Coalition to Reduce
Auto Size Hazards
(C.R.A.S.H)

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Report and Recommendations to Address the Danger of Pickups and Large SUVs to Pedestrians and Cyclists in Canada.

TABLE OF CONTENTS

Preface

The Coalition to Reduce Auto Size Hazards (C.R.A.S.H.) is an initiative launched in August 2022 by an Ontario-wide coalition of 16 road safety and community groups. The coalition is led by *Advocacy for Respect for Cyclists (ARC), Bike Law Canada, Bike Windsor Essex, Community Bikeways (TCBC), Friends and Families for Safe Streets (FFSS), and Walk Toronto*. A complete list of coalition members is set out on the following page.

We are grateful for the assistance of the University of Windsor's Centre for Cities (Director Dr. Anneke Smit) and the University of Toronto's Mobility Network (Director Dr. Eric Miller) in the production, promotion, and dissemination of this report, and the associated symposium in April 2024. We also acknowledge the contributions to the preparation of this report by University of Windsor Faculty of Law students Luis Lara Palacio (Social Justice Fellowship), Madeline Arnold, and Nick Kinnish, as well as Sonam Sapra (McLeish Orlando LLP).

We believe everyone should be and should feel safe as they move about on public roads, whether for work, school, shopping, or recreation. In the context of today's urgent problems—beginning with the climate crisis—this means ensuring people who travel on foot, bicycles, or mass transit can do so safely.

This report outlines, based on current research, the safety problems posed by the proliferating number of pickups and large SUVs on our roads and canvasses lessons and approaches from other jurisdictions in dealing with these over-sized and underregulated dangers. Our report sets out recommendations to federal, provincial, and municipal governments for effective measures to address the dangers posed by pickups and large SUVs to people walking and cycling.

Our recommendations for action are premised on an approach that prioritizes the safety of pedestrians, which includes virtually everyone at some point, and cyclists on public roads.

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List of Coalition Members

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Bike Law Canada (J Patrick Brown and Melissa Dowrie)
Bike Windsor Essex
Bridging Overlea (Toronto)
Citizens Environment Alliance
Community Bikeways (TCBC)
Cycle Toronto
CycleWR (Waterloo)
Environment Hamilton
Friends and Families for Safe Streets (FFSS)
Going the Extra Mile for Safety (GEMS)
Guelph Coalition for Active Transportation (GCAT)
London Cycle Link
Safe Parkside (Toronto)
TTC Riders
Walk Toronto

A. Introduction

Pickup trucks and large SUVs are more dangerous and deadly in crashes involving pedestrians and cyclists relative to conventional cars, which generally serve the same purposes. This report sets out the urgency of the problem, the relevant research, and the recommendations for action to address the needless and tragic toll of death and serious injury on our roads from pickups and large SUVs.

An Ontario Ministry of Transportation report notes that a pedestrian involved in a crash with a light truck is 3.4 times more likely to die than in a collision with a conventional car.[1] In addition, in Ontario, 61% of pedestrian road fatalities involve pickups and SUVs, even though these vehicles represent only 41% of road vehicles.[2] These conclusions largely mirror the U.S. research. The increasing prevalence of pickups and SUVs in Ontario is a cause of great concern that supports strategic interventions by all levels of government in Canada.

One recent study in the Journal of Safety Research, "Effects of large vehicles on pedestrian and pedal-cyclist injury severity," made the disturbing find that a child struck by an SUV is eight times more likely to be killed than if struck by a passenger car.[3] These findings should motivate urgent action.

In the United States, pedestrian deaths have increased by 50 percent over the past decade, a troubling trend to which the rise in the number of pickups and SUVs, typically designated as 'light trucks,' contributes. The United States National Highway Traffic Safety Administration (NHTSA) reports that while SUVs account for approximately 33 per cent of collisions with pedestrians, they are responsible for almost 40 percent of pedestrian fatalities.[4]

Pickup trucks have been on our roads for many decades, often used for commerce and for the transport of goods. Still, the size of today's pickups and SUVs have continued to grow beyond plausible utility, operated in urban areas among children, seniors, and persons with disabilities by drivers who have no additional skills to handle the greater risks posed by these vehicles. Pickups are today often marketed with an implicit (or explicit) appeal to machismo or as playthings for adventure and amusement. One ad tells us: You loved to play in the mud as a child; "the only things that changed are the toys."[5] The callous irony of these ads is that they treat consumer amusement as more important than the safety of other road users.

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[1] Sara C. Plonka *et al*. "Assessing the Impact of Large-Scale Trends on Ontario's Pedestrian Fatality Rate," (2021), *Transportation Research Record,* Vol. 2675, No. 8, at 583.
[2] *Ibid*, at 584.
[3] Mickey Edwards and Daniel Leonard, "Effects of large vehicles on pedestrian and pedal-cyclist injury severity," (2022), *Journal of Safety Research*, Vol. 82, at 277. See our Appendix 1 for a summary of relevant information.
[4] NHTSA, "*New Car Assessment Program*," (2015), Vol. 80, No. 241, at 78547. Also see here for a more recent study.
[5] Author note: this quote appeared in a Ram Trucks commercial that aired regularly during the 2023 NHL playoffs. No online version of this commercial is available. Aggressive marketing of pickups by carmakers, to whom federal and provincial governments gave multi-billion bailouts during the financial crisis of 2008, has pushed sales to ever higher levels despite the danger to public safety.

Image 1: Pickups are often marketed as toys for adventure, while the added danger to pedestrians is a price foisted upon unsuspecting victims. See this link for image source

The trend toward larger vehicles is likely to accelerate, given aggressive marketing by automakers and a perception, and likely reality, of greater safety for occupants of larger motor vehicles in crashes with other vehicles, particularly smaller ones. In fact, given the importance of promoting smaller cars for their fuel efficiency and lower GHG emissions, the growing prevalence of big vehicles—and the concurrent disincentive to buy a smaller vehicle—is likewise a matter of serious concern.

The design features that make pickups and large SUVs more dangerous—and distinguish them from dangers inherent in all motor vehicles—include driver blind spots, vehicle size and weight, and the high, blunt vehicle front-end design, which changes the point of impact with a human.

From 2000 to 2018, "the average pickup grew 11% taller and became 24% heavier."[6] The large front ends of many pickups are now so high that drivers sometimes cannot see pedestrians directly in front of their vehicles. Putting drivers higher up also makes pedestrians less visible during turning manoeuvres by drivers. Specific design features (including broader roof support pillars, necessitated by excessive vehicle weight to preserve the safety of vehicle occupants during rollovers) create larger blind zones that may make it more difficult for drivers to see pedestrians that are beside them and, therefore, more likely for collisions to occur.

[6] Cathy Chase, Shindu Bharadwaj, and David Ward "Vehicle Safety for Pedestrians 101," (2022), *America Walks* Webinar.

Image 2: Pickups have grown dramatically in size, while specific design features such as blunt, high front ends increase the likelihood of more severe injuries to vulnerable road users in crashes. Vehicle modifications, as in this photo, may exacerbate the risks of design features. A concern for the safety of road users outside of these vehicles is yet to be apparent in government safety standards and policies. (Photos by Albert Koehl, unless otherwise noted)

The growth in size of these road vehicles comes at a time when reducing fossil fuel consumption, and associated greenhouse gas (GHG) emissions is increasingly important in the fight against climate change.

A particularly troubling aspect of the pickup and large SUV problem is the continuing silence of all levels of government - the very bodies entrusted with ensuring the safety of our roads and their users. Indeed, governments are often complicit with automakers by buying unnecessarily large pickups for functions that could easily be carried out with smaller vehicles.

Our report and recommendations call on each level of government to act in the public interest to ensure the safety of all road users, especially the most vulnerable.

Image 3: Research studies show that in crashes with pedestrians, light trucks are particularly deadly to children. Reducing the height of a vehicle's front-end to below 1.25 metres would save many lives. (Photo: Adriana Bravo)

B. The Safety Problem with Large SUVs and Pickups

There is a solid body of compelling evidence that the design of pickups and large SUVs makes them particularly hazardous in crashes involving pedestrians. Studies relating to the danger to cyclists from pickups and large SUVs reach similar conclusions. These studies generally point to three particular factors: the configuration of the front end, the heavy weight (and consequent kinetic force in crashes), and the blind spots for the driver. This section provides an analysis and summary of relevant safety studies, with greater detail in Appendix A.

In a CBC News presentation, journalist Uytae Lee visually demonstrated the safety problem of large SUVs, namely the high, blunt front end that concentrates the impact in a crash on the

pedestrian victim's torso.[7] This is in stark contrast to a smaller vehicle hitting a pedestrian, given its lower front-end configuration, resulting in a victim being thrown onto the hood. Striking the victim in the torso increases the likelihood of severe injuries to vital organs and the head, diminishing the chance of survival. (Moreover, victims hit with pickups and large SUVs are more likely to be thrown backward, slamming their head into the pavement, increasing the occurrence of fatal or life-altering head trauma).

Image 4: Uytae Lee, CBC, "Stories About Here"

Professor Justin Tyndall's recently published paper, **"**The Effect of Front-end Vehicle Height on Pedestrian Death Risk" is the first empirical study to estimate the effect of front-end vehicle height on pedestrian outcomes in crashes. He concludes that the front-end vehicle height is more determinative of pedestrian fatality risk in crashes than the actual weight of a vehicle (although in practice, there is a strong correlation between front-end vehicle height and vehicle weight). Among his significant research findings is that a ten-centimetre increase in the front-end height of a vehicle is associated with a 22 per cent increase in pedestrian fatality risk.[8] The fatality risk is highest for women, children and the elderly.

Tyndall estimates that hundreds of lives of pedestrians could be saved by reducing front-end vehicle heights. He reports that almost all cars (95 per cent) have a front-end height under 1.25

[7] Uytae Lee, "SUVs Protect Drivers, But Make Everyone Else Less Safe. How Do We Change That?" (2022), CBC.
[8] Professor Justin Tyndall, "The Effect of Front-end Vehicle Height on Pedestrian Death Risk," University of Hawai'i Economic Research Organization and University of Hawai'i Department of Economics, Honolulu, USA, January 12, 2024. An earlier version of the paper was published in July 2023. "The Effect of Vehicle Size on Pedestrian Death Risk, University of Hawai'i Economic Research Organization and University of Hawai'i Department of Economics.

metres, while 70 per cent of light trucks have a front-end height over 1.25 metres. "There is a dramatic difference in pedestrian death probability across vehicle types; Pedestrians hit by a car die in 8.5% of crashes. … Compact SUV crashes have a death rate similar to cars (8.8%). Crashes involving a pickup or full-size SUVs stand out as having significantly higher death rates, at 11.9% and 12.4% respectively." He associates the differences in outcomes to differences in front-end vehicle heights, calculating that capping front-end vehicle heights at 1.25 metres, would save 509 lives each year in the U.S. in crashes involving pedestrians.

An Ontario Ministry of Transportation (MTO) June 2020 report, "Pedestrian Crash Causation Study" focused on large-scale trends in road safety, including the increasing prevalence of pickups and SUVs in the road vehicle fleet. Significantly, although pickups and SUVs comprise 41 per cent of road vehicles, they accounted for an alarming 61 per cent of pedestrian road fatalities.[9] The figure rises even higher when considering only pickups and large SUVs. As previously mentioned, the same report noted that **a pedestrian involved in a crash with a light truck is 3.4 times more likely to die than a pedestrian in a collision with a conventional car**.[10]

The MTO report was consistent with the findings in U.S. research, summarized below, while underlining the urgency of strategic interventions to avoid the American experience where pedestrian deaths have increased at a disturbing rate, with larger vehicles among the likely contributing factors. The numbers, as noted, are particularly alarming for children. According to a recently published U.S. study, **a child struck by an SUV is eight times more likely to be killed than a child struck by a passenger vehicle**.[11]

The MTO's Ontario Road Safety Annual Report 2020 also provides valuable findings, particularly the significant reduction in overall road fatalities -- *with the notable exception of pedestrian fatalities,* which are on the rise.[12] Specifically, the report found that:

1. Road deaths in Ontario have significantly decreased (unlike the U.S. experience) from 1,102 to 530 in the period 1999 to 2020; however, in the period 2009 to 2018, pedestrian deaths have increased by 2% from 114 to 116 and account for 22% of all road deaths;[13]

2. Since 1990, there has been a dramatic decrease in road deaths in Ontario for both drivers (from 540 to 227) and passengers (from 321 to 72), while deaths for pedestrians have fluctuated minimally during the same period, with a comparatively small overall decrease (from 154 to 116);[14] and

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[9] *Supra,* note 3, at 584.
[10] *Ibid*, at 583.
[11] *Supra,* note 5, at 277.
[12] Ministry of Transportation, *Ontario Road Safety Annual Report*, (2020), at 12.
[13] *Ibid*, at 28.
[14] *Ibid*.

3. Of the 821 vehicles involved in fatalities in 2020, 127 (or 15%) were pickups.[15] The report, however, does not helpfully distinguish between types of vehicles other than between, for example, passenger vehicles (which may include SUVs), passenger vans, pickup trucks, and various other vehicle types such as mopeds, buses, etc.

The Ontario Chief Coroner's 2012 Pedestrian Death Review found that a total of 53% of all deaths for the period of study involved pickups, SUVs, vans, and heavy trucks compared to 34% for cars.[16] These numbers have likely changed for the worse, given the proliferation of pickups and large SUVs.

What is clear from the research is that consumers' decisions to buy larger vehicles are paid for not only in dollars but also in lives. In a previous study, Professor Tyndall estimated that between 2000 and 2019, over 8,100 lives were lost in crashes in the U.S. with pickups and SUVs that would otherwise have been spared had the crashes involved passenger cars.[17] The fact that these numbers, according to Professor Tyndall, are increasing on a year-over-year basis is of particular concern, underlying the urgency for action.

Reports by groups such as the U.S. Insurance Institute for Highway Safety also make clear that a pedestrian is more likely to be struck by a pickup or SUV making a right or left turn at an intersection than by a conventional car. In addition, the chances that a pedestrian will be struck by a pickup or SUV instead of a passenger car are also significantly higher away from intersections. In short, a pedestrian is both more likely to be struck by a pickup or SUV and, if hit, more likely to die.

Beyond the inherent design dangers of pickups and large SUVs, we note that vehicle modifications such as the addition of "bull bars," "brush bars," and "rhino grills" --- or raising the cab height --- which have no utility in urban environments, needlessly exacerbate safety risks to other road users, including pedestrians, cyclists, and persons with mobility devices.

The result of more serious road crashes involving pickups and large SUVs is also to increase health care costs, which means that the public is paying for externalities (hospitalizations, rehabilitation) caused by car manufacturers.

C. The Urgency for Action

Increase in Sales of Light Trucks

[15] *Ibid*, at 64. One or more vehicles may be involved in a single fatal crash.
[16] *Supra,* note 6.
[17] Justin Tyndall, "Pedestrian Deaths and Large Vehicles," (2021), *Economics of Transportation,* Vol. 26-27, at 8. See Appendix 1 herein for a summary of relevant information in research reports.

The increase in sales of light trucks as opposed to sedans underlies the urgency of our calls for action. Well over half of sales for new automobiles in Canada are for large SUVs and pickups.[18] In 2022, light trucks accounted for 80% of new car sales in Canada.[19]

For new vehicle sales in Ontario between 2010 and 2022, light trucks—prominently including pickups and SUVs (and a far smaller number of buses, vans, and heavy trucks)—increased dramatically from 324,318 to 519,284 units.[20] During the same period, passenger car sales, which stood at 262,300 in 2010, increased until 2014 before beginning a steady decline, reaching 133,600 in 2022.[21]

Image 5: The proliferation of pickups is particularly noticeable in rural areas. Unfortunately, pedestrians and other road users in these areas are no less resilient in crashes with such vehicles.

This increase in sales of larger vehicles creates a vicious circle of consumer behaviour. The desire to be in a large vehicle to protect oneself in a crash induces other consumers to buy equally large vehicles to protect themselves from the first group of consumers. The resulting vehicle "arms race," as economist Michelle Wright calls it, is particularly unfortunate for road users on bikes and on foot, who face a greater risk of death in a crash.[22] Professor Tyndall's comment is particularly apt when he writes that "driving a larger vehicle offloads fatality risk

[18] Statistics Canada provides a statistical breakdown of vehicles for Ontario but combines SUVs and pickups in the "passenger vehicle" category without giving a more granular breakdown.
[19] Statistics Canada, "New Motor Vehicle Sales by Type of Vehicle," (2023), Table 20-10-0002-01.
[20] *Ibid.*
[21] *Ibid*.
[22] Michelle J. White, "The Arms Race on American Roads: The Effect of SUVs and Pickup Trucks on Traffic Safety," (2004), *The Journal of Law & Economics*, Vol. 47, No. 2, at 333.

from occupants to other road users."[23] Of course, drivers must realize that whatever the size of their vehicle, at some point, everyone is a pedestrian.

To prevent the sharp spike in road deaths that is occurring in the U.S., we must take action.

The Climate Crisis

Light-duty vehicles account for about 11 per cent of GHG emissions. The ongoing climate crisis and the generally higher emissions from pickups and large SUVs add another troubling dimension to the existing trend to larger vehicles. Cities and towns across Ontario and beyond are today struggling to reduce travel by private motorized vehicles to address pressing issues of affordability, social equity, and climate change. However, if our roads become even more dangerous to people who want to walk or cycle, including for trips to the transit stop, efforts and investment to reap the full benefit of active transportation and public transit—and reduce the heavy GHG emissions from the transportation sector --- will be wasted.

Image 6: The vehicle fleet is growing larger at the very time when the climate crisis urgently requires smaller vehicles—and more walking, cycling, and transit.

If the goal is to *mitigate* the impact of over-sized vehicles, governments should consider efforts to electrify the vehicle fleet as counter-productive. For starters, a battery's weight increases with the vehicle's size. Thus, the size of the battery for a pickup adds substantially to the

[23] *Supra*, note 17, at 8.

vehicle's overall weight. The result is to further increase the risk of death, given kinetic forces, for a pedestrian or cyclist hit by such a vehicle. In addition, the amount of power needed to run EVs will require the generation of more electricity, which, under current circumstances, may increase the demand for dirty power sources. Finally, the weight of these vehicles, as discussed below, will contribute to faster road deterioration and increased maintenance costs.[24] Our goal should be to reduce the use of over-sized vehicles, regardless of power source.

Other Negative Impacts

Road Damage and Deterioration

Heavier vehicles cause more wear and tear to roads, resulting in more frequent maintenance and construction, increasing costs to the public.[25]

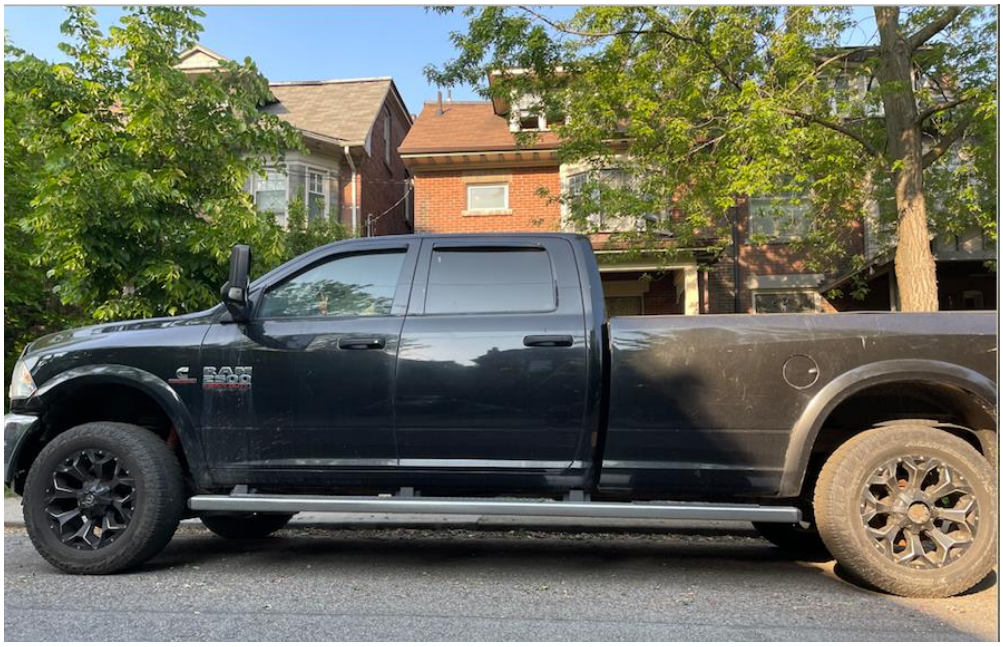

Image 7: Pickups have grown in size beyond any plausible real-world needs, even marketed as playthings—an obvious irony given the greater danger to pedestrians and cyclists. The vast majority of consumers never use large pickups for their advertised capacities, such as off-roading or heavy towing, instead relying on them for everyday purposes such as driving to work or buying a coffee.

[24] Of course, this problem relates to more than pickups. Popular electric sedans such as the Tesla Model S weigh roughly 2,000 kg (4,400 lb), similar to the weight of a large vehicle, according to Tesla's website. *Cf.,* Matt Bubbers, "EVs won't cause roads to crumble faster, but our love of heavier cars is causing problems," (2023), *Globe and Mail*.
[25] Michael Smee, "Pothole Season Can Mean Not Only Damaged Cars but Injured Cyclists, Experts Warn," (2022), *CBC.*

The average weight of a pickup truck is between 1,800 and 3,200 kg (4,000 and 7,000 lb). The Ford F-150, Canada's number one selling vehicle, weighs up to 2,540 kg (or 5,600 lb).[26] The average weight of a heavy-duty pickup truck is between 3,400 and 5,440 kg (7,500 and 12,000 lb).[27] For comparison, the average weight of small automobiles is around 1,135 kg (2,500 lb).[28] This means that a pickup truck is, by weight, the equivalent of having one or two additional cars on the road.

An increase in taxes to repair roads is not the only issue that will concern the individual, especially a motor vehicle owner. Wear and tear on roads cause wear and tear on vehicles.[29]

Public space and parking

Large vehicles strain already limited parking spots at the curbside and in parking lots.

When creating parking spaces in parking lots, the size is typically designed for the 85th percentile of vehicles, which means that the parking space is big enough to accommodate 85 per cent of automobiles—but smaller than the other 15 per cent.[30] Coincidentally, the size of the 85th percentile is the exact width of a Ford F-150—2 metres (6 feet seven inches). The average length of a parking lot spot is 2.74 metres (9 feet), with variation depending on the location.[31] For example, spaces at Costco or big box stores may be 10 feet wide, while spots with less turnover, such as at office buildings, may be 8 feet wide.

The average vehicle is now outgrowing the size of these parking spots. With every new vehicle model, a couple of centimetres are added to the design; decreases in size are rare.[32] Even perfectly parked cars within the space will face problems in the opening of doors or loading. Making parking spots bigger exacerbates already constrained spaces in densely populated urban areas.[33]

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[26] Marcus Gee, "Pickup Trucks are a Plague on Canadian Streets," (2021), *The Globe and Mail*.
[27] Dustin Hawley, "How Much Does a Truck Weigh?" (2021), *JD Power.*
[28] Dustin Hawley, "Average Weight of a Car," (2022), *JD Power*.
[29] Drivers can expect to have bent rims, broken ball joints, broken suspension and more issues more often. See: David Rider, "Toronto's Potholed Roads are About to Get a Lot Worse. Here's Why Drivers Can Expect to Pay More," (2023), *Toronto Star*. Ironically, the cost may be disproportionately borne by owners of smaller vehicles, given that larger vehicles may be better equipped to handle the uneven roads. Every year, The Canadian Automobile Association [CAA] reports the 10 worst roads in Ontario. The City of Toronto is home to 4 of the top 10. See: *CAA,* "Ontario's Top 10 Worst Roads," (2023).
[30] Aaron Gordon, "American Cars are Getting Too Big for Parking Spaces," (2023), *Vice*.
[31] *Ibid*, at para 7.
[32] *Ibid*, at para 14.
[33] *Ibid*, at para 8. There is also the issue of complying with local zoning regulations, which may require a specific number of parking spots. Adding a couple of centimetres to parking spaces may seem insignificant, but it adds up when applied to every space in a 500-space garage.

Image 8: The size of pickups makes them a drain on public space resources, especially in crowded urban areas where the value of land is at a premium.

The increased length of SUVs and pickups also diminishes the space available for other vehicles. A common argument from those opposed to new bike lanes on roads is, "where will the cars park?" There is, however, little attention to the fact that large pickup trucks and SUVs are a significant culprit in the reduction of parking spaces.[34]

Underpinning the rise in the sales of pickups and SUVs is the extraordinary investment in marketing by car-makers, presumably motivated by the much higher profit margins per unit.[35] Given the increased danger to people outside of them, infrastructure damage, and climate destruction, it is not rational to allow this proliferation of unnecessarily large and heavy vehicles for the sake of corporate interests.

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[34] Taylor C Noakes, "Debunking three big myths about bike lanes," (2023), *tvoToday*, paras 9, 20. *Cf.,* Jack Beresford, "Truck Driver Slammed Over Poor Parking Skills: 'Complete Lack of Awareness,'" (2022), *Newsweek*. A photo of a pickup truck sparked controversy among drivers and pedestrians when the pickup's cargo bed obstructed the sidewalk from a parking spot the driver had backed into. The extra length of the pickup exceeded the space allotted, prompting the question: "where should the extra inches go?"

[35] Naomi Buck, "SUVs Are Killing the Planet - and Pedestrians. Why Do Canadians Continue to Drive Them?" (2019), *Globe and Mail*.

D. The Jurisdictional Framework for Action

Federal

The federal government sets vehicle safety standards, while the provinces establish laws regulating vehicle use and operation.[36] The *Motor Vehicle Safety Act* (MVSA) is the federal statute that outlines all safety requirements for motor vehicles, both domestic and imported.[37] All vehicles sold in Canada must meet the *Canada Motor Vehicle Safety Standards* (CMVSS), which are articulated in the *Motor Vehicle Safety Regulations* (MVSR).[38] All vehicles imported into Canada must also meet the CMVSS.

Once a Canadian manufacturer produces a vehicle that meets the necessary standards, a National Safety Mark is granted that must be attached to the vehicle.[39] Imported vehicles must have a recognized safety mark that meets the safety standards set out in the MVSA.

Image 9: The National Safety Mark is granted to Canadian manufacturers that have proven their product meets the Canada Motor Vehicle Safety Standards.

Transport Canada is responsible for transportation policies and programs.[40] The Minister of Transport has several powers under the MVSA. While the MVSA also regulates tires and child seats, we focus on the MVSR for this report. In overseeing the MVSA, Transport Canada is guided by specific principles, including the safety and security of Canadians and the travelling

[36] CMVSS companies that modify or add equipment to make specialty vehicles (fire trucks, ambulances, motorhomes, etc.) must also comply with the MVSA. *Ibid*.
[37] SC 1993, c 16.
[38] *Motor Vehicle Safety Regulations*, CRC 1978, c 1038, Sched III.
[39] *Ibid,* s 3. Depending on the vehicle, this symbol will usually be displayed on a compliance label that includes at least the name of the manufacturer, date of manufacture, and, in the case of passenger vehicles, the vehicle identification number, Gross Vehicle Weight Rating (GVWR), Gross Axle Weight Ratings (GAWR), and type of vehicle.
[40] Transport Canada, "The Transport Canada Portfolio," (2019).

public against loss of life or damage to health, property, and the environment resulting from the use of vehicles.[41] A risk-based approach is used in reviewing and analyzing safety risks.[42]

Transport Canada's Automotive Inspectors and Enforcement Officers oversee adherence to the MVSA.[43] These officers conduct compliance tests and compliance inspections and audits, while undertaking defect investigations, and overseeing vehicle recalls. While Transport Canada does not issue recall notices, the Minister of Transport has the authority to order companies to address public risks through orders which force a company to issue a new recall, improve an existing recall, or stop the sale of recalled products.[44] When a product does not meet safety standards, Transport Canada first notifies the company that manufactured, imported, or distributed the product. Most companies cooperate with Transport Canada voluntarily. A failure to act will result in the issuance of an order.

The CMVSS do not mention pedestrians or cyclists (sometimes referred to as "Vulnerable Road Users" or VRUs). Instead, the focus is on the safety of the driver and the passengers inside the vehicle. It is therefore unclear how, or if, dangers posed by vehicles to pedestrians and cyclists affect a vehicle's safety ratings or compliance with the CMVSS. During National Bike Month in 2022 Transport Canada released a 30-second video to help remind drivers how to help keep cyclists safe, reminding drivers to be patient, respectful, and cautious next to cyclists since their vehicles weigh 175 times more than the bicycle.[45] There is no mention, however, of what Transport Canada is doing to improve pedestrian or cyclist safety in its role in the oversight of vehicle safety. (Our outreach to the Minister has proved unsatisfactory, managing only to secure a meeting with a staff person after multiple requests. We received only a *pro forma* assurance that the Minister is concerned about the dangers posed by pickups and large trucks).

Transport Canada has explored technology to protect VRUs, including pedestrian detection sensors, but no change has yet been made to require implementation. In fact, Transport Canada last updated its webpage on this topic in 2019.[46]

Transport Canada has a collision testing centre in Ottawa, where simulations test different vehicle features and technologies.[47] Anti-collision systems that warn drivers of other vehicles or VRUs have been tested here in simulated urban driving situations.[48]

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[41] *Ibid*.
[42] *Ibid*.
[43] Transport Canada, "Motor Vehicle Safety Oversight Program," (2021).
[44] *Ibid*.
[45] Transport Canada, "National Bike Month: Keeping Our Roads Safe For All Users," (2022).
[46] Transport Canada, "Transport Canada Explores Technology to Protect Vulnerable Road Users," (2019).
[47] Transport Canada, "Innovation Centre," (2019).
[48] Transport Canada, "Testing anti-collision systems," (2023).

Provincial

In this section, we review the various provincial powers that might offer opportunities to address the safety deficiencies of pickups and large SUVs, with a particular focus on Ontario.

The provinces and municipalities (which operate under powers granted by the province) share the responsibility of regulating the use and operation of road vehicles. These regulations include licensing and permit requirements, vehicle dimensions, rate of speed, insurance, and rules of the road. For example, the Ministry of Transportation (MTO) oversees the *Highway Traffic Act*, which establishes driving rules in Ontario.[49]

Vehicle Dimensions, Weight, and Horsepower

Part VII of the HTA regulates the load and dimensions of a motor vehicle. Section 109 prohibits any vehicle on a highway (in the absence of an exception) from having a width greater than 2.6 metres. We note that auxiliary equipment or devices mounted on the vehicle and extending beyond either side of the vehicle are only included in this measurement if they are designed or used to carry a load or extend more than 10 centimetres from the side of the vehicle. The length of a vehicle on a highway must be at most 12.5 metres, aside from buses, a full trailer, a semi-trailer, a fire apparatus, a recreational vehicle or a road service vehicle.[50] No vehicle on a highway is permitted to exceed 4.15 metres in height.[51]

Part VIII of the HTA regulates the maximum allowable weight of motor vehicles on a highway. The maximum permissible weight for a single axle with single tires is 9,000 kilograms.[52] The vehicle's gross weight must not exceed the maximum weight permitted on each axle.

Driver's Licence

In Ontario, there are twelve classes of licences, of which eight general licences cover different types of vehicles.[53] Class G drivers can drive any car, van, small truck, or combination of vehicles and towed vehicles up to 11,000 kg, provided the vehicle towed is not over 4,600 kg.[54] A class G licence is required before acquiring a permit for any other class (except for Class M vehicles). The process for acquiring a Class G licence takes approximately 24 months and includes a knowledge-based test and two skill-based driving tests. The minimum age of a driver is 16 years.[55] While a Class G licence covers any car, van, or small truck, each type has no additional

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[49] RSO 1990, c H.8 [HTA].
[50] *Ibid*, s 109(6).
[51] *Ibid*, s 109(14).
[52] *Ibid*, s 116(1)(a).
[53] Ministry of Transportation, "Licence Classes and Combinations," (2022).
[54] *Ibid*.
[55] *Ibid.*

testing or other requirements. This means that while a driver may be trained exclusively in a car, driving a van or small truck involves no restrictions or training requirements.

Class A drivers are allowed to drive any tractor-trailer combination and any Class D vehicles. Class B drivers can drive any school-purpose bus and any Class C, D, E, and F vehicle. Class C drivers are allowed to drive any regular bus and any Class D and F vehicles. Class D drivers can drive a motor vehicle exceeding 11,000 kg gross weight or any truck or combination, provided the towed vehicle is not over 4,600 kg. Class E drivers are allowed to drive any school purposes bus with a maximum 24-passenger capacity, as well as any Class F vehicles. Class M drivers are permitted to drive any motorcycles, motor scooters, and mopeds.[56]

Safety Measures

Section 102 of the HTA allows the government to make regulations requiring the use or incorporation of any device or any equipment that may reduce or prevent injury to persons using the highway. This means it would be well within the province's power to enforce the use of safety equipment.

HTA, section 82 allows an officer to inspect a vehicle to ensure it complies with the Act's regulations. Should a violation be found, the officer may require the vehicle's operator to have it repaired or serviced to ensure compliance.

HTA, section 74 requires the driver of a motor vehicle to have a clear view of the front and side of the motor vehicle and a clear view of the rear if a rear window is present. Section 73 prohibits posting any sign, poster or other non-transparent material or object on the windshield or any window in a manner that will obstruct the driver’s view of the highway.

Rate of Speed

Part IX of the HTA regulates the rate of speed at which motorists are allowed to travel on roadways. While the province has the authority to regulate the rate of speed, roads located within recognized municipalities are given the authority to regulate the rate of speed for their roads by by-law. Unless otherwise marked, the default speed limit on a highway within a local municipality or a built-up area is 50 km/h.[57] The speed limit on a highway not within a local municipality or a built-up area is 80 km/h.[58] The province and municipalities are also allowed to regulate the rate of speed for different conditions, such as in school or construction zones, or on bridges. The rate of speed can also be designated by time of day or days of the week.

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[56] The HTA defines bicycles as vehicles, and cyclists have rights and responsibilities, but there are no licence requirements for riding a bicycle in Ontario.
[57] *Supra,* note 49, subs. 128(1)(a).
[58] *Ibid*, subs. 128(1)(b.1).

While the province has the right to regulate speed on roads, it is not clear if it has the authority to regulate the speed of specific vehicles.

Rules of the Road

The HTA's Part X sets out the rules of the road, prohibiting certain actions and maneuvers for vehicles. This part regulates the right of way in certain road conditions such as at uncontrolled intersections, the duties of drivers at a pedestrian crossover or school crossing, and how to turn at intersections, signal turns, or pass streetcars and cyclists, among many other rules. The province articulates these rules, although municipalities are allowed (albeit only pursuant to articulated provincial authorization) to create additional rules under local by-laws.

HTA, section 144(1) specifies the rules for vehicles at traffic control signals, with subsection 19(a) allowing vehicles to turn right at red lights. Allowing right-on-red (a common term for such policies) invites various scenarios that put cyclists and pedestrians in danger.[59] When drivers are attempting to turn right on a red light, they are often more focused on the oncoming traffic from the left and are not as focused on foot or bicycle traffic on their right.[60] Right-on-red accounts for 2 per cent of annual deaths of pedestrians as well as 4 per cent of annual deaths of cyclists.[61] The ability to prohibit right-on-red is within the authority of the provincial government as well as municipal governments.

Insurance

All drivers in Canada are legally required to have auto insurance for their vehicles. In Ontario, the *Compulsory Automobile Insurance Act* requires all vehicles to be actively insured.[62] While mandatory, not all provinces offer government-operated insurance. Ontario, Alberta, New Brunswick, Nova Scotia, Newfoundland and Labrador, and PEI rely on private insurance providers. British Columbia, Manitoba, Saskatchewan, and Quebec use a public insurance system.

Quebec is unique in that there is both private and public auto insurance. Public insurance provided by the Société de l'assurance automobile du Québec (SAAQ) only covers drivers for personal injury when in a crash, while private insurance companies provide property damage and civil liability.

Several factors impact insurance rates, including the driver's age, driving history, vehicle usage, location, and the type of vehicle. Based on these factors, certain groups of drivers or certain

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[59] David Zipper, "It's time to ban 'right-on-red'", *FastCompany* (14 June 2023), online: https://www.fastcompany.com/90908929/its-time-for-a-nationwide-ban-of-right-on-red.
[60] *Ibid* at para 7.
[61] Transportation Services & Solid Waste Management Services, *Vision Zero 2.0 – Road Safety Plan Update* (13 June 2019), online: https://www.toronto.ca/legdocs/mmis/2019/ie/bgrd/backgroundfile-134964.pdf at 36.
[62] RSO 1990, c C.25.

types of vehicles become more expensive to insure. For example, insurance for younger drivers is higher than for older drivers. Those living in rural areas, as opposed to urban areas, pay less to insure their vehicles. Luxury vehicles are often targeted for theft and, thus, are more expensive to insure. Light trucks and SUVs often cost more to insure based on the vehicle size and engine, although there is not necessarily a direct correlation between premium rates and vehicle size. For example, the Ford F-150 has an estimated average annual insurance cost of $1,876. In contrast, despite being smaller by about 15 cm in height and width, the Toyota Tacoma has an estimated average insurance cost of $1,923 per year.[63]

Municipal

In this section, we explore various approaches that municipalities may apply to regulating pickups and large SUVs. Cities generally have authority over vehicle parking, responsibility for various road safety issues, including road design, and decision-making power over purchases for their fleet of vehicles.

City of Toronto

Using a data-driven approach, Toronto's Vision Zero Road Safety Plan prioritizes the safety of the most vulnerable road users, namely pedestrians, school children, older adults, and cyclists.[64] Vision Zero is based on the notion that all road users make mistakes, but that road design should anticipate these mistakes instead of assigning blame when tragedies occur. Cycle tracks, for instance, provide a physical barrier or other separation between motorists and cyclists. Similarly, Toronto's first protected intersection is being installed at the busy intersection of Bloor and St. George Streets adjacent to the University of Toronto, offering better sightlines to motorists making right turns to protect people on foot and bikes. This change does not specifically respond to the dangers of pickups and large SUVs—but would make roads safer from dangers from all types of vehicles.

The Vision Zero approach pays significant attention to reducing motor vehicle speeds, given the greater risk of severe injury or death at higher speeds. Although dangers related to heavy trucks are noted, there are no specific measures aimed at pickups and large SUVs. The city is, however, actively exploring opportunities to update its vehicle fleet to ensure that heavy trucks are designed for safety. This same approach can also apply to purchases for the city's fleet of utility vehicles used in its operations, including in the maintenance of parks and in construction work.

[63] Aren Mirzaian, "A List of the Top 5 Cheapest Trucks to Insure in Ontario," (2023). *MyChoice*.
[64] City of Toronto, "Vision Zero Plan Overview," (N.D).

Among other road design changes that would address, though not precisely target, dangers posed by pickups and SUVs, changing sightlines and increasing protections to cyclists and pedestrians from driver turning maneuvers would rank highly.[65]

Changes to curb radii that force reductions in speed and increase visibility can be particularly beneficial, given the frequency documented in the research of pedestrians and cyclists hit by the drivers of pickups and large SUVs making turns.[66] Eliminating right turn channels (or slips) is likewise within municipal authority to reduce the speed of motorists.[67]

Raised crosswalks improve pedestrian visibility at intersections and have been shown to decrease driving speeds.[68] Raised crosswalks have mainly been implemented in school zones at stop-controlled intersections.

The Leading Pedestrian Interval (LPI), or Pedestrian Head Start signal, provides an advanced walk signal before the traffic signal turns green for motorists. Although not specifically related to the danger of pickups and SUVs, this initiative improves overall road safety. It allows pedestrians a head start that puts them on the roadway and makes them more visible before motorists can proceed.

Toronto is also piloting left-turn calming treatments, which is essential given the prevalence of pickups and SUVs involved in crashes with VRUs during such turns. These calming treatments require drivers to follow a sharper turning angle. When executing a right turn at an intersection curb with a gentle turning radius, motorists can pick up more speed, creating more significant blind spots and inflicting higher and more deadly kinetic force on pedestrians that are struck. Eight intersections throughout Toronto, chosen based on collision history, were selected to pilot this initiative.[69]

However, the cost of design changes is massive, and the timelines to update road design usually stretch into decades while transferring the associated cost to the public at large, as opposed to manufacturers responsible for the safe design of their vehicles to avoid problems.

City of Montreal

Municipal responsibility in setting vehicle parking fees for curbside spaces and in municipal parking lots offers the opportunity to influence the prevalence of certain vehicles on city roads.

In Montreal, as in other cities, parking spaces are strained when larger vehicles take up extra space. In response, the borough of Rosemont-La-Petite-Patrie in Montreal has approved a plan

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[65] See City of Toronto "Highlighting Various Road Design Changes" (N.D) as part of its tools for road safety measures.
[66] City of Toronto, "Geometric Safety Improvements," (N.D).
[67] *Ibid*.
[68] *Ibid*.
[69] *Ibid*.

to charge more for permits for parking heavier vehicles.[70] (The City of Paris is another leading example of higher parking fees charged for large SUVs.[71]) The borough had seen a reduction of approximately 10 to 25 per cent in parking spaces; essentially eliminating roughly 4,000 to 10,000 spots. While weight does not always correlate with size, it is the best indicator of how much space is taken up. Vehicles weighing 1,850 kg or more will be charged an additional $205.[72] This will result in vehicles like the best-selling Ford F-150 getting the largest bill. Rosemont-La-Petite-Patrie Mayor Francois Limoges has also called for studies on vehicle size safety.

City of Hamilton

Hamilton city councillors have taken another approach to deal with unwanted vehicles, voting to ban heavy trucks from downtown.[73] The councillors have argued that these large vehicles are unnecessary on busy, pedestrian-filled downtown streets. This change comes after a push from Hamilton Health Services to move heavy trucks away from Hamilton General Hospital. Many trucks had been taking a shortcut through downtown to save roughly 8 to 10 minutes.[74] This approach suggests another potential route in addressing safety problems with pickups and large SUVs, especially in the absence of initiatives by other levels of government. An outright ban would likely have to be tempered with exceptions based on demonstrable utility and a transition period, provided that the city has the requisite authority.

Relevant Case Law

Canadian caselaw has yet to offer common law precedents addressing the danger of pickups and large SUVs. While there are many cases involving large vehicles, four provide the most relevant judicial commentary on the subject.

R v Rolfe, 1980 concluded that drivers of large vehicles are under a special duty of care and are held to a much higher standard of care than drivers of smaller vehicles.[75] There is little debate disputing the additional dangers that driving a large vehicle poses. Indeed, Canadian provinces generally impose obligations to obtain special licences to operate larger vehicles, requiring additional training and testing to ensure the public's safety.

This higher standard of care is echoed in *R v L'Abbe, 1994*, when a pickup truck driver towing a large homemade dual-axle trailer loaded with equipment became separated from the truck, resulting in the trailer mounting the curb, and the death of one person and severe injury of

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[70] *Global News*, "Parking in Rosemont–La Petite-Patrie: Vehicles Now Charged According to Their Weight," (2023).
[71] *The Connexion,* "Parisians Vote to Triple Parking Fees for Visitors in Large SUVs," (Feb 2024).
[72] *Ibid*, para 9. Gas-powered vehicles weighing 1,249 kg or less will be charged an additional $115, presumably to encourage more electric vehicles.
[73] Aura Carreño Rosas, "Hamilton Councillors Have Voted to Ban Heavy Trucks From the Downtown Area," (2022), *CBC*.
[74] *Ibid*, para 9.
[75] 6 WCB 181. Please see Appendix 3 below for relevant excerpts of caselaw.

another.[76] The judge reiterated that individuals operating large vehicles must be aware of the severe consequences that may result from reckless and wanton disregard for the safety of others. While this case speaks to the improper securing of the trailer to the pickup truck, it nonetheless confirms a higher duty of care in the operation of a larger vehicle.

In *MacEachern (Committee of) v. Rennie, 2010*, the duty of care required drivers of heavy vehicles to be aware of all dangers posed by their vehicles, including air turbulence. In this case, the plaintiff cyclist proceeded along the roadside in the opposite direction of motor traffic. A parked pickup truck forced her to move around it with the result that she suffered a severe brain injury when a passing tractor-trailer struck the plaintiff's head.[77] The case involved substantial discussion of the dangers of large vehicles on the road. Drivers of large vehicles have a higher duty of care and must be mindful when passing other vehicles. (Although the case included the pickup owner as a defendant, that defendant was not found liable). The truck's speed was a key issue in the case, particularly given the longer stopping time that results from the vehicle's significant weight. In fact, Ontario requires commercial vehicles to have functioning speed limiters, restricting the maximum speed to 105km/hr.[78]

In *R v Michaud, 2015*, the Ontario Court of Appeal agreed with the trial judge that the speed limiter violated the driver's section 7 right to security of the person under the *Canadian Charter of Rights and Freedoms*. However, the judges found that the violation was justified under section 1 of the *Charter*.[79] [80] Section 7 was violated because the speed limiter may create safety issues for drivers if the driver needs to exceed 105km/hr. The Court was satisfied, however, that the objective to improve highway safety by preventing collisions, reducing the severity of collisions, and reducing GHG emissions was a pressing and substantive objective.[81] Expert evidence supported the safety benefits of mandatory lower speeds as it minimized the severity of crashes on roadways, and the Court found that the legislation was rationally connected to the objective.[82] The Court recognized the deference that must be given when dealing with complex regulatory responses to social problems, being satisfied that the legislation was minimally impaired. The Court concluded that the motivation to save lives on roadways outweighed, at least to a certain degree, individual autonomy on the road.[83]

Justice Lauwers wrote: “Perhaps the way forward for the Charter evaluation of safety regulations is to recognize them as a distinct category of legislation, and to require the claimant to establish overbreadth or gross disproportionality under s. 7 not on an individual basis, but on

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[76] 24 WCB (2d) 403.
[77] 2010 BCSC 625.
[78] *R v Michaud*, 2015 ONCA 585, at para 1.
[79] *Ibid*.
[80] *Ibid*, at para 156.
[81] *Ibid*, at para 157.
[82] *Ibid*.
[83] *Ibid*, at para 142.

a more general basis, balancing the effects on the individual claimant and similarly affected persons together against the effects of the regulation on the intended beneficiaries."[84]

E. Recommendations

Our approach in making these recommendations prioritizes the safety of pedestrians—which includes virtually everyone at some point—and cyclists, consistent with plans and policies at all levels of government to promote clean modes of transportation in addressing the climate crisis. The safety imperative must trump considerations relating to the profits of manufacturers and retailers or the desires of consumers, as shaped by marketers.

Federal

1. ***Within six months, complete and make public, a review of research relating to the greater danger of pickups and large SUVs --- with a specific focus on the height of a vehicle's front-end --- and report on changes required to manufacturing specifications or vehicle technologies to render these vehicles no more dangerous than conventional cars.***

There is already a substantial body of research in the U.S. about the greater danger of pickups and large SUVs to pedestrians and cyclists. Since Canadian pedestrians and cyclists are no less vulnerable to crashes than pedestrians and cyclists in the U.S., the research need not be replicated but merely summarized and reported to Canadians. Indeed, the lack of such a review and report, given the significant public interest—and the known prejudice to the safety of road users—is troubling. The surging number of pickups and large SUVs across Canada, and the predictable and avoidable loss of life in related crashes, makes such a review and report urgent before our roads come to be dominated by such vehicles.

The report should include an assessment of available technologies that would reduce the dangers posed by pickups and large SUVs, with a view to making these technologies mandatory on new vehicles and added to existing vehicles on Canadian roads. Safety systems such as automatic emergency braking and pedestrian detection systems are now commercially available. Front-end crash prevention sensors can detect pedestrians and warn drivers about a potential collision. An assessment of whether these technologies would be effective on larger vehicles, including at night or at high speeds, or in detecting children or pedestrians in crosswalks during vehicle turning manoeuvres is needed.[85] The best approach, however, is to change vehicle design specifications to address dangers such as front-end heights so that detection prevention and related technologies are not needed in the first place.

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[84] *Ibid*, at para 151.

[85] Ellen Edmonds, "AAA Warns Pedestrian Detection Systems Don't Work When Needed Most," (2019), *AAA*.

In its 2018 review of heavy trucks, Transport Canada noted that driver blind spots, primarily caused by poor cab design, can be addressed by reducing the size of support columns and repositioning them so that the truck driver's field of vision is almost entirely unobstructed. A similar study of changes to the design of pickups and large SUVs is required. Since the height of the driver above the road likely impairs the driver's view of the road, specifications may be required to adjust the manufacturing process as a prerequisite to granting the federal safety mark.

Given the greater danger posed by pickups and large SUVs, the federal government should require other effective safety technologies on vehicles to prevent certain drivers—those impaired by drugs or alcohol or unlicenced and uninsured drivers—from getting behind the wheel of these vehicles. Such tools are helpful for all vehicles but prioritized for drivers of pickups and large SUVs, given the greater danger. Similarly, GPS location-based speed-limiting technologies should be seriously considered, along with the prohibition of in-car screens or the use of cell phones while driving, including hands-free, given the more significant dangers of light trucks. Provincial jurisdiction over some facets of vehicle operation means that their collaboration should be sought. The federal and provincial governments should likewise collaborate to require in-vehicle breathalyzers and identification systems to prevent the operation of pickups and large SUVs by impaired individuals.

2. ***Update the Canada Motor Vehicle Safety Standards (CMVSS) within 18 months to include an assessment of the risks to pedestrians and cyclists in crashes with motor vehicles in the test criteria. Grant the National Safety Mark only to manufacturers that meet a high safety standard --- with particular focus on a vehicle's front-end height --- as it relates to the safety of road users beyond vehicle occupants.***

Educating the public, either as road users or as consumers of pickups and SUVs, is the easiest first step in lessening the danger of these vehicles to pedestrians and cyclists. Consumers in the market for a new vehicle may decide that the added danger constituted by a pickup or large SUV is unacceptable and imprudent. Such ratings are also a useful tool for road safety advocates.

A rating system that only considers the safety of vehicle occupants is inconsistent with current national, provincial, and municipal priorities to encourage walking, cycling, and transit to address the climate crisis. The current system must be considered outdated. This recommendation is consistent with the European New Car Assessment Program, which determines a vehicle's threat to pedestrians and cyclists. The U.S. National Highway Traffic Safety Administration (NHTSA) does have a "New Car Assessment Program" that rates the safety features of cars, including blind spot detection devices, but does not yet require information about vehicles relating to pedestrian or cyclist injuries.[86]

[86] Euro NCAP, "Vulnerable Road User (VRU) Protection," (N.D).

A proposal before the New York State Assembly would require the state's Department of Transportation (DOT) to maintain a database ranking for each vehicle model based on the rate of crashes and the severity of injuries to pedestrians or cyclists, thus allowing for the labelling of new cars and the education of consumers about safety risks associated with a vehicle.[87] Such a rating system could be adopted in Canada to rate and highlight safety risks associated with particular vehicles and thereby discourage consumers from purchasing vehicles that are a danger not only to other road users but to their family members during manoeuvres such as, for example, backing out of a home driveway. Would a parent be as likely to buy such a vehicle if informed of the potentially tragic consequences?

3. ***Make regulatory changes to require advertisers of pickups and large SUVs to include warnings about the greater danger of pickups and large SUVs to other road users, including pedestrians and cyclists.*** **Concurrently, work with provincial governments to implement an education program to further awareness of the dangers of pickups and large SUVs.**

France and Belgium, for example, already require car advertisements to encourage more eco-friendly forms of transport and lower fuel consumption and CO_2 emissions. Ads must also remind drivers of their obligation to conduct themselves safely. Significantly, France has banned advertising for the most polluting vehicles, including SUVs and pickups, starting in 2028.[88]

This recommendation would require Transport Canada to collaborate with other federal agencies since it does not have direct authority over advertising. The lead agency is the Competition Bureau. However, given that Transport Canada oversees the safety requirements of vehicles, it is best equipped to inform the Competition Bureau of the dangers that certain large vehicles pose with a view to creating new advertising standards. A valuable precedent for such warnings is the work of Health Canada over many years in requiring warnings on cigarette packages, albeit relying on its specific legislative authority. Given the effectiveness of such warnings in educating the public and saving lives, governing legislation should be reviewed and, if necessary, updated to ensure Transport Canada has the same authority to require advertising warnings.

The worsening climate crisis in Canada—including unprecedented wildfires, heat waves, and violent storms—should offer sufficient motivation for the federal government to go even further, taking up the call for a broader ban on the advertising of fossil fuels, including for fossil-

[87] Michelle Thompson, "NHTSA Seeks to Better Detail How Vehicles Protect Pedestrians," (2023) *Repairer Driven News.*

[88] The City of Amsterdam bans all ads from fossil fuel companies as a municipal precedent.

fuel powered cars—consistent with the demands of a variety of groups in both Europe and in Canada, including the Canadian Association of Physicians for the Environment (CAPE).[89]

4. ***Ban pickups and large SUVs from sale in Canada that cannot be rendered, with changes to manufacturing specifications --- including front-end vehicle height --- or additional vehicle technologies, at least as safe to pedestrians and cyclists as conventional road vehicles.***

The most dangerous pickups and SUVs should be restricted or even banned in cases where other measures are inadequate. This may be necessary for the largest pickups or SUVs, where enormous front ends simply pose too great a risk to other road users. Without plausible real-world needs, the case is easily made—in the public interest—to ban their use.

Provincial

5. ***Establish a new class of driver's licence for pickups and large SUVs that includes testing the operator on an awareness of the added dangers of these vehicles to vulnerable road users, including pedestrians and cyclists, and driving skills that allow the operator to address these dangers.***

Provincial measures should include enhancing existing driver training programs to better protect pedestrians and cyclists from the operators of pickups and large SUVs. Establishing a new licence class for pickups and large SUVs would ensure that operators know the extra dangers their vehicles pose and have the requisite skills to address these added dangers. This new class, or a variation of the Class D licence, would recognize that standard driver training does not prepare drivers to operate these vehicles safely, including, for example, the necessary expertise to compensate for driver blind spots, especially during turning maneuvers.

Most jurisdictions have a general licence class that covers the operation of various vehicles but require special licences for large trucks and buses. Given the large size of certain vehicles, additional licensing requirements should be imposed on their drivers.

The provincial government can also play a role in educating consumers about vehicle dangers. Safety campaigns that educate consumers contemplating buying one of these large vehicles should be implemented.

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[89] Samantha Green *et al.*, "Doctors Demand Ban on Fossil Fuel Ads to Save Lives," (2023) *National Observer*, *cf.* www.banfossilfuelads.org.

6. ***Reintroduce vehicle registration taxes and other fees based on size, weight, and horsepower while concurrently encouraging or rewarding small vehicle buyers with financial incentives.***

Vehicle registration taxes should be implemented on a sliding scale so that the amount of the fee is commensurate with the additional dangers posed by pickups and large SUVs. In Ontario, where the annual vehicle registration fee was eliminated in 2021, the system should be reintroduced based on such a sliding scale. The fee could be based on the new safety rating system, pursuant to a new federal standard. The result would be a regime that requires owners of bigger vehicles to pay more, consistent with their greater danger and their contribution to faster road deterioration.[90] A registration fee based on such considerations is already in place in the province of New Brunswick.[91]

Professor Justin Tyndall offers a compelling argument for "Pigouvian taxes" to internalize the costs of pedestrian fatalities attributable to driving a light truck instead of a car. These taxes, suggests Tyndall, could be implemented with annual taxes based on vehicle type equal to the marginal external costs so that the greater pedestrian fatality risk is internalized in the cost of a vehicle.[92]

7. ***Update provincial highway traffic laws to address the greater danger of pickups and large SUVs, including restrictions that would apply to all motor vehicles. Concurrently, update provincial municipal acts or other governing legislation to allow municipalities to restrict pickups and large SUVs from inner city streets or designated community safety zones. Changes to provincial highway traffic laws for pickups and large SUVs to include:***

    - ***denying access to high-density areas or residential streets;***
    - ***imposing restrictions, including a ban on right turns at red lights;***
    - ***prohibiting use in designated community safety or similarly designated zones;***
    - ***prohibiting use in designated school zones; and***
    - ***imposing increased fines for traffic offences committed by drivers of such vehicles.***

Since the operation of vehicles on roads falls under provincial jurisdiction, the provinces have an essential role in addressing the dangers posed by pickups and large SUVs. Vehicle modifications that further raise the cab (and the driver) above the road must be prohibited, while existing laws prohibiting such modifications much be enforced, given the problem of the driver blind spots. Where not yet in place, restrictions should also be imposed on features such as 'bull bars' that increase harm to pedestrians in crashes. Changes to the provincial laws must

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[90] Under such a system, electric cars that might otherwise be preferred would be penalized for the risks associated with the greater danger to pedestrians and cyclists due to their heavier weight. Norway, *e.g.,* is already imposing heavier taxes on electric vehicles due to their heavier weight and associated danger. *Cf.,* David Zipper, "If You Want a Car This Heavy, You Should Pay Through the Nose," (2023), *Slate,* at para 7.

[91] New Brunswick, "Motor Vehicle Registration" (N.D).

[92] *Supra,* note 17.

be accompanied by greater enforcement, potentially by including the obligation of pickups and SUVs to be tested at provincial highway inspection and testing stops.

The *Highway Traffic Act* in Ontario, as in other provinces, allows right turns on red signals, subject to municipally posted exceptions.[93] The blind spots for pickup trucks and large SUV drivers require this provision to be updated, commensurate with the danger.

8. ***Increase insurance rates for pickups and large SUVs to update such fees based on the added dangers these vehicles pose.***

Since insurance rates are based on various factors, including the type of vehicle, insurance rates should be legislatively adjusted to require higher fees based on the dangers of pickups and large SUVs. In spreading the costs of risk to those who create it, drivers of conventional cars may pay less.

Municipal

9. ***Increase parking fees to reflect the size of vehicles and the space they occupy. Increase parking fines for pickups and large SUVs that park in high-density areas where parking spots are at a premium. Implement a requirement that large SUVs and pickups park in separate, defined areas of parking lots away from pedestrian traffic.***

Parking lots are not subject to HTA and are extremely dangerous areas. Children and families are frequently in these high-traffic areas.

Municipalities must increase parking fees for pickups and large SUVs to reflect the actual space consumed and discourage the use of such vehicles. Pedestrians, cyclists, and conventional car drivers should not subsidize larger vehicles. Where residential parking permits exist for overnight parking, the price of these permits should increase for larger vehicles.[94] The borough of Rosemont-La Petite-Patrie in Montreal can serve as a model for implementing higher parking permit fees for larger vehicles.[95]

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[93] *Supra,* note 49, ss 141-4.

[94] U.S. commentator David Zipper argues for the scaling of local fees, including parking fees, to vehicle size, making more parking spaces for small cars, banning certain large vehicle features such as "bull bars" that increase harm to pedestrians in crashes, and reducing the size of vehicles in city fleets. David Zipper, "How Cities Can Reclaim Their Streets from SUVs", (2020), *Bloomberg*. European cities have begun taxing vehicles based on their weight and CO_2 emissions, making purchasing and driving smaller vehicles more favourable.

[95] *Supra,* note 71.

10. ***Update Vision Zero and related municipal road safety plans to highlight the dangers of pickups and large SUVs to other road users – and articulate remedial measures to address these dangers, including measures such as banning right turns at red lights and establishing geographic restrictions to prohibit pickups and large SUVs in areas of heavy pedestrian and cycling traffic.***

    The restrictions to be included are:
    - ***Create a Road Classification System, to be reviewed at the provincial level to restrict pickups and large SUVs on specific urban roads based on width [i.e., roads where space width is reduced due to painted bike lanes, sharrows] and road areas where pedestrian walkway/sidewalk width exceeds roadway area;***
    - ***In addition to "Community Safety Zones," "Community Safety Times" would allow pickups and large SUVs to travel on certain streets during specific periods when pedestrian and cyclist usage is lower – i.e., not during rush hour; and***
    - ***Where applicable, restrict pickups and large SUVs to specific lanes (like trucks on the highway).***

Municipal Vision Zero and other road safety plans generally do not acknowledge the added dangers inherent in pickups and large SUVs to other road users. By first drawing attention to these dangers, municipalities can draw on a range of existing tools and measures to address these dangers.

Municipalities, in collaboration with provincial governments, can push for an expansion of their powers to restrict certain types of vehicles in areas of the city where there is heavy pedestrian and cycling traffic. In Ontario, for example, cities have specific powers to establish higher fines and speed cameras in "community safety zones." Still, municipal powers for such areas are subject to specific limits that need expansion. The busiest, high-risk areas in the city should be designated for smaller vehicles only, with delivery trucks and emergency services excepted.

11. ***Establish safety and utility criteria in the purchasing decisions for municipal vehicle fleets.***

Vehicle purchases must include road safety considerations, particularly the greater danger of pickups and large SUVs. Municipalities, including transit agencies, should adopt criteria in their purchasing decisions that discourage the purchase of pickups and large SUVs. Where the need for a pickup can be justified, the specific size of the vehicle must be related to real-world needs. Over-sized pickups will generally not be needed, for instance, for simple gardening and landscaping tasks in parks. Yet, a proliferation of the largest model pickups has been observed in the City of Toronto Parks & Recreation Department fleet and among vehicles of the city's transit commission. It is ironic to see over-sized pickups in the city's parking authority fleet moving lightweight BikeShare bicycles around the city. In fact, the larger size of the new vehicles is sometimes used to rationalize the need for larger bridges and paths in the parks.

Image 10: Municipal vehicle fleets are increasingly populated by pickups, often in the absence of good reasons to justify the purchase of these larger vehicles. The default position for vehicle purchases must be the public's safety as road users, consistent with priorities to encourage walking, cycling and transit use. (Photo by Nicholas Kinnish)

F. Conclusions

At the very time when there exists a strong consensus about the urgency of action to address road dangers—in part in recognition of the need to promote walking and cycling to reduce transportation emissions—the passenger vehicle fleet is growing in size at an alarming rate.

Canadians expect their governments to operate in their best interests and for regulators to act swiftly and effectively to keep them safe, for example, from lethally dangerous consumer products. In the case of increasingly deadly vehicle design, all levels of government must step up to save lives.

There are solutions to the troubling road safety problems posed by the surging number of pickups and large SUVs. All level of government in Canada must acknowledge the problem and commit to taking action, quickly.

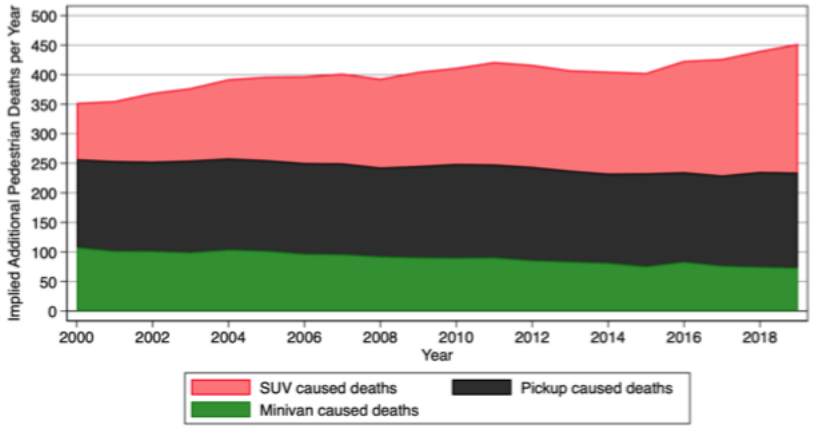
APPENDICES

1. Summary of U.S. Research on the Dangers of Pickups and Large SUVs

Professor Justin Tyndall, "Pedestrian Deaths and Large Vehicles," *Economics of Transportation,* Volumes 26–27, June–September 2021 (U.S.).

- for the period 2000-2019, an estimated "8,131 pedestrian lives would have been saved if all light trucks had been cars. The reduction would be equal to avoiding 9.5% of all pedestrian deaths (p. 24);"

Figure 6: Annual Pedestrian Deaths Averted if all Light Trucks had been Cars



Relying on estimated partial effects, the figure plots the number of pedestrian fatalities that would have been averted if all light trucks were replaced by cars. Over the entire study period, converting all light trucks to cars would have prevented 8,131 pedestrian deaths.

- "In 2000, converting all light trucks to cars would have spared 353 pedestrians, while by 2019 the figure had grown by 30% to 459 pedestrians. Accounting for the overall population increase of the metros, the number of pedestrian deaths attributable to light trucks increased by 7.6% on a per capita basis (p. 24)."

- "Vehicle body types appear to be an important determinant of pedestrian deaths in the aggregate, strengthening arguments made in the transportation safety literature regarding the link between larger light trucks and more severe pedestrian injuries;

- "average vehicle size has undergone a sustained increase over the past 20 years, with no signs of abating. If the popularity of large vehicles continues to rise, there is likely to be a corresponding increase in pedestrian fatalities. Given strict federal regulation of vehicle safety standards, it is perhaps surprising that there is limited legislation that restricts the

overall size and body type of vehicles with the intent of improving pedestrian safety (p 27);"

- "While larger vehicles are designed to protect their drivers and passengers in the event of a crash, less concern is given to the effect on pedestrians;"

- "Jointly considering that light trucks do not appear to improve aggregate road safety, but do improve driver and occupant safety suggests that driving a larger vehicle offloads fatality risk from the occupants to other road users (p. 22)." [This phenomenon was lampooned in *The Onion* in a macabre article, "Conscientious SUV shopper just wants something that will kill family in other car in case of accident," September 2020];

- two potential reasons why light trucks (including pickups and SUVs) are more deadly than conventional cars:

    - the additional weight of pickups and SUVs means it takes more time for the motorist to stop the vehicle and the vehicle will strike with more force in a collision; and
    - the higher front end of a pickup or SUV affects the point of impact with a pedestrian. In crashes with conventional cars the pedestrian may be hit in the legs and propelled over the hood, while crashes with SUVs are more likely to involve the victim's head and torso, harming vital organs and sending the victim under the wheels

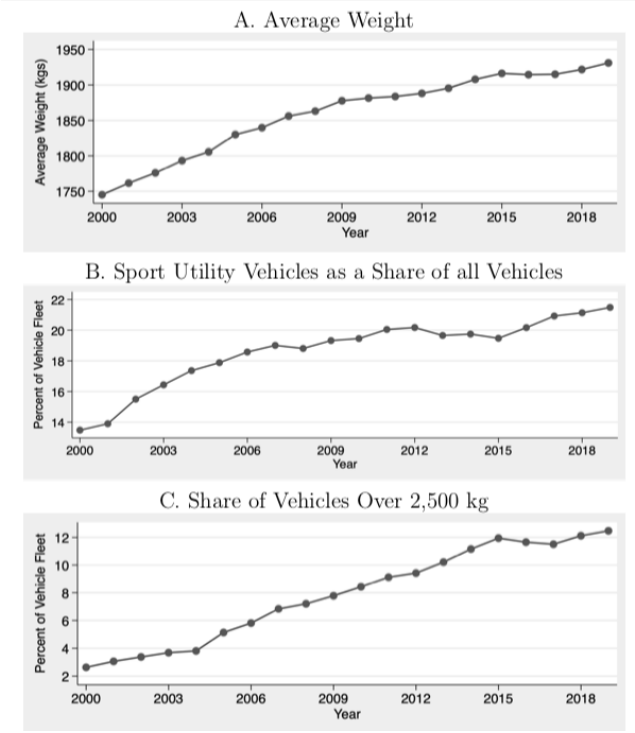
- "Between 2000 and 2019 the average weight of consumer vehicles involved in a fatal crash increased by 11%, the prevalence of SUVs increased by 59% and the share of vehicles that are more than 2,500 kg increased by 374% (p. 2);"

- every 100 kg increase in average vehicle weight is associated with an additional .03 fatalities per 100,000 residents;

- there is a statistically significant difference between large and small SUVs in the danger to pedestrians;

- pickups, minivans and SUVs all significantly increase pedestrian fatalities relative to cars. Converting 10% of the vehicle fleet from cars to pickups is estimated to increase the pedestrian fatality rate by .04 deaths per 100,000 residents (3.4% in the median metro area);

- since 2000, in metropolitan areas of the U.S., containing 77% of population, there has been a significant increase in size and weight of vehicles involved in fatal collisions:



- several additional papers are cited about the increased danger of pickups and SUVs, and although these papers are now somewhat dated, there is little evidence that changes to vehicle design have made these vehicles less dangerous to pedestrians.

Professor Justin Tyndall, "The Effect of Front-end Vehicle Height on Pedestrian Death Risk," University of Hawai'i Economic Research Organization and University of Hawai'i Department of Economics, Honolulu, USA, January 12, 2024

- a 10 cm increase in vehicle height is associated with an estimated 22 percent increase in fatality risk for a pedestrian that is struck;

- capping front-end vehicle height at 1.25 metres, would save 509 lives each year in the U.S. in crashes involving pedestrians;

- "While some past studies have used vehicle body type (i.e. light truck vs car) as a proxy for size, this is the first study to combine vehicle-level dimension measurements with real-world crash-level data to estimate the partial effect of vehicle size on pedestrian death probability (p. 2);"

- Taller front-end heights lead to greater pedestrian fatality risk (p. 2);

- Earlier studies focusing on greater protection for occupants of larger vehicles in crashes with other vehicles generally ignored impacts on road users such as pedestrians, while later studies found that larger vehicles increased road danger in the aggregate (p. 2);

- Almost all cars (95 per cent) have front-end heights under 1.25 metres, while 70% of light trucks have a front-end height over 1.25 metres (p. 9);

- There is a strong correlation between vehicle weight and vehicle height (though the height likely plays a greater role than weight in danger to pedestrians);

- "There is a dramatic difference in pedestrian death probability across vehicle types; Pedestrians hit by a car die in 8.5% of crashes. For crashes involving a van, the figure is lower, at 6.6%. Compact SUV crashes have a death rate similar to cars (8.8%). Crashes involving a pickup or full-size SUVs stand out as having significantly higher death rates, at 11.9% and 12.4% respectively (p. 11);"

- Of the investigated crashes involving a pickup and a pedestrian, a male was the driver of the vehicle in 89 per cent of cases; in the crashes involving a full-sized SUV, the figure for males dropped to 56 per cent (p. 15);

- The chance that a pedestrian will die in a crash is 68 per cent higher when the vehicle is a pickup than if the vehicle is a car; the probability increases to 99 per cent when the vehicle is a full-sized SUV (p. 16);

- "a 10 cm increase in front-end height relates to a 22% increase in pedestrian death probability (p. 19);" (This figure rises to 28 per cent when controlling for body type);

- Front-end height may be a more important factor in pedestrian fatality risk than vehicle weight (p. 19);

- Under similar crash conditions, female pedestrians are 70 per cent more likely to die in crashes involving pickups than males, a factor likely related to the lower height of women (p. 20);

- "the partial effect of vehicle front-end height is much larger for women and children. While a 10 cm increase in front-end height raises male pedestrian death probability by 19%, it raises female pedestrian death probability by 31%. A 10 cm increase raises the death probability of 18-65 year old pedestrians by 21%, while it raises the probability a child pedestrian will die by 81%, roughly four times the effect among adults (p. 20);"

- If all compact SUVs were replaced by cars, a total of 398 pedestrians would be killed across the U.S. each year (p. 25) (Compact SUVs, are less dangerous than large SUVs and

pickups, but they are more common than other light trucks. Full-size SUVs are more dangerous than pickups, but also significantly less common);

- If all light trucks (mainly pickups) were replaced by cars, 1,179 fewer pedestrians would have died in 2021 (p. 25);

- If full-size SUVs were replaced with cars, 227 pedestrian lives would be saved each year;

- "The [counterfactual] result suggests pedestrian mortality could be meaningfully lowered by shifting towards smaller vehicles (p. 25);"

- "Using 2019 pedestrian fatality data, the estimates of the current paper imply converting all light trucks to cars would have averted 1,001 pedestrian deaths in 2019 (p. 25);"

- "The presence of light trucks can result in 16 per cent more pedestrian deaths annually;"

- "Complying with the 1.25-meter limit would require the average non-conforming vehicle to reduce its front-end height by 12 cm (p. 27);"

- "Front-end heights that exceed 1.25 meters cause between 293 and 509 annual pedestrian deaths. While I estimated light trucks in general are responsible for 10-16% of pedestrian deaths, I estimate **4-7% of annual deaths are specifically caused by front-end heights that exceed 1.25 meters** (emphasis added, p. 27);"

- "A 1.25-meter threshold would require design changes for large, popular pickups such as Ford F-series trucks or the Chevrolet Silverado, but would not require design changes for many compact SUVs. For example, the Honda CR-V, a popular compact SUV, has a front-end height that has been at or below 1.24 meters for all model years observed in the data (p. 28);"

- "I can estimate the reduction in pedestrian death likelihood that would have occurred had each fatal crash involving a vehicle with a front-end above 1.25 meters instead had a 1.25-meter front-end. I estimate the policy would improve the chance of survival for pedestrians struck by these non-conforming vehicles by an average of 24.0%. Across the 2,126 pedestrians killed by high-front-ended vehicles (>1.25 m), **I estimate 509 lives would be saved annually by adopting a 1.25-meter front-end limit. The lives saved equal 7% of annual pedestrian deaths** (emphasis added, p. 27);"

- "Reducing the limit to 1.2 meters would spare an estimated 757 pedestrian lives per year, and further reducing the cap to 1.1 meters would spare an estimated 1,350 pedestrian lives per year (p. 27);"

- "high-front-end vehicle designs are particularly culpable for the higher pedestrian death rate attributable to large vehicles. A 10 cm increase in the front-end height of a vehicle increases the risk of pedestrian death by 22%. Conditional on multiple measures of vehicle size, **front-end height displays the most significant effect** (emphasis added, p. 29);"

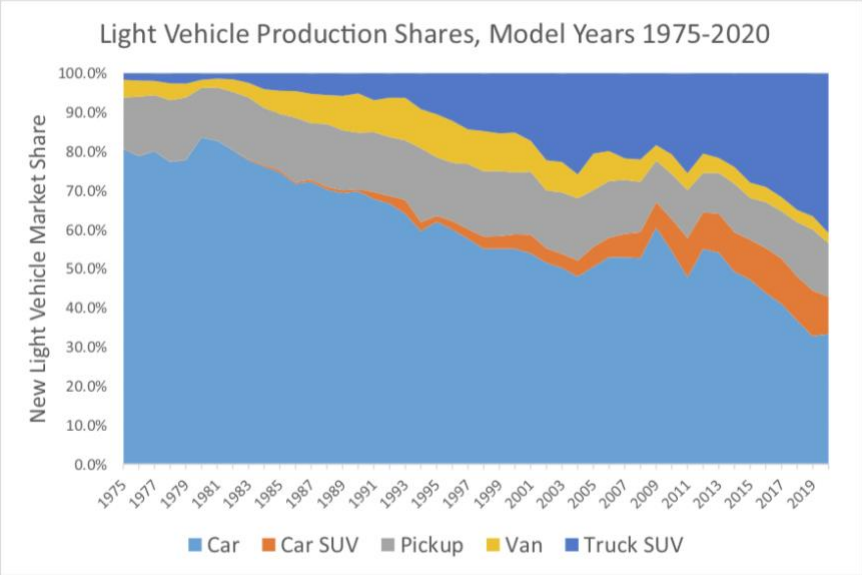
- "once front-end height is controlled for, the impact of vehicle weight is small, suggesting the regulation of body design may be more important for pedestrian safety than the regulation of vehicle weight per se. However, because the two measures are highly correlated in practice, weight regulations could generate positive pedestrian safety effects (p. 29)."

Mickey Edwards and Daniel Leonard, "Effects of Large Vehicles on Pedestrian and Pedal-cyclist Injury Severity," *Journal of Safety Research*, June 2022[96]

- from 2010 to 2019 pedestrian fatalities [in the U.S.] increased by 46% to 6,301 deaths;

- While the purchase of conventional cars is diminishing in the U.S., sales of "truck SUVs" has increased significantly [a similar trend is evident in Canada]:

[96] *Supra*, note 5. Please refer to in-text and footnote links for all sources in the appendixes.



- "Taller and heavier vehicle types (like pickup trucks, SUVs, and vans/minivans) combined to make up just 26.1% of pedestrian and pedalcyclist crashes, but were the striking vehicle in 44.1% of fatalities;"

- "SUVs were especially overrepresented in fatalities. Though SUVs were the striking vehicle in 14.7% of cases, they were involved in greater than one-in-four (25.4%) fatalities;"

- "Pickup trucks were also overrepresented in fatal pedestrian and pedalcyclist crashes relative to the proportion of all cases. Of all pedestrian and pedalcycle fatalities, 12.6% involved a pickup truck – some two and a quarter times the proportion of all cases involving a pickup. Conversely, though passenger cars were the striking vehicle in 62% of cases, they were involved in just 38.4% of fatalities;"

- "A child (under age 18) struck by a SUV was eight times more likely to be killed than a child struck by a passenger car;"

- "An adult (aged 18–64) struck by a pickup truck was four times more likely to be killed than an adult struck by a passenger car. And a senior (aged 65 and over) struck by a pickup truck was nearly three times more likely to be killed compared to a senior struck by a passenger car;"

- "In every age group, passenger cars represented the greatest proportion of fatalities, though they were underrepresented relative to the proportion of cases in which they were involved. For example, passenger cars were the striking vehicle in almost 62% of

pedestrian and pedal cyclist crashes involving children, but just about 19% of childhood fatalities;"

- "the proportion of fatalities involving pickup trucks was more than double the overall proportion of pickup trucks involved in pedestrian and pedalcyclist crashes for all age groups. For example, pickup trucks were the striking vehicle in 6.1% of all cases involving seniors, but represent 13.5% of all senior pedestrian and pedalcyclist fatalities;"

- "SUVs were particularly deadly for children. SUVs were the striking vehicle in greater than 40% of childhood fatalities, even though SUVs were involved in just 16.9% of childhood cases;"

- "children represented 21% of all pedestrian and pedalcyclist crash victims but 26.1% of cases involving SUVs – implying SUVs were not only more deadly, but also disproportionately struck children;"

- "Together, SUVs, pickup trucks, and vans/minivans combined to cause two-thirds of fatalities involving child pedestrians and pedalcyclists;"

- "the model estimates that a pedestrian or pedalcyclist struck by a pickup truck was 4.7 times more likely die as a result. Those struck by a SUV or van were 3.37 times and 4.58 times more likely to be killed, respectively;"

- "Pedestrians and pedalcyclists struck by a large motor vehicle were more likely to suffer moderate or worse injuries to their thorax compared to those struck by a passenger car. Though the proportion of pickup trucks involved in all cases examined here was 5.6%, that proportion nearly doubles to 11.1% of all non-minor thorax injuries."

Professors Michael Anderson and Maximilian Auffhammer, "Pounds That Kill: The External Costs of Vehicle Weight," National Bureau of Economic Research, 2013

- "Heavier vehicles are safer for their own occupants but more hazardous for other vehicles;" and

- controlling for own-vehicle weight, being hit by a vehicle that is 1,000 pounds heavier generates a 40-50% increase in fatality risk.

We note that in the context of road crashes, and based on these findings, the transition to electric vehicles will not alleviate the danger since electric vehicles are heavier

because batteries add about 1,000 lb to a vehicle. The GMC Hummer EV's battery, for instance, weighs about 3,000 lb, adding to a vehicle that already exceeds 9,000 lb

Insurance Institute for Highway Safety (U.S.A.)

May 2018 study[97]

- in the period 2009 to 2016, pedestrian fatalities involving SUVs increased by 81%—more than for any other vehicle type; and

- the higher, and often more vertical, front ends of SUVs, compared to cars, are more likely to strike a pedestrian in the head or chest;

May 2020 study[98]

- this review of SUVs in 79 serious injury or fatal crashes with pedestrians in the State of Michigan found that the "leading edge" (namely, the front end) produces an elevated pedestrian injury risk, a finding that was consistent with previous research;

- at speeds of 20-39 mph (31 to 63 km/h), 30% of crashes involving late model SUVs (the median model year for the vehicles was 2009) resulted in a pedestrian fatality, compared to 23% for cars;

- during the past two decades SUVs have remained disproportionately more likely than cars to injure pedestrians;

- "In a crash with a traditional, block-front SUV, the grille strikes the pedestrian's pelvis or chest split seconds after the bumper hits the lower extremities, transferring more energy to the pedestrian's body. It's possible that a more sloping profile could do less damage;"

- earlier research from the 1970s, 80s, and 90s showed that a pedestrian involved in a crash with an SUV, pickup or van was two to three times more likely to die than if the pedestrian was struck by a sedan;

[97] [See this link]
[98] [See this link]

- Subsequent design changes to SUVs reduced the risks **to occupants of other vehicles** in crashes (though pickups lagged in such design changes), but it is unclear if the changes had any beneficial outcome for pedestrians in crashes with SUVs; and

- single-vehicle pedestrian fatalities involving SUVs increased more than those involving other vehicle types over the past decade;

March 2022 study[99]

- "certain types of pedestrian crashes — including those that occur while the vehicle is turning — are more likely to occur with SUVs, pickups, vans and minivans

- "At intersections, the odds that a crash that killed a crossing pedestrian involved a left turn by the vehicle versus no turn were about twice as high for SUVs, nearly 3 times as high for vans and minivans and nearly 4 times as high for pickups as they were for cars;"

- "The odds that a crash that killed a crossing pedestrian involved a right turn by the vehicle were also 89 percent higher for pickups and 63 percent higher for SUVs than for cars;"

- "At or near intersections, pickups were 42 percent more likely and SUVs were 23 percent more likely than cars to hit pedestrians when turning left;"

- "Away from intersections, pickups were 80 percent and SUVs were 61 percent more likely than cars to hit a pedestrian walking or running along the road;"

- "the size, shape or location of the A-pillars that support the roof on either side of the windshield could make it harder for drivers of these larger vehicles to see crossing pedestrians when they are turning;" and

- "Some general vehicle-design solutions that have already shown promise include AEB systems that can detect and avoid pedestrians or reduce impact speed; hood airbags; hoods that automatically pop up on impact; and more sloped front ends."

OECD, International Transport Forum report on Canada[100]

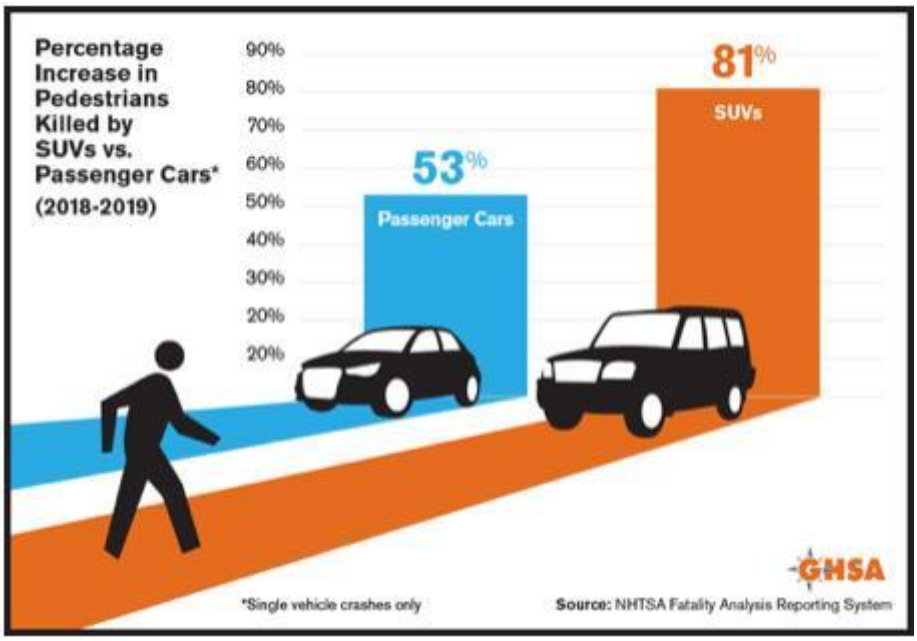
[99] [See this link] The IIHS published their 2023 study here.
[100] [See this link]

- "since 2010, the number of fatal casualties decreased for all user groups with the exception of pedestrians. Between 2010 and 2018, against an overall decrease of 14%, the number of road deaths … increased by 5.6% for pedestrians (p. 3)."

U.S. Governors Highway Safety Association, 2019 preliminary data[101]

- Between 2008 and 2019, pedestrian fatalities in the US increased by 53%;

- in the period 2018-2019, pedestrian fatalities in crashes involving SUVs increased by 81% compared to 53% for cars;



[101] [See this link]

2. Select Examples: Pedestrian and Cycling Deaths Involving Pickups and Large SUVs, 2021-2023

City of Toronto - 2021 Data

- Analysis of deaths in Toronto in 2021 involving pickups and SUVs
- We reviewed all pedestrian and cyclist deaths in 2021 on Toronto roads involving pickups and SUVs
- In 2021, approximately 35 per cent of those deaths in Toronto involved SUVs while another 10 per cent involved pickup trucks. The number of vehicle occupant deaths has dramatically decreased in the past 20 years, while walking and cycling deaths have stayed the same or increased.
- Toronto police records of pedestrian and cyclist deaths for the year 2021, admittedly a small sample size, are generally consistent with the academic research
- Toronto Police Service data for 2021 shows that in the 20 pedestrian and cyclist deaths where the motor vehicle was identified, 45% were killed by pickups and SUVs, compared to 20% by conventional cars.

Type of vehicle	**# of fatalities (pedestrian/cyclist)**	**% of fatalities (pedestrian/cyclist)**
Conventional cars (e.g., sedans, coupes)	4	20%
Pickups	2	10%
SUVs (crossovers and large SUVs + Jeeps)	7	35%
Heavy trucks (dump or cement trucks)	4	20%
TTC	0	0%
Minivans and commercial vans	3	15%
Total	20	100%

Toronto Police Service Data – List of cases in 2021

#	Date	Vehicle	Location	Victim	Facts/Allegations based on police or media reports
1	Dec 26, 2021, Sun; 2:02pm	SUVs (as reported in media)	Richmond Street West at Yonge Street	18-yr-old man, pedestrian (died Jan 1, 2022; other pedestrians injured)	TPS Case #: 2021-2486085 Fatal Collision #60 - a silver Kia operated by a 22-yr-old man was travelling westbound in the left lane; a white Hyundai operated by a 32-yr-old man was also travelling westbound in the middle lane; the Hyundai turned left across the path of the Kia; they collided causing the Kia to roll on its side striking multiple pedestrians; eight people were transported to hospital, two in life-threatening condition. *Cf.,* Global News
2	Dec 12, 2021, Sun, approx 7:30 pm	Hyundai Santa Fe SUV 2021 or 2022	Sheppard Avenue East and Allanford Road	82-yr-old man, pedestrian	TPS Case #: 2021-2396112 (Fatal Collision #56) - man was crossing Sheppard Av E from the north side to the south side, just east of the intersection; white SUV travelling eastbound on Sheppard Ave E struck the pedestrian; the vehicle did not remain on scene and was last seen driving north on Kennedy Rd; the pedestrian was pronounced deceased at the scene; Driver identified, wanted for Leaving the Scene of an Accident Causing Death.
3	Aug 27, 2021, Fri, approx. 2:00 pm	Ford F150 pickup	Bathurst Street and Queens Quay West.	89-yr-old man, pedestrian	TPS Case #: 2021-1633249 (Fatal Collision #32) - 31-yr-old man driving a Ford F150 Pickup truck south bound on Bathurst St; driver made a right turn onto west bound Queens Quay W and contact was made with the victim; the man was taken to hospital where he succumbed to his injuries
4	Aug 26, 2021, Thurs, approx. 3:30 am	Jeep	Harbour Street and York Street	Man, pedestrian	TPS Case #: 2021-1633249 (Fatal Collision #32) - 31-yr-old man driving a Ford F150 Pickup truck south bound on Bathurst St; driver made a right turn onto west bound Queens Quay W and contact was made with the victim; the man was taken to hospital where he succumbed to his injuries
5	Aug 24, 2021, Tues, 8:43 am	2018 Toyota Rav4	Fairview Mall Drive and Don Mills Road area	86-yr-old woman, pedestrian	TPS Case #: 2021-1608912 (Fatal Collision #30) - 43-yr-old woman was operating a grey 2018 Toyota Rav4 in the parking lot; she lost control of the vehicle and drove over a curb; an 86-yr-

					old woman was walking on the sidewalk when she was struck by the vehicle; she was critically injured and succumbed to her injuries on scene
6	July 31, 2021, Sat, approx 4:56 pm	2016 Toyota 4Runner	2900 Markham Road[37]	2-yr-old boy, on foot	TPS Case #: 2021-1443127 (Fatal Collision #24/2021) - 39-yr-old woman was operating a black 2016 Toyota 4Runner on Markham Road and entered the parking lot at 2900 Markham Road through the entrance north of McNicoll Ave; a two-yr-old boy walked into the path of the Toyota 4Runner and was struck by the vehicle; the boy suffered fatal injuries
7	May 21, 2021 Fri, 3:25 am	Volkswagen SUV	Dundas St E and Sherbourne St area	58-yr-old woman, pedestrian (died May 27, 2021)	TPS Case #: 2021-938844 (Fatal Collision #8) - collision involving a pedestrian and Volkswagen SUV; the 58-yr-old woman later succumbed to her injuries.
8	May 20, 2021, Thurs, 2:38 pm	2018 GMC (pickup truck)	Kingston Road and Dorset Road area	66-yr-old woman, on scooter	TPS Case #: 2021-934827 (Fatal Collision #7) - 31-yr-old man was operating a 2018 GMC westbound in the curb lane; a 66-yr-old woman was operating a scooter making a u-turn; the woman was struck by the truck; she was transported to hospital where she succumbed to her injuries
9	Mar 25, 2021, Thurs, 11:00 pm	2015 Toyota SUV	Victoria Park Avenue just north of Sparks Avenue	34-yr-old man, pedestrian	TPS Case #: 2021-552546 (Fatal Collision #3) - collision between a motor vehicle and pedestrian; 46-yr-old woman was driving a 2015 Toyota SUV northbound on Victoria Park Ave; 34-yr-old man was on the east sidewalk, north of the intersection; the man attempted to cross Victoria Park Avenue from the east sidewalk to the west sidewalk and was struck by the northbound Toyota SUV; he suffered significant injuries and later succumbed to his injuries

Toronto Police Service Data – List of cases in 2022

#	Date	Vehicle	Location	Victim	Facts/Allegations based on police or media reports
1	July 30, 2022, Sat, approx	2007 Lincoln Navigator	Wilson Avenue at Clayson Avenue, Toronto	22-yr-old man, pedestrian	**TPS Case #**2022-1458223 Toronto fatal collision #33) Pedestrian crossing Wilson Ave at Clayson Ave; 42-yr-old man operating Lincoln Navigator eastbound on Wilson Ave; driver struck a westbound Mazda 3, which was stopped for a red

	3:36 am				light at Clayson Ave, the Lincoln then struck the pedestrian; the pedestrian succumbed to his injuries and was pronounced deceased in hospital; motorist charged with Impaired Driving Cause Death, Fail to Stop at Accident Scene Cause Death *etc*
2	July 1, 2022, Fri, 11:41 pm	Jeep Grand Cherokee	Wellington Avenue West and University Avenue area	26-yr-old man on sidewalk (32-yr-old male pedestrian suffered severe injuries)	TPS Case #: 2022-1252821 Collision involving three motor vehicles and two pedestrians; 26-yr-old man operating a 2014 Jeep Grand Cherokee westbound on Wellington Ave W; 53-yr-old man operating a 2022 Honda CRV northbound; on University Ave 49-yr-old man operating a 2020 Toyota Corolla northbound on University Ave; the 26-yr-old man drove through the intersection on a red light, collided with the Honda and the Toyota. As a result of this collision, two pedestrians were also struck. Driver of Jeep Grand Cherokee charged with Impaired Operation Cause Death etc. *Cf.,* media: *Global News* and *City TV*:
3	Apr 26, 2022	2019 Subaru Forester	Steeles Avenue East and Bluffwood Drive area	100-yr-old woman, pedestrian	TPS Case #: 2022-774562 Woman walking westbound on the south sidewalk of Steeles Ave E towards Bluffwood Dr; the driver was waiting to make a right turn from northbound Bluffwood Dr onto eastbound Steeles Ave E; 64-yr-old male driver of the vehicle made contact with the woman
4	Mar 31, 2022, 5:15 pm	2020 Cadillac XT6 SUV	Lakeshore Blvd W and Superior Ave	75-yr-old man and 43-yr-old woman, pedestrians	TPS Case #: 2022-598961 36-yr-old man was driving eastbound on Lakeshore Blvd W and Eighth St; a 75-yr-old man and 43-yr-old woman were crossing at a crosswalk from the north side of Lakeshore Blvd W and Superior Ave; the vehicle was travelling at a high rate of speed as it approached the crosswalk and did not stop; the vehicle struck the man and woman
5	Mar 6, 2022, Sun, approx. 3:21 pm	2021 Ford SUV	Bond Street and Dundas Street East area	45-yr-old person, sitting on sidewalk	TPS case #: 2022-425405 59-yr-old man was driving a black 2021 Ford SUV out of a parking lot onto Bond St; a 45-yr-old man was sitting on the sidewalk on the east side of Bond St, south of Dundas St E; the man was struck by the SUV on the sidewalk suffering serious injuries, and later died.

Toronto Police Services – List of cases in 2023

#	Date	Vehicle	Location	Victim	Facts/Allegations based on police or media reports
1	Jan 4, 2023 at 5:10pm	Ford Pick-Up Truck	Lake Shore Blvd West at Second Street	59-year-old Pedestrian	TPS Case #: 2023-27148 Driver of a dark coloured Ford pick-up truck was travelling westbound on Lake Shor Boulevard West and made a right turn onto Second Street when the

					driver struck the 59-year-old man who was walking across. The driver failed to remain at the scene. The man was taken to hospital where he as pronounced deceased.
2	Jan 9, 2023 at 2:43pm	2009 Chevrolet Avalanche	Jane Street and Wilson Avenue	62-year-old Pedestrian	TPS Case #: 2023-66794 Pedestrian was observed running across the roadway from east to west on Jane street with reduced lanes due to construction when driver made contact with pedestrian. Pedestrian died in hospital four hours after the collision.
3	Jan 6, 2023		Yonge Street at Hillsdale Ave E	Pedestrian	TPS Case #: 2023-42197
4	Jan 24, 2023 at 11:59pm		Wincott Drive at The Westway	56-year-old pedestrian	TPS Case #: 2023-188867 Pedestrian was crossing The Westway from north to south when he was struck by a vehicle travelling east on The Westway. Pedestrian was succumbed to his injuries in hospital.
15	June 6, 2023 at 7:29am	Tow Truck	Mount Pleasant Road at Bloor Street East	29-year-old pedestrian	TPS Case #: 2023-1288337 Pedestrian was crossing Bloor Street East to northbound Mount Pleasant Road within the crosswalk when a tow truck traveling across Bloor failed to stop at the stop sign and struck the pedestrian within the crosswalk. The pedestrian succumbed to their injuries
14	May 28, 2023 at 7:30pm		Scarlett Road and Lockheed Boulevard	Male Cyclist	TPS Case #: 2023-1205970 Cyclist was riding northbound on Scarlett Road when a male operating a motor vehicle northbound on Scarlett Road collided with the cyclist. The cyclist was pronounced deceased at the scene.

3. Relevant Caselaw

MacEachern (Committee of) v. Rennie, 2010 BCSC 625	
Concept	Personal Injury, Large Vehicle (tractor-trailer)
Facts	The Plaintiff was walking or riding a bicycle southbound along the paved shoulder of a major road in Surrey, BC, facing traffic. As the Plaintiff maneuvered around a pickup truck on the side of the road, a tractor-trailer passed by on the road, hitting the Plaintiff in the head, causing severe brain injury. The driver of the tractor-trailer was found liable in negligence.
Judicial Commentary	Para 209: "Large vehicles travelling at high speeds create varying degrees of air turbulence that can be hazardous to smaller vehicles. A car, bicycle or other road user travelling directly in front of a truck, alongside the cab, by the back area of the trailer or at the immediate rear of the trailer is in an area of air turbulence. Air turbulence is particularly dangerous to cyclists who are much smaller and are likely to be travelling more slowly than large vehicle."

R. v. Michaud, 2015 ONCA 585	
Facts	Charter Challenge for Speed Limiter Legislation
Facts/Decision	The Ontario Court of Appeal deemed legislation requiring trailer-truck drivers to possess functional speed limiters set to a maximum speed of 105 km/h to violate section 7 of the *Charter*. However, the violation was justified under section 1. As such, the legislation was upheld by the Ontario Court of Appeal.
Judicial Commentary	Para 144: The ONCA finds "on the evidence, that the purposes of the speed limiter legislation for trucks, being the improvement of highway safety and the reduction of greenhouse gases, are pressing and substantial. The means by which these purposes are advanced are proportionate in that: the limiter legislation is rationally connected to the purposes; in terms of the margin of appreciation due to the regulator, the speed limiter legislation minimally impairs the s.7 right to security of the person of truck drivers; and there is proportionality between the deleterious and salutary effects of the legislation, since the public benefits associated with improved highway safety exceed the detrimental effects on the s.7 right of truck drivers." **NOTE**: refers to speed limiters on tractor trailers but speaks to the dangerous nature of large vehicles traveling at high speeds.
Reasons to be justified by section 1	The Courts accepted the objective to "improve highway safety by preventing accidents and reducing the severity of collisions, and to reduce greenhouse gas emissions" as a **pressing and substantive objective**. Para 115: "The daily carnage on our roads shows that the operation of motor vehicles is one of the most common yet potentially dangerous activities carried out routinely by large numbers of individuals in modern society. I accept that these objectives are pressing and substantial." The Court's finding of the legislation as **rationally connected** is based on expert evidence supporting the safety benefits of mandatory lower speeds as it minimizes the severity of crashes on roadways (para 119). The Court's discussion of **minimal impairment** focuses on the deference that ought to be given to "complex regulatory responses to social problems." Para 128, citing Hutterian Brethren: "Where a complex regulatory response to a social problem is challenged, courts will generally take a more deferential posture throughout the s. 1 analysis than they will when the impugned measure is a penal statute directly threatening the liberty of the accused. ... The bar of constitutionality must not be set so high that responsible, creative solutions to difficult problems would be threatened. A degree of deference is therefore appropriate." However, less deference should be permitted when discussing absolute prohibition. Discussion regarding **proportionality** emphasize that "the evidence shows that forced speed reduction for trucks saves lives" (para 142). Indicating the motivation to save lives on roadways ought to outweigh individual autonomy on the road, at least to a degree. Additionally, the judge comments on section 1 as it pertains to safety regulations more generally. Para 151: "Perhaps the way forward for the *Charter* evaluation of safety regulations is to recognize them as a distinct category of legislation, and to require the claimant to

	establish overbreadth or gross disproportionality under s. 7 not on an individual basis, but on a more general basis, balancing the effects on the individual claimant and similarly affected persons together against the effects of the regulation on the intended beneficiaries."

R. v. L'Abbe, [1994] O.J. No. 1748, 24 W.C.B. (2d) 403	
Concept	Criminal Negligence
Facts	The accused was driving his pickup truck westbound on Wellington Street, Toronto. At the time, the pickup truck was towing a large homemade dual-axle trailer loaded with equipment (i.e., wheelbarrow). The trailer separated from the pickup truck, mounting the curb, resulting in the death of one individual and severe injury to another.
Judicial Commentary	Para 38: As to general deterrence and denunciation, "individuals who operate large vehicles, trailers and trucks must be made aware that there will be severe consequences for such reckless and wanton disregard for the safety of others." **NOTE**: referring to the negligence of the trailer being improperly secured to the pickup truck.

R. v. Rolfe, 1980 6 W.C.B. 181	
Concept	Criminal Negligence
Facts	-
Judicial Commentary	Para 29: United Kingdom Case → "*Regina v. Davis (William)*, (1979), R.T.R. 316 (Court of Appeal) relied upon by the Crown to indicate that the driver of a **large vehicle** was under a very special duty of care and that the standard expected of him was much higher than that which would be demanded of the driver of a smaller one." **NOTE**: differentiated from the facts of *R v Rolfe*.

4. Leading Initiatives from the United States

Federal Initiatives

National Highway Traffic Safety Administration – New Car Assessment Program

- The NHTSA New Car Assessment Program (NCAP) provides comparative information on the safety performance of new vehicles and availability of new vehicle safety features to assist consumers with vehicle purchasing decisions and to encourage safety improvements.
- NCAP is one of several programs that NHTSA uses to fulfill its mission of reducing the number of fatalities, injuries, and economic losses that occur on U.S. roadways.
- While passenger vehicle occupant fatalities decreased from 32,225 in 2000 to 23,824 in 2020, **during that same timeframe, pedestrian fatalities increased by 37 percent, from 4,739 in 2000 to 6,516 in 2020.**
- NHTSA has also recognized the importance of protecting vulnerable road users, such as pedestrians, from injury and death due to motor vehicle crashes.
- In support of furthering the goal of protecting pedestrians from being seriously injured or killed in motor vehicle crashes, NHTSA has conducted a number of activities including research, international regulation development, and domestic regulation development.
- In this Request for Comments, NHTSA is proposing to add crashworthiness pedestrian protection to NCAP to spur vehicle technologies that help address the rising number of fatalities and injuries that involve pedestrians.
- This proposal is part of the Agency's multi-faceted effort to encourage pedestrian safety improvements in vehicles by providing comprehensive vehicle safety information to consumers on (1) whether a vehicle can offer better protection to pedestrians in the event of a collision and (2) whether a collision with a pedestrian can be prevented or the severity of injuries reduced to a pedestrian when the vehicle is equipped with advanced driver assistance systems such as pedestrian automatic emergency braking.

In 2022, the United States Transportation Secretary announced a National Roadway Safety Strategy calling on stakeholders across different sectors to respond to the staggering number of traffic fatalities. Within this strategy is the call to use technology to improve safety and to update the NCAP.

As noted, the NCAP provides consumers with information about vehicle safety. The NCAP's focus, however, has been to protect occupants of vehicles. NACTO (National Association of City

Transportation Officials) holds that the NCAP must recognize the safety needs of those outside of the vehicle, namely pedestrians and cyclists.[102]

Because NCAP predominantly focuses on those inside the vehicle, SUVs and large vehicles can score high in safety rankings even though pedestrians are more likely to be killed in crashes.[103] NACTO called on the NHTSA to update NCAP to "recognize vehicle design as a crucial component to street safety in cities, both to the vehicle and the people around it."[104]

Additionally, in response to the number of pedestrian and cyclist deaths, NACTO, which aims, among other objectives, to "eliminate traffic fatalities and serious injuries by making safety the top priority," has set out a 2022-2023 policy platform.[105] This platform includes "adopting a national goal to eliminate fatalities on the roadways, overhauling federal standards and design guidance to prioritize safety and access for all pedestrians—rather than maximizing speed—enhancing vehicle safety, especially for people outside of vehicles," and "allowing jurisdictions to prohibit right turns on red as a default condition."[106]

NACTO recommends that to address the alarming increase in fatalities and injuries of pedestrians and cyclists, the NCAP must ensure that a car cannot receive a 5 star safety rating if the car does not receive high marks in the following:

1. Advanced driver assistance programs (ADAS), including pedestrian automatic emergency braking and lane keeping support;

2. Speed assistance systems;

3. Pedestrian protection and crashworthiness/survivability for people outside of the vehicle, testing to be conducted with "smaller, more vulnerable road users"; and

4. Direct visibility from the driver's seat to ensure that the size of the vehicle and the hood do not prevent the driver from seeing in front or around the vehicle.[107]

Boston, Charlotte, Madison, Minneapolis, San Francisco, and New York City all commented on the NACTO's proposed updates to NCAP, stating their overwhelming support for the proposed changes.[108]

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[102] NACTO, "Vehicle Design," (N.D).
[103] *Ibid*.
[104] Federal, NACTO, *Comments*, (Letter), at 1.
[105] Federal, NACTO, *NACTO 2022-2023 Policy Platform*, (Report), at 2.
[106] *Ibid*, at 6 and 8.
[107] *Supra,* note 104, at 2.
[108] Boston, Office of the Mayor, *NCAP Recommendations*, (Letter). Charlotte, Charlotte Department of Transportation, *NCAP Recommendations*, (Letter). Madison, Department of Transportation, *NCAP Recommendations*, (Letter). Minneapolis, Minneapolis Public Works, *NCAP Recommendations*, (Letter). San Francisco, San Francisco Municipal Transportation Agency, *NCAP Recommendations*, (Letter). New York City, Department of Transportation, *NCAP Recommendations*, (Letter).

Additionally, the Urban Institute, a think tank based in Washington DC that strives to affect policy change, also calls on policy makers to consider the following:

1. change regulations and safety practices so that pedestrian deaths are not treated as inevitable;

2. use data to understand the danger large vehicles pose to pedestrians; and

3. incorporate pedestrian safety into SUV and light truck regulations.[109]

Further suggestions from the Urban Institute include following in the EU's footsteps by implementing initiatives similar to the European New Car Assessment Program which determines a vehicle's threat to pedestrians and cyclists.

In 2023, the United States Transportation Secretary announced an $800 million grant to improve roads and tackle national traffic fatalities through the Safe Streets and Roads for All Grant Program, in support of the National Roadway Safety Strategy.[110] These funds will go to local and regional groups across the country to plan (474 action plan grants) and implement (37 implementation grants) projects to reduce or eliminate traffic related fatalities and injuries.[111] Action plan grants help communities that do not have a roadway safety plan in place to reduce roadway fatalities and lay the groupwork for action. Implementation grants help communities implement strategies and projects that will reduce or eliminate roadway fatalities. However, neither the action nor implementation grants require municipalities to include a reduction of auto size hazards in their plans to receive funding.

State Initiatives

While many of the 50 states and the District of Columbia acknowledge the danger of SUVs and pickup trucks, and offer pedestrian and cyclist safety tips, there is no mention of the relationship between the danger of pickups and SUVs and pedestrian and cyclist safety on state department of transportation websites. Only New York State appears to directly address auto size hazards in relation to pedestrian and cyclist safety.

Eighteen states offer comprehensive guides addressing pedestrian/cyclist safety (separate from other department of transportation documents), while other states address pedestrian and cyclist safety in conjunction with their Highway Safety Plans or other traffic safety documents. Instead of implementing mandates or regulations that would reduce auto size hazards, states place the onus on pedestrians and cyclists to ensure their own safety through offering anything

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[109] Peace Gwam, "More and More American Pedestrians are Dying because of Larger Vehicles. Incorporating Data in Safety Regulations Can Help" (2021), *Urban Institute*.
[110] US DOT, "Biden-Harris Administration Announces Historic $800 Million for More than 500 Projects to Improve Roads at the Local Level and Tackle National Traffic Fatalities," (2023).
[111] Federal, US DOT, *FY22 Action Plan Awards by State*, (Report).

from a comprehensive pedestrian and cyclist safety guide, to offering tips, such as reminding pedestrians and cyclists to wear bright clothing. States include measures to reconfigure roadways, add speed bumps, and lower speed limits to combat pedestrian and cyclist deaths.

Further, 29 states differentiate their vehicle registration costs based on size or weight of a vehicle. The average pickup truck weighs anywhere from 4,000 to 7,000 lb,[112] SUVS weigh anywhere from 3,500 to 6,000 lb.[113] This differentiation is not explicitly set out to reduce auto size hazards, but in some states environmental concerns offer the motivation. There are many comprehensive state-to-state guidelines outlining restrictions for commercial trucks in city centres, and in other areas/times of the day, but nothing currently for SUVs, pickups or other light trucks.

Additionally, 51 communities across 21 states lay out a Vision Zero plan that would get each community to zero traffic deaths by a certain year, set out in each communities' respective state as set out below.[114]

New York

New York is the first state to attempt to directly address pedestrian and cyclist deaths through vehicle safety ratings that account for the safety of those outside of the vehicle, namely pedestrians and cyclists. The Transport Committee of the New York State Senate is currently reviewing Bill 343, which will require the Commissioner of the Department of Motor Vehicles (DMV) to create and publish a pedestrian safety rating system for all models of vehicles registered in New York State.[115]

Senate Bill 4307 was introduced in response to overwhelming data from the NHTSA demonstrating that more pedestrians and cyclists were killed in 2018 than any other year since 1990.[116] This Bill would require any model of car registered in the state of New York to have a publicly accessible pedestrian safety rating. This rating, ranging from 1 to 5 would include consideration of the following: frequency of collisions, number and severity of injuries involving pedestrians or cyclists compared to the total number of that model of car registered in New York, as well any other features of the vehicle that the Commissioner of the DMV believes to be relevant to pedestrian and cyclist safety. Further, the Commissioner of the DMV would put forward regulations that instruct all motor vehicle business entities on how to adopt the safety rating and require that rating to be displayed on each vehicle in their business.

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[112] *Supra*, note 27.
[113] Josh Noel, "How Much Do Cars Weigh?" *Autolist*, Mar 21, 2023.
[114] Vision Zero Network, "Vision Zero Communities."
[115] New York State Senate, Bill s 343.
[116] US, S 4307, *An act to amend the vehicle and traffic law*, 2021-2022, Reg Sess, NY.

Senate Bill 4307 is currently in committee with the Senate Committee of Transportation and would next have to be passed in the Senate and Assembly.[117] Senate Bill 4307, sponsored by Andrew Gounarfes, Chairman of Committee on Budget and Revenue, was introduced in the Senate on February 3, 2021 and was then referred to Senate Committee of Transportation.

Bill 4307 is viewed favourably by Offer Grembek, co-director of the Safe Transportation Research Education Centre and Amy Cohen, co-founder of Families for Safe Streets, who both hope that the enactment of this Bill will start a national conversation about pedestrian and cyclist safety and set a precedent for other states.[118]

State by State Breakdown of Relevant Initiatives

This chart offers a breakdown of what is being done to reduce auto size hazards in each state, along with other information about pedestrian and cyclist safety initiatives.

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Alabama	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	18th (101 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Alabama differentiates based on the type of vehicle with cars and pickup trucks ranging from $23-$105.
Other:	The Alabama Department of Transportation has set out the Alabama Statewide Bicycle and Pedestrian Plan to protect pedestrians and cyclists with solutions including improving pedestrian and cyclist planning, and ensuring that biking and walking are seen as valid modes of transportation in Alabama.

Alaska	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	21st (13 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Alaska costs $100 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	Alaska attributes low number of pedestrian fatalities to increasing seatbelt use in the state (7). Further, Alaska's Highway Safety Plan is shifting focus to pedestrian collision reduction strategies. (22) Anchorage, Alaska's Vision Zero Plan

[117] For a bill to become law in New York, it must undergo a committee process, followed by passage of the Bill by the senate and assembly. The final step is the signature of the Governor. This Bill was originally co-sponsored by 14 other Senators, with only 10 still currently in office.

[118] Laura Bliss, "Should SUVs Get a Pedestrian Warning Label?" (2021) *Bloomberg*.

Arizona	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	6th (222 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Arizona costs $45.50 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	Research shows that pedestrians in Arizona are more likely to be hit and killed than any other state. The director of Pedestrian and Bicycle information centre urges municipalities to lower speed limits and add speed bumps to help reduces the number of fatalities. Tempe, Arizona's Vision Zero Plan

Arkansas	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	7th (81 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration fees in Arkansas differentiate based on the weight of the vehicle. The base fee for vehicles under 3,000 lb is $17. The base fee for vehicles 3001 lb to 4500 lb is $25. The base fee for vehicles 4501 lb and over is $30. (Pickups/light trucks/SUVs weigh anywhere from 3,500 lb to 7,000 lb).
Other:	Arizona Department of Transportation works to create a media campaign to inform citizens about pedestrian safety, increase awareness about the dangers involved in sharing the road, and educate citizens on bicycle and pedestrian laws.

California	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	11th (986 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration fees in California are calculated considering many factors such as vehicle type (passenger car versus motorcycle), vehicle purchase price, city/county you live in, vehicle weight and others. However, there is no differentiation between passenger cars and pickups/light trucks /SUVs.
Other:	In the California Driver's Handbook there are warnings to drivers about the dangers of commercial trucks, including their blind spots, that they take longer to brake, and are harder to turn/maneuver (no mention

	of how pickups/light trucks/SUVs pose the same dangers). San Francisco looks to eliminate traffic fatalities through education, engineering, enforcement, and evaluation in support of their Vision Zero plan. This plan focuses on the Tenderloin neighbourhood, which has been the neighbourhood most impacted by traffic fatalities in San Francisco, through reducing speed limits and implementing new bike lanes. Alameda, California's Vision Zero Plan Berkeley, California's Vision Zero Plan Fremont, California's Vision Zero Plan La Mesa, California's Vision Zero Plan Los Angeles County, California's Vision Zero Plan Monterey, California's Vision Zero Plan Sacramento, California's Vision Zero Plan San Diego, California's Vision Zero Plan San Jose, California's Vision Zero Plan San Luis Obispo, California's Vision Zero Plan Santa Barbara, California's Vision Zero Plan Watsonville, California's Vision Zero Plan

Colorado	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	29th (87 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Colorado costs $125 and does not differentiate between cars, and pickups/light trucks/SUVs.
Other:	The Colorado Department of Transportation recognizes that the way SUVs are built with higher front ends, they are more likely to kill pedestrians, however, does not mention steps that will be taken (other than providing this information) to prevent citizens from purchasing SUVs or mitigating the dangers associated with SUVs. Boulder, Colorado's Vision Zero Plan Denver, Colorado's Vision Zero Plan

Connecticut	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	26th (56 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Connecticut costs $120 and does not differentiate between cars, and pickups/light trucks /SUVs.

Other:	Connecticut department of transportation released a pedestrian safety strategy in response to the increasing pedestrian fatalities nationally. This strategy calls attention to the fact that more vehicles on the road today are SUVs/large vehicles and have the potential to inflict more serious injuries/deaths. Connecticut recognizes the dangers of SUVs, yet in their safety strategy, the state is more focused vehicle speed management, managing crosswalks and intersections, providing public education, and implementing a safety program to combat pedestrian fatalities.

Delaware	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	9th (25 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Delaware costs $40 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	Delaware Strategic Highway Safety Plan looks to reduce pedestrian fatalities through pedestrian safety audits, the implementation of a traffic signal program, pedestrian education programs and roadway reconfiguration.

District of Columbia	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	10th (713 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in DC differentiates based on the weight of the vehicle. The fee for passenger vehicles under 3,499 lb is $72. The fee for vehicles 3500 to 4999 lb is $175. The fee for vehicles 5000 lb and over is $250. (Pickups/light trucks/SUVs weigh anywhere from 3500 lb to 7,000 lb). As of June 2022, drivers in Washington have to pay higher car registration fees reflective of a heavier vehicle. The driving factor behind the implementation of this policy was to help combat climate change.
Other:	Vision Zero, implemented in 2015 by Washington, seeks to have zero traffic fatalities by 2030. DC looks to do this through increasing the number of street signs, increasing the number of automated enforcement cameras, and ensuring that traffic citations are enforced. DC's Bicycle and Pedestrian Safety looks to educate citizens and promote street safety through advertisements and increased law enforcement to enforce traffic rules.

	Washington restricts commercial truck use in certain areas of the downtown area.

Florida	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	4th (696 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Florida differentiates based the weight of the vehicle. The fee for passenger vehicles ranges from $14.50 to $32.50 depending on the weight.
Other:	Florida's Pedestrian and Bicycle Safety Plan 's goal is to reach zero traffic fatalities through driver community education, engineering, and data analysis. Fort Lauderdale, Florida's Vision Zero Plan Hillsborough, Florida's Vision Zero Plan Orlando, Florida's Vision Zero Plan Tampa, Florida's Vision Zero Plan West Palm Beach, Florida's Vision Zero Plan

Georgia	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	8th (279 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Georgia costs $20 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	Georgia's department of transportation's efforts to make roads safer for motorists and pedestrians include public awareness campaigns, installing medians to control traffic flow, installing rumble strips, placing an emphasis on intersections with high pedestrian traffic and adding appropriate accommodations. Atlanta, Georgia's Vision Zero Plan Macon, Georgia's Vision Zero Plan.

Hawaii	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	30th (21 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Hawaii differentiates based on the weight of the vehicle, costing $0.0125 per pound.
Other:	Hawaii Traffic Fatalities Breakdown

Idaho	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	49th (14 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Idaho differentiates by type, age, and weight of vehicle. Passenger cars 0-2 years old cost $69 to register. Passenger cars 3-6 years old cost $57 to register. Passenger cars 7+ years cost $45 to register. Non-commercial trucks weighing between 8,001 lb and 16000 lb cost $73. The cost increases incrementally with the weight of the truck.
Other:	

Illinois	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	32nd (176 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Illinois differentiates based on the value of the vehicle, starting at $151 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	Illinois and Chicago Department of Transportation work together to implement safety improvements to protect pedestrians and cyclists. Notably, this collaboration will clarify "design vehicle standards to emphasize pedestrian safety at intersections. A design vehicle is the largest vehicle that is likely to use the facility with considerable frequency and its selection can significantly impact a road's design and geometry. By agreeing to a more appropriate design vehicle for urban streets, certain state routes will be able to add safety features, such as curb extensions and bump outs that shorten crossing distances for pedestrians." Chicago, Illinois' Vision Zero Plan

Indiana	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	33rd (93 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Indiana differentiates based on type of vehicle. Passenger cars cost $21.35 to register, while trucks less than 11000 lb cost $30.35 to register. (Pickups/light trucks/SUVs weigh anywhere from 3500 lb. to 7000 lb).
Other:	The Indiana Strategic Highway Safety Plan provides a comprehensive pedestrian and bicyclist action plan (see p. 57 – 59) to improve pedestrian and cyclist safety including

	implementing pedestrian focused lighting, increasing education on pedestrian dangers, and restricting right turns on red lights where there are high pedestrian and cyclist volumes.

Iowa	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	47th (27 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Iowa differs by vehicle type (passenger cars/pickup trucks). Trucks 1-6 years old cost $0.3 per square foot and trucks 7 years and older cost 0.75% of their original fee. Passenger cars 1-7 years old cost 1% of their list price, 8-9 years cost 0.75% of their list price, 10-11 years cost 0.5% of their list price and 12 years and older cost $50.
Other:	Des Moines' Vision Zero strives to ensure that mistakes made while driving do not result in injuries or fatalities. Fatalities are attributed to cars following too close, driver distraction and operating a vehicle in a reckless manner.

Kansas	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	25th (46 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Kansas differentiates based on the weight and type of the vehicle. Cars under 4,500 lb cost $42.25 to register and cars over 4,501 lb and trucks cost $52.25 to register.
Other:	

Kentucky	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	19th (91 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Kentucky costs $41 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	

Louisiana	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	5th (144 fatalities in 2020).

Reduction of Auto Size Hazards:	Vehicle registration in Louisiana costs $65 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	Destination Zero Deaths, is the Louisiana's Department of Transportation's goal to reach zero deaths on roadways through education of the dangers of impaired driving, promoting seatbelt use, and improving road infrastructure.

Maine	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	51st (9 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Maine costs $35 for passenger vehicles and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	The Maine department of transportation provides tips for pedestrians and cyclists to stay safe on the roads including dressing brightly, using a cross walk and watching out for cars.

Maryland	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	15th (130 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Maryland differentiates based on the weight of the vehicle. Passenger cars weighing up to 3,700 lb costs $135.00 and passenger cars over 3700 lb costs $187 to register. Trucks 7,000 lb or less cost $161.50 to register and over 10000 lb, cost $214 to register. (Pickups/light trucks/SUVs weigh anywhere from 3,500 lb. to 7,000 lb).
Other:	Montgomery, Maryland's Vision Zero Plan

Massachusetts	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	50th (52 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Massachusetts costs $60, does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	Massachusetts Rules of the Road highlights the dangers of large vehicles such as trucks sharing the road with other vehicles and pedestrians. Some issues that the rules of the road advise motorists to be aware of are larger vehicle's blind spots, advising against tailgating, cutting in front, driving too slowly and how to safely pass a large vehicle (see pg. 101). Boston looks to eliminate traffic fatalities by 2030 through Vision Zero, recognizing that many of their resident's commutes include walking.

	Cambridge, Massachusetts' Vision Zero Plan Somerville, Massachusetts' Vision Zero Plan .

Michigan	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	22nd (171 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Michigan is based on the vehicle's manufacturer's suggested retail price.
Other:	Michigan's 2022 annual report had a goal to train law enforcement officers about pedestrian and bicycle safety in areas with the highest pedestrian and cyclist fatalities, a goal that was not achieved. Another goal the annual report had was to increase the awareness of the public on bicycle safety through a statewide campaign using social media and advertisements promoting bicyclist traffic safety laws. This goal was achieved (p. 56 for the advertisements).

Minnesota	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	48th (45 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Minnesota costs a base rate of $7 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	Safety education for motorists and cyclists is provided by the Minnesota Department of Transportation reminding both to look out for one another and ensure that cyclists are cognizant of motorists' blind spots. Minneapolis, Minnesota's Vision Zero Plan

Mississippi	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	3rd (106 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Mississippi costs $14 plus a Mississippi road and bridge privilege tax. This tax rate differentiates between cars, pickup trucks, and motorcycles. The tax for cars is $15, the tax for pickup trucks is $7.20 and the tax for motorcycles is $8.
Other:	

Missouri

NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	17th (128 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Missouri differentiates based on vehicle type and horsepower. Passenger vehicles start at $21.25 for a 12-23 horsepower vehicle and can cost as much as $51.25 for a 72+ horsepower vehicle. Commercial truck registration costs between $15.75 and $100.75 depending on the weight of the truck.
Other:	Missouri safety improvements project is being developed to combat injuries and fatalities of pedestrians in Missouri, through ensuring that the roadway is safe for both pedestrians and motorists. Columbia, Missouri's Vision Zero Plan

Montana	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	27th (17 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Montana costs $549 and does not differentiate between cars, and pickups/lights trucks/SUVs.
Other:	Montana's share the road program provides tips for pedestrians and cyclists to be visible to vehicles and prevent injuries and fatalities. Montana permit restrictions outlines areas in which certain commercial trucks are restricted at certain times of the day.

Nebraska	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	45th (18 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Nebraska costs $15 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	Number of Pedestrians Killed and Injured in Nebraska 2011-2020

Nevada	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	10th (79 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Nevada differentiates based on the type and weight of the vehicle. Passenger cars and trucks under 6000 lb cost $33 to register. Trucks over 6000 lb cost anywhere from $38 $1360 (depending on the weight of the

	truck). (Pickups/light trucks/SUVs weigh anywhere from 3,500 lb. to 7.000 lb.).
Other:	Nevada has a Zero Fatalities mandate, which attributes deaths to motorists speeding, driving under the influence, not being aware of pedestrians, not wearing seatbelts, running red lights, and distracted driving. The Zero Fatalities program states that education is the way to combat motor vehicle crashes and does this through offering a traffic safety expert to come speak at businesses, organizations, etc.

New Hampshire	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	39th (16 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in New Hampshire differentiates based on the weight of the vehicle. Vehicles weighing up to 3000 lb cost $2.60 a month. Vehicles weighing 3001 lb to 5000 cost $3.30 a month, and vehicles weighing between 5001 lb and 8000 lb cost $4.60 a month.
Other:	

New Jersey	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	20th (173 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in New Jersey differentiates based on the weight of the vehicle. Vehicles under 2,700 lb cost $35.50 to register. Vehicles between 2,700 and 38,000 cost $44.50 to register. The cost increases incrementally with the weight of the vehicle.
Other:	In response to pedestrian fatalities, New Jersey Department of Transportation received a grant to implement workshops to increase awareness, and demonstrate roadway design improvements that will combat pedestrian fatalities. Jersey City, New Jersey's Vision Zero Plan

New Mexico	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	1st (79 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in New Mexico differentiates based on weight of the vehicle and ranges from $38 to $207**.**
Other:	To address the high rate of pedestrian fatalities, New Mexico has implemented a pedestrian safety action plan.

	Albuquerque, New Mexico's Vision Zero Plan

New York	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	38th (231 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in New York varies based on the weight of the vehicle ranging from $26 (vehicles weighing under 1650 lb) to $140 (vehicles weighing over 6951 lb).
Other:	Senate Bill 4307 would require a pedestrian-safety rating for every vehicle, scoring them on a 1 to 5 scale similar to the ratings NHTSA already applies to vehicles. The difference is that this would rate vehicles based on the damage done in collisions with cyclists and pedestrians. (See p. 3 of this document for more information on SB4307). New York City, New York's Vision Zero Plan

North Carolina	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	14th (228 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in North Carolina differentiates based on the weight of the vehicle. Cars cost $38.75, and trucks under 4000 lb cost $38.75 to register, and trucks between 4001 lb and 5000 cost $56.75 to register. The cost increases incrementally with the weight of the vehicle.
Other:	North Carolina's Pedestrian Safety Plan to combat pedestrian and cyclist fatalities looks to increase traffic safety awareness. North Carolina has restrictions on commercial vehicles driving in certain areas at certain times Charlotte looks to eliminate traffic fatalities by 2030 through Vision Zero, in response to the large number of traffic fatalities. Durham, North Carolina's Vision Zero Plan .

North Dakota	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	41st (8 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in North Dakota differentiates based on the weight of the vehicle. Vehicles weighing between 3200 lb and 4499 lb cost $93 to register. Vehicles between 4500

	lb and 4999 lb cost $111 to register. The cost increases incrementally with the weight of the vehicle. (Pickups/light trucks/SUVs weigh anywhere from 3500 lb. to 7000 lb).
Other:	North Dakota Vision Zero plan looks to drastically reduce motor vehicle injuries and fatalities. To do so, the state provides strategies to prevent heavy vehicle (commercial vehicles) motor crashes including "improving commercial motor vehicle safety and size and weight compliance by using enhanced screen technologies." [See pg. 5-10.] North Dakota has restrictions on oversize/overweight commercial trucks in certain city areas.

Ohio	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	34th (159 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Ohio differentiates based on type of vehicle. Passenger vehicles costs $31 to register and a non-commercial trucks cost between $46 and $81.
Other:	Ohio's multimodal design guide is a guide for urban planners to implement pedestrian and cyclist facilities that would promote street safety. The Ohio special hauling permit limitation prevents certain vehicles (over dimensional, and over width) from driving in major cities (Toledo, Dayton, Cincinnati, Columbus, Cleveland, Pittsburgh, Charleston) in Ohio at certain times.

Oklahoma	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	16th (85 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Oklahoma differentiates based on the year of the vehicle, and there is no differentiation between SUVs/light trucks and cars.
Other:	Oklahoma offers tips to motorists and pedestrians/cyclists to ensure safety on the road in response to high pedestrian fatalities.

Oregon	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	23rd (71 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Oregon differentiates based on the year of the vehicle was made and mile per gallon rating. The higher the mile per gallon rating, the more expensive the registration fee.

	The state offers further incentive and reduces the cost of registration to $86 if individuals enroll in OReGO, (a state pay-per-mile program where money goes toward construction, maintenance, and preservation of roads).
Other:	Eugene, Oregon's Vision Zero Plan Portland, Oregon's Vision Zero Plan

Pennsylvania	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	40th (143 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Pennsylvania differentiates based on the weight of the vehicle, with trucks under 5000 lb costing $67 to register and trucks weighing 5000-7000 lb cost $92 to register. (Pickups/light trucks/SUVs weigh anywhere from 3500 lb. to 7000 lb.)
Other:	Pennsylvania Department of Transportation provides a crash facts and statistics report, which provides a breakdown of light truck/SUV/Van crashes between vehicles (not pedestrian crashes). (p. 53). Bethlehem, Pennsylvania's Vision Zero Plan Harrisburg, Pennsylvania's Vision Zero Plan Philadelphia, Pennsylvania's Vision Zero Plan

Rhode Island	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	24th (17 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Rhode Island differentiates based on vehicle weight. Passenger vehicles weighing under 40000 lb cost $30, and vehicles weighing 4000 – 5000 lb costs $40 and increases incrementally based on weight. (Pickups/light trucks/SUVs weigh anywhere from 3500 lb. to 7000 lb).
Other:	

South Carolina	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	2nd (187 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in South Carolina costs $40 for passenger cars. In addition to this fee, South Carolina has a gross vehicle weight fee. Any vehicle weighing under 4000 lb costs $30, vehicles weighing between 4,000 lb and 5000 lb cost an additional $40. (Increasing in 1,000 lb and $10

	each time). (Pickups/light trucks/SUVs weigh anywhere from 3,500 lb. to 7,000 lb).
Other:	South Carolina's Department of public safety provides tips for pedestrians and motorists in response to a rise in pedestrian fatalities in 2016.

South Dakota	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	28th (14 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in South Dakota costs $195, and does not differentiate in between cars, and pickups/light trucks /SUVs.
Other:	

Tennessee	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	12th (172 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Tennessee costs $29 and does not differentiate between cars, and pickups/light trucks/SUVs.
Other:	Tennessee has restrictions for commercial trucks, Truck Route Restriction Guidelines, restricting the size and weight of the vehicle. Addressing Traffic Safety to Reduce Pedestrian Injuries and Fatalities in Tennessee

Texas	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	13th (687 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Texas differentiate based on the weight of the vehicle. Vehicles between 6000 and 10,000 lb cost $54 to register. Any vehicle over 10,000 lb costs anywhere from $110 to $840 (depending on the weight) to register (Pickups/light trucks/SUVs weigh anywhere from 3,500 lb. to 7,000 lb).
Other:	Texas' Pedestrian Safety Campaign, a response to pedestrian deaths in Texas, attributes deaths to the following factors: pedestrians failing to yield to the right of way to vehicles, drivers failing to yield to the right of way to pedestrians, driver inattention and speeding.

	Austin Texas' Vision Zero Plan Houston, Texas' Vision Zero Plan Laredo, Texas' Vision Zero Plan San Antonio, Texas's Vision Zero Plan

Utah	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	43rd (33 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Utah costs $150 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	The Road to Zero Fatalities is Utah's mission to have zero roadway fatalities. The state looks to accomplish this through reminding citizens to drive alert, focused, calm, sober and wear a seatbelt.

Vermont	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	36th (6 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Vermont differentiates based on the weight of the vehicle. Cars and trucks under 6099 lb cost $76 to register. Trucks over 6,100 lb cost $109 to register and go up in increments every 1,000 lb. (Pickups/light trucks/SUVs weigh anywhere from 3,500 lb. to 7,000 lb).
Other:	Pedestrian injuries involving motor vehicles in Vermont are in part attributed to lack of access to sidewalks.

Virginia	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	35th (111 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Virginia differentiates based on the weight of the vehicle. Passenger vehicles and pickup trucks under 4,000 lb cost $30.75 to register. Pickup trucks over 4000 lb cost $44.75 to register. (Pickups/light trucks/SUVs weigh anywhere from 3,500 lb. to 7,000 lb). The Through Truck Restriction Program allows municipalities to request for trucks (other than pickup or panel trucks) to be restricted on certain streets.
Other:	Virginia's safe driving pamphlet warns drivers of the dangers of commercial truck's blind spots. Pedestrian Safety Action Plan highlights Virginia's zero deaths vision, called Arrive Alive Virginia which looks to work in collaboration with local agencies to develop tools to

	educate the public about pedestrian safety and expand training for transportation safety staff. Richmond, Virginia's Vision Zero Plan Alexandria, Virginia's Vision Zero Plan

Washington	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	37th (97 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Washington costs $43.25 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	Washington looks to focus on four E's to reach their target of zero pedestrian fatalities; education, enforcement, engineering, and emergency medical services. Seattle, Washington's Vision Zero Plan Madison, Washington's Vision Zero Plan

West Virginia	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	44th (18 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in West Virginia costs $51.50 and does not differentiate between cars, and pickups/light trucks /SUVs.
Other:	The West Virginia Driver's Licensing Handbook provides warnings pertaining to sharing the road with commercial trucks and the dangers of blind spots on these large vehicles. A commercial truck safety guide is also provided, reminding drivers to recognize the difference between cars and trucks (p. 53). Kanawha Putnam of West Virginia's Regional Transportation Plan offers to place limitations and restrictions on (commercial) trucks at selected times of the day to improve road congestion management (p. 32).

Wisconsin	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	46th (50 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Wisconsin differentiates based on the weight of the vehicle. Cars cost $85 to register and registration for trucks begins at $100.
Other:	The Wisconsin Pedestrian Safety Guide offers suggestions to motorists to mitigate the high rate of pedestrian

	fatalities including looking out for pedestrians, yielding to pedestrians, and reducing travel speeds in neighbourhoods and school zones. Suggestions for pedestrians include wearing bright clothing when walking at night and avoiding crossing at "blind curves." Wisconsin offers a comprehensive Pedestrian Policy Plan, highlighting the "need for team efforts in roadway design, law enforcement, and public education" to reduce pedestrian crashes and fatalities. Further, the plan highlights the need for land planners to consider pedestrians when developing new areas. Wisconsin Recreational Vehicle Safety Education and Enforcement

Wyoming	
NHTSA **2020 Ranking of State Pedestrian Fatality Rates** (per 100,000 population):	42nd (6 fatalities in 2020).
Reduction of Auto Size Hazards:	Vehicle registration in Wyoming differentiates based on the weight of the vehicle. Cars cost $30 to registers and trucks and trailers range from $5-$90 depending on the weight of the truck or trailer.
Other:	The Strategic Highway Safety Plan (SHSP) – is Wyoming's state plan to reduce vehicle crashes and traffic fatalities in the state and achieve the national goal "Towards Zero Deaths." The plan includes "interim outcomes" if the plan is successfully executed including having vehicles designed and built safely, having vehicle safety features maintained, and drivers being more aware of pedestrians. These interim outcomes are to come as a response to steps that Wyoming is taking to reduce critical crashes including "considering a push for vehicle safety requirements and inspections" (See this link p. 5 & 6). The SHSP offers solutions to traffic injuries and deaths through education on safety equipment in cars (seatbelts,) education on the dangers of impaired or distracted driving and enforcing speed limits. There are strict requirements for commercial truck drivers to comply with to ensure road safety in Wyoming. The commercial vehicle safety alliance provides training for personnel and mobile enforcement and education team – compliance and education campaigns ab hazards posed by commercial motor vehicles on roadways. (See this link p. 26). Wyoming's Rules of the Road (p. 57) Manual from the state Department of Transportation outlines the dangers of blind

	spots in trucks (commercial trucks) and places the onus on those in cars to be aware of these dangers to avoid them, instead of perhaps regulating the design of the trucks. The Rules of the Road (p. 70) acknowledges that pedestrians account for almost 20% of all traffic deaths, reminding drivers to yield to pedestrians, and placing the onus on pedestrians to ensure they are visible to vehicles

City Implementation Grants, Action Grants, and Vision Zero by State

Guide
City/Community - Name of City's Implementation Plan ***(Amount of funding received in the implementation grant)***
EX.
Alameda – San Pablo Avenue Safety Improvements Project ***($15,000,000)***

California	
Implementation Grants	**$107,220,890 in implementation grants awarded across seven cities/communities.** Alameda – San Pablo Avenue Safety Improvements Project **($15,000,000)** • This plan will improve the safety of pedestrians and cyclists using proven safety countermeasures, improve the connection to public transit and increase access to schools and community spaces. The proven safety counter measures that will be implemented include "speed feedback signs and bus bulb-outs…" See this link (p. 6). Los Angeles – La Brea Avenue Complete Streets Project **($9,000,000)** • This plan will improve sidewalk quality and provide increased accessibility to sidewalks through construction of new sidewalks, and crosswalks in line with Los Angeles' Vision Zero goal. This plan also places focus on ensuring that pedestrians with disabilities are safe, following accessibility guidelines. See this link (p. 7). Los Angeles – Florence – Firestone for All: Acieving Vision Zero in South Los Angeles **($21,494, 665)** • This plan will improve pedestrian and cyclists safety through the implementation of "curb ramps, curb extensions, raised crosswalks and medians, pedestrian refuge islands, high visibility crosswalks, and sign improvements…" This plan will also work with the community to provide targeted educative tools to teens and seniors, and as well use a public art campaign to "encourage traffic calming and community support for improved roadway safety." See this link (p. 11).

	San Francisco – Western Addition Community Safe Streets Project **($17, 613, 284)** • This plan will improve the safety of pedestrians and cyclists through "traffic signal upgrades, pedestrian signal and crossing improvements…" in a residential area. See this link (p. 8). Wildomar – Sedco Boulevard Roadway Safety Improvmeents Project **($2,218, 531)** • This plan will improve the safety of pedestrians and cyclists through improving sidewalks, and installing marked crosswalks, increasing accessibility and visibility. See this link (p. 9). Contra Costa – Bicycle and Pedestrian Safety Improvements to Improve Equity Countywide in Contra Costa County **($28,940,010)** • This plan will improve the safety of pedestrians and cyclists through installation of bicycle and pedestrian signs, loop detection upgrades for bicycles at traffic signals, and creating a bike garden "to provide bicycle and pedestrian safety education to groups and individuals." See this link (p. 10). Modoc County – Modoc County SS4A Implementation Grant 2022 **($12,954,400)** • This plan will improve the safety of pedestrians and cyclists through installation of "bicycle lanes, pedestrian crosswalks, and speed control…" in rural areas. This plan will also conduct research to evaluate the effectiveness of the above safety improvements. See this link (p. 12).
Action Grants	**$25,569,155.57 awarded in action grants across 40 cities/communities.**
Vision Zero	**13 cities/communities** Alameda, Berkeley, Fremont, La Mesa, Los Angeles, Monterey, Sacramento, San Diego, San Francisco, San Jose, San Luis Obispo, Santa Barbara, and Watsonville.

Florida	
Implementation Grants	**$47,716,000 awarded in implementation grants across three cities/communities.**

	Gainesville – Completing a City's Primary Street: Implementation of University Avenue Redesign **($8,000,000)** • This plan will improve the safety of pedestrians and cyclists through the conversion of University Ave (a street that has an extremely high rate of pedestrian and cyclist fatalities) to a complete street, one that is safe and conducive for all road users. This plan will convert four lane streets into two lane streets, install pedestrian refuge islands, and raised crosswalks and speedbumps. See this link. Tampa – T-SAFE: Tampa – Systemic Applications for Equity **($20, 000, 000)** • This plan will improve the safety of pedestrians and cyclists through the addition of high visibility crosswalks, increased signage, and the construction of new sidewalks and bicycle lanes. See this link (p. 14). Hillsborough County – Hillsborough County's Data-Driven Equitable Transportation Safety Prgrams to Provide Vulnerable Road Users Safety and Access to Destinations for Opportunities **($19,716,00)** • This plan will improve the safety of pedestrians and cyclists through using proven safety countermeasures, including curb bulb-outs, crosswalk improvements, and speed management strategies. See this link (p. 15).
Action Grants	**$19, 383, 225.63 awarded in action grants across 34 cities/communities.**
Vision Zero	**Five cities/communities** Ft. Lauderdale, Hillsborough County, Orlando, Tampa, and West Palm Beach.

Georgia	
Implementation Grants	**$30,000,000 awarded in implementation grants across one county.** Atlanta – Central and Pryor Safe Streets Corridors **($30,000,000)** • This plan will improve the safety of pedestrians and cyclists through proven safety countermeasures including rectangular rapid flashing beacons, pedestrian hybrid beacons, bicycle lanes, and roadway reconfiguration. This plan also includes an expansion of the current bike lane network. With the expansion of the bike network, Atlanta hopes to promote active transportation modes over vehicles. See this link (p. 16).

Action Grants	**$6,152,102 awarded in action grants across 21 cities/communities.**
Vision Zero	**Two cities/communities** Atlanta and Macon.

Iowa	
Implementation Grants	**$10,425,879 awarded in implementation grants across one county.** Fayette County, Shoulder Widening, Rumple Stripes, and Low Cost Safety Countermeasures Along 50 Miles of Roadway in Accordance with Priority Recommendations from Fayette County's Long Range Strategic Plan **($10, 425, 879)** • This plan recognizes a community of Amish people who use the roads in the area and looks to make travel safer for horse and buggy through shoulder widening, as well as the implementation of the above safety measures. See this link (p. 17).
Action Grants	**$3,826,186.39 awarded in action grants across seven cities/communities.**
Vision Zero	**One city/community** Des Moines.

Kentucky	
Implementation Grants	**$21,416,800 awarded in one implementation grant across one city.** Louisville-Jefferson County, Kentucky – Rightsizing Louisville for Safe Streets **($21,416,800)** • This plan will improve the safety of pedestrians and cyclists using proven safety countermeasures including creating bicycle lanes, improving sidewalk infrastructure, pedestrian refuge islands, and curb extensions to ensure that roadways are "safer, calmer, and more inclusive." See this link (p. 18).

Action Grants	**$3,346,103.80 awarded in action grants across 14 cities/communities.**
Vision Zero	**One city/community** Louisville.

Massachusetts	
Implementation Grants	**$24,012,800 awarded in implementation grants across two cities/communities.** Boston – Safety at Key Intersections in Boston **($9,000,000)** • This plan will improve the safety of pedestrians and cyclists using proven safety countermeasures including raised crosswalks, pedestrian refuge islands and curb extensions. This plan also looks to address speeding, pedestrian crashes, visibility issues, and blind spots through the implementation of Complete Streets improvements. See this link (p. 19). Springfield - City of Springfield Citywide Safety Improvements for Intersections and Corridors Throughout the City **($15,012,800)** • This plan will improve the safety of pedestrians and cyclists through systemic interventions including crosswalk improvements, and intersection and corridor speed management treatments, in line with Complete Streets strategy. See this link (p. 20).
Action Grants	**$6,545,402.44 awarded in action grants across 15 cities/communities.**
Vision Zero	**Three cities/communities** Boston, Cambridge, and Somerville.

Maryland	
Implementation Grants	**$40,507,572 awarded in implementation grants across three cities/communities.** Salisbury - Salisbury Vision Zero Rapid Safety Improvements **($11,753,587)**

	• This plan will improve the safety of pedestrians and cyclists using proven safety countermeasures including high visibility crosswalks and curb extensions to promote traffic calming. See this link (p. 21). Montgomery and Prince George's County - Safe and Equitable Access to Montgomery Parks **($7,500,000)** • This plan will improve the safety of pedestrians and cyclists through educational safety programs and the installation of traffic signals, beacons, and pedestrian refuge islands. See this link (p. 22). Prince George's County – Improvements Along the Prince George's County, Maryland, High Injury Network **($21,253,985)** • This plan will improve the safety of pedestrians and cyclists through the reduction of lane widths, high visibility crosswalks, increased lighting, and pedestrian refuge medians. See this link (p. 23).
Action Grants	**$2,374,453 awarded in action grants across six cities/communities.**
Vision Zero	**One city/community** Montgomery County.

Michigan	
Implementation Grants	**$24,800,000 awarded in implementation grants across one city.** Detroit – Safe Streets for Detroit **($24,800,000)** • This plan will improve the safety of pedestrians and cyclists using proven safety countermeasures including pedestrian refuge islands, and protected left-turn lanes. See this link (p. 24).
Action Grants	**$8,852,399.20 awarded in action grants across 13 cities/communities.**
Vision Zero	**Three cities/communities** Detroit, Grand Rapids, and Ann Arbor.

Montana	
Implementation Grants	**$9,311,254 awarded in implementation grants across one city.** Missoula – South Avenue Safe Streets **($9,311,254)** • This plan will improve the safety of pedestrians and cyclists through extending and widening bicycle lanes and sidewalks in line with Complete Streets. See this link (p. 25).
Action Grants	**$1,940,545 awarded in action grants across five cities/communities.**
Vision Zero	

North Carolina	
Implementation Grants	**$4,466,688 awarded in implementation grants across one city.** Charlotte – Proven Countermeasures to Implement Vision Zero **($4,466,688)** • This plan will improve the safety of pedestrians and cyclists using proven safety countermeasures including pedestrian hybrid beacons, pedestrian refuge islands, and buffered bicycle lanes. See this link (p. 26).
Action Grants	**$3,690,371 awarded in action grants across eleven cities/communities.**
Vision Zero	**Two cities/communities** Charlotte, and Durham.

North Dakota	
Implementation Grants	**$2,858,595 awarded in implementation grants across one city.** McKenzie County – McKenzie County Safety Projects **($2,858,595)** • This plan will improve the safety of pedestrians and cyclists, with a focus on rural areas, improving signage, adding rumble strips and separated bicycle and pedestrian paths. See this link (p. 27).

Action Grants	**$31,920,000 awarded in action grants across four cities/communities.**
Vision Zero	**One city/community** Bismark.

North Dakota	
Implementation Grants	**$2,858,595 awarded in implementation grants across one city.** McKenzie County – McKenzie County Safety Projects **($2,858,595)** • This plan will improve the safety of pedestrians and cyclists, with a focus on rural areas, improving signage, adding rumble strips and separated bicycle and pedestrian paths. See this link (p. 27).
Action Grants	**$31,920,000 awarded in action grants across four cities/communities.**
Vision Zero	**One city/community** Bismark.

New Jersey	
Implementation Grants	**$20,000,000 awarded in implementation grants across one city.** Vineland – Chestnut Avenue Safety Improvements and Rehabilitation **($20,000,000)** • This plan will improve the safety of pedestrians and cyclists using proven safety countermeasures including converting a four lane roadway to a three lane, adding bicycle lanes and enhancing visibility at crosswalks. See this link (p. 28).
Action Grants	**$6,545,671.44 awarded in action grants across ten cities/communities.**
Vision Zero	**One city/community.** Jersey City.

New Mexico	
Implementation Grants	**$6, 300,000 awarded in implementation grants across one city.**

	Bernalillo County – Bernalillo County's Coors Boulevard Pedestrian Safety Project **($6,300,000)** • This plan will improve the safety of pedestrians and cyclists through lowering speed limits, installing protected bike lanes, and improving crosswalks. See this link (p. 29. – see diagram)
Action Grants	**$1,219,200 awarded in action grants across four cities/communities.**
Vision Zero	**One city/community.** Albuquerque.

New York	
Implementation Grants	**$31,716,506 awarded in implementation grants across two cities.** New York – New York City Department of Transportation Application for United States Department of Transportation Safe Streets for All **($21,481,306)** • This plan will improve the safety of pedestrians and cyclists, focusing on Delancey Street (a high injury area) through roadway reconstruction. This plan will also look to reduce speeds, and add space and grade separation for bikes and pedestrians. See this link (p. 30). Akwesasne – Saint Regis Mohawk Tribe Safe Streets Project **($10,235,200)** • This plan looks to reduce crashes involving a turning vehicle through widening a road that runs through Mohawk Tribe territory. See this link (p. 31).
Action Grants	**$6,158,655.39 awarded in action grants across twelve cities/communities.**
Vision Zero	**One city/community.** New York City.

Ohio	
Implementation Grants	**$12,000,000 awarded in implementation grants across one city.** Columbus – Livingston Avenue West **($12,000,000)**

	• This plan will improve the safety of pedestrians and cyclists focusing on Livingston Avenue West, through lowering speeds, and other infrastructure countermeasures. See this link (p. 32).
Action Grants	**$3,414,000 awarded in action grants across thirteen cities/communities.**
Vision Zero	**Three cities/communities.** Cleveland, Columbus, and Toledo.

Oklahoma	
Implementation Grants	**$21,200,000 awarded in implementation grants across one city.** Tulsa – Travel with Care – Tulsa:Safe Streets for All Implementation Grant **($21,200,000)** • This plan will improve the safety of pedestrians and cyclists using proven safety countermeasures, including installing advanced signage, using flashing yellow traffic signal heads, and having speed feedback monitors. See this link (p. 33).
Action Grants	**$1,873,349.50 awarded in action grants across five cities/communities.**
Vision Zero	

Oregon	
Implementation Grants	**$20,000,000 awarded in implementation grants across one city.** Portland – Safe Systems on 122nd Avenue: A Model for Humanizing Arterial Streets **($20, 200,000)** • This plan will improve the safety of pedestrians and cyclists focusing on one of Portland's most dangerous roadways through converting parking to bike lanes, making signal improvements for bikes and pedestrians and implementing speed reader boards with automated enforcement. See this link (p. 34).

Action Grants	**$4,123,200 awarded in action grants across six cities/communities.**
Vision Zero	**Three cities/communities.** Eugene, Oregon Metro, and Portland.

Pennsylvania	
Implementation Grants	**$42,706,568 awarded in implementation grants across two cities.** Lancaster – City of Lancaster, PA, Vision Zero Implementation **($12,706,568)** • This plan will improve the safety of pedestrians and cyclists through installing crosswalks, improved roadway lighting, signal improvements, and No Turn on Red signs. This plan also places an emphasis on slower speeds. See this link (p. 35). Philadelphia – Philadelphia Vision Zero Capital Plan Implementation Project **($30,000,000)** • This plan will improve safety of pedestrians and cyclists through the implementation of multimodal safety improvement projects including pedestrian refuge islands, traffic signal improvements, and speed management measures. See this link (p. 36).
Action Grants	**$3,950,848 awarded in action grants across eight cities/communities.**
Vision Zero	**Three cities/communities.** Bethlehem, Harrisburg, and Philadelphia

Rhode Island	
Implementation Grants	**$27,200,000 awarded in implementation grants across one city.** Providence – Safe Streets for All Implementation Grant to Advance Engineering and Construction of Providence, Rhode Island's Urban Trail **($27, 200,000)**

	• This plan will improve the safety of pedestrians and cyclists through the creation of protected bicycle lanes and shared use trails. See this link (p. 37).
Action Grants	**$5,000,000 awarded in action grants across one city/community**
Vision Zero	**One city/community** Elorza.

Texas	
Implementation Grants	**$56,055,705 awarded in implementation grants across three cities.** Austin - Safe and Equitable Mobility for Austin **($22,866,400)** • This plan will improve the safety of pedestrians and cyclists through the installation of roundabouts, addressing sidewalk gaps, and adding audible pedestrian signals. See this link (p. 38). Houston – Bissonnet Corridor Safe Streets Project **($28,789,306)** • This plan will improve the safety of pedestrians and cyclists through the installation of enhanced crosswalks, pedestrian refuge islands and enhanced lighting. This plan's focus is unsafe crossing locations and enhancing them to make them more conducive for pedestrians and cyclists, not only cars. See this link (p. 39, see diagram). San Antonio – Zarzamora Street Mid-Block Crossings and High Injury Network Safety Campaigns **($4,400,000)** • This plan will improve the safety of pedestrians and cyclists through addressing eight crosswalks in an underserved area and enhancing them with lighting, signage, tree canopy, and high visibility crosswalk markings. See this link (p. 40, see diagram).
Action Grants	**$16,718,806.60 awarded in action grants across 25 cities/communities**
Vision Zero	**Four cities/communities** Austin, Houston, Laredo, and San Antonio.

Washington	
Implementation Grants	**$25,654,00 awarded in implementation grants across one city.** Seattle – Seattle Safe Streets **($25, 654,000)** • This plan will improve the safety of pedestrians and cyclists through the implementation of signalized intersections, protected bike lanes, and traffic calming measures. See this link (p. 41).
Action Grants	**$9,198,763 awarded in action grants across 16 cities/communities**
Vision Zero	**Two cities/communities** Bellevue, and Seattle.

Wisconsin	
Implementation Grants	**$4,400,000 awarded in implementation grants across one city.** Milwaukee – Accessible Intersections for All **($4,400,000)** • This plan will improve the safety of pedestrians and cyclists through installation of high visibility markings, applying road diets, and installing accessible pedestrian signals. See this link (p. 42).
Action Grants	**$2,284,179.99 awarded in action grants across seven cities/communities**
Vision Zero	**One city/community** Minneapolis.

5. Leading Initiatives from Europe

European Union

A 2023 proposal by the European Commission was submitted to improve road safety across the EU. The proposal includes a timeline of previous initiatives:

- March 2017 - The transport ministers of the EU issued a ministerial declaration on road safety at the informal transport Council in Valletta where Member States called upon the Commission to explore the strengthening of the EU's road safety legal framework.
- May 2018 – Mobility Package: The Commission issued "A Strategic Action Plan on Road Safety" to move closer to the long-term goal of zero road fatalities across the EU by 2050 ("Vision Zero")"
- June 2019 – published the "EU Road Safety Policy Framework 2021-2030 – Next steps toward 'Vision Zero'". New targets to reduce the number of road deaths by 50% between 2020 and 2023, as well as reducing the number of serious injuries by 50% in the same period.
- 2020 – Commission issued its "Sustainable and Smart Mobility Strategy" where it announced a revision of the Driving Licence Directive.
- 2021 – European Parliament adopted a resolution on the EU Road Safety Policy Framework 2021-2030, calling on the commission to further promote road safety.

The 2023 proposal's objective is to improve road safety and facilitate free movement of EU citizens by doing the following:

- introducing EU single driving licence mandatory for all drivers beginning in 2033;
- categorization of driving licences according to types of vehicles and min ages to drive them; and
- application of common minimum standards on skills, knowledge, physical and mental fitness of drivers.

Vision Zero – February 2023

- "Vision Zero" is the EU's strategy for reaching zero road fatalities by 2050. This includes setting out key performance indicators relating to key road safety challenges, namely:
    - Safe infrastructure
    - Safe vehicles
    - Safe road use, including speeding, alcohol, distraction and the use of protective equipment
    - Fast and effective post-crash care

- The EU's "Vision Zero" safe vehicles initiatives include:
    - SAFE-UP: Project to develop active and passive safety systems for future autonomous vehicles and analyzing safety-critical scenarios in highly automated and mixed traffic environments.
    - PROSPECT – Proactive Safety for Pedestrians and Cyclists:
        - Lay foundation for Vulnerable Road User active safety systems for cars in order to reduce crashes, mainly in intersections.
        - Completed in 2018

- I-dreams: set up a technology platform to develop, test and validate a "safety tolerance zone" to prevent drivers from getting too close to the boundaries of unsafe operation
- Mediator: Mediating between driver and intelligent automated transport systems on roads

Other Initiatives and Regulations

- In 2020, the European Transport Safety Council proposed a ban of SUVs from towns and cities as part of efforts to cut the number of pedestrians and cyclists being killed.
- As of 2022, Europe is requiring higher safety standards for all vehicles. The EU is attempting to decrease roadway fatalities by standardizing safe vehicle requirements including improved breaking and sensor systems and the addition of speed limiters.
- European Parliament adopted legislation to apply safety requirements to SUVs, vans and multi-purpose vehicles (MPVs). These vehicles were previously exempted from safety requirements due to seating height and vehicle mass characteristics. SUVs and vans will no longer be exempt from crash tests. **It is expected that these measures will save 7,300 lives and avoid 38,900 serious injuries.**[119]

Vision Zero

Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all. The initiative originates in Sweden in the 1990s and has since proven successful across Europe, and been copied in many North America jurisdictions, including Canadian cities. The central premise of Vision Zero is that traffic deaths are preventable, not inevitable. The goal is to eliminate road fatalities by 2050 by creating safe infrastructure, safe vehicles, promoting safe road use, and having fast and effective post-crash care.

Vision Zero initiatives look different depending on the implementing jurisdiction. The Netherlands, for instance, put a strong focus on creating a cycling culture, with initiatives that prioritize safer roadways for cyclists. Other initiatives found throughout Europe include SAFE-UP, I-Dreams, and Mediator.

Vehicle Registration Tax

Countries throughout Europe have begun implementing a vehicle registration tax that aims at discouraging the purchase and use of light trucks and SUVs. The tax is not, however, necessarily motivated by a desire to address the road danger of these vehicles. In 2020, France imposed a new weight tax to heavy cars and SUVs to get automakers to reduce CO_2 emissions. In 2018,

[119] Legislation text and Memo.

Italy announced higher taxes on the purchase of larger gasoline and diesel cars. This tax would only apply to larger high-powered vehicles that have higher CO_2 emissions, so that small family cars would not pay this tax. Germany, Netherlands, Denmark, Belgium, Spain and the U.K. have all implemented a similar tax to that in Italy, based on CO_2 emissions. [120]

This tax encourages drivers to buy smaller, more environmentally friendly vehicles. While vehicle weight is often correlated with CO_2 emissions, electric vehicles which are relatively heavier may be exempt from paying this tax. While electric vehicles do not produce any CO_2 emissions from their engines, some countries will tax the vehicle based on the gross weight.[121] With the emergence of electric vehicles, countries are learning how best to deal with vehicle taxation issues. Denmark, for example, has a basic deduction of tax applied to electric vehicles after taking all factors into account.[122]

Driver's Licence Requirements

Throughout Europe, countries follow a similar approach to the licensing requirements for drivers. Different classes of licences apply for the drivers of different vehicles, typically based on weight and number of passengers. Of the countries studied for this report, there tended to be one licence class that allows for an individual to drive any car, light truck, van, or SUV as long as the vehicle was not so heavy as to fit into a higher class. The standard licence class has a mass limit of 3.5 tonnes for passenger cars, motor caravans and vehicle-caravan-combinations. For reference, the Ford F-150 has a gross vehicle weight rating of approximately 3.5 tonnes.

Warnings in Advertisements

Most countries are seeing a rise in sales of SUVs and pickups consistent with the large amount of advertising for these vehicles. Advertisements for light trucks and SUVs, like many other advertisements, aim to sell consumers a lifestyle rather than the product itself. Virtually no advertisements for light trucks mention the risks that owning one of these vehicles creates for other road users, let alone what impact it has on the environment. The U.K. does not require any advertising warning for large vehicles, but more generally prohibits advertising that encourages motoring.[123]

In Germany, SUV sales have doubled, accounting for nearly a third of all new vehicle purchases.[124] This is believed to be due to rise of heavy advertising by German carmakers along

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[120] See Sandra Wappelhorst, "Germany's Vehicle Tax System: Small Steps Towards Future-Proof Incentives For Low-Emission Vehicles" (2020), The International Council on Clean Transportation. *TraXall*, "Car taxes in the Netherlands," (2018). Danish Customs and Tax Administration, "Periodic Taxes". N26, "A simple guide to road tax in Spain," (2022). Driver & Vehicle Licensing Agency, *Rate of vehicle tax*, (Report).

[121] See Danish Customs and Tax Administration, "Registration tax and rates."

[122] *Ibid*.

[123] ASA, "20 Motoring."

[124] Erik Kirschbaum, "SUVs have made a startling rise in Germany. Now comes the backlash" (2019), *Los Angeles Times*, para 2.

with an aging population who prefer high-riding cars that are easier to enter and exit.[125] Taking this into account, German car companies are investing more money into advertising for SUVs than all other car advertisements to take advantage of larger profit margins.[126]

In France, the World Wildlife Fund (WWF) estimates that 42 percent of all automobile spending is used to promote SUVs.[127] In response to this, France's climate laws ban advertising for the most polluting vehicles, such as SUVs and pickups, starting in 2028.[128] Beginning in March 2022, France required that car advertisements contain messages that encourage more eco-friendly forms of transport, such as cycling and public transport.[129]

Belgium now requires advertisements for motor vehicles include a health warning about the driver's responsibility to drive safely.[130] Any printed advertising passenger cars, not just SUVs and pickups, must contain information about fuel consumption and CO_2 emissions.[131]

In 2021, Amsterdam became the first city in the world to ban all ads by fossil fuel companies.[132] This means that fossil-fueled vehicles are no longer advertised, a trend that may spread to other major cities throughout the Netherlands.

Vehicle Restrictions in City Centres

Throughout Europe, many cities are restricting motor vehicles—albeit not targeting particular motor vehicles—from city centers. The rationale for such restrictions is usually to cut congestion and air pollution and to reclaim urban areas for pedestrians and cyclists.

In the UK, the cities of Oxford, Cardiff, and London, among others, charge motorists to drive in city centers.[133] Cities including Edinburgh and Glasgow are experimenting with limits on non-essential private car journeys into city centers.[134] The cities of Bristol, Portsmouth and York are looking at an outright ban on vehicles from entering specific areas in the city in an effort to encourage walking and cycling.[135]

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[125] *Ibid*, at para 3.
[126] *Ibid*, at para 14.
[127] WWF, "The obsession with SUV advertising," (2021), para 5.
[128] News Wires, "'Opt for cycling': French car ads required to back travel alternatives from 2022" *France24* (2021), at para 11.
[129] *Ibid*, at para 2.
[130] Chambers and Partners, "Advertising & Marketing 2022," (2022).
[131] *Ibid*.
[132] Hope Talbot, "Amsterdam to become first city in the world to ban this type of advert," (2020), *EuroNews.*
[133] Harriet Sherwood, "Bright, Bristol, York city centres signal the end of the road for cars," (2020), *The Observer,* Jan 26, 2020.
[134] *Ibid, at* para 7.
[135] *Ibid*.

In 2020, the European Transport Safety Council proposed a ban of SUVs from towns and cities as part of efforts to cut the number of pedestrians and cyclists being killed.[136] The City of Paris now bans heavily polluting vehicles from entering the city's beltway. [137] In addition, in 2024 Paris will ban all non-essential through traffic from its city centre.[138] Essential and public transit vehicles would still be permitted, as well as vehicles of the zone's residents, but it would be illegal to drive through the city center without stopping. In 2019, Oslo also began restricting the use of vehicles in its city center.[139]

Throughout Italy and Spain, limited traffic zones (ZTL) have been implemented. Driving into ZTLs without a valid reason (such as being a local resident) would subject to a fine. Denmark has implemented similar zones that are designated as low emission zones, preventing all vehicles that are not normal passenger cars from entering.

Belgium rejected the notion of restricting certain classes of vehicles from entering city centers as it is believed there are other solutions to increasing the safety of pedestrians and cyclists.[140] Germany has also had calls to ban or restrict SUVs from entering city centers.[141]

In 2020, the City of Amsterdam banned certain diesel vehicles from its city center, later only allowing buses and coaches to enter if powered by electric or hydrogen engines.[142] By 2023, all transportation in the city must be emissions-free, in line with Amsterdam's goal to be a car-free city. [143] New measures have been implemented in order to make it harder for motorists to use the roadways: closing off a short strip of a long street; narrowing roads; and making roads one-way—thereby encouraging residents to use environmentally-friendly modes of transportation.

Restrictions on Vehicle Sales and Outright Bans

With growing awareness of the dangers of large vehicles such as pickups and large SUVs—and their increasing numbers—there have been more calls to restrict sales of such vehicles. In 2020, safety experts urged the U.K. government to exclude American cars from any post-Brexit trade deal as they do not always meet British safety standards for road crashes involving pedestrian and cyclist victims, on the basis that U.S. crash standards are lower.[144]

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[136] RAC, "A European safety council wants to ban SUVs from built-up areas," (2020).
[137] Feargus O'Sullivan, "Paris Will Ban Through Traffic in City Center," (2021), *Bloomberg*.
[138] *Ibid.*
[139] Jonathan Wolfe, "Oslo Puts Up a Stop Sign," (2018), *New York Times*.
[140] The Bulletin, "Proposal to create SUV-free zones rejected by mobility organisation," (2021).
[141] *Supra*, note 124.
[142] Stephanie Bailey & Lidz-Ama Appiah, "How Amsterdam plans to power a city of electric cars," (2019), *CNN*, at para 2.
[143] *Ibid*.
[144] Roger Harrabin, "US cars 'must be left out of post-Brexit trade deal'" (2020), *BBC*.

Spain plans to propose a ban on sales of petrol, diesel, and hybrid cars for 2040.[145] The goal is to reduce polluting road vehicles to help cut GHG emissions. In Norway, all cars will be zero-emission vehicles by 2025.[146] While not all countries in this study have implemented a ban or restriction on the sale of certain vehicles, the increase of restrictions in cities appears to point to countries resorting to the implementation of outright bans.

Nation-specific Initiatives

France

Vehicle Registration Tax

- In 2020, France decided to impose a new weight tax to heavy cars and SUVs as part of a plan to get automakers to reduce CO2 emissions. A weight tax was among the 150 proposals generated from the Citizens' Convention on Climate set up by President Macron. Tax will apply to vehicles weighing more than 1800 kg at a rate of 10 euros for every additional kilogram. Tax will not apply to electric vehicles.[147]

Advertising Warnings

- The WWF estimates that 42 percent of all automobile spending in France is currently used to promote SUVs.[148]
- Climate laws ban advertising for the most polluting vehicles, which includes many SUVs, starting in 2028.[149]
- From March 2022 onward, a new French law will require that car advertisements contain messages that encourage eco-friendly forms of transport, such as cycling and public transport.[150]

Licence Requirements

- Follows EU legislation
- Licence B: Heavy car or quadricycle.
- Licence BE Permit: Car and Trailer over 750 kg.[151]

Restrictions in City Centers

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[145] Reuters Staff, "Spain to propose ban on sale of petrol, diesel cars from 2040" (2018), *Thomson Reuters.*
[146] Norsk elbilforening, "Norwegian EV policy,"
[147] [See this link]
[148] [See this link] [See this link]
[149] [See this link]
[150] [See this link] [the laws]
[151] [See this link]

- In 2024, Paris will ban all non-essential through traffic from its City Centre. The plan has been a long-term objective for the City. In 2022, Deputy Mayor Emmanuel Gregoire and Transit Commissioner David unveiled details on how the plan would function.
- The new zone would not ban cars altogether, but will allow motorized access to the zone's residents, to people with disabilities, and to vehicles used for public transit, deliveries or services. It will, however, be illegal to drive across the city center without stopping.
- Paris has also barred heavily polluting vehicles diesel cars from within the city's beltway, pedestrianized the Seine quayside, reduced car access on many major streets, and expanded green areas and sidewalks.[152]
- As of February 2024, Paris was poised to triple parking fees for SUVs.
- Within France, the City of Lille and Nantes already have low-speed limit, pedestrian priority zones covering their downtowns.

Italy

Vehicle Registration Tax

- In 2018, it was announced that Italy would be placing higher taxes on the purchase of large gasoline and diesel cars. The measures were contained in Italy's 2019 budget and passed by the upper house.
- In their new form, the taxes will no longer apply to small family cars, but only to larger high-powered vehicles, including SUVs as they have higher CO_2 emissions.
- A tax of 1,100 euros will be placed on new gasoline and diesel cars that generate 161-175 grams of CO_2 emissions per km. That will rise to 1,600 euros for emissions of 176-200g/km and to 2,000 euros for emissions of 201-250 g/km.
- Incentives for electric and hybrid vehicles, meanwhile, will vary according to emissions generated and will not apply to models that cost more than 50,000 euros ($57,000).[153]

Licence Requirements

- Licence B: allows all cars to be driven.
- Licence C: professional level driver's licence to drive large buses or trucks.

Restrictions in City Centers

[152] [See this link]
[153] [See this link]

- Limited traffic zones (ZTL) in major cities. There is a fine for driving into ZTLs, as generally only local drivers are allowed. Large ZTLs exist in Rome, Florence, Milan and Pisa.

Other

- In 2018, it was announced that Italy will offer subsidies of up to 6,000 euros to buyers of new low emission vehicles. [See this link]

Germany

Vehicle Registration Tax

- Owners of a vehicle with higher CO_2 emissions will be taxed more heavily.[154]
- Other factors in related taxes include the weight of the vehicle and type of engine. [See this link]

Advertising Warnings

- German sales of SUVs have doubled, accounting for nearly a third of all new vehicle purchases. Industry analysts attribute the rise to heavy advertising by German carmakers and an aging population that finds the high-riding cars easier to access and exit.
- Benjamin Stephan, Greenpeace, says that "German car companies invested more money in advertising for SUVs than in all other car segments combined… They're fueling the rising demand for SUVs with these ads and doing everything they can to get people these big cars because of the fat profit margins."[155]

Licence Requirements

- Licence B: allows all cars to be driven.
- Licence C: professional level driver's licence to drive large busses or trucks

Restrictions in City Centers

- Banning SUVs from city centers
    - In September 2019, a Porsche Macan killed four people after jumping a curb in central Berlin. After the fact, politicians from the Green party weighed in with calls to ban or limit SUVs in cities. These politicians stated that there was "no need for cars built like tanks to be on the streets in the City" and that they are "not only destroying the climate but they're also intimidating even when they're not in accidents. Even the tiniest mistake driving them can put lives at risk."[156]

[154] [See this link]
[155] [See this link]
[156] [See this link]

- Restrictions on SUVs in city centers
    - Mayor of the German city of Tubingen won initial support for his proposal to increase annual parking fees for SUVs.
    - "There should be a noticeable difference between the fees small city cars and big SUVs have to pay, which actually aren't needed in a city."
    - The city would also like to go carbon neutral.[157]

Other

- SUVs subject to higher fines
- In June 2022, a court in Frankfurt, Germany, ruled that an SUV driver who ran a red light should be charged nearly twice the normal fine as someone in a smaller car due to the increased risk his vehicle posed to pedestrians.
- The court found that the shape of the SUV, with its high, box-liked hood, meant the driving infraction posed a greater risk to pedestrians than if the defendant had driven a smaller car.[158]

Netherlands

Vehicle Registration Tax

- Vehicles are taxed differently based on the weight of the car, the fuel type, the degree of environmental pollution and the province where the owner is located.[159]
- Zero emission cars are exempt from paying the registration tax. For other vehicles, the system is progressive and corresponds to different levels of CO_2 emissions.

Advertising Warnings

- In 2021, Amsterdam became the first city in the world to ban ads from fossil fuel companies, which includes a ban on ads for fossil-fueled vehicles. The ban may be taken up by other major cities in the Netherlands.[160]

Restrictions in City Centers

- Restriction on vehicles in Amsterdam
    - Amsterdam's goal is to be a car free city. Host of new measures introduced to make it harder for motorists to use at least ten central streets as through ways.

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[159] [See this link]
[160] [See this link]

    - Low costs to make it difficult to build a car-free future – simply involves putting up barriers that close off a short strip of a long street. Most of the street can still be accessed for deliveries, pick-ups, and drop-offs, but it no longer serves as a good route across town. This is called a "knip".
    - Most central streets will be getting their own "knips", while others will be made one-way, or have their car lanes narrowed.[161]
- Ban on vehicles using certain fuel types
    - From 2020 onward, certain deisel vehicles are banned from Amsterdam's city centre.
    - From 2022 onward, buses and coaches will be allowed in the city centre if they have electric or hydrogen-powered engines.
    - By 2030, all transportation in the city must be emission-free.[162]

Other

- Vision Zero/Sustainable Safety
    - In the Netherlands, the approach to road safety is "sustainable safety". The idea is that roads should be designed and organized for a casualty-free traffic system. The goals are to prevent crashes from occurring, and in the event of a crash, to prevent serious injuries or fatalities.[163]
    - In the Netherlands, the idea is roads should be "self-explaining" to reduce the likelihood of crashes. "Self-explaining" roads are easy to use and navigate, it being self-evident to road users where they should be and how they should behave.
- Vehicle Restrictions in Netherlands
    - Vehicles are restricted to a maximum height of 4 meters and width of 2.55 meters. Rigid lorries are restricted to 12 meters in length and articulated lorries to 16 meters in length. Road trains can be 18.75 meters in length.[164]
- Focus on Biking
    - Amsterdam released a long-term bicycle plan with a view toward 2030 for a "healthy and accessible city".[165]
- Use of Technology to Improve Road Safety
    - Dutch government working together with the private sector to develop self-driving vehicles to improve in-car traffic information for drivers. This will reduce congestion and reduce CO_2 emissions and improve road safety.
    - Netherlands is a testing ground for Smart Mobility solutions – government is supporting development in many ways, from providing testing facilities to adjusting rules and regulations.[166]

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[166] [See this link]

- Truck Platooning
    - The government wants truck platooning to be possible throughout the EU. Truck platooning refers to a group of lorries travelling safely and automatically in convoy, a short distance apart. Since the lorries communicate with each other, they can travel in sync. The vehicle at the head of the convoy acts as the leader; innovative technology is used to drive it.[167]
- Cooperation on Road Safety
    - Each province has an ROV to provide information and education and advise on design and layout of infrastructure and safer traffic flows.
    - SWOV carries out directed research to improving road safety. SWOV is an independent organization and makes available to professionals involved with road traffic and safety.
    - Team Alert is the road safety organization run by young people for young people to make them aware of and to encourage responsible road use.[168]
- Subsidies
    - In 2020, a purchase subsidy, under a regime valid until 2025, was introduced of 4,000 euros for a new car and 2,000 euros for a used car.[169]

Spain

Vehicle Registration Tax

- In Spain, drivers pay road tax based on city of registration, vehicle type, and vehicle weight.
- Additionally, Spain, along with other European countries, requires a fiscal horsepower tax calculated based on engine power.[170]

Licence Requirements

- There are different licence categories in Spain. Categories are dependent on the weight of the vehicle.[171]

Restrictions in City Centers

- Spain employs “Limited Traffic Zones” across all major urban centers banning motor vehicle traffic in specific regions of cities. In order to access these roads, drivers must apply and register their vehicle to enter the zone.

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[170] [See this link]
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- Additionally, some urban centers in Spain employ “Pedestrian Zones” denying access to all motor vehicles.[172]

Limit on Sales

- Spain plans to propose a ban on sales of petrol diesel and hybrid cars from 2040. The aim is to reduce polluting vehicles on the road to help cut greenhouse gas emissions.[173]

Other

- In November 2020, to promote safe driving, Spain has modified speed limits in cities, reducing general speed limits on urban roads from 50 km/h to 30 km/h on roads with one lane in each direction and to 20 km/h on roads with one lane. These laws came into force in May 2021.
- In December 2018, Spain modified rural road speed limits from 100 km/h to 90 km/h.[174]
- News Article claims that speed limit reductions have decreased fatalities from motor vehicles in urban areas by 14% from May to December of 2021.

Denmark

Vehicle Registration Tax

- As of July 2021, Denmark implemented a periodic CO_2vehicle tax calculated based on the number of grammes of CO_2 emitted by the vehicle per kilometer. The less CO_2 emitted per kilometer, the lower the tax.
- For vehicles registered prior to July 2021, vehicles tax is based on fuel usage and weight to encourage lower emission vehicles.[175]
- All personal use cars are taxed upon registrations. The percentage of tax owed increases with the cost of the vehicle. There is an additional surcharge for CO_2 emissions, calculated by grammes per kilometer.
- For zero emission vehicles (i.e., electric cars), tax is calculated according to the basic scheme, then special deductions are applied based on battery capacity (kWh). Additionally, zero-emission private cars are subject to a basic deduction of DKK 167,500 from the vehicle registration tax. Similar deductions are applied for low-emission vehicles (i.e., hybrid cars).[176]

Licence Requirements

[172] [See this link]
[173] [See this link]
[174] [See this link]
[175] [See this link]
[176] [See this link]

- There are different licence categories for cars, vehicles with trailers, lorries, and buses.[177]

Restrictions in City Centers

- There are four environmental zones in Denmark located in Copenhagen, Aalborg, Aarhus and Odense. All the low emission zones are permanently valid and affect diesel buses, vans and trucks. Buses and vans that do not meet the Euro standard are also not allowed to enter. Normal passenger cars are not affected and are simply allowed to enter.[178]

Other

- As of 2015, Denmark has a motor vehicle fatality rate of 37 fatalities per million people. The European average for motor vehicle fatalities is 50 fatalities per million people.
- In Denmark 43% of the population use personal vehicles for transportation. Compared to 74% of Canadians that commute by personal vehicle.[179]

Belgium

Vehicle Registration Tax

- For non-leased vehicles, the vehicle registration tax is based on the environmental impact of the vehicle (CO_2 emissions, fine dust emissions, fuel type, euro emission standard, presence of a soot filter) and the age of the vehicle based on when it was first registered.
- For leased vehicles, the vehicle registration tax is based on the engine power or the vehicle.
- Electric vehicles, hydrogen vehicles, and plug-in electric vehicles are potentially exempt from a vehicle registration tax.[180]

Advertising Warnings

- In attempt to reduce crashes from dangerous driving, Belgian law requires advertisements for motor vehicles to include a health warning about the driver's responsibility to drive safely. In addition, in Belgium, any printed – or printable – advertising material must contain information about the fuel consumption and C02 emissions of all passenger cars. Health Warning on Car Advertisements
- Belgium Advertisement Legislation (not provided in English).

Licence Requirements

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[177] [See this link]
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[179] Stats Can
[180] [See this link]

- There are different licence categories for cars, trucks and buses.

Restrictions in City Centers

- In 2021, a proposal to limit SUV use in high-capacity cyclist and pedestrian zones was rejected by the Belgian mobility organization (VAB). While the VAB agrees with Eva Van Eenoo, a mobility expert at VUB university, that the safety of pedestrians and cyclists should be a priority, it believes that refusing entry to certain private vehicles is not the solution.[181]

Other

- Belgium has adopted Vision Zero. Belgium's three regional governments launched a national plan for road safety, which aims to eliminate all traffic-related deaths by 2050. The plan will:
    - Tackle speeding and distracted driving
    - Modify the Highway Code to give priority to pedestrians, cyclists, and public transport vehicles
    - Tackle use of mobile phones while driving
    - Increase use of smart cameras [See this link]

Norway

Vehicle Registration Tax

- In addition to CO_2 taxes on fuel, Norway has used two main policies to decarbonize its car fleet. First, a CO_2 differentiated registration tax gives strong and continuous incentives to buy cars with lower registered CO_2 intensity (or higher fuel efficiency). Second, tax incentives, including registration tax and VAT exemptions, are applied to zero-emission cars.[182]

Licence Requirements

- There are different licence categories for different types of vehicles.

Restrictions in City Centers

- In 2019, Oslo began restricting the use of vehicles in its city centre. The aim is to make the city more pedestrian and cyclist friendly as well as to cut down on CO_2 emissions. [See this link]

Limits on Sales

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[181] [See this link]
[182] [CO2 tax]

- All cars by 2025 should be zero-emission.[183]

Other

- As of October 1, 2022, Norway requires extensive safety regulations on all registered vehicle as recommended by the EU in their Implementation of the roadworthiness package from 2020.
- Vision Zero:
    - Norway implemented a National Plan of Action for Road Safety 2022-2025 as part of their road toward Vision Zero. It includes 179 measures that will be followed during the plan period. 15 priority areas have been selected for this plan period including: speed, intoxication, seatbelt use, inattention, pedestrians and cyclists, motorcycles and mopeds, freight transport by road.
- Freight vehicles are subject to yearly inspections. With respect to inspections, the plan states that the use of new technology will be used to increase the effectiveness of the inspections. There will also be improvements with respect to information and training.
- Existing Rules and Regulations:
    - Speed limit is generally 80km/h
    - Heavy vehicles (over 3.5 tonnes) and vehicles towing caravans or trailers may not exceed 80 km/h regardless of the local limit. Camping cars under 7.5 tonnes are exempted and are allowed to follow indicated speed limits as other vehicles. If the caravan or trailer is not equipped with brakes, the maximum speed is 60km/h.
    - Summer tire tread must be 1.6 mm deep. Winter tire tread must be 3mm. Everyone must drive with winter tries or without studs. Vehicles permitted with a total weight of 3.5 tonnes or more must carry snow chains if ice or snow is expected.[184]

The United Kingdom

Vehicle Registration Tax

- Vehicle tax rates for registered vehicles are based on the vehicle's CO_2 emissions, and whether the vehicle runs on petrol, diesel, or an alternative fuel source. Vehicles with higher CO_2 emissions are taxed at a higher rate than vehicles with lower CO_2 emissions and vehicles that run on petrol are taxed at a higher rate than vehicles that run on an alternative fuel.[185]

[183] [See this link]
[184] [See this link]
[185] [Rates of Vehicle Tax in the UK as of April 2023]

Advertising Warnings

- There are no advertising warnings specific to large vehicles and SUVs. However, the Advertising Standards Authority (ASA), the UK's independent regulator of advertising have advertising codes for "motoring".
- The general principle is that advertisements should not contribute to a culture of dangerous, irresponsible or inconsiderate driving or motorcycling, especially among young drivers. Below are advertising codes that may apply to SUVs etc.:
    - *20.3*: Motoring advertisements must not demonstrate power, acceleration or handling characteristics except in a clear context of safety. Reference to those characteristics must not suggest excitement, aggression or competitiveness.
    - *20.4*: Motoring advertisements must not refer to speed in a way that might condone or encourage dangerous, competitive, inconsiderate or irresponsible driving or motorcycling. Factual statements about a vehicle's speed or acceleration are permissible but must not be presented as a reason for preferring the advertised vehicle. Speed or acceleration claims must not be the main selling message of an advertisement.
    - *20.5*: Motoring advertisements must not exaggerate the benefit of safety features to consumers or suggest that a vehicle's features enable it to be driven or ridden faster or in complete safety.[186]
- *Calls to Ban SUV Advertising:*
    - A report in the UK found that the global trend of rapidly increasing sales of bigger and more polluting SUVs was jeopardizing climate goals. It's calling for an advertising ban on cars with average emissions of more than 160gCO_2/km, and any cars exceeding 4.8 meters in length. The report said that the money spent on car companies in the UK is increasingly focused on pushing SUV vehicles. [Source]

Licence Requirements

- There are different licence categories for different vehicles:
- Category B (Cars):
    - Before 1 January 1997 – allowed to drive a vehicle and trailer combination up to 8,250 kg.
    - After 1 January 1997 – allowed to drive vehicles up to 3,500 kg with up to 8 passenger seats.
- Category BE:
    - Allowed to drive a vehicle with a MAM of 3,500 kg with a trailer.
- Category C1 (Medium Sized Vehicles)

[186] [See this link]

- Drive vehicles between 3,500 kg and 7,500 kg[187]

Restrictions in City Centres

- There are many examples of cities restricting vehicles in the city centers. The rationale behind these restrictions is to cut congestion and air pollution and to reclaim urban areas for pedestrians and cyclists. That being said, safety is a factor in some cities. For example, in Oxford, after temporary road closures, residents reported improvements in air quality, safety and noise. As a result, the city council is consulting on whether to make closures permanent.
- *Birmingham:* plans to ban private vehicles from driving through the city centre. Motorists would still be able to drive into the city but would be prevented from crossing the city in a move to tackle air pollution and prioritize cycling, walking and public transport. Other measures include introducing car-sharing and 20mph limit in the city centre. The council has said that road transport accounts for a third of CO_2 emissions in Birmingham.
- *York*: Aims to ban all non-essential private car journeys inside its medieval walls within three years to cut carbon emissions. Disabled drivers exempt. City aims to be carbon neutral by 2023.
- *Edinburgh:* 18-month trial to close streets to traffic for several hours on the first Sunday of every month. The first of the cities to join the Open Streets initiative.
- *Bristol:* City will be the first in the UK to ban privately owned diesel cars from its streets next year. Taxis and emergency services will be exempt.
- *Oxford:* The city and county councils have proposed the UK's first zero emission zone in the city centre. Drivers of diesel and petrol vehicles will be charged £10 a day to enter the zone, increasing to £20 in December 2024. The penalty for not paying the charge will be £120. People living inside the zone will pay a discounted rate of 10%.
- *Glasgow:* Proposal to limit private vehicle access to George Square.
- *Portsmouth:* Plans to have the first car-free community. Planning permission sought for a new neighborhood of 4000 homes on the eastern side of Portsmouth harbour, with streets dedicated to pedestrians and cyclists.
- *Cardiff:* The City is planning to charge non-residents $2 to drive into the centre as part of $2billion "transport vision" to reduce congestion and improve air quality. Other measures include new tram/train routes, more walking and cycling routes and an electric bike pilot scheme.
- *London:* The Capital pioneered the congestion charge in 2003 and is now one of the largest in the world. In 2019, it introduced the 24-hour ultra-low emission zone, which will expand in 2020.[188]

[187] [See this link]

[188] [See this link]

Limits on Sales

- In July 2020, safety experts urged the UK government to exclude American cars from any post-Brexit trade deal. Safety experts expressed that imported vehicles should meet British safety standards for accidents with pedestrians, cyclists and children.
- US crash standards are lower than that of the UK and the EU meaning that the imported vehicles would not meet British standards.[189]

Other

- Vision Zero
    - Campaign for Safe Road Design is a partnership between 13 UK major road safety stakeholders calling for the UK government to invest in safe road infrastructure which in their view would cut deaths on British roads and would be a step toward "Vision Zero".
    - UK Vision Zero campaigns include Vision Zero London and Vision Zero UK. The Mayor of London's Transport Strategy sets out the goal that by 2041, all deaths and serious injuries will be eliminated from London's transport network.
    - Vision Zero London includes "Safe Vehicles" which includes reducing the risk posed by the most dangerous vehicles by introducing a world leading Bus Safety standard across London's entire bus fleet and a new "Direct Vision Standard" for Heavy Goods Vehicles. The Direct Vision Standard measures how much an HGV driver can see directly through their cab windows.

- Subsidies
    - Low-emission vehicles are eligible for a grant from the government.[190]

- Modifications and Safety
    - Bull bars, a common modification to SUVs in North America, are not illegal but the Department of Transport does not recommend their fitment unless it has been shown, through compliance with specified safety standards that they do not pose a risk of injury to pedestrians or other vulnerable road users.
    - There are no plans for legislation to require bull bars that are already fitted to be removed. However, since 25 May 2007, it has been an offence for bull bars that have not been approved as compliant with those safety standards to be sold. Approved devices will carry an indelible 'e' mark (for example: e1 01 1471)[191]

[189] [See this link]
[190] [See this link]
[191] [See this link]

Additional Jurisdictions

Israel

In Israel, all vehicles weighing up to 3,500 kg (personal vehicles) benefit from a tax rebate on the vehicles Purchase Tax according to their safety level. There are 9 safety levels (0-8) depending on the number of safety systems. Source (OECD iLibrary)
Note – no additional sources on safety tax rebates in Israel or other countries.