

MOVING TOWARDS A SAFE AND RESILIENT ROAD SYSTEM UNDER UNCERTAINTY

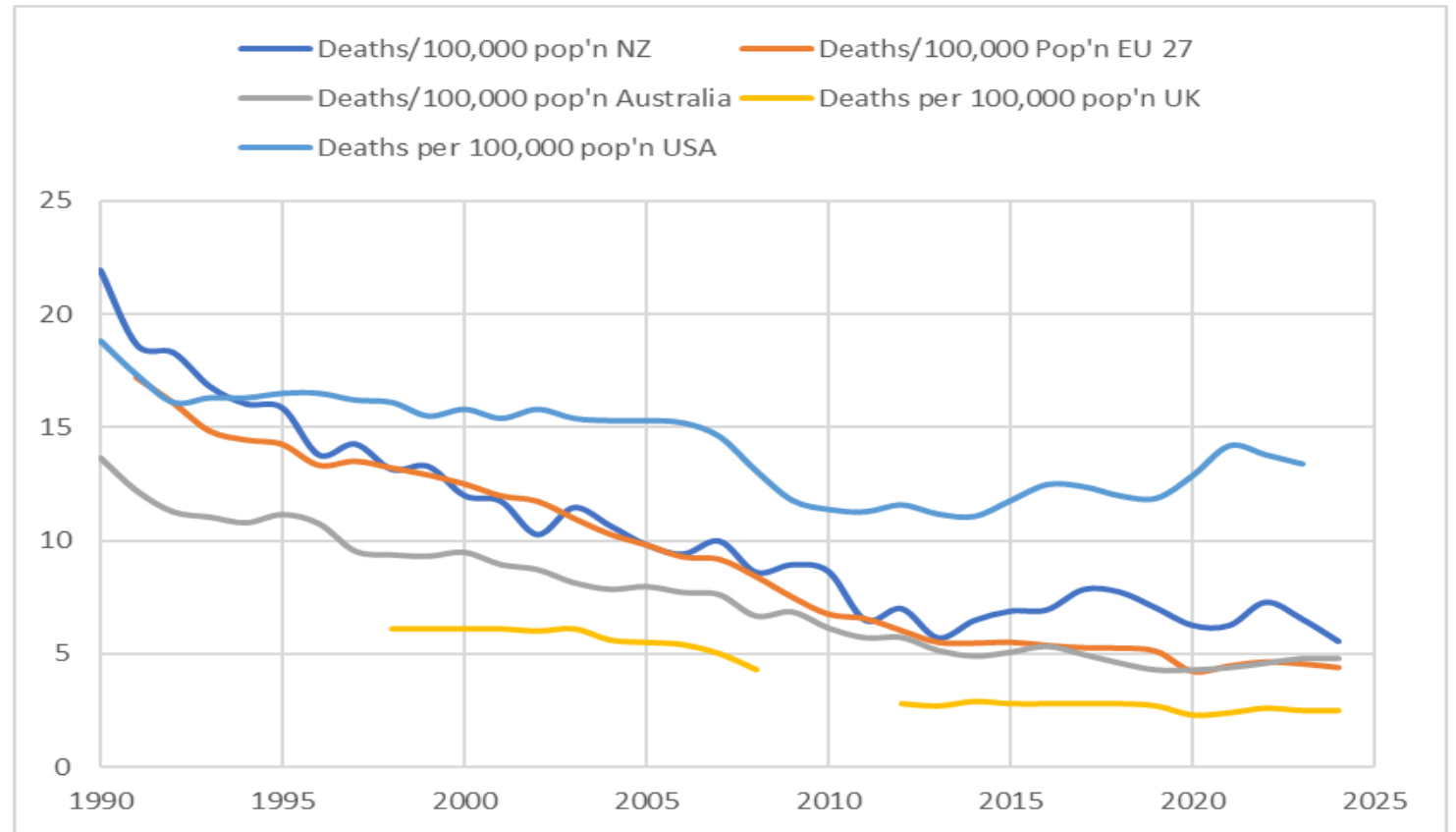
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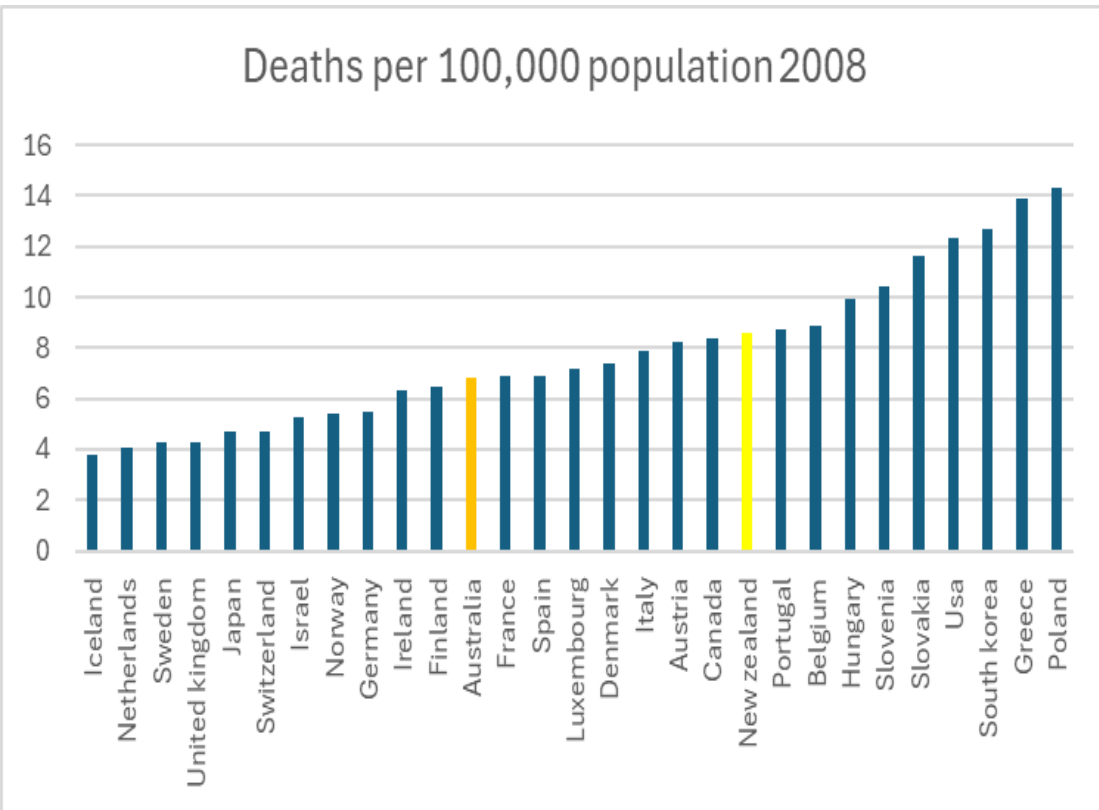
New Zealand has made stuttering progress in road safety over the last 35 years

- Like other high-income countries, we have seen an overall reduction in road injury
- However, we have lagged behind the rest of the developed world except for the USA

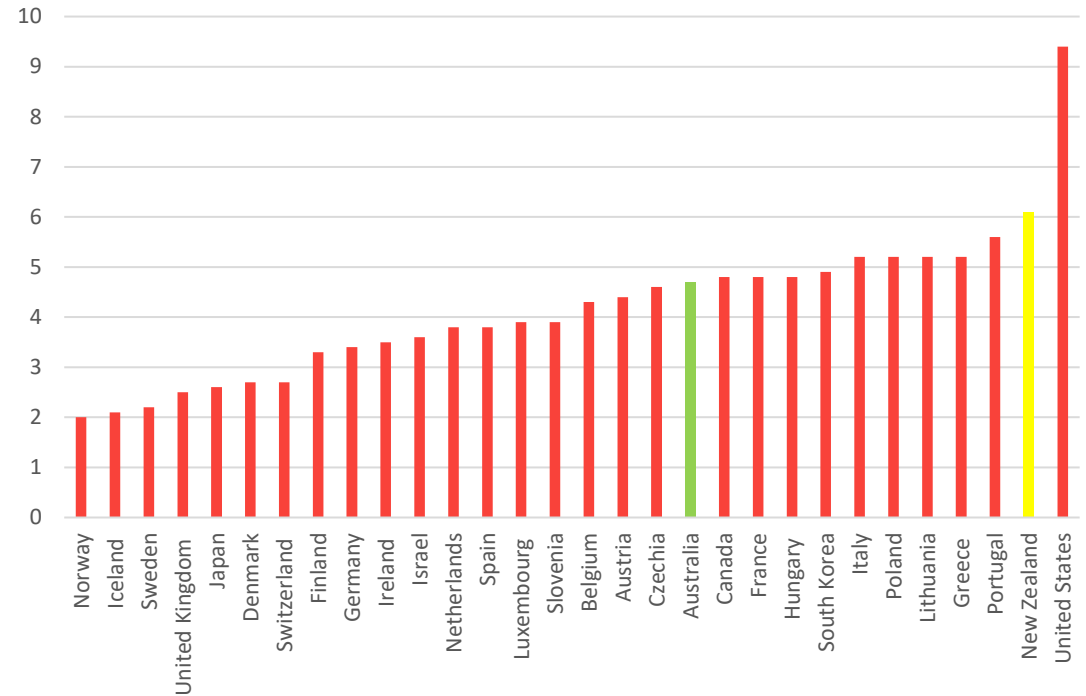


In 2008, we were near the middle of the pack-by 2023 we had dropped to 2nd to last, just in front of the USA

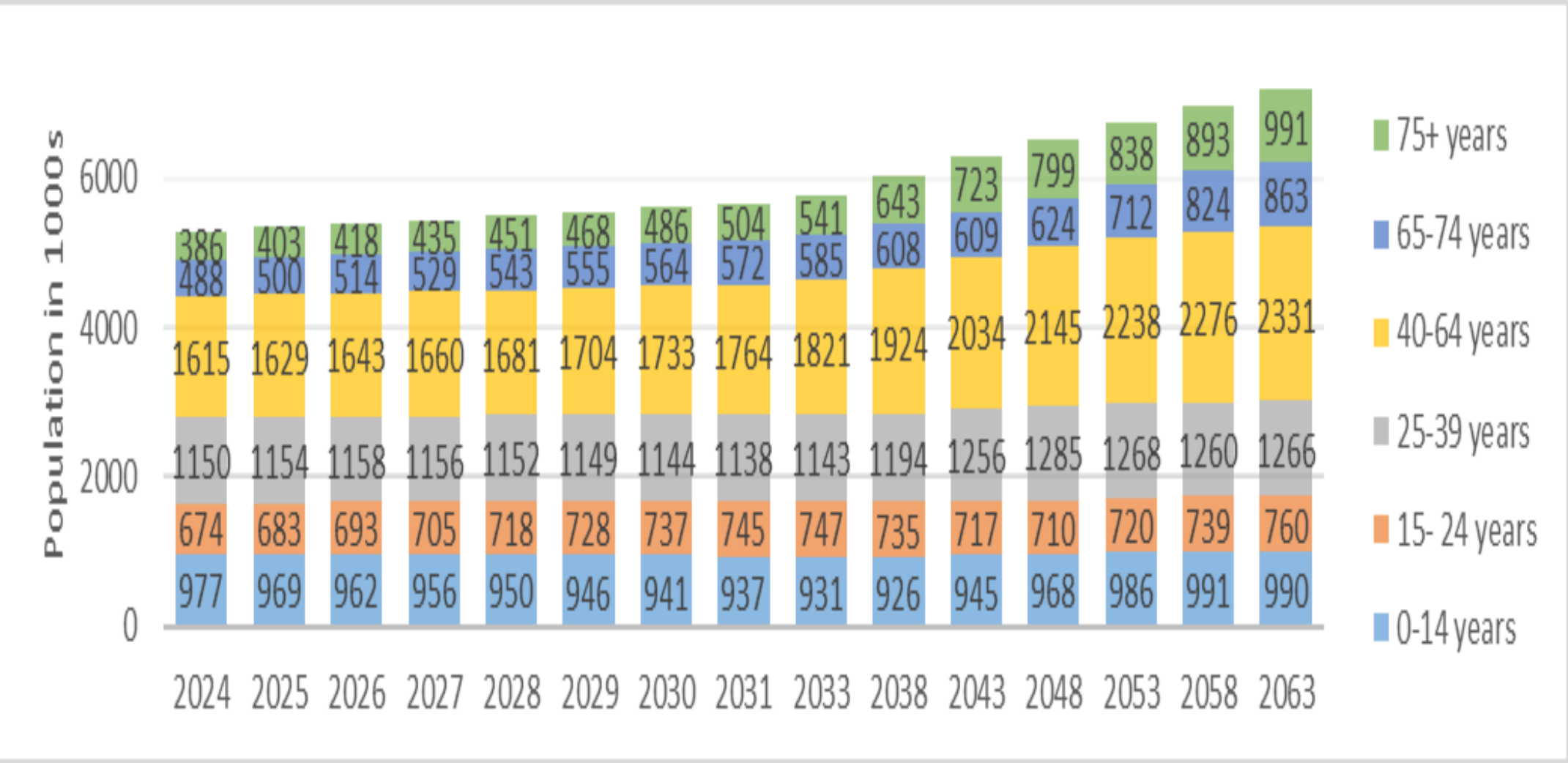
Deaths per 100,000 population 2008



Road deaths per 100,000 population 2023



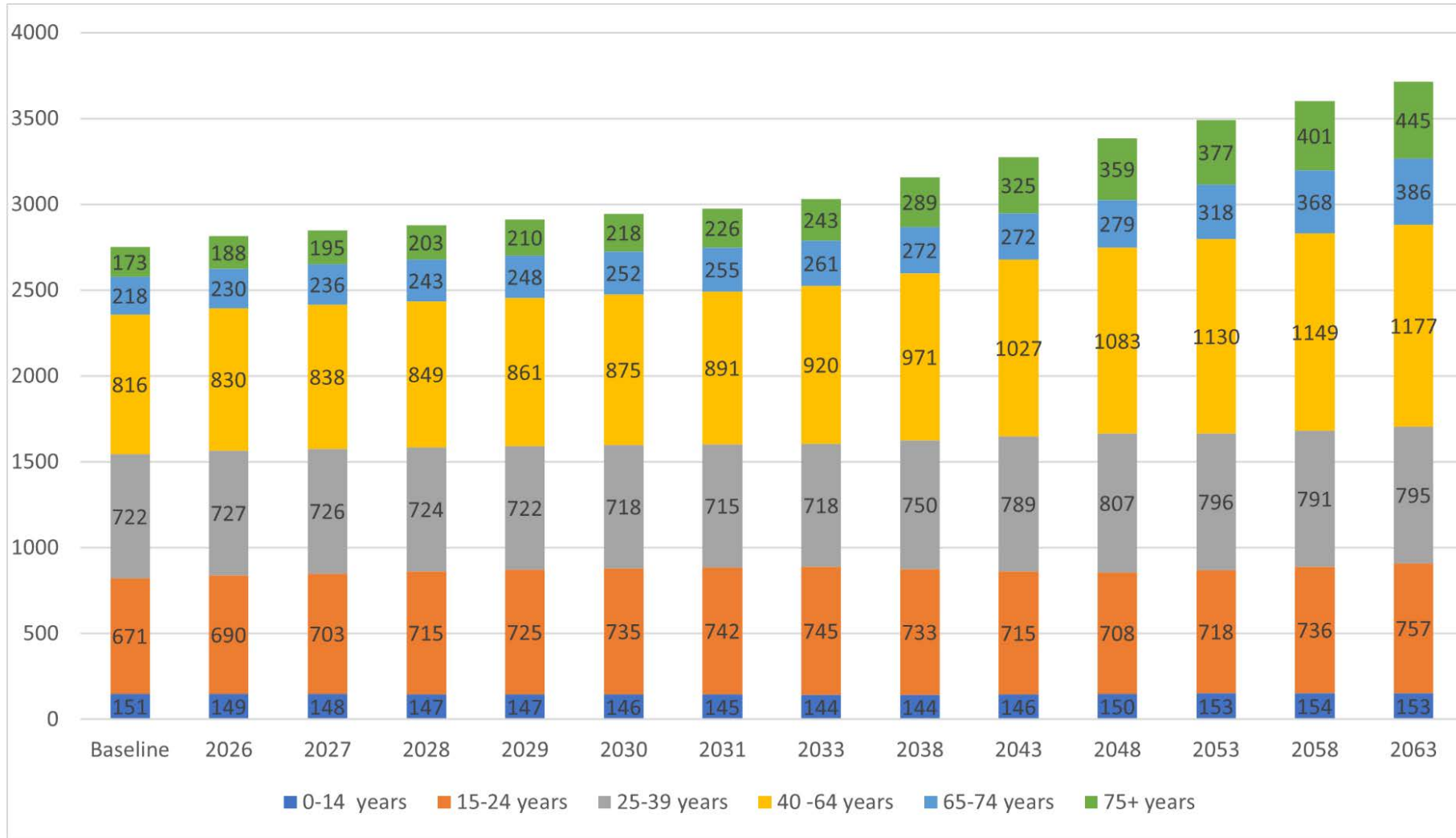
New Zealand's population is projected to increase considerably over the next 4 decades



Age specific population projections to 2063-base year to June 2024



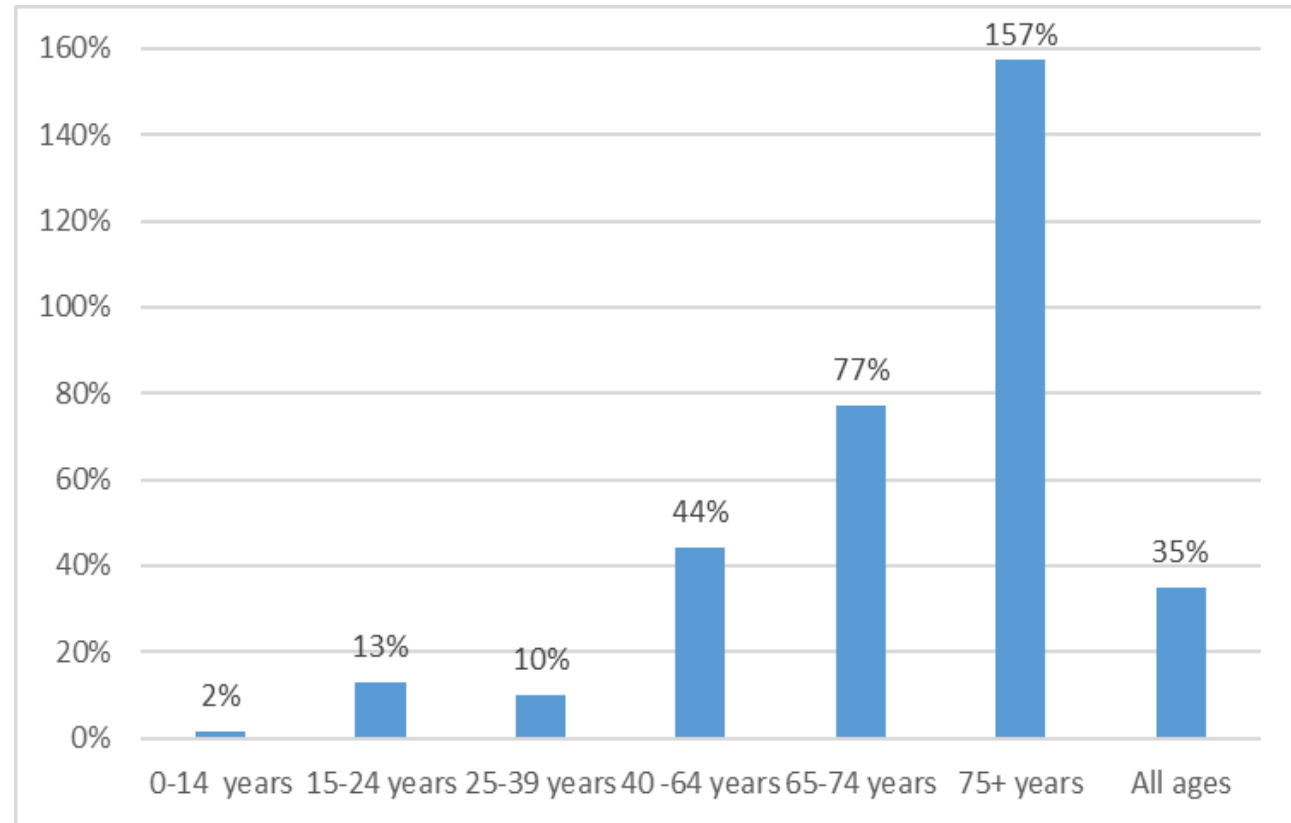
This results in a 35% increase in deaths and serious injuries (DSIs) if the present level of DSIs per 100,000 population continues



Age-specific DSI projections to 2063-base year to June 2024

84% of this increase is from the 40+ age groups

- The 40+age group has a relatively low personal risk (DSIs per 100,000 population) which can place it under the road safety radar
- Future road safety effort must address its high collective risk
- And continue to address the higher personal risk of younger people



Projected age-specific increases in DSI levels by 2063

How do we become Ready for this Future

- **We need to work towards a safe system resiliently and sustainably, under uncertainty and financial constraints**
 - Resilient in this context means a high ability to stay on course
 - Sustainable adds the dimension of being able to do so in the long term within the resources of the nation. This requires maximal bipartisan political buy-in based on sound evidence
- **This requires both strategy and tactics**
 - The strategy must be practical and shared in a way that encourages bipartisan political uptake
 - The tactics must be agile
 - Both must share an excellent evidence base, which requires research investment
 - the evidence must be conveyed to decision makers honestly
 - Progress must be measured

Challenges

- We need to know public sector costs and benefits on a whole of government basis, rather than just within silos
- Our resources are finite. Therefore, tools like Cost Benefit Analysis (CBA) will always be needed to provide a rational basis for cutting up an always finite pie
- However, the areas where costs and benefits accrue are not part of the final ratio and may not feature prominently in the final slicing of the pie
- Crashes are associated with road infrastructure damage, travel delays, health sector costs, policing costs, and justice sector costs
- Health sector impacts of reducing road injury include reduced load on hospital wards, emergency departments, rehabilitation facilities etc
- An example is speed, where much is made of small, economically insignificant, increases in travel time from lowered speed limits and very little about the very real and cumulative healthcare savings.
- This relates to driver beliefs that they need to drive faster than is necessary to achieve a certain travel time. They underestimate travel time gains from increasing speed when the initial speed is relatively low and overestimate travel time gains by making a relatively high speed faster

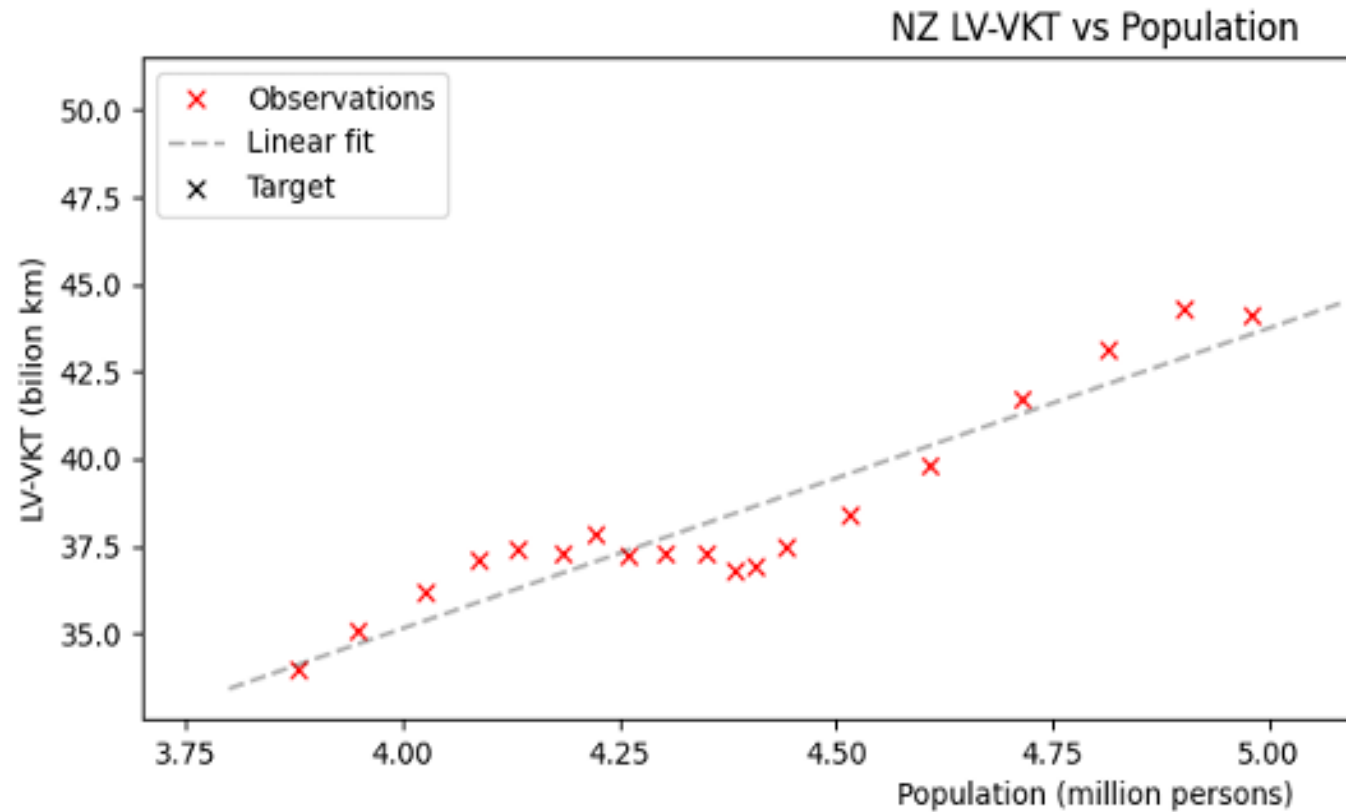
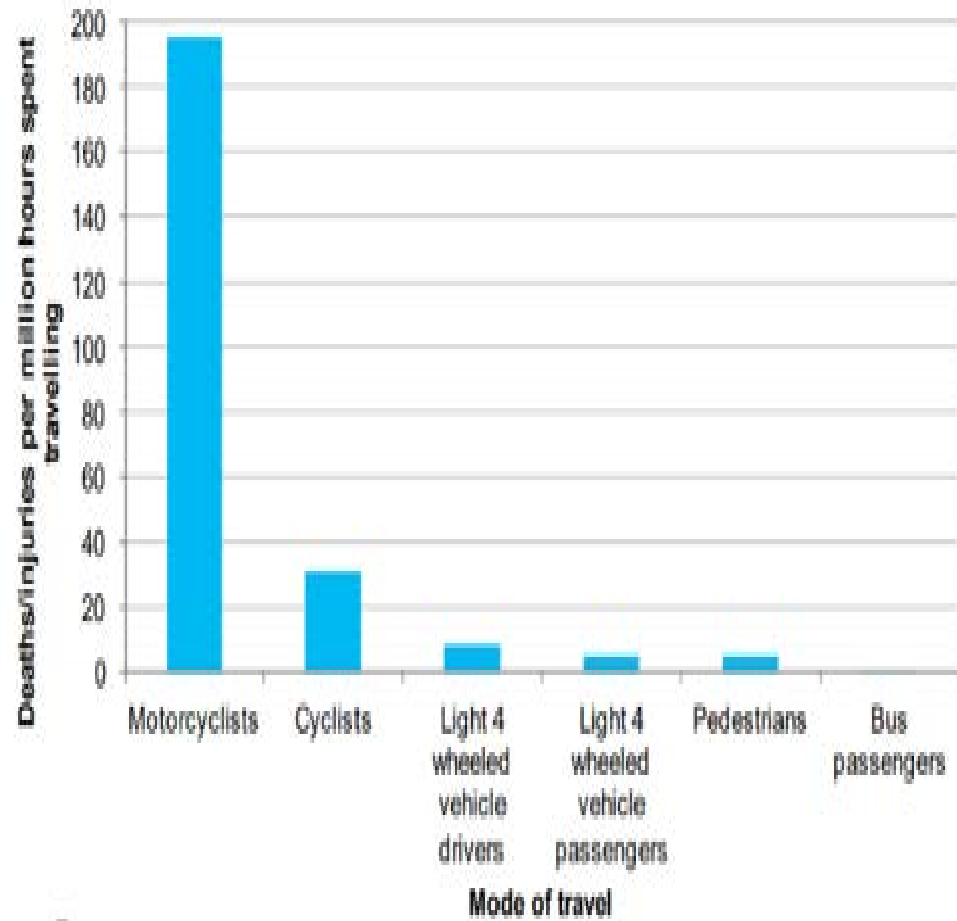
Some actions

- Move more vigorously against non-motor vehicle trauma occurring on the road reserve-
Combating this is an integral part of road safety
- Includes injury from cycle only crashes, pedestrian vs cycle crashes, pedestrian slips, trips and falls, and injury involving other forms of micromobility.
- Similar numbers of pedestrian are hospitalised from non-motor vehicle related incidents as from motor vehicle related incidents
- Sweden includes these types of injury in its national database for road transport injuries-NZ should follow suit



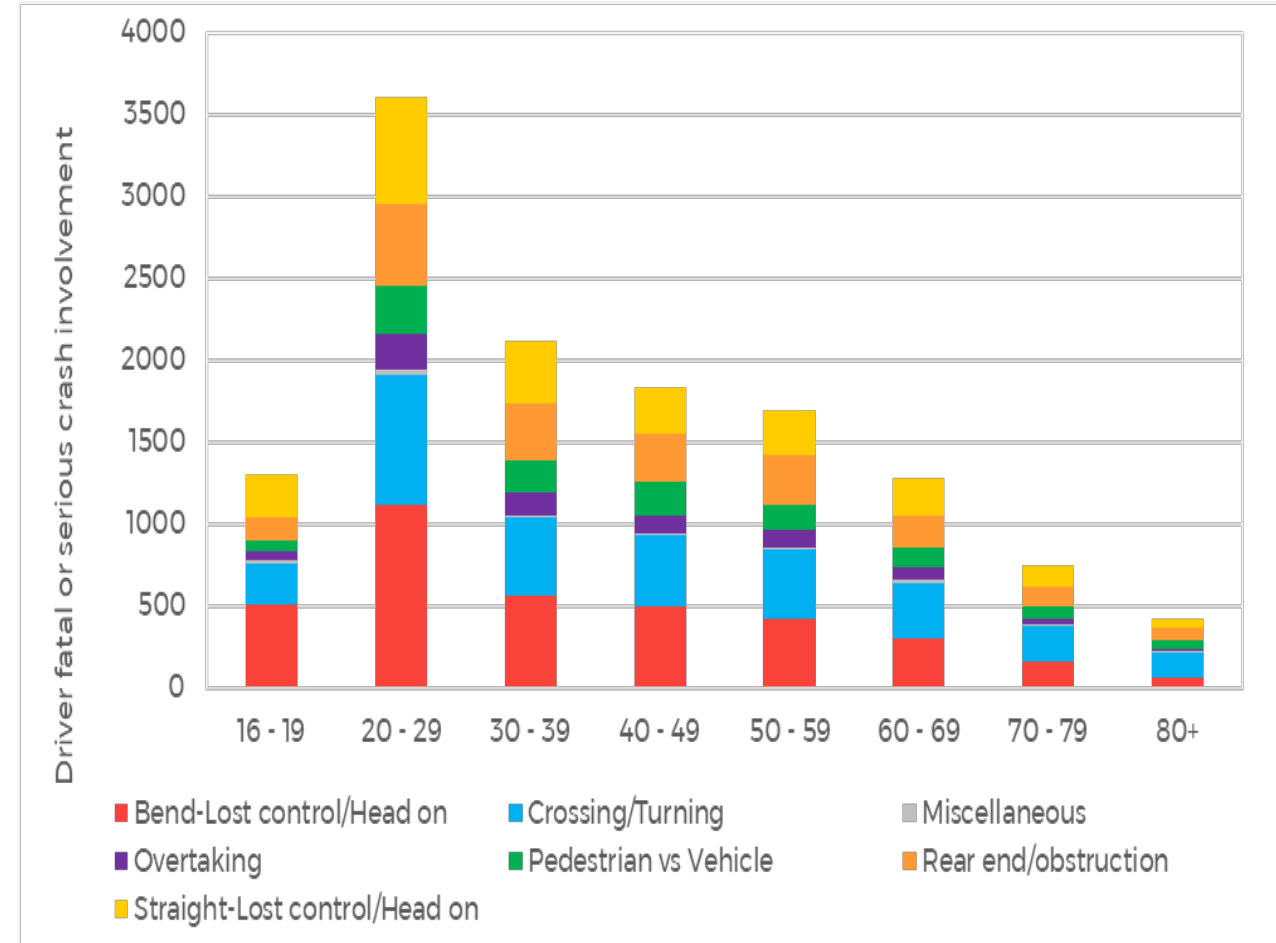
Close up of a curb defect which resulted in an ACC claim

Encourage people to use safer modes-in particular PT



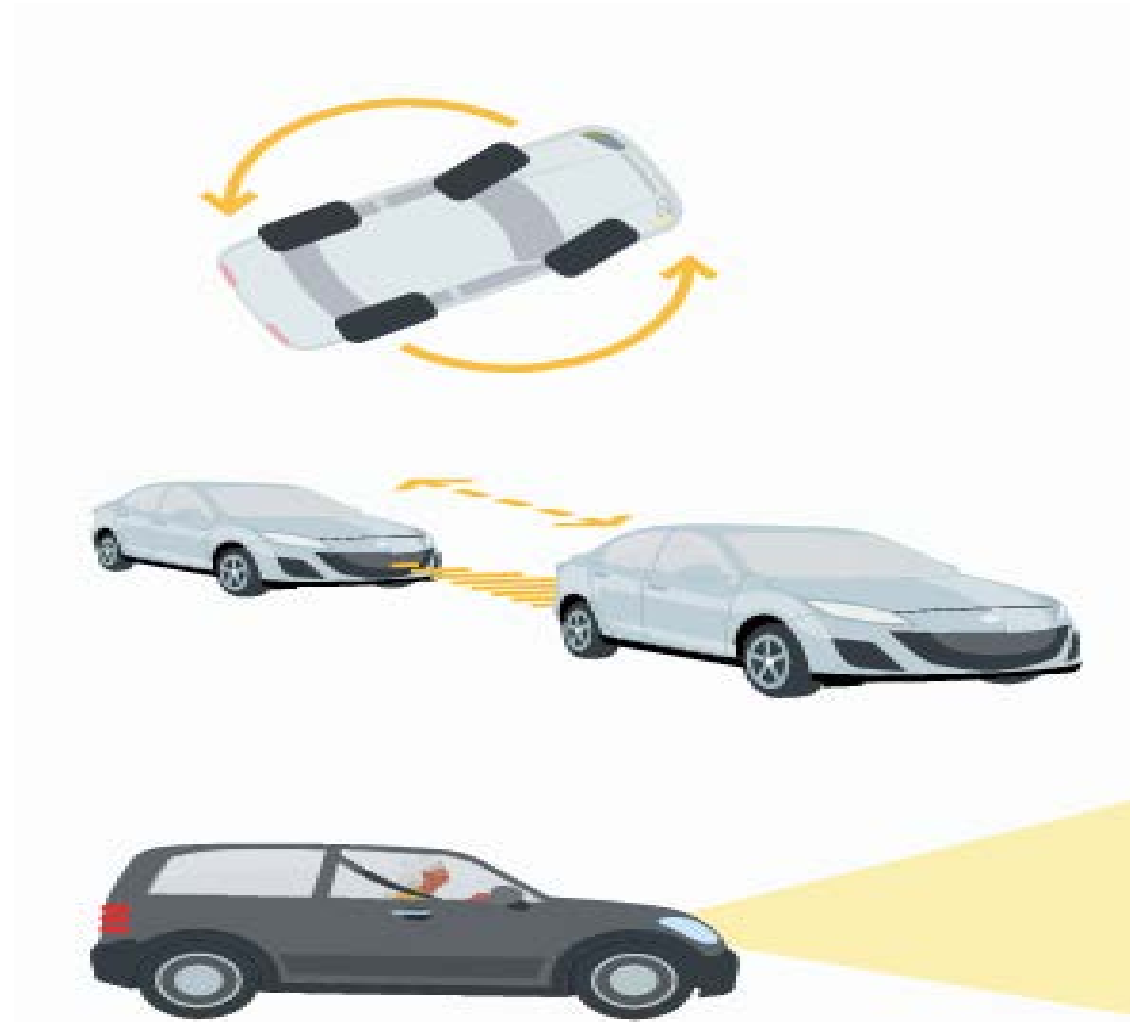
Act on the crash implications of an older population

- The types and locations of crashes involving drivers from the different age groups differ. Roughly 50% of all drivers involved in high severity (DSI crashes) are in rural environs
- For drivers 75 years and older, only 41% are involved in rural high severity crashes
- Of these rural crashes on average 51% are single vehicle crashes whereas for older drivers (those 75 years and older) only 36% of rural crashes are single vehicle.
- At the other end of the scale, most crashes for older drivers are multi-vehicle crashes in urban areas.
- This is related to a tendency for older drivers to carry out shorter journeys and thus do less rural driving than their younger counterparts.



Older people should be encouraged to travel in safe cars

- Older drivers are involved in proportionally fewer crashes than middle-aged drivers
- However, due to increased fragility, when they do crash they're more likely to get hurt than younger drivers.
- As public crash statistics pertain only to injury crashes, older driver crashes are more likely recorded in the database than if the driver was younger and therefore survived uninjured. The same applies to older passengers.
- This underlines the importance of having our vehicles as crash-worthy as possible and containing advanced driver assistance systems appropriate to older drivers.
- The most helpful of these systems for older drivers include lateral position control systems, headway control systems and automatic high beam



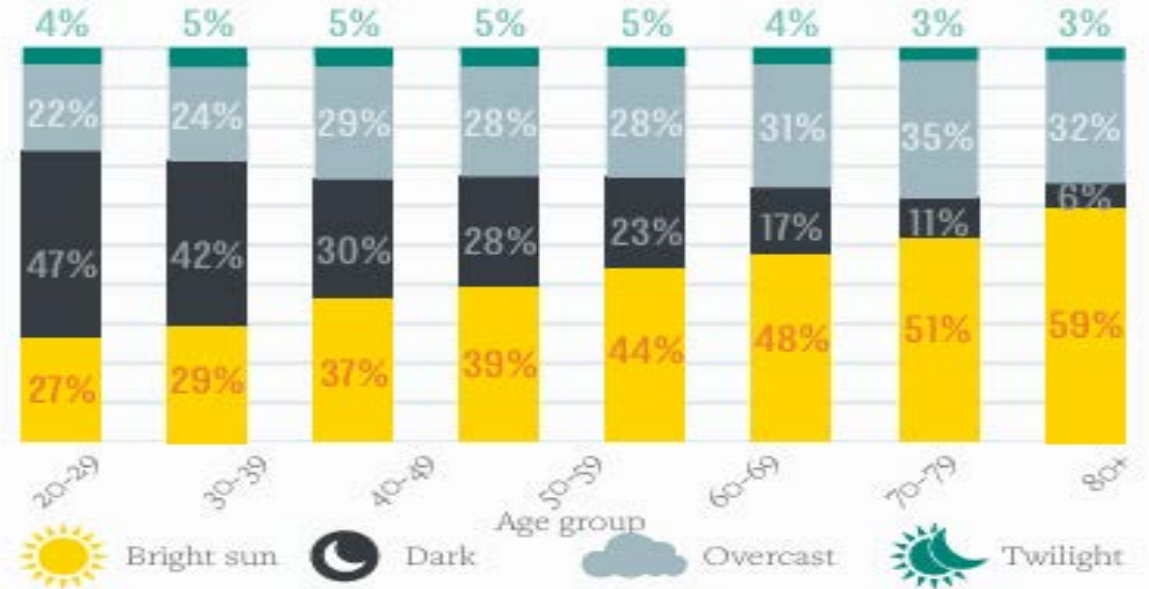
The lens of the eye clouds with age making night driving at night more difficult

- This results in a lower proportion of night crashes as we age due to avoidance of dark conditions
- Implies that road markings and signage, which are usually calculated based on the needs of younger people may become increasingly inadequate as the driving population ages.
- A positive is that lens clouding is reversed by cataract surgery

Van Bommel, W. (2015). Road Lighting: Fundamentals, Technology and Application, In: Springer International Publishing Switzerland



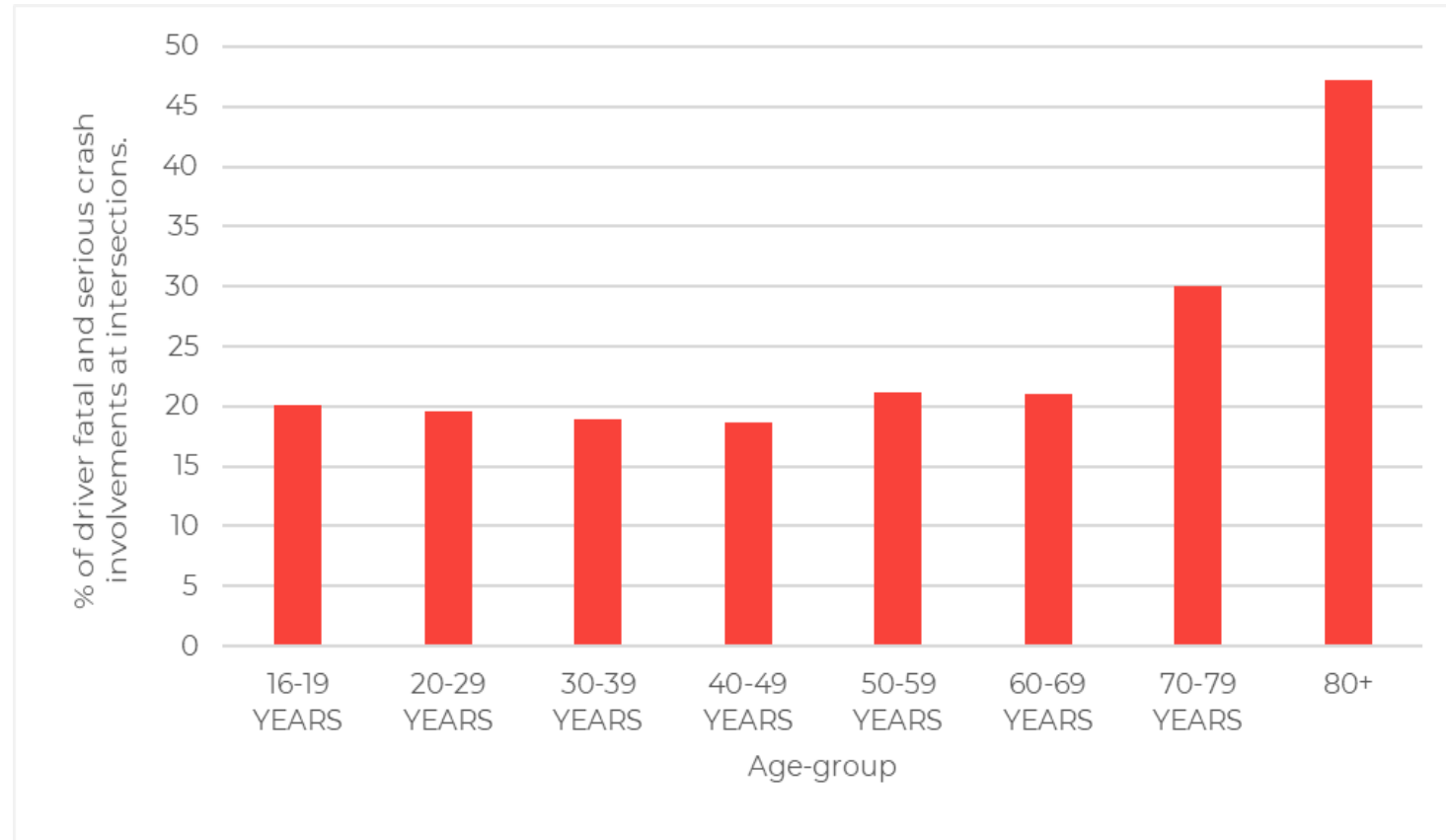
Percent driver fatal or serious crash involvement by light conditions (as a surrogate for night/day) and age group



Intersections become riskier for drivers (and passengers) as they age

Factors include:

- Fragility (Drivers and passengers)
- Physical constraints
- Greater likelihood, to accept "risky gaps"



Future Infrastructural Implications

- More emphasis on preventing and ameliorating crashes at urban junctions and in particular those involving higher speed and higher volume intersections.
- This may see a greater emphasis on explicit control such as traffic signals or the extension of lower speed environments.
- Already some local authorities with higher proportions of retired residents are undertaking more in-depth analysis of their crash situation and remedial measures.
- Kapiti Coast District Council has also identified an increasing issue with older cyclists
- Without increased funding, this increased emphasis may require some reallocation of resources.

Conclusions

- If we continue with the same motor vehicle- related deaths per capita as at present, we are looking at an overall 35% increase in DSIs by 2063. Eighty-four percent of that increase is projected to occur in the 40+ age group.
- Similarly, injuries from non-motor vehicle related slips, trips, falls and crashes will increase, as population increases. The increase will likely be steeper than for motor vehicle related injury because of the protective nature of being in a motor vehicle.

We need to:

- Work towards a safe system resiliently and sustainably. Resilient in this context means a high ability to stay on course and sustainable adds the dimension of being able to do so in the long term within the resources of the nation.
- Achieve a high level of political bipartisanship, with a willingness to accept free and frank evidence-based policy advice.
- Allocate resources in a less siloed and more nuanced manner. If we are to maximise sustainability, we need to know public sector costs and benefits on a whole of government basis, rather than just within silos.

Future Ready Conclusions

- Encourage people to use safer modes. Public Transport is a very safe mode, and its availability and reliability need to increase.
- Safe shift to vulnerable modes means measures to protect vulnerable road users, not only from motor vehicles but each other
- Measure progress and carry out research to provide evidence where existing evidence is inadequate
- Take specific account of the needs of the aging population when developing programs for road safety improvement including:
 - Improved signage, road marking, crossing point and intersection design standards to better cater for older drivers and pedestrians
 - Improved footpath and road maintenance to reduce slips trips and falls
 - Encouragement of crashworthy cars with advanced driver assistance features
 - Reduced opportunity for conflict between pedestrians and other non-motor vehicle modes



Note: These measures also impact positively on younger age-groups

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