17</sup> A subsidy is *successful* if it raises the level of a given activity above a counterfactual baseline, but is *justified* only if the increase enhances social welfare on net.<sup>18</sup> In other words, subsidies are not intrinsically good or bad.

Does law subsidize driving? In the United States, the ownership and operation of private motor vehicles—i.e., driving—is comprehensively encouraged by federal, state, and local law. This basic fact is regularly neglected in discussions around transportation policy. Surprisingly, even as driving has been recognized as a “virtual necessity”

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<sup>13</sup> See Camilla A. Hrdy, *Patent Nationally, Innovate Locally*, 31 BERKELEY TECH. L.J. 1301, 1301 (2016) (identifying research grants and tax incentives as two types of public subsidies for innovation); Donald B. Tobin, *Investing in Our Children: A Not So Radical Proposal*, 73 U. CIN. L. REV. 457, 483–88 (2004) (observing that the Child Tax Credit operates as a subsidy to families with children).

<sup>14</sup> Taxes and subsidies are mirror images of each other. See HAL R. VARIAN, *INTERMEDIATE MICROECONOMICS: A MODERN APPROACH* 27 (7th ed. 2006) (“[T]axes and subsidies affect prices in exactly the same way except for the algebraic sign: a tax increases the price to the consumer, and a subsidy decreases it.”).

<sup>15</sup> RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* § 18.2 (9th ed. 2014).

<sup>16</sup> Definitions of “subsidy” abound, with some contextual variation. Common to them is the identification of an intervention that incentivizes departure from a base case.

<sup>17</sup> Subsidies can operate indirectly. For example, one study found that medical malpractice damage caps reduced the cost of malpractice insurance to health care providers. See Leonard J. Nelson, III et al., *Damages Caps in Medical Malpractice Cases*, 85 MILBANK Q. 259, 259 (2007).

<sup>18</sup> See WORLD TRADE ORG., *WORLD TRADE REPORT 2006: EXPLORING THE LINKS BETWEEN SUBSIDIES, TRADE AND THE WTO* 55 (2006), [https://www.wto.org/english/res\\_e/booksp\\_e/anrep\\_e/world\\_trade\\_report06\\_e.pdf](https://www.wto.org/english/res_e/booksp_e/anrep_e/world_trade_report06_e.pdf) (“An efficient subsidy would correct a market failure, bringing social and private costs and benefits into alignment.”).

by the U.S. Supreme Court,<sup>19</sup> the sources of law that directly regulate the use of the street are largely absent from law and policy conversations around mobility and the public street.<sup>20</sup> Any legal analysis must foreground those rules.

Should law subsidize driving? There are many advantages of vehicular mobility, including socially valuable ones. Whether in deference to this fact, or to the presumed inevitability of driving, existing laws and legal scholarship do not acknowledge a subsidy (much less attempt to create a model or theory that would quantify or justify it at current levels). In this Article, I argue simply that our legal regime, which does not conceive of driving as an activity whose overall level it can or would want to influence, likely stimulates a greater *quantity* of driving than would be socially optimal. I also argue that automobile supremacy almost certainly produces a higher level of not just driving in general, but of *negligent, reckless, and wasteful* driving in particular, in part because error rates increase superlinearly as humans carry on activities that require sustained vigilance.<sup>21</sup>

There is no opting out of this regime. A person who does not own a car is still conscripted into underwriting driving in numerous ways, overpaying for everything from groceries to commuting.<sup>22</sup> Non-motorists pay motorists to drive, and drivers pay frequent and reckless drivers to drive more. The law hides the true cost of driving from drivers and externalizes it onto other road users and society at large,

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<sup>19</sup> Wooley v. Maynard, 430 U.S. 705, 715 (1977).

<sup>20</sup> For notable exceptions to this trend, see DAVID PRYTHON, LAW, ENGINEERING, AND THE AMERICAN RIGHT-OF-WAY: IMAGINING A MORE JUST STREET 3 (2018) (exploring how legal and engineering systems have shaped the development of streets in the past half century, and highlighting attempts to implement more just and less auto-centric laws and designs). See generally Michael Lewyn, *The Criminalization of Walking*, 2017 U. ILL. L. REV. 1167 (2017) (discussing the history and analyzing the effect of anti-jaywalking laws); Timothy Baldwin, Note, *The Constitutional Right to Travel: Are Some Forms of Transportation More Equal Than Others?*, 1 NW. J.L. & SOC. POL'Y 213 (2006) (analyzing legal and constitutional rights to travel). An additional, short example can be found in Gregory H. Shill, *Unsafe Streets' New Liability*, 2 VISION ZERO CITIES: INT'L J. TRAFFIC SAFETY INNOVATION 39 (2017) (discussing *Turturro v. City of New York*, 68 N.E.3d 693 (N.Y. 2016), which held the municipality liable for failing to adequately study speeding or implement measures to mitigate it along a stretch of street on which speeding was known to be prevalent).

<sup>21</sup> See, e.g., B.S. Oken et al., *Vigilance, Alertness, or Sustained Attention: Physiological Basis and Measurement*, 117 CLINICAL NEUROPHYSIOLOGY 1885, 1885 (2006) (noting the concept in the psychological and cognitive neuroscience literatures of “vigilance decrement,” or “the decline in attention-requiring performance over an extended period of time”); Nathalie Pattyn et al., *Psychophysiological Investigation of Vigilance Decrement: Boredom or Cognitive Fatigue?*, 93 PHYSIOLOGY & BEHAV. 369, 369 (2008) (noting vigilance declines after twenty to thirty minutes spent on a task requiring sustained attention).

<sup>22</sup> See *infra* Part II (land use subsidies), Section III.A.4.c (commuting subsidies).

current and future. Everyone is subject to the economic and public health costs of what might be called secondhand driving,<sup>23</sup> including one hundred million people in the United States who do not even have a driver's license.<sup>24</sup>

We struggle to talk about this paradigm intelligibly. In our discourse and our laws, we blame individuals for bad acts rather than focusing on the system that produces such conduct, and we assume law is irrelevant, neutral, or helpful when it is in fact a pervasive destructive force. Yet changing the law is beyond the power of any single legislature, however enlightened and motivated. In the United States, automobile supremacy is inscribed in law by every branch of government and at every level of authority.

This Article proceeds in four Parts. Part I examines subsidies to driving in the sources of law that directly regulate driving itself. Cloaked in mundanity and a surface neutrality, the substance of vehicle and traffic regulation has largely escaped critical analysis. Since the field is rife with bright-line rules that aren't<sup>25</sup>—for example, speeding generally triggers no consequences except where it exceeds an unarticulated threshold—this Part analyzes enforcement as well as the law itself. Part II explores land use law and regulation, including the costs of various laws governing parking as well as restrictions on population density and type of use. Next, Part III gives an overview of a host of additional distortionary subsidies to driving embedded in the law. Section III.A reviews collective regulatory schemes that exert powerful second- and third-order effects on the price of driving: laws governing emissions, automobile design and safety, and insurance, as

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<sup>23</sup> The allusion to secondhand smoke exposure is intentional. The U.S. legal system produces excessive levels and risks of driving, and the public health consequences—an epidemic of vehicle and pollution deaths—are felt by all members of society. Much as there was a time when diners, students, and even hospital patients could not avoid exposure to cigarette smoke merely by abstaining from the underlying activity themselves, so too are citizens today powerless to avoid joining the nearly 100,000 Americans who are killed each year by cars. This connection is ripe for exploration in future work.

<sup>24</sup> Compare *Highway Statistics 2016*, U.S. DEP'T TRANSP., FED. HIGHWAY ADMIN., <https://www.fhwa.dot.gov/policyinformation/statistics/2016/dl22.cfm> (last modified July 11, 2018) (reporting 221,994,424 licensed drivers as of 2016, including drivers with restricted and graduated licenses) with *U.S. and World Population Clock*, U.S. CENSUS BUREAU, <https://www.census.gov/popclock> (last visited Oct. 31, 2019) (estimating a U.S. population of 321,982,863 on January 1, 2016). Many non-drivers are driven around by drivers and thus draw a measure of benefit from automobility, but are nevertheless deprived of full agency in mobility by the forces described in this Article.

<sup>25</sup> See generally Louis Kaplow, *Rules Versus Standards: An Economic Analysis*, 42 DUKE L.J. 557 (1992) (examining the relative advantages and disadvantages between rules, whose content is defined *ex ante*, and standards, whose content is determined *ex post*); Pierre Schlag, *Rules and Standards*, 33 UCLA L. REV. 379, 379–80 (1985) (analyzing the dispute between proponents of the “bright-line rule” and the “flexible standard”).

well as tax law. Section III.B documents the unique way driving is treated by the main areas of law regulating private conduct: criminal, tort, and contract law. Part IV explains why the common account of American car-centrism is incomplete without law and underscores the need for transformational, rather than incremental, change.

## I TRAFFIC LAW SUBSIDIES

Vehicle and traffic law establishes the boundaries of permissible conduct on America's most heavily used public space, the street. The content and application of these laws operate systematically to increase the amount and risk of driving. They lower the costs of driving, raise the rate of crashes in general and of deadly crashes in particular, raise the cost of other modes of transportation, and amplify car-dependent public policies that offload myriad negative externalities on society.

While vehicle and traffic law is not unitary in purpose, the available evidence suggests that it seeks to reduce risks to human life, especially to vulnerable road users such as people walking, biking, or using wheelchairs—as a formal matter. In application, this objective is swamped by other factors.

### A. *Bright-Line Rules that Aren't: The Case of Speed Limits*

Vehicle and traffic laws frequently purport to regulate via bright-line rules: Speed limits establish legal speeds of travel, red lights require motorists to stop, and drunk driving laws prescribe maximum levels of blood alcohol. However, the legal regulation of driving is far murkier than these examples might suggest. In particular, both the law itself and its real-world application prioritize the speed and convenience of motorists over safety.

Excessive speed is a leading risk factor for motor vehicle crashes.<sup>26</sup> During a recent ten-year period, 112,580 people lost their lives in speeding-related car crashes, an average of one fatality every forty-seven minutes.<sup>27</sup> This is about equal to the number of people who died in alcohol-involved crashes over the same period, and represents thirty-one percent of all car-crash deaths.<sup>28</sup> Forty percent of

<sup>26</sup> See NAT'L TRANSP. SAFETY BD., NTSB/SS-17/01 PB 2017-102341, SAFETY STUDY: REDUCING SPEEDING-RELATED CRASHES INVOLVING PASSENGER VEHICLES, at ix (2017) [hereinafter NTSB, SAFETY STUDY], <https://www.ntsb.gov/safety/safety-studies/Documents/SS1701.pdf> (observing that speeding is “one of the most common factors in motor vehicle crashes in the United States”).

<sup>27</sup> *Id.* at 7 (reviewing data from 2005–2014, inclusive).

<sup>28</sup> *Id.* In the statistics, these two categories are not mutually exclusive. *Id.* at 7 n.13.

those injured by speeding motorists were either occupants of other vehicles or vulnerable road users.<sup>29</sup>

While more prevalent and dangerous than most other dangerous driving behaviors, speeding as a cause of fatal car crashes gets far less attention.<sup>30</sup> In contrast to drunk driving, “there are no nationwide programs to increase public awareness of the risks of speeding.”<sup>31</sup> Jim Ritter, Director of Research and Engineering for the National Transportation Safety Board has deemed “substantial reductions” in crashes impossible absent an increased emphasis on speeding and has urged “more effective use of countermeasures.”<sup>32</sup>

Numerical speed limits establish, as the term implies, an upper bound on safe travel speeds; they are not always reliable indicators of actually safe speeds, which are contextual determinations. Thus, “[e]very State has a basic speed statute requiring drivers to operate their vehicles at a speed that is reasonable and prudent *for conditions*,”<sup>33</sup> even if the posted numerical limit is higher. Basic speed laws reflect the insight of the traffic safety community, which “considers drivers to be speeding if their vehicles are traveling at a speed that (1) exceeds the [numerical] speed limit or (2) is too fast for conditions.”<sup>34</sup> Basic speed statutes are enforced even less often than numerical speed limits,<sup>35</sup> but they embody an important principle.

Illegal speeding is not the only risk from fast travel; lawful fast driving introduces inherent risks that scale up with speed. Speed magnifies crash risk through two functions: (1) by increasing the probability of a crash in the first place, and, (2) in the event of a crash, by increasing the severity of injuries sustained both inside and outside the vehicle.<sup>36</sup> The first is intuitive, yet overconfidence leads us to ignore it: Neurobiology and physics set hard limits on human reaction times at high speed. Fast driving impairs a driver’s ability to perceive

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<sup>29</sup> *Id.* at 8.

<sup>30</sup> See Press Release, Nat’l Transp. Safety Bd., Study Identifies Opportunities to Reduce Speeding-Related Deaths and Injuries (July 14, 2017) [hereinafter NTSB, Study Identifies Opportunities], <https://www.ntsb.gov/news/press-releases/Pages/pr20170714.aspx> (noting “less social stigma surrounding speeding than, for example, drinking and driving”).

<sup>31</sup> NTSB, SAFETY STUDY, *supra* note 26, at x.

<sup>32</sup> NTSB, Study Identifies Opportunities, *supra* note 30.

<sup>33</sup> U.S. DEP’T OF TRANSP., FED. HIGHWAY ADMIN., FHWA-SA-12-004, METHODS AND PRACTICES FOR SETTING SPEED LIMITS: AN INFORMATIONAL REPORT 6 (2012) [hereinafter FHWA, SPEED LIMITS REPORT], [https://safety.fhwa.dot.gov/speedmgt/ref\\_mats/fhwasa12004](https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa12004) (emphasis added). In addition, authorities can establish limits below the maximum for specific stretches of road that pose additional hazards (e.g., tight curves). While these limits lack the force of law, law enforcement can cite drivers who exceed them for “driving too fast for the prevailing conditions.” *Id.* at 9.

<sup>34</sup> NTSB, SAFETY STUDY, *supra* note 26, at 6.

<sup>35</sup> See *infra* Section I.A.2.

<sup>36</sup> NTSB, SAFETY STUDY, *supra* note 26, at ix.

and avoid cars, people, or obstructions in the roadway; to steer safely around curves; and to stop.<sup>37</sup> This increases the probability of a crash. Second, the force of impact is determined as a function of the colliding object's mass and the rate of its change in velocity (i.e., rate of deceleration). By raising both the probability and magnitude of a crash, speeding compounds the increase in risk more than other driving hazards.<sup>38</sup> Unsurprisingly, reducing speeding is a principal objective of vehicle and traffic regulation.<sup>39</sup>

Despite the high priority the law and law enforcement formally attach to speeding reduction, speed limits are both underenforced and arbitrarily enforced.<sup>40</sup> This much is well-known. Less familiar is the process by which the speed limit in a given area is adjusted; this process, too, is frequently irregular and counterproductive to the purposes of the field. The result is a regime that encourages faster driving.

### 1. *Arbitrary Enforcement of Speed Limits*

Speed limits prescribe "the maximum or minimum speed permitted by law in a given area under specified circumstances."<sup>41</sup> Survey research suggests high levels of popular disapproval of speeding and support for speed enforcement but also reveals "a general contradiction among US drivers between what is considered acceptable in society and individual behavior."<sup>42</sup> A comparison to drunk driving

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<sup>37</sup> NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., DOT HS 810 998, TRAFFIC SAFETY FACTS: 2007 DATA, SPEEDING 1 (2018), <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/810998>; N.Y.C. DEP'T OF TRANSP., AUTOMATED SPEED ENFORCEMENT PROGRAM REPORT, 2014–2017, at 3 (2018) [hereinafter NYC DOT AUTOMATED SPEED PROGRAM REPORT], <http://www.nyc.gov/html/dot/downloads/pdf/speed-camera-report-june2018.pdf> (noting that a "driver at 40 MPH needs 300 feet to perceive, react and brake to an unexpected event – twice as far as a driver at 25 MPH, who only needs 150 feet").

<sup>38</sup> Not all dangerous behaviors and conditions have the qualities that render speeding so dangerous. See, e.g., Daniel Eisenberg & Kenneth E. Warner, *Effects of Snowfalls on Motor Vehicle Collisions, Injuries, and Fatalities*, 95 AM. J. PUB. HEALTH 120, 120 (2005) (canvassing studies and observing that "less severe crashes (e.g., those producing only property damage) increase during snows, while more severe crashes (those resulting in fatalities) decrease").

<sup>39</sup> See generally NTSB, SAFETY STUDY, *supra* note 26; *City Drivers Slow Down for Lower Speed Limit in Boston*, INS. INST. FOR HIGHWAY SAFETY, HIGHWAY LOSS DATA INST. (Aug. 28, 2018), <https://www.iihs.org/iihs/news/desktopnews/city-drivers-slow-down-for-lower-speed-limit-in-boston> ("Some cities are lowering speed limits to reduce the risks for these vulnerable road users, who are increasingly dying in crashes." (quoting IIHS President David Harkey)).

<sup>40</sup> At the same time, people of color face unequal enforcement of speeding and other traffic laws. See, e.g., Marco Conner, *Traffic Justice: Achieving Effective and Equitable Traffic Enforcement in the Age of Vision Zero*, 44 FORDHAM URB. L.J. 969 (2017) (discussing racial disparities in stops for missing tail lights and other infractions).

<sup>41</sup> *Speed Limit*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/speed%20limit> (last visited Oct. 31, 2019).

<sup>42</sup> NTSB, SAFETY STUDY, *supra* note 26, at 17.

underscores the level of dissonance—and denial—underlying speeding: Few would brag about being able to chug a six-pack of beer and then drive without incident, but boasting about “making good time” via speeding is commonplace. While drunk driving is now sharply stigmatized, speeding is socially acceptable.<sup>43</sup>

Of course, speeding isn’t merely dangerous; it is a violation of the law. Speed limits are usually posted clearly by advisory signage. Smartphone apps and vehicle safety systems frequently provide additional notice and can be consulted in between signs. The legal “limit” establishes a ceiling on permitted speed; modern speedometers make accurate readings of one’s own vehicle speed simple; and the risk of harm resulting from speeding—including to people outside the speeding vehicle, especially vulnerable road users—is well-established and supposedly forms the basis around which a great deal of policy is fashioned. The regular forbearance of enforcement of the speed limit erodes the definition of a limit as “something that bounds, restrains, or confines.”<sup>44</sup>

Speed limits are a prototypical case of insincere rules. Whereas a sincere rule formally mandates the rulemaker’s desired behavior, “an *insincere rule* mandates something else. If the state wants drivers to stay at or below 55 mph, a sincere rule would set the speed limit at 55 mph, while an insincere rule might set the speed limit at, say, 45 mph.”<sup>45</sup> The disingenuous nature of speed limit enforcement has multiple negative spillover effects. It undermines the deterrent function of the law. It also fosters a creeping normalization of speeding, in the same way that ineffective law enforcement action against spousal abuse is “one mechanism that allows domestic violence to thrive.”<sup>46</sup>

Despite the dangers associated with speeding and the ease of identifying offenders, enforcement of speed limits is lax. In public settings, “[p]olice and public officials routinely and approvingly comment that speed laws are not literally enforced.”<sup>47</sup> Speeding by one, five, or

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<sup>43</sup> NTSB, Study Identifies Opportunities, *supra* note 30. Drunk driving began to be treated more seriously in the 1970s and 1980s. See BARRON H. LERNER, ONE FOR THE ROAD: DRUNK DRIVING SINCE 1900, at 8–10 (2011) (summarizing the work of various drunk driving activist groups, including Mothers Against Drunk Driving, and noting that the number of drunk driving deaths declined from 25,000 in 1980 to 17,000 in 1992).

<sup>44</sup> *Limit*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/limit> (last visited Oct. 31, 2019).

<sup>45</sup> Michael D. Gilbert & Sean P. Sullivan, *Insincere Evidence*, 105 VA. L. REV. 1115, 1117 (2019).

<sup>46</sup> MARTHA CHAMALLAS, INTRODUCTION TO FEMINIST LEGAL THEORY 3 (3d ed. 2013).

<sup>47</sup> Margaret Raymond, *Penumbbral Crimes*, 39 AM. CRIM. L. REV. 1395, 1404–05 (2002); see also Jonathan Witmer-Rich, *Arbitrary Law Enforcement Is Unreasonable: Whren’s Failure to Hold Police Accountable for Traffic Enforcement Policies*, 66 CASE W. RES.

even over ten miles per hour is seldom punished at all.<sup>48</sup> So dissonant are social attitudes towards speed limits that some jurisdictions do not permit and in some cases *expressly forbid* automated enforcement of speed laws. They are ironclad suggestions.

Automated speed enforcement (ASE) is “widely acknowledged as an effective countermeasure” against speeding deaths and injuries,<sup>49</sup> yet ASE is not widely used even though the technology has existed since at least 1986.<sup>50</sup> Seven states expressly outlaw the use of speed cameras and other types of ASE.<sup>51</sup> Where not prohibited, the deployment of ASE de facto requires enabling legislation at the state level.<sup>52</sup> Only fifteen states and the District of Columbia have such legislation;<sup>53</sup> twenty-eight states do not.<sup>54</sup>

Even the observation that 30% of U.S. states authorize ASE overstates the extent of its deployment, as many jurisdictions apply layers of operational restrictions on ASE that limit its effectiveness.<sup>55</sup> For example, until 2019, New York State restricted ASE to New York City; and, within the City, to areas near schools; and, among 2300 such areas, to 140 total, leaving 94% of City school zones—and 100% of

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L. REV. 1059, 1071 (2016) (“The speed limit is the clearest example of underenforcement . . .”).

<sup>48</sup> See Kim Forde-Mazrui, *Ruling Out the Rule of Law*, 60 VAND. L. REV. 1497, 1520 (2007) (“The majority of motorists violate such [speed limit] laws, and law enforcement, often admittedly, ignores most drivers who exceed the limit by less than five miles per hour.”); Raymond, *supra* note 47, at 1405 nn.39–40 (citing police officers’ and other public officials’ statements on non-enforcement for drivers exceeding the speed limit by 7 to 10–15 mph).

<sup>49</sup> NTSB, SAFETY STUDY, *supra* note 26, at x.

<sup>50</sup> *Id.* at 35.

<sup>51</sup> *Id.* at 40. These seven states are Maine, Mississippi, New Hampshire, New Jersey, Texas, West Virginia, and Wisconsin. *Id.* at 41 n.59. Texas bans ASE only in municipalities. *Id.* at 40.

<sup>52</sup> See *id.* at 40. The NTSB study noted that every single state or local transportation official it spoke to in the course of conducting the study who was in a state without enabling legislation “would like to implement an ASE program, but they were unwilling to do so without laws in place authorizing its use.” *Id.*

<sup>53</sup> *Id.* These fifteen states are Arizona, Arkansas, Colorado, Illinois, Louisiana, Maryland, Nevada, New York, Ohio, Oregon, Rhode Island, South Carolina, Tennessee, Utah, and Washington. *Id.* at 41 n.61.

<sup>54</sup> *Id.* at 41. These twenty-eight states are Alabama, Alaska, California, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Indiana, Iowa, Kansas, Kentucky, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Mexico, North Carolina, North Dakota, Oklahoma, Pennsylvania, South Dakota, Vermont, Virginia, and Wyoming. *Id.* at 41 n.60. The seven states not covered by this note or the previous one are the ones that ban ASE. *Id.* at 41 n.59.

<sup>55</sup> *Id.* at 40.

other areas in the City and upstate—legally prohibited from deploying the life-saving protection.<sup>56</sup>

Constraints on ASE often interact with other rules that forbid its use unless the motorist is exceeding the stated limit by a certain preestablished threshold. In New York City,<sup>57</sup> the minimum ticketable violation using ASE is 10 mph over the speed limit.<sup>58</sup> This appears to be a political concession and means that motorists driving more than 150% of the speed limit in sensitive areas like schools—the very category of areas where cameras are permitted to operate and where the expected harm caused by speeding is highest—are never ticketed by the cameras.<sup>59</sup> Despite these extraordinary constraints, the intervention has been enormously successful; speeding during school hours at camera locations dropped by 63%<sup>60</sup> and injuries (including when the cameras were not in use) fell by 17%.<sup>61</sup>

The tentative nature of automated enforcement rollout has nurtured a sense of vulnerability, stimulating fierce legal and political opposition. In Florida, legislation authorizing the use of red-light cameras was tied up in litigation for eight years until upheld by the state supreme court.<sup>62</sup> By that time, the state's largest city, Miami, had voted to end its program entirely, and state legislators had begun mobilizing to repeal the authorization altogether.<sup>63</sup> In Texas,

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<sup>56</sup> NYC DOT AUTOMATED SPEED PROGRAM REPORT, *supra* note 37, at 8. Even in the six percent of City school zones where cameras were authorized, they could only operate during school hours and on school days and thus were prohibited from operating for much of the year. *Id.* at 2. In 2019, the program was expanded by executive action and legislation. See Winnie Hu, *2,000 Cameras Will Be Watching How You Drive in New York City*, N.Y. TIMES (July 1, 2019), <https://www.nytimes.com/2019/07/01/nyregion/speeding-cameras-nyc.html> (describing the program's expansion to include two thousand cameras deployed both near schools and at other high-crash areas, which will operate from 6:00 AM to 10:00 PM year-round).

<sup>57</sup> New York City is represented prominently in this Article in part because it boasts more data and a thicker literature on its transportation laws and policies.

<sup>58</sup> NYC DOT AUTOMATED SPEED PROGRAM REPORT, *supra* note 37, at 7.

<sup>59</sup> Speed limits in "School Slow Zones" adjacent to New York City schools are lowered to 15–20 mph during school days. *School Safety*, N.Y.C. DEP'T TRANSP., <https://www1.nyc.gov/html/dot/html/pedestrians/schoolsafety.shtml> (last visited Nov. 9, 2019).

<sup>60</sup> NYC DOT AUTOMATED SPEED PROGRAM REPORT, *supra* note 37, at 2. This figure refers to the reduction in speeding at locations operating fixed cameras. Other locations had mobile units that were repositioned from time to time. *Id.* at 8.

<sup>61</sup> *Id.* at 11.

<sup>62</sup> See Elizabeth Koh, *Florida Supreme Court Says Red-Light Cameras Still Legal*, TAMPA BAY TIMES (May 3, 2018), <https://www.tampabay.com/florida-politics/buzz/2018/05/03/florida-supreme-court-says-red-light-cameras-still-legal>.

<sup>63</sup> *Id.* (reporting that one house of the legislature had passed repeal and that "red-light cameras have been an ongoing source of controversy").

Governor Greg Abbott tweeted out a selfie video of himself triumphantly signing legislation banning red-light cameras.<sup>64</sup>

Legislators have frequently allowed programs with sound scientific basis in crash reduction to be derailed by political concerns. Increasing the use of ASE featured prominently in the National Transportation Safety Board's (NTSB) 2017 study of speeding as a recommendation to key players, including the National Highway Traffic Safety Administration (NHTSA), the Federal Highway Administration (FHWA), and state transportation officials.<sup>65</sup> Some obstacles are bureaucratic.<sup>66</sup> But mostly, ASE is subject to the same attacks as other efforts to regulate driving, namely, an alliance of populist and organized resistance that lawmakers often find difficult to counter.<sup>67</sup>

## 2. *Arbitrary Setting and Adjustment of Speed Limits*

Speeding is dangerous, but so is speed itself. In vehicle-to-pedestrian crashes, for example, speed at impact is “the most significant crash factor affecting the injury risks.”<sup>68</sup> Antecedent to the question of speed limit enforcement is the choice of a nominal limit in the first place.

Less well-known than the lax state of speed limit enforcement is the process by which speed limits are set. Federal regulations provide that a traffic bible now in its ninth decade, the Federal Highway Administration’s *Manual on Uniform Traffic Control Devices* (*MUTCD*), establishes a national standard for traffic control devices,

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<sup>64</sup> Greg Abbott (@GregAbbott\_TX), TWITTER (June 1, 2019, 3:05 PM), [https://twitter.com/GregAbbott\\_TX/status/1134944087965077507](https://twitter.com/GregAbbott_TX/status/1134944087965077507). These sentiments are not uniquely American and have been embraced by anti-government groups. In France, “Yellow Vest” rioters specifically targeted automated safety programs, destroying over half the speed cameras in the entire country and likely increasing crashes and fatalities. Alexa Lardieri, *Yellow Vest Protesters Destroy 60 Percent of France’s Speed Cameras*, U.S. NEWS & WORLD REP. (Jan. 11, 2019), <https://www.usnews.com/news/politics/articles/2019-01-11-yellow-vest-protesters-destroy-60-percent-of-frances-speed-cameras>.

<sup>65</sup> NTSB, SAFETY STUDY, *supra* note 26, at 56–57.

<sup>66</sup> See *id.* at x, 42 (advising that “federal guidelines for ASE are outdated and not well known among ASE program administrators”).

<sup>67</sup> See, e.g., Sarah Goodyear, *How Speed Cameras Brought One Ohio Village to a Standstill*, CITYLAB (Aug. 23, 2013), <https://www.citylab.com/transportation/2013/08/how-speed-cameras-brought-one-ohio-village-standstill/6645> (detailing a campaign by drivers, local leaders, national anti-camera organizations, and lawyers against the use of anti-speed cameras in Elmwood Place, a small town in Ohio).

<sup>68</sup> JINGWEN HU & KATHLEEN D. KLINICH, TOWARD DESIGNING PEDESTRIAN-FRIENDLY VEHICLES 11 (2012), [https://www.researchgate.net/publication/236211005\\_Toward\\_designing\\_pedestrian-friendly\\_vehicles](https://www.researchgate.net/publication/236211005_Toward_designing_pedestrian-friendly_vehicles).

such as speed limits and the signs that announce them.<sup>69</sup> States consult the *MUTCD* for guidance, and adopt it as law.<sup>70</sup>

The significance of the *MUTCD* in determining street safety and casualty levels is difficult to overstate. Together with the Green Book, a manual published by the American Association of State Highway and Transportation Officials,<sup>71</sup> the *MUTCD* furnishes “the blueprint for the design of the nation’s 2.6 million miles of paved roads.”<sup>72</sup> They both “contain remnants from the era of [Robert] Moses<sup>73</sup> yet are still found in binders on the desk of every engineer—and are part of the reason why our streets have been frozen in time ever since.”<sup>74</sup> Janette Sadik-Khan, New York City’s pathbreaking transportation chief under Mayor Michael Bloomberg, has observed that in its 800 pages of diagrams, “human beings are conspicuously absent from any representations of the street.”<sup>75</sup>

The FHWA has said that the *MUTCD* has legal consequences<sup>76</sup>: states adopt it as law,<sup>77</sup> and traffic officials regularly complain that the

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<sup>69</sup> See 23 U.S.C. §§ 109(d), 402(a)(2) (2018) (requiring state highway safety programs to “comply with uniform guidelines, promulgated by the Secretary [of Transportation]”); 23 C.F.R. § 655.603(a) (2019) (“The [MUTCD] approved by the Federal Highway Administrator is the national standard for all traffic control devices installed on any street, highway, or bicycle trail open to public travel in accordance with 23 U.S.C. 109(d) and 402(a).”).

<sup>70</sup> See U.S. DEP’T OF TRANSP., FED. HIGHWAY ADMIN., FHWA-SA-16-076, SPEED LIMIT BASICS 2 (2017), [https://safety.fhwa.dot.gov/speedmgt/ref\\_mats/fhwasa16076/fhwasa16076.pdf](https://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa16076/fhwasa16076.pdf) (“State and local transportation agencies recommend and set appropriate speed limits by completing engineering speed studies and following the guidance presented in the *MUTCD*.); *Who Uses the MUTCD? And How?*, U.S. DEP’T OF TRANSP., FED. HIGHWAY ADMIN., <https://muted.fhwa.dot.gov/kno-users.htm> (last visited Oct. 31, 2019) (“When a new edition or revision of the national *MUTCD* is issued, States have two years to adopt it, with or without a State supplement, or to adopt a State *MUTCD* that is in substantial conformance with the new edition of the National *MUTCD*.”).

<sup>71</sup> JANETTE SADIK-KHAN & SETH SOLOMONOW, STREETFIGHT: HANDBOOK FOR AN URBAN REVOLUTION 29 (2016). The official title of the Green Book is *A Policy on the Geometric Design of Highways and Streets*. AM. ASS’N OF STATE HIGHWAY & TRANSP. OFFICIALS, A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS (6th ed. 2013).

<sup>72</sup> SADIK-KHAN & SOLOMONOW, *supra* note 71, at 29.

<sup>73</sup> See generally ROBERT A. CARO, THE POWER BROKER: ROBERT MOSES AND THE FALL OF NEW YORK (1974) (detailing the controversial policies and legacy of Robert Moses, often referred to as the first and most powerful city and transportation planner in United States history and who served in various New York City and State offices for most of the twentieth century, from the 1920s until his death in 1981).

<sup>74</sup> SADIK-KHAN & SOLOMONOW, *supra* note 71, at 29.

<sup>75</sup> *Id.* at 30.

<sup>76</sup> See *Manual on Uniform Traffic Control Devices (MUTCD): Overview*, U.S. DEP’T TRANSP., FED. HIGHWAY ADMIN., <https://muted.fhwa.dot.gov/kno-overview.htm> (last visited Oct. 31, 2019) (asserting *MUTCD*’s status as “the law governing all traffic control devices” and noting that non-compliance “ultimately can result in the loss of federal-aid funds as well as in a significant increase in tort liability”).

<sup>77</sup> See *Who Uses the MUTCD? And How?*, *supra* note 70.

*MUTCD* and Green Book standards “tie their hands” and prohibit innovations, even when such changes provably enhance safety.<sup>78</sup> However, these characterizations are at best incomplete, and in some cases conflict with the FHWA’s own guidance. For example, the FHWA has stated that the Green Book should not be read to prohibit safety innovations merely because they diverge from its text.<sup>79</sup> The *MUTCD* too admits of some flexibility, and federal regulations make clear that the *MUTCD* does not fully preempt state and local—or even other federal—rules governing traffic safety.<sup>80</sup> Nevertheless, the *MUTCD* is often applied in a mechanical way by state departments of transportation to determine crucial aspects of road safety, including speed limits.<sup>81</sup>

Speed limits are generally set by statute, “but adjustments to statutory speed limits are generally based on the observed operating speeds for each road segment—specifically, the eighty-fifth percentile

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<sup>78</sup> SADIK-KHAN & SOLOMONOW, *supra* note 71, at 30.

<sup>79</sup> In 2013, the FHWA stated that the Green Book allows for flexibility in street design and specifically permits changes made pursuant to a new guide intended to enhance safety for people walking and biking. *See Memorandum, Associate Adm’r for Planning, Env’t and Realty Division, U.S. Dep’t of Transp., Fed. Highway Admin., to Division Adm’rs, Guidance: Bicycle and Pedestrian Facility Design Flexibility* (Aug. 20, 2013), [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/guidance/design\\_flexibility.pdf](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design_flexibility.pdf) (encouraging states in taking a “flexible approach” that “go[es] beyond the minimum requirements”). In 2014, FHWA followed up on the 2013 memorandum, stating the Administration also supported use of the *Urban Street Guide*, a manual authored by the National Association of City Transportation Officials. *See Questions & Answers About Design Flexibility for Pedestrian and Bicycle Facilities*, U.S. DEP’T TRANSP., FED. HIGHWAY ADMIN., [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/guidance/design\\_flexibility\\_qa.cfm](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/guidance/design_flexibility_qa.cfm) (last updated July 25, 2014); *see also FHWA Officially Supports City-Friendly Street Designs*, NAT’L ASS’N OF CITY TRANSP. OFFICIALS (July 25, 2014), <https://nacto.org/2014/07/25/fhwa-officially-supports-city-friendly-street-design> (observing that “[f]ederal support for the *Guide* ensures that practitioners have both the permission and the flexibility to design streets that support safe walking and biking, as well as efficient transit”). The *Urban Street Guide* better serves a broader array of interests in street design, including the health and wellbeing of people walking and biking, and “may ultimately be the new ‘Green Book’ for the twenty-first century.” SADIK-KHAN & SOLOMONOW, *supra* note 71, at 31.

<sup>80</sup> The same regulation that establishes *MUTCD* as the national standard authorizes states to modify its commands. It eschews total preemption, opting for a regime that mandates state and other federal agencies’ versions of the *MUTCD* be “in substantial conformance” with the [FHWA] *MUTCD*. 23 CFR § 655.603(b)(1) (2019) (emphasis added). By use of the command “shall” with respect to the granting of FHWA approval, this regulation presumably denies FHWA discretion to require total *MUTCD* conformance. *See id.* In addition, the regulation provides that states and other federal agencies are merely “encouraged” to adopt the FHWA version of the *MUTCD*, establishing that the FHWA *MUTCD* does not automatically displace alternative sources of guidance. *See* 23 CFR § 655.603(b)(2). The *MUTCD* sets forth procedures by which even those documents that are not in substantial conformance may be approved. *See id.*

<sup>81</sup> *See* SADIK-KHAN & SOLOMONOW, *supra* note 71, at 29.

speed of free-flowing traffic.”<sup>82</sup> This concept, which is a creature of the *MUTCD*,<sup>83</sup> refers to the process of setting the speed limit at or below the speed at which 85% of vehicles are traveling “in free-flowing traffic” *regardless of the posted speed limit*.<sup>84</sup> Applying it uncritically, as transportation officials often do,<sup>85</sup> systematically biases speed limits and speeds upwards.

For example, if the speed limit on a given residential street is 30 mph, but 85% of drivers travel on the road at or below 40 mph, the 85th percentile method would advise raising the speed limit to 40 mph. If raising the speed limit prompts drivers to drive even faster, such that 85% now drive 45 mph, the speed limit would rise again under the same calculation. The *MUTCD* recommends that the speed limit be set within 5 mph of the 85th percentile speed,<sup>86</sup> so in this example it could actually be raised to 50 mph and comply with the *MUTCD*. The 85th percentile method is one of the “most commonly used” methods.<sup>87</sup> It is often applied as a matter of law or because of confusion over the law,<sup>88</sup> even though the FHWA has specifically stated that it is not mandatory, terming such view a “myth.”<sup>89</sup>

There are at least two problems with the *MUTCD*’s 85th percentile method. First is its dubious scientific foundation: the relationship between speed traveled by 85% of drivers and safe speed is weak at best. The NTSB and National Association of City Transportation Officials (NACTO) have criticized the method on this ground,<sup>90</sup> and

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<sup>82</sup> NTSB, SAFETY STUDY, *supra* note 26, at x. The 85th percentile method of setting speed limits is also known as the “operating speed” method. *Id.* at 23.

<sup>83</sup> *Id.* (citing U.S. DEP’T OF TRANSP., FED. HIGHWAY ADMIN., MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) (2012 ed. 2009) [hereinafter MUTCD]).

<sup>84</sup> MUTCD, *supra* note 83, § 2B.13-12.

<sup>85</sup> See SADIK-KHAN & SOLOMONOW, *supra* note 71, at 29.

<sup>86</sup> See FHWA, SPEED LIMITS REPORT, *supra* note 33, at 12.

<sup>87</sup> U.S. DEP’T OF TRANSP., FED. HIGHWAY ADMIN., ACHIEVING MULTIMODAL NETWORKS: APPLYING DESIGN FLEXIBILITY & REDUCING CONFLICTS 22 (Aug. 2016), [https://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/publications/multimodal\\_networks/fhwahep16055.pdf#page=30](https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/multimodal_networks/fhwahep16055.pdf#page=30) [hereinafter FHWA, ACHIEVING MULTIMODAL NETWORKS].

<sup>88</sup> See Press Release, Nat'l Ass'n of City Transp. Officials, Federal Study Concludes U.S. Must Change Policies to Curb Epidemic of Deaths Caused by Excessive Motorist Speed (Aug. 15, 2017), <https://nacto.org/2017/08/15/federal-study-concludes-us-must-curb-speed> [hereinafter NACTO, *Federal Study Concludes*]; cf. SADIK-KHAN & SOLOMONOW, *supra* note 71, at 30 (observing the general phenomenon of traffic officials’ invocation of the law as a bar to change, though not specifically in the context of speed limits).

<sup>89</sup> FHWA, ACHIEVING MULTIMODAL NETWORKS, *supra* note 87, at 22.

<sup>90</sup> *Speed Limits in Portland*, PORTLAND BUREAU TRANSP. (Aug. 8, 2019) <https://www.portlandoregon.gov/transportation/article/594740> (“[S]peed limits based on 85th percentile speeds is not supported by evidence and is not part of PBOT practice.”); NTSB, SAFETY STUDY, *supra* note 26, at x, 24–26; NACTO, *Federal Study Concludes*, *supra* note 88 (“[S]peed limits have traditionally—and in many cases by law—been set by an outdated

the FHWA—which is the author of the *MUTCD*—itself concedes that “[t]he original research between speed and safety which purported that the safest travel speed is the 85th percentile speed is dated research and may not be valid under scrutiny.”<sup>91</sup> Departures from the 85th percentile method are permitted by the *MUTCD*,<sup>92</sup> but are often circumscribed by local law and do not meaningfully reduce the 85th percentile rule’s subsidy to fast vehicular traffic. According to the FHWA, a typical state law might permit officials to reduce the speed limit below the 85th percentile level in order to enhance safety, but, absent special circumstances (for example, the presence of several driveways in a row), would only authorize a maximum reduction of 7 mph.<sup>93</sup> This restriction on modifications to the unscientific 85th percentile rule is operative even where observed roadway hazards and scientific analysis of crash data reveal the street to be dangerous.<sup>94</sup>

Second, to the extent the goal is safety and community cohesion (or anything other than maximum vehicular speed), the rule is counterproductive because it will tend to have the unintended consequence of systematically ratcheting up. The FHWA itself has warned of this risk, admonishing that the 85th percentile rule “can result in excessive speeds.”<sup>95</sup> The NTSB has criticized the practice for the same reason,<sup>96</sup> observing that “[r]aising the speed limit to match the 85th percentile speed may lead to higher operating speeds, and hence a higher 85th percentile speed. This generates an undesirable cycle of speed escalation and reduced safety . . .”<sup>97</sup> Indeed, the FHWA has noted that often “the 50th percentile operating speed is either near or exceeds that posted speed limit,”<sup>98</sup> so establishing the speed limit at the 85% level is almost certain to result in higher speeds.<sup>99</sup> As one California transportation official lamented:

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principle mandating that posted speed limits are set at the 85th percentile speed of observed free-flowing traffic, without questioning whether vehicles should be traveling at such high rates of speed to begin with.”).

<sup>91</sup> FHWA, SPEED LIMITS REPORT, *supra* note 33, at 12 n.\*.

<sup>92</sup> See *id.* at 12–13 (noting deviation from the *MUTCD* with regard to setting speed limits).

<sup>93</sup> See *id.* at 13 (citing COMMONWEALTH OF MASS., MASS. DEP’T OF TRANSP., PROCEDURES FOR SPEED ZONING ON STATE HIGHWAYS AND MUNICIPAL ROADS 15 (rev. 2017)). Exceptional circumstances would allow a further reduction. *Id.*

<sup>94</sup> *Id.* (citing COMMONWEALTH OF MASS., MASS. DEP’T OF TRANSP., *supra* note 93, at 15).

<sup>95</sup> FHWA, ACHIEVING MULTIMODAL NETWORKS, *supra* note 87, at 22.

<sup>96</sup> NTSB, SAFETY STUDY, *supra* note 26, at x, 24–26.

<sup>97</sup> *Id.* at 24 (citation omitted).

<sup>98</sup> FHWA, SPEED LIMITS REPORT, *supra* note 33, at 13.

<sup>99</sup> NTSB, SAFETY STUDY, *supra* note 26, at x, 24–26.

We are supposed to be evidence-based, but we have no other information [regarding the 85th percentile rule] than a single study done in 1960 that only looked at rural roads. Further, the 85th Percentile is entirely the perspective of the driver, giving him control over the safety of all the users of the road.<sup>100</sup>

The latter point warrants reflection, and suggests a third problem: even on its face, the rule transportation departments follow in setting speed limits serves only drivers—and is specifically tailored to those who violate the law.<sup>101</sup> The interests of people walking are expressly excluded.<sup>102</sup>

Studies confirm that, particularly in densely populated areas, lowering speed limits lowers travel speeds and dangerous driving. The research arm of the car insurance industry's trade group, for example, found that lowering speed limits on Boston's city streets "improve[d] safety for motorists, pedestrians and bicyclists alike . . .".<sup>103</sup> Other studies have found speed limit reductions paired with street redesigns to be particularly effective from a safety perspective, especially in urban areas.<sup>104</sup>

While many of the nation's leading road safety authorities openly criticize the procedure by which speed limits are established, the bodies they control and oversee continue to implement quasi-legal policies that increase both the amount of driving and its risks. This is emblematic of a larger problem. The professional incentives within transportation agencies to adopt pro-safety policies are weak. Sadik-Khan observed in 2016 that "[t]ransportation is one of the few professions where nearly 33,000 people can lose their lives in one year and no one in a position of responsibility is in danger of losing his or her job."<sup>105</sup> The force of this critique has strengthened with the passage of

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<sup>100</sup> CAL. DEP'T OF TRANSP., CAL. TRAFFIC CONTROL DEVICES COMM. 16 (2017), <http://www.dot.ca.gov/trafficops/ctcdc/docs/CTCDC-11-02-17.pdf>. N.B. These remarks appear in committee minutes and thus are unlikely to be a precise quote.

<sup>101</sup> NTSB, SAFETY STUDY, *supra* note 26, at 24.

<sup>102</sup> To be clear, in environments that have high volumes of people walking and biking, the FHWA suggests deviating from the 85th percentile rule in favor of a different method, which would set speed limits "close to [the] 50th percentile [speed] . . . ." FHWA, ACHIEVING MULTIMODAL NETWORKS, *supra* note 87, at 22.

<sup>103</sup> *City Drivers Slow Down for Lower Speed Limit in Boston*, *supra* note 39.

<sup>104</sup> See Conner, *supra* note 40, at 972 (noting that New York City had "bucked the recent national trend of increasing traffic fatalities since 2014," the year Vision Zero was adopted, "with drops in traffic fatalities over three consecutive years since 2014, likely due to its Vision Zero-related measures that include re-designing roads, lowering the citywide speed limit, and operating automated speed enforcement cameras"); see also CITY OF N.Y., VISION ZERO YEAR TWO: YEAR END REVIEW 5, 12 (2015), <http://www.nyc.gov/html/visionzero/assets/vz-year-end-report.pdf> (discussing street design reforms, speed enforcement, and relevant reductions in fatalities and injuries post reforms).

<sup>105</sup> SADIK-KHAN & SOLOMONOW, *supra* note 71, at 29.

time. In 2016, 2017, and 2018, the number killed on U.S. roads raced higher, from around 33,000 to over 40,000 each year,<sup>106</sup> and with a further 4.5 million Americans—one every seven seconds—suffering road injuries severe enough to require medical attention in 2017 alone.<sup>107</sup> By the National Safety Council's estimate, costs to society from these deaths and injuries exceeded \$400 billion per year,<sup>108</sup> and calls to reduce traffic deaths have grown louder.<sup>109</sup>

The consensus view now is that system design, rather than an emphasis on education and enforcement, is the most effective solution. In recent years, thirty U.S. cities and the federal Department of Transportation have announced “Vision Zero” campaigns, with the goal of eliminating deaths and serious injuries in traffic by implementing systematic road improvements.<sup>110</sup> The program originated in Sweden and the Netherlands in the 1980s and 1990s<sup>111</sup> and has been embraced by the EU, the OECD, and the UN,<sup>112</sup> as well as the U.S. entities noted above. “Traditionally, the road user has been viewed as the central entity responsible for road traffic safety[,]”<sup>113</sup> a view that masks the role of underlying systemic conditions, like streets and intersections, that are statistically dangerous in their design.<sup>114</sup> Vision Zero planning “attempts to shift the responsibility so that all actors

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<sup>106</sup> 2018 Marks Third Straight Year that Motor Vehicle Deaths are Estimated to Have Reached 40,000, NAT'L SAFETY COUNCIL (Feb. 13, 2019), <https://www.nsc.org/in-the-newsroom/2018-marks-third-straight-year-that-motor-vehicle-deaths-are-estimated-to-have-reached-40-000>.

<sup>107</sup> *Id.*

<sup>108</sup> *Injury Facts: Societal Costs*, NAT'L SAFETY COUNCIL (2019), <https://injuryfacts.nsc.org/all-injuries/costs/societal-costs> (last visited Nov. 24, 2019).

<sup>109</sup> See, e.g., Cass R. Sunstein, Opinion, *Revolution in Road Safety Needs a Little Help*, BLOOMBERG (Feb. 21, 2017, 11:08 AM), <https://www.bloomberg.com/opinion/articles/2017-02-21/revolution-in-highway-safety-needs-a-little-help> (describing the increase in motor vehicle related deaths and urging that the “United States should not accept that level of human tragedy”).

<sup>110</sup> Press Release, U.S. Dep't of Transp., Nat'l Highway Traffic Safety Admin., U.S. DOT, National Safety Council Launch Road to Zero Coalition to End Roadway Fatalities (Oct. 5, 2016), [http://www.nhtsa.gov.edgesuite-staging.net/About-NHTSA/Press-Releases/nhtsa\\_zero\\_deaths\\_coalition\\_10052016](http://www.nhtsa.gov.edgesuite-staging.net/About-NHTSA/Press-Releases/nhtsa_zero_deaths_coalition_10052016); Angie Schmitt, *Vision Zero Network Hires Big Gun to Focus on Slowing Drivers Down Already*, STREETSBLOG USA (Aug. 21, 2018), <https://usa.streetsblog.org/2018/08/21/vision-zero-network-hires-big-gun-to-focus-on-slowing-drivers-down-already> (reporting that approximately thirty cities have joined the Vision Zero Network).

<sup>111</sup> INT'L TRANSP. FORUM, *Zero Road Deaths and Serious Injuries: Leading a Paradigm Shift to a Safe System* 5 (2016), [http://www.towardszerofoundation.org/wp-content/uploads/2016/10/Zero\\_road\\_deaths-SafeSystems.pdf](http://www.towardszerofoundation.org/wp-content/uploads/2016/10/Zero_road_deaths-SafeSystems.pdf).

<sup>112</sup> *Id.* at 15.

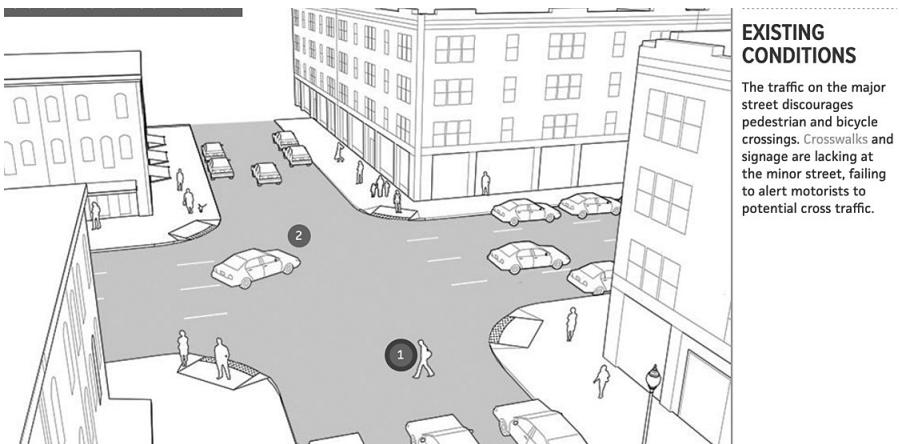
<sup>113</sup> Kim et al., *Vision Zero: A Toolkit for Road Safety in the Modern Era*, 4 INJ. EPIDEMIOLOGY 1, 2 (2017).

<sup>114</sup> *See id.* at 1–2.

within the system are held accountable, causing them to become more centrally involved in road safety.”<sup>115</sup>

Vision Zero or “safe system” analysis requires first and foremost a change in mindset. A finding that a motorist-pedestrian collision was caused by the motorist’s failure to yield at a crosswalk might not be the end of the inquiry. If city data show that drivers have frequently failed to yield at that crosswalk, the inquiry would be refocused around the question of whether interventions designed to enhance driver compliance might be appropriate.<sup>116</sup> In the following schematic, from the NACTO Urban Street Design Guide,<sup>117</sup> the number 1 indicates a person crossing at an unmarked crosswalk. The infrastructure provides drivers few behavioral cues to slow down.

FIGURE 1. PROBLEMATIC INFRASTRUCTURE



By contrast, in the schematic that follows, several treatments have been applied that improve safety at the intersection. These include curb extensions, a marked and raised crosswalk, and “daylighting,” or the removal of car parking adjacent to the crosswalk, to enhance visibility.<sup>118</sup>

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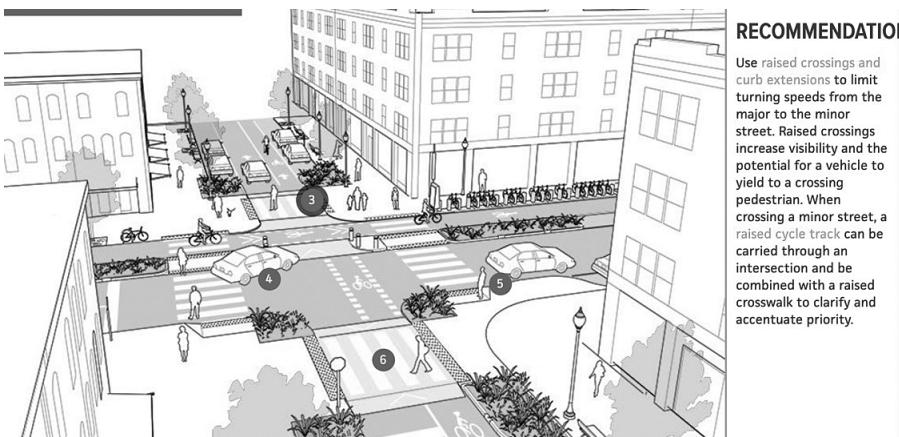
<sup>115</sup> *Id.* at 2.

<sup>116</sup> See generally SADIK-KHAN & SOLOMONOW, *supra* note 71 (detailing how New York City transportation officials made the city more pedestrian- and biker-friendly, reorienting how the City tackled its urban planning challenges); *Urban Street Design Guide*, NAT'L ASS'N CITY TRANSP. OFFICIALS, <https://nacto.org/publication/urban-street-design-guide> (last visited Oct. 30, 2019) [hereinafter NACTO, *Design Guide*] (providing street design ideas that consider safety and surrounding communities).

<sup>117</sup> NACTO, *Design Guide*, *supra* note 116.

<sup>118</sup> *Id.*

FIGURE 2. IMPROVED INFRASTRUCTURE



A raised cycle track has also been added on the far side of the major street, which helps to further “clarify and accentuate priority” of people walking and biking in the intersection.<sup>119</sup>

### B. Potemkin Protections for Pedestrians

As speed increases, the risk of death and serious injury grows superlinearly—especially for these vulnerable road users: a person struck while walking by a motorist driving 40 mph “is eight times more likely to die than one struck by a person driving at 20 mph.”<sup>120</sup> Vehicle and traffic laws take this elevated danger into account in several ways. While not unitary in purpose, some of the available evidence regarding their overarching objectives suggests that the preservation of life—particularly those of pedestrians and other vulnerable road users—is a top official priority.

To begin with, “[e]very State has a basic speed statute requiring drivers to operate their vehicles at a speed that is reasonable and prudent for conditions.”<sup>121</sup> This is known as a basic speed law. Second, in most jurisdictions, a more specific obligation is overlaid upon this general imperative that requires motorists to take due care—slowing down, for example, or leaving additional room—around vulnerable road users in particular, such as people who are walking, biking, or

<sup>119</sup> *Id.*

<sup>120</sup> *Speed Limits in Portland*, *supra* note 90.

<sup>121</sup> FHWA, SPEED LIMITS REPORT, *supra* note 33, at 6. In addition, authorities can establish advisory limits below the maximum for specific stretches of road that pose additional hazards (e.g., tight curves). While these lack the force of law, law enforcement can cite drivers who exceed them for “driving too fast for the prevailing conditions.” *Id.* at 9.

using a wheelchair.<sup>122</sup> Third, even more specific rules exist to protect vulnerable road users.<sup>123</sup>

One good example is that motorists are required to stop for pedestrians in crosswalks,<sup>124</sup> but regularly flout this obligation.<sup>125</sup> In addition, studies have found that there may be racial bias in driver yielding behavior.<sup>126</sup>

The legal definition of a crosswalk, as embodied in the *MUTCD* and the Uniform Vehicle Code, does not require paint or other markings of any kind.<sup>127</sup> The presence of an intersection creates a legal crosswalk.<sup>128</sup> However, media<sup>129</sup> and police reports<sup>130</sup> of pedestrian

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<sup>122</sup> See, e.g., N.Y. VEH. & TRAF. LAW § 1146 (McKinney 2010) (“[E]very driver of a vehicle shall exercise *due care* to avoid colliding with any bicyclist, pedestrian, or domestic animal upon any roadway . . . .” (emphasis added)).

<sup>123</sup> See, e.g., *Safely Passing Bicyclists Chart*, NAT’L CONF. ST. LEGISLATURES (July 27, 2018), <http://www.ncsl.org/research/transportation/safely-passing-bicyclists.aspx> (providing statutes of 32 states that have passed bicycle safe passing laws, which mandate a certain distance, typically 3 feet, for motorists passing bicyclists). These are are regularly flouted and frequently are not known by motorists (or, possibly, police). See Jake Offenhardt, *NYPD Just Inventing Laws About Bike Lanes Now*, GOTHAMIST (Aug. 22, 2018, 10:43 AM), [http://gothamist.com/2018/08/22/bike\\_lanes\\_have\\_laws.php](http://gothamist.com/2018/08/22/bike_lanes_have_laws.php) (noting an instance where an NYPD officer declared a mail truck had the right to park in a bike lane, despite no law to that affect); Noah Kazis, *NYPD Bike Blitz Cheat Sheet Tells Cops to Enforce Bogus Traffic Laws*, STREETSBLOG NYC, (May 9, 2011), <https://nyc.streetsblog.org/2011/05/09/nypd-bike-blitz-cheat-sheet-tells-cops-to-enforce-invalid-traffic-laws> (reporting that the NYPD was deliberately enforcing “bogus” laws against cyclists by presenting NYPD guidance advising that cyclists be cited for “three violations that don’t apply in New York City, even though federal judges have made it plain to the NYPD on more than one occasion that such citations are bogus”).

<sup>124</sup> See, e.g., N.Y. VEH. & TRAF. LAW § 1151 (McKinney 2003) (describing pedestrians’ right of way in crosswalks). Particulars vary from state to state—such as where in the roadway a pedestrian must be located to gain the right of way. See MATTHIESSEN, WICKERT & LEHRER, S.C., PEDESTRIAN AND CROSSWALK LAWS IN ALL 50 STATES (Apr. 22, 2019), <https://www.mwl-law.com/wp-content/uploads/2018/10/PEDESTRIAN-AND-CROSSWALKS-50-STATE-CHART.pdf>.

<sup>125</sup> See Ron Van Houten & Louis Malenfant, *The Influence of Signs Prompting Motorists to Yield Before Marked Crosswalks on Motor Vehicle-Pedestrian Conflicts at Crosswalks with Flashing Amber*, 24 ACCIDENT ANALYSIS & PREVENTION 217, 221 (1992) (studying yield rates and concluding that, on two roads where pedestrians had right of way, motorists failed to yield sixty-five percent and seventy-three percent of the time).

<sup>126</sup> See, e.g., Courtney Coughenour et al., *Examining Racial Bias as a Potential Factor in Pedestrian Crashes*, 98 ACCIDENT ANALYSIS & PREVENTION 96, 96–99 (2017); Tara Goddard et al., *Racial Bias in Driver Yielding Behavior at Crosswalks*, 33 TRANSP. RES. PART F: TRAFFIC PSYCHOL. & BEHAV. 1, 1 (2015) (“[In a controlled field experiment,] Black pedestrians were passed by twice as many cars and experienced wait times that were 32% longer than White pedestrians. Results support the hypothesis that minority pedestrians experience discriminatory treatment by drivers at crosswalks.”).

<sup>127</sup> MUTCD, *supra* note 83, § 1A.13-03.44; UNIFORM VEHICLE CODE § 1-118 (NAT’L COMM. ON UNIFORM TRAFFIC LAWS & ORDINANCES 2000).

<sup>128</sup> *Id.*

<sup>129</sup> Kelcie Ralph et al., *Editorial Patterns in Bicyclist and Pedestrian Crash Reporting*, 2673(2) TRANSP. RES. REC. 663, 663–69 (2019).

deaths following collisions with vehicles focus on pedestrian conduct and counterfactuals, regularly noting that the deceased pedestrian was not in a marked crosswalk.<sup>131</sup> This suggests a pervasive and damaging misunderstanding that markings are required to constitute a legal crosswalk. This misunderstanding is grave, because it can have the effect of insulating drivers from liability, even when a vulnerable road user is killed.<sup>132</sup>

The way these requirements interact in the case of a driver continuing at the posted speed limit through a crosswalk rather than yielding provides an example of positive law imposing a tax on driving that is entirely repealed by the absence of enforcement, creating enormous negative externalities. First, driving through a crosswalk that a pedestrian is crossing—even at the posted speed limit—may indicate that the motorist is driving faster than is prudent in the prevailing conditions. Second, failing to yield to the pedestrian violates the requirement to take due care around vulnerable road users. And third, it violates the specific obligation to yield to pedestrians at crosswalks. Yet violations of the crosswalk by motorists, even those that endanger lives, are almost never punished.<sup>133</sup> In fact, some police departments

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<sup>130</sup> See, e.g., Ben Fried, *Another Bizarre Victim-Blaming Crash Account from NYPD*, STREETSBLOG NYC (Apr. 17, 2017), <https://nyc.streetsblog.org/2017/04/17/another-bizarre-victim-blaming-crash-account-from-nypd> (reporting on incident of police improperly reporting on pedestrian death and contradicting an eyewitness); Ben Fried, *Witness: Lauren Davis Was Biking With Traffic, Not Against, as NYPD Claimed*, STREETSBLOG NYC (Apr. 25, 2016) [hereinafter Fried, *Witness: Lauren Davis*], <https://nyc.streetsblog.org/2016/04/25/witness-lauren-davis-was-biking-with-traffic-not-against-as-nypd-claimed> (recounting another incident of NYPD misreporting on a pedestrian death).

<sup>131</sup> See Ralph et al., *supra* note 129, at 668; John Greenfield, *Stop Victim Blaming Pedestrians and Cyclists Fatally Struck by Drivers*, CHI. READER (Dec. 6, 2016) <https://www.chicagoreader.com/chicago/stop-victim-blaming-cyclist-pedestrian-crashes/Content?oid=24570247> (recounting examples of the media and the public's focus on and bias against bikers and pedestrians who are the victims of motor vehicle collisions); Frances Stevenson, *How the News Victim Blames Pedestrians in Crashes*, OUR STREETS MINNEAPOLIS (Nov. 1, 2018), [https://www.ourstreetsmpls.org/how\\_the\\_news\\_victim.blames\\_pedestrians\\_in\\_crashes](https://www.ourstreetsmpls.org/how_the_news_victim.blames_pedestrians_in_crashes) (“The way articles are written, they suggest pedestrians were distracted or acting erratically even if those actions do not line up with the police report.”).

<sup>132</sup> See Ralph et al., *supra* note 129, at 668; see also Tara Goddard et al., *Does News Coverage of Traffic Crashes Affect Perceived Blame and Preferred Solutions? Evidence from an Experiment*, 3 TRANSP. RES. INTERDISC. PERSPS., Dec. 2019, at 2 (reporting that “details about the actions or characteristics of the pedestrian[,]” such as if “they were crossing outside of a marked sidewalk[,]” influence perceptions about whether to blame pedestrians or drivers).

<sup>133</sup> See TRANSP. ALTS., JUSTICE DENIED: NEW YORK CITY’S DISTRICT ATTORNEYS PLEAD OUT OF VISION ZERO 5 (2015), [https://www.transalt.org/sites/default/files/news/reports/2015/Justice\\_Denied\\_report.pdf](https://www.transalt.org/sites/default/files/news/reports/2015/Justice_Denied_report.pdf) (noting that “less than 1% of the drivers involved in hit-and-run crashes in New York City have been prosecuted”); Robert J. Schneider & Rebecca L. Sanders, PEDESTRIAN SAFETY PRACTITIONERS’ PERSPECTIVES OF DRIVER YIELDING BEHAVIOR ACROSS NORTH AMERICA, 2519 TRANSP. RES. REC. 39, 46 (2015), <https://journals.sagepub.com/doi/pdf/10.3141/2519-05> (noting that in a recent survey of

enforce crosswalk violations by pedestrians in far higher numbers than motorists.<sup>134</sup> These policy decisions exacerbate other problems in this domain, such as the unfulfilled mandate of the Americans with Disabilities Act—now entering its fourth decade in force—to make public facilities, including crosswalks, consistently accessible to everyone.<sup>135</sup>

Further examination of vehicle and traffic law reveals additional evidence of a pro-safety purpose therein. A New York statute provides: “Whenever any vehicle is stopped at a [legally defined crosswalk] to permit a pedestrian to cross the roadway, the driver of any other vehicle approaching from the rear shall not overtake and pass such stopped vehicle.”<sup>136</sup> The driver of an overtaking car may not be able to see a pedestrian who is obscured by a car stopped at the crosswalk, and the pedestrian and overtaking car may converge at the same point. Most motorists are likely unaware of this requirement and are not expected to observe it.

Of course, ignorance of the rules of the road endangers not only vulnerable road users but motorists as well. This problem starts early, before licensure. In many states, either the knowledge (written) or road (driving) components of driver’s license exams, or both, can be failed without prejudice and retaken immediately.<sup>137</sup> Very few road elements are required to be known for the road section. In South

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pedestrian safety practitioners regarding failure to yield laws, “77% indicated that the law was almost never enforced, and 15% indicated that it was only occasionally enforced”). See generally Samuel E. Plutchok, Note, *Is a “Hit-and-Wait” Really Any Better than a “Hit-and-Run”?*, 45 HOFSTRA L. REV. 331 (2016) (discussing perverse incentives that incentivize motorists to leave the scene of crashes).

<sup>134</sup> See, e.g., Scott Schultz, Editorial, *Cars Are Running over People Left and Right. So Why Is LAPD Targeting Pedestrians and Not Motorists?*, L.A. TIMES (Aug. 6, 2018, 4:15 AM), <https://www.latimes.com/opinion/livable-city/la-oe-schultz-pedestrians-lapd-20180806-story.html> (stating that, for crosswalk citations in five Los Angeles police divisions, including failure to yield, “[o]f 68,072 total citations, 55,392 went to pedestrians”).

<sup>135</sup> The Americans with Disabilities Act states that, subject to certain exceptions, access to public accommodations such as sidewalks should be made available to people without regard to disability. 42 U.S.C. § 12101 (2018) (finding that persons with disabilities should have access to public places). Its protections are often expanded by state and local law counterparts. However, American cities do not necessarily comply with its mandates, especially when it comes to temporary conditions such as snow and ice buildup. See, e.g., Angie Schmitt, *More Cities Are Taking Responsibility for Clearing Sidewalks of Snow*, STREETSBLOG USA (Feb. 21, 2019), <https://usa.streetsblog.org/2019/02/21/more-cities-are-taking-responsibility-for-clearing-sidewalks-of-snow> (observing that “[c]learing streets of snow is a non-negotiable priority for public agencies, but safe routes for pedestrians are left to a piecemeal private system that mostly fails”).

<sup>136</sup> N.Y. VEH. & TRAF. LAW § 1151(c) (McKinney 2003).

<sup>137</sup> See *Passing the Test*, SIEGFRIED & JENSEN, <https://www.siegfriedandjensen.com/passing-the-test> (last visited Nov. 7, 2019) (compiling licensing requirements for all fifty states).

Dakota, which one study deemed the most lax, aspiring licensees are entitled to three attempts at the two components.<sup>138</sup> In the road test, they need demonstrate proficiency at only four road maneuvers (such as a three-point turn) and two vehicle control skills (e.g., activating a turn signal).<sup>139</sup> There is no charge for the test. Once awarded, the license is good for five years and costs the driver \$28,<sup>140</sup> or \$0.47 per month of licensure. Even licensing requirements in dense Massachusetts, which the study determined to be the second-most restrictive, aren't much more onerous.<sup>141</sup> Once licensed, drivers typically are not required to receive continuing education except as a penalty for a violation. Against a backdrop<sup>142</sup> of both inadequate education and inadequate enforcement, the law fails to live up to its stated safety priorities.<sup>143</sup>

### C. Car-Centric Definitions of Legal Terms

As automobiles became increasingly common in the early twentieth century, they faced mounting popular resistance and were at times regulated far more stringently than today.<sup>144</sup> For example, in the

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<sup>138</sup> *Id.*

<sup>139</sup> *See id.*

<sup>140</sup> *Driver Licensing: Frequently Asked Questions*, S.D. DEP'T OF PUB. SAFETY, <https://dps.sd.gov/driver-licensing/south-dakota-licensing-information/faqs> (last visited Nov. 7, 2019).

<sup>141</sup> *See Passing the Test*, *supra* note 137 (reporting Massachusetts's requirements as including a minimum score of seventy-two percent to pass the knowledge section, a fee of thirty-five dollars for the test and fifteen dollars for the license, seven road maneuvers, three vehicle control skills, two driver behavior (e.g., posture), and four adherence (e.g., adhering to speed limits) tests).

<sup>142</sup> This background is also regressive in other ways. For example, a resident of South Dakota's largest city who takes the bus to and from work and who buys a discounted monthly pass will spend more on bus fare in her first month than a driver pays for a license that lasts him five years. *Compare Fares, Policies, and Information: Bus Fares & Passes*, CITY OF SIOUX FALLS, S.D., <https://www.siouxfalls.org/sam/general-info> (last visited Nov. 7, 2019) (listing the cost of an adult thirty-day pass price as thirty dollars), with *Driver Licensing: Frequently Asked Questions*, *supra* note 140 (listing the cost of a five year driver's license as twenty-eight dollars). Over five years, she will pay \$1800, more than sixty-four times what the driver pays for his license. While a bus ride is a service, the driver of a private automobile also receives taxpayer-funded services in the form of free roads, a substantial traffic enforcement regime, and myriad other subsidies discussed elsewhere in this Article.

<sup>143</sup> These problems date to the early days of licensure. *See JOSEPH C. INGRAHAM, MODERN TRAFFIC CONTROL* 94–109 (1954) (describing lax laws and enforcement of the law and proposing alternatives).

<sup>144</sup> *See, e.g.*, PETER D. NORTON, *FIGHTING TRAFFIC: THE DAWN OF THE MOTOR AGE IN THE AMERICAN CITY* (2008); Editorial, *The Automobile Menace*, ASHEVILLE CITIZEN, Feb. 24, 1923 (“Pedestrians cannot be kept off the streets; therefore motor vehicles must run at lower speed.”). My thanks to Peter Norton, who unearthed this editorial, for making it available for my research.

early days, “Tennessee law required that a motorist advertise his intention of going upon the road one week in advance,” while Vermont compelled motorists “to hire a person to walk one-eighth of a mile ahead of the car, bearing a red flag.”<sup>145</sup>

In cities, the contemporary reaction in the 1910s and 1920s was one of fear, outrage, and resistance<sup>146</sup>: Whereas the street had previously been a relatively safe place for people to amble, it quickly transformed—with the tacit approval of local authorities—into a wildly dangerous place where motorists killed and maimed large numbers of people with impunity. Urban pedestrians, and especially children, suffered disproportionately. A class element predominated as well, as cars were a luxury at this time and many children killed in urban streets were poor.<sup>147</sup> Memorials to the lost children were erected;<sup>148</sup> local and national papers, including the *New York Times*, ran editorials and sensationalistic cartoons savaging reckless, wealthy motorists and “mankilling automobilists” for the harms they inflicted;<sup>149</sup> and legislation was even proposed that would require the installation of mechanical speed governors that would prevent cars from exceeding 25 mph.<sup>150</sup> This latter specter was, apparently, what catalyzed a coalition of industry groups to take action. “Motordom”—the term chosen by the automobile manufacturing and supply, oil, trucking, highway

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<sup>145</sup> Glen Jeansson, *The Automobile and American Morality*, 8 J. POPULAR CULTURE 125, 125 (1974).

<sup>146</sup> See Peter Norton, *Persistent Pedestrianism: Urban Walking in Motor Age America, 1920s–1960s*, URB. HIST. 1, 6 (2019), <https://www.cambridge.org/core/journals/urban-history/article/persistent-pedestrianism-urban-walking-in-motor-age-america-1920s1960s/8241AC5118CD01C7B1F2AF9D8E8965F9> (“[O]bjections to pedestrians’ loss of unrestricted rights to the street came early and from diverse quarters.”).

<sup>147</sup> Socioeconomic status remains a determinant of traffic fatalities, even as the cost of owning and operating an automobile has come down. See, e.g., SMART GROWTH AM. & NAT'L COMPLETE STS. COAL., *supra* note 9, at 17 (noting that—even after controlling for differences in walking rates—Black and Native people, people walking in communities with lower median incomes, and people over fifty are struck and killed by motorists “at much higher rates”); Anne Lusk, *You Can't Design Bike-Friendly Cities Without Considering Race and Class*, CITYLAB, (Feb. 8, 2019), <https://www.citylab.com/transportation/2019/02/bike-friendly-cities-should-be-designed-everyone/582409> (noting that Americans who walk or bike to work tend to be far less well off than other households).

<sup>148</sup> See, e.g., *Baltimore Puts Over Successful No-Accident Week*, NAT'L SAFETY NEWS, Aug. 1922, at 38. In 1922, Baltimore’s mayor dedicated a 25-foot-high monument in Court House Plaza. The temporary obelisk, made of wood and plaster, honored the 130 children killed within city limits the previous year; see also NORTON, *supra* note 144, at 42. I am indebted to Peter Norton for providing this source.

<sup>149</sup> See, e.g., Editorial, *Nation Roused Against Motor Killings*, N.Y. TIMES, Nov. 23, 1924, at 179 [hereinafter Editorial, *Nation Roused*]; George W. Rehse, *Merely a Suggestion to the Boss of Hades*, SAN ANTONIO GAZETTE, July 18, 1908, at 3 (decrying “mankilling automobilists”).

<sup>150</sup> See NORTON, *supra* note 144, at 96.

construction, and insurance industries to refer to their collective interests—mobilized around an agenda designed to midwife a car-centric transportation regime in America. One legacy of this is a set of official terms, now ubiquitous and codified in law, that raise the political cost of reducing legal subsidies to driving. These include “accidents,” “freeways,” “parking,” and “jaywalking.”

By its nature, the term “accident” exculpates. It implies a break in the chain of causation that would tend to preclude tort or criminal liability.<sup>151</sup> “When you use the word ‘accident,’” explained the chief of NHTSA, “it’s like, ‘God made it happen.’”<sup>152</sup> Given that dangerous behaviors like speeding, substance use, and distraction provably and predictably increase the probability or severity (or both) of crashes,<sup>153</sup> this conception of crashes as anodyne, blameless “accidents” seems ill-fitting. Yet the term has persisted for a century, and continues to do so today, not only in popular parlance but in law.<sup>154</sup>

In 1997, federal transportation regulators pledged not to use “accident” to mean “crash.”<sup>155</sup> Doing so “fosters the idea that the resulting injuries are an unavoidable part of life” and thus “works against bringing all the appropriate resources to bear on the enormous problem of motor vehicle collisions.”<sup>156</sup>

The uneven distribution of motor vehicle casualties casts the use of “accident” in even sharper relief. Wheelchair users have a 36% higher chance of being killed by motorists versus the overall population, and for male wheelchair users aged fifty to sixty-four the figure is 75%.<sup>157</sup> Additionally, African Americans and Native Americans are

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<sup>151</sup> For a discussion of the tort and criminal law treatment of car crashes, see *infra* Section III.B.

<sup>152</sup> Matt Richtel, *It's No Accident: Advocates Want to Speak of Car 'Crashes' Instead*, N.Y. TIMES (May 22, 2016), <https://www.nytimes.com/2016/05/23/science/its-no-accident-advocates-want-to-speak-of-car-crashes-instead.html> (quoting Mark Rosekind, former head of the National Highway Traffic Safety Administration).

<sup>153</sup> See, e.g., *Ohio State Researchers Find Road Design Changes Can Reduce Distracted Driving Crashes*, RISK INST. (Nov. 19, 2018), <https://u.osu.edu/riskinstitute/2018/11/19/ohio-state-researchers-find-road-design-changes-can-reduce-distracted-driving-crashes> (“Distracted driving-related crashes are up to 49 percent more severe [than non-distracted crashes] when they occur on a highway system. . . . Distracted driving crashes are 5–10 times more likely to be fatal than severe in a rear end and or angle crash [versus non-distracted crashes].”).

<sup>154</sup> Federal legislation regulating road safety is typical. See, e.g., 23 U.S.C. § 402(a)(1) (2018) (requiring states to adopt highway safety programs “to reduce traffic accidents” (emphasis added)).

<sup>155</sup> See Pamela Anikeeff, “*Crashes Aren’t Accidents*” Campaign, NHTSA Now, (Aug. 11, 1997), <http://web.archive.org/web/20040409081644/http://www.nhtsa.dot.gov/nhtsa/announce/NhtsaNow/Archive/1997/v3.11>.

<sup>156</sup> *Id.*

<sup>157</sup> Kraemer & Benton, *supra* note 9, at 1.

disproportionally impacted.<sup>158</sup> New York law enforcement has gradually begun to roll back the use of this conclusory term,<sup>159</sup> and efforts of advocates in this regard have been featured in the national press<sup>160</sup> and resulted in a change in the A.P. Style Manual.<sup>161</sup> Nevertheless, “accident” remains the usual term.<sup>162</sup>

Other basic terminology of driving has been similarly designed to lighten the burden on the driver. The term “freeway” was advocated for highways, in part, to render highways free of cost to the user and to entrench that choice by raising the political cost to changing it.<sup>163</sup> For similar purposes, “parking” was advocated for the area where one might station a car, given the positive connotations of a park (clean, natural, beautiful, etc.). The word “historically had nothing to do with cars, predating their invention.”<sup>164</sup> Rather, the verb “park” meant “a. to plant a tree or spread a patch of turf or flowers,” or “b. to create a little patch of parkland,”<sup>165</sup> and municipal “parking” agencies were originally charged with creating and maintaining parkland.<sup>166</sup> By the

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<sup>158</sup> SMART GROWTH AM. & NAT'L COMPLETE STS. COAL., DANGEROUS BY DESIGN 17, 19 (2019), <https://smartgrowthamerica.org/app/uploads/2019/01/Dangerous-by-Design-2019-FINAL.pdf>. These figures control for differences in walking rates. *See id.* at 24.

<sup>159</sup> See, e.g., Brad Aaron, *Ray Kelly: NYPD Will Retire “Accident” and “Dead or Likely to Die” Rule*, STREETSBLOG NYC (Mar. 11, 2013), <https://nyc.streetsblog.org/2013/03/11/ray-kelly-nypd-will-retire-accident-and-dead-or-likely-to-die-rule>; Brad Aaron, *New York DMV No Longer Describes Traffic Crashes as “Accidents” [Updated]*, STREETSBLOG NYC (Feb. 14, 2013), <https://nyc.streetsblog.org/2013/02/14/new-york-dmv-no-longer-describes-traffic-crashes-as-accidents>.

<sup>160</sup> See, e.g., Richtel, *supra* note 152.

<sup>161</sup> See Merrill Perlman, *A Matter of AP Style*, COLUM. JOURNALISM REV. (Apr. 4, 2016), [https://www.cjr.org/language\\_corner/a\\_matter\\_of\\_ap\\_style.php](https://www.cjr.org/language_corner/a_matter_of_ap_style.php).

<sup>162</sup> See Joseph Stromberg, *We Don’t Say “Plane Accident.” We Shouldn’t Say “Car Accident” Either*, Vox (July 20, 2015, 9:00 AM), <https://www.vox.com/2015/7/20/8995151/crash-not-accident> (highlighting that the phrase “car accident” is used more frequently than the phrase “car crash”).

<sup>163</sup> See Joseph Stromberg, *Highways Gutted American Cities. So Why Did They Build Them?*, Vox (updated May 11, 2016, 11:20 AM), <https://www.vox.com/2015/5/14/8605917/highways-interstate-cities-history> (“They . . . decided to call these roads ‘free roads,’ a term that was later replaced by ‘freeways.’ . . . [T]his naming shift was essential in persuading the federal government . . . to shift away from tolls.”).

<sup>164</sup> Ryan J. Westrom et al., *Parking Is for People: A History of Public Parking in Washington, D.C. (and Implications for Transportation Design Today)*, 2672 TRANSP. RES. REC. 50, 50 (2018).

<sup>165</sup> See Michele Richmond, *The Etymology of Parking*, ARNOLDIA, Oct. 2015, at 19, 19–21 (noting that some of the earliest instances of this shift appear in articles from the 1920s, “where the term ‘parking’ was used to explain where cars were parked rather than to where trees were planted”); Christopher Gray, *When Streets Were Vehicles for Traffic, Not Parking*, N.Y. TIMES (Mar. 17, 1996), [timesmachine.nytimes.com/timesmachine/1996/03/17/007064.html](http://timesmachine.nytimes.com/timesmachine/1996/03/17/007064.html) (“The ban against permanent parking on the city streets extends back at least to the mid-19th century, and was considered a sacred contract by the time the automobile arrived in real numbers in the early 1900’s.”).

<sup>166</sup> Richmond, *supra* note 165, at 20.

1920s, city parking authorities “began cutting down street trees and widening streets to accommodate the volume of cars, thereby replacing the original meaning of parking as a place for trees and greenery with parking as a place for automobiles to stop.”<sup>167</sup>

Perhaps most telling of all is the invention of the term “jay-walking” to stigmatize urban vitality and street life. For centuries, in successful cities the street had been a multi-purpose network of public spaces that facilitated movement, commerce, and play, with those functions coexisting in a sort of perpetual frenetic harmony.<sup>168</sup> In her classic study of the American city, Jane Jacobs termed it an “intricate ballet in which the individual dancers and ensembles all have distinctive parts which miraculously reinforce each other and compose an orderly whole.”<sup>169</sup> But it’s impossible for neighbors to congregate or children to play on streets where vehicles move quickly.

As personal automobile ownership rates rose among the wealthy, a basic tension developed between those who used the street for its traditional variety of purposes and the desire of motorists to reduce that space to its movement function and allow themselves to travel quickly through the urban core.<sup>170</sup> It was a pitched battle. Dangerous drivers were denounced in the early 1900s as “joy riders” and “speed maniacs”<sup>171</sup> and condemned for “motor killings” in the most prominent and influential places,<sup>172</sup> but driving outlasted these terms. Meanwhile, “[m]otorists replied with epithets of their own,” most notably “jaywalker.”<sup>173</sup>

The etymology of jaywalker reflects an agricultural heritage that has been lost in its modern meaning: “A ‘jay’ was a hayseed, out of place in the city.”<sup>174</sup> Then coupled with “walker,” “a ‘jaywalker’ was

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<sup>167</sup> *Id.* at 21.

<sup>168</sup> See generally NORTON, *supra* note 144.

<sup>169</sup> JANE JACOBS, THE DEATH AND LIFE OF GREAT AMERICAN CITIES 50 (1961). At the time of Jacobs’ writing, the interactions she described had already been exiled from the street and relocated to the sidewalk, hence her description of it as a “sidewalk ballet.” *Id.* The point applies with equal force to the combination of the street and sidewalk, especially since streets with fast traffic have been found to inhibit pedestrian and business vitality and depress real estate values. See, e.g., N.Y.C. DEP’T OF TRANSP., THE ECONOMIC BENEFITS OF SUSTAINABLE STREETS 5 (2013), <http://www.nyc.gov/html/dot/downloads/pdf/dot-economic-benefits-of-sustainable-streets.pdf> (studying the effects of traffic calming, placemaking, and similar initiatives to reclaim space for pedestrians and concluding that the results “provide convincing evidence that improved accessibility and a more welcoming street environment created by these projects generate increases in retail sales in the project areas”).

<sup>170</sup> See NORTON, *supra* note 144, at 66–70; Lewyn, *supra* note 20, at 1169–81.

<sup>171</sup> NORTON, *supra* note 144, at 72.

<sup>172</sup> Editorial, *Nation Roused*, *supra* note 149.

<sup>173</sup> NORTON, *supra* note 144, at 72.

<sup>174</sup> *Id.*

someone who did not know how to walk in a city”;<sup>175</sup> the closest epithetic analogy today might be “hick” or “redneck,” with all the elitism and classism embedded in those terms. While jaywalking originally referred to “pedestrians who obstructed the path of other pedestrians,” in the popular parlance “jaywalkers” soon came to mean “pedestrians oblivious to the danger of city motor traffic.”<sup>176</sup> The evolution of “jaywalking” developed in part organically but was drawn from the streets into the political sphere by organized interests. Motordom, led by the auto industry, seized upon “jaywalking” as a tenet for a “propaganda campaign” used “to stigmatize walkers.”<sup>177</sup> This campaign “persuaded governments to supplement auto industry propaganda with state coercion,” and now jaywalking “is almost universally prohibited in the United States.”<sup>178</sup> The effects have been clear. The invention of jaywalking not only eroded the traditional right of the public to public spaces but could “be selectively enforced against unpopular minorities.”<sup>179</sup> Motordom prevailed, and the broad prohibition on jaywalking remains operative virtually everywhere in the United States and carries penalties ranging from fines to arrest and incarceration.<sup>180</sup>

The jaywalking offense plays a major role in some instances of racial and economic inequality and injustice. Many recent high-profile, racially charged killings of unarmed people by law enforcement, including of Michael Brown in Ferguson, Missouri, occurred after the victim was ordered to get out of the street.<sup>181</sup>

Crossing mid-block—which often constitutes “jaywalking” today—can be safer than crossing at an intersection, where most crosswalks are located, for reasons of law, physics, and cognition.

Suppose you are out for a stroll and want to cross the street. You wait until you reach an intersection, whereupon you reach a button that your municipality requires you to use to request legal permission to cross the street. Dutifully, you press and wait; after a span, the

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<sup>175</sup> *Id.*

<sup>176</sup> *Id.*

<sup>177</sup> Lewyn, *supra* note 20, at 1170.

<sup>178</sup> *Id.* at 1171.

<sup>179</sup> *Id.* at 1173.

<sup>180</sup> *Id.* at 1171–72. In some places, the enforcement of regulations against pedestrians is severe. See, e.g., Schultz, *supra* note 134 (stating that over eighty percent of crosswalk citations in five Los Angeles police divisions were issued to pedestrians).

<sup>181</sup> U.S. DEP’T OF JUSTICE, DEPARTMENT OF JUSTICE REPORT REGARDING THE CRIMINAL INVESTIGATION INTO THE SHOOTING DEATH OF MICHAEL BROWN BY FERGUSON, MISSOURI POLICE OFFICER DARREN WILSON 6 (2015), [https://www.justice.gov/sites/default/files/opa/press-releases/attachments/2015/03/04/doj\\_report\\_on\\_shooting\\_of\\_michael\\_brown\\_1.pdf](https://www.justice.gov/sites/default/files/opa/press-releases/attachments/2015/03/04/doj_report_on_shooting_of_michael_brown_1.pdf). Per two witnesses, Officer Wilson told Brown to “get the fuck on the sidewalk.” *Id.* at 44, 75.

roaring traffic comes to a halt, the traffic signal hanging above the street you wish to cross turns red, and the pedestrian signal says “walk.”

In such a case, the only way a motorist traveling *straight* down the street you are crossing can hit you is by running the light and violating the law. However, these lights do not help you with motorists who are *turning*: while you have the signal, motorists may be entitled to turn right from the street you’re crossing. They may also turn right or left from the perpendicular street, cutting through the crosswalk you’re using. Thus, at a four-way signalized intersection, you must not only pay attention to the light, but also to motorists turning from *three* directions into your path.

If you had crossed mid-block, by contrast, you would only need worry about vehicles coming directly at you from either side, as opposed to vehicles coming from multiple directions. This scenario underscores what should be obvious: electronic signalization was created to allow for the fast flow of vehicular traffic and to prioritize traffic on main streets over that on side streets, and over pedestrians in general. Indeed, crosswalk signals are timed not for pedestrian safety or comfort, but for maximum vehicular speed and throughput.<sup>182</sup> In many circumstances, “jaywalking” may be safer than following the mandates of the law.<sup>183</sup>

#### *D. Law Enforcement and Media Narratives Blaming Non-Drivers for Their Own Deaths*

Grisly deaths of vulnerable road users provide an opportunity for media, law enforcement, and law to react. From these reactions conclusions can be drawn.

##### *1. Illustrations*

The case of Allison Liao, a young girl whose 2013 motor killing in Queens, New York, sparked outrage, illustrates how hostility from law enforcement and an ill-informed media can weaponize the superficially benign rule against blameless victims. Allison was crossing the street at a crosswalk with the light—as required by law—when she was killed by a motorist:

As traffic deaths go, the case of 3-year-old Allison Liao may be one of the saddest. On October 6 of [2013], the little girl was crossing

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<sup>182</sup> See David Levinson, *Signalling Inequity – How Traffic Signals Distribute Time to Favour the Car and Delay the Pedestrian*, TRANSPORTIST (June 12, 2018), <https://transportist.org/2018/06/12/signalling-inequity-how-traffic-signals-distribute-time-to-favour-the-car-and-delay-the-pedestrian>.

<sup>183</sup> See Lewyn, *supra* note 20, at 1178–79.

Main Street in Flushing, with the light, in a crosswalk, holding her grandmother's hand. The two were about half way across the street when a black Nissan SUV made a left turn, sucked Allison under a tire and knocked her grandmother, Chin Hua, to the ground.<sup>184</sup>

Local newspaper accounts of the crash insinuated that the three-year-old and her family, not the driver, bore responsibility for her death. Reports said "she broke free from her grandmother while they were crossing the street," for example.<sup>185</sup> These accounts were later contradicted by video.<sup>186</sup> Nevertheless, the driver was pronounced not guilty by a judge following a forty-seven-second hearing, who dismissed the summonses that had been issued to the driver in the crash.<sup>187</sup>

In another case, erroneous police statements and news reports created a popular impression that a veteran Brooklyn bike rider, Lauren Davis, was responsible for her own death when she was struck by a motorist and, further, that the motorist was not responsible. The circumstances of her death, as later recounted by an eyewitness<sup>188</sup> and other evidence, suggested the opposite.<sup>189</sup> The police retracted their

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<sup>184</sup> Andrea Bernstein, *After 47-Second Hearing, Driver Who Ran Over 3-Year-Old Is Found 'Not Guilty,'* WNYC (Nov. 19, 2014), <https://www.wnyc.org/story/little-girl-lost-and-justice-denied>.

<sup>185</sup> Chelsia Rose Marcius & Mark Morales, *SUV Kills 3-Year-Old Girl in Queens After She Breaks Free from Grandmother*, N.Y. DAILY NEWS (Oct. 7, 2013, 3:24 AM), <http://web.archive.org/web/20131009032030/https://www.nydailynews.com/new-york/queens/suv-kills-3-year-old-girl-queens-article-1.1478219>.

<sup>186</sup> See Brad Aaron, *NYPD to Continue Slandering Deceased Crash Victims and Compounding Loved Ones' Grief*, STREETS BLOG NYC (Aug. 2, 2017), <https://nyc.streetsblog.org/2017/08/02/nypd-to-continue-slander-deceased-crash-victims-and-compounding-loved-ones-grief>.

<sup>187</sup> Bernstein, *supra* note 184; Rebecca Fishbein, *Driver Kills 3-Year-Old in Queens, DMV Voids His Tickets*, GOTHAMIST (Nov. 7, 2014, 11:47 AM), [http://gothamist.com/2014/11/07/dmv\\_liao\\_killed\\_tickets.php](http://gothamist.com/2014/11/07/dmv_liao_killed_tickets.php).

<sup>188</sup> The presence of an eyewitness challenged what might otherwise have been literal survivor's bias. In cases involving a person killed by a motorist while walking or biking, it is not uncommon for the only surviving witness to be the motorist. See Greenfield, *supra* note 131 ("[I]t's common for police and news reports to state that the victim 'darted' or 'veered' into traffic, often based solely on testimony from the driver [since the victim is deceased], even though it's obviously not in [the driver's] interest to admit that [they] made a fatal mistake.").

<sup>189</sup> Davis, an experienced bike rider in her thirties, was cycling to work on a bike route in the Clinton Hill neighborhood when she was killed by a motorist. See David Meyer, *NYPD Admits It Wrongly Accused Lauren Davis of Biking Against Traffic*, STREETS BLOG NYC (Apr. 26, 2016), <https://nyc.streetsblog.org/2016/04/26/nypd-admits-it-wrongly-accused-lauren-davis-of-biking-against-traffic>. The police immediately issued a statement advising that Davis was riding the wrong way on a one-way street when she was run over, which news reports parroted uncritically. See, e.g., Natalie Musumeci & Megan McGibney, *Bicyclist Dies After Being Struck by Car*, N.Y. POST (Apr. 15, 2016, 11:13 AM), <https://nypost.com/2016/04/15/bicyclist-dies-after-being-struck-by-car>; Thomas Tracy, *Bicyclist, 34, Fatally Struck by Car at Clinton Hill Intersection*, N.Y. DAILY NEWS (Apr. 15, 2016, 11:13 AM), <http://www.nydailynews.com/news/local/bicyclist-34-fatally-struck-car-clinton-hill-intersection/article-1.2900003>.

initial allocation of fault to Davis, but did not charge the motorist despite ample authority. When the motorist ultimately appeared before a state DMV administrative law judge, the NYPD provided the initial, inaccurate copy of the police report (indicating erroneously that Davis had been biking against traffic).<sup>190</sup>

The DMV judge's conduct recalled that of her counterpart in the Allison Liao case. The judge apologized several times to the motorist who killed Davis for the inconvenience of requiring her to appear at the hearing.<sup>191</sup> She did not allow Davis's family to speak, even to point out that the court was basing its decision on the wrong copy of the police report.<sup>192</sup> She declined to order any action against the motorist, who had been cited two months before killing Davis for failing to yield to another pedestrian.<sup>193</sup>

In Davis's case, as in Allison's, the victim had followed the law—a law designed not for her safety but for the convenience of the motorist who killed her—and was not only killed anyway, but blamed for her own death.

These are not isolated cases. It has been shown empirically that vulnerable road users are regularly blamed for their own deaths.<sup>194</sup>

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AM), <https://www.nydailynews.com/new-york/brooklyn/bicyclist-34-fatally-hit-car-brooklyn-intersection-article-1.2602586>. However, an eyewitness, who was biking directly behind Davis, contradicted each of these claims. She stated that Davis was, in fact, wearing a helmet; had not run a red light; and was traveling in the lawful direction, i.e., with traffic; and further that the motorist had failed to yield at the time she struck Davis. See Fried, *Witness: Lauren Davis*, *supra* note 130; Nathan Tempey, *NYPD: Despite What We Said Earlier, Cyclist Killed in Brooklyn Wasn't Salmoning After All*, GOTHAMIST (Apr. 26, 2016, 2:12 PM), <https://gothamist.com/news/nypd-despite-what-we-said-earlier-cyclist-killed-in-brooklyn-wasn-t-salmoning-after-all>. The police ultimately retracted their initial report claiming Davis had been violating the law when killed. See *id.* (reporting that, per the NYPD, “investigators have amended their report to indicate that Davis was riding with traffic”). Davis’s face was so badly damaged that, when her image was projected on a screen by the medical examiner for identification purposes, her family had to request an alternative method. Of that moment, her sister later wrote: “This couldn’t be Lauren. Who was this? Where was Lauren? What happened to her? How could this much damage be inflicted [on] one person? It was this moment when we requested photos of her tattoos, and ultimately, these unambiguous features confirmed what we hoped wasn’t true. Lauren was dead.” See Danielle Davis, *How the NYPD, the DOT, and the Justice System Have Failed My Sister: Part One*, MEDIUM (July 22, 2017), <https://medium.com/@danielle.k.davis8/how-the-nypd-the-dot-and-the-justice-system-have-failed-my-sister-part-one-b54b355d6faf>.

<sup>190</sup> David Meyer, *Citing Erroneous NYPD Report, State DMV Judge Declines to Take Action Against Driver Who Killed Lauren Davis*, STREETSBUG NYC (Apr. 28, 2017), <https://nyc.streetsblog.org/2017/04/28/citing-erroneous-nypd-report-state-dmv-judge-declines-to-take-action-against-driver-who-killed-lauren-davis>.

<sup>191</sup> *Id.*

<sup>192</sup> *Id.*

<sup>193</sup> *Id.*

<sup>194</sup> Ralph et al., *supra* note 129, at 669.

After conducting a content analysis of 200 local news reports of crashes resulting in the deaths of people walking and biking, researchers concluded that “coverage tends to shift blame toward vulnerable road users and away from drivers. Coverage almost always treats crashes as isolated incidents, obscuring the public health nature of the problem.”<sup>195</sup> The scholars believe “[t]his pattern of coverage likely contributes to the limited public outcry about pedestrian and bicyclist fatalities.”<sup>196</sup> In another experiment, they found that “even relatively subtle differences in editorial patterns significantly affected readers’ interpretation of both what happened and what to do about it.”<sup>197</sup>

It should go without saying that perceptions of fault among police and the public can have legal implications. For example, New York law imposes a duty of due care on motorists “to avoid colliding with any bicyclist [or] pedestrian . . . upon any roadway.”<sup>198</sup> It also establishes a presumption of fault: If a driver violates this duty and a pedestrian or cyclist is injured, New York law expressly establishes that the violating driver is presumed responsible for the injury.<sup>199</sup> Where it results in physical injury or death, this offense carries a penalty of up to fifteen days in jail.<sup>200</sup>

## 2. Political Elites, Law Enforcement, and Governance Failures

The law requiring motorists to yield to people on foot is chronically underenforced. In a recent one-year period, fewer than forty motorists were prosecuted for failing to yield in New York City, “even though that traffic violation contributed to more than six times as many crashes as DWI.”<sup>201</sup> This reflects in miniature a larger problem regarding New York political and law enforcement elites.

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<sup>195</sup> *Id.* at 663.

<sup>196</sup> *Id.* It is also consistent with research from Australian researchers finding that about half of people who don’t bike view those who do as “less than fully human.” Alexa Delbosco et al., *Dehumanization of Cyclists Predicts Self-Reported Aggressive Behaviour Toward Them: A Pilot Study*, 62 TRANSP. RES. PART F 681 (2019).

<sup>197</sup> Goddard et al., *supra* note 132, at 1 (testing subjects’ views on how to “apportion blame, identify an appropriate punishment for the driver, and assess various approaches for improving road safety” after reading reports of a traffic crash involving a pedestrian that characterized the incident in different ways).

<sup>198</sup> N.Y. VEH. & TRAF. LAW § 26-1146(a) (McKinney 2010). Given the eyewitness’s statement in the Davis case, it would not have been difficult to establish a *prima facie* case that the motorist had violated this statute.

<sup>199</sup> *Id.* § 26-1146(b)(2).

<sup>200</sup> *Id.* § 26-1146(c)(1).

<sup>201</sup> TRANSP. ALTS., *supra* note 133, at 5. During that same period, at least 10,000 motorists were prosecuted for DWIs. *Id.*

Law enforcement practice does not safeguard the wellbeing of people cycling or on foot. One study of New York City data found that more than 99% of motorists involved in hit-and-run crashes were not prosecuted, and, even in fatal crashes, more than 93% of the time the driver was not charged with any type of homicide, if he was charged or cited with anything at all.<sup>202</sup> Researchers found “prosecutors habitually fail to bring charges after traffic crashes that kill or injure New Yorkers.”<sup>203</sup>

Shortly after Davis died, there were unconfirmed reports that the NYPD had begun ticketing cyclists for unrelated violations near where she was struck and killed by the motorist.<sup>204</sup> Bicycle advocates have long accused the NYPD of targeting people who bike after a cyclist is killed by a motorist.<sup>205</sup> As noted, the media often publish such characterizations uncritically, and the effect can be not only to reduce empathy for the victim but also to distort support for proven policy interventions to prevent similar incidents from happening in the future.<sup>206</sup> Bill de Blasio, Mayor of New York, granted credence to these fears by explicitly defending the practice of stepping up enforcement against cyclists after one is killed by a motorist.<sup>207</sup> His comments came after police officers were observed tackling an unarmed Black man on his bicycle for failure to yield.<sup>208</sup> Later, a senior NYPD figure acknowledged it was “absolutely insensitive” to follow up an investigation into the death of a bike rider by targeting people biking.<sup>209</sup>

Those responsible for overseeing enforcement of vehicle and traffic law frequently demonstrate a lack of awareness of and reluc-

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<sup>202</sup> See *id.*

<sup>203</sup> *Id.*

<sup>204</sup> Brad Aaron, *Driver Kills Cyclist Lauren Davis on Classon Avenue in Clinton Hill [Updated]*, STREETSBLOG NYC (Apr. 15, 2016), <https://nyc.streetsblog.org/2016/04/15/driver-kills-cyclist-on-classon-avenue-in-clinton-hill>.

<sup>205</sup> See, e.g., Doug Gordon, Opinion, *Bicyclist Deaths & Police Response: The NYPD Should Change Its Tactics in Light After Fatalities*, N.Y. DAILY NEWS (June 15, 2017), <https://www.nydailynews.com/opinion/bicyclist-deaths-police-response-article-1.3248055> (discussing deaths of cyclists and noting that police have responded to cyclist deaths by increasing ticketing of neighborhood cyclists, thereby inappropriately shifting blame from drivers to cyclists).

<sup>206</sup> See Goddard et al., *supra* note 132, at 5–6.

<sup>207</sup> Jillian Jorgensen, *De Blasio Defends Ticket Blitz of Bicyclists Following Deadly Crashes*, N.Y. DAILY NEWS (Feb. 19, 2019), <https://www.nydailynews.com/news/politics/ny-pol-deblasio-nypd-bicycle-tickets-20190219-story.html>.

<sup>208</sup> Ben Verde, *Cop Tackles Cyclist in Midtown — And It's All Caught on Camera!*, STREETSBLOG NYC (Feb. 7, 2019), <https://nyc.streetsblog.org/2019/02/07/cop-tackles-cyclist-in-midtown-and-its-all-caught-on-camera>.

<sup>209</sup> Jake Offenhartz, *NYPD Chief: It's 'Absolutely Insensitive' to Ticket Cyclists After Deadly Crashes*, GOTHAMIST (July 12, 2019, 12:16 PM), <https://gothamist.com/news/nypd-chief-its-absolutely-insensitive-to-ticket-cyclists-after-deadly-crashes>.

tance to deal with basic problems in how they do their job. While a small community of advocates is intensely engaged on these issues, most people are not, and are poorly served by mainstream reporting. The resulting low level of knowledge allows business as usual to continue unchallenged, permitting policymakers, adjudicators, and other authorities to use victim behavior as a shield for their own reluctance to pursue meaningful investigations of crashes and reforms of policy.

## II LAND USE LAW SUBSIDIES

Official building codes<sup>210</sup> can be traced back thousands of years. Their original focus was safety. In the twentieth century, American municipal government began experimenting with building form and use regulation, creating a second category of building codes now known as zoning<sup>211</sup>: laws designed to facilitate the exclusion of (in the eye of the beholder) undesirable people and land uses from certain areas. Nuisance law—a private cause of action in tort, typically brought by one landowner against another—already made it difficult as a practical matter to open a factory in the middle of a thicket of townhouses. But nuisance law also permitted residents who moved in after an industrial use had been established to sue for relief.<sup>212</sup> One purpose of zoning was to protect industry from such exposure.<sup>213</sup> In the process, it systematized uses and homogenized neighborhoods, outlawing in the name of safety and property values certain types of disapproved lifestyles, for example by prohibiting the construction of apartment houses, which would likely be occupied by less-moneyed individuals rather than wealthier families, and duplexes that would allow extended families to live in a single structure.<sup>214</sup>

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<sup>210</sup> See *Building Codes*, FEMA, <https://www.fema.gov/building-codes> (last visited Nov. 8, 2019) (defining building codes as “sets of regulations governing the design, construction, alteration and maintenance of structures[, which] specify the minimum requirements to adequately safeguard the health, safety and welfare of building occupants”).

<sup>211</sup> For an early discussion of zoning ordinances, see generally W.L. Pollard, *Analysis of Zoning Ordinances*, 2 ANNALS AM. ACAD. POL. & SOC. SCI. 60 (1931). Such ordinances were generally facilitated by enabling legislation at the state level. *Id.* at 60.

<sup>212</sup> See *id.* at 63.

<sup>213</sup> *Id.*

<sup>214</sup> See, e.g., Brian R. Lerman, *Mandatory Inclusionary Zoning—The Answer to the Affordable Housing Problem*, 33 B.C. ENVT'L AFF. L. REV. 383, 386 (2006) (“Many communities, especially affluent suburbs, have kept lower income families from moving into the community through ‘exclusionary’ zoning by requiring large minimum lot sizes and large minimum floor areas, prohibiting mobile homes, and limiting multifamily residential areas.”).

This Part documents and explores the rise of a de facto mandate of car ownership via land use. Specifically, it examines the role of land use law in scripting everyday transportation choices, and thus in determining the liberty people enjoy—harming especially the level of personal freedom in cities that developed before World War II, where the built environment was not designed for and does not intrinsically require automobility. Scholars and even the Supreme Court have acknowledged the poverty of choice in matters of mobility,<sup>215</sup> but a fantasy conception of personal agency continues to be invoked in many policy discussions.

Rather than individuals freely opting into the modes of their choosing, an examination of land use regulation yields a more complete picture of transportation behavior. “Choices” in this context are personal only in a limited sense, with options largely predetermined by decisions made by public officials, often generations prior. Even those who prefer to drive can only operate a vehicle safely during certain seasons of life.<sup>216</sup>

#### A. *Fiscal Subsidies for Car Dependency*

Policy choices, which have been documented exhaustively,<sup>217</sup> have been immensely influential in creating a car-dependent landscape. They have also severed the relationship between the value and price of using the street. The construction of this system fostered dependency on the car, which in turn allowed a legal system to arise that establishes supremacy of the car.

Transportation systems are networks, and roads are no different. Gas taxes, motor vehicle registration, and other fees cover a small and

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<sup>215</sup> See *Wooley v. Maynard*, 430 U.S. 705, 715 (1977) (“[D]riving an automobile [is] a virtual necessity for most Americans.”); NORTON, *supra* note 144 (discussing the pre-automobile pedestrian rights era); PRYTHONCH, *supra* note 20, at 3–7; Rolf Pendall, *Do Land-Use Controls Cause Sprawl?*?, 26 ENV’T & PLAN. B 555, 555 (1999) (discussing sprawl as a result of government policies).

<sup>216</sup> For example, it is unlawful, unsafe, or both for many elderly Americans to drive. See generally Daniel J. Foley et al., *Driving Life Expectancy of Persons Aged 70 Years and Older in the United States*, 92 AM. J. PUB. HEALTH 1284, 1286 (2002) (reporting that the average American lives seven to ten years beyond the point when it is no longer safe for him or her to operate a vehicle).

<sup>217</sup> See generally SADIK-KHAN & SOLOMONOW, *supra* note 71 (recounting author’s six-year tenure as New York City Transportation Commissioner); NORTON, *supra* note 144 (tracking the rise of the automobile as the principal mode of transportation); OWEN D. GUTFREUND, TWENTIETH-CENTURY SPRawl: HIGHWAYS AND THE RESHAPING OF THE AMERICAN LANDSCAPE (2004) (discussing state and federal policy programs that overhauled the American transportation network to accommodate the automobile); KENNETH T. JACKSON, CRABGRASS FRONTIER: THE SUBURBANIZATION OF THE UNITED STATES (1985) (chronicling the decentralization of American metropolitan areas and the rise of suburban developments); JACOBS, *supra* note 169.

shrinking proportion of the cost of operating the road network.<sup>218</sup> On 99.97% of lane miles in America, the cost to the driver of using the road is zero,<sup>219</sup> because policymakers distributed the costs flatly across the entire population.

No serious attempt has been made to estimate the total cost of free roads (nor will one be made here) but it likely runs into the trillions. For example, consider the sums likely spent by the federal government on building the interstate highway system. One partial estimate of this expense—which excludes many important federal highways and does not include maintenance or expansions, or, of course, state, county, and local roads—exceeds half a trillion dollars in 2019 dollars, calculated from 2006 dollars using the Consumer Price Index (“CPI”) Inflation Calculator published by the U.S. Bureau of Labor Statistics.<sup>220</sup> Meanwhile, of the amount spent on local (non-interstate) roads in one recent year (\$39.65 billion in 2019 dollars, calculated from 2002 dollars using the CPI Inflation Calculator), 89% was paid by the general taxpayer and only 11% by motorists themselves.<sup>221</sup> At this rate, state and local governments would spend half a trillion dollars on roads every thirteen years.

These costs are largely borne by the general taxpayer, rather than by drivers. The share paid by drivers in taxes, fees, and tolls has been

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<sup>218</sup> TONY DUTZIK ET AL., WHO PAYS FOR ROADS? HOW THE “USERS PAY” MYTH GETS IN THE WAY OF SOLVING AMERICA’S TRANSPORTATION PROBLEMS 1 (2015), <https://uspirg.org/sites/pirg/files/reports/Who%20Pays%20for%20Roads%20vUS.pdf> (“[S]o-called ‘user fees’ cover a shrinking share of transportation costs.”); see also Am. Rd. & Transp. Builders Ass’n, *Funding Techniques*, TRANSP. INV. ADVOC. CTR., <https://transportationinvestment.org/research/funding-techniques> (last visited Nov. 24, 2019) (“In recent years, state governments have been expanding their use of general revenues to finance highway improvements . . . . [I]n most states, local highway expenditures are financed out of property tax revenues.”).

<sup>219</sup> Office of Highway Policy Info., *Highway Finance Data Collection*, U.S. DEP’T OF TRANSP., FED. HIGHWAY ADMIN., <https://www.fhwa.dot.gov/policyinformation/pubs/hf/pl11028/chapter1.cfm> (last modified Apr. 1, 2019) (noting that of the approximately 8.5 million lane miles in the United States in 2009, only 2900 miles of interstate are tolled). Use of the road network is free of charge, though of course the driver must pay the costs of operating his vehicle.

<sup>220</sup> See *America’s Interstate Highways: America’s Splurge*, ECONOMIST (Feb. 14, 2008), <https://www.economist.com/briefing/2008/02/14/americas-splurge> (noting cost estimate of \$425 billion in 2006 dollars); *CPI [Consumer Price Index] Inflation Calculator*, U.S. BUREAU LAB. STAT., <https://data.bls.gov/cgi-bin/cpicalc.pl> (last visited Nov. 24, 2019) [hereinafter BLS CPI Inflation Calculator] (showing that \$425 billion in January 2006 was worth \$539 billion in January 2019).

<sup>221</sup> See Baldwin, *supra* note 20, at 224 (noting \$27.9 billion dollars spent in 2002, of which \$3.1 billion was paid by users); BLS CPI Inflation Calculator, *supra* note 220 (showing that \$27.90 billion in January 2002 was worth \$39.65 billion in January 2019).

shrinking for over thirty years.<sup>222</sup> The general taxpayer pays over \$180 billion, or between \$1012 and \$1488 per household per year.<sup>223</sup>

Meanwhile, for decades, public transit has not been given adequate resources<sup>224</sup> even as its fares have increased,<sup>225</sup> especially as a share of the income of those who rely on it.<sup>226</sup> With limited exceptions, almost every level of government in the United States treats public transit as a marginal service, like food stamps, designed to ensure a safety-net level of infrequent, inadequate transportation access for the poorest rather than as a valuable utility for society and the economy at large.<sup>227</sup>

### B. Land Use Law's Subsidies for Driving

The fallacy of individual choice in transportation is also clear beyond fiscal policy, at the level of land use law. Together, fiscal policy and land use decisions explain why thousands of individuals in places where the same set of transportation options exist generally manage to somehow all “choose” the same method of getting around.<sup>228</sup>

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<sup>222</sup> DUTZIK ET AL., *supra* note 218, at 8 (“[S]ince 2005, the bottom has fallen out of the ‘users pay’ model of transportation finance in the United States.”).

<sup>223</sup> *Id.* at 1–2; *Total Households (TTLHH)*, FED. RES. BANK ST. LOUIS, <https://fred.stlouisfed.org/series/TTLHH> (last visited Nov. 9, 2019) (reporting 121,084,000 households in 2012). The range reported by Dutzik et al. multiplied by the Census figure for number of households yields a total of \$122.5 billion to \$180.2 billion.

<sup>224</sup> See generally CARO, *supra* note 73 (offering a comprehensive account of this pattern of resource inadequacy through the case study of the New York City public transit system). See also Marc Santora, *Why Does New York State Control the Subway? That’s the 20-Cent Question*, N.Y. TIMES (May 18, 2017), <https://www.nytimes.com/2017/05/18/nyregion/mta-subway-cuomo.html>; Emily Nonko, *Robert Moses and the Decline of the NYC Subway System*, CURBED N.Y. (July 27, 2017, 2:30 PM), <https://ny.curbed.com/2017/7/27/15985648/nyc-subway-robert-moses-power-broker> (reporting on Robert Moses’s opposition to public transportation in New York City).

<sup>225</sup> As Professor of Urban Planning Erick Guerra put it, “[i]f you’re just looking at the cost of gasoline, if you get 15 miles to the gallon, you can go 15 miles . . . You can’t go 15 miles for \$3 on transit.” See Jason Laughlin, *For Workers in Philly’s Poor Neighborhoods, Car Ownership Often a Necessity and a Privilege*, PHILA. INQUIRER (Dec. 25, 2018), <https://www.inquirer.com/transportation/car-commute-drive-to-work-census-tioga-philadelphia-poverty-low-income-vehicles-transit-septa-bus-20181225.html>.

<sup>226</sup> See HAROLD STOLPER & NANCY RANKIN, CMTY. SERV. SOC’Y & RIDERS ALL., THE TRANSIT AFFORDABILITY CRISIS: HOW REDUCED MTA FARES CAN HELP LOW-INCOME NEW YORKERS MOVE AHEAD 3 (2016), [https://b.3cdn.net/nycss/938c33f9b77fec95d7\\_nvm6b2091.pdf](https://b.3cdn.net/nycss/938c33f9b77fec95d7_nvm6b2091.pdf) (“For New York’s more than 300,000 working poor, transit expenses often exceed over 10 percent of their family budgets, limiting their ability to access jobs and forcing them to forgo other necessities.”).

<sup>227</sup> Joseph Stromberg, *The Real Reason American Public Transportation Is Such a Disaster*, VOX (Aug. 10, 2015, 5:49 PM), <https://www.vox.com/2015/8/10/9118199/public-transportation-subway-buses> (arguing that the poor quality of American public transportation is in part due to its political status as a social welfare program).

<sup>228</sup> Just as transportation behavior does not fully reflect individual preferences, fiscal policy decisions around transportation likewise do not necessarily reflect the popular will.

Cities throughout the United States have adopted restrictive laws and regulations regarding land use that have created certain on-the-ground precommitments.<sup>229</sup> These laws range from general zoning ordinances about what type of buildings can go where to precise regulations about how much parking must exist for a given business or apartment complex.<sup>230</sup> It has thus been observed that “U.S. urban development has not only been caused by the car, but also by regulations that limited denser development and therefore made sprawl necessary.”<sup>231</sup> Even in cities (like Houston) that have less restrictive zoning than most, these land use rules in the aggregate outlaw or radically restrict population density, transforming neighborhoods in once-dense cities into archipelagos linked only by dangerous, dirty, noisy streets<sup>232</sup> that are hospitable only to fast motor vehicle traffic.

By definition, land use decisions create path dependency and cannot easily be reversed. They inscribe certain uses and create incumbents who expect those uses to continue and will campaign to ensure that they do.<sup>233</sup> They become a kind of hidden code predetermining future behavior: car-captive areas create the imperative to accommodate cars and thus furnish a rationale for car-centric design, lending the appearance of reason and popular support. These can be

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See, e.g., Kevin Fang & Calvin Thigpen, *Transportation Policy at the Ballot Box*, 2605 TRANSP. RES. REC. 92 (2017) (exploring the impact of direct democracy on the planning process); Matthew Palm & Susan Handy, *Sustainable Transportation at the Ballot Box: A Disaggregate Analysis of the Relative Importance of User Travel Mode, Attitudes and Self-Interest*, 45 TRANSP. 121 (2018) (examining the role of voters’ self-interest in predicting residents’ votes on transportation ballot measures).

<sup>229</sup> Rolf Pendall, *Do Land-Use Controls Cause Sprawl?*, 26 ENVIR. & PLAN. B 555, 555 (1999) (“[M]unicipalities, counties, and their residents can affect their development density by adopting land-use controls. Zoning, urban growth boundaries, building-permit limitations, residential moratoria, and infrastructure charges can all affect the pattern and density of new development.”).

<sup>230</sup> David Schleicher, *How Land Use Law Impedes Transportation Innovation*, in EVIDENCE AND INNOVATION IN HOUSING LAW AND POLICY 38, 44 (Lee Anne Fennell & Benjamin J. Keys eds., 2017) (“In contemporary American cities, local governments restrict the height and place of buildings through zoning, subdivision laws, parking requirements, building codes, historic preservation laws, and more.”).

<sup>231</sup> *Id.* (describing how land use regulations unnecessarily separate housing and retail zones).

<sup>232</sup> For a discussion of the many negative public health effects of noise, of which private car traffic is a major contributor, see Monica S. Hammer et al., *Environmental Noise Pollution in the United States: Developing an Effective Public Health Response*, 122 ENVTL. HEALTH PERSPECT. 115, 115 (2014), <https://ehp.niehs.nih.gov/doi/10.1289/ehp.1307272> (estimating that 104 million Americans are at risk of hearing loss due to noise and that tens of millions more “may be at risk of heart disease, and other noise-related health effects,” such as endocrine disruption).

<sup>233</sup> See generally WILLIAM A. FISCHEL, *ZONING RULES!: THE ECONOMICS OF LAND USE REGULATION* (2015) (offering an account of zoning as a method of preserving home values).

found in the form of free parking programs, minimum parking quotas (which require landowners to build parking, often in excess of demand), restrictions on population density (minimum lot sizes and maximum floor-area ratios), and bans on mixed-use development. Collectively, they help explain why achieving Tiebout equilibrium<sup>234</sup>—a dream of urban economists—is probably impossible in the domain of transportation.

The application of invisible hand theory to the choice of where to live was pioneered by Charles Tiebout, who posited that municipal services in the United States “are provided at the efficient [i.e., equilibrium] level because individuals can sort [i.e., relocate] among the many local governments in a region to select their ideal package of services” and levels of taxation.<sup>235</sup> The available evidence suggests many do not wish to depend, or to depend fully, on their cars for mobility.<sup>236</sup> The Tiebout model would hold that this mismatch could not obtain for long before equilibrium prevailed. It presumes that individuals, in their capacity as “[c]onsumer-voters,” can effectively exercise their rights of exit or voice<sup>237</sup> by relocating to a city they prefer or by speaking up in an effort to influence local decision-making.<sup>238</sup> However, individual behavior in the heavily regulated domain of land use and transportation is substantially scripted by the

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<sup>234</sup> Tiebout equilibrium arises where municipal governments are able to rely on a mobile population and competitive pressures to provide the optimal level of public goods without reliance on political solutions. See Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416, 424 (1956).

<sup>235</sup> See David Schleicher, *City Unplanning*, 122 YALE L.J. 1670, 1683 (2013) (referring to the Tiebout model as “the central theory of the economics of local government law”); see also Tiebout, *supra* note 234, at 418 (“The consumer-voter may be viewed as picking that community which best satisfies his preference pattern for public goods.”).

<sup>236</sup> For example, convenient, car-free access to employment and leisure centers has become one of the most valuable amenities in U.S. real estate, and demand for walkability and transit access has transformed limited supply into a luxury product. See, e.g., Cecilia Rohwedder, *L.A.’s Hottest New Real-Estate Amenity: Walkability*, WALL ST. J. (May 10, 2018), <https://www.wsj.com/articles/l-a-s-hottest-new-real-estate-amenity-walkability-1525960800> (“Real-estate website Redfin, which calculates ‘walk scores’ to grade neighborhoods’ walkability on a scale of 1 to 100, says that an increase to 80 from 60 adds an average of \$129,000 to a property’s value in Los Angeles.”); see also *infra* Section III.A.4.a (regarding the mortgage interest deduction).

<sup>237</sup> See Tiebout, *supra* note 234, at 419; see also ALBERT O. HIRSCHMAN, *EXIT, VOICE, AND LOYALTY: RESPONSES TO DECLINE IN FIRMS, ORGANIZATIONS, AND STATES* 77 (1970). As Hirschmann explains, a third factor—loyalty—operates primarily as a counterweight to exit, by raising the expected value of voice. See *id.* (describing loyalty as “giv[ing] more scope to voice[,]” decreasing the probability of exit); see also *id.* at 77–82.

<sup>238</sup> One might reasonably question the applicability of the Tiebout model in an environment where residential mobility has been steadily declining for two decades. See JOINT CTR. FOR HOUS. STUDIES OF HARVARD UNIV., THE STATE OF THE NATION’S HOUSING 16 (2018), [http://www.jchs.harvard.edu/sites/default/files/Harvard\\_JCHS\\_State\\_of\\_the\\_Nations\\_Housing\\_2018.pdf](http://www.jchs.harvard.edu/sites/default/files/Harvard_JCHS_State_of_the_Nations_Housing_2018.pdf).

laws and policies that create feedback loops. Jurisdiction-shopping is ineffective against an exercise of power that a consumer-voter cannot move away from. It is difficult to advocate effectively for frequent transit in a city that lacks density, and it is difficult to advocate for density in a city that lacks transit. And, the similarity in land use rules across the United States weakens the threat of inter-metropolitan moves on these bases.<sup>239</sup>

### 1. Historical and Economic Background of Zoning

New York City's 1916 Building Zone Resolution<sup>240</sup> is regarded as the country's first modern zoning code. Its drafters sought in part to enhance safety while ensuring access to daylight and air in the early days of the skyscraper metropolis.<sup>241</sup> However, they also pursued other objectives on behalf of major landowners in the same legislation. The recently constructed subway had kicked off a frenzy in real estate speculation as vast areas of the city were unlocked, leaving incumbent real estate players worried about the possibility of a surge in supply tanking values of their existing investments: "the merchants of Fifth Avenue were losing their retail customers and watching the value of their properties drain away, as big loft buildings for garment manufacturers muscled in around them."<sup>242</sup> The 1916 law sought to thin population density and segregate land uses, substantially constricting the supply spigot while outlawing uses of land that property barons disapproved of. At the time of enactment, *The New York Times* explained that a goal of the law was "to check the invasion of retail districts by factories and residence districts by factories and businesses."<sup>243</sup> It was an early instance of what urban economist William Fischel would later term the homevoter hypothesis,<sup>244</sup> in

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<sup>239</sup> This also holds for decisions made at higher levels of government, which citizens cannot select for geographically. This observation flows more or less directly from Tiebout's theory itself. See Tiebout, *supra* note 234, at 418 (noting that consumer-voters are powerless to shape central government expenditures through exit at the local level).

<sup>240</sup> See N.Y.C., N.Y., Board of Estimate and Apportionment, Building Zone Resolution (July 25, 1916), <https://www1.nyc.gov/assets/planning/download/pdf/about/city-planning-history/zr1916.pdf>.

<sup>241</sup> See, e.g., David W. Dunlap, *Zoning Arrived 100 Years Ago. It Changed New York City Forever.*, N.Y. TIMES (July 25, 2016), <https://www.nytimes.com/2016/07/26/nyregion/new-yorks-first-zoning-resolution-which-brought-order-to-a-chaotic-building-boom-turns-100.html> (discussing the impact of the 1916 Zoning Resolution).

<sup>242</sup> *Id.*

<sup>243</sup> *City Fixes Limit on Tall Buildings*, N.Y. TIMES, July 26, 1916, at A1.

<sup>244</sup> See generally WILLIAM A. FISCHEL, THE HOMEVOTER HYPOTHESIS: HOW HOME VALUES INFLUENCE LOCAL GOVERNMENT TAXATION, SCHOOL FINANCE, AND LAND-USE POLICIES (2001).

which local government behavior is “driven by homeowners’ desire to maintain the value of their homes.”<sup>245</sup>

The influence of the zoning law on the development of New York City and the built environment of the United States cannot be overstated. Among its more aggressive innovations was the introduction of a cap on the height of new buildings. Between 1910 and 2010, the population of Manhattan dropped by about one third,<sup>246</sup> which a New York City planning commissioner attributed “directly” to the 1916 zoning law.<sup>247</sup> Despite this reduction in both population and density, Manhattan today, of course, remains a very high-population and dense place relatively speaking, where most people get around by transit or on foot.<sup>248</sup> Yet in adopting the 1916 law, the nation’s largest city was testing a revolutionary concept: What if the police power could be deployed to regulate private property not merely for public health and safety reasons,<sup>249</sup> but to protect the property values and personal preferences of the wealthy by legislating undesirables out of their neighborhoods?<sup>250</sup>

Notwithstanding the laissez-faire spirit of the era<sup>251</sup> (but consistent with some of the interests it served), this novel application of the police power spread.<sup>252</sup> Amid this wave, and ten years after the New York law was adopted, the U.S. Supreme Court was asked to rule on

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<sup>245</sup> Jeffrey Zabel & Maurice Dalton, *The Impact of Minimum Lot Size Regulations on House Prices in Eastern Massachusetts*, 41 REGIONAL SCI. & URB. ECON. 571, 571 (2011).

<sup>246</sup> Dunlap, *supra* note 241.

<sup>247</sup> *Id.* (quoting Carl Weisbrod, former Director of the New York City Planning Department, in 2016).

<sup>248</sup> N.Y.C. DEP’T OF TRANSP., CITYWIDE MOBILITY SURVEY 58–59 (2017), <http://www.nyc.gov/html/dot/downloads/pdf/nycdot-citywide-mobility-survey-report-2017.pdf> (finding that between eighty-five and eighty-seven percent of trips taken by Manhattanites are by public transit, walking, or bicycle).

<sup>249</sup> Examples of such rules are discussed in *Ambler Realty Co. v. Village of Euclid, Ohio*, where the court canvassed decisions upholding nuisance use laws regulating the siting of livery stables and manufacturing plants in residential areas, and the erection of billboards. 297 F. 307, 315 (N.D. Ohio 1924), *rev’d*, 272 U.S. 365 (1926).

<sup>250</sup> The roots of zoning are in class and race discrimination and the preservation of white supremacy. *See, e.g.*, CHARLES HAAR, ZONING AND THE AMERICAN DREAM: PROMISES STILL TO KEEP (1990); WILLIAM R. RANDLE, *Professors, Reformers, Bureaucrats, and Cronies: The Players in Euclid v. Ambler*, in ZONING AND THE AMERICAN DREAM: PROMISES STILL TO KEEP 40–43 (Charles M. Haar & Jerold S. Kayden eds. 1989); RICHARD ROTHSTEIN, THE COLOR OF LAW: A FORGOTTEN HISTORY OF HOW OUR GOVERNMENT SEGREGATED AMERICA 39–58 (2017); Christopher Silver, *The Racial Origins of Zoning in American Cities*, in URBAN PLANNING AND THE AFRICAN-AMERICAN COMMUNITY 24, 24 (June Manning Thomas & Marsha Ritzdorf eds. 1996).

<sup>251</sup> *See, e.g.*, *Lochner v. New York*, 198 U.S. 45 (1905). *Lochner*, which struck down a maximum-hour law in employment, is the most famous anti-regulatory case of this era.

<sup>252</sup> The origins of modern zoning have also been traced to ordinances adopted in Los Angeles (1908) and Baltimore (1910), the latter being the nation’s first racial zoning ordinance. *See* Silver, *supra* note 250, at 23.

the constitutionality of modern zoning in *Village of Euclid, Ohio v. Ambler Realty Co.*<sup>253</sup> The district court had held that the town's development restrictions—which caused “substantial” impairment to the value of the plaintiff's property—violated the Due Process Clause of the U.S. Constitution and worked a taking that, at a minimum, required just compensation.<sup>254</sup> The Supreme Court reversed.<sup>255</sup> However, even in doing so, the Court noted that the law accomplished an “exclusion . . . in general terms of all industrial establishments”—not only “offensive or dangerous industries” that might constitute nuisances but “those which are neither offensive nor dangerous will [all] share the same fate[,]”<sup>256</sup> i.e., prohibition. Today, about 25,000 local governments have the authority to enact zoning ordinances, including “Euclidean” zoning like the one at issue in the eponymous case.<sup>257</sup>

The *Euclid* Court was acutely aware of the power of zoning as a tool of urban engineering rather than merely a health or safety measure. It touted zoning's potential to combat “[t]he constantly increasing density of our urban populations.”<sup>258</sup> Later urban economists would latch onto precisely this rationale when explaining the canonical Tiebout model.<sup>259</sup>

Tiebout's rendering of local government law and economics has an internal puzzle, which zoning solves.<sup>260</sup> Where a given city provides a high level of government services and taxes, “property owners [have] an incentive to subdivide their property, allowing more residents to receive the average level of services in the city but pay a lower individual amount of property taxes.”<sup>261</sup> Since the prerogative to subdivide is one that can be exercised at the level of the individual landowner, this incentive would tend to increase urban population density levels over time. This, in turn, would undermine the explanatory power of Tiebout: Rather than delivering heterogeneous density levels that people could sort into, it would tend to operate in a relatively uniform direction (more density) throughout municipalities, weakening the power of exit by residents to change the level of ser-

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<sup>253</sup> 272 U.S. 365 (1926).

<sup>254</sup> *Ambler Realty*, 297 F. at 312–13. The village contested this view and the Supreme Court dismissed it as speculative. *Euclid*, 272 U.S. at 396–97. The district court also observed that people of color and immigrants “blight[ ]” neighborhoods when they “invade” them. *Ambler Realty*, 297 F. at 313.

<sup>255</sup> *Euclid*, 272 U.S. at 397.

<sup>256</sup> *Id.* at 388.

<sup>257</sup> FISCHEL, *supra* note 244, at 23.

<sup>258</sup> 272 U.S. at 392 (quoting *City of Aurora v. Burns*, 319 Ill. 84, 93–95 (1925)).

<sup>259</sup> See *supra* Section II.B.

<sup>260</sup> See Schleicher, *supra* note 235, at 1683–84 (citing Bruce W. Hamilton, *Zoning and Property Taxation in a System of Local Governments*, 12 URB. STUD. 205, 211 (1975)).

<sup>261</sup> Schleicher, *supra* note 235, at 1683.

vices.<sup>262</sup> In zoning, cities found “a way out of this problem by giving them a tool to fix the population,” i.e., de facto population caps.<sup>263</sup>

Zoning laws and associated policies that suppress density have contributed to social inequity<sup>264</sup> and a greater reliance on driving than obtained in the pre-sprawl built environment.<sup>265</sup> As David Schleicher has observed, “[i]t is law and not just the market that determines how transportation technologies affect land usage.”<sup>266</sup> Zoning law has dispersed trip destinations, pushing people farther away from their preferred locations, compelling driving and resulting in deadweight economic losses in terms of transactions foregone, travel time wasted, and energy efficiency sacrificed.<sup>267</sup> Yet because zoning measures may be rational for any given community, urban sprawl may result from a constellation of independent choices even where economically inefficient for the whole.<sup>268</sup> Most damagingly from a macroeconomic and employment standpoint, these zoning laws forcing urban sprawl are most pronounced in some of the United States’ most productive regions.<sup>269</sup> However, restrictive zoning and its negative externalities are not limited to cities but are pervasive in the U.S. suburbs as well.<sup>270</sup>

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<sup>262</sup> For a discussion of the concept of exit in the local government context, see generally Vicki Been, “Exit” as a Constraint on Land Use Exactions: Rethinking the Unconstitutional Conditions Doctrine, 91 COLUM. L. REV. 473 (1991).

<sup>263</sup> Schleicher, *supra* note 235, at 1684.

<sup>264</sup> See, e.g., BERNARD H. SIEGAN, LAND USE WITHOUT ZONING 87–90 (1972) (discussing how zoning policies can raise prices and exclude buyers from the market); Robert C. Ellickson, *Suburban Growth Controls: An Economic and Legal Analysis*, 86 YALE L.J. 385, 400 (1977) (observing that “[a]ntigrowth measures have one premier class of beneficiaries: those who already own residential structures in the municipality doing the excluding”).

<sup>265</sup> See Schleicher, *supra* note 230, at 44 (observing that “[c]ompared to Europe, U.S. policies encourage (and even require) more sprawl, and both Europe and the United States encourage more sprawl than technological change alone would”).

<sup>266</sup> *Id.*

<sup>267</sup> David Schleicher, *The City as a Law and Economic Subject*, 2010 ILL. L. REV. 1507, 1512 (2010) (“Where the government induces people to move from the market-determined combination of people and places, it causes deadweight loss—the lost transactions between people who would have lived near one another absent government intervention.”).

<sup>268</sup> *Id.* at 1542 (“If towns use zoning . . . this will cause spreading out . . . throughout a region, causing further movement away from where people would locate in an unimpeded property market. The spreading caused by zoning will systematically reduce density below the density that would be generated by an unimpeded property market.”).

<sup>269</sup> See Schleicher, *supra* note 267, at 1543 (“In the United States, there is heavier zoning in the most productive regions of the country—particularly in coastal areas like Boston and San Francisco—than in less productive regions. This substantially increases the cost of housing in these coastal regions and thereby drives population away from the most productive regions and towards less heavily zoned regions.”).

<sup>270</sup> See Schleicher, *supra* note 235, at 1683 (noting negative externalities from zoning, including sprawl, which requires use of a car).

## 2. *The Legalization of Street Parking and Its Provision Without Charge*

One can be forgiven for feeling as though there is never a parking spot when one needs it. This sentiment has many sources, such as a lack of “desirable parking near a destination,” “price differences between public curbside parking and private garage parking,” or perhaps a “lack of familiarity” with the area.<sup>271</sup> Nevertheless, this relatable frustration masks a deeper truth: America is awash in parking. Estimates have put the number as high as two billion spaces nationwide, or over six for every person.<sup>272</sup> Ironically, in cities—where land close to desirable locations is scarcest and most valuable—the share of land dedicated to parking, including free parking, is often quite high. In Los Angeles, the highest density of parking is “in the urban core,” and fully 14% of the land in Los Angeles County is dedicated to parking.<sup>273</sup> In Houston, home to a shadow zoning code,<sup>274</sup> there are reportedly thirty parking spaces per resident;<sup>275</sup> in Des Moines, the figure is about seven.<sup>276</sup> 39% of the land in downtown Detroit is parking;<sup>277</sup> New York City is estimated to have about three million parking spaces, over 95% of them provided without charge and thus part of the city’s de facto free parking program.<sup>278</sup>

In a market economy, one would naturally expect the owner of a parking space to charge for its use. This goes without saying on private property; indeed, in large cities, a single parking space can command

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<sup>271</sup> Chase Dowling et al., *How Much Traffic Is Searching for Parking? Simulating Curbside Parking as a Network of Finite Capacity Queues* 6–7 (Cornell Univ. Comput. Sci. Dep’t., Working Paper No. 3, 2018), <https://arxiv.org/pdf/1702.06156v3.pdf>.

<sup>272</sup> Michael Kimmelman, *Paved, but Still Alive*, N.Y. TIMES (Jan. 6, 2012), <https://www.nytimes.com/2012/01/08/arts/design/taking-parking-lots-seriously-as-public-spaces.html>.

<sup>273</sup> Mikhail Chester et al., *Parking Infrastructure: A Constraint on or Opportunity for Urban Redevelopment? A Study of Los Angeles County Parking Supply and Growth*, 81 J. AM. PLAN. ASS’N 268, 268 (2015).

<sup>274</sup> Houston “does not have a zoning code, but—contrary to common belief—it does have some substantial land-use regulations, including minimum lot-size requirements for single-family dwellings, restrictions on building townhouses, and minimum parking requirements.” Schleicher, *supra* note 235, at 1685 n.47 (citing Michael Lewyn, *How Overregulation Creates Sprawl (Even in a City Without Zoning)*, 50 WAYNE L. REV. 1171, 1177–94, 1199–1204 (2004)).

<sup>275</sup> Kimmelman, *supra* note 272.

<sup>276</sup> Kevin Hardy, *Can’t Find a Parking Spot? There Are 1.6 Million in Des Moines*, DES MOINES REG. (July 13, 2018), <https://www.desmoinesregister.com/story/money/business/2018/07/13/des-moines-where-park-parking-spaces-downtown-development-mortgage-bankers-association-study/778707002>.

<sup>277</sup> Emily Badger, *How Too Much Parking Strangled the Motor City*, CITYLAB (Aug. 21, 2013), <https://www.citylab.com/transportation/2013/08/how-too-much-parking-helped-strangle-motor-city/6585>.

<sup>278</sup> James Barron, *Could New York City Eliminate Free Street Parking?*, N.Y. TIMES (Nov. 20, 2019), <https://www.nytimes.com/2019/11/20/nyregion/nyc-street-parking.html>.

five-, six-, or even—for indoor spots in some luxury properties—seven-figure sums.<sup>279</sup> For the most part, however, street parking is not managed this way.

It is not a law of nature that one should be able to store one's private property on a public street free of charge. Indeed, until the early 1900s, street parking was broadly outlawed.<sup>280</sup> This condition isn't wholly foreign today; for example, both driving and parking are prohibited or restricted in public spaces like parks,<sup>281</sup> college campuses,<sup>282</sup> and beaches.<sup>283</sup> But today, municipal law also tends to declare curbs to be free parking zones outside of central business districts and other select areas. Most cities today don't just treat parking as a public good; they place it at the top of the pantheon of public goods. Public schools, public libraries, public universities, community colleges: access to all these public services is generally provided only to residents, or only at a premium to non-residents. In most places, street parking is provided free of charge without regard to the residency or taxpaying status of the user. Further, street parking is generally reserved for cars rather than other uses.

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<sup>279</sup> See Michelle Higgins, *Buy Condo, Then Add Parking Spot for \$1 Million*, N.Y. TIMES (Sept. 9, 2014), <https://www.nytimes.com/2014/09/10/realestate/million-dollar-parking-spot.html> (noting that the price of ten underground parking spots in one building was \$1,000,000 each, “more per square foot than the apartments being sold upstairs”); Katharine Q. Seelye, *And with a Roof, They'd Cost Even More*, N.Y. TIMES (June 14, 2013), <https://www.nytimes.com/2013/06/15/us/back-bay-parking-spaces.html> (noting pair of “tandem,” back-to-front parking spaces priced at \$560,000 for the pair in the Back Bay neighborhood of Boston).

<sup>280</sup> See Gray, *supra* note 165 (“The ban against permanent parking on the city streets extends back at least to the mid-19th century, and was considered a sacred contract by the time the automobile arrived in real numbers in the early 1900’s.”).

<sup>281</sup> After enjoying a royal reception to parks in the twentieth century, cars are increasingly unwelcome in the twenty-first. See, e.g., Jeffrey C. Mays, *Central Park's Scenic Drives Will Soon Be Car-Free*, N.Y. TIMES (Apr. 20, 2018), <https://www.nytimes.com/2018/04/20/science/central-park-car-free.html> (noting that the southern area of Manhattan's Central Park would close to cars and quoting New York Mayor Bill de Blasio as saying, “This park was not built for automobiles. It was built for people.”).

<sup>282</sup> College campuses are increasingly banning student use of parking spaces. See, e.g., Lisa Prevost, *On the College Campus of the Future, Parking May Be a Relic*, N.Y. TIMES (Sept. 5, 2017), <https://www.nytimes.com/2017/09/05/science/campus-parking.html> (“To reduce the number of cars on campus, parking permits are off limits to students [at the University of Wisconsin-Madison], who are instead encouraged to walk, bike, or take the bus.”).

<sup>283</sup> As has historically been the case with driving privileges more generally, where beach driving is permitted, motorists have fought efforts to curtail that privilege, even where it has proven deadly and been shown to harm property values. See, e.g., Lizette Alvarez, *Florida Beachgoers Cling to a Right to Make the Sand Their Driveway*, N.Y. TIMES (Jan. 26, 2016), <https://www.nytimes.com/2016/01/27/us/florida-beachgoers-cling-to-a-right-to-make-the-sand-their-driveway.html> (“Daytona Beach, a place with a long history of beachfront driving, is mired again in a particularly polarizing battle over whether to restrict cars on more stretches of sand.”).

Today, in some cities in the United States, “parking lots cover more than a third of the land area, becoming the single most salient landscape feature of our built environment.”<sup>284</sup> By furnishing copious quantities of free or low-cost parking, cities invited congestion, toxic pollution,<sup>285</sup> and higher traffic deaths. Free parking induces demand; by subsidizing the cost of car ownership and operation, it generates a higher level of demand than would naturally exist.<sup>286</sup> Donald Shoup, the author of a landmark treatise on the economics of parking,<sup>287</sup> has made an attempt to quantify the total cost for off-street parking. His estimate, adjusted for inflation to 2019 dollars, is \$148 billion to \$423 billion per year; the general public pays about 96% of this amount and motorists “at most” 4%.<sup>288</sup>

Cities looking to get more value out of public space currently allocated to parking have experimented with two strategies. One is demand-responsive pricing, raising prices for in-demand locations and lowering them for others.<sup>289</sup> Other cities have moved to repurpose the space entirely, reclaiming it for activities that create positive externalities and enhance property values, such as tiny parks in parking spaces (“parklets”), bus lanes, and shared bike stations. Scholars and transportation professionals have documented how reallocating space from zero- or low-cost parking towards these and other uses can help cities

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<sup>284</sup> ERAN BEN-JOSEPH, RETHINKING A LOT: THE DESIGN AND CULTURE OF PARKING, at xi (2012).

<sup>285</sup> The incidence of pollution is hardly limited to urban areas, but higher population density plus “human-built and natural barriers to dispersion [of pollutants] in urban settings magnify the adverse health effects in cities.” Nicholas Freudenberg & Sandro Galea, *Cities of Consumption: The Impact of Corporate Practices on the Health of Urban Populations*, 85 J. URB. HEALTH 462, 465 (2008).

<sup>286</sup> DONALD C. SHOUP, THE HIGH COST OF FREE PARKING 295–96 (2005).

<sup>287</sup> See generally *id.*

<sup>288</sup> *Id.* at 206 (finding a subsidy between \$79 billion and \$226 billion in 1991 dollars (citing MARK A. DELUCCHI, INST. TRANSP. STUDIES, UNIV. OF CAL., DAVIS, THE ANNUALIZED SOCIAL COST OF MOTOR-VEHICLE USE IN THE U.S., 1990–1991: SUMMARY OF THEORY, DATA, METHODS, AND RESULTS (1997))). Inflation-adjusted figures were computed using January as the reference month for each year 1991 and 2019. See BLS CPI Inflation Calculator, *supra* note 220.

<sup>289</sup> Boston, New York City, San Francisco, and Los Angeles have all implemented demand-responsive programs in some areas. Results are encouraging. See, e.g., Press Release, City of Bos., Results of Performance Parking Pilot Announced (Feb. 21, 2018), <https://www.boston.gov/news/results-performance-parking-pilot-announced> (reporting double-digit increases in available metered spaces in one trial neighborhood and substantial reductions in illegal parking); S.F. MUN. TRANSIT AGENCY, SFpark PILOT PROJECT EVALUATION 10 (2014), [http://direct.sfpark.org/wp-content/uploads/eval/SFpark\\_Pilot\\_Project\\_Evaluation.pdf](http://direct.sfpark.org/wp-content/uploads/eval/SFpark_Pilot_Project_Evaluation.pdf) (reporting reduced carbon emissions and increased parking availability).

reclaim some of the deadweight loss caused by parking policy and restrictive land use regulation more generally.<sup>290</sup>

### 3. *The Planned Economy of Parking*

In the postwar era, cities around the country began establishing minimum parking quotas that require property developers to build a specified number of off-street parking spots,<sup>291</sup> which had the effect of suburbanizing the city and impeding walking. These quotas have been adopted by high- and low-density cities alike, and are set “for every land use.”<sup>292</sup> Washington, D.C., for example, adopted a zoning code in 1958 that “required minimum amounts of parking for all kinds of buildings, from churches to tennis courts.”<sup>293</sup>

The objective of central planners in establishing a minimum number of required spaces is to require private landowners to construct enough space “to satisfy the *peak demand* for *free parking*.<sup>294</sup> This two-prong quasi-legal standard—using various methods and rules of thumb<sup>295</sup> to estimate peak demand and satisfy it without direct cost to the end-user—forced a massive reallocation of land to parking. After Los Angeles imposed parking quotas, for example, the percentage of land dedicated to parking soared.<sup>296</sup> Combined with on-street parking, the ratio of parking spots to residents often vastly exceeds one space per person. Planners have determined that this

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<sup>290</sup> See Schleicher, *supra* note 267, at 1543 (noting that more restrictive zoning exists in the most productive regions of the country, depressing economic potential). See generally Sadik-Khan & Solomonow, *supra* note 71 (discussing alternative uses for space currently or formerly allocated to parking and driving); Calvin G. Thigpen & Jamey M.B. Volker, *Repurposing the Paving: The Case of Surplus Residential Parking in Davis, CA*, 70 CITIES 111 (2017) (documenting surplus residential parking and proposing alternative uses to increase the supply of homes and calm traffic); NACTO, *Design Guide* (discussing alternative street uses, including parklets).

<sup>291</sup> See, e.g., Lydia Depillis, *Park It*, WASH. CITY PAPER, <https://www.washingtoncitypaper.com/news/housing-complex/blog/13122696/park-it> (Mar. 21, 2012, 7:00 PM) (describing a 1958 zoning code in Washington D.C. that required a minimum of parking spaces).

<sup>292</sup> Donald C. Shoup, *The Trouble with Minimum Parking Requirements*, 33 TRANSP. RES. PART A 549, 549 (1999).

<sup>293</sup> Depillis, *supra* note 291 (noting that the author of the code even proposed a ring of parking garages “as a buffer between residential and business zones,” though that idea did not make it into the code).

<sup>294</sup> Shoup, *supra* note 292, at 549 (emphasis added).

<sup>295</sup> There is no uniform method for establishing minimum parking quotas. For instance, for an office building, the most common requirement is four parking spaces for every 1000 square feet of floor area. *Id.* at 556.

<sup>296</sup> Chester et al., *supra* note 273, at 268.

level of provision is often influenced heavily by mandated parking quotas and exceeds market demand.<sup>297</sup>

By mandating a massive increase in the parking supply, the state produced an environment of nearly ubiquitous free parking, conditioning drivers to expect to park without paying at the point of service most of the time.<sup>298</sup> But just as there is no free lunch, there is no free parking; the question is simply where the incidence of the cost falls and how payment is extracted.

Parking quotas raise costs of residential and commercial property development alike in three ways. First, they make housing more expensive. The direct cost of creating parking spaces, which can be passed on to end-users (e.g., renters) of the property through bundling, is substantial.<sup>299</sup> After controlling for other factors, one study found that “an apartment with bundled parking is associated with \$200 more in asking rent, and bundled parking with a condo is associated with a \$43,000 increase in asking price.”<sup>300</sup> Parking quotas have been found to add between 12.5% and 38%<sup>301</sup> to the costs of constructing multifamily housing units. These figures are higher where land values are higher. Parking lots, “while cheaper to construct [than parking structures], require additional land area and may come at the expense of green or open space and permeable surfaces for rainwater absorption.”<sup>302</sup> In cities, the average cost of constructing a single underground parking space is \$34,000 and in a parking structure \$24,000,<sup>303</sup> though often the price is higher. In San Diego, the figure

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<sup>297</sup> See, e.g., Kristin Musulin, *San Diego Advances Proposal to Nix Parking Requirements*, SMART CITIES DIVE (Feb. 11, 2019), <https://www.smartcitiesdive.com/news/san-diego-proposal-parking-requirements/548016> (reporting that one hundred percent of studied sites in San Diego had lower levels of parking demand than even the minimum level of parking quota (one space per unit)).

<sup>298</sup> Shoup, *supra* note 292, at 569.

<sup>299</sup> VICKI BEEN ET AL., FURMAN CTR. FOR REAL ESTATE & URBAN POLICY, SEARCHING FOR THE RIGHT SPOT: MINIMUM PARKING REQUIREMENTS AND HOUSING AFFORDABILITY IN NEW YORK CITY 6 (2012), [http://furmancenter.org/files/publications/furman\\_parking\\_requirements\\_policy\\_brief\\_3\\_21\\_12\\_final\\_2.pdf](http://furmancenter.org/files/publications/furman_parking_requirements_policy_brief_3_21_12_final_2.pdf).

<sup>300</sup> Michael Manville, *Parking Requirements and Housing Development: Regulation and Reform in Los Angeles*, 79 J. AM. PLAN. ASS’N 49, 60 (2013).

<sup>301</sup> TODD LITMAN, VICTORIA TRANSP. POLICY INST., PARKING REQUIREMENT IMPACTS ON HOUSING AFFORDABILITY 1 (2005), <http://www.vtpi.org/park-hou.pdf> (“[O]ne parking space per unit increases costs approximately 12.5.%.”); SHOUP, *supra* note 286, at 148–51 (finding Los Angeles parking quotas raised the cost of construction for Alma Place, a federal low-income housing system, by thirty-eight percent).

<sup>302</sup> BEEN ET AL., *supra* note 299, at 6. Surface parking lots cost between \$5000 and \$10,000 to construct per space (including the land value). Joe Cortright, Opinion, *The Price of Parking*, CITY OBSERVATORY (Oct. 18, 2016), <http://cityobservatory.org/the-price-of-parking>.

<sup>303</sup> See Lewis Lehe, *Minimum Parking Requirements and Housing Affordability*, 11 J. TRANSPORT & LAND USE 1309, 1310 (2018); see also Donald Shoup, *The High Cost of*

was found to be \$40,000 to \$90,000 per housing unit;<sup>304</sup> a New York developer estimated costs at \$50,000 per underground space.<sup>305</sup> On a per-month basis, the cost of providing a space in a structure has been estimated at \$125.<sup>306</sup> When multiplied by the number of parking spaces required to satisfy peak demand,<sup>307</sup> the subsidy is immense. Indeed, by Shoup's calculation, the cost of all required off-street parking spaces in America likely exceeds the cost of all cars in America, even if one assumes a conservative ratio of only four parking spaces per car.<sup>308</sup>

Once triggered, these costs are largely inescapable to consumers and residents. The bundling of parking—common wherever supply of parking exceeds demand—increases the prices of all goods and services furnished, “bypass[ing] the price system in the markets for both transportation and land.”<sup>309</sup>

Yet as expensive as it is to build parking, the one-time cost of construction is likely dwarfed by the ongoing costs of operating a parking facility (maintenance, depreciation, utilities, insurance, property taxes, etc.) and by opportunity costs, the latter being perhaps dearest of all. Parking is an extremely space-intensive use of land that prevents other, more productive uses of the same area.<sup>310</sup> An efficient parking space may take up 300 square feet.<sup>311</sup> A single parking space, if repurposed into a studio apartment, would rent for about \$300 a month in Iowa, \$630 in California and nearly \$900 in the nation’s capital.<sup>312</sup> Municipalities in all these places mandate minimum parking.

Second and related, the requirement to build parking reduces the supply of housing by making economically unfeasible the production of housing, such as modest apartment homes, that cannot be built

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*Minimum Parking Requirements, in 5 TRANSPORT AND SUSTAINABILITY* 87, 89–90 (Stephen Ison & Corinne Mulley eds., 2014).

<sup>304</sup> Musulin, *supra* note 297.

<sup>305</sup> See BEEN ET AL., *supra* note 299, at 6.

<sup>306</sup> See SHOUP, *supra* note 286, at 185.

<sup>307</sup> See Shoup, *supra* note 292, at 549 (noting that “[u]rban planners set minimum parking requirements [to] ensure that developers will provide enough spaces to satisfy peak demand for free parking”).

<sup>308</sup> *Id.* at 557.

<sup>309</sup> *Id.* at 556–57 (“Minimum parking requirements bundle the cost of parking spaces into the cost of development. . . . These requirements ‘externalize’ the cost of parking, so that you cannot reduce what you pay for parking by consuming less of it.”).

<sup>310</sup> Unless very high fees are charged, parking is a classic ancillary, rather than productive, use in economic terms.

<sup>311</sup> Shoup, *supra* note 292, at 187. This area must include the space itself and sufficient room for cars to back in and out. *Id.*

<sup>312</sup> See Jennifer Rudden, *Average Rent Per Square Foot in Apartments in the United States in 2018, by State (in U.S. Dollars)*, STATISTA (Aug. 9, 2019), <https://www.statista.com/statistics/879118/rent-per-square-foot-in-apartments-by-state-usa>.

profitably if they are required to include off-street parking.<sup>313</sup> The impact is likely most pronounced in the affordable housing segment. Specifically, parking quotas “discourage small units because they eliminate the most profitable floorspace/parking bundle to supply to relatively lower-income households,”<sup>314</sup> creating unaffordable packages of housing for both people and cars rather than permitting unbundling.<sup>315</sup>

Third, parking quotas create substantial negative social externalities by subsidizing driving. Parking quotas do this via two channels. First, they vest users of the land with an asset—a parking space—that they can use for a car. Thus, households that might otherwise not own a car (or might own one rather than two) are encouraged to become more car-dependent, and those who do not own cars subsidize those who do.<sup>316</sup> A study of New York City’s commuting modes concluded that parking quotas increased the share of people driving to work “even when a viable transit option exists.”<sup>317</sup>

But parking quotas also stimulate driving via a second mechanism that may not be obvious from reading about them but is plain to the eye in any area where they predominate: parking quotas degrade the pedestrian experience. In many cases, the required space devoted to parking exceeds the floor area of the building for which the parking was created.<sup>318</sup> Parking lots and garages send dangerous flows of traffic across sidewalks and other ostensibly safe pedestrian areas. In areas subject to parking quotas, the sheer space taken up by these lakes of asphalt and towers of layered concrete is associated with lower density and increased urban sprawl.<sup>319</sup> A low-density built environment with wide, monotonous roads designed for fast vehicular travel leads, in turn, to less walking and a greater reliance on

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<sup>313</sup> See Lehe, *supra* note 303, at 1309.

<sup>314</sup> *Id.*

<sup>315</sup> See Roderick M. Hills, Jr. & David Schleicher, *Planning an Affordable City*, 101 IOWA L. REV. 91, 125 (2015).

<sup>316</sup> Precisely because these spaces are so abundant, only a limited secondary market exists outside of dense areas for off-street parking spaces, where indeed one exists at all. This ensures that car-free residents cannot fully enjoy the benefits of this amenity, and externalizes part of the cost of constructing and maintaining the parking onto them.

<sup>317</sup> RACHEL WEINBERGER ET AL., TRANSP. ALTS., GUARANTEED PARKING — GUARANTEED DRIVING: COMPARING JACKSON HEIGHTS, QUEENS AND PARK SLOPE, BROOKLYN SHOWS THAT A GUARANTEED PARKING SPOT AT HOME LEADS TO MORE DRIVING TO WORK 1 (2008), [https://www.transalt.org/sites/default/files/news/reports/2008/Guaranteed\\_Parking.pdf](https://www.transalt.org/sites/default/files/news/reports/2008/Guaranteed_Parking.pdf).

<sup>318</sup> SHOUP, *supra* note 286, at 205.

<sup>319</sup> See *id.* at 56–60. The claim is not that parking quotas result monocausally in lower density, but rather that they tend to increase its incidence and severity.

driving.<sup>320</sup> Parking “craters”<sup>321</sup> form that hollow out neighborhoods and destroy urban vitality.

In recent years, a growing number of cities have begun to reform parking quotas, including Buffalo,<sup>322</sup> Hartford,<sup>323</sup> Minneapolis,<sup>324</sup> and San Francisco,<sup>325</sup> and proposals are advancing in other cities to do the same.<sup>326</sup> These efforts seek to reverse decades of social engineering.<sup>327</sup> While reforms appear to have gained some national momentum, at present the large majority of cities in America continue to mandate parking, granting a substantial subsidy to driving.

### C. Restrictions on Population Density and Mixed Use

Another form of legal subsidy for driving can be found in de facto and de jure restrictions on population density and mixed-use land development. Collectively, these land-use regulations (LURs) increase the cost of supplying housing, which in turn “leads to higher prices and fewer units” that are lower density.<sup>328</sup> Acting together,

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<sup>320</sup> For a brief discussion of this increase in sprawl, see Will Chilton & Baird Bream, *The High Cost of Free Parking*, Vox (July 19, 2017, 11:20 AM), <https://www.vox.com/videos/2017/7/19/15993936/high-cost-of-free-parking>.

<sup>321</sup> Sarah Goodyear, *How Parking Lots Became the Scourge of American Downtowns*, CITYLAB (June 5, 2014) (quoting Streetsblog editor Angie Schmitt), <https://www.citylab.com/transportation/2014/06/how-parking-lots-became-the-scourge-of-american-downtowns/372207> (describing surface parking lots as “blank spots [that] muffle urban life, deadening the surrounding human environment”).

<sup>322</sup> See Linda Poon, *Buffalo Becomes First City to Bid Minimum Parking Goodbye*, CITYLAB (Jan. 9, 2017), <https://www.citylab.com/equity/2017/01/buffalo-is-first-to-remove-minimum-parking-requirements-citywide/512177>.

<sup>323</sup> See Angie Schmitt, *Hartford Eliminates Parking Minimums Citywide*, STREETS BLOG USA (Dec. 13, 2017), <https://usa.streetsblog.org/2017/12/13/hartford-eliminates-parking-minimums-citywide>.

<sup>324</sup> See Sara Bronin, *Rethinking Parking Minimums*, PLAN. MAG., Feb. 2018, at 9; Angie Schmitt, *Minneapolis Moves to Eliminate Mandatory Parking*, STREETS BLOG USA (Dec. 12, 2018), <https://usa.streetsblog.org/2018/12/12/minneapolis-moves-to-eliminate-mandatory-parking>.

<sup>325</sup> Minneapolis has adopted a plan that calls for the elimination of parking quotas. See Henry Grabar, *San Francisco Legalizes Itself*, SLATE, (Dec. 18, 2018, 5:10 PM), <https://slate.com/business/2018/12/san-francisco-eliminates-parking-minimums-its-a-trend.html>.

<sup>326</sup> See *More Cities than Ever Are Eliminating Parking Minimums*, STRONG TOWNS (Nov. 23, 2018), <https://www.strongtowns.org/journal/2018/11/23/a-map-of-cities-that-got-rid-of-parking-minimums-updated>.

<sup>327</sup> See Kenneth R. Gosselin, *Development, Business Expansion Could Follow New Hartford Parking Regulations*, HARTFORD COURANT (Dec. 20, 2017), <https://www.courant.com/real-estate/property-line/hc-biz-hartford-parking-minimums-lifted-citywide-20171219-story.html> (reporting that “[t]he city will no longer require developers and businesses across the city to provide a minimum number of parking spaces, a dramatic move intended to make Hartford more ‘walkable’ and spur development”).

<sup>328</sup> Zabel & Dalton, *supra* note 245, at 571 & n.2.

these LURs effectively outlaw city-building.<sup>329</sup> Sprawl results not because of consumer or democratic choices, but because it is the law.<sup>330</sup>

In the United States, the history of zoning cannot be told without reference to white supremacy.<sup>331</sup> Even seemingly neutral language takes advantage of racialized fears. Washington, D.C.'s zoning authority, for example, explains its philosophy in exclusionary terms with dark overtones, mandating protection of semi-detached dwellings—typically home to upper-class families—“from *invasion* by denser types of residential development.”<sup>332</sup> This language, which in the housing context has an explicitly racist history,<sup>333</sup> outlaws a development modality that makes cars optional rather than necessary.

But zoning doesn't only ban new “invasions”; most of America's classic, beloved urban neighborhoods would be illegal to build today as *already built*.<sup>334</sup> Somerville, Massachusetts, is one example. It has 80,000 residents and is a leading example of human-scale building with sufficient levels of walkability and transit to make car ownership optional. Yet a study by the city determined that only twenty-two of its existing buildings conform to its zoning code; thousands more, beloved by residents and visitors and built pre-zoning, have been outlawed and could not be lawfully built today.<sup>335</sup> Nearly all corner stores and accessory dwellings in the Georgetown neighborhood of

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<sup>329</sup> See John Infranca, *The New State Zoning: Land Use Preemption Amid a Housing Crisis*, 60 B.C. L. REV. 823 (2019), at 831–32 (first citing William A. Fischel, *The Evolution of Homeownership*, 77 U. CHI. L. REV. 1503, 1516 (2010); then citing Pendall, *supra* note 229, at 555) (noting the role of land-use restrictions such as zoning in magnifying sprawl).

<sup>330</sup> The zoning laws, in turn, undoubtedly reflect the convictions of some residents at the time of their enactment. However, the effect is to send development to “formerly rural, ‘exurban’ locales whose politics are either prodeveloper or whose residents have not had time to set up zoning roadblocks.” Fischel, *supra* note 329, at 1516.

<sup>331</sup> See *supra* note 250. One author has applied the term “car supremacy” to the regime of automobile favoritism in Britain (without a focus on law). See ROBERT DAVIS, DEATH ON THE STREETS: CARS AND THE MYTHOLOGY OF ROAD SAFETY 244–46 (1993).

<sup>332</sup> D.C. OFFICE OF ZONING, RESIDENTIAL (R) ZONES – R-2, ZONING HANDBOOK, DC (emphasis added), <http://handbook.dcoz.dc.gov/zones/residential/r-2> (last visited Mar. 26, 2020).

<sup>333</sup> See, e.g., RICHARD ROTHSTEIN, THE MAKING OF FERGUSON: PUBLIC POLICIES AT THE ROOT OF ITS TROUBLES 8 (2014) (reprinting a leaflet from a 1916 referendum in St. Louis to ban dense development, warning of “[a]n entire block ruined by negro invasion,” and directing homeowners to “[s]ave [y]our [h]ome! Vote for [s]egregation!”).

<sup>334</sup> See Matthew Yglesias, *80,000 People Live in Somerville, and Only 22 of Its Buildings Are Legal Under Current Zoning*, VOX (June 16, 2016, 9:40 AM), <https://www.vox.com/2016/6/16/11948630/somerville-zoning-illegal>.

<sup>335</sup> See Daniel Hertz, Opinion, *The Illegal City of Somerville*, CITY OBSERVATORY: COMMENTARY (June 15, 2016), <http://cityobservatory.org/the-illegal-city-of-somerville>. Even those twenty-two buildings might be unlawful; the calculation performed by the city did not factor in its parking quotas. *Id.*

Washington, D.C.,<sup>336</sup> and forty percent of Manhattan would be illegal to build now.<sup>337</sup> In these places, land use restrictions don't preserve the neighborhood character; they undermine it. The upshot is that, not only in big cities but in most urban and suburban neighborhoods in the United States, LURs make it unlawful to build any structure other than a single-family detached house.

One LUR that plays a particularly powerful role is the minimum lot size restriction (MLR), which has an "obvious impact" on housing supply<sup>338</sup> because, by establishing the minimum size of the lot on which a home can lawfully be built, MLRs effectively establish a minimum size of home. The example of Scarsdale, New York illustrates the power of MLRs. The tiny suburb north of New York City has its own express stop on the commuter rail, where frequent, high-quality heavy rail service provides an easy and comfortable commute between Scarsdale and Grand Central Terminal in Midtown Manhattan.<sup>339</sup> In 1957, Scarsdale adopted a zoning law.<sup>340</sup> The code establishes minimum lot sizes for seven types of residential property reserved for "one-family residence" only.<sup>341</sup> One of these areas, AA-1, imposes a mandatory minimum size of *two acres* for each single-family home,<sup>342</sup> which is roughly the size of one and a half football fields. Another, A-1, outlaws lots smaller than one acre per home.<sup>343</sup> Still others establish minimum lot sizes of 10,000 to 20,000 square feet per single-family home.<sup>344</sup> While Scarsdale law allows the extra land on these lots to be used for swimming pools,<sup>345</sup> lawn tennis courts,<sup>346</sup> and even stables for up to four horses,<sup>347</sup> one thing that is absolutely outlawed is additional

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<sup>336</sup> See *What the Zoning Changes Mean for Georgetown*, GEORGETOWN METRO. (Feb. 8, 2016, 10:00 AM), <https://georgetownmetropolitan.com/2016/02/08/what-the-zoning-changes-mean-for-georgetown>.

<sup>337</sup> See Quoc Trung Bui et al., *40 Percent of the Buildings in Manhattan Could Not Be Built Today*, N.Y. TIMES: THE UPSHOT (May 20, 2016), <https://www.nytimes.com/interactive/2016/05/19/upshot/forty-percent-of-manhattans-buildings-could-not-be-built-today.html>.

<sup>338</sup> Zabel & Dalton, *supra* note 245, at 571–72.

<sup>339</sup> The ride can be as short as thirty-two minutes. See *Schedules and Fares*, METRO NORTH RAILROAD, <https://as0.mta.info/mnr/schedules> (search train times from Scarsdale to Grand Central Station beginning at 6:00 AM) (last visited Feb. 5, 2019).

<sup>340</sup> See VILLAGE OF SCARSDALE, N.Y., ZONING LAW § 310 (1957), <https://ecode360.com/6439798>.

<sup>341</sup> *Id.* § 310-3.

<sup>342</sup> *Id.*

<sup>343</sup> *Id.*

<sup>344</sup> *Id.* (A-2 and A-3 districts establish MLRs of 20,000 and 10,000 square feet, respectively).

<sup>345</sup> *Id.* § 310-7.O.

<sup>346</sup> *Id.* § 310-7.Q.

<sup>347</sup> *Id.* § 310-7.L.

housing, whether in an outbuilding or in the form of a multi-family home on the property. Building stables is specifically authorized, but adding housing—even in smaller structures tucked away behind mansions, on enormous lots—is forbidden by law. In parts of Scarsdale, it is easier to build homes for ponies than for people.

In areas like Scarsdale where land values are high, dense housing is the only way working people can compete with the wealthy for homes, as density permits multiple households to functionally pool their resources. Legalized density would make public transit more viable, including for non-commute trips. Scarsdale is a particularly good example of this, because it already has excellent rail service to the region's economic core. For this reason, the effects of Scarsdale's barriers to density are particularly exclusionary.

Many other areas have crippled themselves by legislating low density via LURs, which rob transit of the constituency it would enjoy or develop by dint of incumbency. Even if LURs were repealed overnight, in some cases it would take years for density to reach the level necessary to support high-frequency transit.

The product of LURs is low-density neighborhoods that compound inequities in access to shared resources, such as public transit. These legal restrictions also cement reliance on the car (and a measure of social isolation): when your neighbor lives several football fields away, a friendly visit to borrow a cup of sugar becomes a drive.

In urban areas, floor-area ratios (FAR) are an important LUR and operate as a cap on housing supply. Cities often contain de facto building height limits specified in terms of FARs, which are a simple equation: “the cumulative square footage of floor space divided by the square footage of a lot.”<sup>348</sup> Thus, a mandated FAR of four “will allow four stories with no uncovered land or (more normally) eight stories with half the land uncovered by structures,” often to be used for parking.<sup>349</sup> Related rules will also require building setbacks (the minimum distance between the building and the right of way and adjacent lots).<sup>350</sup> Some municipalities regulate density more directly by capping building permits. The presence of LURs such as single-family-only zoning and building-permit caps correlates with higher degrees of sprawl.<sup>351</sup> These rules work in concert with parking quotas and other zoning laws to undermine density where it exists and prevent it from taking root where conditions would otherwise favor it.

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<sup>348</sup> FISCHEL, *supra* note 233, at 31.

<sup>349</sup> *Id.*

<sup>350</sup> *See id.*

<sup>351</sup> *See* Pendall, *supra* note 229, at 563.

### III DISTORTION BY A THOUSAND LEGAL SUBSIDIES

The foregoing Parts examined features of two domains of legal regulation—vehicle and traffic law, and land use—that subsidize driving. But these are only two peaks on a sprawling range of legal automotive supremacy. In ways overlooked by urban planners, transportation professionals and economists, and legal scholars, the entire legal system plays a role in encouraging driving. This Part surfaces important examples of these mechanisms.

First are collective regulatory schemes that exert powerful second- and third-order effects on the price of driving. Here, I refer to laws governing emissions, automobile design and safety, insurance, and tax law. To the extent it has been told, the story of these areas has been presented as one of unintended consequences. But this excuse rings hollow. It is more accurate to say that regulatory objectives in these fields were defined narrowly by reference to the enhancement of a car-based legal regime rather than one that prioritizes health, prosperity, or equity. Next, I examine the unique way driving is treated (mostly favorably) by criminal, tort, and contract law. Some of these rules, which range in impact from concrete to symbolic, are neutral or mildly constructive. But in the main, they are destructive, and uniquely so: while automobile dependency has many causes, law aggravates and legitimates it.

#### *A. Systems Regulation*

##### *1. Environmental Regulation*

Cars and trucks are the leading source of greenhouse gas emissions in the United States today<sup>352</sup> and a leading cause of premature deaths from pollution, claiming 58,300 lives each year.<sup>353</sup> An expansive environmental regulatory regime is charged with regulating the sector, yet still subsidizes driving.

By failing to price carbon, the U.S. environmental regulatory system transfers wealth in a straightforward sense: auto users pollute but aren't required to pay for it. The costs don't disappear; they are

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<sup>352</sup> See *Sources of Greenhouse Gas Emissions*, *supra* note 3 (“The transportation sector generates the largest share of greenhouse gas emissions.”); U.S. ENVTL. PROT. AGENCY, FAST FACTS: U.S. TRANSPORTATION SECTOR GREENHOUSE GAS EMISSIONS 1990–2016 1 (2018), <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=p100US15.pdf> (“Within the [transportation] sector, light-duty vehicles (including passenger cars and light-duty trucks) were by far the largest category, with 60% of GHG emissions, while medium- and heavy-duty trucks made up the second largest category, with 23% of emissions.”).

<sup>353</sup> See Fabio Caiazzo et al., *supra* note 10, at 207 (combining particulate matter-related deaths and ozone-related deaths related to road transportation).

simply borne by society at large, and especially by disadvantaged groups. African American children, for example, suffer from asthma disproportionately because they are more likely to grow up in neighborhoods with air pollution, including from highways.<sup>354</sup> People of color in the United States are subjected to such high levels of nitrogen dioxide (NO<sub>2</sub>), much of it generated by motor vehicles, that reducing such levels to those their white peers face would prevent 7000 heart disease deaths per year.<sup>355</sup>

But our environmental regulatory regime also subsidizes driving unwittingly, in four interdependent ways, increasing the level of driving and thus magnifying the negative consequences of driving dependency.

#### a. Inefficient, Tall Vehicles

Major automakers, including Ford, General Motors, and Fiat Chrysler, have announced they are discontinuing many of their car models in favor of expanding the production of higher-priced trucks.<sup>356</sup> The shift since the 1990s towards larger vehicles—which pollute more and are deadlier<sup>357</sup> to pedestrians, other motorists, and even their own drivers—is, paradoxically, a function of environmental regulation. The federal government requires carmakers to satisfy minimum fuel economy requirements.<sup>358</sup> These rules, known as corporate average fuel economy (CAFE), set average mile per gallon (MPG) requirements across each company's fleet of new vehicles.<sup>359</sup>

The CAFE formula incentivizes car companies to manufacture large, dirty vehicles, which enjoy a special loophole carved out for “light trucks,”<sup>360</sup> a category that today encompasses pickup trucks,

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<sup>354</sup> Diane Alexander & Janet Currie, *Is It Who You Are or Where You Live? Residential Segregation and Racial Gaps in Childhood Asthma*, 55 J. HEALTH ECON. 186, 199 (2017).

<sup>355</sup> See Lara P. Clark et al., *National Patterns in Environmental Injustice and Inequality: Outdoor NO<sub>2</sub> Air Pollution in the United States*, 9 PLOS ONE 1, 1 (2014).

<sup>356</sup> See Keith Naughton et al., *The American Sedan Is Dying. Long Live the SUV*, BLOOMBERG (Jan. 16, 2018, 5:01 AM), <https://www.bloomberg.com/news/features/2018-01-16/why-the-american-sedan-is-marked-for-death>.

<sup>357</sup> See *infra* Section III.A.2.

<sup>358</sup> 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. 62,624 (Oct. 15, 2012) (to be codified at 40 C.F.R. pt. 85, 86, 600 and 49 C.F.R. pt. 523, 531, 533, 536, 537). Corporate Average Fuel Economy (commonly called CAFE) standards are set by National Highway Traffic Safety Administration. See *Corporate Average Fuel Economy*, NHTSA, <https://www.nhtsa.gov/laws-regulations/corporate-average-fuel-economy> (last visited Feb. 27, 2019) [hereinafter NHTSA, *Corporate Average Fuel Economy*].

<sup>359</sup> 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. at 62,627.

<sup>360</sup> See *id.* at 62,634.

sport utility vehicles, and minivans.<sup>361</sup> Current MPG regulations require cars to get at least 38% more MPG than light trucks.<sup>362</sup> In 1976, the year before the regulation first went into effect, just 19.8% of vehicles merited the light-truck designation.<sup>363</sup> By 2018, after four decades of special treatment, light trucks had swollen to a record 69% of the market,<sup>364</sup> more than tripling their share.

The shift towards light trucks has likely taken the lives of thousands of additional people who were walking, biking, or using mobility devices to get around town. Research shows that a pedestrian is 3.4 times as likely to be killed if struck by an SUV or other light truck than if hit by a passenger car.<sup>365</sup> This difference is attributed to differences in vehicle height, which help determine where on a person's body a vehicle strikes a pedestrian and, in the case of a light truck, increases the likelihood that the motorist will run over the pedestrian's body following impact.<sup>366</sup>

Between 2009 and 2016, pedestrian deaths rose forty-six percent<sup>367</sup> to reach a twenty-five-year high. They then rose again in 2017<sup>368</sup> and 2018.<sup>369</sup> Not only has the incidence of casualties grown, but the deaths and their causes are dismissed through law enforce-

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<sup>361</sup> Compare 49 C.F.R. § 523.4 (2019) (defining a passenger automobile), with 49 C.F.R. § 523.5 (2019) (defining a non-passenger automobile). Vehicles can qualify with four-wheel drive or an open bed, features that are today found in minivans, crossovers, and other vehicles that most people would not consider work trucks.

<sup>362</sup> See 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. at 62,641 (requiring 29.6 MPG on average for light trucks versus 41.1 MPG for passenger cars, on average; each figure adjusted for each manufacturer based on fleet vehicle footprint). The Trump administration has proposed nixing previously-enacted rules that would raise CAFE. See NHTSA, *Corporate Average Fuel Economy*, *supra* note 358.

<sup>363</sup> ROBERT BAMBERGER, CONG. RESEARCH SERV., IB90122, AUTOMOBILE AND LIGHT TRUCK FUEL ECONOMY: THE CAFE STANDARDS 7 (2003).

<sup>364</sup> David Muller, *Light Trucks Take a Record 69% of U.S. Market*, AUTOMOTIVE NEWS (Jan. 7, 2019, 12:00 AM), <https://www.autonews.com/sales/light-trucks-take-record-69-us-market>.

<sup>365</sup> B.S. Roudsari et al., *Pedestrian Crashes: Higher Injury Severity and Mortality Rate for Light Truck Vehicles Compared with Passenger Vehicles*, 10 INJ. PREVENTION 154, 158 (2004) (light-truck vehicles "were associated with 3.0 times higher risk of severe injuries in comparison with passenger vehicles").

<sup>366</sup> See *id.* ("Taller vehicles like LTVs hit a pedestrian above his/her center of gravity . . . [T]he pedestrian will not wrap around the vehicle, but will project forward, and it is more probable that he/she will be run over by the vehicle."). See also Michelle J. White, *The "Arms Race" on American Roads: The Effect of Sport Utility Vehicles and Pickup Trucks on Traffic Safety*, 47 J.L. & ECON. 333, 334 (2004).

<sup>367</sup> Eric D. Lawrence et al., *Death on Foot: Pedestrian Fatalities Skyrocket in U.S.*, DETROIT FREE PRESS (May 8, 2018, 12:01 AM), <https://www.freep.com/story/news/2018/05/08/pedestrian-deaths-skyrocket-suvs-share-blame/585379002>.

<sup>368</sup> Camila Domonoske, *Pedestrian Fatalities Remain at 25-Year High for Second Year in a Row*, NPR (Feb. 28, 2018, 5:55 PM), <https://www.npr.org/sections/thetwo-way/2018/02/28/589453431/pedestrian-fatalities-remain-at-25-year-high-for-second-year-in-a-row>.

ment indifference and hostility, the lack of criminal sanctions, and misleading or inaccurate media coverage blaming victims for their own deaths.

### b. The Rebound Effect

Though they raise the cost of vehicle production and thus car prices, fuel economy standards lower the marginal cost of driving.<sup>370</sup> When drivers get better mileage, they drive more—a phenomenon known as the rebound effect. This negates some of the environmental benefits achieved by higher MPG averages. The CAFE regulation estimates that ten percent of the benefits from higher MPG will be negated as a result of the rebound effect.<sup>371</sup> This may not sound like much: an increase from twenty to thirty MPG, for example, would result in one additional mile being driven for every gallon of gas consumed. In the aggregate, however, an estimated 500 to 1270 lives are lost every year due solely to the rebound effect.<sup>372</sup> Higher CAFE standards thus appear to trade off a reduction in pollution for lives lost in crashes. While defensible, this reflects an absence of vision on the part of regulators to reduce vehicle miles traveled rather than simply increase fuel economy.

### c. PM<sub>2.5</sub>, PM<sub>10</sub> & Other Toxins

By targeting fuel economy, environmental regulations narrowly target tailpipe emissions and driver expenses, leaving untouched many deadly sources of automotive toxins.

Particulate matter (PM), a significant pollutant, is often referred to as PM<sub>2.5</sub> (PM less than 2.5 micrometers in diameter) or PM<sub>10</sub> (PM

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<sup>369</sup> Aaron Short, *Cyclist and Pedestrian Deaths Skyrocket in 2018 as Motorists Stay Safe*, STREETSBLOG USA, (June 18, 2019), <https://usa.streetsblog.org/2019/06/18/cyclist-and-pedestrian-deaths-skyrocket-in-2018-as-motorists-stay-safe>.

<sup>370</sup> See 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, 77 Fed. Reg. at 62,633 (explaining that fuel savings from more efficient vehicles are expected to offset higher vehicle costs).

<sup>371</sup> *Id.* at 62,716.

<sup>372</sup> See Brad Plumer, *Trump Officials Link Fuel Economy Rules to Deadly Crashes. Experts Are Skeptical*, N.Y. TIMES (Aug. 2, 2018), <https://www.nytimes.com/2018/08/02/climate/trump-fuel-economy.html> (noting the Trump administration argument that “scrapping the Obama-era standards after 2021 would prevent more than 12,700 deaths from road accidents over the following decade, compared with keeping the standards in place” and would have a rebound effect 0.2 percent more driving for each additional MPG of fuel efficiency). For an overview of the question of magnitude, see Lorna A. Greening et al., *Energy Efficiency and Consumption — The Rebound Effect — A Survey*, 28 ENERGY POL’Y 389, 398 (2000) (canvassing studies on the size of the fuel efficiency rebound effect).

less than 10 micrometers in diameter).<sup>373</sup> In the United States alone, the fine PM<sub>2.5</sub> kills 15,000 people a year, or one person every thirty-five minutes.<sup>374</sup> Many emissions—such as PM<sub>2.5</sub> and its coarser cousin, PM<sub>10</sub>—come from diesel trucks and brake and tire wear,<sup>375</sup> and are thus left unregulated or mostly unregulated by CAFE standards. In fact, the rebound effect may even raise PM emissions slightly.

A recent study indicates that ten to thirty percent of rubber from tires is lost as they wear, leaving behind particles in roadways and, critically, in the air.<sup>376</sup> Newer technology, such as the disc brake—which aerosolizes brake particles rather than retaining them inside the drum—has aggravated these problems.<sup>377</sup> Non-exhaust emissions such as these “currently account for more than 90% of PM<sub>10</sub> and 85% of PM<sub>2.5</sub> emissions from traffic.”<sup>378</sup>

These harms have not been researched nearly as thoroughly as exhaust pollutants.<sup>379</sup> In addition to the state of comparative ignorance on the subject, no regulation currently exists in the United States to combat the problem of non-exhaust pollutants.<sup>380</sup> Some tech-

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<sup>373</sup> Flemming R. Cassee et al., *Particulate Matter Beyond Mass: Recent Health Evidence on the Role of Fractions, Chemical Constituents and Sources of Emission*, 25 INHALATION TOXICOLOGY 802, 803 (2013).

<sup>374</sup> See Manny Fernandez, *A Study Links Trucks' Exhaust to Bronx Schoolchildren's Asthma*, N.Y. TIMES (Oct. 29, 2006), <https://www.nytimes.com/2006/10/29/nyregion/29asthma.html>. Particulate matter is well documented as having significant adverse health effects. Cassee et al., *supra* note 373, at 802.

<sup>375</sup> See Fernandez, *supra* note 374; Gary Fuller, *The Polluting Effect of Wear and Tear in Brakes and Tyres*, GUARDIAN (Sept. 11, 2016, 4:30 PM), <https://www.theguardian.com/environment/2016/sep/11/polluting-effect-wear-brakes-tyres-pollutionwatch>.

<sup>376</sup> Theodoros Grigoratos & Giorgio Martini, JRC Science & Policy Report: Non-Exhaust Traffic Related Emissions. Brake and Tyre Wear PM, EUR 26684 EN (2014).

<sup>377</sup> Hiroyuki Hagino et al., *Laboratory Testing of Airborne Brake Wear Particle Emissions Using a Dynamometer System Under Urban City Driving Cycles*, 131 ATMOSPHERIC ENV'T 269 (2016).

<sup>378</sup> Victor R.J.H. Timmers & Peter A.J. Achten, *Non-Exhaust PM Emissions From Electric Vehicles*, 134 ATMOSPHERIC ENV'T 10, 14 (2016).

<sup>379</sup> See Elio Padoan & Fulvio Amato, *Vehicle Non-Exhaust Emissions: Impact on Air Quality*, in NON-EXHAUST EMISSIONS: AN URBAN AIR QUALITY PROBLEM FOR PUBLIC HEALTH 21, 22 (Fulvio Amato ed., 2018) (noting the small number of studies dedicated to particle matter health problems arising from non-exhaust pollutants); see also Theodoros Grigoratos & Giorgio Martini, *Brake Wear Particle Emissions: A Review*, 22 ENV'T SCI. POLLUTION RES. INST. 2491, 2500 (2015) (“Exhaust and non-exhaust sources contribute almost equally to total traffic-related PM<sub>10</sub> emissions. Brake wear has been recognized as one of the most important non-exhaust traffic-related source [sic], with its relative contribution to non-exhaust traffic-related emissions ranging between 16 and 55% and to total traffic-related PM<sub>10</sub> emissions between 11 and 21%.”).

<sup>380</sup> Tire manufacturing is the only source through which quality or pollution appears to be regulated. See generally 40 C.F.R. §§ 63.5980–6090 (2019) (providing regulations such as emission limits for tire cord production and puncture sealant application, but nothing beyond the manufacturing of tires); see also NON-EXHAUST EMISSIONS AN URBAN AIR QUALITY PROBLEM FOR PUBLIC HEALTH (Fulvio Amato ed., 2018) (“While motor exhaust

nologies that promise to reduce exhaust pollutants, such as electric vehicles, will continue to create dangerous particle matter pollutants from non-exhaust sources. Regardless of how they are powered, cars create significant levels of air pollution from “road dust that originates from the wear of road surfaces, brakes, clutches and tires.”<sup>381</sup>

#### d. Roadbuilding, Auto and Tire Manufacturing, and Other Overlooked Sources of Pollutants Necessitated by Cars

Finally, in addition to the exhaust and non-exhaust emissions generated by automobiles themselves, non-operational emissions from the manufacturing and supplychain processes remain substantial. Taken together, non-operational sources can eclipse operational sources of greenhouse gas emissions over the life of a vehicle.<sup>382</sup> Our laws that regulate these activities permit them to carry on without internalizing many of their costs. While these laws may lie a bit outside the traditional conception of a subsidy,<sup>383</sup> at a minimum, they can be understood as decisions not to tax for externalities.<sup>384</sup>

Electric vehicles have manufacturing emissions that are more than one and a half times those of traditional gas powered vehicles.<sup>385</sup>

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emissions have been successfully reduced by means of regulation, non-exhaust emissions are currently uncontrolled and their importance is destined to increase and become the dominant urban source of particle matter by 2020.”).

<sup>381</sup> Cassee et al., *supra* note 373, at 806.

<sup>382</sup> See Mikhail V. Chester & Arpad Horvath, *Environmental Assessment of Passenger Transportation Should Include Infrastructure and Supply Chains*, 4 ENV’T RES. LETTERS 1, 7 (2009).

<sup>383</sup> My thanks to Roger Noll, Holger Spemann, and other economists for pushing on the question whether laws like these meet the traditional definition of a subsidy. As discussed in the Introduction, efforts to identify and measure subsidies depend on the selection of a plausible base case that would obtain absent a subsidy. If one chooses as a base case a laissez-faire system (such as obtained in the nineteenth century) where pollution in general is *not* substantially regulated, then the lack of regulation of the manufacturing of cars and their infrastructure is not “subsidized” relative to other activities. However, if one instead takes as a base case a system where (1) vehicle operating emissions *are* regulated substantially (if imperfectly) and (2) other activities are likewise regulated—in other words, the system we have today—then a choice to maintain low levels of regulation on these activities seems closer to the term. It bears at least a strong family resemblance to a subsidy. And of course, it isn’t added to a vacuum; it joins the feedback loop of the other legal structures detailed in this Article in intensifying reliance on the automobile.

<sup>384</sup> Taxes, for example those on cigarettes, that are designed in part to address externalities are known as Pigouvian taxes. See *Externalities: Pigouvian Taxes*, THE ECONOMIST (Aug. 19, 2017), <https://www.economist.com/economics-brief/2017/08/19/pigouvian-taxes> (discussing “idling cars [that] spew fumes into the air, polluting the atmosphere for everyone” as “a problem to be solved” through the price mechanism, by incentivizing cost internalization); see generally ARTHUR CECIL PIGOU, *THE ECONOMICS OF WELFARE* (1920).

<sup>385</sup> See Press Release, Low Carbon Vehicle P’ship, LowCVP Study Demonstrates the Increasing Importance of Measuring Whole Life Carbon Emissions to Compare Vehicle

“For a battery EV, 46% of its total carbon footprint is generated at the factory, before it has travelled a single mile.”<sup>386</sup> Thus, some benefits of reducing exhaust emissions via electric power are offset by other emissions sources further up the chain.

The infrastructure required to support an economy and society that require vehicle use adds to the overall climate impact of automobiles. Cement production, for example, “is one of the most energy-intensive and . . . [carbon-emitting] manufacturing processes in the world.”<sup>387</sup> More broadly, repairing and expanding roads is a costly and labor intensive task for states.<sup>388</sup> Between 2000 and 2013, the United States added an average of 33,217 lane-miles per year.<sup>389</sup> The emissions from this huge undertaking have not received as much attention as exhaust emissions.<sup>390</sup> These come in five separate stages: “materials, construction, use, maintenance, and end of life.”<sup>391</sup>

An additional source of non-exhaust emissions is the environmental cost stemming from the “production, storage, and transport of crude oil and gasoline,” which emit a variety of toxins.<sup>392</sup> Cumulatively, these sources may constitute an even larger percentage of total emissions related to automobiles than tailpipe emissions.<sup>393</sup> U.S. oil refineries alone produce over 170 million metric tons of greenhouse gases each year.<sup>394</sup> Using the EPA’s conservative valuation of the

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Performance 2 (June 8, 2011), [https://www.lowcvp.org.uk/assets/pressreleases/LowCVP\\_Lifecycle\\_Study\\_June2011.pdf](https://www.lowcvp.org.uk/assets/pressreleases/LowCVP_Lifecycle_Study_June2011.pdf) (citing embedded production emissions of 5.6tCO<sub>2</sub>e for ICE cars and 8.8tCO<sub>2</sub>e for EVs, “43% of which arise from the battery”).

<sup>386</sup> *Id.* at 1.

<sup>387</sup> ALI HASANBEIGI & CECILIA SPRINGER, GLOB. EFFICIENCY INTELLIGENCE, CALIFORNIA’S CEMENT INDUSTRY: FAILING THE CLIMATE CHALLENGE (2019), <https://buyclean.org/media/2019/04/CA-Cement-benchmarking-report-Rev-Final.pdf>.

<sup>388</sup> See Nicholas J. Santero & Arpad Horvath, *Global Warming Potential of Pavements*, 4 ENVTL. RES. LETTERS 1, 1 (2009) (“Annually, nearly \$150 billion and 320 million tonnes of raw materials are invested into the construction, rehabilitation, and maintenance of pavements in the United States. This is for a network that covers over eight million lane-miles while supporting three trillion vehicle-miles each year.”).

<sup>389</sup> *Highway Statistics 2017*, U.S. DEPT OF TRANSP., FED. HIGHWAY ADMIN., <https://www.fhwa.dot.gov/policyinformation/statistics/2017/hm260.cfm> (last modified Nov. 28, 2018).

<sup>390</sup> See Santero & Horvath, *supra* note 388, at 1 (“However, given the vast span of this infrastructure system, surprisingly little is known about its impact on the environment.”).

<sup>391</sup> *Id.* at 2.

<sup>392</sup> Mark A. DeLuchi, *Emissions from the Production, Storage, and Transport of Crude Oil and Gasoline*, 43 J. AIR WASTE MGMT. ASS’N 1486, 1486 (1993).

<sup>393</sup> *Id.* at 1495 (“In summary, this analysis indicates that the production, storage, and transport of gasoline is and will be a large emissions source — in some cases, larger than the tailpipes of new vehicles.”).

<sup>394</sup> *Greenhouse Gas Reporting Program, GHGRP Refineries*, U.S. ENVT. PROT. AGENCY, <https://www.epa.gov/ghgreporting/ghgrp-refineries> (last updated Sept. 30, 2019) (reporting CO<sub>2</sub>e emissions of levels above 172 million tons per year from 2011–2017, inclusive).

social cost of carbon, refinery emissions generate over \$6 billion in social costs per year.

## 2. Vehicle Safety & Design Regulation

U.S. vehicle-safety regulation only considers the safety of an automobile's own occupants, termed "crashworthiness."<sup>395</sup> This narrow emphasis has, unsurprisingly, played a role in the escalation of pedestrian deaths, which by 2018 had surged fifty percent since 2009 to the highest number since 1990.<sup>396</sup>

The U.S. insurance industry has its own standards, but they are similarly limited. Safety-rating services, like the Insurance Institute for Highway Safety, only assess the crashworthiness of vehicles for occupants of the vehicle being rated, again ignoring potential impacts on pedestrians and other vehicles.<sup>397</sup> A public-minded definition of safety would require assessment of weight, size, design, and other factors known to correlate with the probability and severity of crashes, including their impact on third parties.

The United Nations has issued a regulation designed to protect pedestrians,<sup>398</sup> which had been adopted by forty-four countries—many of them our peers in Europe—as of 2015.<sup>399</sup> A rule proposed in 2015 by the U.S. vehicle safety regulator to incorporate "pedestrian

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<sup>395</sup> Angie Schmitt, *While Other Countries Mandate Safer Car Designs for Pedestrians, America Does Nothing*, STREETS BLOG USA (Dec. 7, 2017), <https://usa.streetsblog.org/2017/12/07/while-other-countries-mandate-safer-car-designs-for-pedestrians-america-does-nothing>. See generally 49 C.F.R. § 571 (2019) (lacking any vehicle design regulations that directly address pedestrian safety).

<sup>396</sup> GOVERNORS HIGHWAY SAFETY ASS'N, PEDESTRIAN TRAFFIC FATALITIES BY STATE—2018 PRELIMINARY DATA 1, 3 (2019), [https://www.ghsa.org/sites/default/files/2019-02/FINAL\\_Pedestrians19.pdf](https://www.ghsa.org/sites/default/files/2019-02/FINAL_Pedestrians19.pdf). These preliminary data showed 2018 pedestrian deaths at 6227. *Id.* Subsequent data put the figure at 6283, plus an additional 857 people killed by motorists while riding their bikes. NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., U.S. DEP'T OF TRANSP., TRAFFIC SAFETY FACTS RESEARCH NOTE, 2018 FATAL MOTOR VEHICLE CRASHES: OVERVIEW 2 (2019), <https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812826>.

<sup>397</sup> See *Vehicle Ratings*, INS. INST. HIGHWAY SAFETY-HIGHWAY LOSS DATA INST., <https://www.iihs.org/iihs/ratings> (last visited Nov. 2, 2019). In 2019, IIHS published the results of its first test of pedestrian crash-avoidance technology, rating eleven SUVs. *Most Small SUVs Earn Advanced or Superior Ratings for Pedestrian Crash Prevention*, STATUS REP. (Ins. Inst. for Highway Safety-Highway Loss Data Inst., Arlington, Va.), Feb. 21, 2019, at 2, <https://www.iihs.org/api/datasets/document/status-report/pdf/54/2>.

<sup>398</sup> Econ. Comm'n for Eur., *Proposal to Develop a Global Technical Regulation Concerning the Protection of Pedestrians and Other Vulnerable Road Users in Collision with Vehicles*, U.N. Doc. 180/Add.9/Appendix 1 (Jan. 26, 2009).

<sup>399</sup> See WORLD HEALTH ORG., GLOBAL STATUS REPORT ON ROAD SAFETY 49 (2015) [hereinafter WHO, GLOBAL STATUS REPORT ON ROAD SAFETY], [https://www.who.int/violence\\_injury\\_prevention/road\\_safety\\_status/2015/Section\\_3\\_GSRSS2015.pdf](https://www.who.int/violence_injury_prevention/road_safety_status/2015/Section_3_GSRSS2015.pdf).

crashworthiness protection” into its safety standards<sup>400</sup> has not advanced during the Donald Trump administration.<sup>401</sup> During the intervening years, while aware of the mounting dangers posed by SUVs and trucks and their surging market share, that regulator, NHTSA, focused its public-facing pedestrian safety campaign on scolding walkers for using cellular phones, admonishing them to “be predictable,” and warning against the perils of wearing hats while crossing the street.<sup>402</sup> Meanwhile, Tesla has announced it will be introducing a “Cybertruck” that likely would fail safety standards in the European Union because of the dangers it poses to pedestrians<sup>403</sup> but NHTSA does not appear to be moving to adopt any measures to protect Americans.

A report by the World Health Organization shows that the United States is a pariah on pedestrian safety.<sup>404</sup> European regulation of vehicle design expressly considers survivability for pedestrians involved in head-on collisions with automobiles.<sup>405</sup> Design modalities encouraged by the regulation include softer bumpers, hood design that is responsive to pedestrian head collision, and the removal of structures that are more rigid than they need to be; these are meant to reduce the severity of inevitable pedestrian impacts by making the car exterior more forgiving without reducing its crashworthiness for its occupants.<sup>406</sup>

These pedestrian-centric design specifications are important for two reasons. First, they directly enhance systemic safety, mitigating a particularly dangerous class of risk. This risk is stochastic but certain: some number of vehicle-pedestrian collisions are inevitable. Absent appropriate attention, they will be particularly grave because human beings are not biomechanically built to withstand impacts from multi-ton metal machines at speed. Second, by requiring accommodation for the safety of pedestrians as well as car occupants, these rules address the moral hazard problem. The U.S. system, by contrast, likely increases risk compensation of both occupants and non-occupants but contains no offsetting effect for non-occupants.

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<sup>400</sup> New Car Assessment Program, 80 Fed. Reg. 78,522, 78,523 (proposed Dec. 16, 2015); *see also id.* at 78,547 (describing the pedestrian crashworthiness tests proposal).

<sup>401</sup> See Schmitt, *supra* note 395.

<sup>402</sup> Angie Schmitt, *6 Times NHTSA Scolded Pedestrians When It Knew SUVs Were Killing Them*, STREETSBLOG USA (July 2, 2018), <https://usa.streetsblog.org/2018/07/02/6-times-nhtsa-scolded-pedestrians-when-it-knew-suvs-were-killing-them>.

<sup>403</sup> Carlton Reid, *Tesla Cybertruck Not Street-Legal in EU*, FORBES (Dec. 16, 2019), <https://www.forbes.com/sites/carltonreid/2019/12/16/tesla-cybertruck-not-street-legal-in-eu>.

<sup>404</sup> WHO, GLOBAL STATUS REPORT ON ROAD SAFETY, *supra* note 399, at 48–49.

<sup>405</sup> See Schmitt, *supra* note 395.

<sup>406</sup> WHO, GLOBAL STATUS REPORT ON ROAD SAFETY, *supra* note 399, at 48–49.

Originally developed in the insurance industry, the concept of risk compensation or moral hazard describes “the failure of the insured to take cost-justified precautions once he has shifted the risk” to the insurance company.<sup>407</sup> In other words, “if you have fire insurance, you’ll be less careful about smoking on the couch.”<sup>408</sup> Seat belts are the classic example. They protect occupants, but also make collisions more likely by creating a sense of safety. Early studies suggested that moral hazard at least partly offsets the safety gains from some auto safety regulations.<sup>409</sup> Later studies concluded that auto safety regulations had reduced risk to motorists, but did not take into account effects on vulnerable road users.<sup>410</sup> This omission appears to be common; some studies explicitly exclude such effects.<sup>411</sup> The predominant focus on motorist impacts makes it difficult to assess the relationship between motorist behavior and vulnerable road user risk.

Next, as discussed *supra*, the special treatment of tall, heavy passenger vehicles like SUVs, vans, minivans, and pickup trucks under CAFE standards incentivizes their production.<sup>412</sup> Such vehicles now constitute sixty-nine percent of the new-car market and kill pedestrians at a far higher rate than other vehicles.<sup>413</sup> Vehicle safety standards do not take into account the effect on pedestrians and other third parties, which has for over fifteen years been shown to be immensely consequential.<sup>414</sup>

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<sup>407</sup> DAVID D. FRIEDMAN, *LAW'S ORDER: WHAT ECONOMICS HAS TO DO WITH LAW AND WHY IT MATTERS* 66 (2000). For a discussion of the evolution of moral hazard as a term, see generally David Rowell & Luke B. Connelly, *A History of the Term "Moral Hazard,"* 79 J. RISK & INS. 1051 (2012).

<sup>408</sup> David Leonhardt, *When a Safety Net Can Lead to Risky Behavior*, N.Y. TIMES (Mar. 18, 2008), <https://www.nytimes.com/2008/03/18/business/18hazard.html> (quoting economist N. Gregory Mankiw).

<sup>409</sup> See, e.g., Sam Peltzman, *The Effects of Automobile Safety Regulation*, 83 J. POL. ECON. 677, 717 (1975) (claiming that automobile safety regulation made no impact on highway fatalities).

<sup>410</sup> See, e.g., Steven D. Levitt & Jack Porter, *Sample Selection in the Estimation of Air Bag and Seat Belt Effectiveness*, 83 REV. ECON. & STAT. 603, 603 (2001) (providing statistics on reduced highway fatalities following increased seatbelt usage); Kristen Underhill, *Risk-Taking and Rulemaking: Addressing Risk Compensation Behavior Through FDA Regulation of Prescription Drugs*, 30 YALE J. REG. 377, 386–88 (2013) (criticizing the assumptions of those skeptical of auto regulation's efficacy).

<sup>411</sup> For example, one such study notes that data from crashes where the only people killed were walking or riding bicycles or motorcycles were “dropped because such accidents are likely to pose little risk to vehicle occupants.” Levitt & Porter, *supra* note 410, at 608.

<sup>412</sup> See *supra* Section III.A.1.

<sup>413</sup> *Id.*

<sup>414</sup> See, e.g., Devon E. Lefler & Hampton C. Gabler, *The Fatality and Injury Risk of Light Truck Impacts with Pedestrians in the United States*, 36 ACCIDENT ANALYSIS & PREVENTION 295, 297–98 (2004) (finding that, between 1995 and 2000, pedestrians were about twice as likely to be killed when struck by large SUVs as by minivans or cars).

When an adult pedestrian is hit by a passenger car, “the person is run not over but under, sliding over the hood and windshield.”<sup>415</sup> By contrast, “[s]omething much more dangerous happens when a pedestrian is hit by the flat, rigid front of an SUV: The body is punched away from, then under the vehicle.”<sup>416</sup> The consequences for the young are particularly grave. Children aged five to nine, for example, are four times as likely to die when struck by an SUV or pickup versus a car.<sup>417</sup>

SUV-to-car crashes are also far graver. “In frontal crashes, SUVs tend to ride over shorter passenger vehicles . . . crushing the occupant of the passenger car.”<sup>418</sup> In head-on collisions with SUVs, drivers of passenger cars are between four and ten times more likely to die than in collisions with other passenger cars.<sup>419</sup> U.S. government safety standards do not currently account for vehicle-type interaction in crashes, a variable that is far more relevant than crash ratings.<sup>420</sup>

### 3. Insurance Law

The law imposes formal responsibility for harm on the agent who causes it, in a car as in other contexts. Almost every state seeks to make this obligation more effective by making auto insurance compul-

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<sup>415</sup> Patrick Cain, *Killer Grilles*, MOTHER JONES (Aug. 9, 2000), <https://www.motherjones.com/politics/2000/08/killer-grilles>.

<sup>416</sup> *Id.*

<sup>417</sup> New Car Assessment Program Notice, 80 Fed. Reg. 78521, 78547 (U.S. Dep’t of Transp., Nat’l Highway Traffic Safety Admin. Dec. 16, 2015) (citing Charles DiMaggio et al., *The Association of Light Trucks and Vans with Pediatric Pedestrian Deaths*, 13 INT’L J. INJURY CONTROL & SAFETY PROMOTION 95 (2006)).

<sup>418</sup> See Tristin Hopper, *Big Cars Kill: ‘Monster’ Vehicles May Make Canadians Feel Safer, but They’re More Likely to Cause Fatal Collisions*, NAT’L POST (last updated Aug. 7, 2015, 11:15 AM), <https://nationalpost.com/news/canada/larger-vehicles-may-make-canadians-feel-safe-on-the-road-but-heavier-cars-are-proven-to-cause-more-fatal-collisions> (quoting Professor of Emergency Medicine Dietrich Jehle).

<sup>419</sup> *Passenger Car Drivers Are More Likely to Die in Crashes with SUVs, Regardless of Crash Ratings*, SCIENCE DAILY (May 14, 2013), <https://www.sciencedaily.com/releases/2013/05/130514135417.htm> (reporting results of a study by the University of Buffalo).

<sup>420</sup> *Id.* Another category not regulated in the United States is aftermarket accessories such as bull bars. See Angie Schmitt, *Outlawed Abroad, Killer “Bull Bars” Are the Hot Fashion Accessory for Police Departments*, STREETSBLOG USA (Aug. 2, 2018), <https://usa.streetsblog.org/2018/08/02/outlawed-abroad-killer-bull-bars-are-the-hot-fashion-accessory-for-police-departments>. Researchers have concluded that bull bars “increase the severity of injuries to vulnerable road users,” especially children, and result in higher deaths from traffic crashes. See Ediriweera Desapriya et al., *Bull Bars and Vulnerable Road Users*, 13 TRAFFIC INJ. PREVENTION 86, 87–90 (2012). As far as I have been able to discover based on my research, injuries and deaths attributable to bull bars are not tracked in the United States.

sory.<sup>421</sup> This formulation, which varies in its particulars state to state,<sup>422</sup> subsidizes driving in two ways.

The first is via selective cost-spreading and moral hazard.<sup>423</sup> The basic function of insurance is to distribute risk among the insured population through the payment of premiums, creating a pool from which the claims of individual insureds can be drawn when they experience a triggering event. By lowering the cost of mistakes and misfortune, this can be expected to generate a higher level of the covered activity among the insured and probably a higher risk level in that activity (because of the vigilance decrement)<sup>424</sup> than would otherwise obtain. As with seat belts, this observation does not imply that the insurance requirement is harmful on net (which is almost certainly not the case). However, one likely output of our insurance system—and the moral hazard it creates—is more driving.

Crashes become more common with more driving, and motorists already overestimate their own competence behind the wheel. Per one study, ninety-three percent of drivers believed themselves to be more skilled than the median driver.<sup>425</sup> Accordingly, it is unlikely that motorists consider the marginal cost of insuring their driving, even as it affects their own bottom line (more driving raises the likelihood of crashes, and thus rate hikes). It seems less likely still that they consider impacts on pedestrians, who not only experience additional harms but see little offsetting benefit from additional driving.

Second, the design of state automobile insurance schemes systematically harms vulnerable road users. The amount of insurance required varies by state and is typically broken down into various categories of harm.<sup>426</sup> While most states' mandatory schemes formally prioritize third parties—pedestrians, motorists, and property owners who are harmed by the insured's actions—no state requires a high enough level of coverage to assure anything approaching adequate reimbursement and compensation to vulnerable road users seriously injured by motorists.

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<sup>421</sup> See Alma Cohen & Rajeev Dehejia, *The Effect of Automobile Insurance and Accident Liability Laws on Traffic Fatalities*, 47 J.L. & ECON. 357, 361 (2004) (noting that by 1997, forty-five states had compulsory motor vehicle insurance requirements).

<sup>422</sup> See KENNETH S. ABRAHAM & DANIEL SCHWARCZ, INSURANCE LAW AND REGULATION 656 (6th ed. 2015).

<sup>423</sup> See *supra* Section III.A.2.

<sup>424</sup> See *supra* note 21 and accompanying text.

<sup>425</sup> Ola Svenson, *Are We All Less Risky and More Skillful than Our Fellow Drivers?*, 47 ACTA PSYCHOLOGICA 143, 146 (1981).

<sup>426</sup> See *Automobile Financial Responsibility Laws by State*, INS. INFO. INST., <https://www.iii.org/automobile-financial-responsibility-laws-by-state> (last visited Nov. 2, 2019) (providing table of car insurance requirements by states, as of July 2018).

One particularly hazardous type of scheme is no-fault insurance. Such models, which gained traction in the 1970s, seek to regulate driving as a systemic source of risk by preempting some tort claims and their attendant determinations of fault and moving “the burden of providing traffic victims’ basic protection . . . [to] motorists as a cost of driving.”<sup>427</sup> As of 2015, twelve states and Puerto Rico used no-fault car insurance.<sup>428</sup>

Researchers have identified a substantial moral hazard effect of no-fault schemes,<sup>429</sup> with some studies finding an associated ten-percent increase in fatality rates.<sup>430</sup> Since vulnerable road users are at greatest risk from increases in driving and dangerous driving, moral hazard resulting from no-fault can be expected to imperil them disproportionately.

State insurance minimums ignore the inherent vulnerability of people unprotected by steel frames, seat belts, and airbags to impact with multi-ton machines traveling at high speed. The median and most common minimum amount of bodily injury coverage required is \$25,000 while the most stringent is \$50,000,<sup>431</sup> and, in Florida and New Hampshire, the minimum is zero.<sup>432</sup> In three of the nation’s five most populous states—California, Florida, and Pennsylvania, with nearly seventy-five million residents among them<sup>433</sup>—the mandatory level of insurance for bodily injury is unusually low, between zero and \$15,000.<sup>434</sup> However, even the most stringent rules do not appear to be designed with pedestrians in mind. A payout of \$50,000 is unlikely to compensate for hospital bills, lost wages, pain and suffering, and other damages inflicted on an unprotected pedestrian by a vehicle. The surge in pedestrian deaths in an SUV- and distraction-heavy environment has exacerbated this disparity.

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<sup>427</sup> Nora Freeman Engstrom, *An Alternative Explanation for No-Fault’s “Demise,”* 61 DEPAUL L. REV. 303, 318 (2012). No-fault schemes gained popularity in the 1970s, when every state enacted or considered them. *See id.* at 306.

<sup>428</sup> ABRAHAM & SCHWARCZ, *supra* note 422, at 711.

<sup>429</sup> See Elisabeth M. Landes, *Insurance, Liability, and Accidents: A Theoretical and Empirical Investigation of the Effect of No-Fault Accidents*, 25 J.L. & ECON. 49, 65 (1982) (“[S]tates which adopted no-fault between 1971 and 1975 suffered between 376 and 1,009 additional fatal automobile accidents during the years the laws were in effect as a result.”).

<sup>430</sup> See Cohen & Dehejia, *supra* note 421, at 360 (“[N]o-fault limitations on liability do increase fatalities . . . by about 10 percent.”).

<sup>431</sup> *Automobile Financial Responsibility Laws by State*, *supra* note 426.

<sup>432</sup> *Id.* (showing that Florida does not require bodily injury coverage at all, and New Hampshire does not even require insurance).

<sup>433</sup> See Press Release, U.S. Census Bureau, Nevada and Idaho Are the Nation’s Fastest-Growing States (Dec. 19, 2018), <https://www.census.gov/newsroom/press-releases/2018/estimates-national-state.html>.

<sup>434</sup> *Automobile Financial Responsibility Laws by State*, *supra* note 426.

#### 4. Tax Law

Tax law at the federal and state level subsidizes driving in at least three ways. First, the mortgage interest deduction promotes sprawl, which requires and thus lowers the relative price of driving, since it renders other modes of transportation impractical. Second, it effects direct fiscal transfers to owners of certain types of cars, with no similar transfer program to subsidize the mobility of people who walk, bike, or take transit. And third, it provides tax breaks for commuting by car that are superior to their counterparts for rapid transit, as well as for walking and biking, for which no tax benefit is provided.

##### a. Mortgage Interest Deduction

The tax code allows homeowners to deduct interest they pay every year on their mortgages from federal and state income tax.<sup>435</sup> This benefit “encourage[s] and subsidize[s]” homeownership.<sup>436</sup> While it is facially neutral with regard to home type and density,<sup>437</sup> in practice the effect of this incentive is to promote driving.

Once filtered through the commands of land use restrictions, the mortgage interest deduction helps generate low-density housing in the form of sprawl,<sup>438</sup> which “extends beyond traditional city boundaries.”<sup>439</sup> Specifically, the mortgage interest deduction intersects with laws that outlaw dense homebuilding and mixed uses of land in most of the country, even in large cities.<sup>440</sup>

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<sup>435</sup> See *WSJ Tax Guide 2019: Mortgage-Interest Deduction*, WALL ST. J. (Feb. 15, 2019, 8:00 AM), <https://www.wsj.com/articles/wsjs-tax-guide-2019-mortgage-interest-deduction-11550235600>; see also Rebecca N. Morrow, *Billions of Tax Dollars Spent Inflating the Housing Bubble: How and Why the Mortgage Interest Deduction Failed*, 17 FORDHAM J. CORP. & FIN. L. 751, 755 (2012) (explaining the long history of the mortgage interest deduction). Following the enactment of the 2017 Tax Cut and Jobs Act, new homeowners can deduct interest payments on mortgages up to \$750,000, which constitutes a lowering of the ceiling from \$1,000,000. *WSJ Tax Guide 2019: Mortgage-Interest Deduction*, *supra*.

<sup>436</sup> See David Schleicher, *Stuck! The Law and Economics of Residential Stagnation*, 127 YALE L.J. 78, 127 (2017) (detailing several federal policies that incentivize home ownership).

<sup>437</sup> See Roberta F. Mann, *On the Road Again: How Tax Policy Drives Transportation Choice*, 24 VA. TAX REV. 587, 647–48 (2005).

<sup>438</sup> See *id.* (describing how “[d]eciding whether the home mortgage interest deduction encouraged sprawl and therefore road construction or whether subsidized road construction facilitated sprawl, which was then enabled by the home mortgage interest deduction, presents the classic, and unanswerable, chicken and egg problem”).

<sup>439</sup> Roberta F. Mann, *The (Not So) Little House on the Prairie: The Hidden Costs of the Home Mortgage Interest Deduction*, 32 ARIZ. ST. L.J. 1347, 1370 (2000).

<sup>440</sup> See *supra* Section II.C.

For these reasons, “research indicates the home mortgage interest deduction creates affirmative incentives for sprawl development.”<sup>441</sup> The built environment in suburban and exurban areas characterized by sprawl “virtually requires the use of the private automobile.”<sup>442</sup> This is hardly a matter of convenience; rather, because low-density development is the only type permitted by law, it immiserates and endangers those who would try to walk, and often occurs in areas where public transit service is weak to nonexistent.<sup>443</sup> The ubiquity of these conditions and their anti-network effects and collective character essentially foreclose any chance of achieving a Tiebout equilibrium.

Consumer preferences of course play a role as well—it’s no secret Americans favor “large, single family homes”<sup>444</sup>—but this data point should be interpreted in light of the above constraints rather than presumed inelastic. It may also no longer be as accurate as it once was. After decades of urban decline, demand for living in relatively denser areas, where not every trip requires driving, has been surging in many parts of the country this century. In 2014, after years of gains, median home values in cities overtook their suburban counterparts, and on a per-square-foot basis the premium in urban over suburban rents eclipses seventeen percent.<sup>445</sup> Urban land values are also extremely high in absolute terms, and increasing.<sup>446</sup>

These trends may yet reverse, and in any event many millions of Americans would opt for a car-based suburban lifestyle even if land use law did not distort the market for land use. However, under blue-sky conditions, one would expect demand—juiced further by the mortgage interest deduction—to stimulate more homebuilding in cities, but, instead, zoning reroutes some of that demand to suburban

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<sup>441</sup> Mann, *supra* note 439, at 1389; see William R. Emmons, *Fewer Tax Breaks for Homeowners: A Good Thing?*, FED. RES. BANK ST. LOUIS: HOUS. MKT. PERSPECTIVES (Mar. 20, 2018), <https://www.stlouisfed.org/publications/housing-market-perspectives/2018/fewer-tax-breaks-for-homeowners>.

<sup>442</sup> Mann, *supra* note 437, at 647.

<sup>443</sup> See *supra* Part I; Mann, *supra* note 439, at 1370–71.

<sup>444</sup> Mann, *supra* note 437, at 647.

<sup>445</sup> Cody Fuller, *Rockin’ the Suburbs: Home Values and Rents in Urban, Suburban and Rural Areas*, ZILLOW (Jan. 28, 2016), <https://www.zillow.com/research/urban-suburban-rural-values-rents-11714>.

<sup>446</sup> See Richard Florida, *The Staggering Value of Urban Land*, CITYLAB (Nov. 2, 2017), <https://www.citylab.com/equity/2017/11/the-staggering-value-of-urban-land/544706> (noting that land in city centers is now worth approximately four times land ten miles away or more and that an acre of land in New York City is worth “almost 1,400 times more than the same in many small Rust Belt and Sunbelt metros”).

and exurban areas, distorting the signal that might otherwise be provided in a pure Tieboutian world with no zoning.<sup>447</sup>

Given the constraints on dense homebuilding enforced by zoning, the mortgage interest deduction does not merely subsidize homeownership, it subsidizes driving.

### b. Tax Subsidies for Driving “Green” Vehicles

The federal government and some state governments offer tax advantages to consumers purchasing electric vehicles. These subsidies, like CAFE standards, narrowly target reductions in exhaust emissions rather than driving. As a consequence, they neglect other toxic pollutants and social harm caused by excessive and dangerous driving.

The federal government pays a credit of \$2500 to \$7500 towards the purchase of a qualified plug-in electric car, including passenger vehicles and light trucks.<sup>448</sup> Every single state plus the District of Columbia also provides incentives to consumers to purchase electric vehicles.<sup>449</sup> These include “monetary and non-monetary incentives . . . includ[ing] additional tax credits, vehicle or infrastructure rebates or vouchers, vehicle registration fee reductions, loans, special low-cost charging rates, and high-occupancy vehicle lane exemptions.”<sup>450</sup> These incentives—hundreds in total, bewildering in their variety—promote driving by cars, trucks, and other vehicles that are powered by something other than gas.<sup>451</sup>

A serious plan to reduce the social cost of driving would be structured differently. It might embrace e-bikes, scooters, or *any mode other than cars*, given the astronomical externalities generated by driving. Alternatively, it might choose to offer no subsidies at all. Instead, our tax law subsidizes driving only. This basic fact is entirely absent from policy discussions over environmental and energy policy; policymakers simply assume—and thus help perpetuate—a state of car dependency.

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<sup>447</sup> See Schleicher, *supra* note 267, at 1512–13.

<sup>448</sup> I.R.C. § 30D (2012); see also *Plug-In Electric Drive Vehicle Credit (IRC 30D)*, IRS, <https://www.irs.gov/businesses/plug-in-electric-vehicle-credit-irc-30-and-irc-30d> (last visited Nov. 7, 2019); *Electric Vehicles: Tax Credits and Other Incentives*, OFF. ENERGY EFFICIENCY & RENEWABLE ENERGY, <https://www.energy.gov/eere/electricvehicles/electric-vehicles-tax-credits-and-other-incentives> (last visited Nov. 7, 2019).

<sup>449</sup> See *Electric Vehicles: Tax Credits and Other Incentives*, *supra* note 448.

<sup>450</sup> *Id.*

<sup>451</sup> For a database of state laws and incentives, see ALT. FUELS DATA CENTER, *State Laws and Incentives*, U.S. DEPT’ ENERGY, <https://www.afdc.energy.gov/laws/state> (last visited Nov. 7, 2019).

### c. Disparities in Commuting Subsidy Levels and Availability

Tax commuting subsidies, enacted substantially in their current form in 1992 and known as qualified transportation fringe benefits, favor driving over all other modes of transportation, transferring wealth from those who do not drive to work to those who do.

The Internal Revenue Code provides that such benefits are excluded from the employee's gross income.<sup>452</sup> These benefits have included employer provided commuter highway vehicles (known as van pools), transit passes, parking spaces, and reimbursements for bicycle parts and service.<sup>453</sup>

A large disparity has historically separated benefits spent on van pools and transit,<sup>454</sup> on the one hand, from individual car parking<sup>455</sup> on the other. As originally enacted, for example, the per person per month allowance for parking was more than 250% of the amount allowed for both van pools and transit passes combined.<sup>456</sup> Current law equalizes the categories of benefits (at \$265 a month).<sup>457</sup> Nevertheless, this superficial symmetry represents a disparity for transit commuters who need to utilize more than one transit system to get to work but are only allowed to use a tax deduction for one.

Finally, tax law briefly subsidized bicycle commuting by authorizing reimbursement on a pre-tax basis of up to \$20 a month. The 2017 Tax Cuts and Jobs Act suspended this deduction until at least 2026.<sup>458</sup>

Tax subsidies for commuting prioritize driving. Those who walk, bike, or carpool to work, and in some cases those who take transit, pay other people to drive to work. Given the externalities involved, this is exactly backwards. Governments across Europe have recognized this and are responding in numerous ways, including by paying people to bike to work rather than drive.<sup>459</sup>

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<sup>452</sup> I.R.C. § 132(a)(5) (2018).

<sup>453</sup> I.R.C. § 132(f)(5)(A)–(B).

<sup>454</sup> I.R.C. § 132(f)(5)(A) (detailing terms).

<sup>455</sup> I.R.C. § 132(f)(5)(C) (detailing terms).

<sup>456</sup> These 1992 amounts were \$155 for parking and \$60 for van pools and transit combined. Energy Policy Act of 1992, Pub. L. No. 102-486, § 1911(f)(2), 106 Stat. 2776, 3013 (codified as amended in scattered sections of 16 U.S.C. and 42 U.S.C.).

<sup>457</sup> INTERNAL REVENUE SERV., EMPLOYER'S TAX GUIDE TO FRINGE BENEFITS 21 (Dec. 18, 2019), <https://www.irs.gov/pub/irs-pdf/p15b.pdf>.

<sup>458</sup> I.R.C. § 132(f)(8) (2018). The law made other changes to commuting subsidies as well. For example, while employees can still exclude the other three benefits from their gross income, employers are no longer allowed to deduct the expense. I.R.C. § 274(a)(4) (2018).

<sup>459</sup> See BEC Crew, *Cities Are Paying People to Ditch Their Cars and Bike to Work Instead*, SCI. ALERT (Mar. 18, 2016), <https://www.sciencealert.com/cities-are-paying-people-to-ditch-their-cars-and-ride-bikes-to-work-instead> (explaining that after reviewing similar experiments conducted in France, Belgium, the Netherlands and the UK, Milan is

## B. Individual Conduct Regulation

Three leading examples of law regulating personal behavior—tort, contract, and criminal law—all contain or reflect subsidies for driving.

### 1. Tort Law

Tort law, much like the other fields discussed in this Article, subsidizes driving in a structural way. It provides that the standard that determines liability in car crashes, including when a motorist hits someone who is walking, is negligence rather than strict liability.

Courts restrict strict liability to activities that are both ultrahazardous and uncommon.<sup>460</sup> Since the driving system can only be described as ultrahazardous—indeed, few other activities in the United States kill 98,300 people a year—this means crashes are only governed by a negligence regime because they are common. This categorization yields especially perverse outcomes for vulnerable road users.

Since people walking, biking, and using wheelchairs are more frequently killed by motorists (and virtually never the other way around)<sup>461</sup> and are often blamed for their own deaths by police and media reflexively and even contrary to the available evidence,<sup>462</sup> these groups are structurally disadvantaged by a rule that makes them prove the person who killed them did so while failing to exercise due care. In the context of street safety, the negligence regime fosters literal survivor bias, as frequently only the motorist survives to tell his side of the story to police.<sup>463</sup> If common-but-dangerous activities were “also subject to strict liability, the toll of harm from accidents could be favorably lessened. Therefore, an improvement over present doctrine would rely on the dangerousness requirement alone.”<sup>464</sup>

More nuanced approaches are also possible that would refrain from subsidizing driving. For example, the Netherlands makes drivers strictly liable when they strike a pedestrian or bicyclist.<sup>465</sup> When the “injured cyclist or pedestrian is younger than 14 years old, the driver is automatically 100% liable. If the injured cyclist or pedestrian is over

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considering a “reverse toll” system that would give bikers reimbursements based on how far they ride).

<sup>460</sup> See Steven Shavell, *The Mistaken Restriction of Strict Liability to Uncommon Activities*, 10 J. LEGAL ANALYSIS 1, 1–2 (2018).

<sup>461</sup> See *supra* Section I.C.

<sup>462</sup> See *supra* Section I.D.

<sup>463</sup> See *supra* note 188 and accompanying text.

<sup>464</sup> See Shavell, *supra* note 460, at 2.

<sup>465</sup> Colleen Maker, Note, *Strict Liability in Cycling Laws to Ready the Roads for Environmentally Friendly Commuting*, 42 B.C. ENVTL. AFF. L. REV. 473, 486–87 (2015).

14 years old, the driver is assumed to be 50% liable,” with the remaining 50% determined on the basis of each party’s fault.<sup>466</sup> Though drivers can reduce or eliminate liability by arguing that the collision was not foreseeable and occurred for reasons beyond their control, Dutch judges tend not to be sympathetic to this argument and interpret it narrowly.<sup>467</sup>

The Dutch approach reflects a larger legal and social ordering that does not subsidize driving. The Netherlands and the United States both had traffic fatality rates that peaked in 1972.<sup>468</sup> Since that time, their trajectories have diverged radically: “From 1972 to 2011, U.S. deaths declined by 41%, whereas those in the Netherlands declined by 81%. If U.S. fatalities had declined by 81% there would have been 22,000 fewer U.S. road deaths in 2011.”<sup>469</sup>

No-fault insurance, which works a partial preemption of tort suits, adds an additional layer of subsidy for driving via torts.<sup>470</sup> At the state level, “relatively moderate restrictions on tort suits” are associated with 2 to 5% more fatal crashes while “more restrictive laws have had as many as 10–15 percent more fatal accidents.”<sup>471</sup>

## 2. Contract Law

Say an SUV rolls over while the driver is making a turn and severely injures a pedestrian and the driver. Assume that both victims believe this rollover to have been caused by a design failure of the manufacturer’s making, but cannot prove this.

Claims for a defective product, such as an automobile, can be advanced on two similar but distinct grounds. First, the injured party may bring suit in tort, alleging the product was “not reasonably safe” or, similarly, was “unreasonably dangerous.”<sup>472</sup> In principle, either victim could bring a tort suit on these facts. Second, a plaintiff harmed by a defective product may bring a breach of warranty claim in contract. Under this second option, a plaintiff may charge that an automobile manufacturer breached an implied or express warranty. The

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<sup>466</sup> BRENDA MITCHELL, CYCLE LAW SCOT., REPORT ON STRICT LIABILITY 9 (2012) [https://www.parliament.act.gov.au/\\_data/assets/pdf\\_file/0006/534678/05\\_Research-Report-on-Strict-Liability.pdf](https://www.parliament.act.gov.au/_data/assets/pdf_file/0006/534678/05_Research-Report-on-Strict-Liability.pdf).

<sup>467</sup> See Maker, *supra* note 465, at 487 (“Dutch Judges even consider failing to yield to an automobile, or jumping a red light, either intentionally or accidentally, as foreseeable. . . . Even if the cyclist is struck after riding the wrong direction on a one-way street . . . the driver will still be held [at least 50%] liable under current Dutch law.”).

<sup>468</sup> Leonard Evans, *Traffic Fatality Reductions: United States Compared with 25 Other Countries*, 104 AM. J. PUB. HEALTH 1501, 1501 (2014).

<sup>469</sup> *Id.*

<sup>470</sup> See *supra* Section III.A.3.

<sup>471</sup> See Landes, *supra* note 429, at 50.

<sup>472</sup> See Shavell, *supra* note 460, at 1–2.

driver should be able to make this claim against the automobile manufacturer.

A pedestrian who wants to sue a carmaker using the latter strategy, however, must confront his lack of privity. This requirement bars suits in contract where a plaintiff was not in a preexisting contractual relationship with the defendant.<sup>473</sup> Thus, under a strict reading of this rule, an innocent bystander would be unable to sue an automobile manufacturer in contract. The lack of privity defense has been criticized for removing potential relief for innocent bystanders, who do not have any way of preventing or avoiding the risks caused by unsafe products.<sup>474</sup> Even though it does not affect his tort claim, the lack of privity defense may prejudice the pedestrian's rights in a few material ways.

The lack of privity defense will systematically restrict the type of plaintiff who can bring a lawsuit against a car manufacturer for breach of warranty claims to exclude pedestrians. U.C.C. § 2-318 Alternative A,<sup>475</sup> which has been adopted by a majority of states,<sup>476</sup> bars innocent bystanders injured by defective products from bringing breach of warranty claims because of a lack of privity.<sup>477</sup>

The test for breach of contract (under an implied warranty of merchantability) requires only that plaintiff show the product was "not fit for the ordinary purposes for which such goods are used."<sup>478</sup> Thus, a plaintiff under a breach of warranty claim need not show the product was unreasonably dangerous. This difference can be dispositive.<sup>479</sup>

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<sup>473</sup> See *Winterbottom v. Wright*, 152 Eng. Rep. 402, 403–04, 10 M. & W. 109, 110–11 (1842) (holding that lack of privity can be a defense in a breach of contract case and that only those in privity with the breaching party can sue).

<sup>474</sup> See *Ciampichini v. Ring Bros.*, 40 A.D.2d 289, 293 (N.Y. App. Div. 1973) (asserting that it is "both reasonable and just to extend to bystanders" the implied warranty for defective products because they have less of an opportunity to detect defects than purchasers or users of a product).

<sup>475</sup> U.C.C. § 2-318 (WEST 2013) (amended 2005).

<sup>476</sup> The states following Alternative A are: Alaska, Arizona, Arkansas, Connecticut, Florida, Georgia, Idaho, Illinois, Indiana, Kentucky, Maryland, Michigan, Mississippi, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, Tennessee, Washington, West Virginia, and Wisconsin. See Jennifer Camero, *Two Too Many: Third Party Beneficiaries of Warranties Under the Uniform Commercial Code*, 86 ST. JOHN'S L. REV. 1, 10 & n.46 (2012).

<sup>477</sup> For a discussion on how U.C.C. § 2-318 has evolved since *Winterbottom*, see *id.* at 4–12.

<sup>478</sup> U.C.C. § 2-314(2)(c) (WEST 2013) (amended 2005).

<sup>479</sup> See Camero, *supra* note 476, at 17–18 (explaining a case where a plaintiff could not recover damages under a theory of strict liability but could recover under a breach of implied warranty of merchantability).

Thus, in this case, neither victim has an effective tort remedy, but while the driver has a contract remedy against the carmaker, the pedestrian does not.

Contract doctrine is not the most natural fit for redressing harms to third parties who are not intended beneficiaries of the transaction. Nevertheless—as with the operation of insurance regulation, tort law, traffic regulation, tax law, and myriad other fields—in contract it is once again physically vulnerable non-drivers who pay the steepest price for law’s subsidy to driving.

### 3. *Criminal Law*

The most important subsidy for driving in the criminal law is in the area of enforcement. Enforcement of laws proscribing striking pedestrians are rarely enforced, even against hit-and-run motorists who kill their victims.<sup>480</sup> In a recent study, even where motorists killed someone walking or using a wheelchair, they were charged with some form of homicide less than seven percent of the time.<sup>481</sup>

In addition, car-related offenses are frequently defined as violations while ones relating to transit are crimes or otherwise result in graver consequences. Examples abound. In the ordinary course, the typical penalty for a parking meter or HOV lane violation is a ticket,<sup>482</sup> while boarding a subway or light rail without paying can trigger not only a fine but arrest.<sup>483</sup> Ironically, delaying fifty bus passengers by temporarily parking in the bus lane might be punishable by a fifty dollar fine,<sup>484</sup> but boarding that same bus with an expired pass can trigger jail time.<sup>485</sup> Motorists also enjoy more constitutional privacy protection in their car trunks than people riding the subway with respect to their belongings.<sup>486</sup> Given the demographic makeup of the

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<sup>480</sup> See *supra* note 133 and accompanying text.

<sup>481</sup> TRANSP. ALTS., *supra* note 133, at 5.

<sup>482</sup> See, e.g., *Frequently Asked HOV Questions*, U.S. DEP’T TRANSP. FED. HIGHWAY ADMIN., <https://ops.fhwa.dot.gov/freewaygmt/faq.htm> (last visited Nov. 8, 2019) (stating that drivers violating the HOV restriction can either be stopped or redirected to a slower lane and that fines can vary by state, ranging from \$50 to \$300 depending on the previous number of citations the driver has received).

<sup>483</sup> For example, in 2018, 5007 people were arrested in New York City for failure to pay transit fare, of whom 4500 were black or Latino. Janon Fisher, *Big Dip Seen in Fare-Beat Busts*, N.Y. DAILY NEWS (Feb. 18, 2019), <https://www.nydailynews.com/news/politics/ny-pol-turnstile-jumping-rory-lancman-racial-disparity-20190217-story.html>.

<sup>484</sup> MTA to Begin Monday Using Mounted Cameras to Catch Cars in Bus Lanes, CBSNEWYORK (Oct. 6, 2019, 11:20 PM), <https://newyork.cbslocal.com/2019/10/06/mta-automated-bus-lane-enforcement-system-fines> (stating that fines begin at fifty dollars for the first violation, rising to \$250 for the fifth and subsequent violations).

<sup>485</sup> See *id.*

<sup>486</sup> Police must have reasonable suspicion or probable cause to search a car, but can conduct suspicionless searches of one’s bags and other containers as a precondition for use

transit user base,<sup>487</sup> the increased legal jeopardy and physical intrusion by law enforcement to which transit riders are subject cannot be understood without reference to race.

Finally, even when motorists kill while driving negligently or recklessly, it can be difficult to secure a jury verdict of homicide.<sup>488</sup> For this reason, legislatures created a special category of homicide—vehicular manslaughter—for homicides committed with a car,<sup>489</sup> which is a lesser offense.<sup>490</sup>

Law's function is not only substantive but expressive, and, of course, in the real world these roles feed on each other.<sup>491</sup> Motorists today can engage in reckless behavior that erases human life secure in the knowledge that they will not have to face the consequences.

#### IV ADDRESSING AUTOMOBILE SUPREMACY

American society is governed by automobile supremacy. Driving—and exposure to driving—is compelled by law.

This Part answers the Article's title question in the negative. Rules from virtually every field of law that codify subsidies for driving, including dangerous driving, should be repealed.

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of the public transit system. *Compare* United States v. Ross, 456 U.S. 798, 826 (1982) (requiring officers to have probable cause parallelling “a warrant supported by probable cause” before searching cars) *and* United States v. Sharpe, 470 U.S. 675, 682 (1985) (allowing a search of a car based on a reasonable suspicion that it was being used for marijuana distribution) *with* MacWade v. Kelly, 460 F.3d 260 (2d Cir. 2006) (upholding as constitutional the NYPD’s authority to conduct suspicionless, random searches of bags of straphangers upon entry to the subway under the “special needs” exception to the warrant requirement, to prevent terrorism) *and* Mich. Dep’t of State Police v. Sitz, 496 U.S. 444, 455 (1990) (applying analogous authority to motorist searches, but in the narrower case of highway sobriety checkpoints).

<sup>487</sup> Sixty percent of transit users are people of color, with African Americans comprising the largest share within that group (twenty-four percentage points). See AM. PUB. TRANSP. ASS’N, WHO RIDES PUBLIC TRANSP. 20 (2017), <https://www.apta.com/wp-content/uploads/Resources/resources/reportsandpublications/Documents/APTA-Who-Rides-Public-Transportation-2017.pdf>.

<sup>488</sup> See Floyd Feeney, *Automobiles and Crime*, in THE OXFORD COMPANION TO AMERICAN LAW 48, 48–49 (Kermit L. Hall ed., 2004) (“Of the nation’s three thousand five hundred or so annual arrests for homicide . . . experts believe that only a tiny percentage result in murder convictions.”).

<sup>489</sup> See 7A AM. JUR. 2D *Automobiles and Highway Traffic* § 381 (2019); Margaret A. Andruchek, *Homicide by Vehicle in Pennsylvania: Irrational Punishment of the Negligent Driver*, 90 DICK. L. REV. 833, 838 (1986).

<sup>490</sup> Feeney, *supra* note 488, at 48–49; 2 CHARLES E. TORCIA, WHARTON’S CRIMINAL LAW § 170 (15th ed. 1994).

<sup>491</sup> See generally Cass R. Sunstein, *On the Expressive Function of Law*, 144 U. PA. L. REV. 2021 (1996) (discussing the idea that laws are expressive and many people support certain laws because of that expression, not because of other ideals like the laws’ deterrent effect).

These laws are not the only cause of automobile supremacy, but they armor it in law and give it agency of its own. They lead police departments and media reports to blame vulnerable road users for their own deaths; enable reckless drivers to trigger the raising of speed limits by speeding; and even push well-intentioned consumers into an arms race that endangers everyone by optimizing for individual crashworthiness instead of systematic safety.

Automobile supremacy creates more collisions among drivers and between motorists and vulnerable road users alike. Because it is a structure rather than merely an ideology, it has a virtually infinite number of downstream effects which, thanks to law, self-enforce. As such, it operates autonomously and leverages power rather than relying on belief or persuasion alone.

Reasonable people can (and do) disagree over the magnitude of the rebound effect,<sup>492</sup> or whether the availability of vehicular manslaughter as a less serious offense than other types of negligent homicide<sup>493</sup> is socially valuable on net. But these are line-drawing questions that can be taken up in good faith by those who already recognize the existence of a public health and climate crisis. That structural problem—in all its legal dimensions—has to date defied comprehensive categorization.

The task of repealing car-centric laws that justify and solidify bad outcomes is formidable. If it succeeds, it will take the labor of more than one generation. Once repealed, the rules described in Parts I-III should be reoriented towards consensus social priorities, such as health, systematic safety, prosperity, sustainability, and equity. Future research should venture redesigns to promote these outcomes. Scholars have already detailed some policy levers<sup>494</sup> that can be applied in federal, state, and local law, regulation, and policy to remove harmful distortions in the transportation market. But before that can happen, the steel door of skepticism must be pried open and the problem identified. It is automobile supremacy.

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<sup>492</sup> See *supra* Section III.A.1.

<sup>493</sup> See *supra* Section III.B.3.

<sup>494</sup> Cf. Pamela Samuelson & Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 YALE L.J. 1575, 1649 (2002) (discussing ways to deploy “policy levers” that regulate various aspects of a given activity).

## CONCLUSION

*“We have gloated too much over the usefulness of the motor car to consider it in its other aspects as a dangerous menace to safety. We put it into reckless hands. We make no effective laws against its misuse.”*

—THE NEW YORK WORLD, 1913<sup>495</sup>

There are two things to be said about the automobile in America today. First, it is unjust. Second, it is necessary. The latter observation is hardly a law of nature or grounds for complacency; to the contrary, it reflects a century of legal and policy choices. A different bargain is possible.

The law produces a higher level and risk of driving than would be socially optimal. Addressing this disequilibrium will require many reforms. Entire fields of law and even the American conception of freedom itself<sup>496</sup> bend to the car, whose needs take precedence over society’s interests in health and welfare, housing, and economic and social vitality. Automobile supremacy claims one American life every six minutes, bakes the planet, and enforces race and class inequity. Rather than revealing preferences, this system expresses the policy—and law—that created it.

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<sup>495</sup> Editorial, *The Cost of Automobile Worship*, N.Y. WORLD, Aug. 1, 1913. My thanks to Marc Linder, who unearthed this editorial, for making it available for my research.

<sup>496</sup> See generally SARAH A. SEO, *POLICING THE OPEN ROAD: HOW CARS TRANSFORMED AMERICAN FREEDOM* (Harv. Univ. Press 2019) (documenting how the need to police automobiles influenced, and in many ways shrank, the American conception of freedom).