



Effective Strategy & Action Plan Development

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Importance of Road Safety Strategies and Action Plans

- Commitment to deliver on road trauma reduction
- Unites stakeholders in a common objective and improves collaboration
- Identifies the key road safety needs and priority areas for intervention
- Provides a framework for actions to improve road safety
- Elevates the importance of road safety – funding, community

Importance of Road Safety Strategies and Action Plans

Spending 10% of the current costs of road crashes on road safety may prevent 70% of those costs in the future.

Ayati & Young, 2002

Poll Question

Does your country have a current road safety strategy and/or action plan?

- Yes
- No



Key Areas for Consideration

- Target Setting
- Design of a safe transport system
- Modelling & Data Analysis
- Strategic response
- Community consultation



Target Setting



Long term targets

‘All countries are advised to adopt and promote a level of ambition that seeks in the long term to eliminate death and serious injury arising from the use of the road transport system.’

- OECD, 2008

‘The vision itself must be made both tangible and credible if the strategic path is to be both compelling and motivating.’

- The Road to Zero, 2017

Interim targets

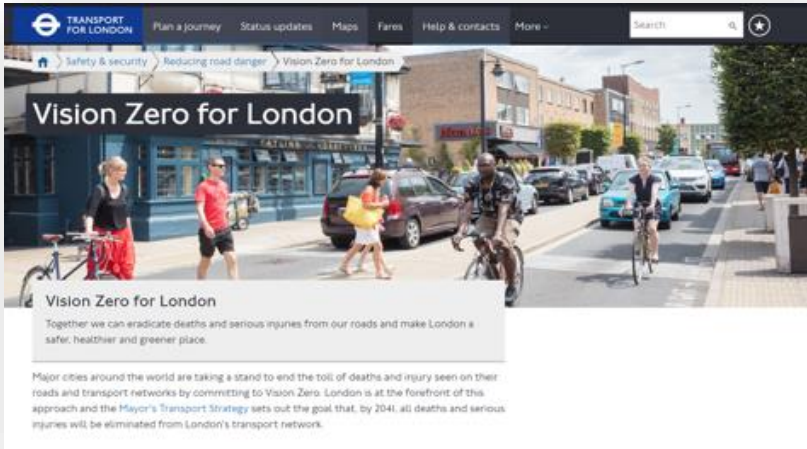
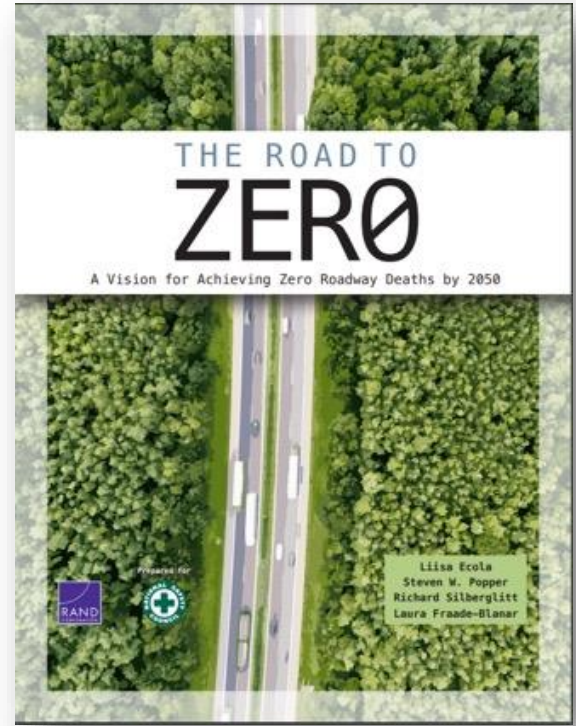
'Ambitious, achievable and empirically derived road safety targets should be adopted by all countries to drive improved performance and accountability.'

- OECD, 2008

Road Safety Targets – What to Aim For?

- UN Global Goals aiming for a **50%** reduction in fatalities and injuries by 2030
- Some jurisdiction aiming for **ZERO** road trauma by a date (eg. 2050)

Targeting Zero with a date



Setting ambitious targets

- A focus on the ultimate target
- Intermediate targets placed in context
- Drives policy, programs and innovation
- Mobilises stakeholders and cooperation

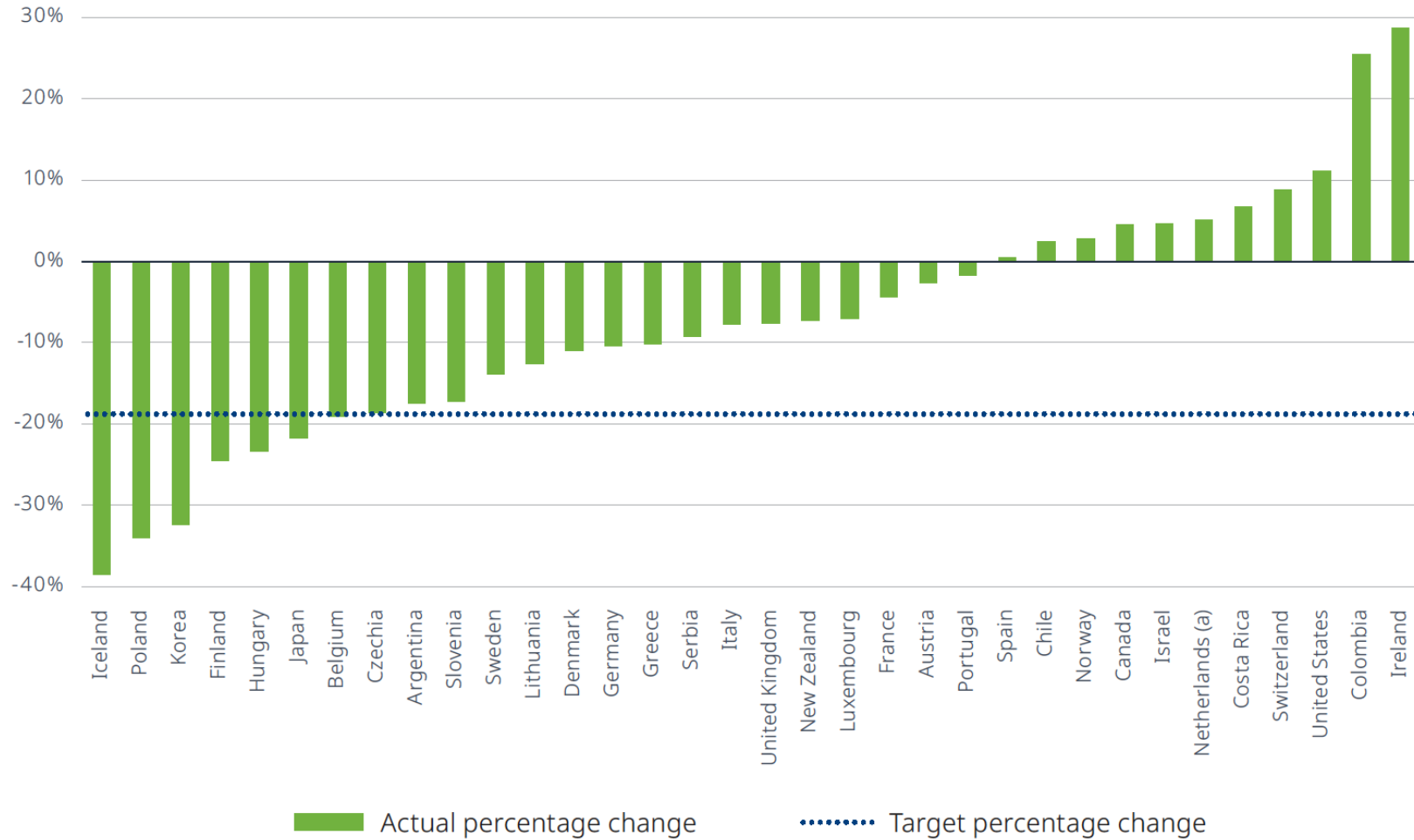


What to Aim For?

- Mix of realism and being ambitious

■ Progress Towards #50by30

Percentage change in the number of road deaths, 2023 compared to the average 2017-19



What to Aim For?

- Mix of realism and being ambitious
- Compare current practice with best practice
- Targets for cohorts – children, drink driving etc.
- Incorporate a target for serious injury

Pros and cons - timeframes for interim targets

Shorter 5 years vs Medium 10 years

5 years is likely to be the shortest target to allow organisational resourcing to be organised and programs to be developed and delivered with enough time to have the full-scale impact on trauma

Shorter 5 years vs Medium 10 years

5 years – benefits:

- Creates impetus for starting right away
- Maintain momentum for on-going program delivery at significant levels - agencies already geared up
- Increased ownership by Government and Minister because the target and strategy elements are connected to their electoral term
- More certainty around changes in internal and external factors upon which to base a recommended target – e.g. population predictions, new vehicles and their impacts, pipelines of road infrastructure build and predicted public vs private transport modes.

10 years – benefits:

- More planning time for major changes
- Better for measuring real changes in trauma reduction – shorter timeframes are sensitive to annual fluctuations and variability
- More lead time for public acceptance (and political will) of challenging changes
- More time for trials of innovative treatments

System Targets

Outcome indicators				
Indicator	Description	Starting point (average 2017-2019)	2022	Target 2030
Number of fatalities	Number of fatalities in road traffic accidents	266	227	133
Number of seriously injured	Number of seriously injured in road traffic accidents	Will be computed in 2023		Reduce by 25 %
Number of seriously injured in pedestrian falls	Number of seriously injured in pedestrian falls (not included in the definition of a road traffic accident)	Will be computed in 2023		Reduce by 25 %
Number of suicides in the road transport sector	Number of suicides in the road transport sector, including the number jumping off bridges (not included in the definition of a road traffic accident)	52	Not established	Reduce
Number of seriously injured in single-bicycle accidents	Number of seriously injured in single-bicycle accidents	Will be computed in 2023		Reduce by 25 %

Poll Question

What is the target of your country's road safety strategy?

- A % reduction in road fatalities only
- A % reduction in road fatalities and serious injuries
- No target
- No strategy



Poll Results

Does your country have a current road safety strategy and/or action plan?



WHO Global Status Report 2023 – National Strategies

- 117 countries have a national road safety strategy
- Only 16 strategies are fully funded and 65 are partially funded
- For half of the countries, funding for their plans comes from:
 - Taxes on vehicles purchases, insurance, fuel or alcohol
 - Fines from violations

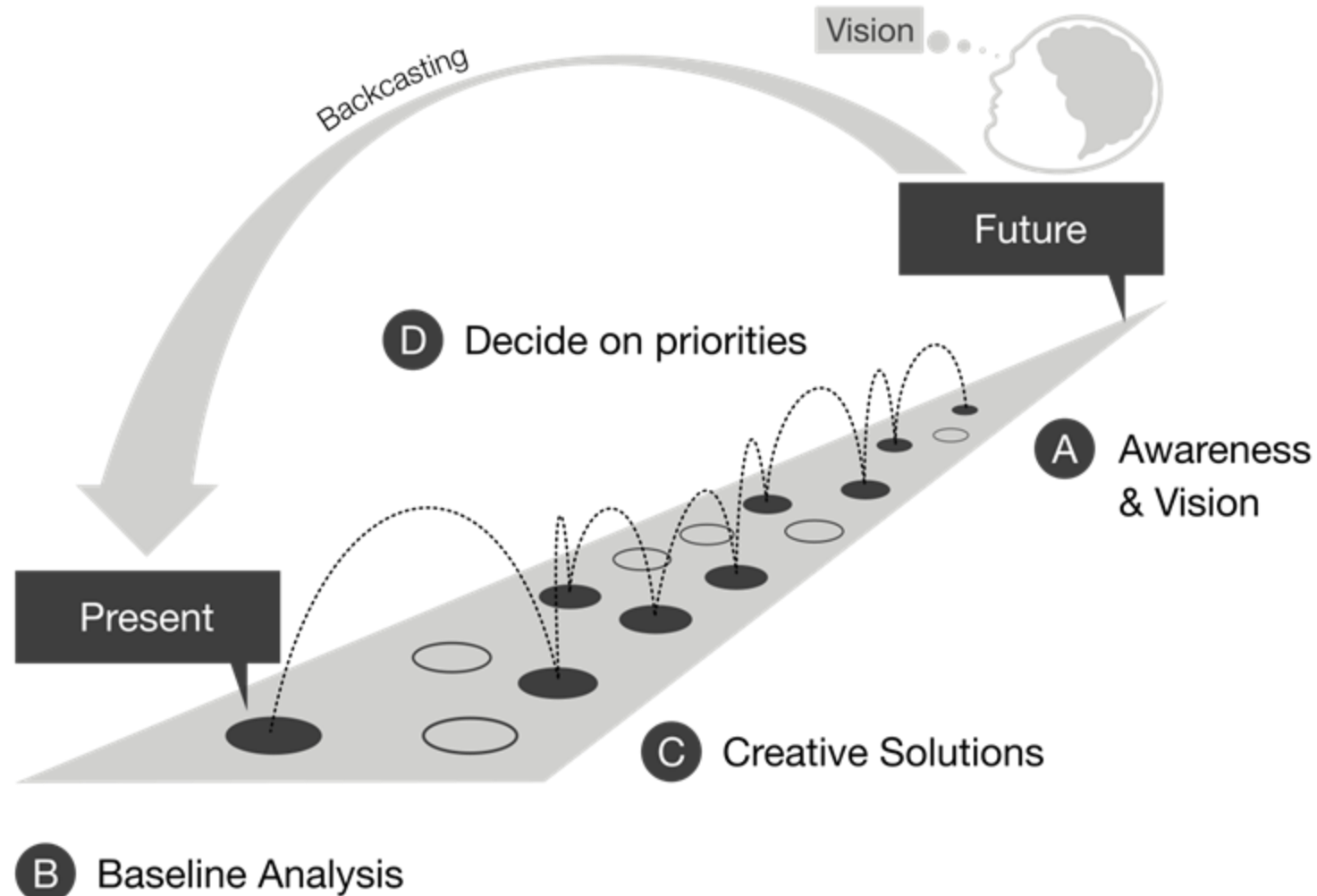
Design of a Safe Transport System







What does a Safe System look like?

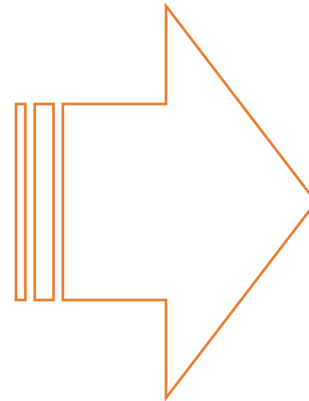








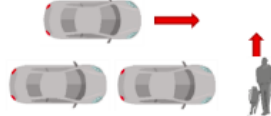
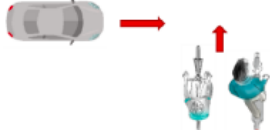
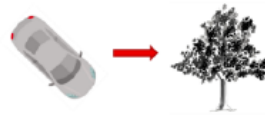

Vision Zero planning – back-casting



Utilising human crash tolerance as key design factor

Crash Type	Impact speed
 head on	70 km/h
 side-impact	50 km/h
 side impact with tree	30 km/h
 pedestrian	30 km/h



	Maximum acceptable impact speed (km/h)	Maximum safe travelling speed with optimal sight and road friction (km/h)
	dV 15	110
	60	80
	30	50
	40	40
	60	60
	40	40
	0	5-7
	20	40
	30	60
	60	80

Source: Transport Accident Commission

Rizzi, M. et al. (2023). Proposed Speed Limits for the 2030 motor vehicle. Proceedings of ESV.

Defining the desired 2050 Safe System – human biomechanical tolerance

Crash Type	10% Risk for Serious Injury		10% Risk for Severe Injury	
	Delta-v km/h	Impact Speed km/h	Delta-v km/h	Impact Speed km/h
Car to Pedestrian crash	No impact allowable	No impact allowable	20	20
Car to powered two-wheeler (PTW)	No impact allowable	No impact allowable	30	30
PTW to wide object	N/A	25	N/A	50
PTW to narrow object	No impact allowable	No impact allowable	No impact allowable	No impact allowable
PTW to ground	N/A	N/A	N/A	75
Car to bicyclists	No impact allowable	No impact allowable	20	20
Side Impact–Car to Car (of equal mass)	20	40	30	60
Side Impact–Heavy Vehicle into Car	20	20	30	30
Head On Impact–Car to Car (of equal mass)	25	25	50	50
Head on Impact–Car to Heavy Vehicle	25	10	50	25
Rear End–car to car	10	20	20	40
Rear End–heavy vehicle into car	10	10	20	20

Table based on risk curves on relatively modern vehicles and belted occupants, rounded to the nearest 5 km/h.

Backcasting Safe System and mobility needs



Source: New Zealand Transport Agency

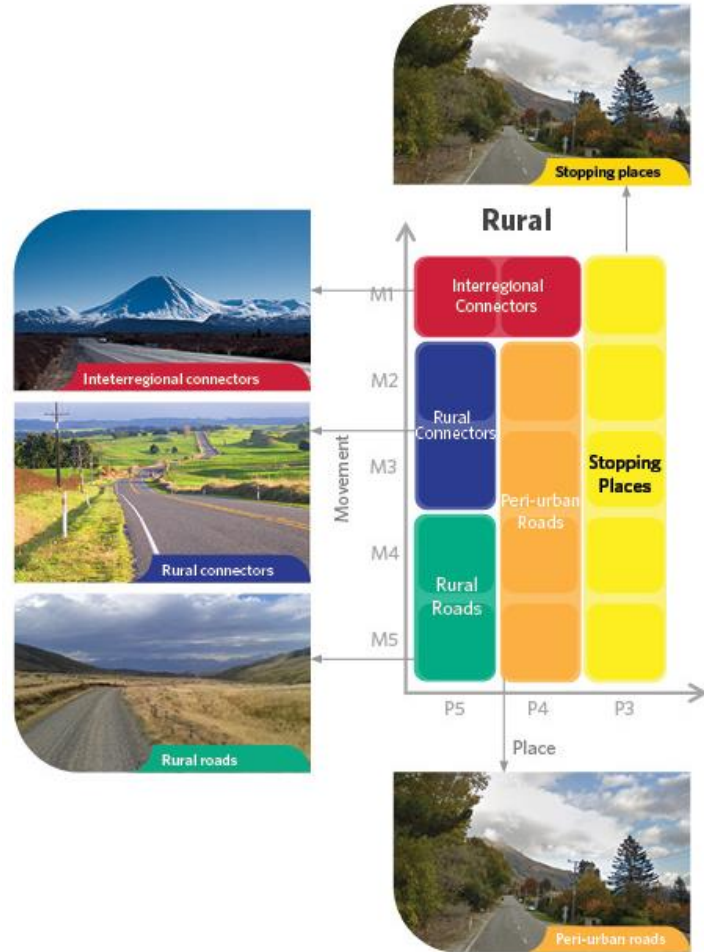
How to build a Safe System – based on mobility needs

Mobility needs

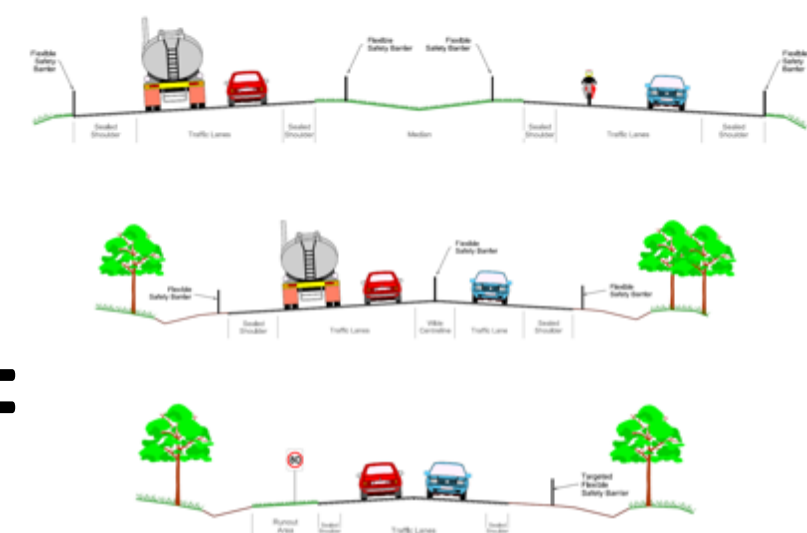
Human biomechanical tolerance

Safe System End States

Example Rural roads



	Maximum acceptable impact speed (km/h)	Maximum safe travelling speed with optimal sight and road friction (km/h)
	dV 15	110
	60	80
	30	50
	40	40
	60	60
	40	40
	0	5-7
	20	40



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Source: New Zealand Transport Agency

Rizzi, M. et al. (2023). Proposed Speed Limits for the 2030 motor vehicle. Proceedings of ESV.

Strandroth, J., Moon, W. and Corben, B. 2019. Zero 2050 in Victoria – A Planning Framework to Achieve Zero with a Date. In proceedings of the World Engineering Congress, Melbourne, November 2019.

■ Localize and Contextualize Trauma Issues

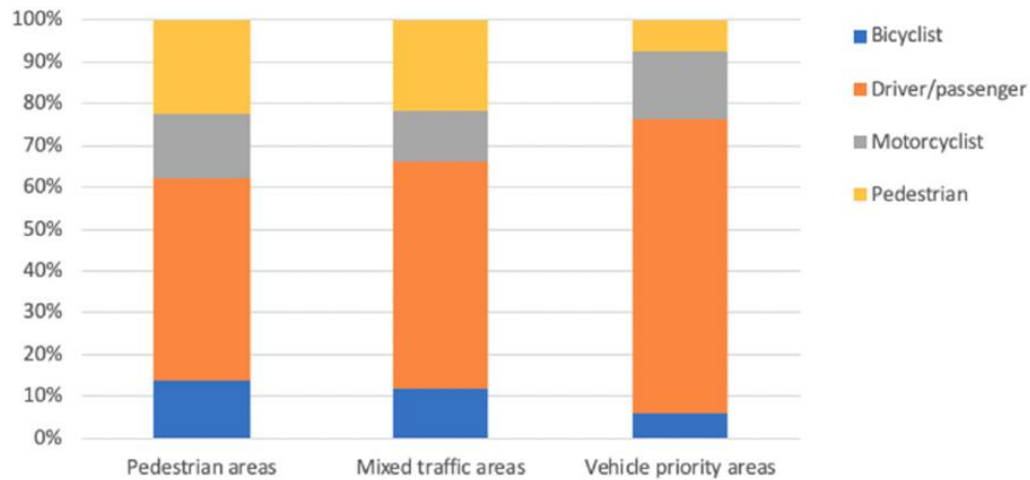


Figure 1. Road user FSI by M&P.

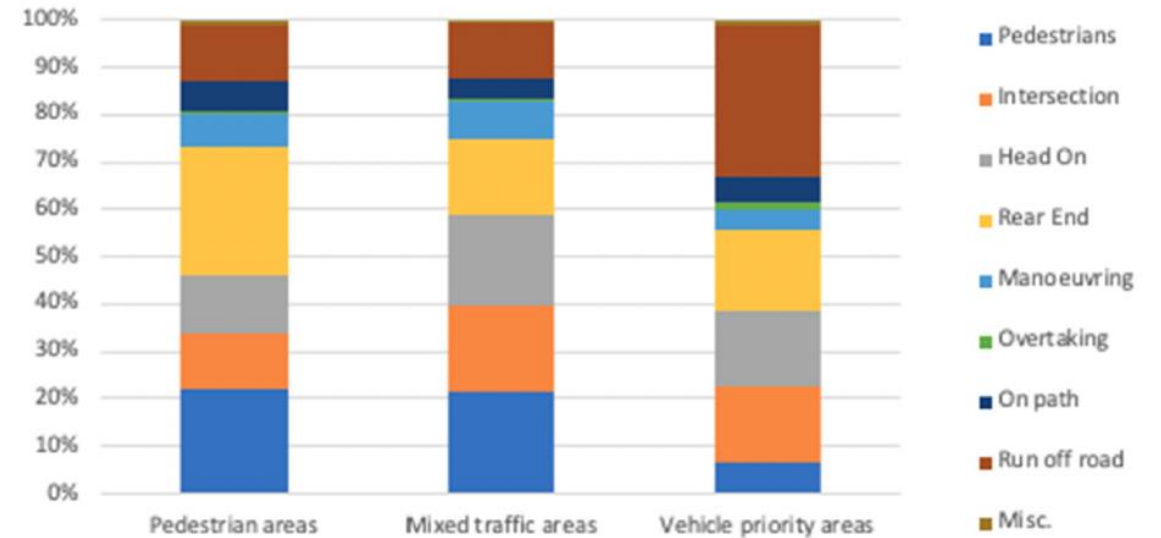


Figure 2. Crash types by M&P.

Table 4. Ultimate Safe System in 2050 for Pedestrian Priority Areas.

	Vehicles Requirements	Infrastructure Requirements	Maximum Travel Speed Requirements
Vehicle free zone	N/A	Off road separated lanes not in pedestrian areas for bicycles and micro-mobility devices	N/A
Vehicles allowed No motorcycles	AEB pedestrian AEB bicyclist ISA limiting or geofencing for speed control Front, side and rear underrun protection for heavy vehicles	Off road separated lanes not in pedestrian areas for bicycles and micro-mobility devices	10 km/h

Pedestrian Priority Areas

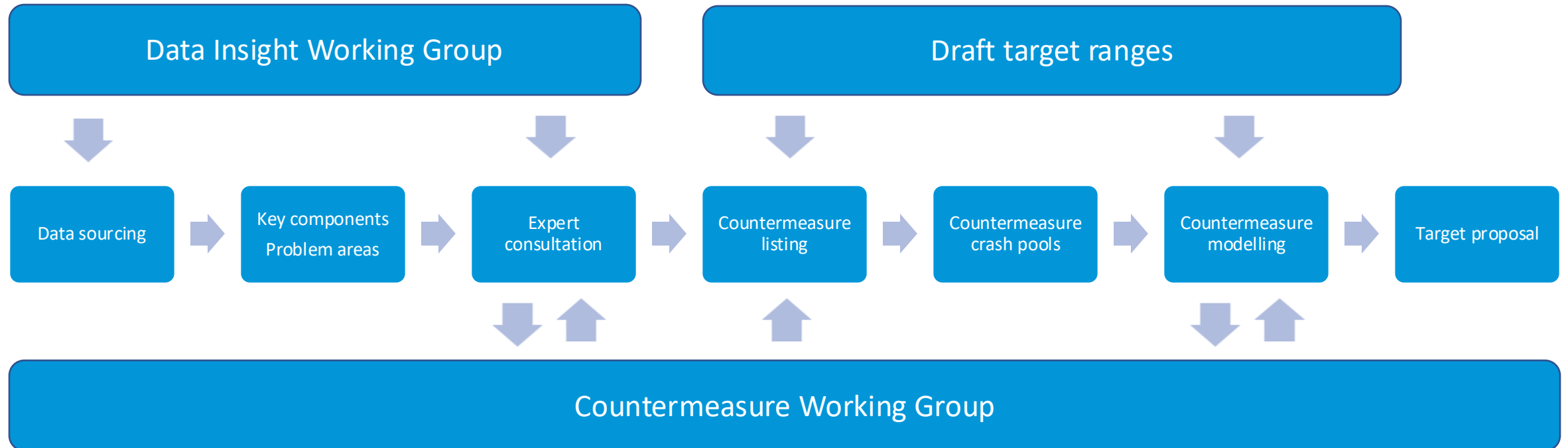
System Requirements

Use indicators				
Indicator	Description	Starting point 2020	2022	Necessary level 2030
Compliance with speed limits, national road network	Share of traffic within speed limits	49 %	53,9 %	80 %
Compliance with speed limits, municipal road network	Share of traffic within speed limits	67 %	63 % (2021)	80 %
Sober drivers	Share of traffic volume with sober drivers	Ej fastställt	-	99,9 %
Seat belt use	Share of passenger car occupants observed using a seat belt	97,9 %	95,7 % (2021)	99,5 %
Helmet use, cyclists	Share of cyclists observed wearing a helmet	47 %	46 % (2021)	80 %
Helmet use, moped riders	Share of moped riders observed wearing a helmet	98 %	98 % (2021)	100 %

Modelling & Data Analysis



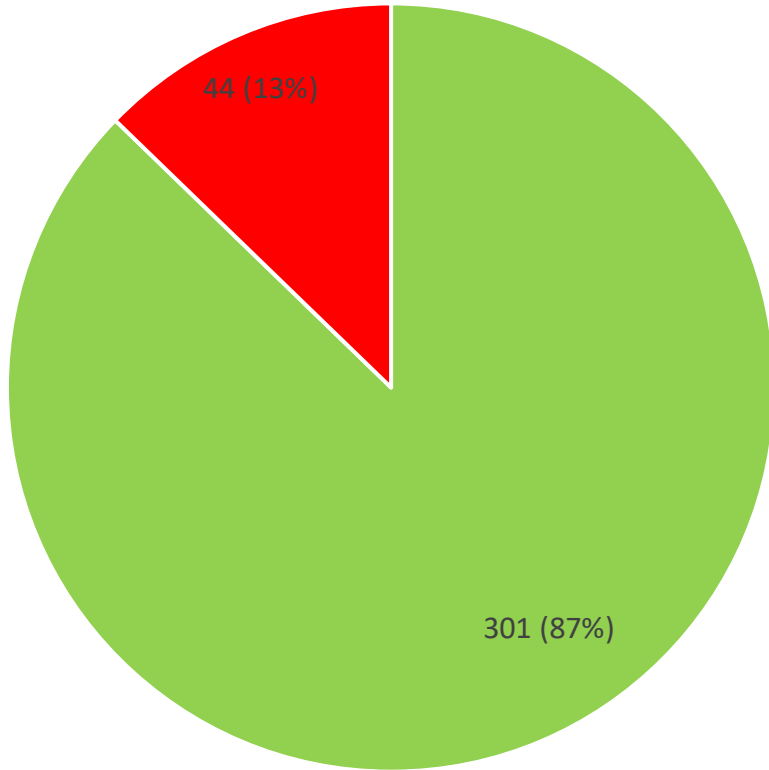
Outline of the Modelling Work



Modelling & Data Analysis

- To guide the development of strategies and actions plans
- Estimate the effectiveness of planned interventions in achieving set targets
- Different methods of modelling and analysis
 - Macro level data analysis – eg. statistical modelling
 - Micro level data analysis – eg. case by case modelling

■ Case by Case Analysis



■ Prevented by end state ■ Not prevented by end state

44 residual fatalities:

- 11 Car occupants
- 23 Motorcyclists
- 1 cyclists
- 9 pedestrians

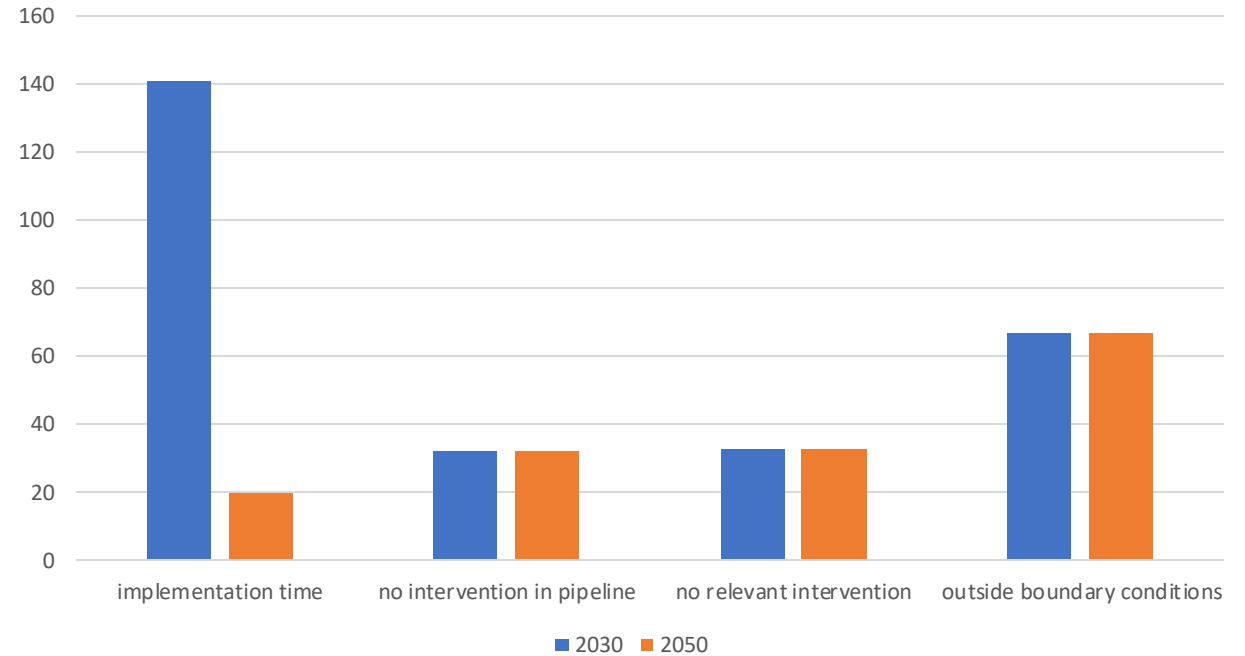


80-90% of fatalities and serious injuries can be prevented by currently available measures



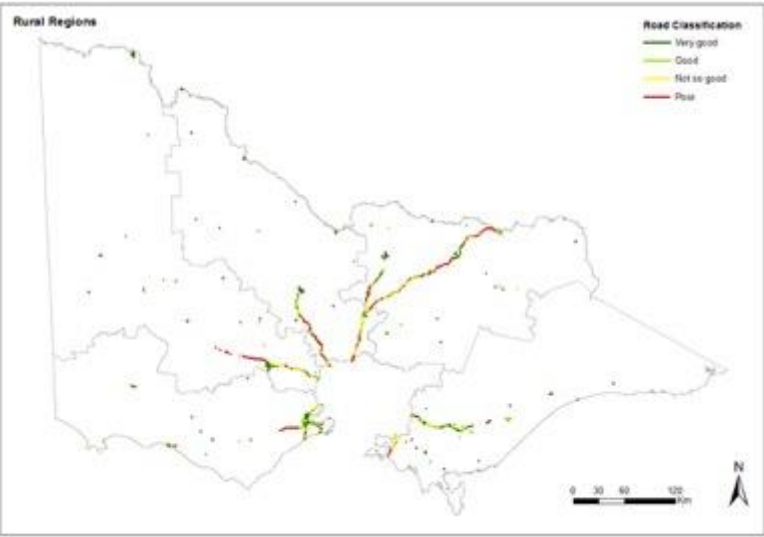
Reasons for residuals

- Slow implementation
- Lack of implementation



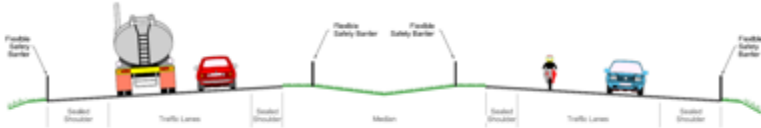
Gap-analysis example

Divided freeways, M1

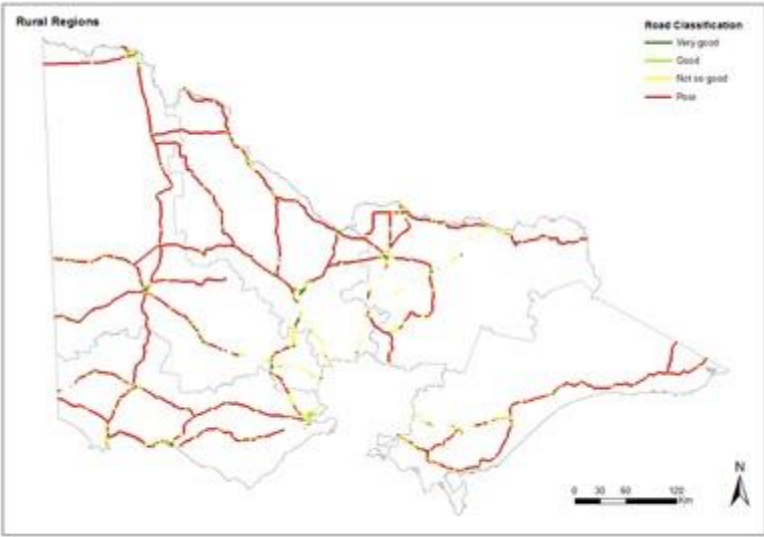


Road length (km)
786

Acceptable
Not acceptable
1,100



Undivided highways, M1-M2

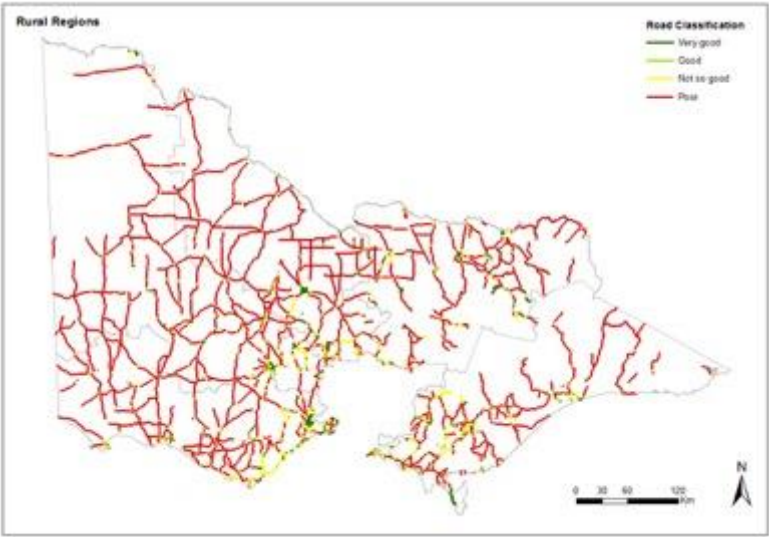


Road length (km)
500

Acceptable
Not acceptable
4,400



Rural arterials, M3

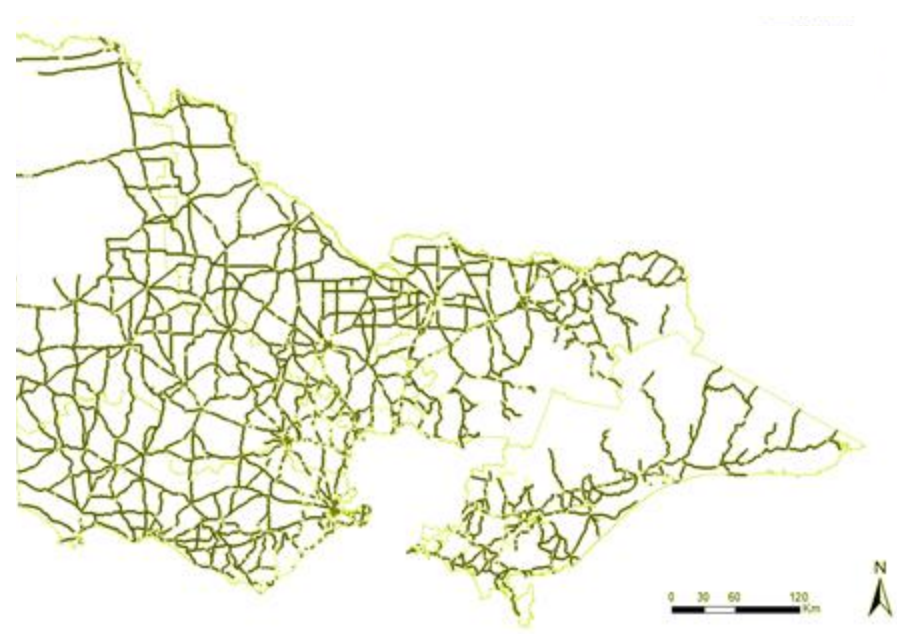
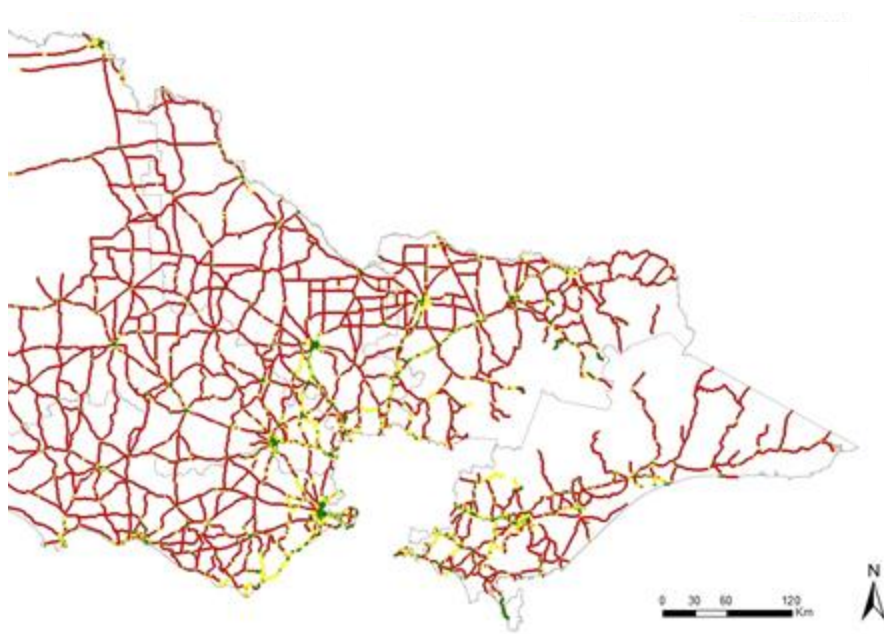


Road length (km)
1,500

Acceptable
Not acceptable
13,200



Strandroth, J., Moon, W. and Corben, B. 2019. Zero 2050 in Victoria – A Planning Framework to Achieve Zero with a Date. In proceedings of the World Engineering Congress, Melbourne, November 2019.



Starting
point



Ending
point

Poll Results

What is the target of your country's road safety strategy?



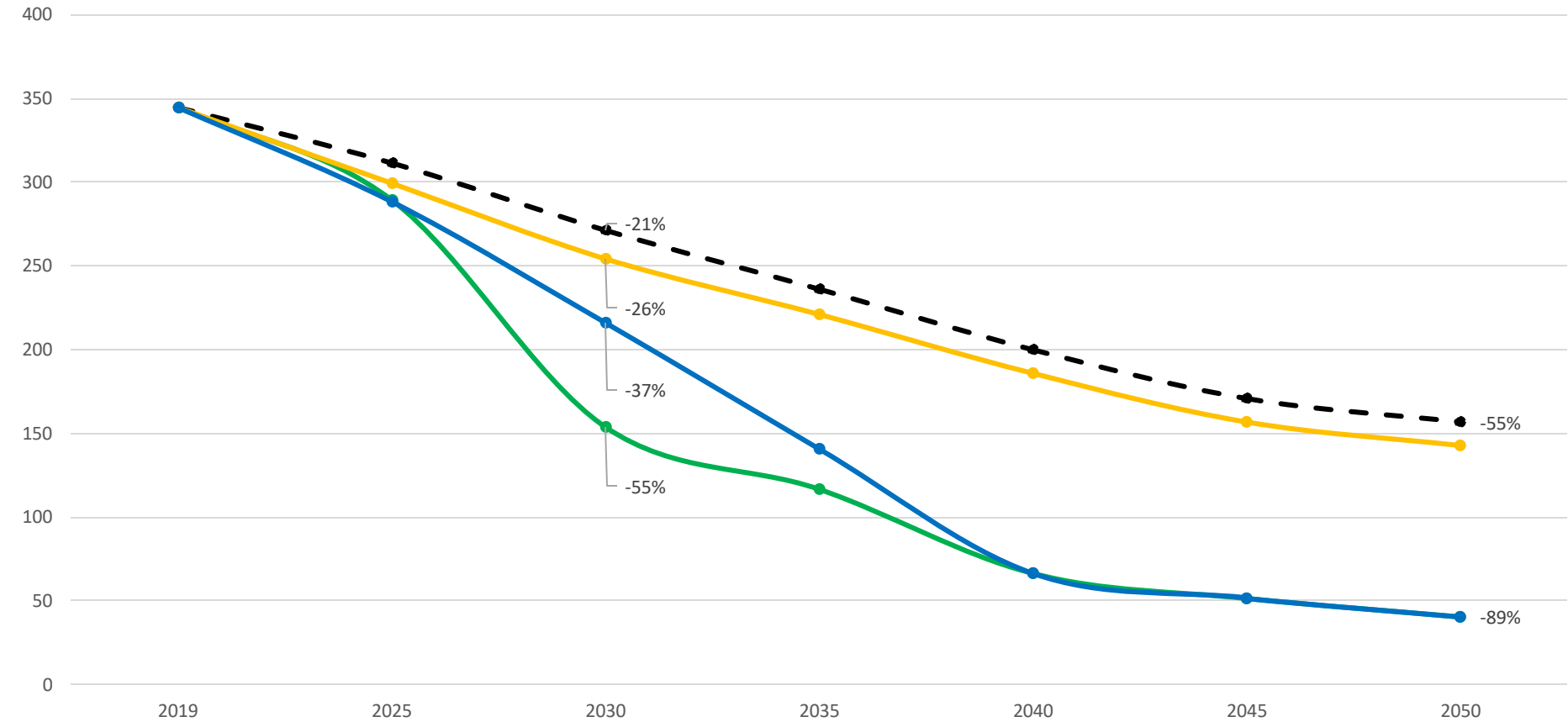
WHO Global Status Report 2023 - Serious Injury

- No global definition or consensus of a serious injury
- 1/3 countries don't report on serious injury (114 countries)
- 2/3 countries that do report on serious injury have varying definitions, including
 - Hospitalisation, number of days leave from work **(57%)**
 - Maximum Abbreviated Injury Scale (MAIS), Revised Trauma Score (RTS), Mechanism/Glasgow Coma Score (MGAP) **(10%)**
 - Variety of definitions **(23%)**

Strategic Response



Modelling a strategic response



Lives saved to 2050 compared to Baseline:

Scenario 1: 411

Scenario 2: 2,434

Scenario 3: 2,831

● Scenario 3 - Vision Zero 2050 with TG
 - - ● - - Baseline - 50% Pipeline Forecast with TG
 ● Scenario 1 - SIP Pipeline with TG
 ● Scenario 2 - Vision Zero 2050 and SIP Strategic model to 2030 with TG

Community Consultation



Where is the community at with road safety?

RE: Responsibility for reducing road trauma

People feel that this (road safety rules) have been imposed upon them, they need to feel they have ownership of it...Like I said, we need to feel ownership of this thing. We don't. I don't, I don't feel it apart from playing my own little business on the road I don't have any ownership or part to play in what those statistics are showing. (55+ years Melbourne)

Kerryn Alexander Research. (2015). *Community attitudes to road safety*. Melbourne, Australia.

Where is the community at with road safety?

That gets back to the point that it needs to be communicated. Everybody needs to be aware of the numbers and what everybody is trying to do to prevent it. There is not a lot out there about it. I didn't know a pedestrian could get killed at 30 k's. (Female, 20-30 years, Bendigo)



I think explaining the reason would be part of it. I think you're right if people don't understand the reason they're not going to change their behaviour. If they understand this is going to save lives and statistically based say it saves lives I think it will have more of an impact. (Melbourne CBD)

What if I don't have the data?

- Can develop a strategy and action plan with just basic data
- Need to understand at the very least what some of the trauma issues are
- Countermeasure effectiveness data are already available
- Can go a long way just by adapting what is currently not Safe System compliant to what is best practice

Question

What are the major challenges to the development of evidence-based road safety strategies in your country? Eg. data?

