Vehicle Weight Safety Study Task Force Meeting

July 16, 2025

CALIFORNIA
TRANSPORTATION
COMMISSION

AGENDA – July 16, 2025

Tab	Item Description	Presenter	Type	Agency
		GENERAL BUSINESS		
1	Roll Call & Webinar Logistics	Dylan Jimenez (CTC)	I	C
		INFORMATION ITEMS		
2	Summary of June 13 Task Force Meeting	Cayla McDonell (CTC)	I	C
3	Trends in Vehicle Fleet, Road User Injuries and Fatalities	Cayla McDonell (CTC) Matthew Raifman (UC Berkeley)	I	C
4	Roundtable Discussion with Task Force Members	Cayla McDonell (CTC)	I	C
		OTHER MATTERS		
5	Public Comment	Cayla McDonell	I	C

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The Commission's meeting agenda is located on our website at www.catc.ca.gov.

All documents on the CTC website can be translated into any language you need. Simply e-mail us at ctc@catc.ca.gov and we will have them retuned to you as quickly as possible.

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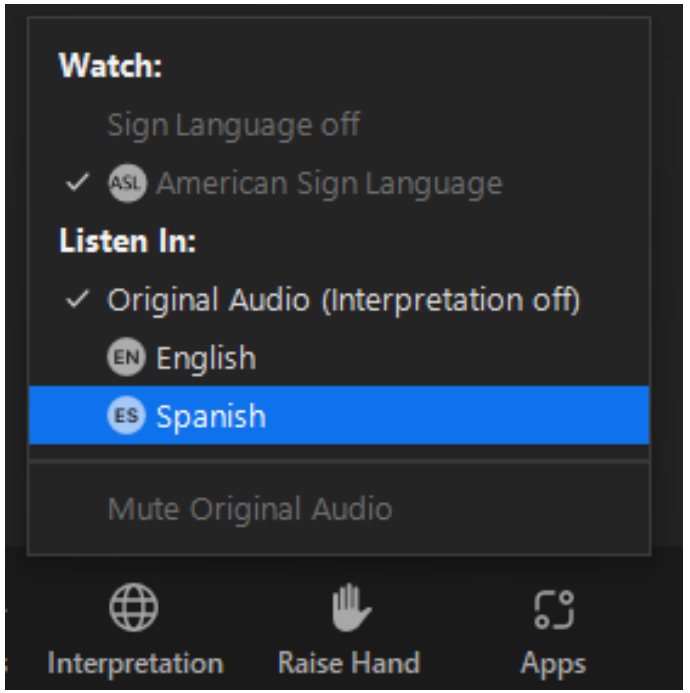
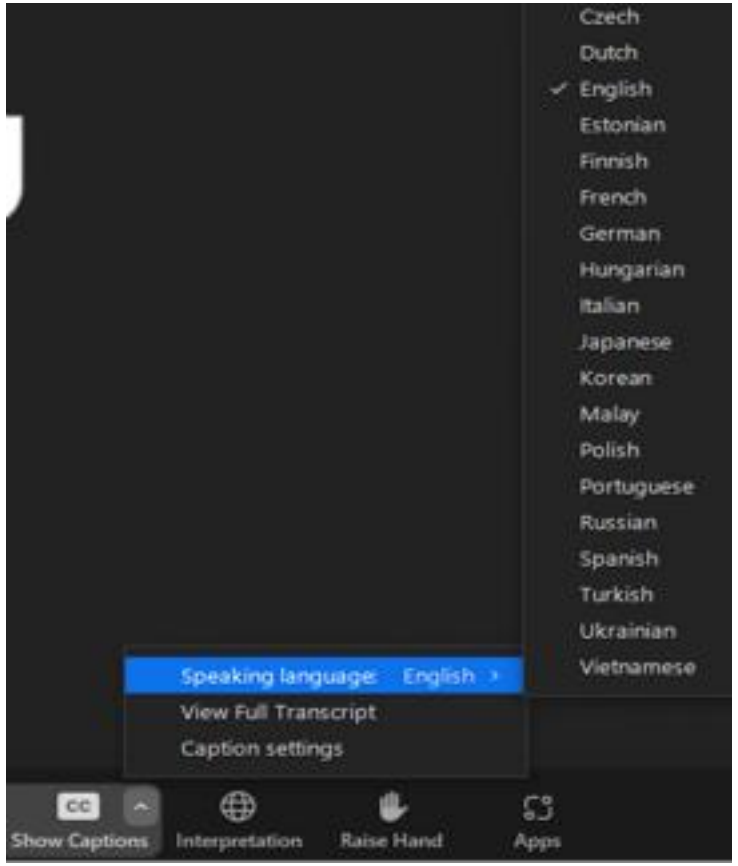
American Sign Language translations are being provided for this meeting. You can access these services through the interpretation tab at the bottom of the screen. You will need to select which translation service you need. Please use the Q&A tab if you have questions about this.



AGENDA – July 16, 2025

Live closed captioning is also available. Please select the show captions tab at the bottom of your screen. There are a number of language options available there to choose from.



AGENDA – July 16, 2025

Presenters:

- If you are on the agenda to make a presentation, please do your best to be succinct.
- Please remember to speak at a steady pace to allow our translating service adequate time for accurate translations.
- If you are presenting remotely, we hope that you will turn on your camera during your presentation, if you have one.

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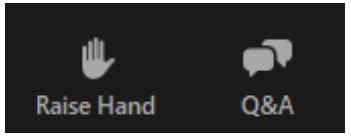
We welcome comments from the public as a part of each item at this meeting.

For those attending in person please submit a speaker slip to the clerk at the front of the room to let us know you want to comment on an item.

You should see the webinar control panel, likely located on the bottom of your screen. There you will find the Raise Hand and Q&A tabs. 

We encourage you to use the raise hand feature as early into the item as you can to give the system time to acknowledge you.

Alternately, you may use the Q&A tab to submit your comment. Please be sure to include the agenda item number you are commenting on. Commission staff will read the comment on your behalf.

As a reminder, each registered attendee is provided a unique link and phone number to access the webinar. These should not be shared with other participants, as they are registered to a specific attendee and can create confusion for staff when making comments.

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For all Meeting Attendees:

Please do your best to be concise.

Please make sure that your comments add new information. If you agree with the comments of a previous speaker, simply make that statement.

Please remember to speak at a steady pace to allow our translating services adequate time for accurate translations.

Since we often have many speakers, we ask that you make your point in 3 minutes or less. If, for some reason, we have many speakers on a topic, we reserve the right to limit comments to 1 minute if needed.

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3	Trends in Vehicle Fleet, Road User Injuries and Fatalities	Cayla McDonell Matthew Raifman	I	C

Institute of Transportation Studies | UNIVERSITY OF CALIFORNIA

Trends in Road User Injuries and Vehicle Fleet Characteristics

Vehicle Weight Safety Study Academic Report

UC Berkeley SafeTREC

UC Berkeley Institute of Transportation Studies

Today's Agenda

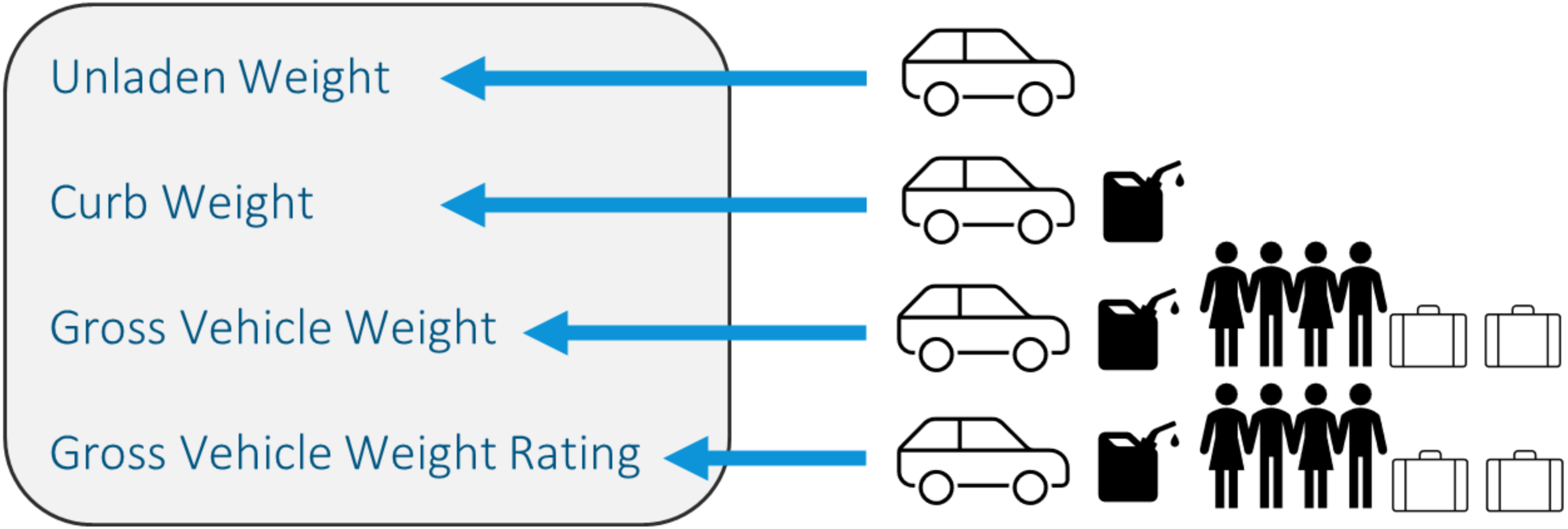
1	Summary of trends in passenger vehicle size
2	Current vehicle weight fee landscape
3	Adoption of vehicle safety technology
4	California's registered vehicle fleet
5	Summary of trends in road user injuries
6	Relationship between vehicle size and injury risk

Today's Goals

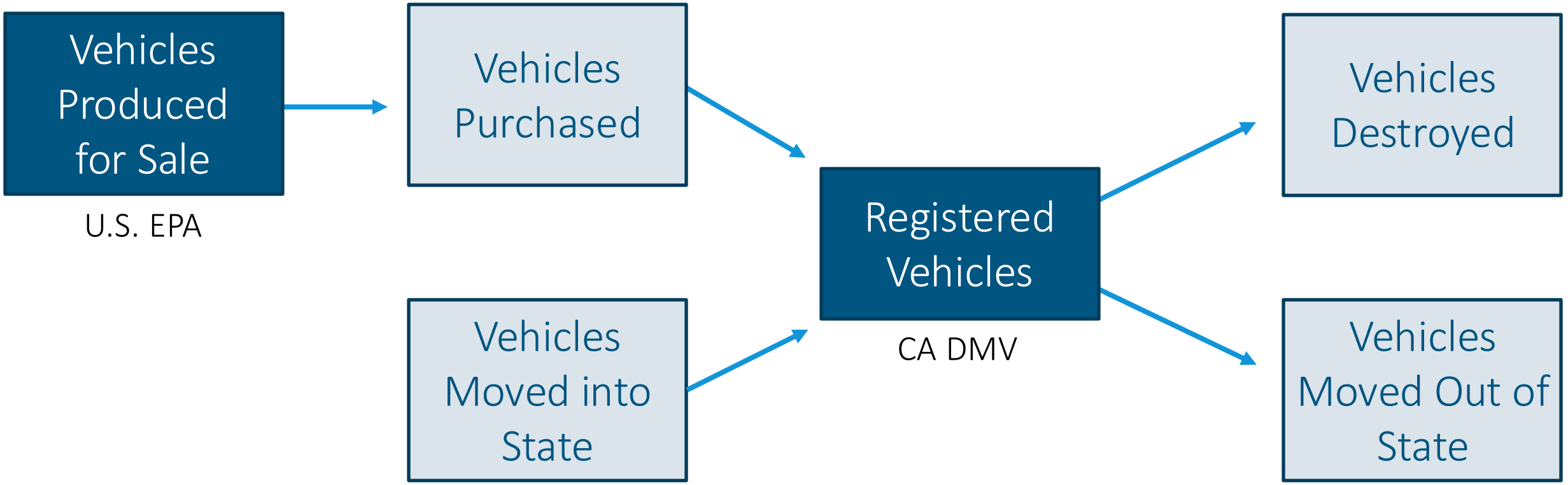
1	Provide data to inform the discussion
2	Stay within the bounds of the science
3	Catalyze the conversation, not direct it

Summary of Trends in Passenger Vehicle Weight

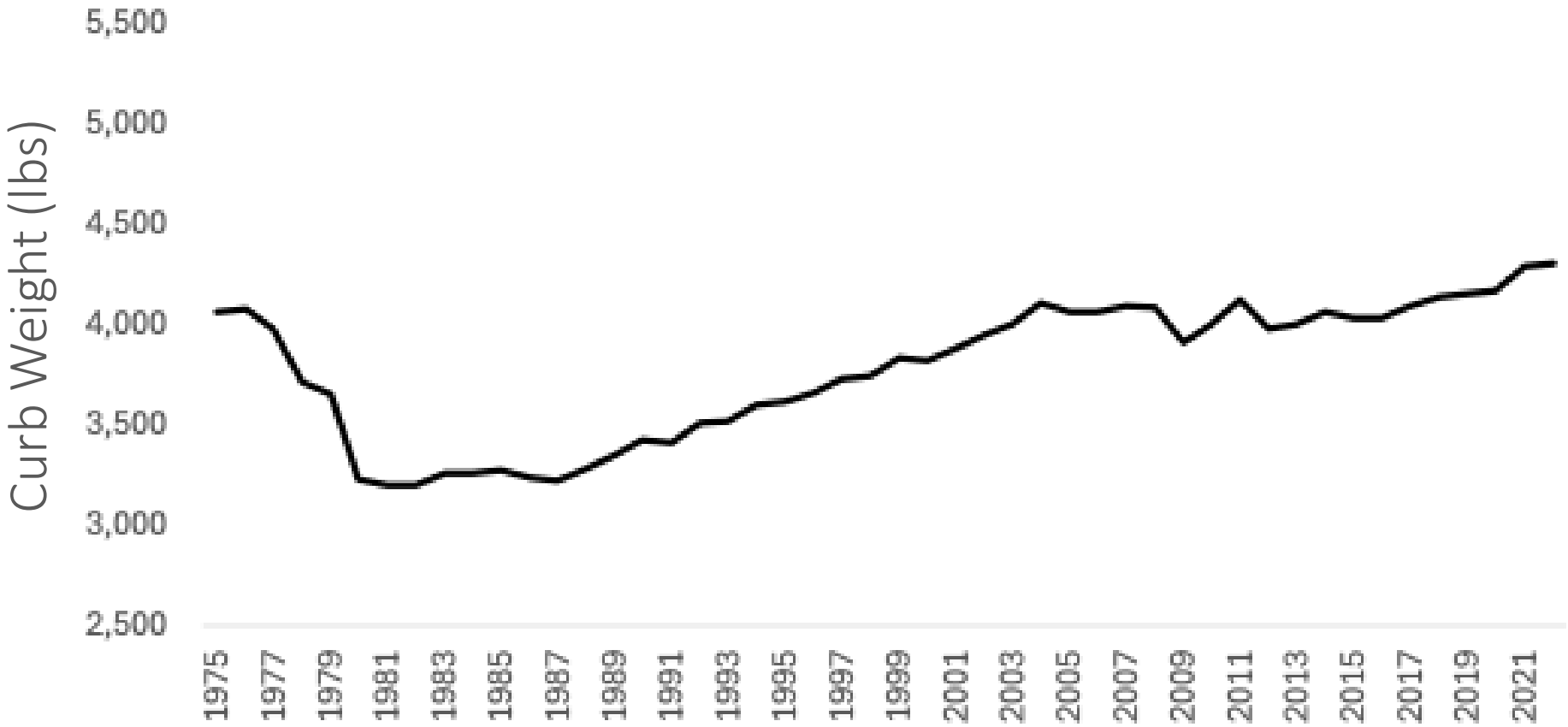
Vehicle Weight Definitions



Vehicles Produced vs Vehicles Registered

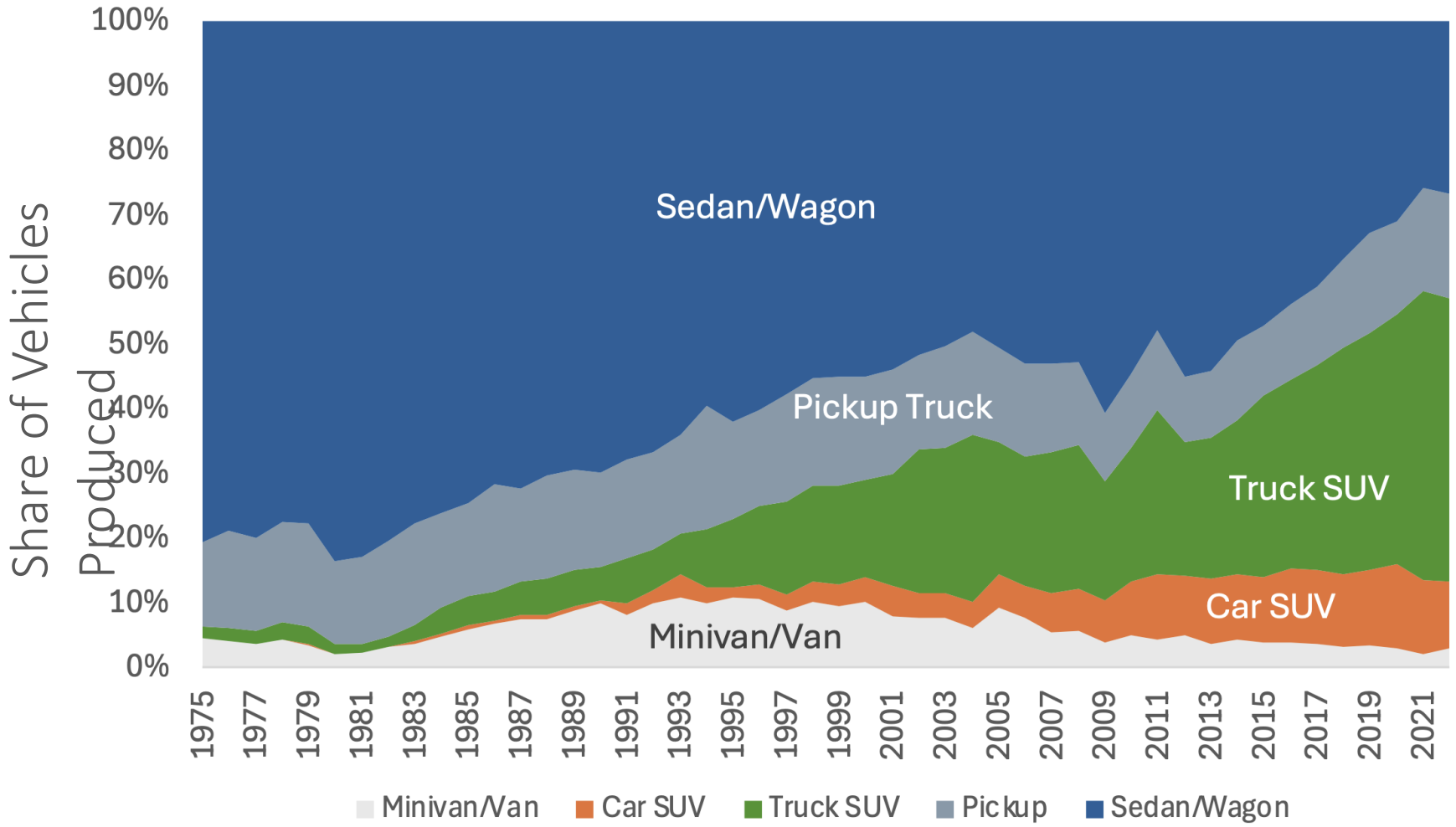


New model year curb weight is now higher than before CAFE standards were implemented



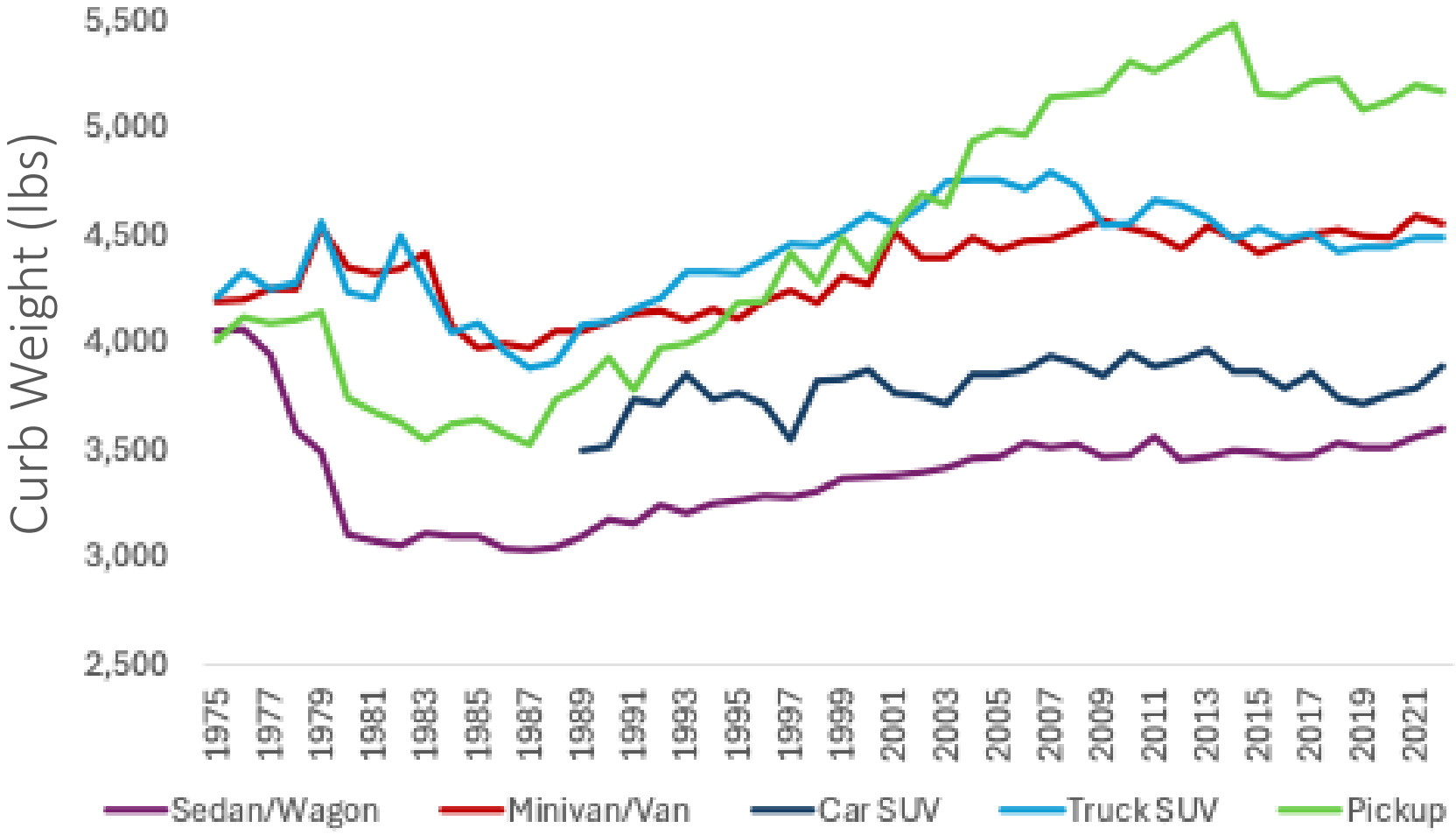
USEPA, Automotive Trends Report, 2023

Sedans and vans are being replaced with SUVs



USEPA, Automotive Trends Report, 2023

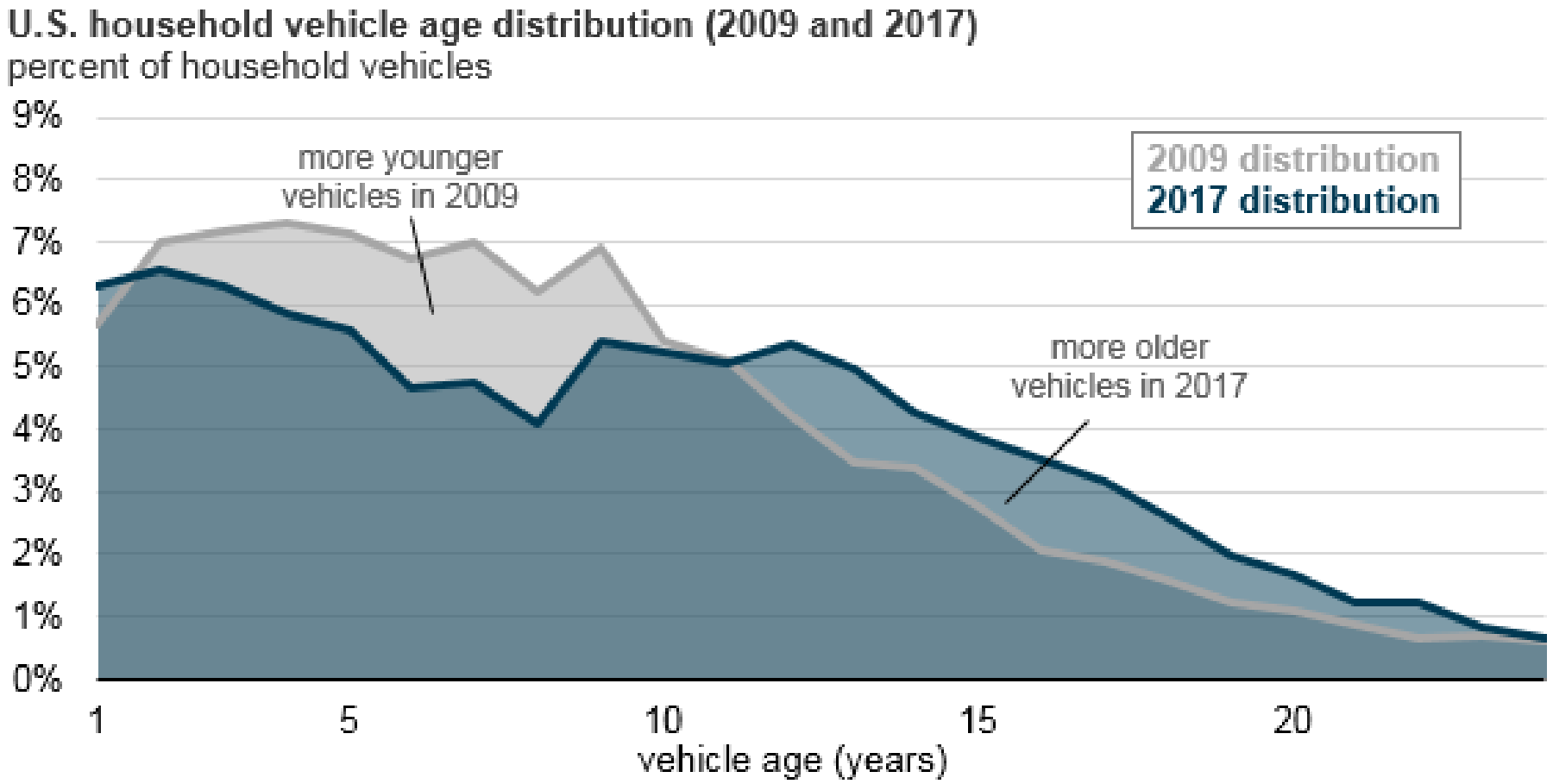
All vehicle body class types are getting heavier



USEPA, Automotive Trends Report, 2023

Americans are holding onto their vehicles longer

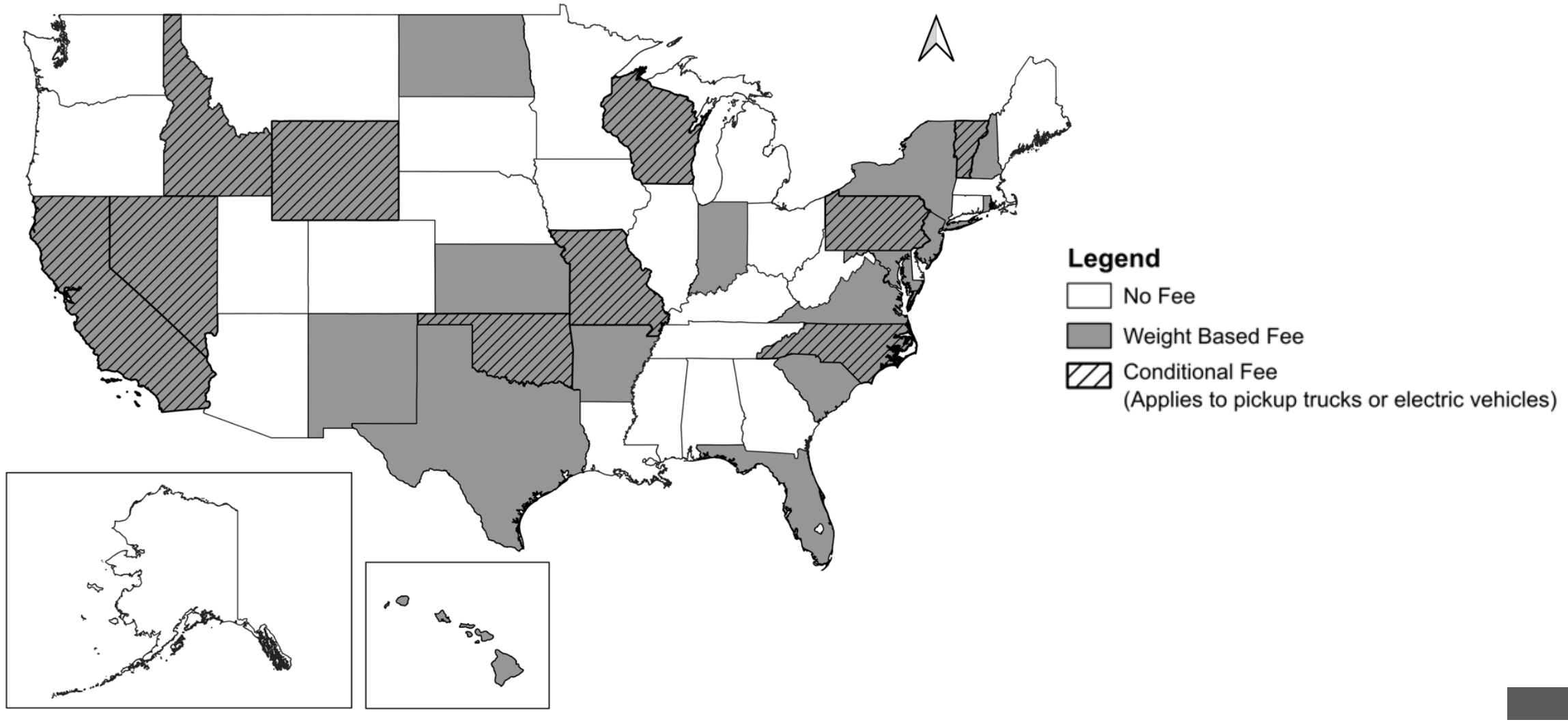
2024:
12.6 years*



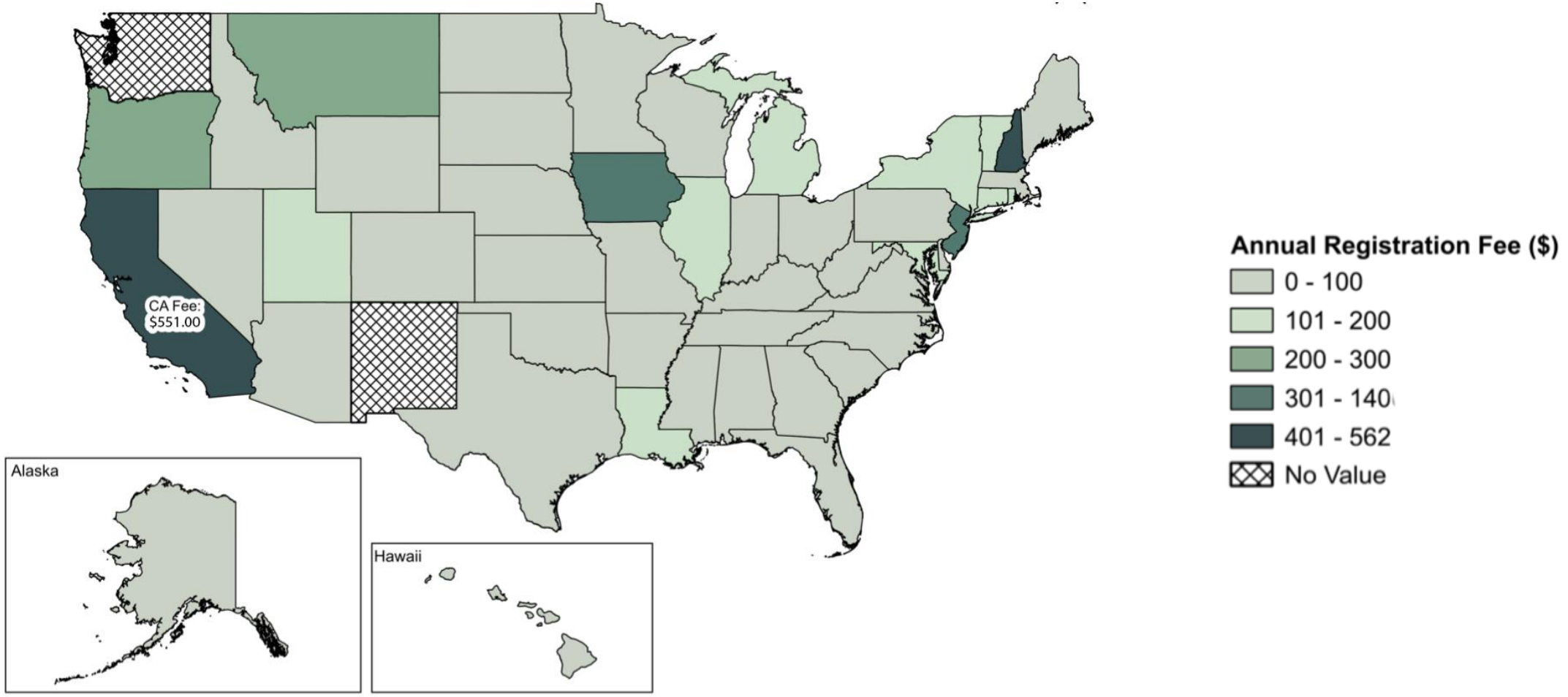
USEPA, USDOT, NHTS 2017; *S&P

Current Vehicle Weight Fee Landscape

About half of U.S. states have a weight-based vehicle fee



Fees due at registration vary by state for a Ford F-150

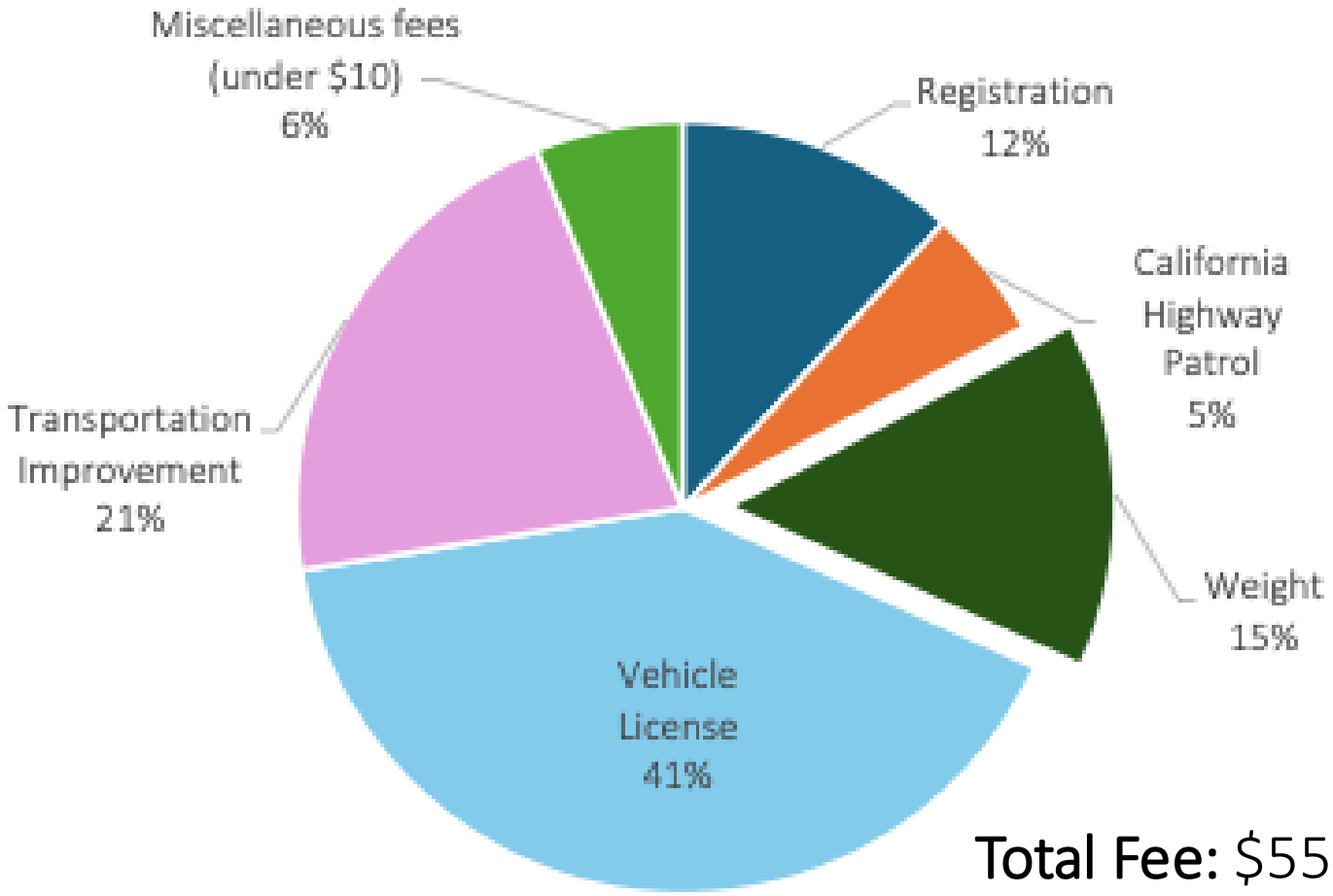


Commercial vehicles (and pickups) have a weight fee in CA

Commercial Motor Vehicles with Two Axels or Fewer	
Unladen Weight (lbs)	**Annual Supplemental Fee**
0 - 1,999	$8
2,000 - 2,999	$8
3,000 - 4,000	$24
4,001 - 5,000	$80
5,001 - 6,000	$154
6,001 - 7,000	$204
7,001 - 8,000	$257
8,001 - 9,000	$308
9,001 - 10,000	$360

Commerical Electric Vehicles	
Unladen Weight (lbs)	**Annual Supplemental Fee**
0 - 5,999	$87
6,000 - 9,999	$266
10,000 or more	$358

There are many fees due at vehicle registration in CA

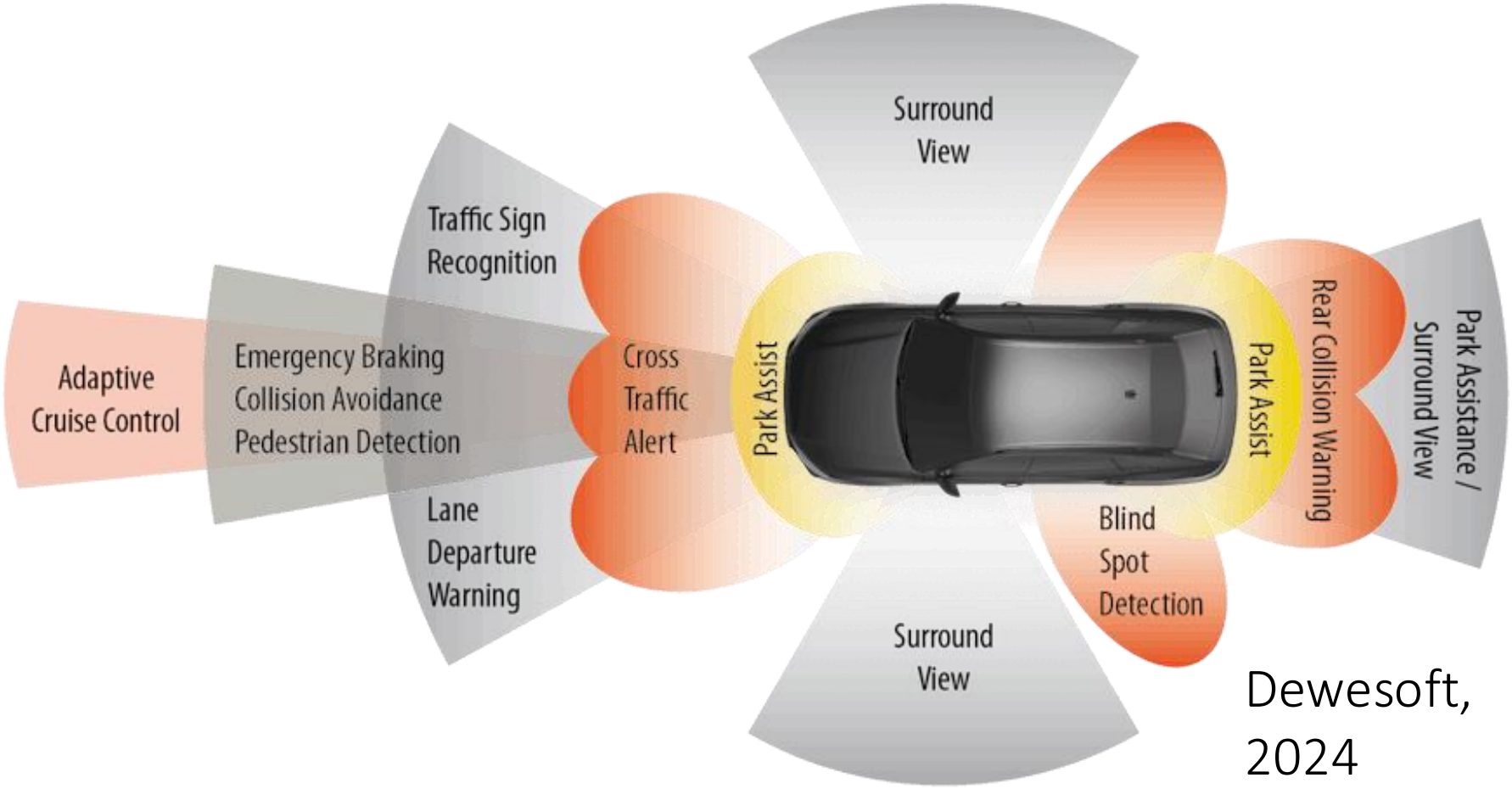


Total Fee: $551.00

2023 Ford F-150 Pickup XL (4,021 lbs)
Registered in Sacramento, California

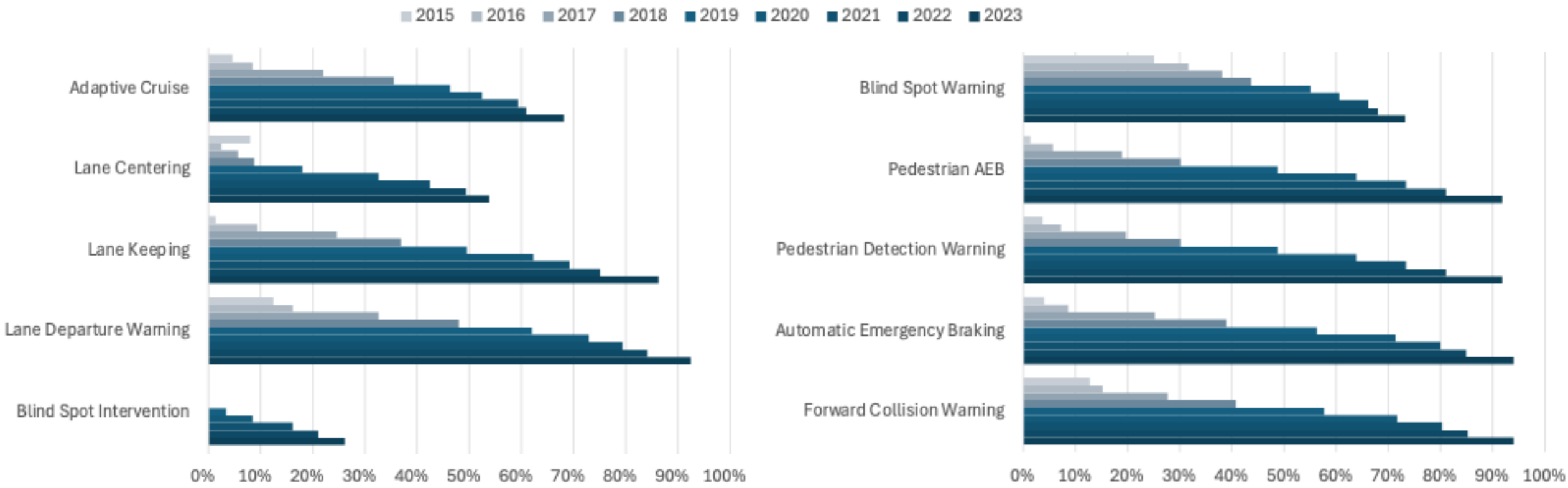
Adoption of Vehicle Safety Technology

Advanced driver assistance systems can provide both passive and active interventions to improve safety



Dewesoft, 2024

Many ADAS are now included in new model year vehicles



PARTS: Market Penetration of Advanced Driver Assistance Systems , 2024

AEB improving, but may be more effective for lighter vehicles

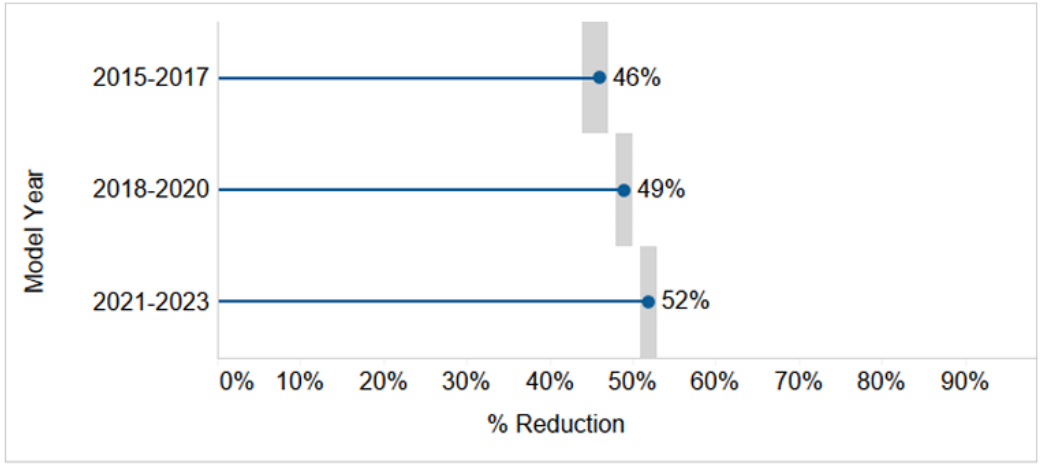


Figure 14. AEB Estimated Effectiveness Over Time (by subsets of Model Years) with 95% Confidence Intervals

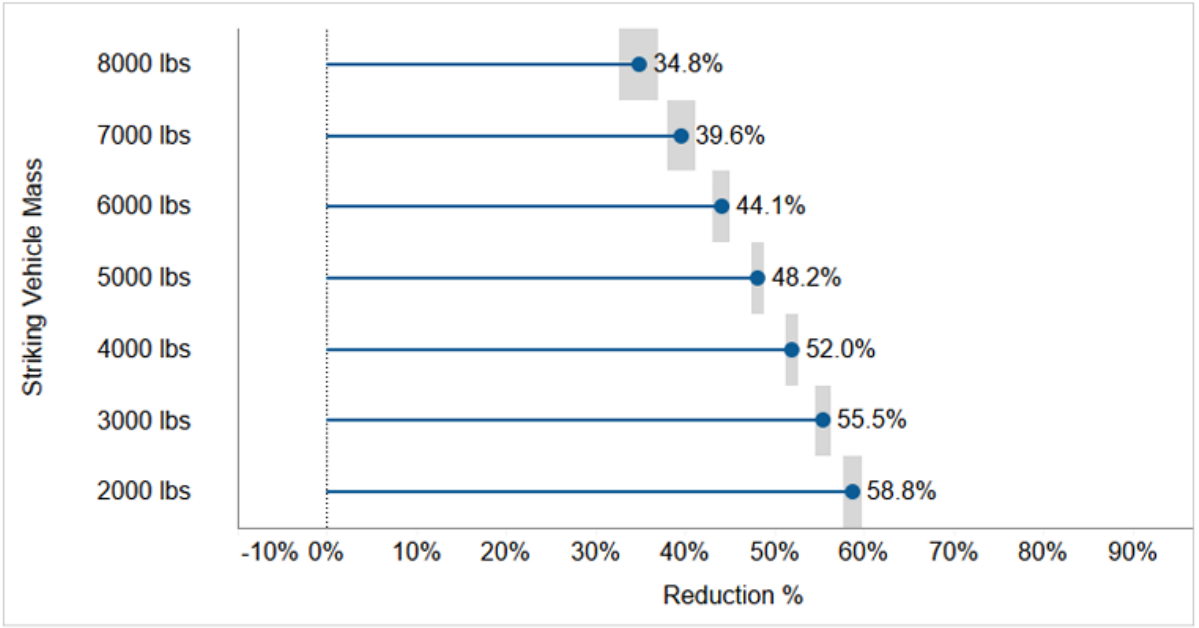
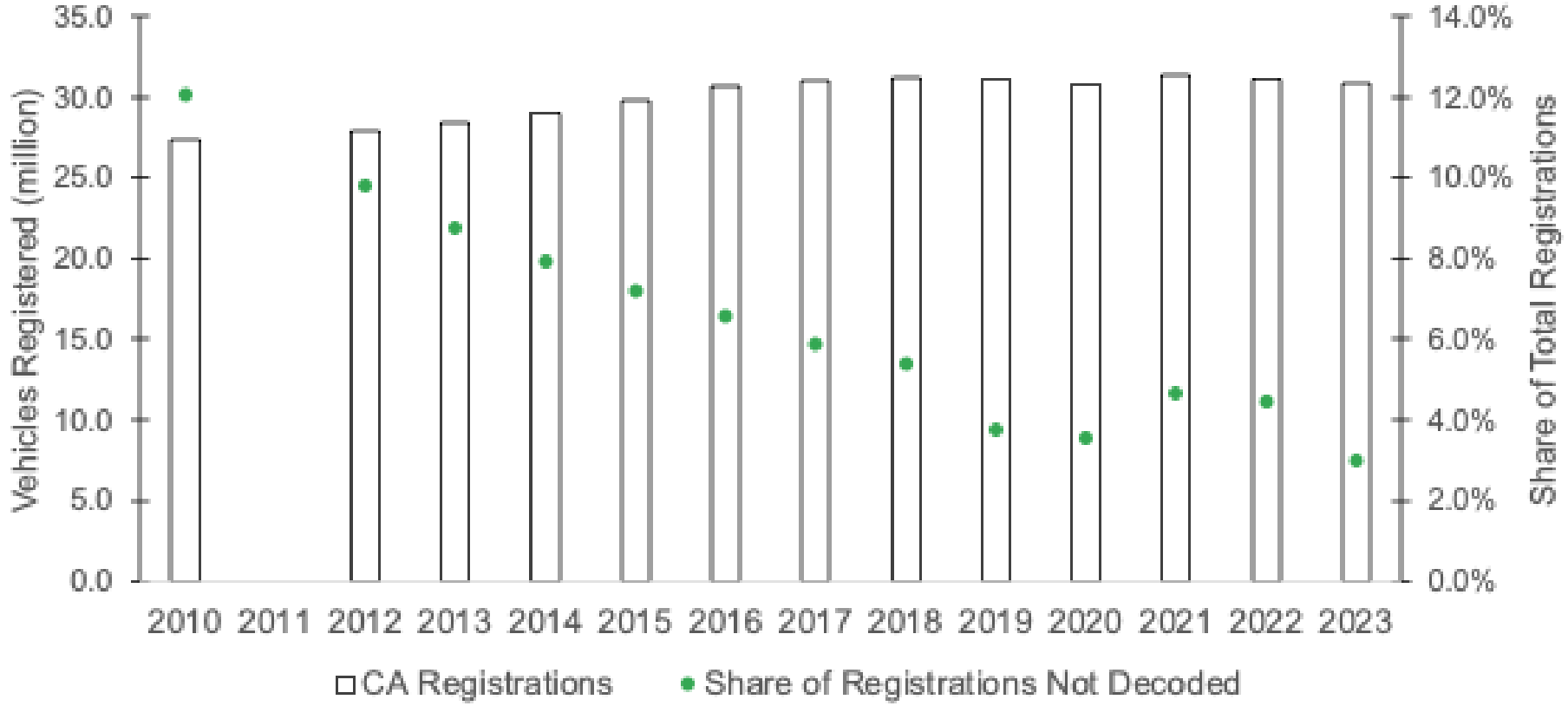


Figure 15. AEB Effectiveness by Striking Vehicle Weight

PARTS, A Study on Real-world Effectiveness of Model Year 2015–2023 Advanced Driver Assistance Systems, 2025

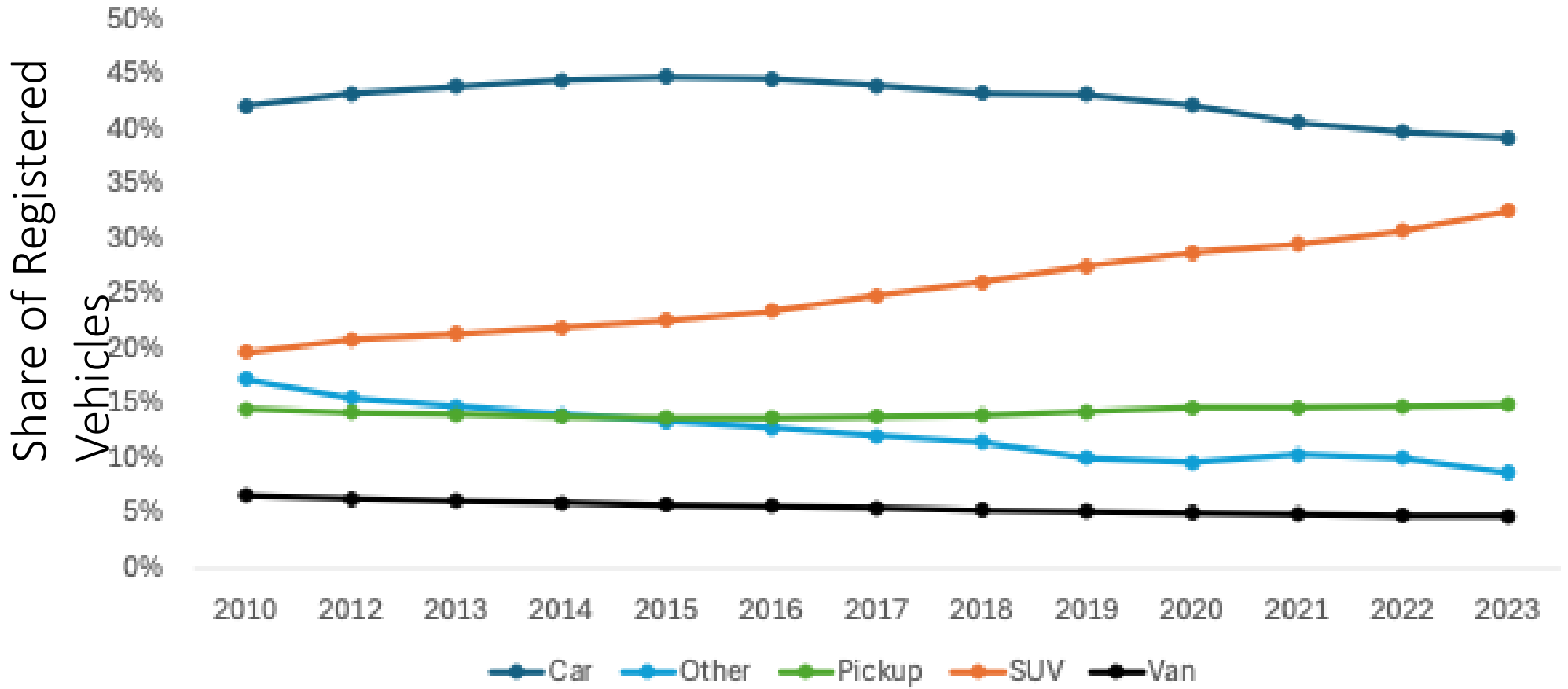
California's Registered Vehicle Fleet

About 30 million vehicles are registered in CA every year



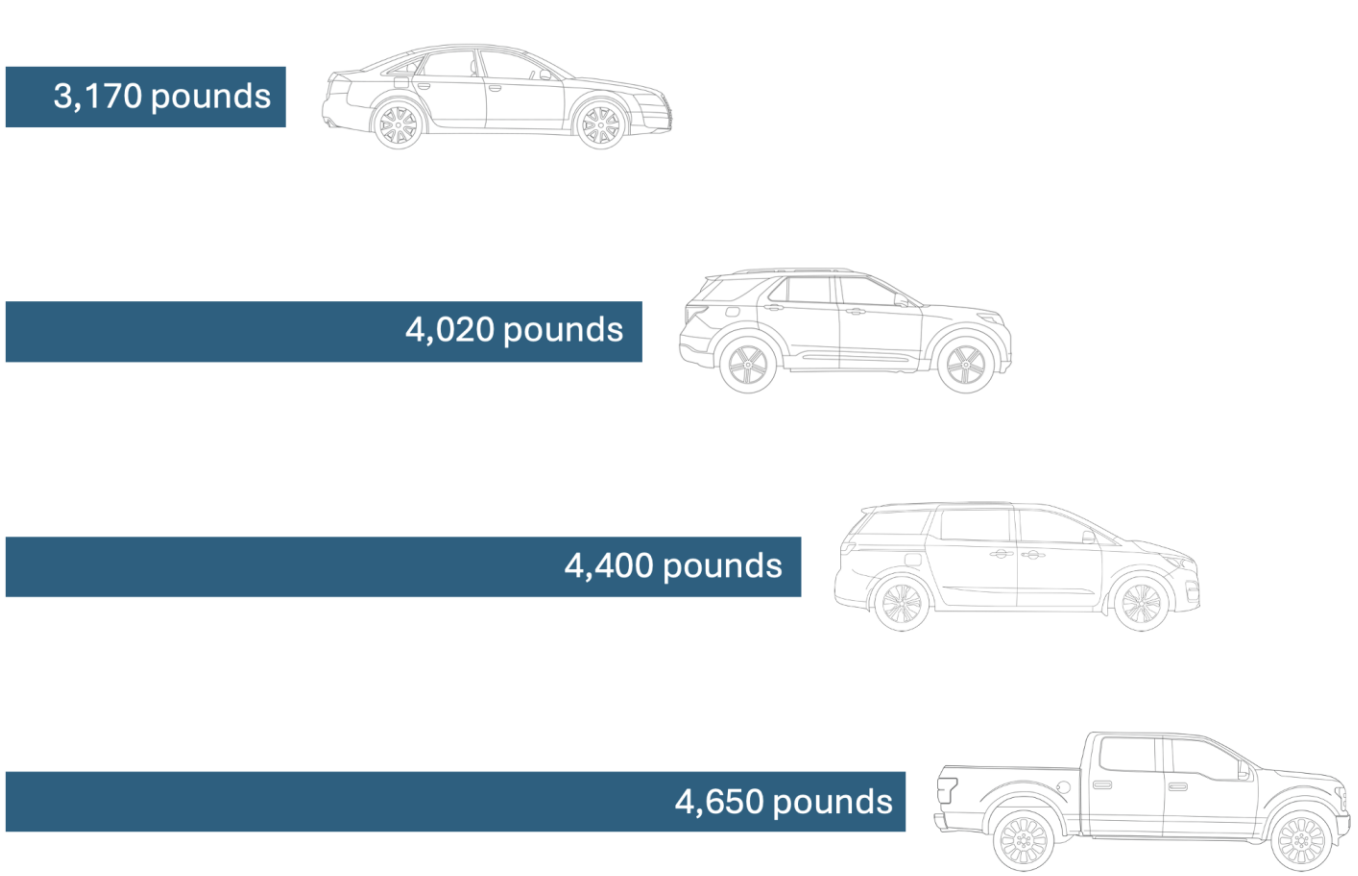
Data: California DMV

SUVs are poised to overtake sedans as the most common vehicle on the road in CA



Data: California DMV

In 2023, SUVs were 26% heavier than sedans in CA



Sedan

Height:	57.3 inches
Clearance:	5.7 inches
Curb Weight:	3,170 pounds

Sport Utility Vehicle

Height:	68.1 inches
Clearance:	7.9 inches
Curb Weight:	4,020 pounds

Van

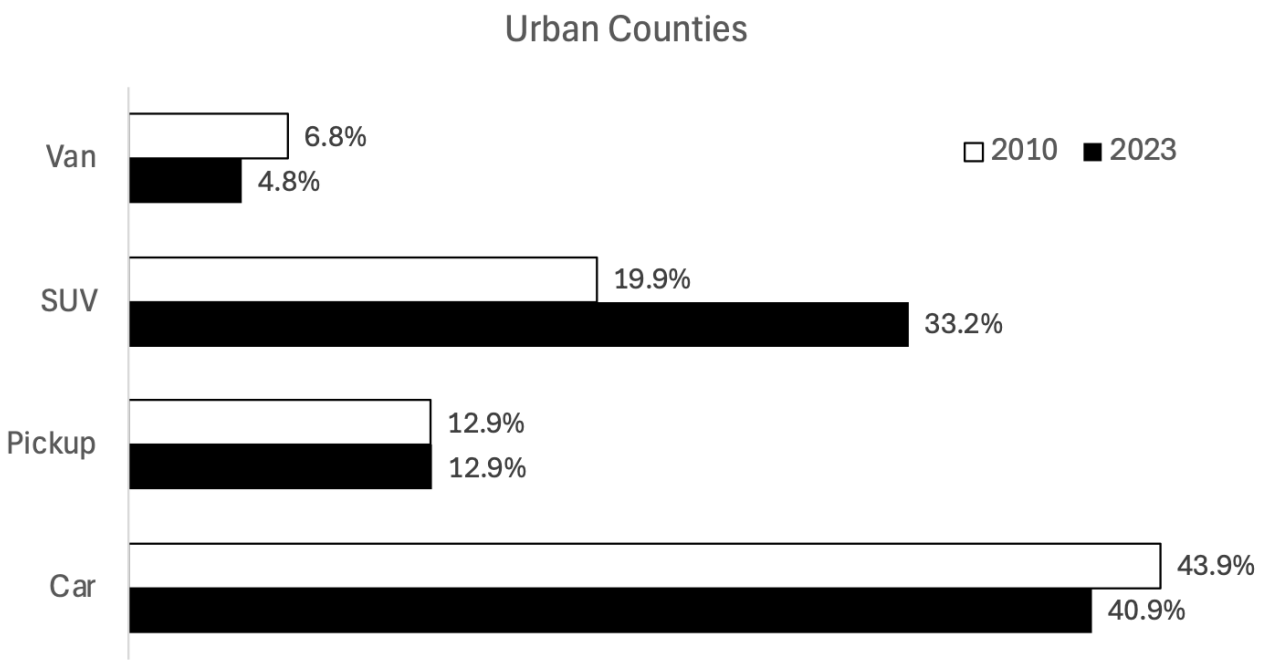
Height:	70.1 inches
Clearance:	5.6 inches
Curb Weight:	4,400 pounds

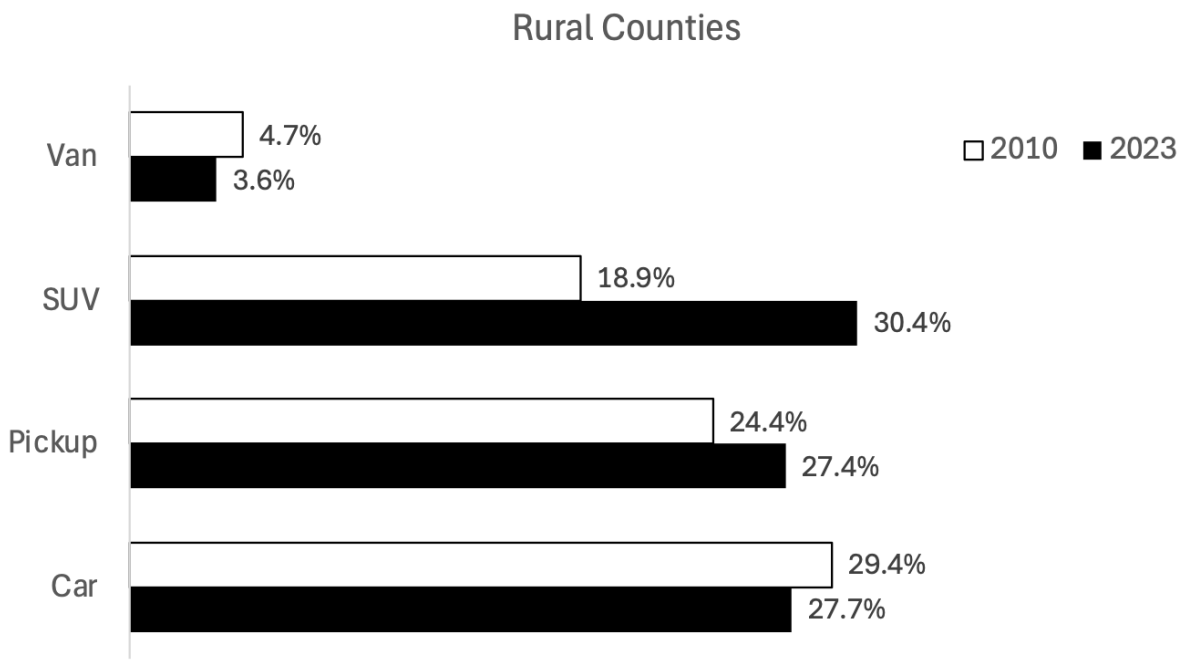
Pickup Truck

Height:	72.4 inches
Clearance:	8.9 inches
Curb Weight:	4,650 pounds

Data: California DMV, 2023

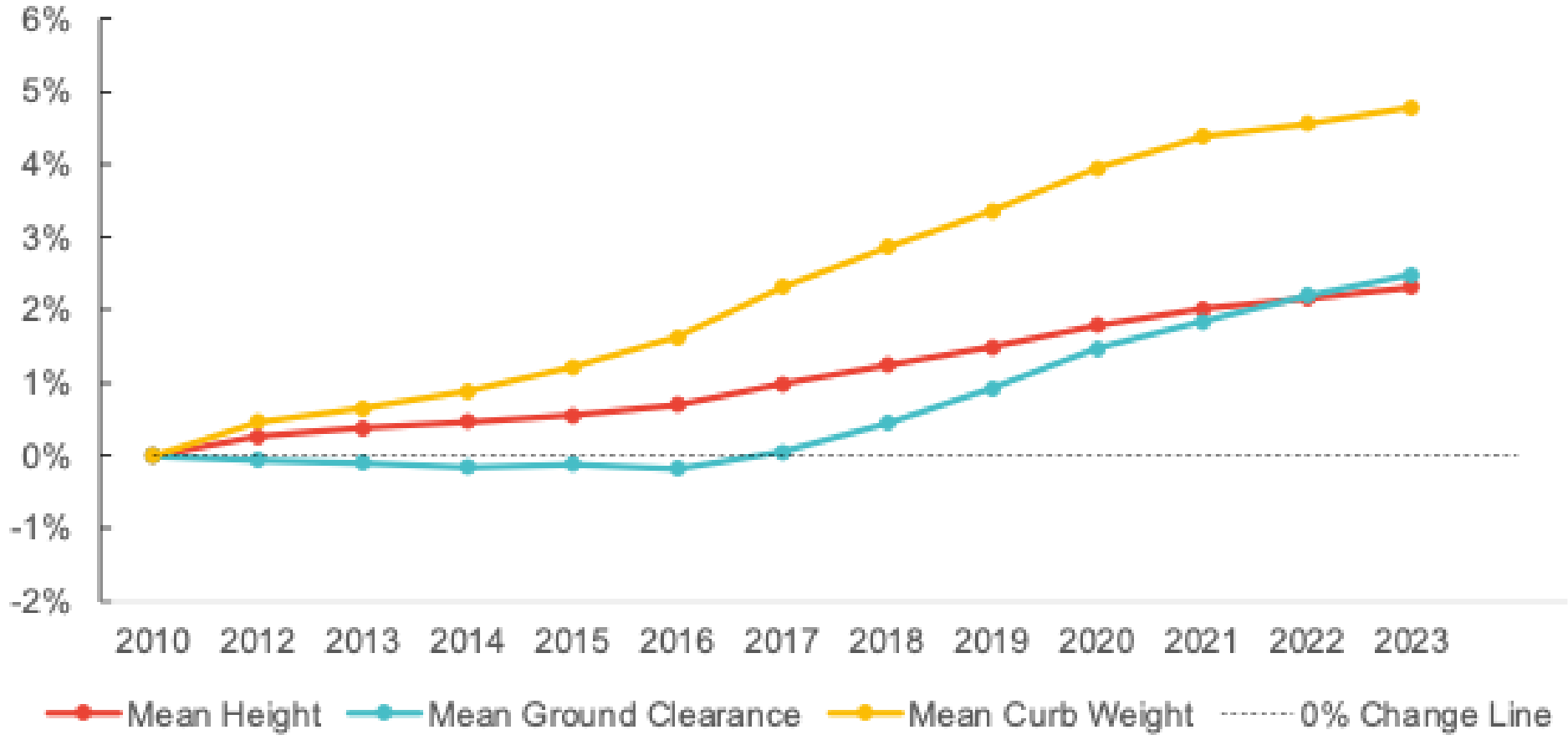
SUVs are growing in popularity in rural and urban areas





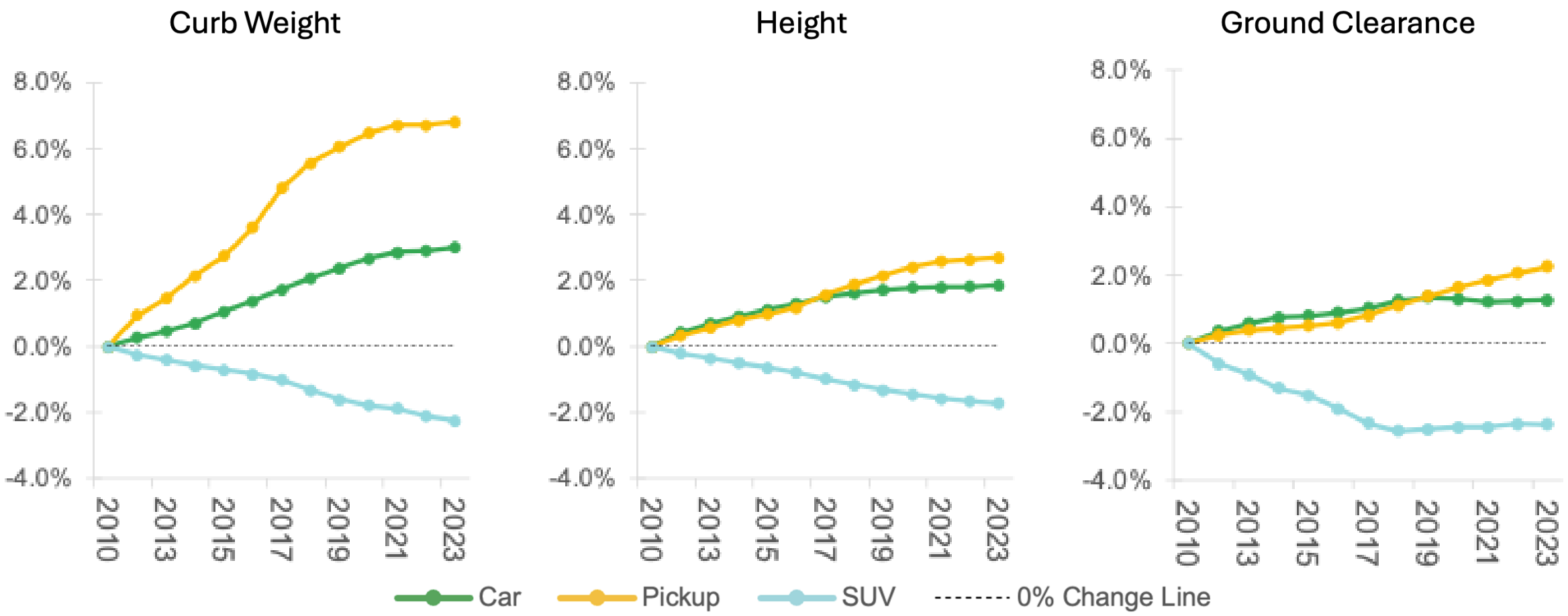
Data: California DMV

Vehicle weight, height, and clearance have all increased

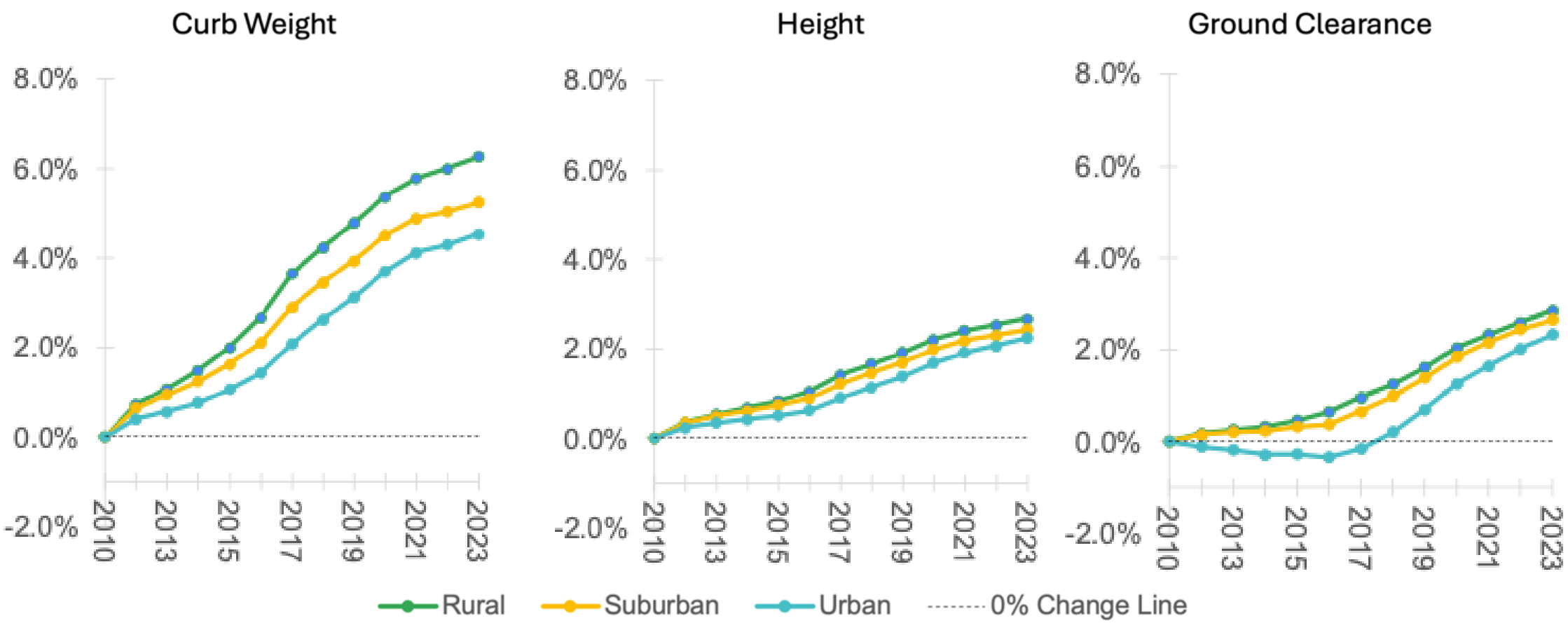


Data: California DMV

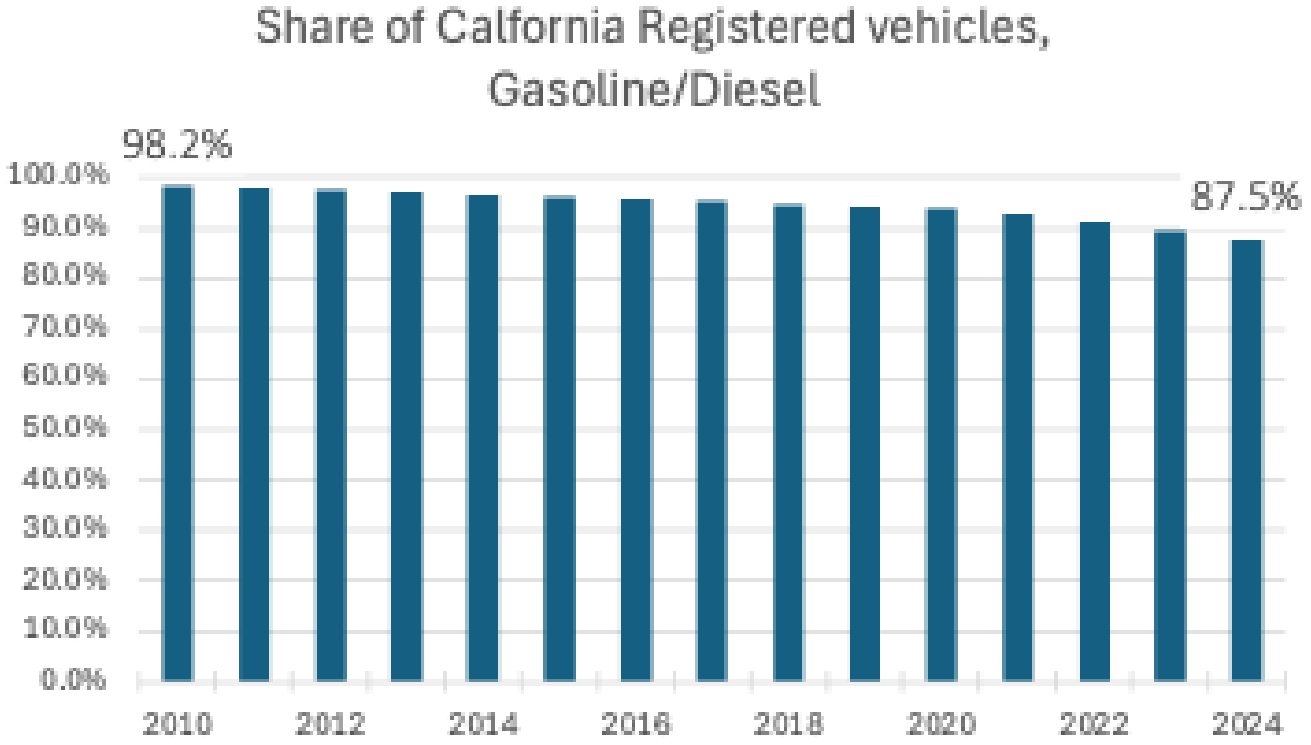
Pickups in CA are growing faster than SUVs or sedans

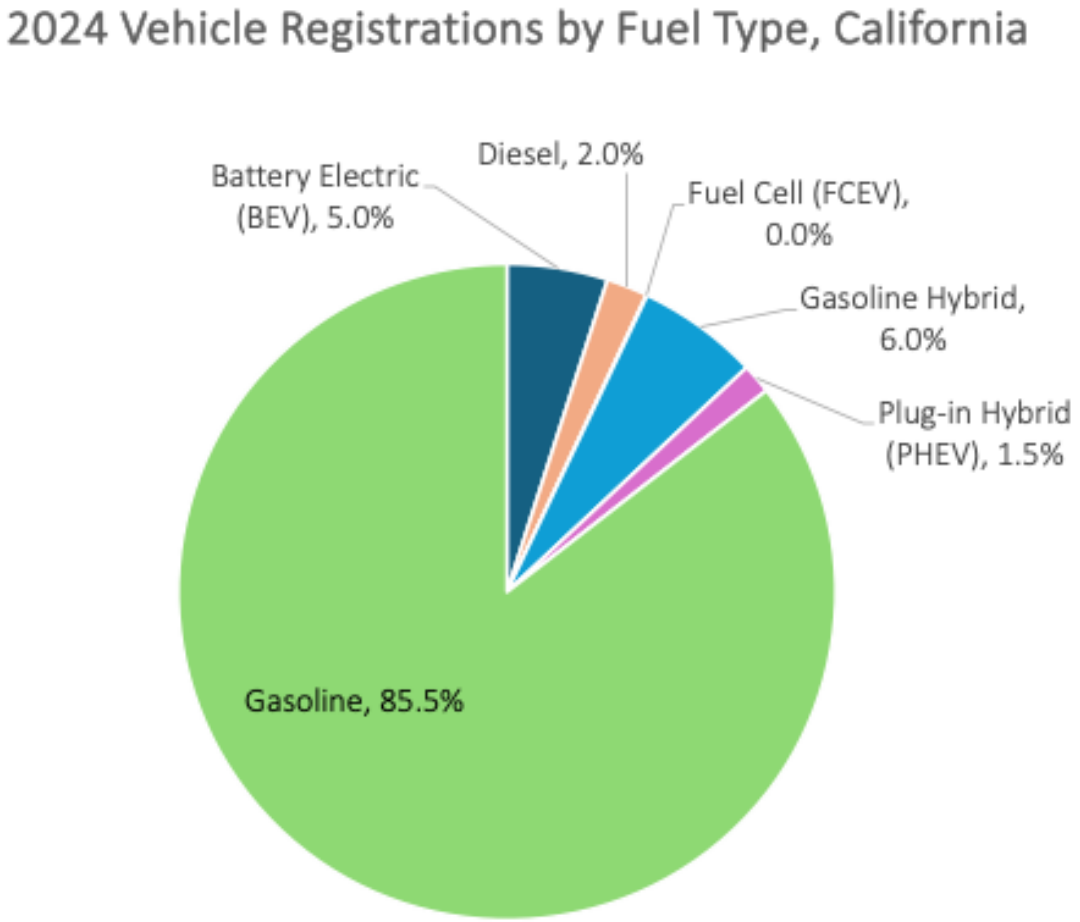


Vehicles registered in rural areas getting larger, faster



Despite shift towards EVs, most of the vehicles on the road in California is still gasoline or diesel-powered





Data: California CPUC

EVs are heavier than their hybrid or gas variants

2019 VW Golf

Gas: 2,945 lbs

BEV: 3,459 lbs

2020 Toyota RAV4

Gas: 3,370 lbs

Hybrid: 3,710 lbs

PHEV: 4,190 lbs

2024 Ford F-150

Gas: 4,940 lbs

Hybrid: 5,540 lbs

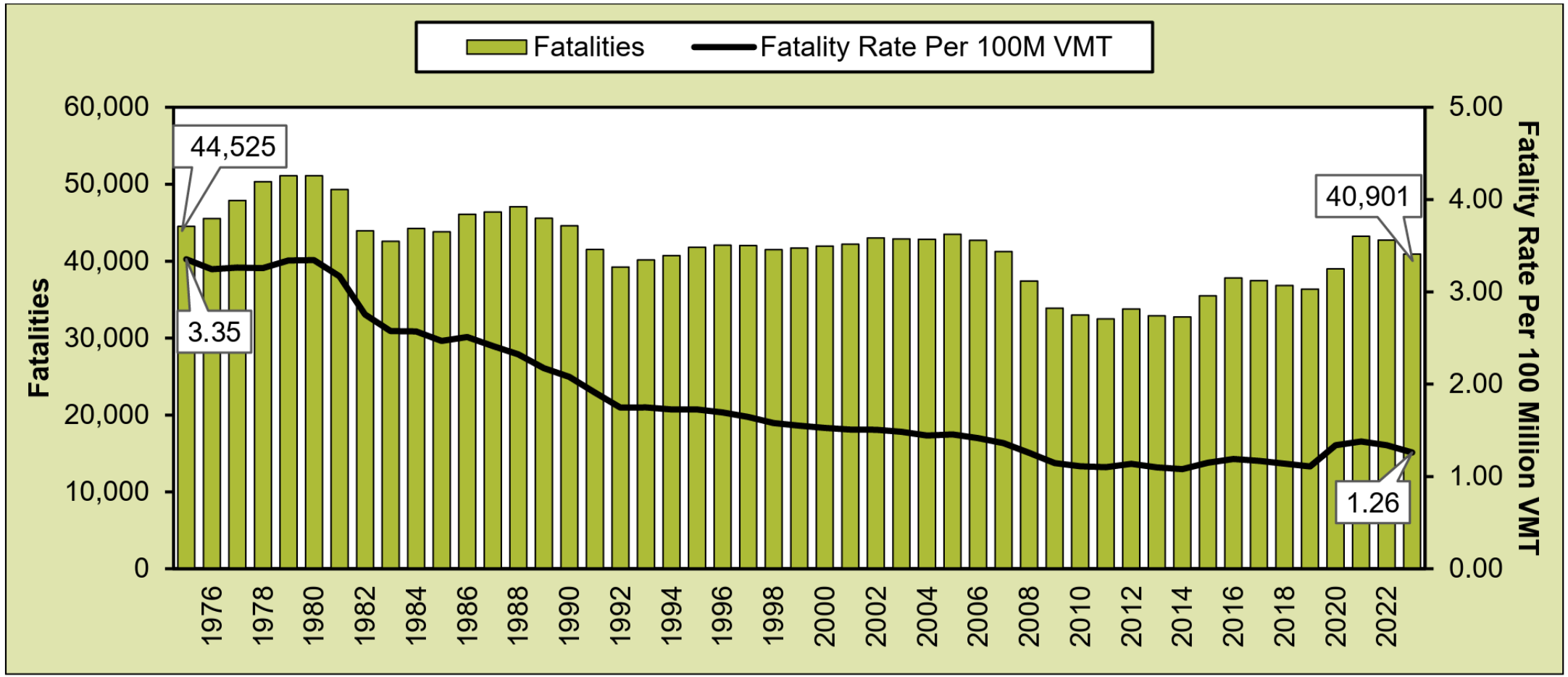
BEV: 6,360 lbs

Questions?

Do you have any questions about the data presented thus far?

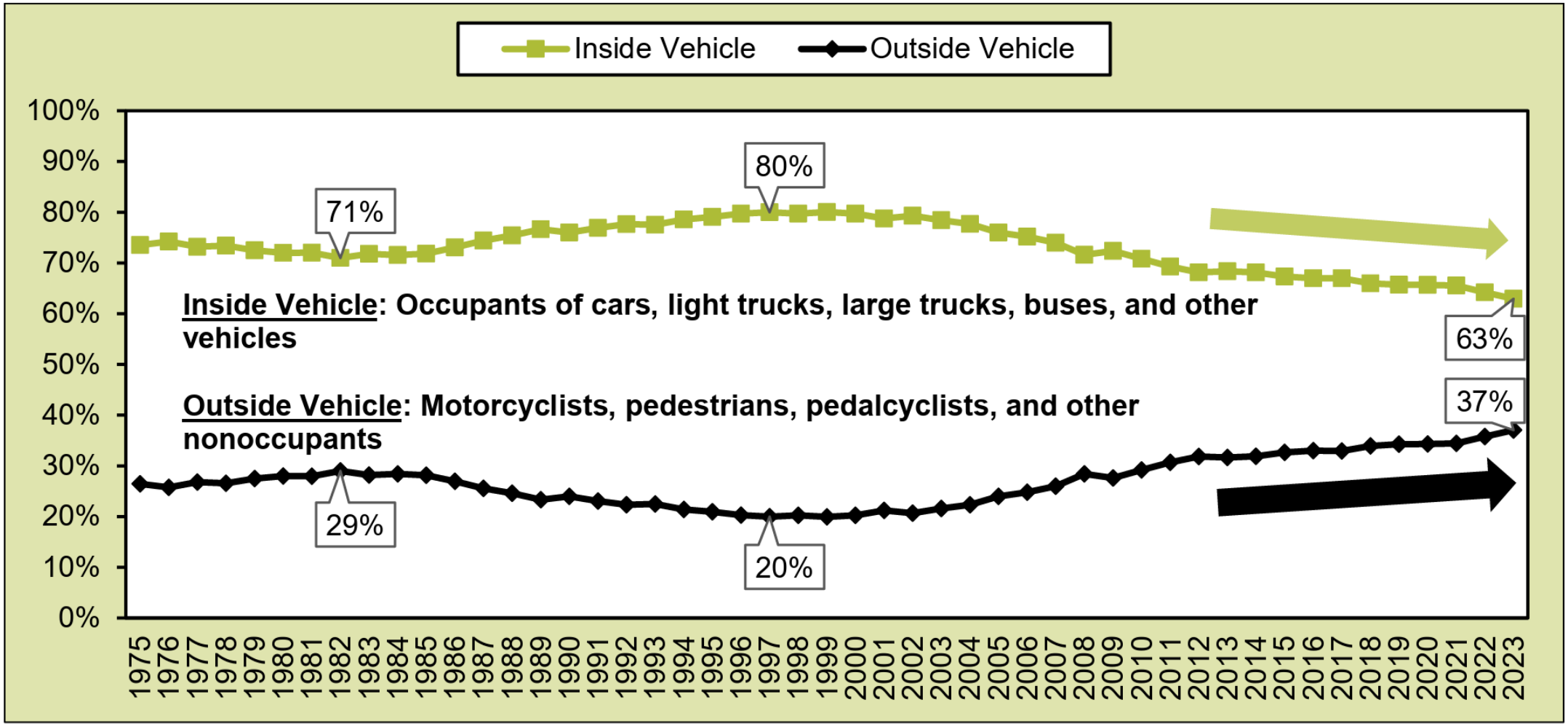
Summary of trends in road user injuries

After many years of decreasing, traffic fatalities have increased in U.S. 24% since 2010



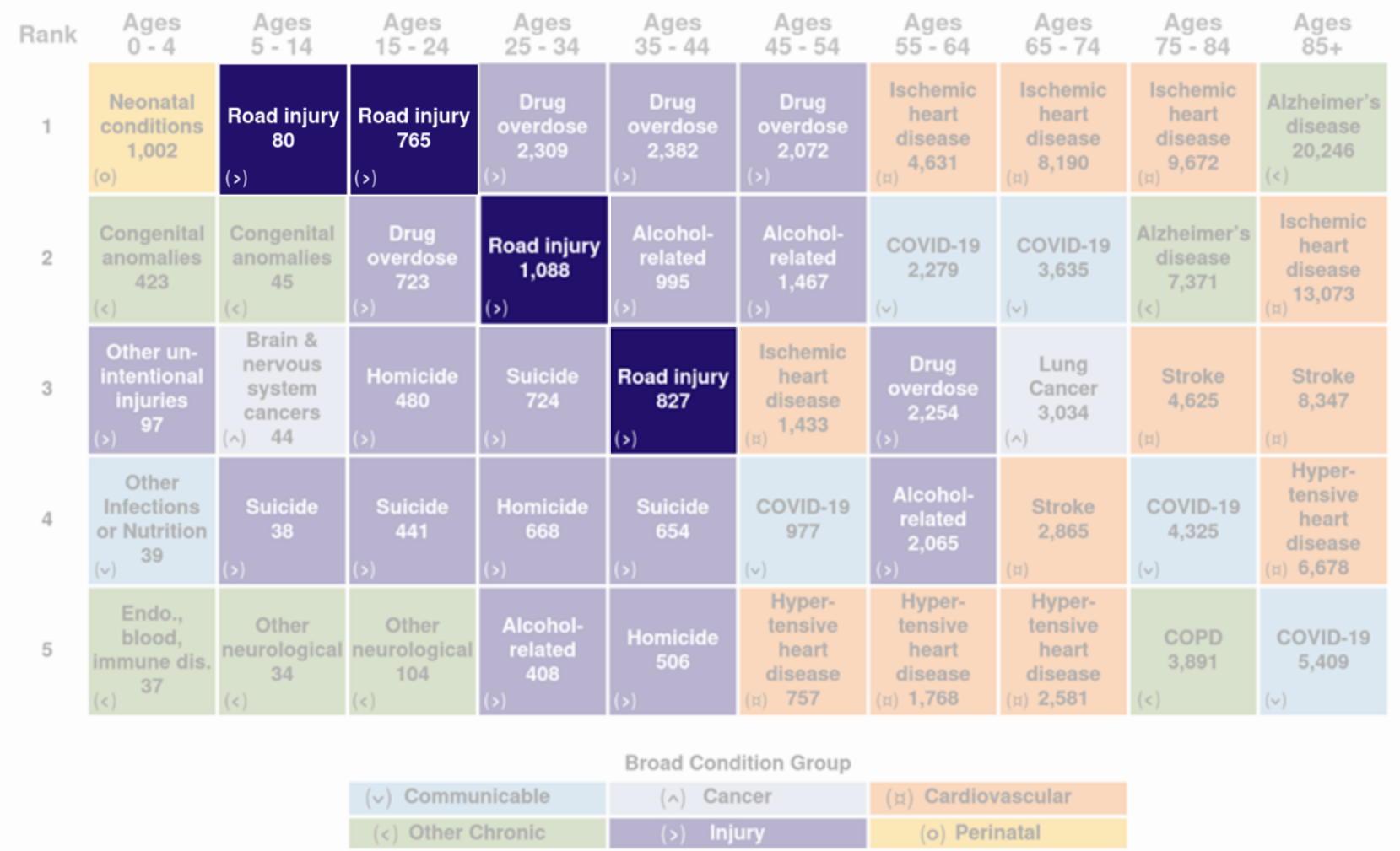
Sources: FARS 1975-2022 Final File, 2023 ARF; 1975-2023 VMT – FHWA's Annual Highway Statistics

Increasing share of fatalities occurring outside of vehicles



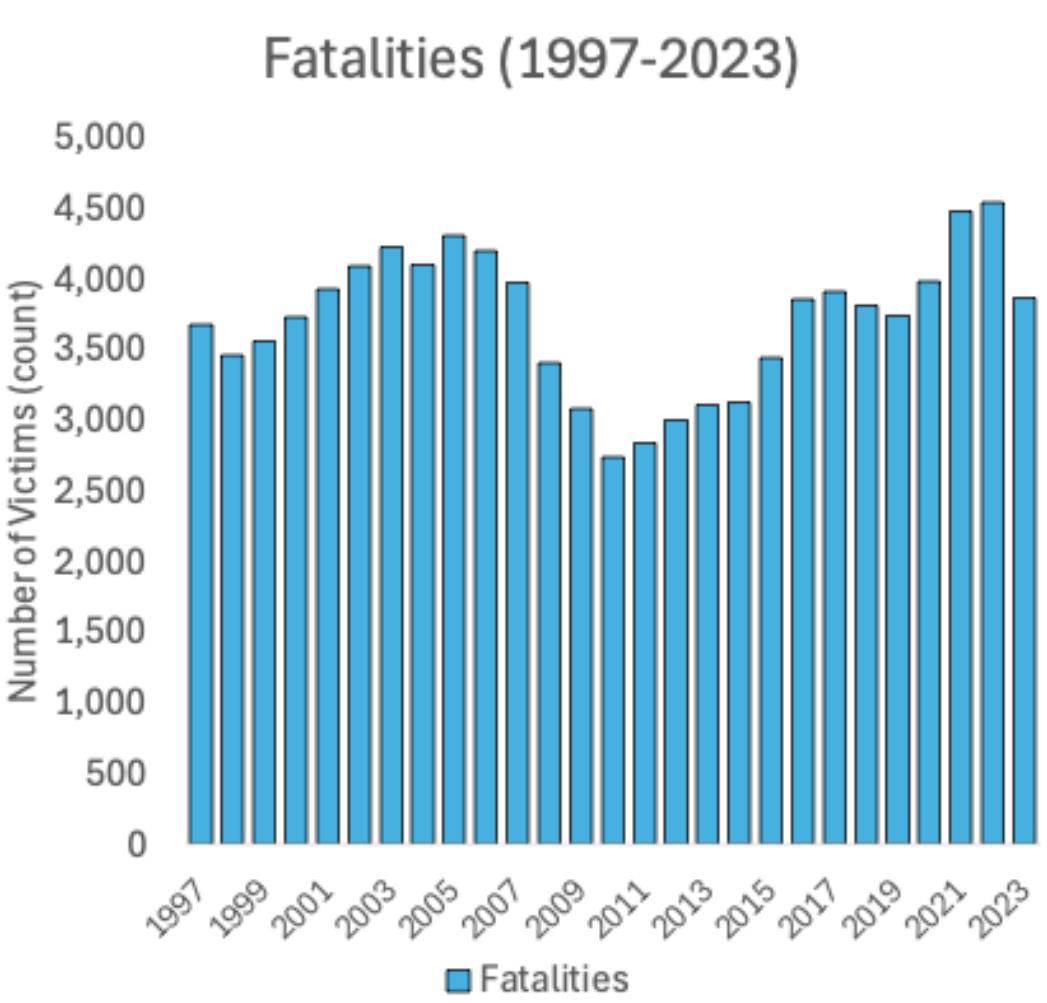
Source: FARS 1975-2022 Final File, 2023 ARF

Road injury is a top 10 cause of death in California



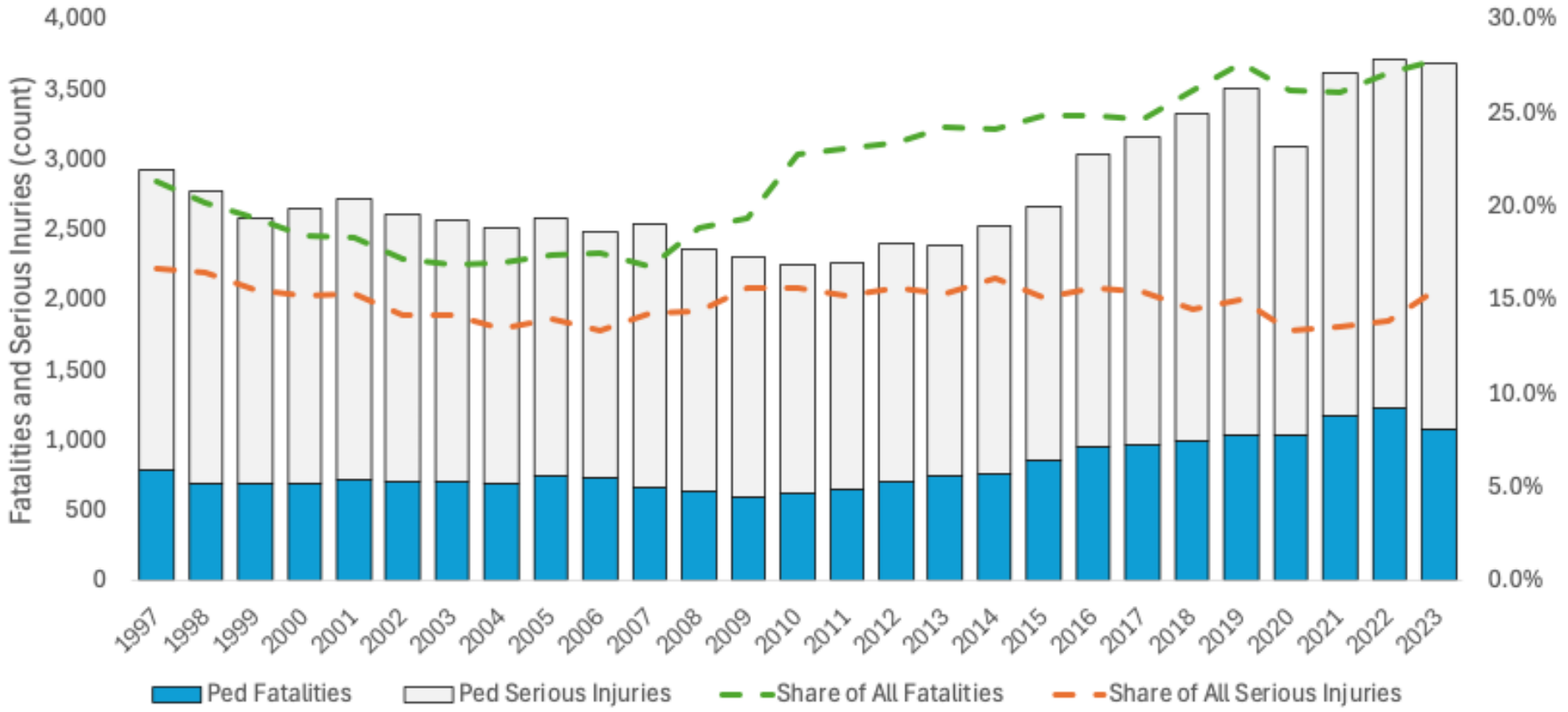
CDPH, California State of Public Health, Summary Report 2024

Fatalities and serious injuries are also both up in CA



Data: California iSWITRS

Pedestrian share of fatalities is increasing

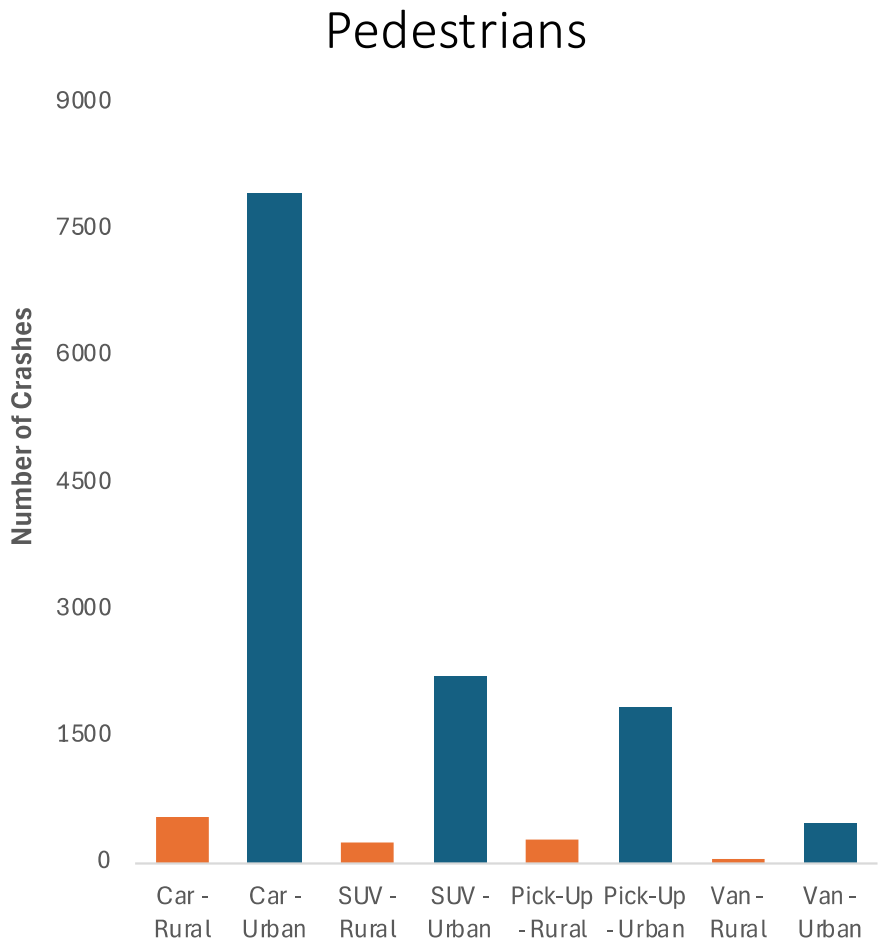


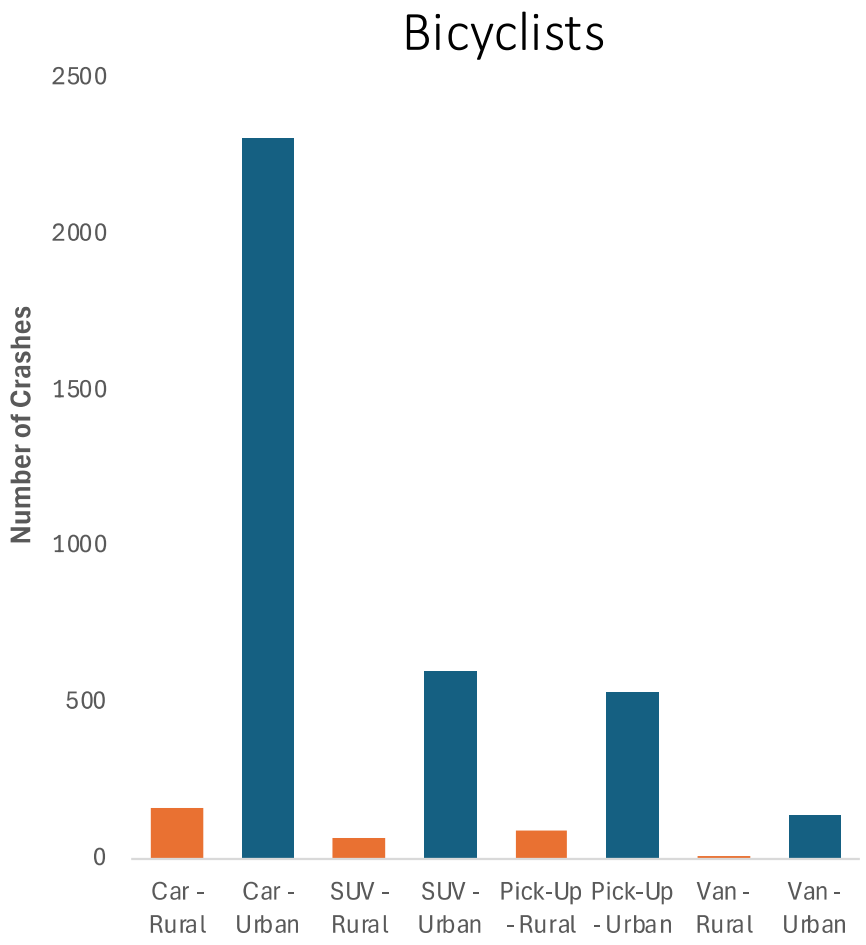
Data: California iSWITRS

Bicyclist share of fatalities and injuries is relatively constant as both have increased

Data: California iSWITRS

Most pedestrian and bicyclist fatality and serious injury crashes occur in urban areas and involve sedans





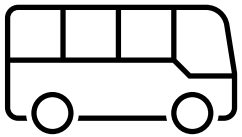
Data: California iSWITRS, 2018-2022

Adjusted for population, pedestrian fatality and serious injury crash risk is higher for SUVs/pickups in rural areas

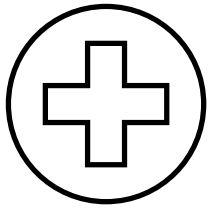
Vehicle Type	Urban (per 100k pop.)	Rural (per 100k pop.)
Car	22.09	15.99
SUV	6.19	6.95
Pick Up	5.12	8.28
Van	1.32	1.22

Data: California iSWITRS

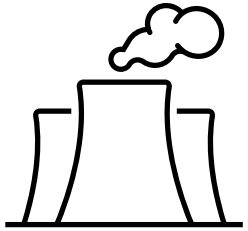
USDOT Historically Disadvantaged Communities



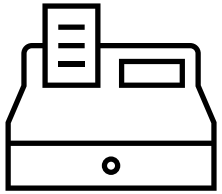
Transportation Access



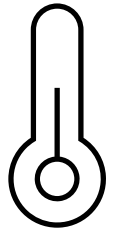
Health



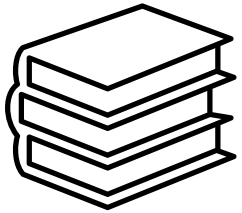
Environment



Economic

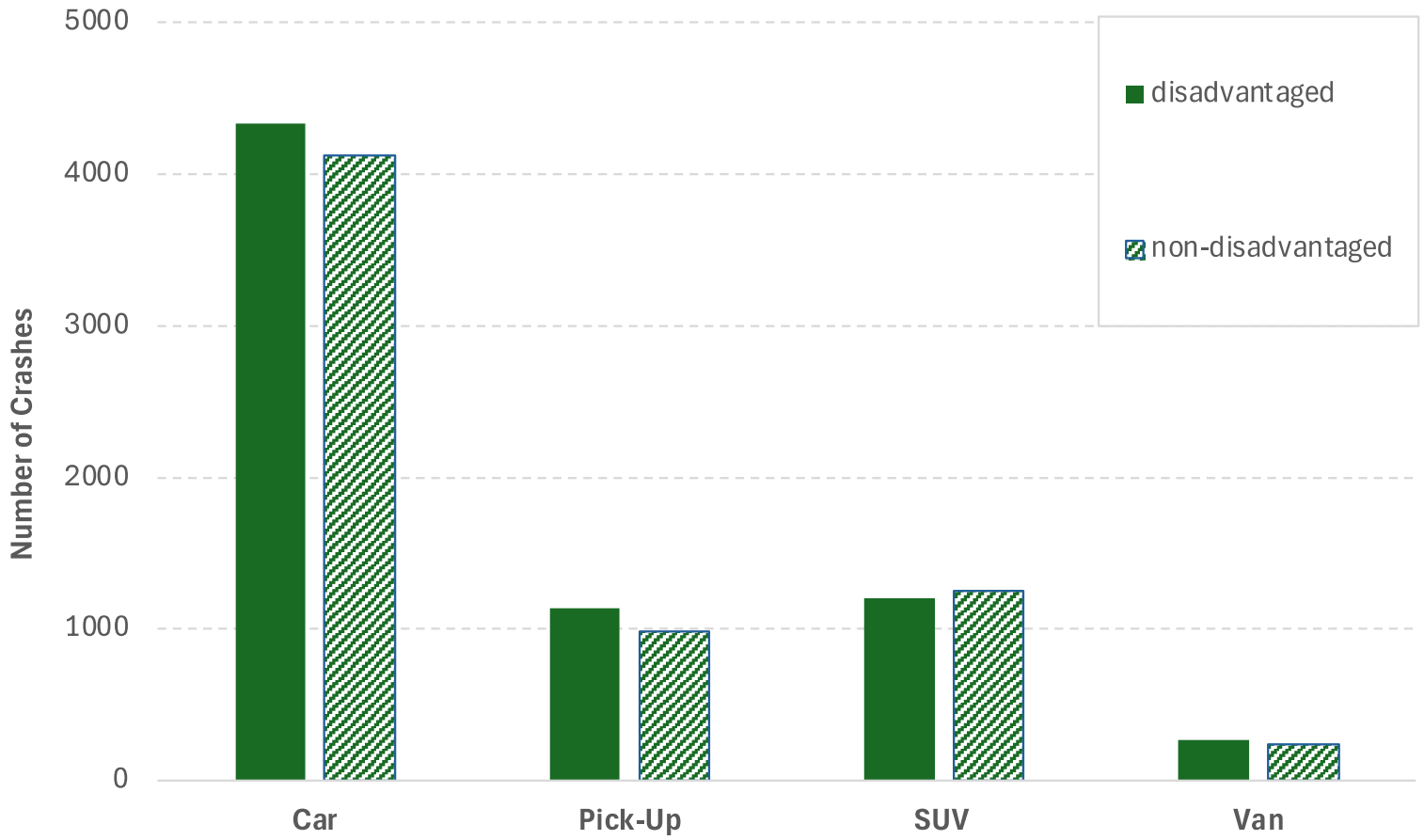


Climate Change Resilience



Language Equity

Pedestrian fatality and serious injury crashes are split between disadvantaged and non-disadvantaged areas



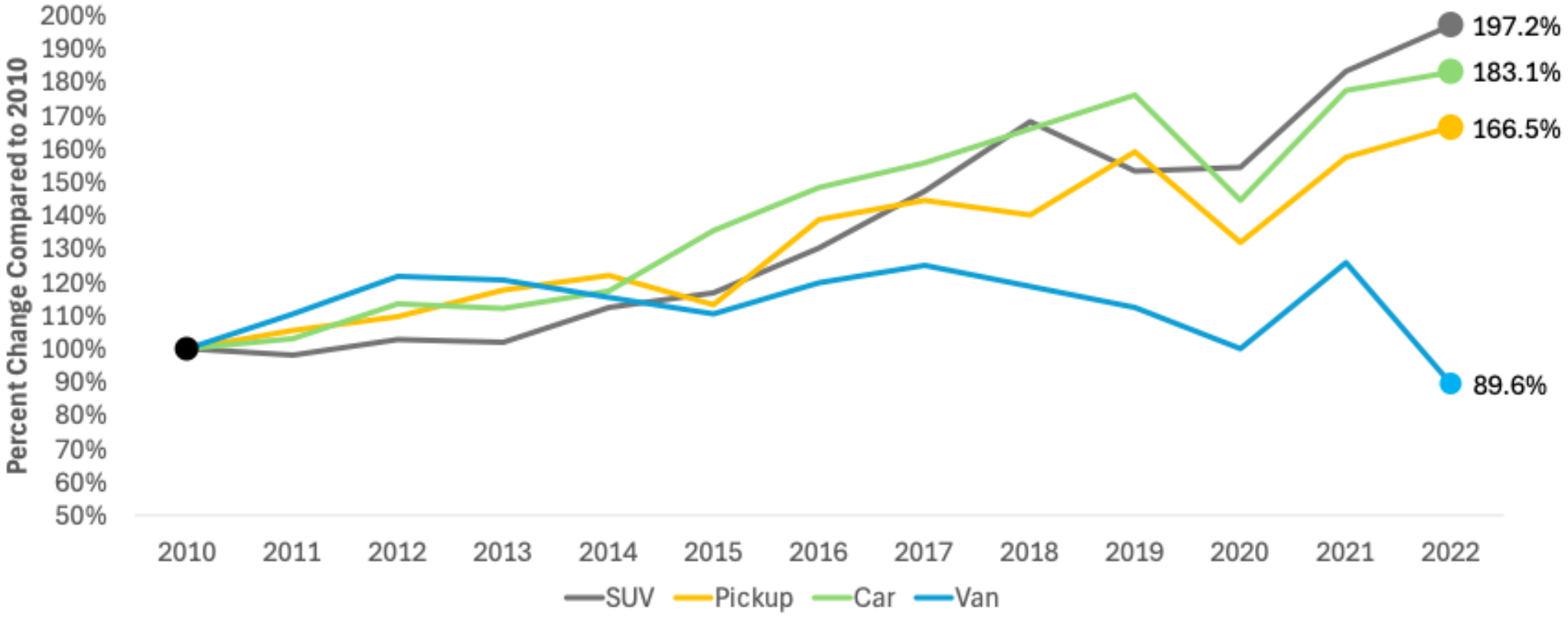
Source: SWITRS 2018 - 2022, US DOT Equitable Transportation Community Explorer

Adjusted for population, pedestrian fatality and serious injury crash risk is higher in disadvantaged areas

Vehicle Type	Disadvantaged (per 100k pop.)	Non-Disadvantaged (per 100k pop.)
Car	31.68	16.08
SUV	8.82	4.87
Pick Up	5.12	3.82
Van	1.32	0.93

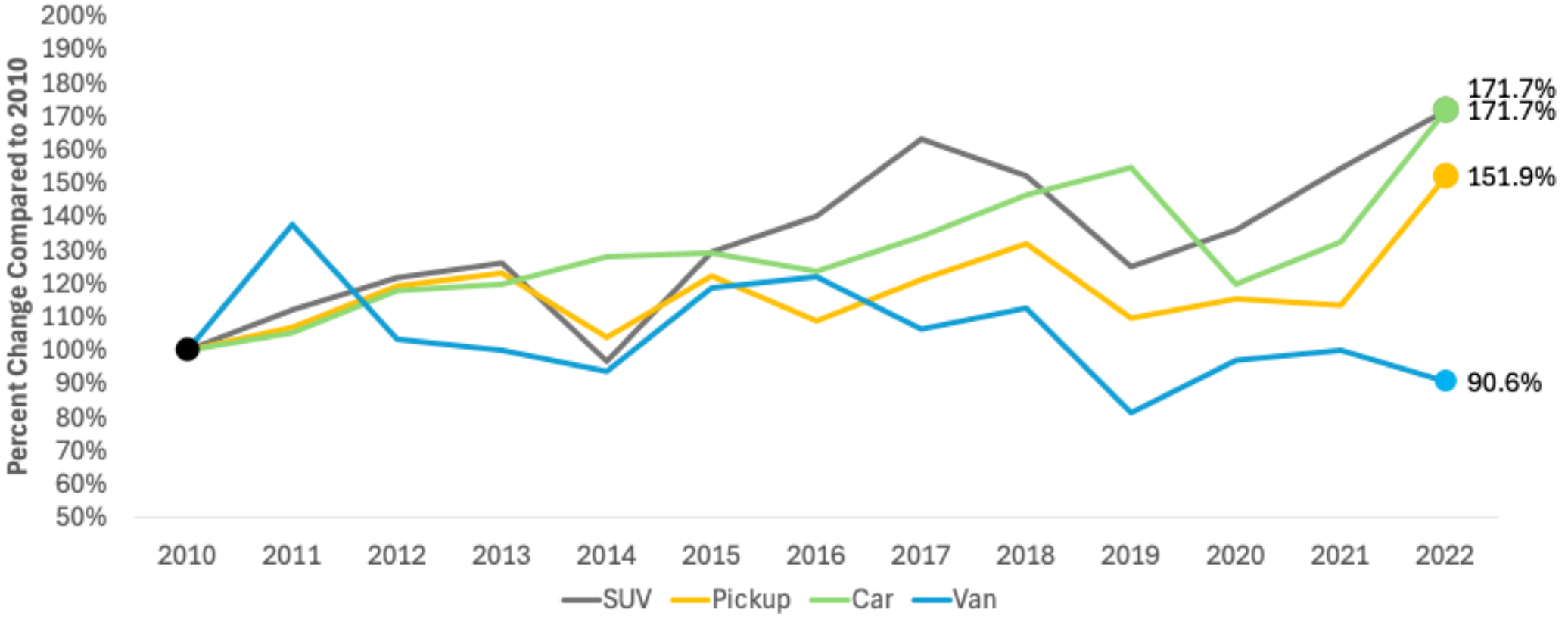
Data: California iSWITRS

Pedestrian fatality and serious injury crashes involving an SUV have grown at the fastest rate of all vehicle types



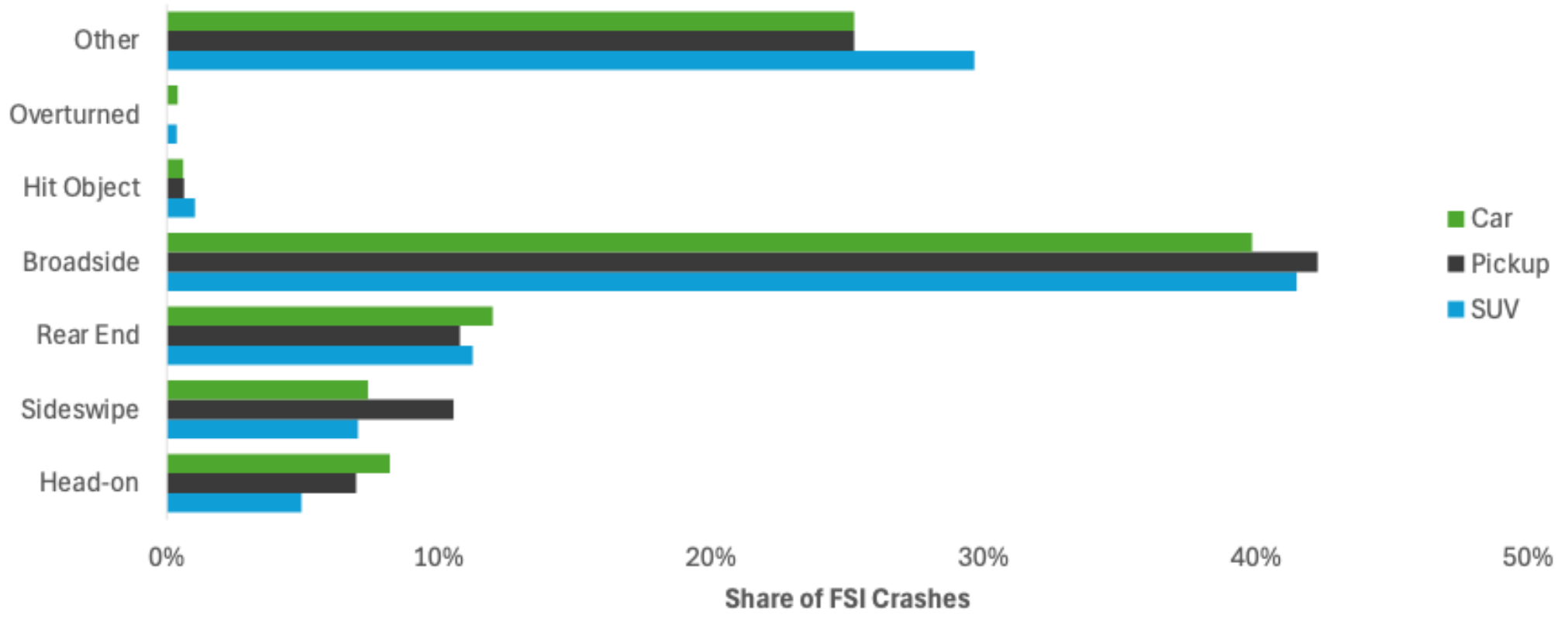
Data: California iSWITRS

Bicyclist fatality and serious injury crashes involving an SUV have grown at the same rate as those involving a car



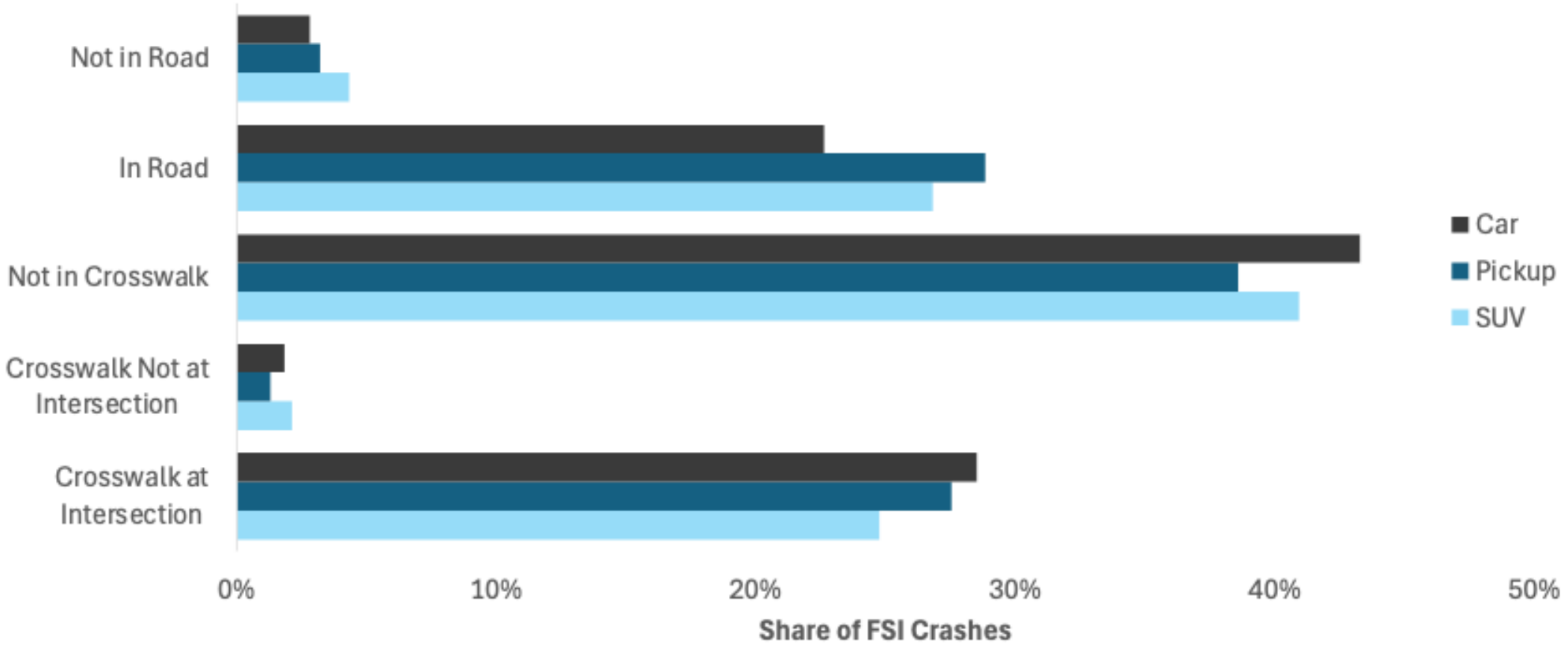
Data: California iSWITRS

Broadside crashes are the most common crash type resulting in a bicyclist fatality or serious injury



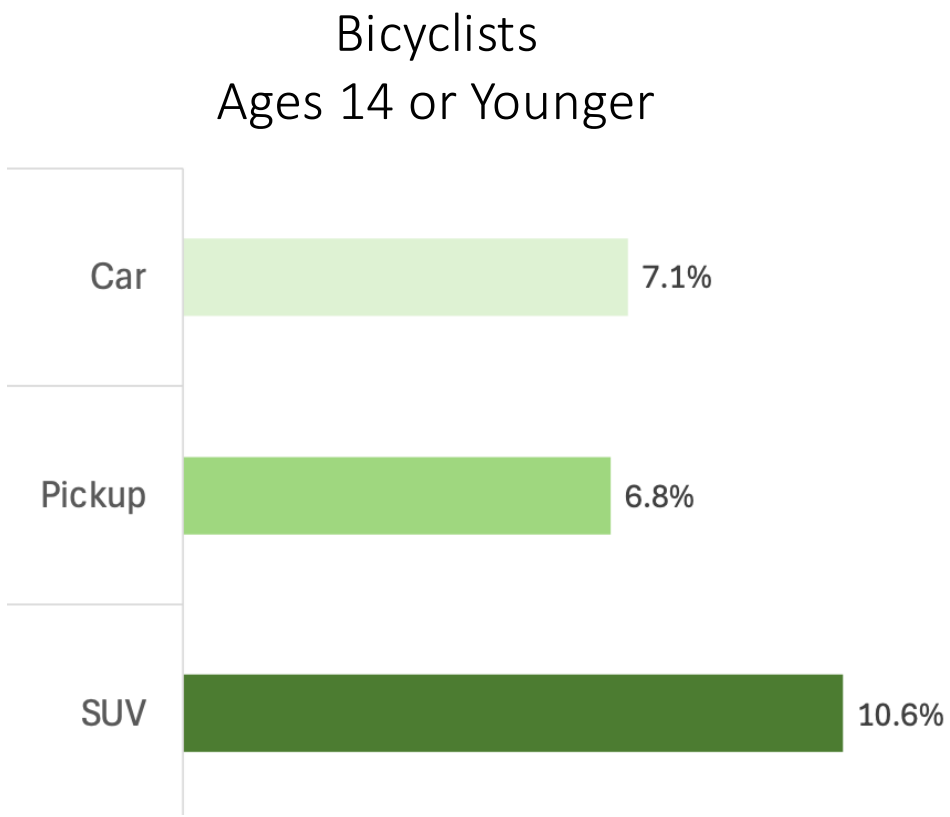
Data: California iSWITRS, 2018-2022

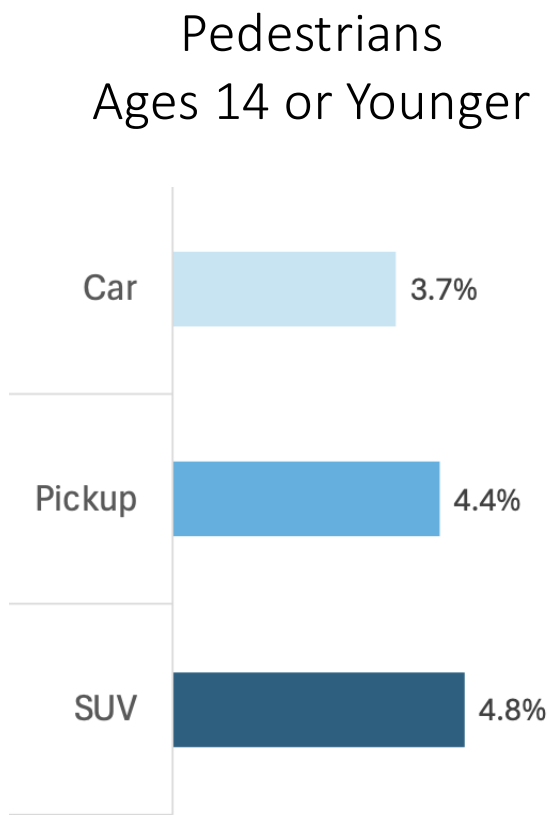
When a pedestrian is struck by a larger vehicle resulting in a fatality or serious injury, it tends to be in the roadway



Data: California iSWITRS, 2018-2022

A higher share of SUV VRU victims are children compared to other vehicle types





Data: California
iSWITRS, 2018-2022

Relationship between vehicle size and injury risk

Trend analysis is not the same as casual analysis

We describe:

- Trends in vehicle size
- Trends in traffic fatalities and serious injuries

What “we” would like to understand:

- The causal relationship between these two trends

This is challenging for several reasons

Crash data is particularly challenging

Inherent challenges for crash data collection:

- Speed
- Distraction
- Substance use
- Cannot interview VRU fatal victims

Opportunities for improved data collection and sharing:

- Share redacted crash narratives
- Share truncated VINs for all vehicles

Impact force in a crash

Kinetic energy at impact

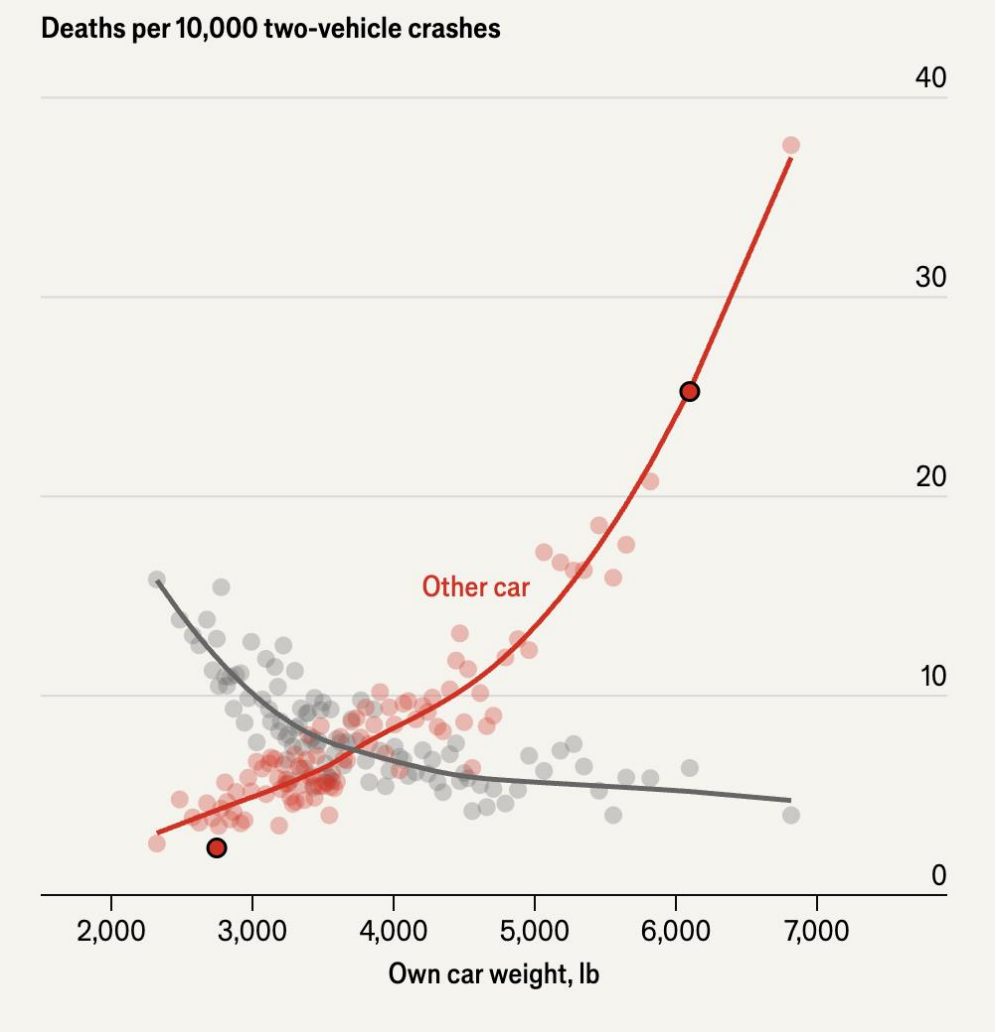
$$E = \frac{1}{2}mv^2$$

Speed

Weight

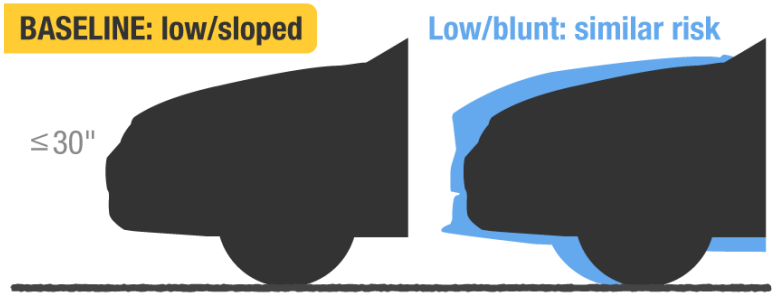
Severity of injury is further mediated by vehicle height and angle of impact

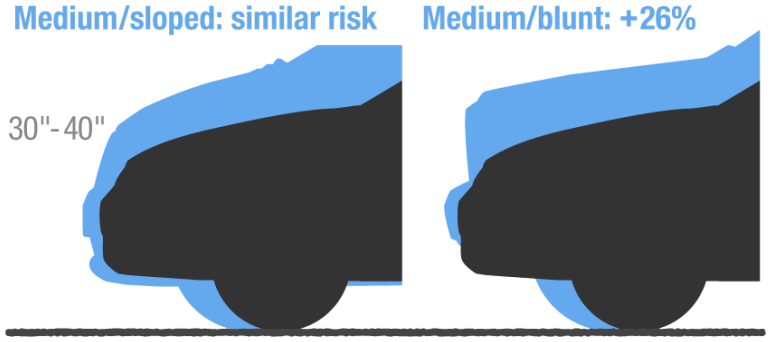
Fatality rate increases with weight of the striking vehicle

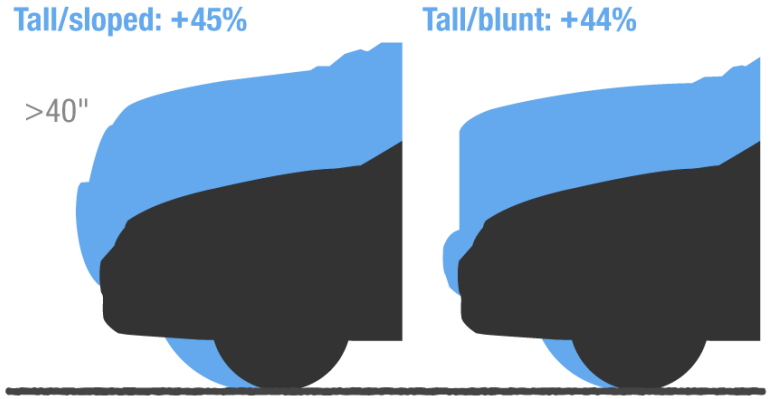


The Economist, 2024

Higher the hood height, the higher the VRU fatality risk

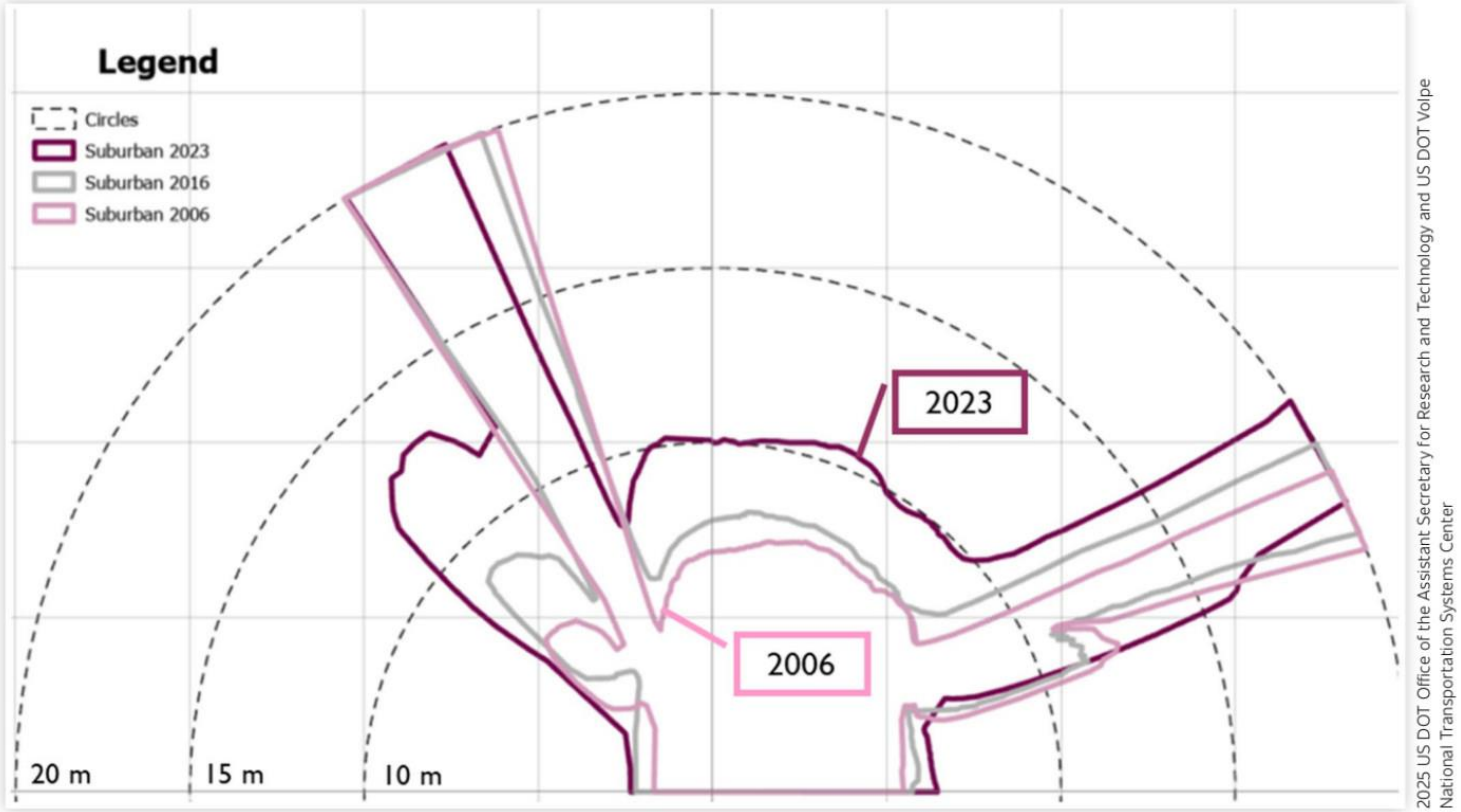






Crocetta et al., 2015; Monfort and Mueller, 2024; Han et al, 2012; Hu et al, 2024; Epstein et al., 2025

Driver visibility has declined over the past 20 years

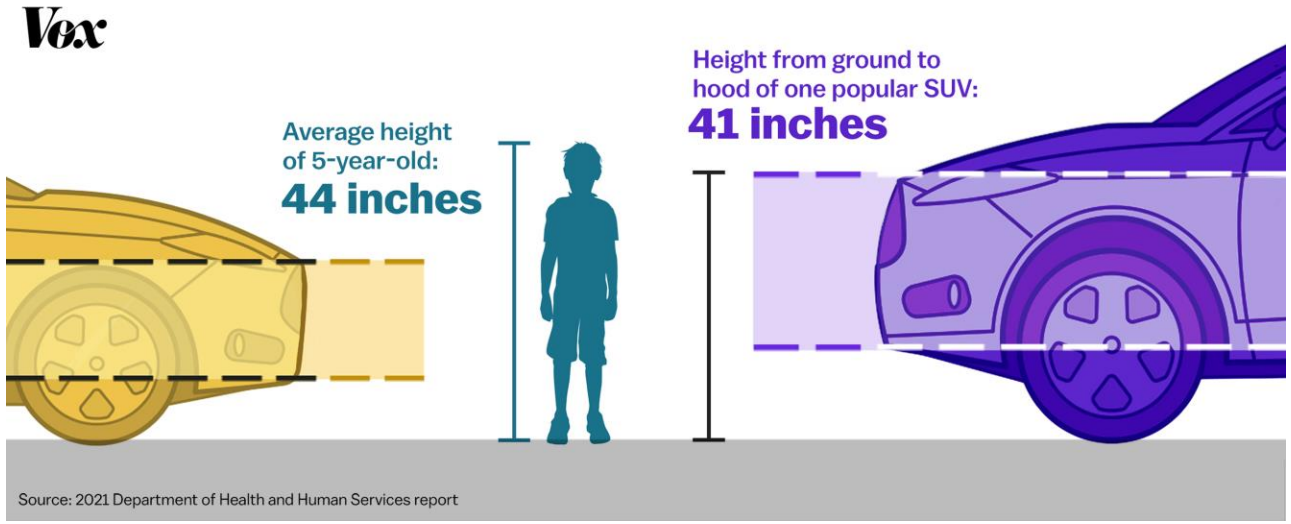


IIHS, 2025

Epstein et al., 2025

Children are more likely to die if struck by a larger vehicle

- Children are eight times more likely to die when struck by a SUV compared to children struck by a passenger car (Edwards & Leonard, 2021)
- Child pedestrians are 82% more likely to be killed if struck by an SUV vs a passenger car (Robinson et al, 2024)



Safer for whom?

- Heavier and larger vehicles are safer for their occupants in a crash…
- …but they are more dangerous for occupants of smaller vehicles and vulnerable road users
- A fleet of small, similarly sized vehicles in California would likely reduce injury risk for both vehicle-to-vehicle and vulnerable road user crashes

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INFORMATION ITEMS

Tab	Item Description	Presenter	Type	Agency
3	Trends in Vehicle Fleet, Road User Injuries and Fatalities	Cayla McDonell Matthew Raifman	I	C

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15 MIN BREAK

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INFORMATION ITEMS

Tab	Item Description	Presenter	Type	Agency
4	Roundtable Discussion with Task Force Members	Cayla McDonell	I	C

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Key Takeaways from UC Berkeley Research & Discussion Questions

Key Takeaways: California Vehicle Fleet Trends

1.1 The weight of new passenger vehicles manufactured since the 1980s has continued to increase.

1.2 Over the next decade, SUVs are expected to overtake sedans as the most registered type of vehicle in California. SUVs are the fastest growing vehicle type registered in both rural and urban counties.

1.3 While SUVs are smaller than they were in the past, the average SUVs are 27% heavier, 19% taller and 42% higher ground clearance than the average sedan.

Key Takeaways: California Vehicle Fleet Trends (Continued)

1.4 Half of U.S. States have a weight-based fee for passenger vehicles for various purposes. California charges a weight fee for all commercial vehicles, which includes all pickup trucks (regardless of whether a pickup truck is registered for personal or commercial use).

1.5 The average size (curb weight, height, ground clearance) of registered pickup trucks is growing faster than any other vehicle type. The average pickup truck registered in California is 47% heavier, 26% taller, and 59% higher ground clearance than the average sedan.

1.6 Pickup trucks are 50% more prevalent in rural counties than urban counties.

Key Takeaways: California Vehicle Fleet Trends (Continued)

1.7 Americans are holding onto their vehicles longer (12.6 years in 2024 v. 10.4 years in 2008) lengthening the time of the adoption of new vehicles with more safety features.

1.8 Hybrid and electric vehicles are heavier than standard internal combustion engine vehicles, with electric vehicles being the heaviest of the three. However, their share of registrations is small but increasing, with hybrids made up 6.5% of registrations and electric vehicles make up 5% of registrations.

Roundtable Discussion Questions: California Vehicle Trends

1) What are your key takeaways from the information presented here?

2) What vehicle fleet trends do you find most notable?

3) What questions do you have about this information?

Key Takeaways: California Injury and Fatality Trends

2.1 (a) Vehicle collisions resulting in fatalities and serious injuries of vulnerable road users have increased.

2.1 (b) Vehicle registrations in California show that vehicles purchased are increasingly heavier, taller, and higher.

2.1 (c) SUVs, pickups, and sedans are all more frequently involved in crashes resulting in fatalities and serious injuries to pedestrians and bicyclists in both urban and rural areas. SUVs are the fastest growing vehicle type involved in crashes (197% ped, 171% bike) followed by sedans (183% ped, 171% bike) and pickup trucks (166% ped, 152% bike) (2010 – 2022).

2.1 (d) However, UC Berkeley's research only shows correlation between these factors, not causation.

- This is due to the challenge of isolating vehicle weight from other factors (ie., speed, vehicle features such as curb height, other factors redacted or not captured from crash reports, and more) involved in crashes, as well as other data limitations.

Key Takeaways: California Injury and Fatality Trends (Continued)

2.2 In both urban and rural areas, the majority of pedestrian and bicyclist fatalities and serious injuries are caused by sedans, which are the most registered vehicle type in California.

2.3 When controlling for population, pedestrian fatalities and serious injuries are more common in urban than rural areas.

2.4 When controlling for population, bicyclist fatalities and serious injuries are more common in urban than rural areas.

Roundtable Discussion Questions: California Injury and Fatality Trends

1) What are your key takeaways from the data presented on California injury and fatality trends?

2) What questions do you have on this data?

Key Takeaways: California Injury and Fatality Trends (Continued)

2.5 Fatalities for pedestrians have increased 71% since 2010

2.6 Fatalities for bicyclists have remained steady since 2010

2.7 Serious injuries for pedestrians have increased 44% since 2010

2.8 Serious injuries for bicyclists have increased 20% since 2010

2.9 Children pedestrians are 82% more likely to be killed if struck by a SUV versus a sedan.

2.10 When adjusting for population, pedestrian fatality and serious injuries for disadvantaged areas is approximately 50% higher for all vehicle types.

Roundtable Discussion Questions: California Injury and Fatality Trends

1) What are your key takeaways from the data presented on pedestrian and bicyclist fatalities and serious injuries trends in California? As it relates to children and disadvantaged areas?

2) What questions do you have on this data?

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Are there any other comments or questions from Task Force members?

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Tab	Item Description	Presenter	Type	Agency
5	Public Comment	Cayla McDonell	I	C

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5	Public Comment	Cayla McDonell	I	C

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ADJOURN

Thank you

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