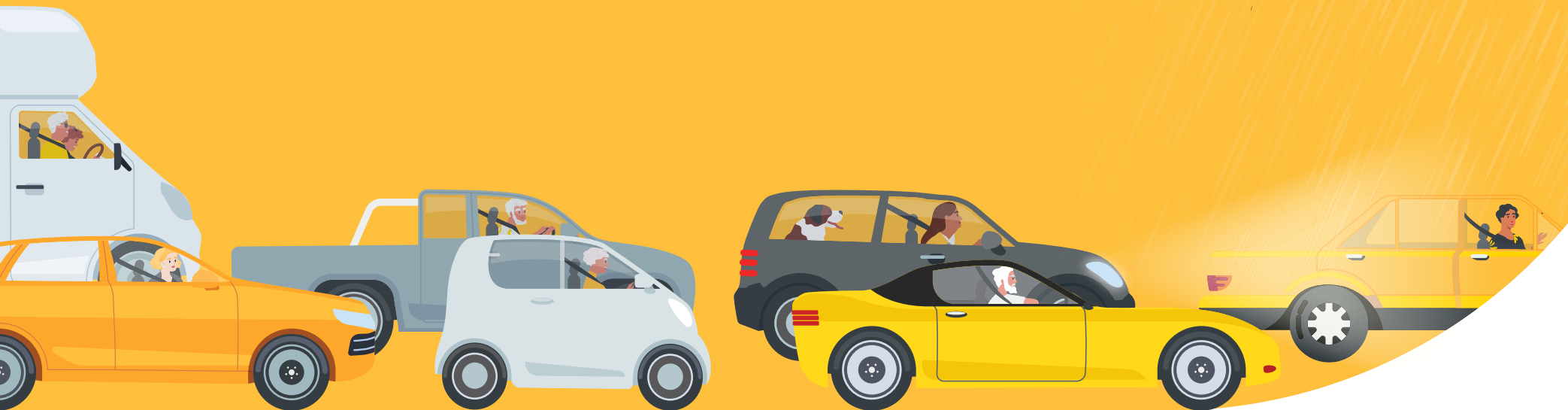


Insights into older driver safety and mobility



Older drivers do change when, where and how they drive



MALES DRIVE A LOT MORE THAN FEMALES AT ALL AGES
– particularly after age 65

TOTAL DRIVING DROPS OFF STEEPLY FROM

♂ 54 years
♀ 44 years



Older drivers do not change WHEN, WHERE & HOW they drive

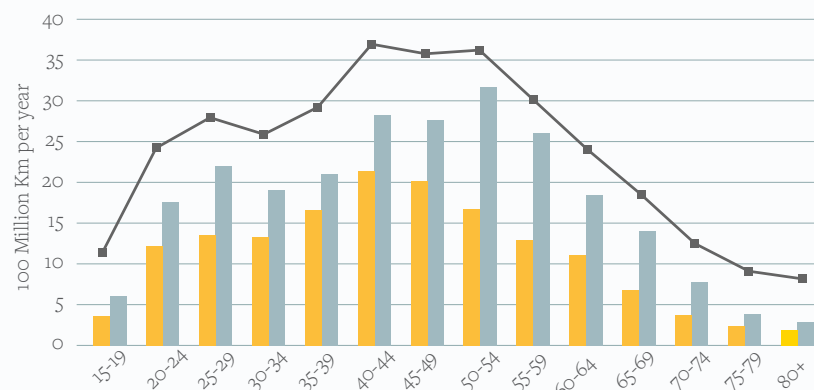
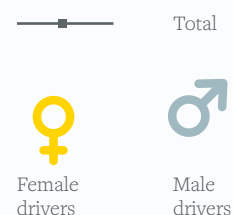


Older drivers change WHEN, WHERE & HOW they drive

SURVEY FINDING:
Of those that change WHEN, WHERE, & HOW they drive, 3 in 4 do it for safety reasons

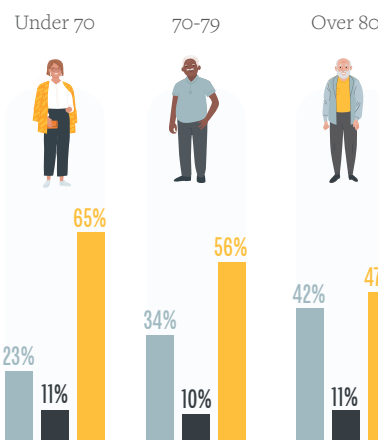
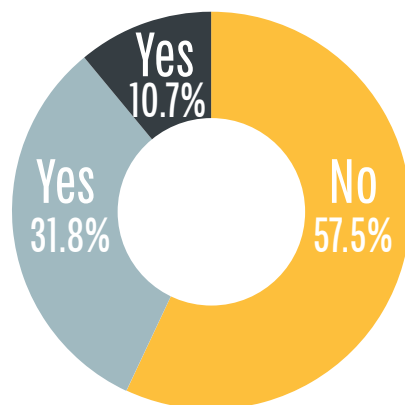


Total annual distance driven per driver by age group and gender



Any alteration to driving over the last 5 years to accommodate changes?

Have you altered your driving over the last five years to accommodate for changes you've experienced?



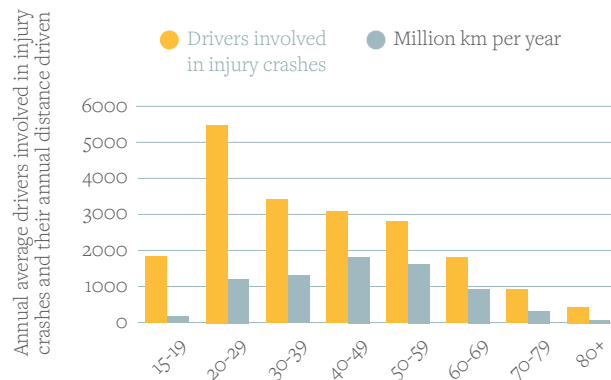
Yes, I have made changes to make driving safer (e.g. avoiding certain driving conditions)

Yes, I have made changes but for other reasons (e.g. comfort, or prefer to take other modes)

No, I have not altered my driving

Frequency of crashes by age

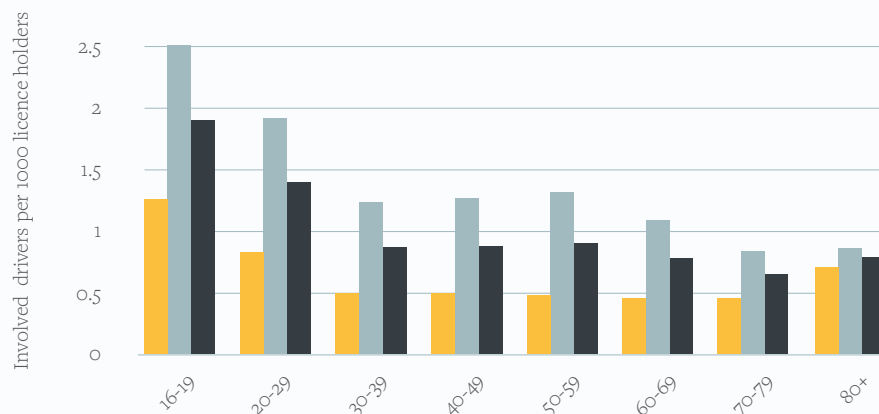
Drivers involved in injury crashes



The risk of fatal or serious driver crash involvement per 1000 licence holders increases slightly after age 80 following a period of decline beginning at the 60-69 age group.

“The 80+ risk is still below the risk of middle-aged drivers.”

Drivers involved in fatal or serious crashes per 1000 licence holders



Total drivers



OLDER DRIVERS FINDINGS:

70-79 & 80+ YEAR OLD DRIVERS HAVE THE FEWEST INJURY CRASHES ON AVERAGE PER YEAR



Older drivers are a high crash group



Drivers 80+ years are involved in less crashes than drivers 40-49 years.*

*Only 14.5% as many injury crashes as 40-49-year-old drivers

Risk of driver death and fragility



Drivers killed per billion km

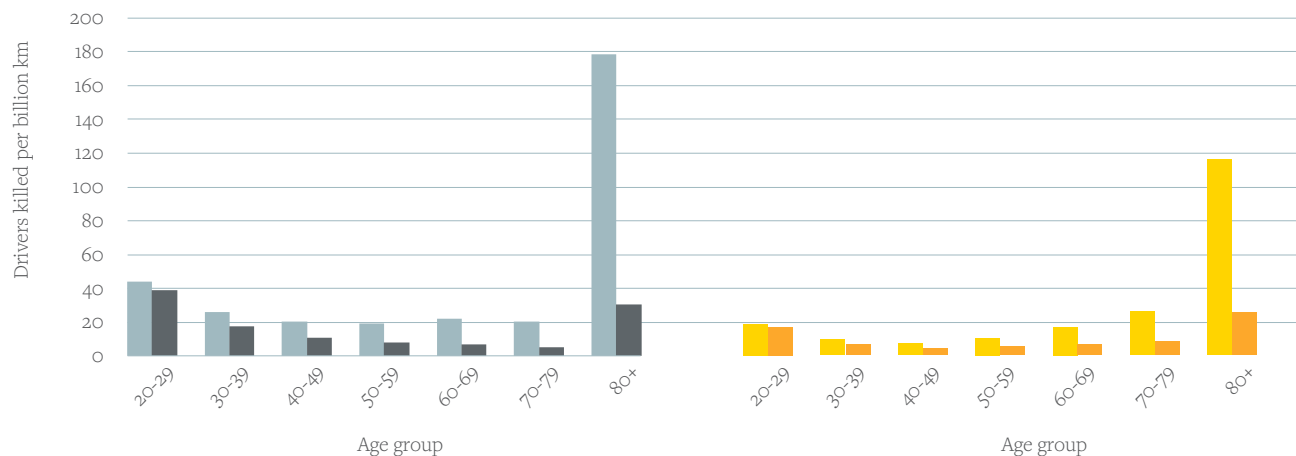


● Killed male drivers per billion km driven

● Killed male drivers per billion km driven fragility adjusted

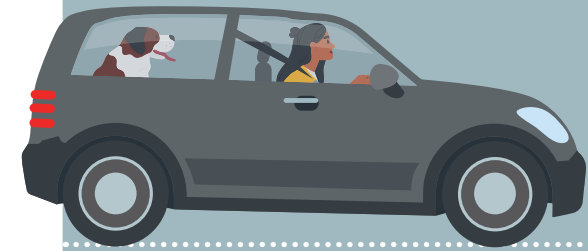
● Killed female drivers per billion km driven

● Killed female drivers per billion km driven fragility adjusted



In both charts, for each age-group, the fragility adjusted rates are the darker coloured bars. The fragility adjustment provides estimates of the number of deaths drivers in an age-group would experience per billion kilometres travelled were their bodies as strong as a typical 20 year old body

“For both males and females fragility accounts for most of the risk of older people.”



**THE RISK OF DEATH
PER DISTANCE DRIVEN
increases with age**

**& BECOMES RELATIVELY HIGH
over the age of 80**



**THIS APPLIES TO ALL MODES:
being a CAR PASSENGER and
non-motorised modes like
WALKING and CYCLING**



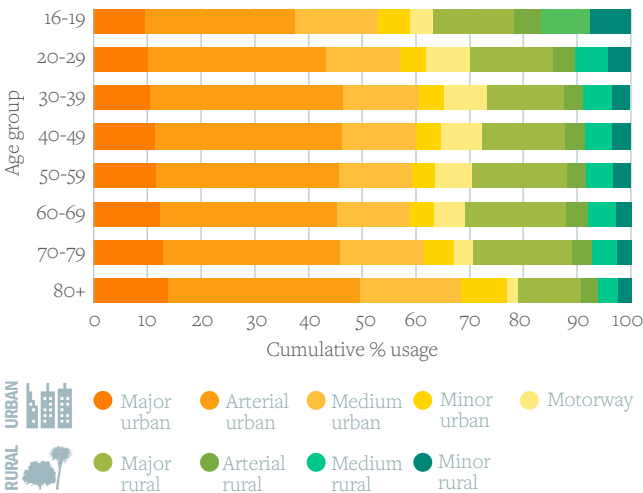
**A major factor is
INCREASED
FRAGILITY**



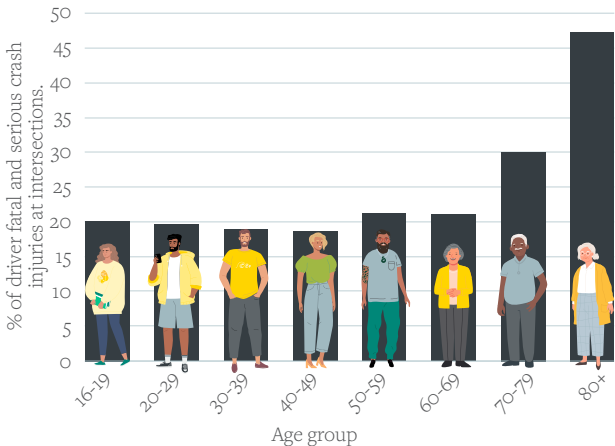
Road type and conditions



Percent of fatal and serious crash involvement by road type and driver age (July 2014–June 2019)



The percentage of driver fatal and serious crash injuries at intersections by age of driver (July 2014–June 2019 inclusive)



SURVEY FINDING:

1 IN 4 OLDER DRIVERS

are driving at night in unlit conditions, but are uncomfortable doing so



Older drivers are safe, as long as they stay off higher speed divided limited access dual carriageways with relatively few intersections

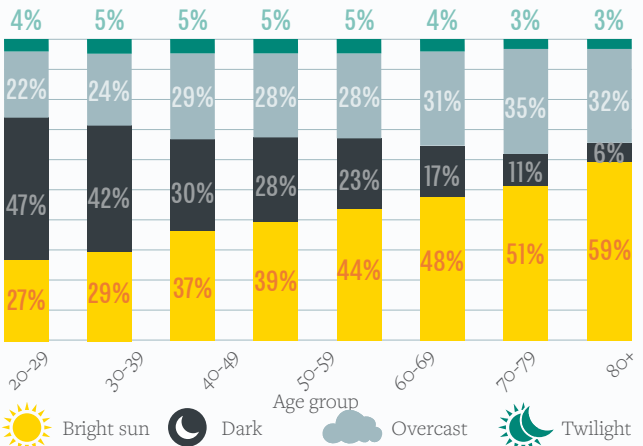


Older drivers are 1½ - 2½ times more likely to have fatal or serious crashes at intersections than younger drivers.

Depending on age, according to crash involvement percentages.*

*(Locations like higher speed motorways/expressways with fewer intersections are safer by comparison.)

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



Driving becomes more urban focussed with age reaching around 50% urban (excluding urban motorways) by age 75+.

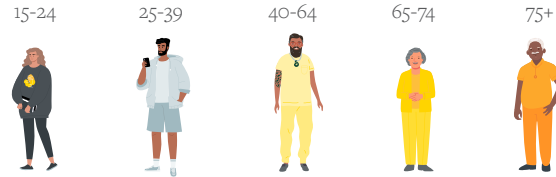


Motorways, which are our safest roads for all ages represent only 6.1 % of distance driven in the 75+ age-group.

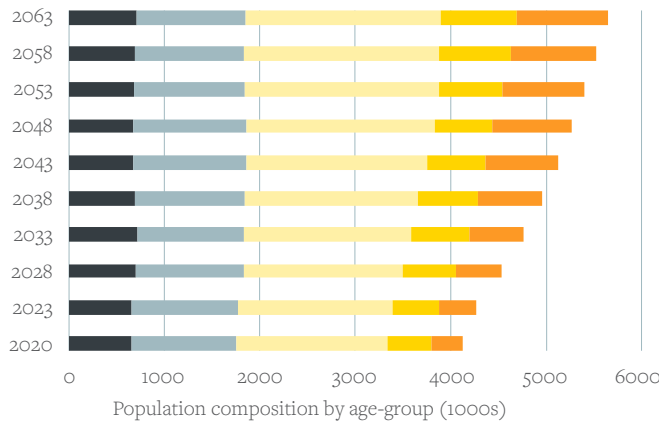


As they age, drivers become more involved in daytime (bright sun and overcast conditions) crashes and less involved in night-time crashes. This is related to a tendency to drive less at night and more during the day.

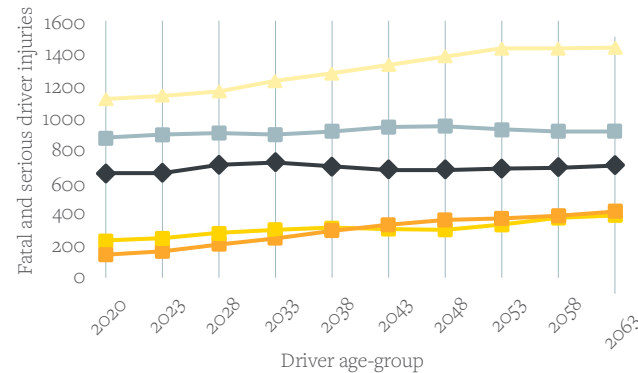
Driver and population insights



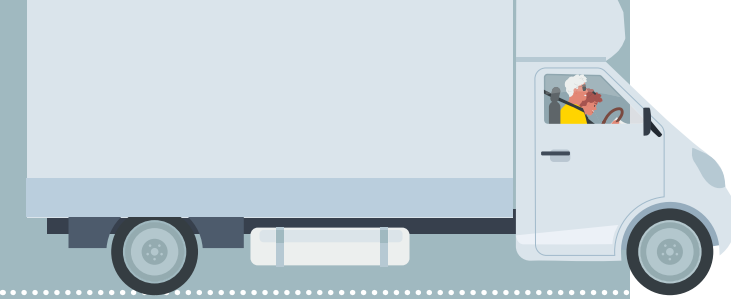
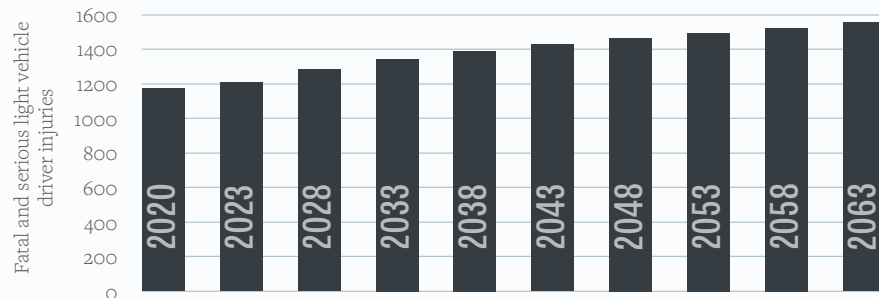
Population composition by age-group



Projected driver fatal and serious injuries (baseline 2020) for various age-groups



Projected fatal and serious light vehicle driver injuries by year



The population IS AGING



THIS WILL TEND TO
REDUCE CRASH NUMBERS

as older drivers are safer in terms
crashes per driver than younger drivers



An aging
population
will mean
MORE CRASHES



It will **REDUCE**
CRASHES
per driver



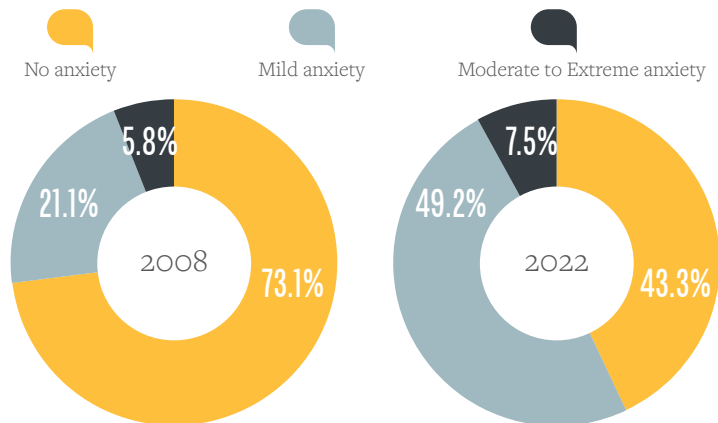
HOWEVER, THIS WILL
BE OUTSTRIPPED BY
POPULATION GROWTH,
IN **OLDER AGE-GROUPS**

THIS IS PROJECTED TO RESULT IN A
33% increase in fatal and serious driver
injuries between 2020
and 2063 if preventative
measures are not taken

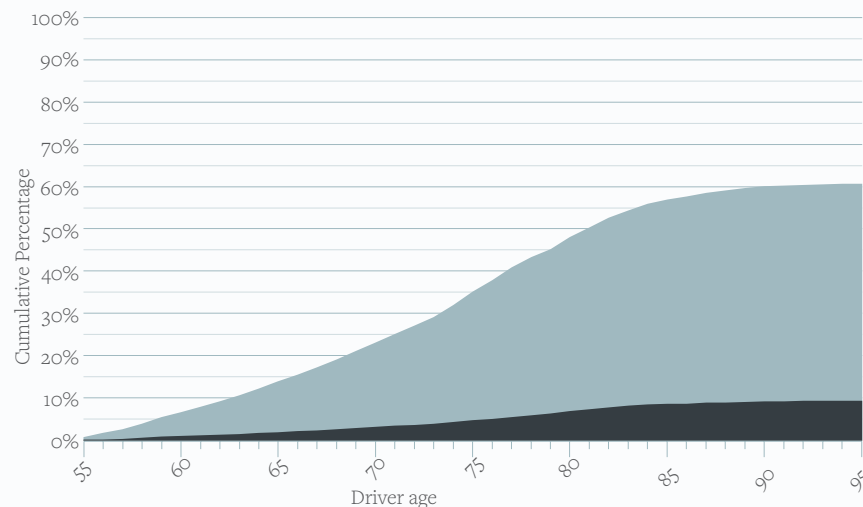


We are more anxious than ever

Percentage of respondents aged 55-72 reported level of driving related anxiety for Taylor's (2011) 2008 sample and WSP's 2022 sample.



Taylor, J. E., Alpass, F., Stephens, C., & Towers, A. (2011). Driving anxiety and fear in young older adults in New Zealand. Age and ageing, 40(1), 62-66.



Insights into older driver safety and mobility

“Anxiety and changes in driving behaviour have a relationship. There is a fine line between anxiety that indicates cautious behaviour vs self-limiting behaviour that limits access”



56% of drivers **55+** yrs drivers **HAVE SOME LEVEL OF DRIVING ANXIETY**

ANXIETY appears to have **INCREASED** over the last decade –

with about **30% MORE** **OLDER DRIVERS WITH ANXIETY**



Moderate anxiety INCREASES from **70 YEARS**



RURAL DRIVERS are **LESS** anxious

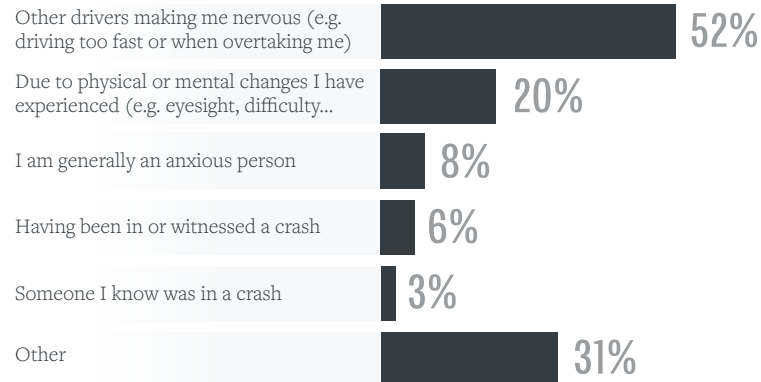


FEMALE DRIVERS are **MORE** anxious



Other drivers presence has a lot to do with anxiety

What makes older drivers anxious?"



"I am very aware of how fast things can change on the road and that other drivers are as much in control of my destiny as I am."

"I think drivers have become impatient and discourteous to others."

"It's the unpredictability of other drivers that makes me nervous."



MOST OLDER DRIVER ANXIETY IS LINKED TO OTHER DRIVERS making them nervous



THIS MEANS THAT DRIVER ANXIETY COULD WORSEN as our population grows (with more driver interactions)



IT REINFORCES THE IMPORTANCE OF:



the benefits of SAFER SPEEDS



giving older drivers TOOLS & TIPS

to take control of WHERE, WHEN & WHAT they drive

Is anxiety related to crashes?

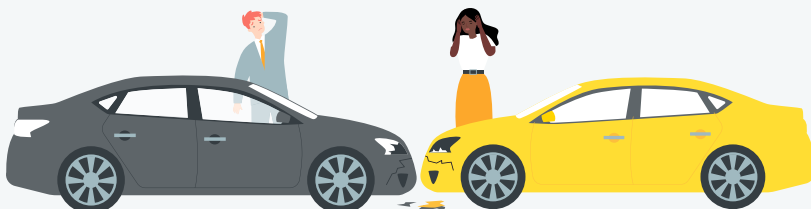


Anxious drivers cause crashes



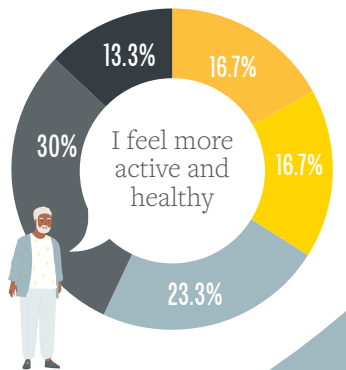
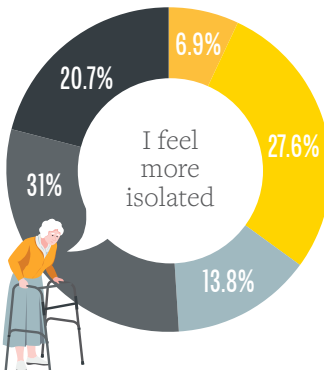
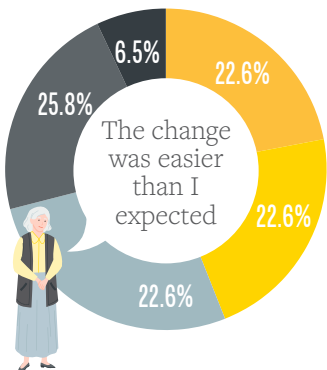
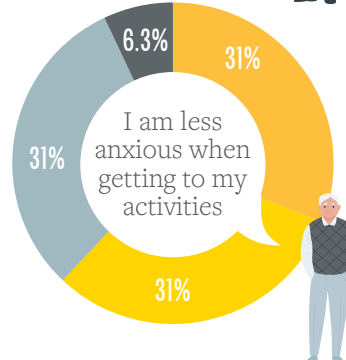
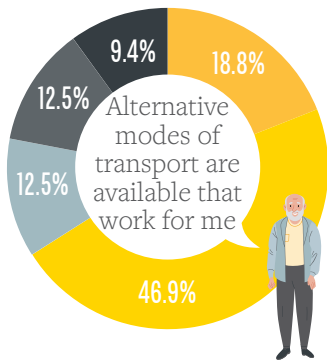
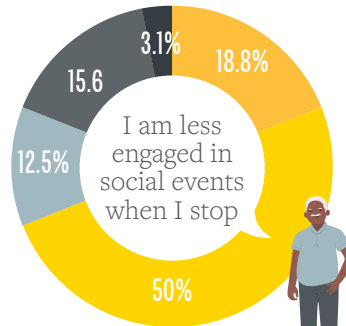
There is no evidence that anxiety causes crashes...

...but there is some evidence that crashes cause anxiety



How supported are we when we stop driving?

- Strongly agree
- Agree
- Neither agree or disagree
- Disagree
- Strongly disagree



Our drivers plan ahead and are well supported around when and how they stop driving.

Only 1 in 10 make an active plan about how they would manage without driving*

*Brookland, R., & Owen, H. (2019). Transport practices, mobility needs and cessation planning. New Zealand Prospective Older Adult Transport and Health Study (NZPATHS). 6th Transport Knowledge Hub Conference, 5th December 2019, Wellington.

2 IN 3
DRIVERS THAT STOP ARE
LESS SOCIAL

1 IN 3
DRIVERS THAT STOP FEEL
SOCIALLY ISOLATED



Gaining insights from those who have successfully transitioned can help

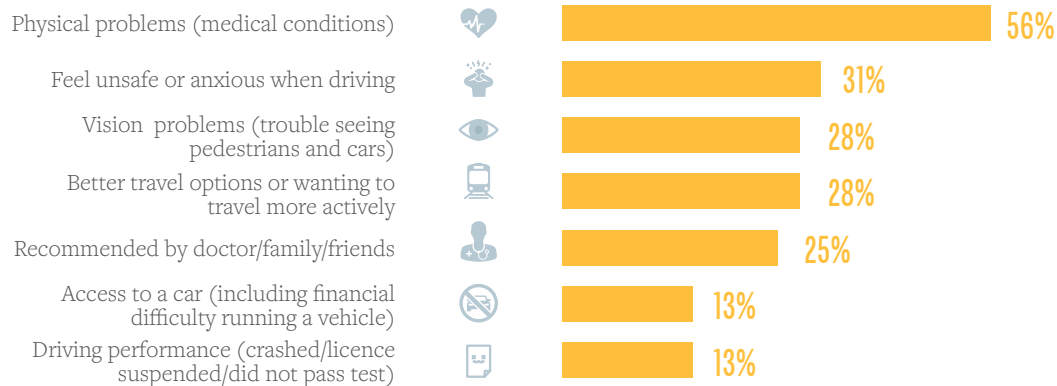


MAKING A PLAN COULD HELP

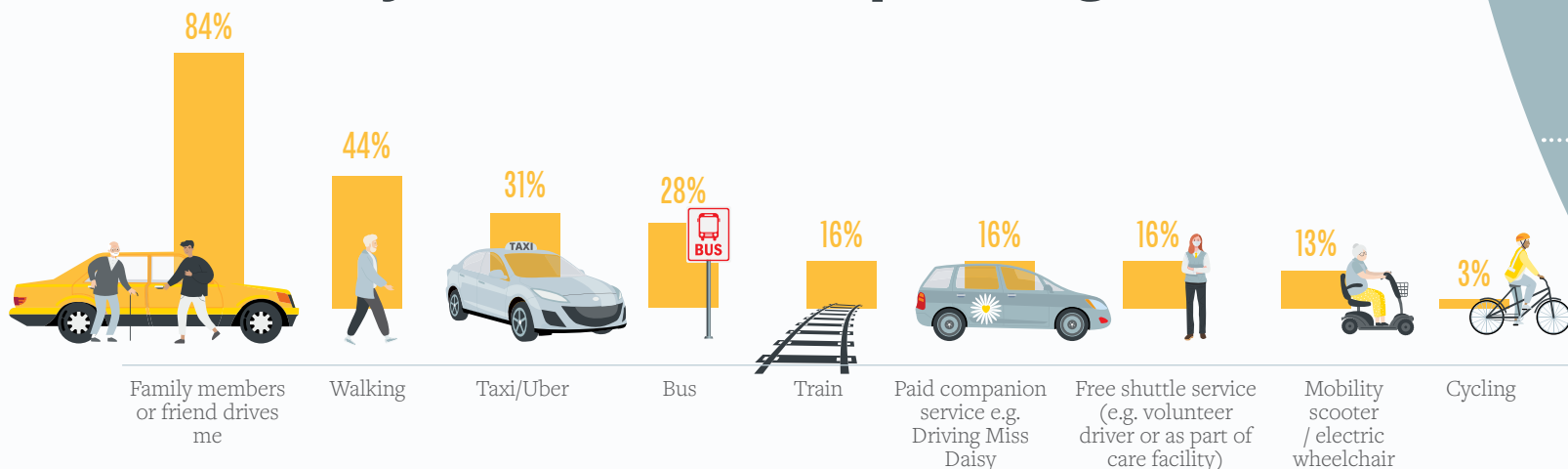
84% gain support from friends / family

Why do people typically stop driving?

The surveyed drivers could give multiple answers, meaning that the totals add up to more than 100%



How are other drivers getting around when they do choose to stop driving?



STOPPING DRIVING A CAR MAY MEAN

you are swapping your driver seat for another seat in a vehicle driven by others including a...

PARTNER



WHĀNAU MEMBER



FRIEND



CAB DRIVER



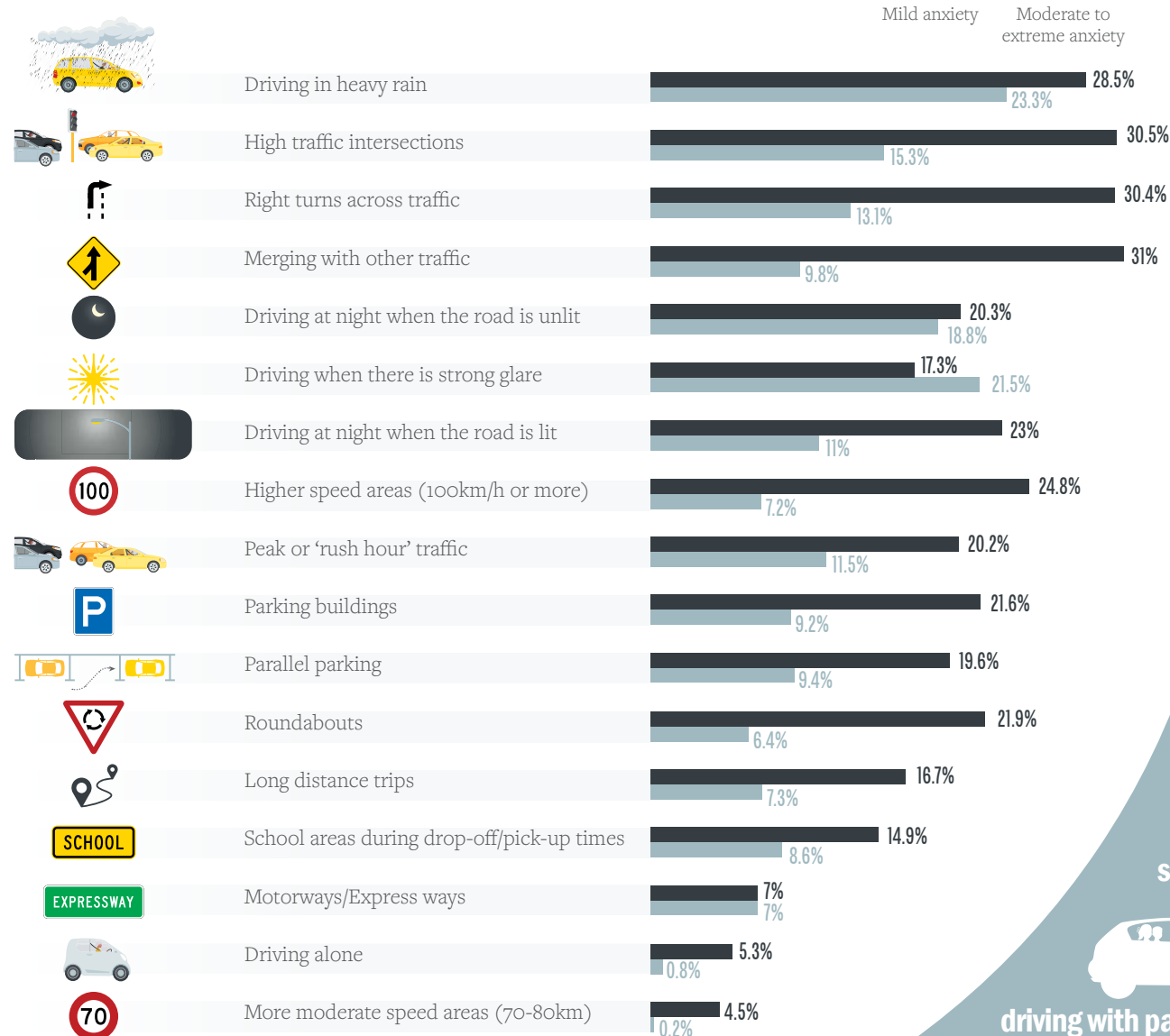
PUBLIC TRANSPORT PROVIDER



SOME PEOPLE WILL spend their entire lives as **ACTIVE DRIVERS**

Driving conditions

Percentage of older drivers who find different driving conditions uncomfortable



CONDITIONS OLDER DRIVERS FIND MOST UNCOMFORTABLE:

INTERSECTIONS & MERGING

- high traffic intersections
- right turns across traffic
- merging with other traffic



REDUCED VISIBILITY



- driving in heavy rain
- driving when the road is unlit
- driving when there is strong glare

These are also conditions that are generally difficult to avoid

CONDITIONS OF GREATER COMFORT FOR MOST OLDER DRIVERS ARE:



Roads with slower speeds



Motorways & expressways – roads with clear delineation & entrance/exit points



driving with passengers

Conditions where senior drivers are having trouble

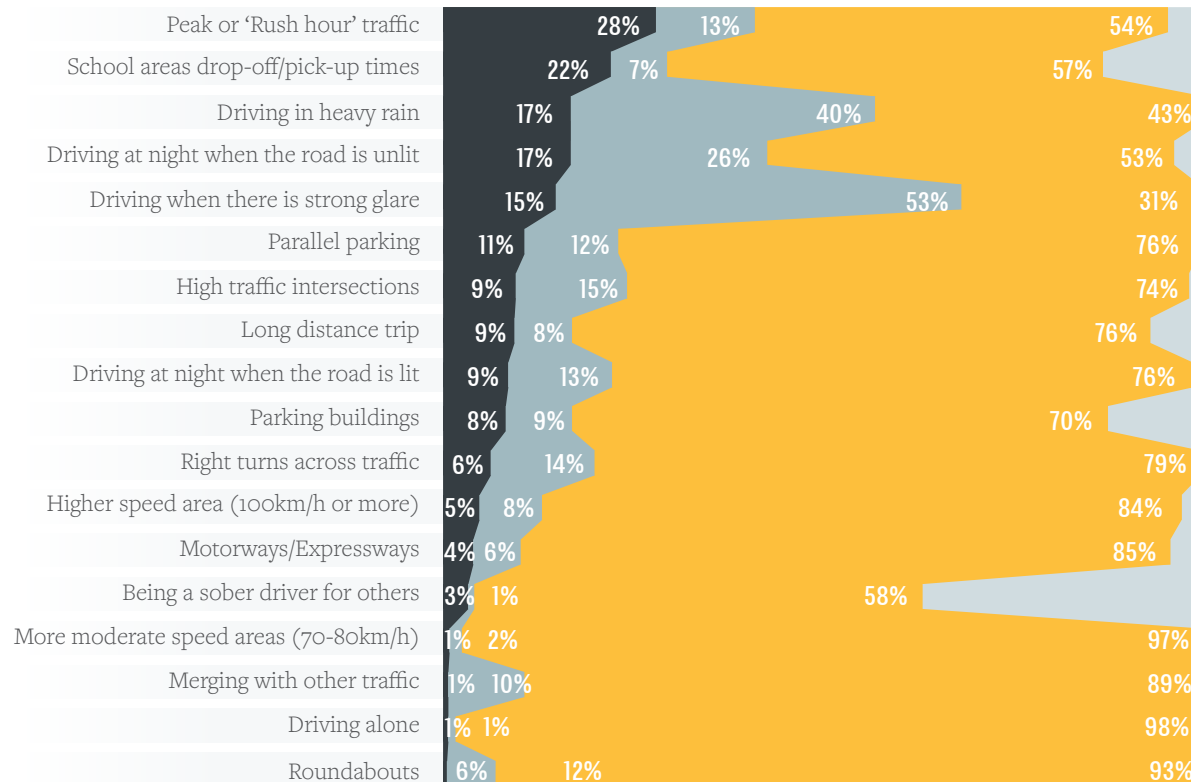
– Where Infrastructure changes are most needed

I avoid this
(where I can)

I do this, but I am
uncomfortable

I do this
comfortably

Not
applicable



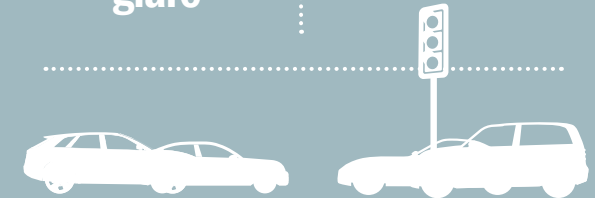
UNCOMFORTABLE
HARD-TO-AVOID CONDITIONS:



Strong
glare



Heavy rain



High Traffic intersections/
Right turns across traffic



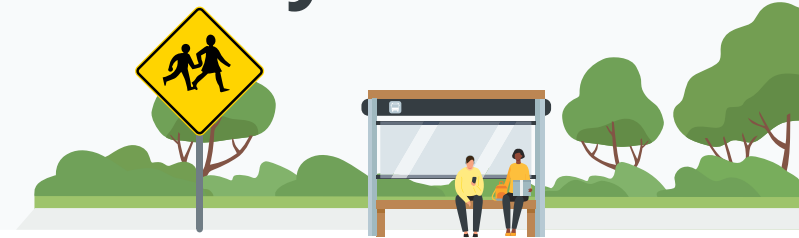
Driving at
night



Merging

This indicates the need for
more support, including
INFRASTRUCTURE

Infrastructure improvements and visibility



Lighting infrastructure

Be aware of deteriorating eyesight with age

The eye's lens becomes cloudier and its pupil narrows with age so road lighting becomes of less help as we age.

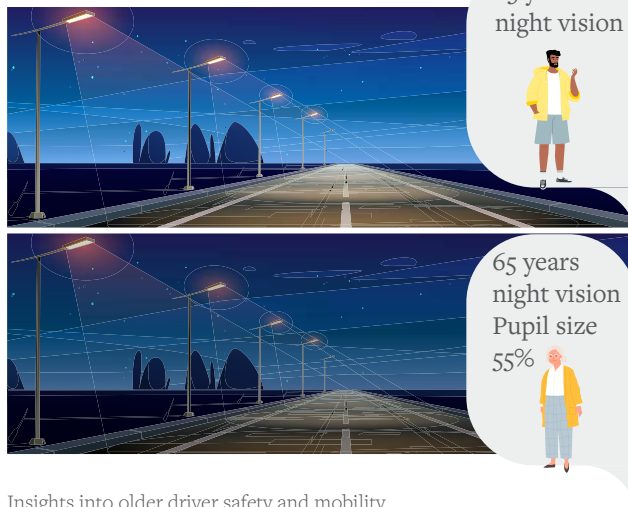
Recalibrate road lighting for older drivers

Road lighting standards should be recalibrated so the older age-groups of drivers are better catered for.

Use adaptive LED Street lighting

The adaptive ability of LED lighting should be actively considered as a mechanism to assist older drivers.

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



Insights into older driver safety and mobility

Delineation

Use 2-second preview times at all times

All drivers should be able to see 2 seconds in advance under all circumstances, so they have this time to react.

Use & maintain reflectorised markings

Reflectorised markings should be the norm and excellent maintenance is of high importance.

Use a minimum of 150mm-wide reflectorised edgelines

Wide edgelines are either 150mm or 200mm wide and can be used in both urban and rural areas at the discretion of the Road Controlling Authority and their use should be actively considered.

Use high beam headlights whenever legal

High beam visibility is better than low beam visibility, implying that headlights should be on high beam whenever legal. The difference between low-beam visibility and high beam visibility in the dark increases with driver age. This indicates that auto high beam vehicles should be the vehicle of choice for older drivers.

Adopt profiled road markings for all weather conditions

All age groups benefit from road markings which are visible in wet and rainy conditions. Profiled markings have advantages to older drivers owing to their superior visibility in wet weather.

Signage

Use more 60+ year-old Reflectivity assessors

Retroreflectivity of signs is based on performance in New Zealand as assessed visually by mobile inspectors. Having inspectors of over 60 years of age where possible should be considered as it would improve recognition of the requirements of older drivers

Use 2-second preview times at all times

Preview times should be at least two seconds under all circumstances.

Use more of symbolic signs

Symbolic signs should be used wherever possible, the simpler the better.

Use as large text size as possible for non-symbolic signs

For signs using text, font size should be as large as possible.

Infrastructure improvements

Controls around intersections



Choose the right type of control at intersections



Well-designed roundabouts with their slower speeds are better than signals or stop/give way control for older drivers



Separate right turn phase where traffic volumes make turning right difficult (i.e. Green Arrow on right turn at lights)



Older driver appropriate entry sight distances at intersections

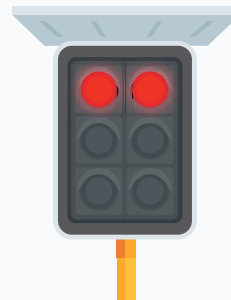
“Intersection crashes hit older drivers where they are vulnerable / also difficult to avoid (behavioural adaptation). Therefore, age-friendly intersection solutions are critical.”



Older driver appropriate right turn sight distances at intersections



Upstream symbolic ‘intersection ahead’ signage with acceptable preview time (i.e. showing the layout of upcoming intersection)



Traffic signal lanterns with acceptable visibility for older drivers (e.g. brighter/larger)



Appropriate markings and signage to direct older drivers into their correct lanes



More T-junctions, fewer crossroads – to reduce decision making complexity (e.g. going from one crossroad intersection to 2 off-set T-junctions)

How things are now...



Older drivers are changing when, where and how they drive



Older drivers are less likely to crash but more fragile when they do



Older driver fragility means they are over-represented in injury crash statistics, including at urban intersections



Older drivers become more anxious with age, and anxiety levels have increased over the last decade



Older drivers are not well supported when they do decide to stop driving

How things could be better...



Think about when, where and how you drive and plan now for the future



Make use of advanced driving systems, especially lane control, but also headway and auto-beam.



Use the Rightcar website when making your next purchase



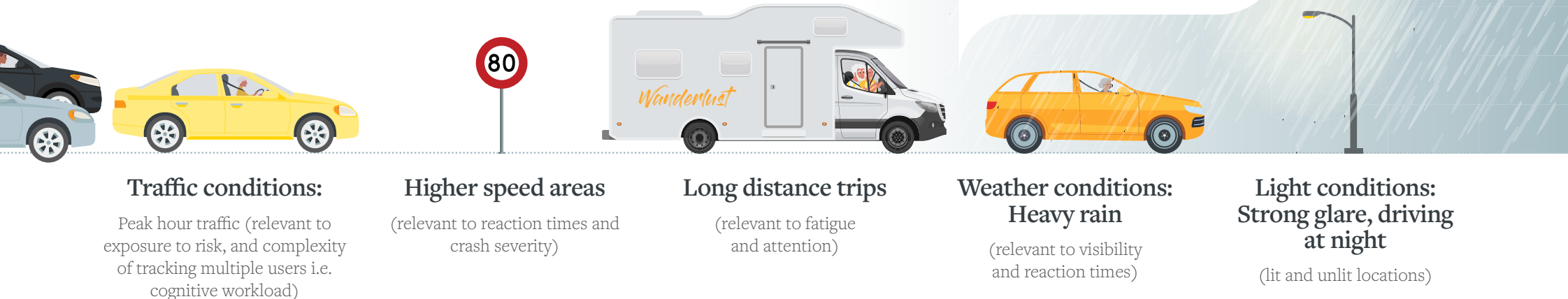
Improve visual infrastructure (includes lighting, delineation, and signage) to support how older drivers see and enable more time to make decisions.

Implement age-friendly intersections

Advice to assist senior drivers

Trip planning and trip replacement opportunities.

“What are the types of trips more senior drivers plan for and avoid?”



Making a plan ahead of time

Take control now, make a plan and travel with less stress.

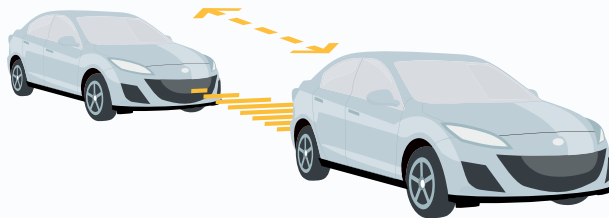
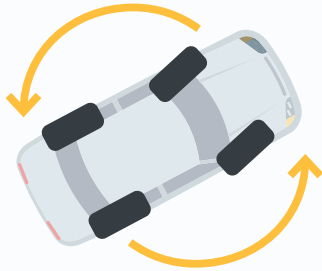
Driver Changes Checklist Considerations:

1. Choose when and how you drive to align with natural changes as your body ages
2. Ensure your vehicle is fit-for-purpose with appropriate safety features (e.g. look at the Rightcar website / consider options like the AA Senior Driver Offer)
3. Are your lifestyle choices fit-for-purpose for you? (how you choose to travel and where you live)?
4. Involve friends, whānau, any of your supporters (caregivers) in planning how you get around
5. Work out what would trigger you to stop driving



Advice to assist senior drivers

Fit-for-purpose vehicles and technology



Advanced driver assistance that makes a difference

1. Lateral control

Of all the systems, these systems are considered the most beneficial to older drivers.

These systems assist drivers to avoid moving sideways inappropriately. They include Lane Departure Warning (LDW), Lane Keeping Assist (LKA) and Lane Centring Assist (LCA).

2. Headway control

Overall, the impact on older driver safety was positive (with a caution that hearing ability can decrease with age so systems that rely on audio messages need to take this into account). This situation is less important than some others as rear end crashes are one of the less frequent types of crashes for older drivers.

These systems assist following drivers to avoid rear-end collisions. They include Adaptive cruise control (ACC) which maintains a specified distance from a lead vehicle and Forward crash mitigation (FCM) which involves automatic braking to mitigate or prevent a rear-end collision.

3. Auto high beam

High beam is always better than low beam when conditions allow its use. Auto high beam automatically detects when low and high beam should be used and changes accordingly.



FIT-FOR-PURPOSE VEHICLE & DEVICES

Make sure your car is **PHYSICALLY COMFORTABLE** for you

Do not use **AD-HOC DEVICES** *



UNANCHORED CUSHIONS

* They can cause submarining from seatbelts. Submarining occurs when the rider is propelled underneath the seat belt during a collision

UNDERSTAND THE SAFETY FEATURES OF YOUR CAR

- how can they work for you?
- benefits for different driving conditions



SPECIAL VEHICLES
with features for disabled drivers available



THE RIGHTCAR WEBSITE
is a great resource to use