WHITING MOYNE P/L

Strategic Road Safety Advisory Services

AUCKLAND TRANSPORT: ROAD SAFETY BUSINESS IMPROVEMENT REVIEW

November 2017 to January 2018

FINAL REPORT

A Summary Report containing key findings and recommendations is available on request

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The willing inputs to the Review from Board Members, ELT members, senior executives, middle management staff and specialists were generous, positive and extensive.

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Cover photo: NZTA

Table of Contents

AUCKLAND TRANSPORT: ROAD SAFETY BUSINESS IMPROVEMENT REVIEW

November 2017 to January 2018

Recommendations for improving performance

RECOMMENDATIONS TO IMPLEMENT IN 2018 – GOVERNANCE (WITHIN AT)

GOVERNANCE	
1. Strengthen institutional management capacity	Strengthen the institutional management functions in place in AT to build capability to effectively implement road safety activity. Develop a sharpened results' focus for road safety management activities which apply a Safe System framework to drive development and delivery of selected interventions, which will produce improved road safety results.
2. Safe system with Vision Zero goal adopted and supported	• Endorse within AT and with Auckland Roadsafe the Safe System and Vision Zero goal (and the associated avoidance whenever feasible of any trade-offs of injury risk for other factors such as faster, less safe travel). • Adopt a long-term target of zero deaths and serious injuries for Auckland with stretch targets along the way, to be included in a new Roadsafe Auckland Road Safety Strategy. • Appoint a Safe System Implementation Manager/Facilitator on a limited term basis (twelve months is suggested initially) to arrange training of AT staff at senior and middle levels initially, support briefing of regional partners by the CE and ELT members and support coordinated briefing of national partners and government by the Chairman and Board members, CE and ELT members. • Require the Safe System Implementation Manager/Facilitator to work with the proposed AT Safe System Task Force to assist the organisation to understand what the Safe System approach means for their area of activity, to be aware of the institutional management functions that are critical to AT's successful operations as a road safety lead agency, to work to strengthen those functions and to assist Safe System thinking to become an integral part of the organisation's work and advocacy. • Ensure adequate resource is made available to the Task Force to carry out its tasks commencing with briefing/training/ workshopping with the Board and ELT itself; to be followed by, say, the next 100 senior staff across AT, including project managers; then joint communication and training with regional partners (say 50), followed by contractors and consultants.
3. Support the new AT road safety approach	Establish the AT Road Safety Task Force (reporting to the CE) of three ELT members (Transport Operations, Infrastructure and Strategy and Development) two senior road safety strategic and partnership support managers and a newly created position of Safe System Implementation Manager/Facilitator, to oversee and drive successful training and embedding of road safety management functions, Safe System and road safety awareness into the organisation, its policies and guidelines. Deliver AT Road Safety Strategy and Action Plan finalisation, implementation and monitoring, and provide the lead agency input and coordination to the AT Regional partnership (Roadsafe) including finalisation and implementation of the Roadsafe Auckland Strategy. Ensure awareness of key related road safety issues and proposed solutions is provided in a timely manner to the CE and Board and

	act as competent advocates for road safety improvement in Auckland.
4. Deepen partnership with Auckland Council	Commit to working closely with AC to strengthen alignment with the direct road safety activities AT identifies as a priority, and to share knowledge about: • Safe System/Vision Zero in depth, (through training, workshopping and shared action) • strengthening of road safety institutional management arrangements in AT (and monitoring the status of that strengthening) • processes to support close cooperative working (planning, design, delivery and operation) to ensure delivery of improved road safety and amenity outcomes, (e.g. the Roads and Streets Framework implementation of streetscape designs, ensuring bus speeds are not above limits, better integration of walking and cycling elements into new projects, lower speed limits on high risk urban and rural roads, promotion of safe system and vision zero messages to the community and more).
5. Improve road safety visibility	Compile and circulate on a week day basis the overnight fatalities (and in another matrix, serious injuries year to date) update for calendar year to date by road user type on all roads, segmented by AT urban and rural roads and NZ Transport Agency urban and rural roads for Auckland, compared to figures for same period in previous calendar year. Circulate to the AT Board, AT ELT, other senior AT Staff, AC, and partners regionally (Police, NZTA, ACC, Health and Local Boards). Also to Minister for Road Safety and Heads MOT, NZTA, ACC and Health.
RECOMMENDATIONS TO IMPLEMENT IN 2018 – PROGRAMMES (WITHIN AT)	
PROGRAMMES	
6. Upgrade investment in current AT/NZTA infrastructure safety programme	• Evaluate the AT road infrastructure safety programme conducted from 2015 to 2016, and have the 2017 and the next two year's programme evaluated in 2020. Identify learnings as inputs for future programmes. • Ensure there is greater consistency in applying design principles across AT and its design consultants to give consistency of outcomes (road safety plus urban design). • Work with the central government/NZTA to obtain removal of the NZTA requirement for calculations of crash reduction benefits for a proposed infrastructure safety treatment to be offset against the value of time costs due to delays attributable to the treatment (e.g. signals, roundabouts).
7. Build low-cost safety into maintenance and renewals	Agree that infrastructure maintenance and renewals projects are to be required to include lower cost safety treatments as much as possible (for some five to 10% of overall programme cost). • Optimise maintenance treatment selection to give more weight to safety outcomes. • Review the maintenance contracts framework to elevate safety as one of four key performance outcomes. • Embed safety outcomes in maintenance staff Performance Development Plans.
8. Improve motorcyclist safety	• Ensure the AT maintenance and renewals programme gives attention to the safety of surfaces treated (and other minor works) to deliver improved motorcycling safety and utilise the guidance provided in the NZTA Safer Journeys for Motorcycling on New Zealand Roads Guide,

	2017. A discussion/workshop with the motorcycling community may assist identification of local issues and post-treatment audits could be done jointly for a time to build confidence and knowledge. • Treatments that cater specifically for motorcycle safety should be recorded and reported on by AT. • Approach ACC who have indicated interest (it is understood) in investing in motorcycling safety infrastructure treatments in Auckland. This opportunity should be pursued as many new understandings may emerge from a programme of this nature. One or two popular motorcycling routes which have high crash risk could be selected as a first stage pilot with the business case preparation and pre-treatment and post-treatment evaluations building good skills within the organisation. • Support MoT's investigation in mandating ABS for motorcycles and request the Minister to mandate ABS for all new motorcycles imported into New Zealand as soon as possible.
9. Phones off policy while driving	• Adopt as preferred practice for AT staff that phones are to be turned off while driving. Subject to review of implementation this would then be a mandated practice within AT say, six months or so later. This approach would be widely promoted to all public and private sector organisations in Auckland to encourage them to consider and adopt the practice.
10. Improve pedestrian safety	• Pilot a programme of traffic calming around schools and in higher risk areas for pedestrians. • Request AT Metro to invest in a pilot programme for pedestrian crossings for those accessing bus stops at higher risk locations. Monitor results and seek ongoing funding for an annual programme. • Seek to establish an AT safer walking programme for 2019.
RECOMMENDATIONS TO IMPLEMENT IN 2018 – (WITHIN AT PARTNERSHIPS) - GOVERNANCE	
GOVERNANCE	
11. With AC, influence central government and agencies, and support regional partnership activities	That the Board of AT, with the support of the Mayor as appropriate, play an active and immediate role in association with the CE in working to: • influence senior decision makers (national agency heads and the Minister responsible for Road Safety and the Minister for Police) at national level to make the priority policy changes (including funding to achieve their implementation) to turn around unacceptable road safety performance • support effective regional partnership approaches and outcomes. Request the central government to: • adopt Vision Zero as the underpinning goal of Safer Journeys as an early priority • revise the Safer Journeys Action Plan to address the many gaps in New Zealand's road safety strategy • set an intermediate target for reduction of fatalities and serious injuries based on application of the revised Safer Journeys Action Plan over the next three-year period as a priority.
12. Develop a fresh road safety	Develop, with AC, a fresh road safety narrative and approach – built around Safe System and Vision Zero, its human centred and holistic injury reduction approach and its connection with sustainable outcomes, emphasising the aspiration and

narrative for Auckland	outcomes AT and AC and its regional partners wish to see in place for Auckland. Deliver this to the Auckland community in concert with the regional partnership.
13. Adopt new governance and management arrangements for Auckland Roadsafe	Support adoption of comprehensive fresh governance and management arrangements for the Auckland Roadsafe regional partnership based on the Draft Revised Auckland Road Safety Framework 2017 to 2023, December 13, 2017 (with adjustments to membership of groups in the decision making hierarchy set out in the Review Report) prepared by the AT and discussed within Roadsafe Executive meetings in December 2017 and since, and commit to adequately supporting that partnership to deliver agreed outcomes. AT to move to adjust and finalise the current draft five-year Roadsafe Auckland strategy to reflect Safe System and Vision Zero and include DSI targets.
14. AT and regional partners to firmly advocate strategy, policy, enforcement and national management priorities with central government	Approach Government with AC, ACC, Police, NZTA, MoT and Health and seek the support of the Minister responsible for Road Safety and the Minister for Police and MoT to: • progress the measures Auckland has identified it wishes to see in a new strategy, including a commitment to Safe System and Vision Zero principles with medium term targets and a long-term target of Zero DSI • request adequate funding restoration and priority for road policing enforcement and involvement in discussions between Police and NZTA about resourcing agreements for policing operations by quantum and type and distribution • outline new policy/ legislation priorities • seek a much-improved priority for road safety in decisions made by NZTA and Police and MoT • request adequate resourcing of the National Road Safety (NRS) Committee partnership at central government level • request adequate funding of public campaigns promoting vision zero enforcement programmes across the year.
15. AT to request government to ensure MoT has adequate mandate and capacity to lead road safety nationally	Encourage central government and relevant Ministers to support the MoT to ensure it has the mandate and the capacity to fulfil its key lead agency leadership role at central government level as actively and effectively as possible – to achieve fresh new policy positions for government adoption, strong focused monitoring of performance, acceptance of accountability by each member agency and action by (and advice to government from) the NRS Committee.
RECOMMENDATIONS	**TO IMPLEMENT IN 2018 - PROGRAMMES (WITHIN AT PARTNERSHIPS)**
PROGRAMMES	
16. Develop and implement an Auckland speed management public information campaign	Develop and implement a public campaign which sets out the sensitivity of human fatal and serious injury to small increases in travel (and impact) speeds and the opportunities that exist to manage these levels to reduce death and serious injury.
17. Request central government to resource necessary speed compliance measures	• Seek agreement of central government to increase penalties to much more adequately reflect serious injury risk – e.g. $30 fines currently applied for speeding 10 km/h over the limit (cf. $198 in Victoria for a basic speeding offence) be increased to $100. • Work with Police to support early introduction of lower tolerances on mobile covert and fixed camera enforcement (i.e. with a maximum enforcement tolerance level of up to 4 km/h above the posted limit for

	speed camera operation) across the whole year as an early high priority. • Work with Police through Roadsafe to achieve central government support for expanded deployment of existing mobile covert cameras and for early and substantial expansion of camera offence processing (back office capacity improvement)
18. Request central government to reduce drink driving DSI in Auckland	Work with the Roadsafe partners and look to central government to assist and support Auckland Police to be given the resources to deliver 1.1 million Random Breath Tests (RBT) in Auckland in 2018, with a good practice strategy for RBT enforcement in place.
19. Request central government to reduce drug impaired driving DSI in Auckland	Request central government to authorise the agreed collection of data on the presence of drugs and alcohol within hospitalised road crash patients to establish prevalence of drugs by type (and a more complete alcohol impairment record).
20. Enforce seat belt wearing	Work with Police to encourage enforcement of correctly fixed seat belt wearing and child restraint fitting.
21. Deliver public campaigns to reinforce priorities	Work with regional partners to deliver public campaigns which reflect enforcement priorities across the year, the substantial benefits of safer vehicles in organisational fleets and for private purchases and convey the Safe System and Vision Zero principles and their linkage with key actions to the community in a digestible way over time.
22. Ensure speed limits on national roads in Auckland are not raised	Ensure the Roadsafe Executive hold discussions at a senior level with NZTA and request that there be no move to increase speed limits on national roads in Auckland unless the safety case is clear and there are many concurrent offsetting national road speed limit reductions on high-risk roads delivered so the public receive a consistent message on the change to lower, safer and more appropriate speeds.
23. Request central government to review / consider alternative sources of infrastructure funding	Seek resolution by central government of the major funding gap for the infrastructure safety programme carried out by AT through: (a) review of the National Land Transport Fund to better cater for New Zealand's substantial infrastructure needs and related infrastructure safety needs for new and (most of all) retrofitting of safety to the legacy (existing) network. (b) establishment of a national road safety support fund, to which net income from camera fines (less operating costs of operating the cameras, advertising to improve compliance with the enforced limits and the upgrading and operation of the camera offence processing system) nationally would be allocated. Funding would then be allocated transparently to regions for the purposes of additional infrastructure safety investment on local roads, road safety promotion activities supporting enforcement and perhaps some additional enforcement activity as agreed regionally.

RECOMMENDATIONS TO IMPLEMENT IN 2019 – GOVERNANCE (WITHIN AT)

GOVERNANCE	
1. Safety performance expectations and delivery	Establish a road safety improvement performance requirement (agreed % reduction over say three years) for all ELT members, senior managers (and officers with responsibilities influencing road safety outcomes) within individual Performance Development Plans and KPIs from 2019 onwards that reflects AT's

	contribution to road safety and its role as lead agency for Roadsafe Auckland.
RECOMMENDATIONS TO IMPLEMENT IN 2019 – PROGRAMMES (WITHIN AT)	
PROGRAMMES	
2. Upgrade investment in current AT/NZTA infrastructure safety programme	• Pursue increased funding for the infrastructure safety works programme as much as is possible and potentially to a level which will see the identified backlog (currently being specified but in the order of $500m) for treatment of 300 high risk intersections and 1025 km of high-risk roads being upgraded within 15 years. • Consider provision of $15m of direct AT funding for infrastructure safety works annually (up from $6.5m) from major projects. • Seek funding from NZTA of $22.5m (FAR of 75%) for this annual infrastructure safety programme. • Negotiate with ACC and NZTA for ACC to fund a pilot safer infrastructure programme in 2018, 2019 and 2020 of $20m per year based on development of a satisfactory programme business case which will deliver a cash return in serious injury crash reductions to ACC, supplemented if necessary by AT/NZTA funds up to $10m per year. • Discuss with Centre for Road Safety New South Wales, TAC Victoria, and with Monash University Accident Research Centre.
3. Apply safe system assessment framework as policy to at infrastructure projects	Implement Austroads Safe System Assessment Framework (ASSAF) developed by New Zealand and Australian practitioners over recent years at concept stage for major road projects within AT's engineering function including project managers, designers and consultants. Move to assess projects as soon as possible to maximise safety benefits at marginal cost increase. Resource the necessary training/ knowledge transfer requirements.
4. Use appropriately lowered speed limits to bring safe roads to Auckland	Review as a priority and, where appropriate, lower speed limits: • on currently identified high risk sections of road where investment to improve the infrastructure safety will not be available for three years (on high risk rural arterial road lengths to 80 km/h and on high risk urban arterial road lengths to 40 km/h if after the enforcement threshold by Police is lowered to 54 km/h the crash risk remains unacceptably high (or if police do not lower their enforcement threshold) and on high risk urban arterial road lengths with a current speed limit of 60 km/h – to 50 km/h • in high pedestrian use areas including town centres/strip shopping centres to 30 km/h • in the Auckland CBD to 30 km/h (with exceptions for selected major flow arterials which could remain at 50 km/h) • on all arterial roads with non-separated (by physical separation barriers or kerbs) lanes for cycling to 40 km/h • on approaches to all intersections to a maximum of 50 km/h. Develop a comprehensive community information campaign lead by community leaders including Auckland Council and the Roadsafe Auckland partners and roll out concurrently with the changes and continue over a two-year period.
5. Monitor safety of cyclist and motorcyclist use of bus lanes	Monitor cyclist and motorcyclist use of bus lanes to determine ongoing crash risk for cyclists and motorcyclists using those lanes. If unsatisfactory performance is detected it will be necessary for provision for cycling to more closely comply with Safe System operating requirements, which will need to be devised. (Note that separation in space or separation in time or reduced speed of bus travel may need

	to be examined). To achieve safer operation for motorcyclists, the RH Turns for all vehicles on the bus route may need to be restricted to fully signal controlled turn intersections, with a 40 km/h speed limit in place at high risk lengths until these installations are in place.
6. Ensure buses operate safely	• Require buses under operating contracts (as they are progressively renewed or clauses are renegotiated earlier) to achieve full compliance with road rules including with speed limits. • Progressively fit alcohol interlocks to all buses to assure customers that there is no impaired driving due to alcohol. Encourage other public transport fleets to do likewise. Contractor fleets could similarly have requirements imposed to improve road safety outcomes in their fleet use. • Set maximum speeds for buses on busways that reflect safe system principles (30 km/h in high pedestrian activity areas, 40 km/h on downtown arterials and 50 km/h elsewhere other than on 60 km/h roads) and implement contract payment deductions for speeding offences • Review speed limits on busways which are shared by cyclists and on roads where a separated cycle lane with a physical delineator (i.e. not just linemarking) is not in place.
7. Improve safe driving practices within AT and encourage contractor innovation	Actively monitor AT's own work-related driver offences, and actively promote safe travel and safer fleet vehicle use and procurement to drive safer driving and safer fleet deployment. Procurement arrangements be modified to seek suggested road safety improvement actions by contractors and allow for scoring of these submitted suggestions in the tender evaluation process to drive change in attitudes throughout AT, the contracting industry and ultimately throughout the community.
8. Research and development	Implement a research budget for road safety projects and evaluations and build on this as supportable projects are identified and commissioned. Working with all regional partners this would be an AT plus a regional (Auckland Roadsafe) road safety research budget for evaluation and advice.

RECOMMENDATIONS TO IMPLEMENT IN 2019 – GOVERNANCE (WITHIN AT PARTNERSHIPS)

GOVERNANCE	
9. Benchmark Auckland's road safety performance	Auckland determines to benchmark its future road safety performance in the Safer City Streets Network against Melbourne.

RECOMMENDATIONS TO IMPLEMENT IN 2019 – PROGRAMMES (WITHIN AT PARTNERSHIPS)

PROGRAMMES	
10. Request central government to resource necessary speed compliance measures	• That the resourcing for extension of covert mobile speed camera operation across Auckland from 950 hours to some 2000 hours per month be provided, including resourcing for necessary back office support. • 36 operational red light cameras be installed in Auckland (there are two existing operational red light cameras with six more to be installed) with a combined speed/red light running function. • Introduce 50% higher speed penalties (fines) for heavy vehicle drivers (vehicles above 3.5 tonnes) than for light vehicle drivers to reflect the greater risk of these higher mass vehicles speeding. • MoT/Government be requested to legislate to apply demerit points for all offences including camera generated speeding offences as a priority.

11. Request central government to reduce drink driving DSI in Auckland	• Request the central government to introduce a zero BAC legislative limit for drivers of heavy vehicle and public transport vehicles. • Request the central government to remove the capacity for courts to award a work-related licence for a drink driving offender instead of full license suspension.
12. Request central government to work with AT on improving vehicle safety levels in Auckland/NZ	• Promote the life-saving benefits of newer safer vehicles especially for light commercial vehicles. • Restrict imported used cars to being less than seven years old at entry to New Zealand.
13. Improve trauma management and comprehensive data management	Encourage ACC to support strengthening of the major trauma management systems in place in the New Zealand health system, using Auckland as a pilot, by guaranteeing funding certainty for a five-year period of introduction and evaluation.
14. Deliver public campaigns to reinforce priorities	As above.
15. Ensure NZ Transport Agency invest in infrastructure safety	Ensure encouragement of adequate safety investment by NZTA in national roads and seek adoption by NZTA of application of the Austroads Safe System Assessment Framework to maximise the safety benefits achieved in their works.

RECOMMENDATIONS TO IMPLEMENT IN 2020 – GOVERNANCE (WITHIN AT)

GOVERNANCE

1. Record public transport injuries	Explore with NZTA the recording of public transport related injuries in Auckland (which do not involve a vehicle such as injuries on public transport, accessing/ exiting public transport or walking to/ from public transport).

RECOMMENDATIONS TO IMPLEMENT IN 2020 – PROGRAMMES (WITHIN AT PARTNERSHIPS)

PROGRAMMES

2. Request central government to reduce drink driving DSI in Auckland	• Support the introduction in 2018 of mandatory alcohol interlocks in the vehicles of repeat and serious first time drink driving offenders (after serving license suspension) for twelve or more months
3. Request central government to reduce drug impaired driving DSI in Auckland	• Seek agreement of national government to early introduction of police road side saliva testing for selected drugs, including required laboratory testing/ confirmation of positive samples.
4. Request central government to introduce legislation and technology for point-to-point speed compliance enforcement	• Work with Police and MoT to plan and roll out point to point speed camera technology on major rural arterials plus selected urban arterial lengths.
5. Request central government to examine use of camera technology to deter illegal phone use by drivers	• Work with Police and MoT to implement camera technology to deter phone use by drivers and riders.
6. Deliver public campaigns to reinforce priorities	As above.
7. Collect and compare	The Roadsafe partnership needs to support the ongoing collection

comprehensive data from Police, hospitals and ACC	of crash data from ACC records and from Auckland hospitals to ensure a complete picture of serious crashes and serious crash injury data continues to be available for crash risk analysis.

Not all recommendations identified can be implemented as soon as possible. Some require enablers to be in place and there is also the limiting capacity of the organisation to "learn" and to "act" concurrently.

What recommendations could most readily be implemented now? It cannot all be done at once! Prioritisation is therefore crucial.

Some recommendations are considered urgent and allocated to 2018, others for 2019 and others for 2020. The very substantial list for 2018 will require discussion within AT to prioritise early action. The recommendations are listed under the 'Within AT' and 'Within AT partnerships' headings and then under the two sub categories of *Governance* and *Programmes.*

At the Board Meeting to discuss the Draft Report on February 1, 2018, a brief supporting Powerpoint presentation was made which is attached as Annex 12. It sets out priority Recommendations for Action '*Within AT*', (2 slides); for '*AT with regional Partners'* (1 slide) and for '*AT/ Roadsafe with central government'* (3 slides).

1. Introduction

Purpose

The Board of Auckland Transport is concerned about deteriorating road safety performance in Auckland in recent years. The Board has shown leadership in requiring both poor performance and falling levels of public satisfaction with road safety to be analysed by an external independent reviewer.

Whiting Moyne P/L was commissioned by AT to carry out a Business Improvement Review for Auckland's road safety management and prepare and provided a Draft Report to the Board for discussion In January 2018.

The Terms of Reference are attached in Annex 1, and can be summarised as follows:

- Analysis of road safety outcomes over time with reasons for current increases.
- Empirical analysis as to why Auckland would have different outcomes to other cities of a similar size.
- Analysis of strategic outcomes for road safety and the extent to which these are aligned with strategy, understood and owned within AT, being properly measured and alignment with the annual work programme. This analysis has been conducted in two parts, one focused within AT and the other on the external Roadsafe partnership for which AT is the lead agency and a key member.
- Analysis of operational delivery against current and desired measures – again within AT and across the partnerships.
- Opportunities for improving performance and identified benchmark and stretch targets for good practice performance.
- Governance and management arrangements.
- Analysis of cost of delivery and any proposed shift in resourcing between agencies/activities.

Process

Based upon these Terms of Reference the following tasks have been undertaken:

Meetings with the AT Board Chair and a number of Board Members, the AT CEO past and present, all ELT members, Managers within the Transport Operations (especially the road safety specialists), Infrastructure, Strategy and Development, Transport Services, Finance and Communications and Corporate Relations Divisions, and relevant road safety officers from New Zealand Police, NZTA, ACC, Auckland Council (plus the Deputy Mayor), and Auckland Health.

The purpose of these meetings was to gain insight into the road safety activity of the organisation over the last few years to inform an overall assessment of the health and effectiveness of necessary road safety management functions operating within AT. How effectively was AT managing its own direct road safety activities and carrying out its lead agency role with the external partner organisations, within Roadsafe at regional level and with the road safety partners at national level? This included an assessment of the impact of the management functions upon interventions and results.

Extensive data was collected through AT staff from AT itself, New Zealand Police, national crash analysis system, NZTA, ACC and road safety performance in selected international jurisdictions.

2. Auckland road safety context

Road safety performance in Auckland since 2014 has been sub-standard by both national and international standards. 2017 witnessed a further deterioration in that performance with 64 deaths and 771 serious injuries occurring. This is a greater than 70% increase in DSI over three years since 2014.

This marked deterioration could legitimately be described as a crisis in road safety performance.

Table 1: Change in Fatalities and Serious Injuries, New Zealand and Auckland, 2014 – 2017

Fatalities	2014	2017	% Change
Auckland	36	64	77.8
Rest of New Zealand	257	316	22.9
Total	**293**	**380**	**29.7**
Serious injuries	2014	2017	% Change
Auckland	447	771	72.5
Rest of New Zealand	1630	2080	27.6
Total	**2077**	**2851**	**37.3**

In the past three years a further 170,000 people have made Auckland their home, economic activity has increased, and both petrol and imported car prices have fallen, leading to a spike in demand for travel. Auckland has one of the lowest densities of all world cities, yet its employment is concentrated in specific hubs, notably the city centre and key town centres. These factors of population growth, low density and concentrated employment mean high rates of car ownership and people are travelling further in private vehicles.

However, this report shows that the impact of increased overall travel (estimated at some 15% from 2014 to 2017) has played only a minor part in the large increase in DSI experienced in Auckland in the past three years. The 56% increase in fatalities and 102% increase in serious injuries experienced in Auckland between 2012 and 2017 and 77% increase in fatalities and 72% increase in serious injuries experienced in Auckland between 2014 and 2017 require immediate attention and remedial action.[1]

The crisis in road safety performance reflects a number of deficiencies of public policy at central government and local level. Most of all it reflects an absence of commitment to improving safety on New Zealand and Auckland's roads.

Auckland has had no new road safety strategy approved since AT was formed. Safety on the road network has not been a priority at AT in that time. Roadsafe Auckland has tried to function within limited parameters over the last seven years, but the decisions which lead to the cut in dedicated road policing resources in late 2016 (later reversed but still causing harm as police struggle to re-establish road policing capacity) laid bare the weaknesses in commitment to the safety of those using New Zealand and Auckland's roads. It has been "the straw that broke the camel's back."

It is difficult to believe that Aucklanders are not concerned about the remarkable escalation in DSI in recent years. But how does Auckland recover from this blight? Where will this run of years of increasing road trauma lead the Auckland community in the short, medium and longer term? Road safety is a tough taskmaster, and even more so for the lead agency. While there is a great deal that AT does directly (and much more it could do) to improve road safety performance in Auckland, these direct actions, while significant and important, are outweighed by

[1] There may be other factors influencing this large increase in DSI, including possible changes in serious injury data collection methods, and this has been checked as far as is possible. See Annex 9 which graphs DSIs, hospital admissions and ACC claims lodged provided by NZTA. They advise the differences are substantial, but the Police reported serious injury trend in Auckland is credible based on the other figures. Therefore, the scale of the increase in DSI to the end of 2017 appears legitimate.

the potential road safety benefits that are available if AT (with Auckland Council) is able to influence the regional and national partners. The appetite to do better needs to be found, coupled with decisive and persistent action. The Auckland result provides a strong argument to central government that the city should receive priority support for pilot Safe System programmes and whole-hearted embrace of Safe System and Vision Zero principles.

This report endeavours to identify the range of shortcomings and importantly to offer solutions (in the form of the recommendations detailed above to be carried out over the next three years) to the partnership about what needs to be done.

Road crashes impose intangible, financial and economic costs to society. These costs include reduced quality of life; reduced productivity; medical and other resource costs. The updated average social cost is estimated at $4.73 million per fatal crash, $504,500 per serious crash, $28,600 per minor crash (or $912,000 per reported serious crash and $99,000 per reported minor crash, after considering reporting rate adjustment)… To ensure limited road safety resources are utilised efficiently, the cost of any safety interventions should be evaluated against the resulting benefit expressed in terms of social cost. *MOT NZ Website April 2017*

3. Analysis of road safety outcomes over time

In referring to 2015 figures, the IRTAD Report of 2017 comments that *Since 2013, the number of road deaths [in Auckland] has increased by 26%. While this increase needs to be analysed in the light of the good results of 2013 (when the lowest toll since 1952 of 295 fatalities was reached), it represents nevertheless a worrying trend. Preliminary data from 2016 show a 2.8% increase when compared to the same period in 2015. There is no immediate explanation for this increase. There have been increases in the amount of travel in the last two years but the increase in the road fatality toll is much greater***.**
IRTAD[2] (OECD-ITF) 2017 ANNUAL REPORT

Fatalities in Auckland reduced to their lowest ever levels in 2014. Road safety performance has deteriorated sharply since then. Since 2012, DSI have increased by 98% in Auckland, and fatalities by 56%. From 2014-17, deaths and serious injuries (DSIs) increased by 72%.

For all Auckland roads, annual DSI has climbed from 483 (2104) to 620 (2015) too 663 (2016) and now to 835 (2017).[3] This provisional 2017 result is an annual increase of some 26%.[4]

New Zealand overall reduced its number of road deaths from 375 in 2010 to a low of 253 in 2013. The 2017 level of deaths (380) has now exceeded the 2010 level for the first time. Performance in Auckland since 2014 has exceeded national deterioration in percentage terms. In 2017, Auckland incurred 28% of DSI in New Zealand and 17.1% of deaths.

A relevant indicator of the extent of this relative deterioration compared to New Zealand overall and in absolute terms is that serious injuries in New Zealand have increased by some 20% since 2012 while in Auckland serious injuries have more than doubled since 2012.

To emphasise the materiality of this shift, in 2012, Auckland's share of New Zealand's serious injuries was 18%. In 2017 they were 29% of the New Zealand total. While Auckland remains below the national DSI per head for New Zealand (831 DSI cf pro rata 1021), this is certainly to be expected given the lower speed environment on average on roads in urban areas (most of Auckland) compared to some urban but mainly rural higher speed roads across New Zealand.

Table 2: % increase in Deaths and Serious Injuries, Auckland, rolling twelve months (to end Sept 2017 for Serious Injuries and end December for deaths) exceed % increase in Deaths and Serious Injuries in NZ overall

	2017 cf 2012	2017 cf 2016
AUCKLAND		
Fatalities	**+56 %**	**+39.1 %**
Serious injuries	**+102%**	**+24.9 %**
New Zealand		
Fatalities	**+23 %**	**+15.9 %**
Serious injuries	**+35.6 %**	**+12.8 %**

[2] International Road Traffic and Accident Database.
[3] Rolling 12 months to 30 September 2017.
[4] Note that the proportion of DSIs which are vulnerable road users (cyclists, pedestrians and motorcyclists) compared to vehicle occupants has increased over the last 7 to 10 years. While measures to reduce vehicle occupant DSIs remain a crucial issue, every effort must be directed to reduce the increase (and then seek a reduction) in the number of VRU DSI.

Table 3: Deaths per population - trends: Auckland vs NZ

Auckland	Fatalities	Population (millions)	Fatalities per 100,000 population
2014	**36**	**1.52**	**2.37**
2017	**64**	**1.65**	**3.93**
New Zealand			
2014	**293**	**4.51**	**6.49**
2017	**380**	**4.79**	**7.93**

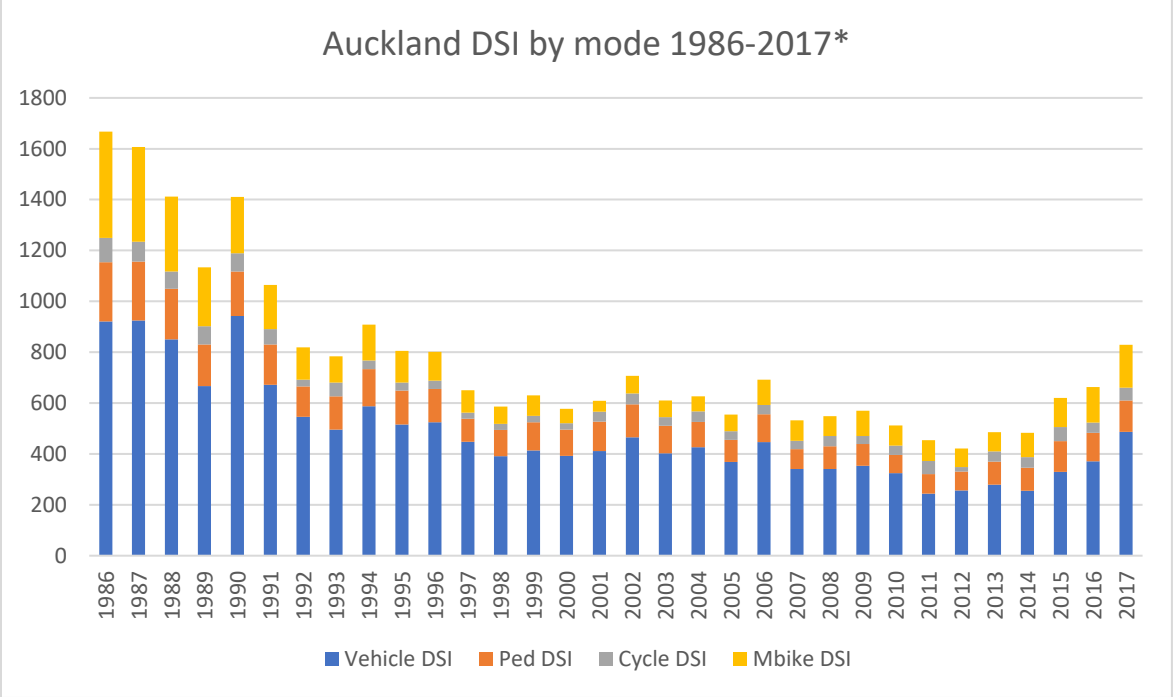
Fatalities per head of population are set out in the table below for New Zealand and Australia plus the three most populous Australian States (New South Wales, Victoria, Queensland) for 2015, 2016 and 2017. It indicates the poor relative performance outcomes for road safety in New Zealand in recent years after promising gains were achieved nationally in the 2010 to 2014 period. Any deterioration by Auckland against the unsatisfactory trend in national New Zealand performance should be a cause for concern.

Table 4: Road Deaths Per 100,000 population in New Zealand, Australia and three Australian States

Jurisdiction	Year	Road crash fatalities (F)	Population (millions)	F/100,000 pop
New Zealand	2015	319	4.61	6.92
	2016	327	4.66	7.02
	2017	380	4.72	8.05
Victoria	2015	252	5.99	4.21
	2016	290	6.17	4.70
	2017	255	6.32	4.03
New South Wales	2015	350	7.62	4.59
	2016	380	7.74	4.91
	2017	392	7.86	4.99
Queensland	2015	243	4.78	5.08
	2016	250	4.88	5.12
	2017	248	4.93	5.03
Australia	2015	1207	23.78	5.1
	2016	1295	24.13	5.37
	2017	1225	24.50	5.00

While the level of fatalities in a city (Auckland) cannot usefully be compared with countrywide results, the trend in New Zealand's annual fatalities and Auckland's annual fatalities compared to other countries is instructive.

Figure 1: Graphs of DSI trends by road user Auckland, 1986 to 2017



^2017 figures are a rolling 12-month DSI figure to September 2017

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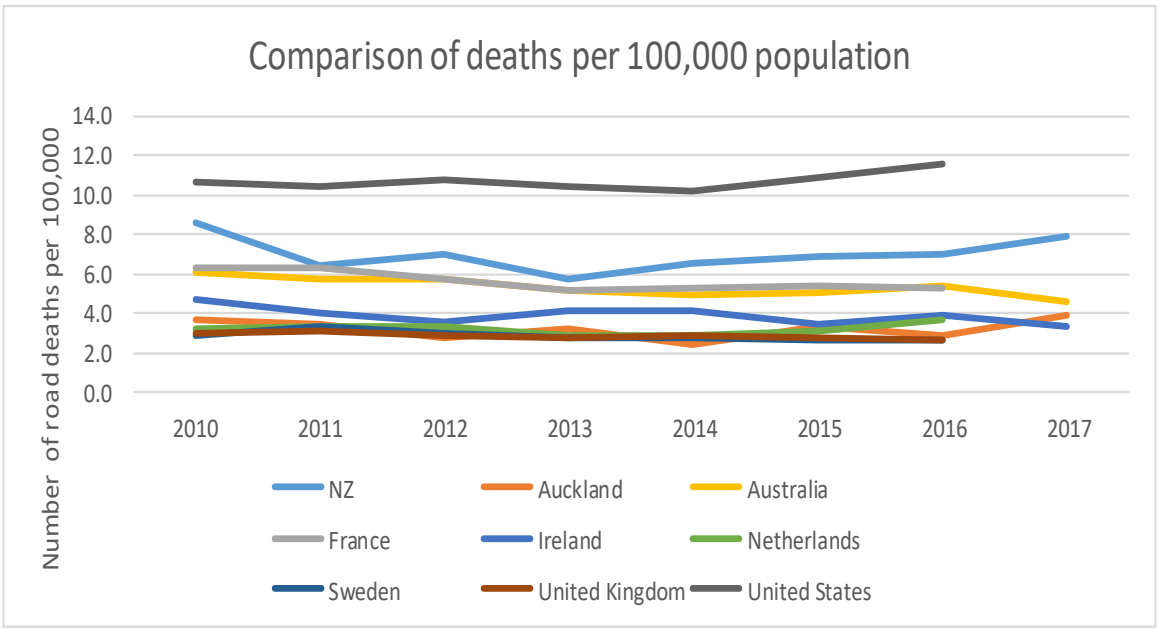
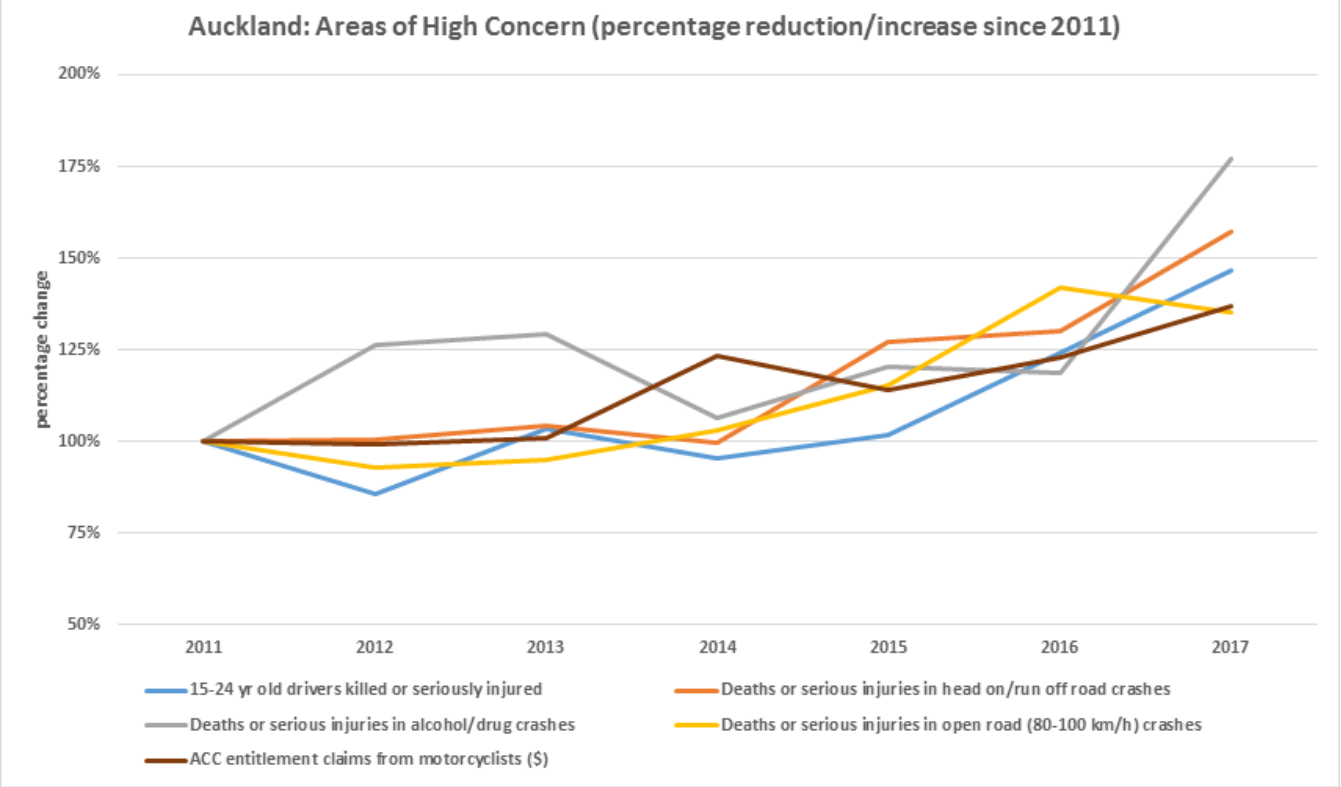
Figure 2: Road Deaths Per 100,000 population in eight selected countries (plus Auckland)



Note in Figure 3 below the substantial increases in 2017 in (i) alcohol or drug involved DSI and (ii) in 15 – 24 years of age DSI.

Figure 3: Areas of high concern (percentage reduction/ increase since 2011) in road safety indicators



DSI for New Zealand and Auckland 2012 to 2017, are shown in Table 5 below, with identification of DSI occurring across Auckland on national highways (NZTA roads) and local roads (AT Roads) split into urban and rural roads. DSI related to drivers/riders with illegal levels of alcohol in their system on all Auckland roads are also identified.

Table 5: New Zealand and Auckland Region Death & Serious Injuries (DSI) 2012 to 2017

	Crash Year						
Area and injury category	**2012**	**2013**	**2014**	**2015**	**2016**	**2017 (rolling 12 months^)**	**2017 rolling cf 2015**
All New Zealand DSI	2,411	2,275	2,370	2,485	2,855	3,230	
All NZ Deaths	308	253	293	319	327	380	**+19.1**
All NZ Serious injuries	2,103	2,022	2,077	2,166	2,528	2,851	**+31.6**
All NZ DSI related to Alcohol	366	332	299	315	281	373	**+18.4**
All NZ Deaths related to Alcohol	67	53	48	66	66	81	**+22.7**
All NZ Serious injuries related to Alcohol	299	279	251	249	215	292	**+17.3**
All Auckland DSI	421	486	483	620	663	835	
Auckland Deaths	41	48	36	52	46	64	**+23**
Auckland Serious injuries	380	438	447	568	617	771	**+35.7**
Auckland DSI - Local Roads (AT)	354	431	400	542	553	705	**+30**
Auckland DSI - State Highways (NZTA)	67	55	83	78	110	130	**+66.7**

Auckland DSI - Urban Roads	291	352	334	449	447	596	**+32.7**
Auckland DSI - Rural Roads	130	134	149	171	216	239	**+39.8**
Auckland DSI related to Alcohol	89	101	81	94	74	125	**+33**
Auckland Deaths related to Alcohol	10	15	8	14	9	19	**+35.7**
Auckland Serious injuries related to Alcohol	79	86	73	80	65	106	**+32.5**

^rolling 12 months to the end of September 2017 except for Auckland and NZ deaths which are for all of 2017

The increases in percentage terms between 2015 and the rolling 2017 figures (i.e. over two years) for each category are shown in the right-hand column. While the All New Zealand increases are most concerning, the increases (25% to 40% plus) in Auckland DSI and specifically DSI related to alcohol represent a crisis and signal the need for effective actions to be agreed immediately and then rapidly put in place to stop, and hopefully reverse, the trend. The Auckland increases in DSI on urban roads and in DSI related to alcohol in 2017 in particular, demand priority action be taken.

A series of tables and figures shows DSI trends from 1986 to 2016 and then a sequence of more recent data – from the end of 2011 to the 3rd quarter of 2017.

Who is being most impacted and how

A useful starting point in seeking to better understand the factors driving the increase in DSI in Auckland (and New Zealand) in recent years is to examine which road user groups are being most impacted.

Table 6: Increases in fatalities by road user group, Auckland 2012 to 2016 to 2017

Road user group	YTD Fatalities 2012 Q4	YTD Fatalities 2016 Q4	YTD Fatalities 2017 Q4	No. Fatalities increase 2012 to 2017	% fatalities increase 2012 to 2017	No. Fatalities increase 2016 to 2017	% fatalities increase 2016 to 2017
Vehicle driver	17	23	26	**9 (1.8 pa.)**	**53%**	**3**	**13%**
Vehicle passenger	5	7	17	**12 (2.4 pa.)**	**240%**	**10**	**143%**
Pedestrian	10	6	9	**(1)**	**(10%)**	**3**	**50%**
Motorcyclist	8	10	10	**2**	**25%**	**-**	**-**
Cyclist	1	0	2	**1**	**100%**	**2**	**200%**

Table 7: Increases in serious injuries by road user group, Auckland 2012 to 2016 to 2017

Road user group	YTD Serious Injuries 2012 Q3	YTD Serious Injuries 2016 Q3	YTD Serious Injuries 2017 Q3	Number of SI increase Q3 2012 to Q3 2017	% SI's increase 2012 to 2017	Number of SI increase Q3 2016 to Q3 2017	% SI's increase 2016 to 2017
Vehicle driver	132	199	284	**152 (30 pa.)**	**115%**	**85**	**43%**
Vehicle passenger	66	87	137	**71 (18 pa.)**	**108%**	**50**	**57%**
Pedestrian	60	120	113	**53 (10.6 pa.)**	**88%**	**(7)**	**(5.8%)**
Motorcycle	48	97	148	**100 (20 pa.)**	**208%**	**51**	**52.6%**
Cyclist	24	53	51	**27**	**112%**	**(2)**	**(3.7%)**

The highest increases in percentage terms over the five years from 2012 to 2017 have been:

for serious injuries

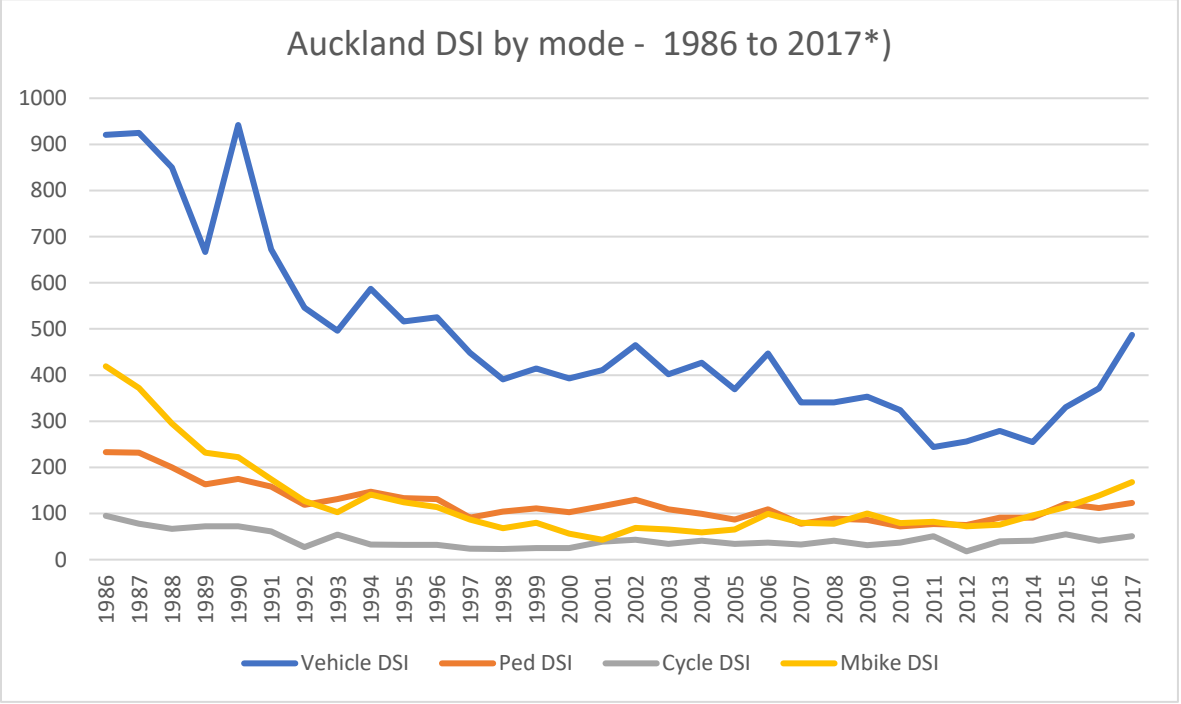
- motorcycle serious injuries increasing at some 42% pa, followed by
- vehicle passenger serious injuries increasing by 27% pa
- vehicle driver serious injuries increased by 23% pa
- pedestrian serious injuries increasing at 14.2% pa

and for deaths

- vehicle driver deaths increasing by 10% pa.

Note that vans and utility contributions to DSI increased by 77% from 2016 to 2017 and were a fast-increasing contributor to overall DSI increases. These vehicles as a group have a wide range of crashworthiness ratings, depending on whether they are new or used. Many used imported vehicles may have far lesser safety features than comparable light passenger vehicles and are a sector to monitor. Means to upgrade the safety of this component of the fleet need to be identified and implemented.

Figure 4: DSI by road user type - Auckland, 1986 to 2017



^2017 figures are a rolling 12 month DSI figure to September 2017

The following recently prepared series of graphs focus on road crash trends by severity, type of crash and road user for Auckland, in the recent period from **2011 up to end of the third quarter of 2107**.

Figure 5: Death & serious injuries on all Auckland roads from 2011 – 2017

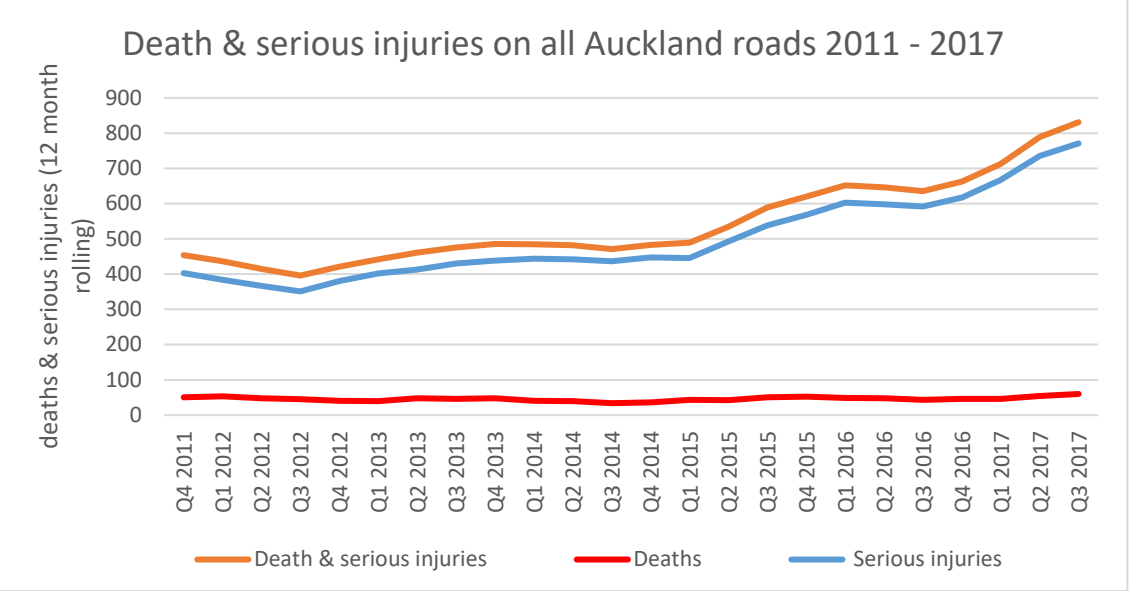
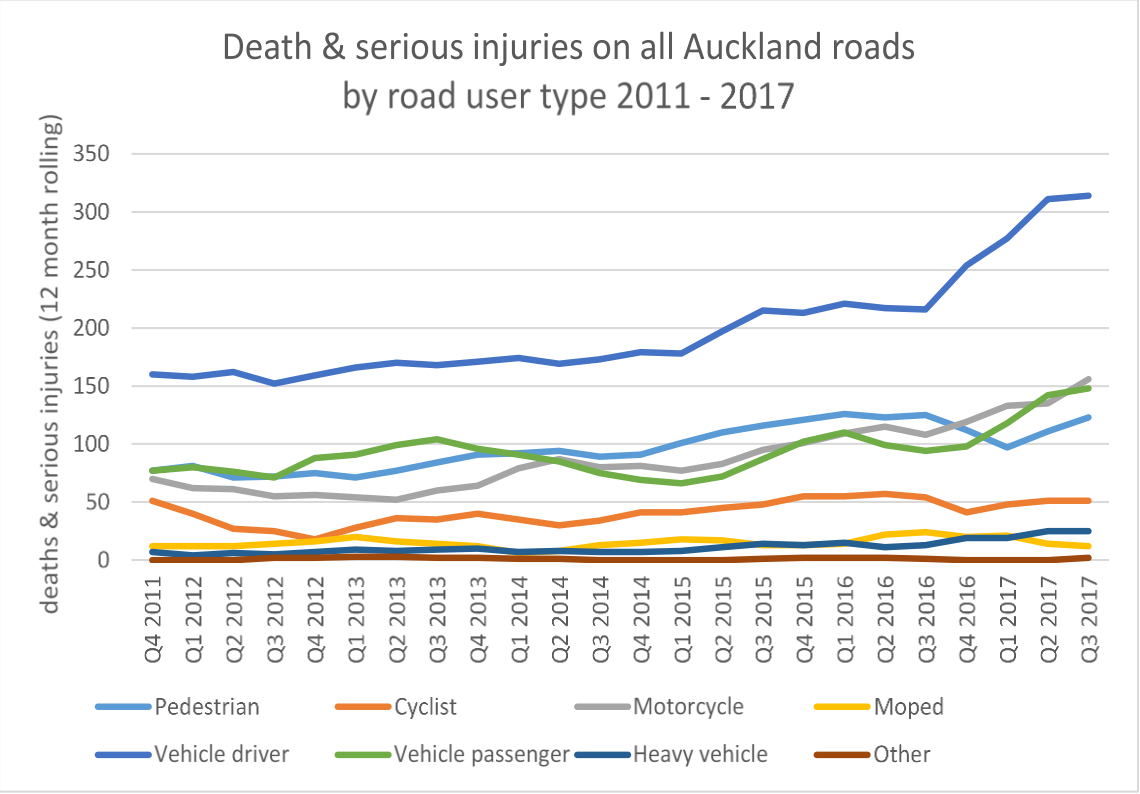
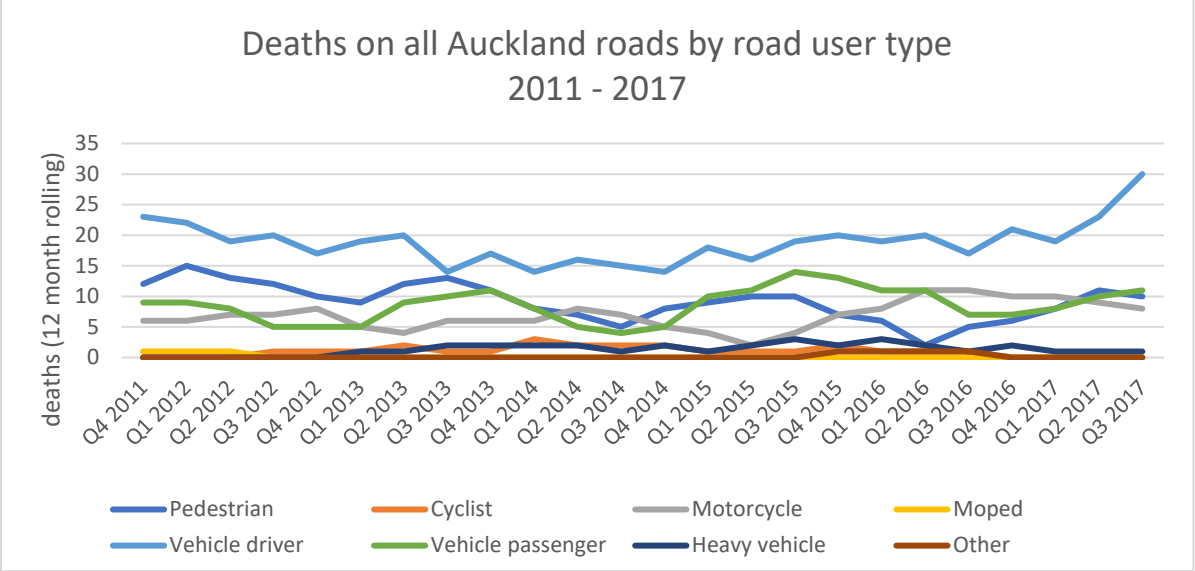


Figure 6: Deaths and serious injuries by road user type 2011-2017



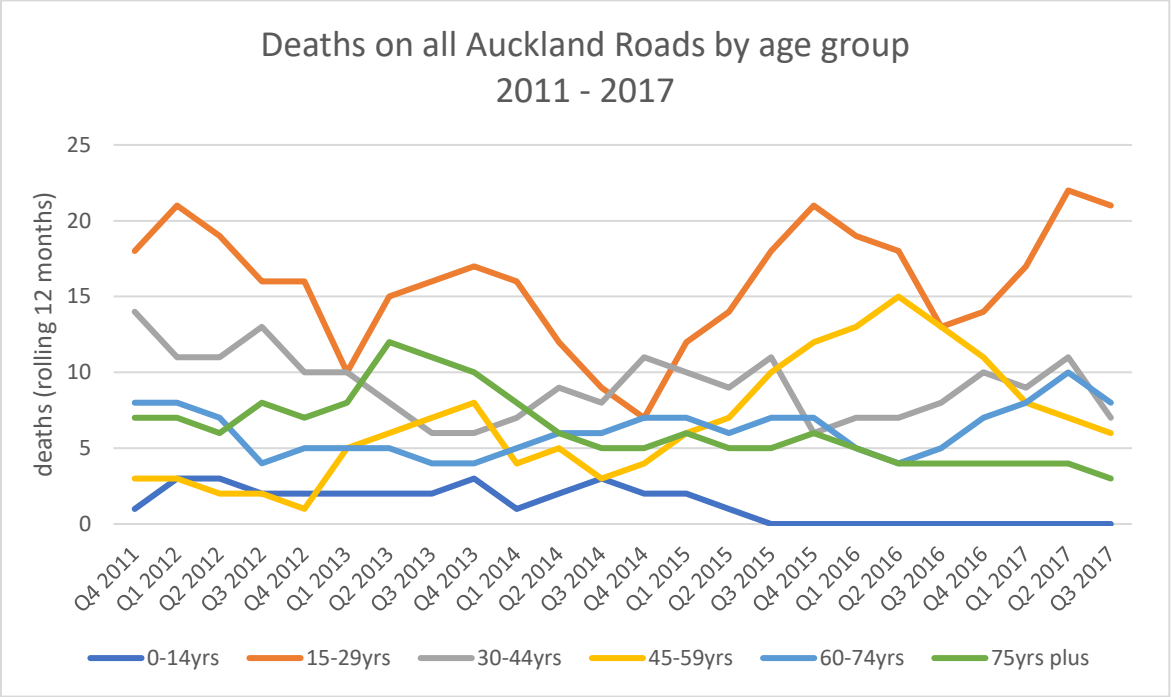
The major increases in DSI in numeric terms from 2015 have been in drivers, passengers, motorcycle riders and heavy vehicle occupants. The heavy vehicle increase is from a low base but warrants monitoring. Auckland University confirm the growth in the Auckland region of injuries arising from reduced separation of different road user types, not just cyclists, which they consider is growing substantially. The police crash data do not capture all seriously injured who are admitted to hospital as many crashes are not reported. AT should liaise with Professor Ian Civil to ensure changing injury presentation patterns at Auckland hospitals are understood and some analysis of trends carried out to better understand changes in risk patterns on the network.

Figure 7: Deaths on all Auckland roads by road user type from 2011 – 2017



The major increases in deaths in numeric terms from 2015 have been for drivers and pedestrians.

Figure 8: Deaths on all Auckland Roads by Age group 2011 – 2017



The 15 to 29 years age group (above) experienced a substantially increased number of fatalities last year as did the 60 to 74 year age group – to fatality levels not seen in the last six years.

The major increases in serious injuries (below) in numeric terms from 2015 have been for drivers, motorcyclists, passengers and pedestrians.

Figure 9: Serious injuries on all Auckland Roads by age group 2011 – 2017

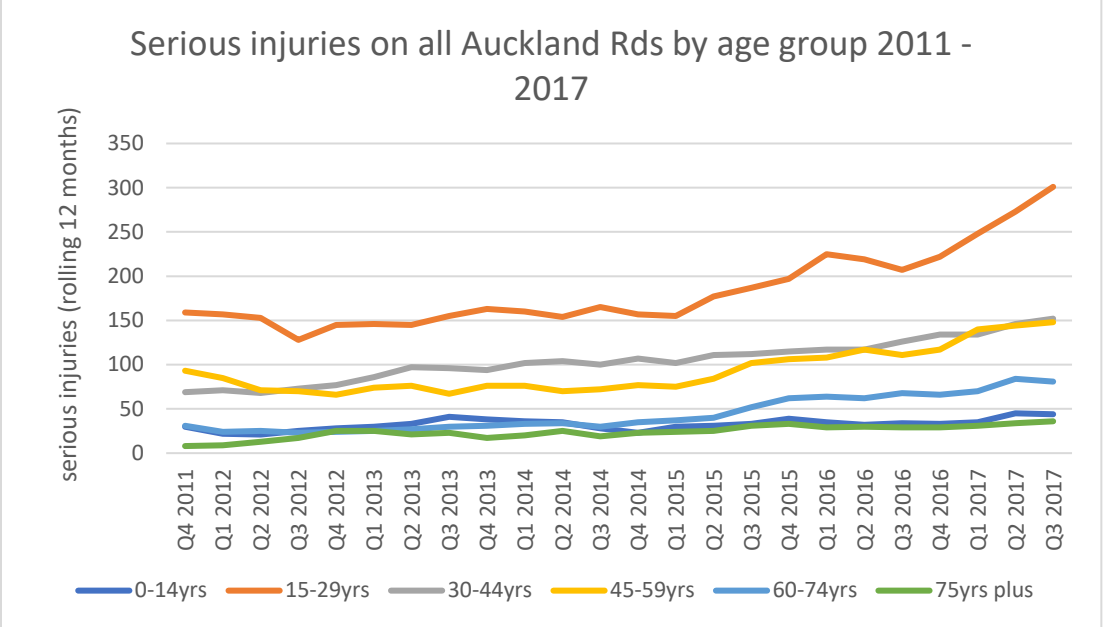
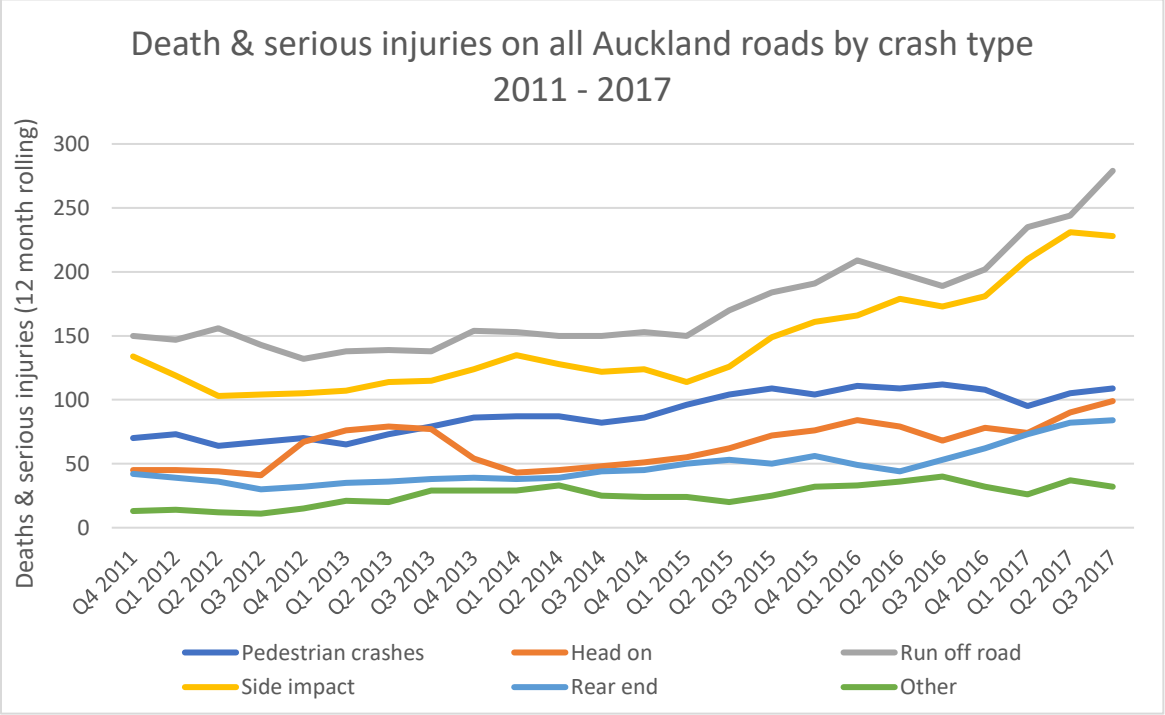
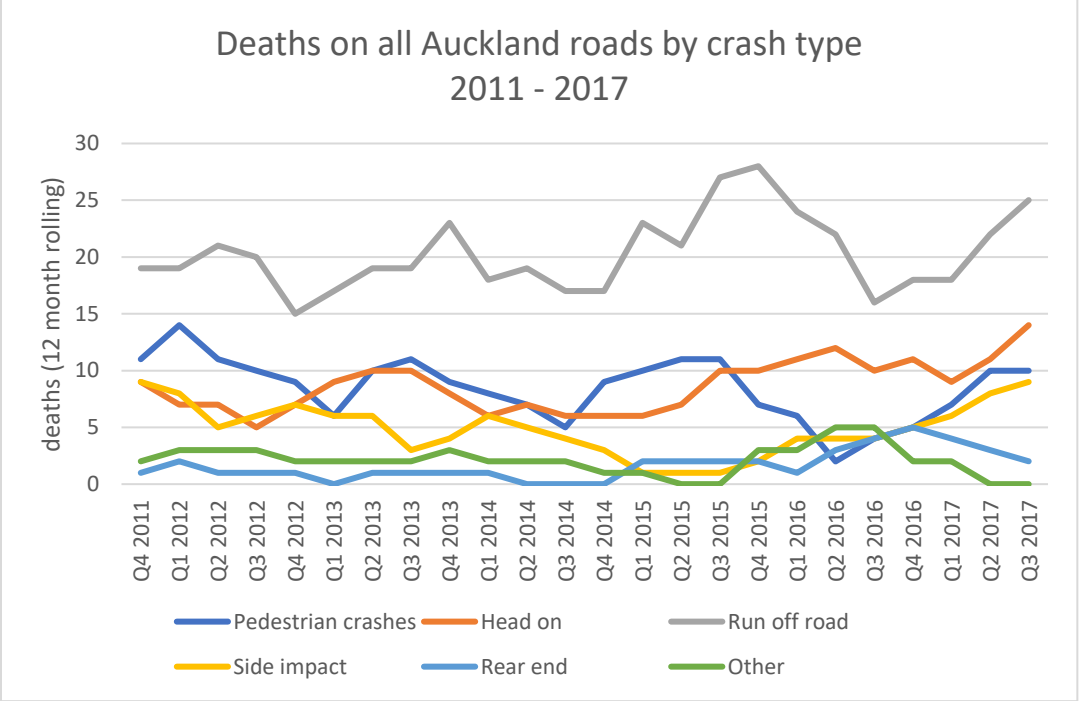


Figure 10: Death and serious injuries on all Auckland roads by crash type from 2011 – 2017



Run off road and intersection (side impact) crashes are the highest crash type risk for DSI.

Figure 11: Deaths on all Auckland roads by crash type from 2011 – 2017



Crash types associated most often with fatalities are run off road which are around double the numbers of each of head on, pedestrian and side impact (intersection) crash fatalities.

Figure 12: Serious injuries on all Auckland roads by crash type from 2011 – 2017

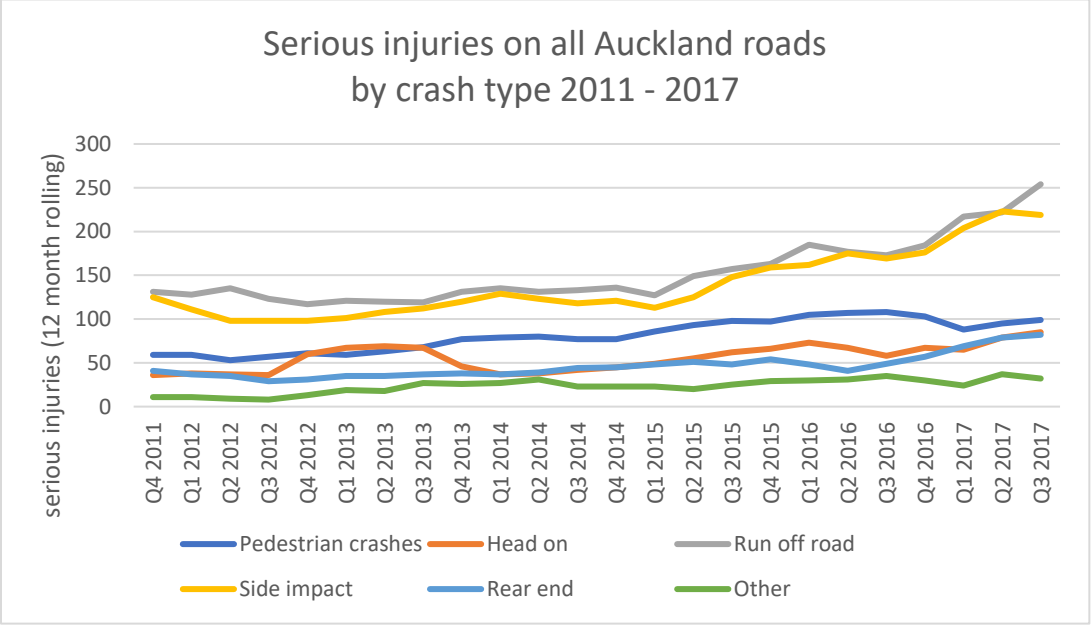


Figure 13: Fatal crash types on local roads in Auckland (rural and urban and total): 2012 – 2016

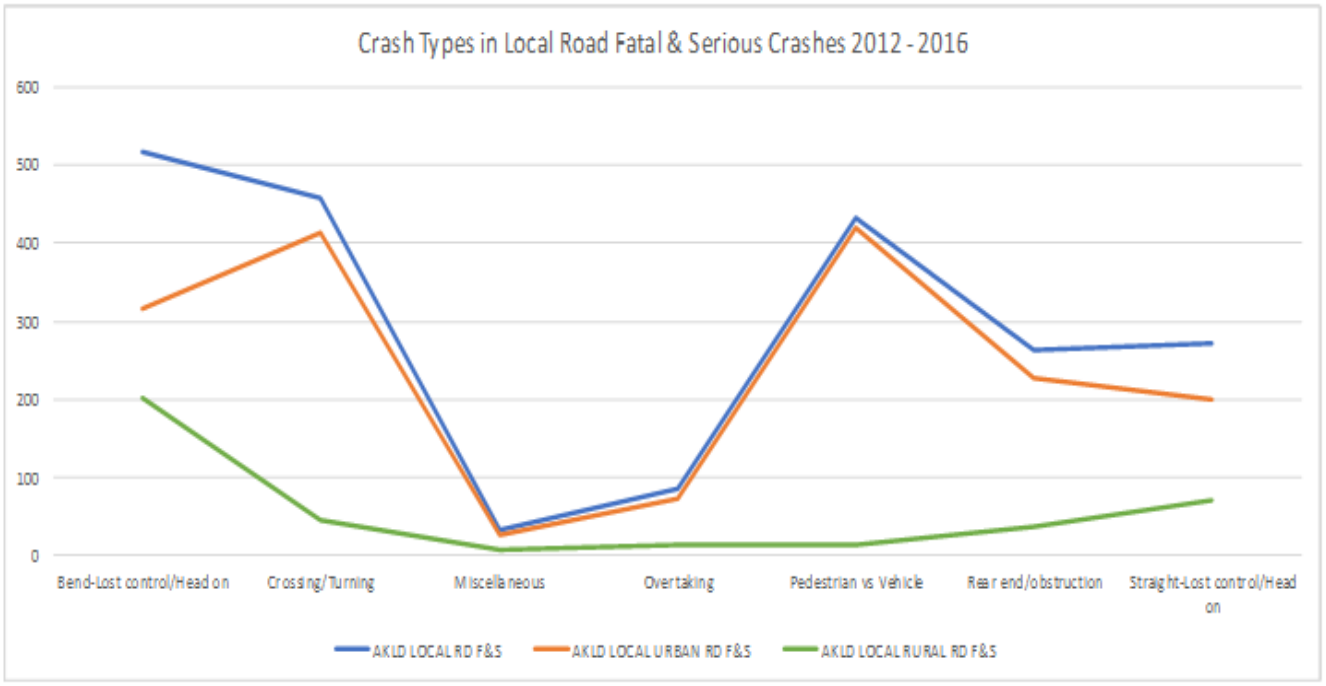
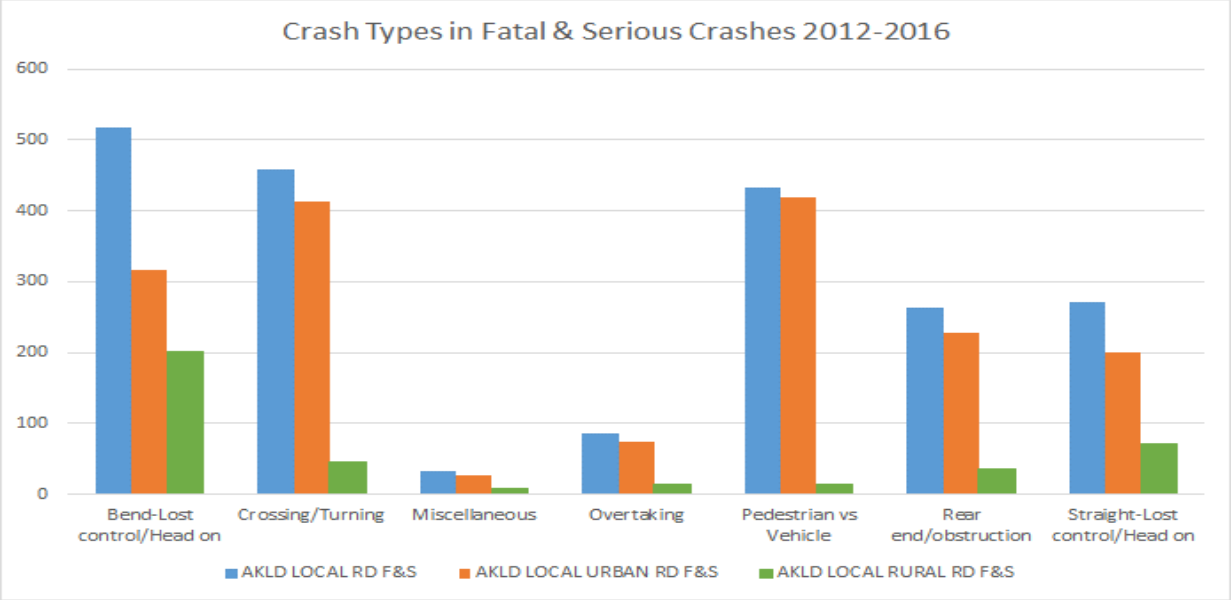


Figure 14: DSI by crash type for urban local road cf rural local road - and total local roads Auckland



Note: pedestrian DSI are graphed but cyclists and motorcyclists as vehicles are included in the various crash types in this graph.

Table 8: Percentage shares by road user of DSI Auckland All roads 2017 (12 months to end September)

Vehicle occupants	**55.7**
Motorcyclists	**18.1**
Pedestrians	**14.5**
Cyclists	**6**
Heavy vehicle occupants	**3**

Note that some categories have not been included above.

The safety of vehicle occupants remains a major issue for Auckland. As a car-based city that is not unexpected but more is required to improve the safety of vehicle occupants, among other road user groups.

ACC Motor Vehicles Account

The active costs paid out by ACC for the Motor Vehicle Account for the Auckland Region are shown in Annex 10 from 2010 to 2017 by year. From 2012 to 2017, pay-outs increased by the amounts and percentages shown. Comparisons with DSI increases for each period are shown.

Table 9: Auckland ACC account payouts % increase and DSI % increase comparison, 2012 to 2017 and 2016 to 2017

	ACC account	DSI
Motor vehicles		
2012 to 2017	**43.7%**	**97.4%**
2016 to 2017	**12.2%**	**25.3%**
Motorcycling		
2012 to 2017	**37.7%**	**183%**
2016 to 2017	**10.69%**	**53%**

The ACC account payment percentage increases are much lower than the percentage DSI increases.

4. Reasons for current increases

Auckland Region Police crash reports indicate that for the period from October 2015 to September 2016 compared to the period from October 2016 to September 2017, changes in certain crash factor involvement in DSIs was as follows:

- *Alcohol related*: there was a **70% increase** as a factor in DSI crashes (from 82 to 139)[5]
- *Speed*: there was a **47% increase** as a factor in DSI crashes (from 116 to 171)
- *Failed to give way/stop*: there was a **39% increase** as a factor in DSI crashes (from 116 to 161)
- *Failed to Keep Left*: there was a **37% increase** as a factor in DSI crashes (from 57 to 78)
- *Road factors*: there was a **58% increase** as a factor in DSI crashes (from 38 to 60)
- *Weather:* there was a **300% increase** as a factor in DSI crashes (from 7 to 28).

Population and overall travel increase

The population increase across Auckland, by year to 30 June, 2014 to 2017 is set out below in Table 10.

Table 10: Auckland population, 2014 to 2017

Year	2014	2015	2016	2017
Population	1526900	1569900	1614500	1657200
Year to Year increase		2.8%	2.84%	2.64%

Statistics NZ

Increased travel overall (due to many factors including population growth, increased economic activity, lower fuel prices) has impacted upon Auckland's road safety performance. The growth in distance travelled in 2016 across Auckland by motor vehicles compared to 2015 is estimated (from odometer readings, the preferred basis now used by MoT for assessing total travel across broad areas) to be 5%. If this were maintained in 2017 it suggests that increased travel may have contributed to two additional fatalities and 31 serious injuries.[6]

The plateauing of travel demand in the years 2007 to 2013 does provide some explanation as to why road safety performance to 2013 was quite good and then poor after 2013. The pre-2013 experience could well have lulled authorities into a false sense that interventions in place were adequate for normal travel demand growth conditions. When high growth in fact occurred, New Zealand's interventions were not adequate to contain DSI.

The annual rates of travel growth for Auckland are shown below based on MoT odometer readings from Warrant of Fitness observations. However, the further deteriorations in the last two to three years are not readily explained.

Table 11: Auckland road travel rate of growth (Based on increases in odometer readings, with 2001 year as base of 1.00 unit)

YEAR (Av. of Q1 and Q3)	2011	2012	2013	2014	2015	2016
VKT bn km Auckland	12.4	12.5	12.8	13.2	13.9	14.6
VKT (Travel) 2011 base of 1.00	1.00	1.008	1.032	1.065	1.121	1.177
% increase from previous year	N/A	0.8%	2.3%	3.2%	5.2%	5.0%

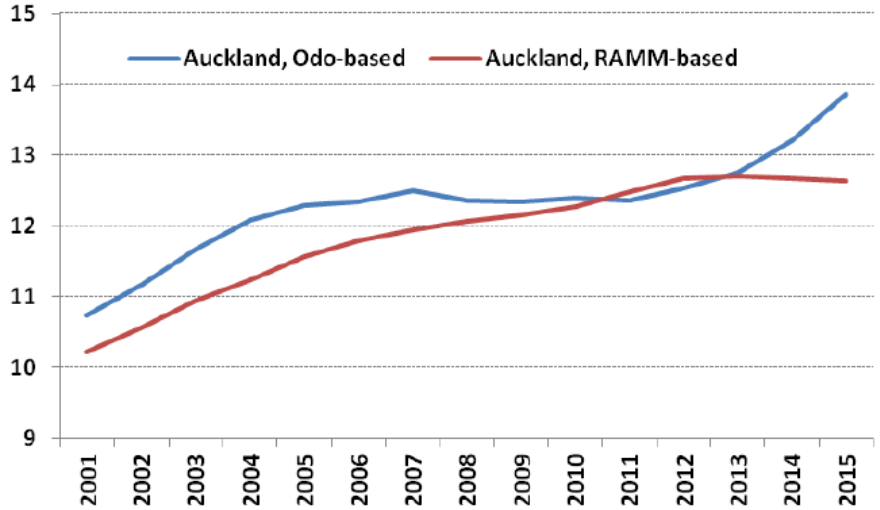
[5] Source: NZTA Crash Analysis System. Based on a refined query only including crash causation codes 103 and 105 to help address known alcohol reporting issues.

[6] Note the travel trend since 2001 in the graphs shown below, prepared by the NZ MoT. (It shows odometer-based calculation and another basis of calculation based on road tube counting.

The increase in travel from 2014 to 2016 in Auckland is 10.3%. An estimate of the 2016 to 2017 travel growth figure based on a pro rata extension of the 2014 to 2016 trend (some 5.1%) suggests an increase in travel in the vicinity of some 15%, has occurred in Auckland between 2014 and 2017.

An estimated 43,100 million VKT of road vehicle travel was completed in 2015 in New Zealand (IRTAD, 2017).

Figure 15: Odometer based and Road tube counter-based measures of travel, New Zealand



Increased interaction between different road users

However, as well as total travel increasing, the interaction between people walking and vehicles, cyclists and vehicles and motorcyclists and vehicles, plus interaction between different vehicle categories (heavy vehicles including buses, light commercial, light passenger) across Auckland has increased substantially, with more people walking and accessing public transport, increased bus services, shared facilities for cyclists, increased motorcycling and growth in freight and light passenger vehicles.

Increases in DSI by 'road user' (vehicle) type

Crash data indicates the following changes in involvement in DSI by vehicle/user type from Oct 2015-Sept 2016 to Oct 2016-Sept 2017.

1. Vans/Utility increased by 46% from 74 to 108
2. Cars increased by 33**%** from 558 to 740
3. Trucks increased by 15% from 53 in 2016 to 61
4. Motorcycle & Mopeds increased by 13% from 125 to 141
5. Pedestrians increased by 9% from 116 in 2016 to 126
6. Buses increased from 3 in 2016 to 12.

CONCLUSION: It is not possible in this review to estimate the impacts of this growth in traffic stream diversity, but they are part of the upward pressure on DSI. The bottom line is, many jurisdictions internationally have encountered these factors and have continued to hold the line or improve their performance.

Motorcycling activity increases

Increased motorcycling activity in recent years has been accompanied by increases in motorcyclist deaths and serious injuries. However, motorcyclist fatalities (rolling twelve-month totals) are at similar levels for the last

quarter of 2017 as for the last quarter of 2016 (some 10 for the year). Motorcyclist serious injuries however have increased by 25% pa since 2012 and increased by 52% (from 97 to 148 per year) during 2017. This increase of 51 serious injuries is a significant component of the increased DSI in 2017 of 154.

Table 12: Auckland Motorcycle Fleet Numbers

2014	2015	2016
35930	38276	40274

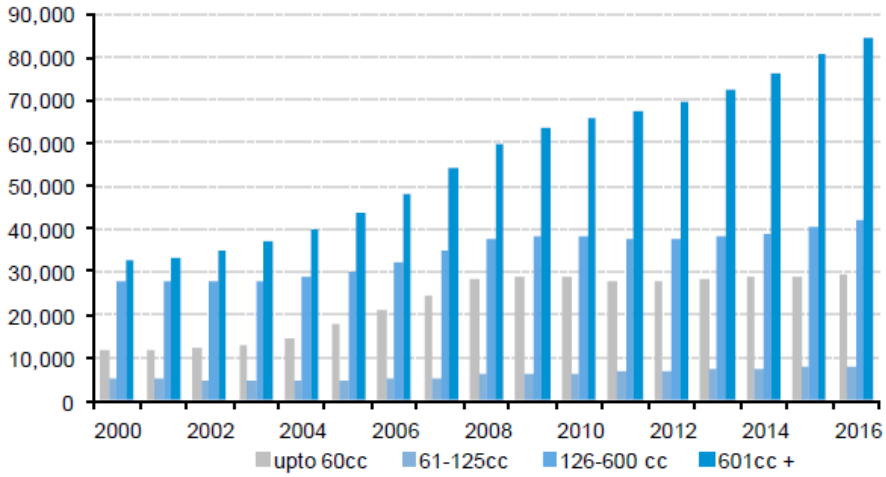
NZ MoT Data

Table 12 indicates that there was a 5.2% increase in numbers of registered motorcycles. It has been assumed that motorcycle travel increased by 5.2% over the year, providing some explanation for part of the increased serious injury numbers (say 97 to 104) for motorcyclists, but by no means for most of that increase (to 148).

Motorcycle and moped fleet composition[7]

Machines under 60 cc showed strong growth nationally from 2005 to 2008 but have been static since then. Much of the growth is in machines over 600 cc, which have been increasing since the early 2000s.

Figure 16: New Zealand Motorcycle Fleet composition



MoT NZ 2016 Annual Statistics

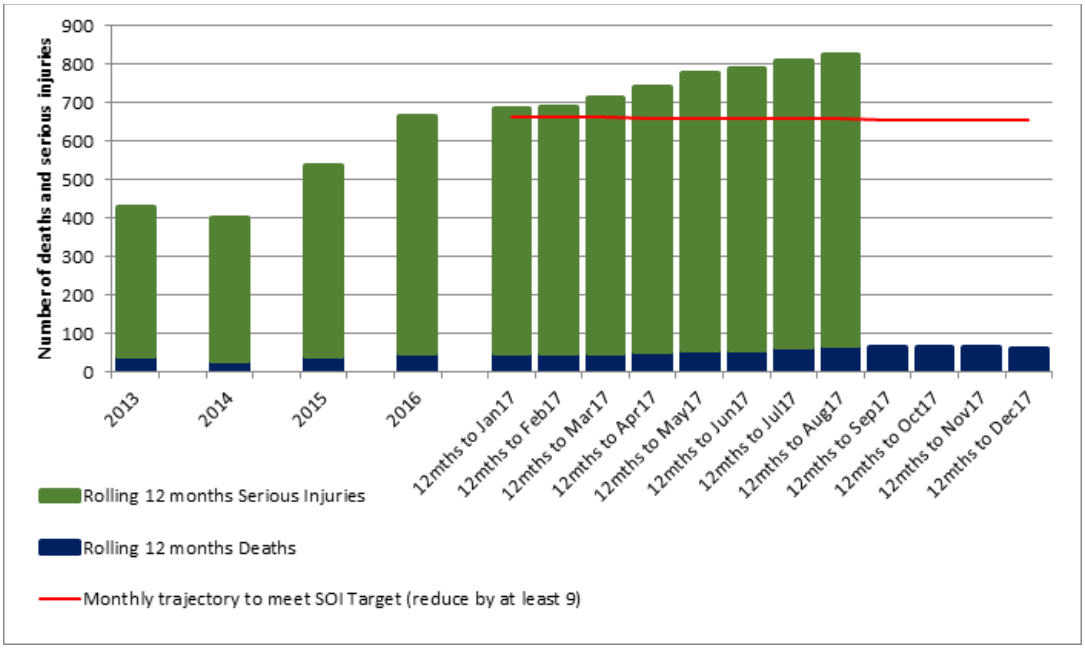
Note rapid increases in number of motorcycle registrations from 2013.

Reduced enforcement levels

Enforcement efforts have been substantially affected from early 2017. NZTA allocations to Police for road safety enforcement were not reduced but Police claimed they could not support traditional road policing numbers with that $960m that was allocated from 2015/16 to 2017/18 over three years. This issue flared up in late 2016, leading to reduced road policing staffing and outputs until it is understood a special additional allocation from NZ Transport Agency was made in the middle of 2017 to break the impasse. By that time however, police had already cut dedicated road policing resources (111 road policing positions across New Zealand and more than 70 of these it is understood were reduced road policing numbers in Auckland. This cut was 30-40% of the total road policing staff numbers in Auckland and represented 64% of the national reductions in road policing FTEs). Police estimate that re-establishment of that resourcing and associated training will take until April 2018.

[7] *Annual Fleet Statistics 2016*, Ministry of Transport, New Zealand.

Figure 17: Deaths and serious injuries Auckland 2013 to 2016 and progressive monthly in 2017



The graph above illustrates the progressive rapid increases in DSI throughout 2017 reflecting, among other matters, the negative deterrence impact of a reduced road police enforcement presence in Auckland. The dose/response relationship between good quality police enforcement and impacts on levels of related non-compliance fatalities is always very strong and quite rapid. This effect unfortunately has been evident in the DSI outcomes for Auckland in 2017.

At a June 2017 RoadSafe meeting Harry Wilson (NZTA) advised AT that additional funding had been secured to prevent the 're-purposing' and to retain and increase Road Policing service levels. Also, that NZTA and Police are reviewing the contract model for Road Policing and are keen to receive feedback from AT, particularly around measuring the impact of the Road Policing on DSI reduction.

CONCLUSION: Across New Zealand and in Auckland enforcement approaches may need to be reviewed to ensure future deterrence effectiveness (i.e. use general deterrence techniques with some specific deterrence approaches). It will also be essential that AT be involved in the Road Policing review and stay involved in all future negotiations around funding allocations and inputs/outputs to be delivered by Police in Auckland. It is most important for the people of Auckland that AT gain a seat at the national negotiating table and – with advice from police colleagues in Auckland Roadsafe – insist on clear deliverables by Police in the funding agreement.

Enforcement constraints

Speed enforcement constraints

At the national level, Police have reported a steady increase in travel speeds over 100 km/h and 50 km/h limits as they travel past the speed cameras – see the second and fourth rows in the table below, which is drawn from the quarterly Road Policing Programme report.

Table 13: Speeding offence numbers, All New Zealand, camera detections

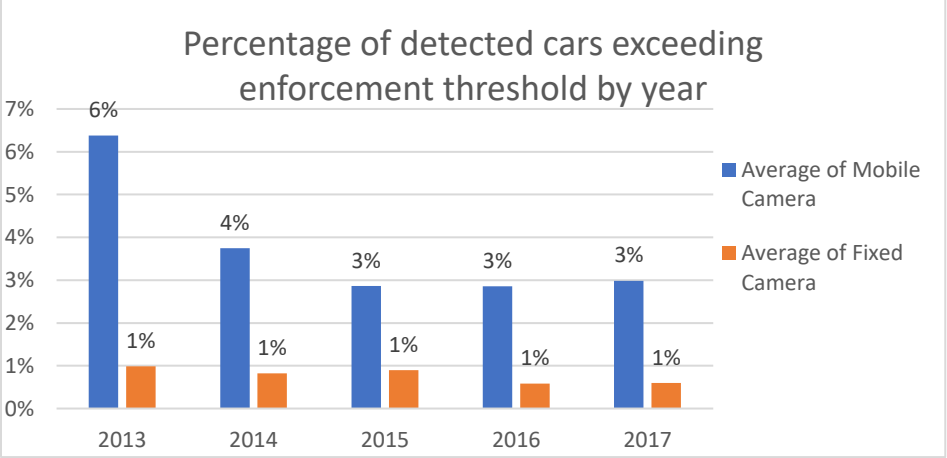
Speed	Jul–Sep15	Oct–Dec15	Jan–Mar16	Apr–Jun16	Jul–Sep16	Oct–Dec16	Jan–Mar17	Apr–Jun17	Jul–Sep17
Motorcycle speed offences detected	891	1,747	1,671	1,146	930	1,621	1,652	1,031	778
Number of vehicles detected speeding in 100 km/h zones	220,334	298,016	267,502	214,551	248,087	260,416	286,059	230,776	251,871
Percentage of vehicles detected speeding in 100 km/h zones	3.1%	3.3%	3.2%	3.0%	3.3%	3.4%	3.3%	3.9%	3.3%
Number of vehicles detected speeding in 50 km/h zones	1,547,470	1,933,157	1,513,828	1,440,767	1,511,409	1,562,613	1,466,223	1,458,746	1,706,039
Percentage of vehicles detected speeding in 50 km/h zones	18.9%	17.2%	14.1%	13.9%	13.9%	14.2%	13.8%	14.5%	15.2%

Speed is a major issue for road user safety in Auckland. Nearly half of all drivers exceed the 50 km/h limit in urban areas and there is little understanding in Auckland (as in communities worldwide) of the aggregate harm that low-level speeding of up to 10km/h over the limit represents.

New Zealand Police currently apply a 10km/h speed enforcement threshold for offences detected by speed cameras, so in a 50km/h zone notices would be issued from 61km/h in excess of the limit and above. The exception is for official public holiday periods and over part of the summer holiday period each year when there is a 4km/h enforcement threshold in place for static and mobile camera enforcement. The lower threshold is also applied near schools. There is no enforcement threshold for speed enforcement by officers, who may take appropriate action for the circumstances for any speed in excess of the speed limit. There is also a permanent lower camera enforcement threshold for heavy and towing vehicles. The difference in offence levels resulting is fourfold when the tighter tolerance applies (See figure 19 below). Police advise that some 3% of vehicles detected exceed the enforced tolerance on average over the year. Good practice would suggest a 1% non-compliance level should be the goal. A consistent enforcement tolerance level (4 km/h above the limit) with substantial publicity should be effective in reaching such a level of compliance. This is likely to be a Police operational decision, however it is understood processing (back office) resource constraints prevent some current mobile camera offences being processed and sent out to offenders. This acts as a brake on the effectiveness of the current camera programme and on extending camera hours. It needs to be addressed as a priority by central government.

Speed enforcement which would effectively deter speeding and achieve good levels of compliance with the posted limits is also severely hampered by central government reluctance to apply demerit points for camera offences, and an inadequate level of fines ($30) for low level speeding offences – up to 10 km/h over the limit, which is less than a parking ticket and is inadequate to deter low level speeding. A further major deficiency is an inadequate number of hours of mobile speed camera surveillance across Auckland and New Zealand, (currently 950 hours per month for Auckland), which is less than half the effort employed in New South Wales and in Victoria per head of population. It is difficult to imagine a less supportive framework to enable Police to reduce speeding than the current New Zealand regulatory settings. It is not known why this baffling situation exists, but current arrangements are costing the lives of New Zealanders, not only of those who wish to break the law, but often of those road users who are not speeding.

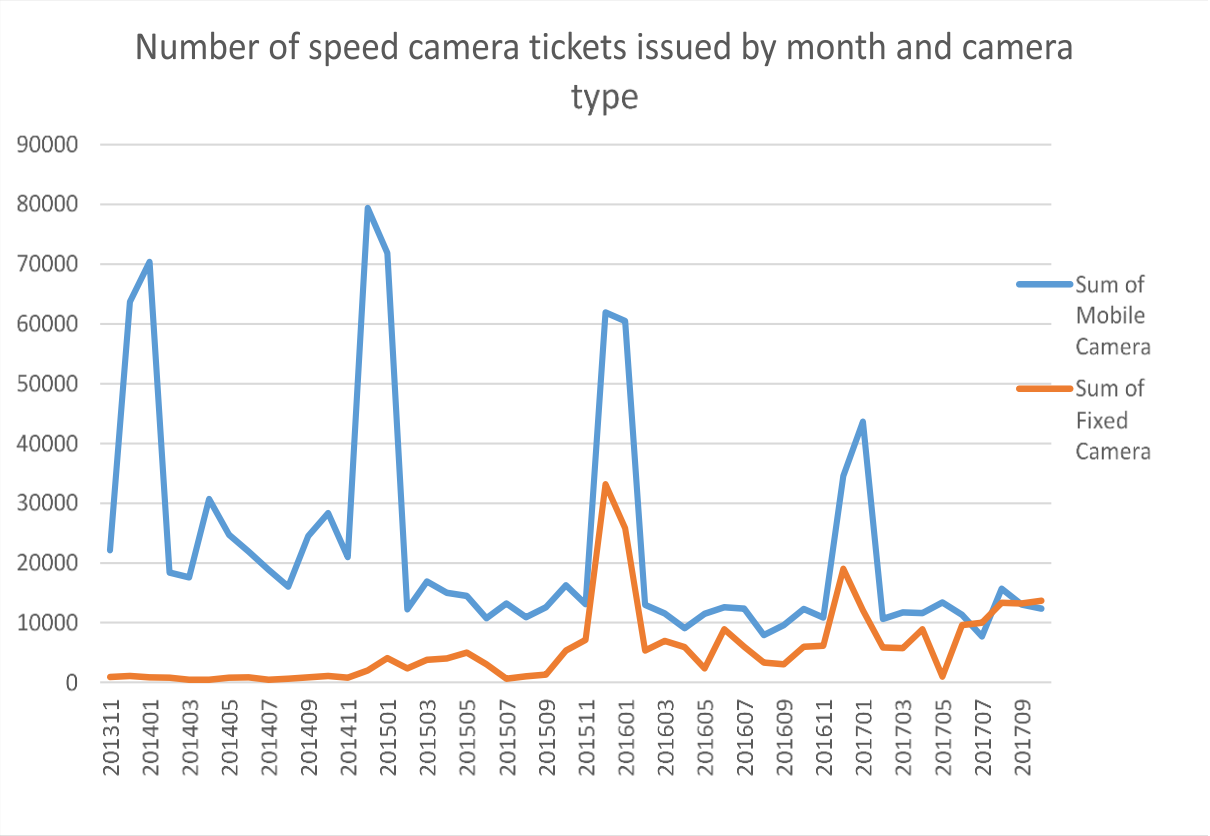
Figure 18: Auckland: % drivers/ riders detected speeding above enforced speed, 2013 - 2017



Auckland Police

CONCLUSION: Good practice enforcement with expanded mobile covert cameras and other supportive regulatory and back office settings would result in 1% to 1.5% of drivers not complying with limits, compared to the 3% to 4% currently achieved as shown in Figure 18. A number of key recommendations to substantially improve speed compliance are provided.

Figure 19: Police speed camera data Auckland Nov 2013-Sept 2017



The extent of underlying non-compliance with speed limits in Auckland is seen in the four-fold increase in offences detected by mobile camera during the lower 54km/h enforcement period over part of the summer holiday period.

The Case Study in Annex 4 details the sustained reduction in travel speeds achieved though active covert mobile camera enforcement and the substantial fatality savings/benefits that were achieved in metropolitan Melbourne from 2002-2004. It is an important case study for AT to consider and discuss with the central government, the Minister of Police and Police. The programme, while controversial at introduction, brought about significant reductions in DSI, especially deaths, when introduced and these gains have been maintained.

Police in Auckland currently operate mobile speed cameras for some 950 hours each month. To provide guidance re good practice for mobile covert camera hours of operation for Auckland, comparisons are set out with Victoria and New South Wales, Australia. Both states deploy mobile cameras for some 9000 hours per month. This indicates that good practice mobile camera speed enforcement in Auckland with a population of 1.6 million should be deployment of covert mobile speed cameras for some 2,000 hours per month.

Table 14: Mobile covert camera hours of operation per population, Victoria and New South Wales, Australia

State	Mobile covert camera hours - monthly	Population (million)	Hours per month per 1 million population
Victoria	9000	6.32	1424
New South Wales	9000	7.86	1145

See chapters 10 and 11 for recommendations to improve performance on speed management both within AT and within the partnership.

Red light running

There are some two red light cameras operating across Auckland with six more planned. These numbers could usefully be increased to say 36 red light cameras **with a combined speed camera operation**. Speeding at road intersections is particularly high risk given the possibility of cross traffic (side impact) crashes. In both cases of camera expansion, back office processing costs/resourcing requirements need to be taken into account.

Technology upgrades

Back office infringement processing constraints, which are acknowledged as very real, involving substantial technology and police resource costs to upgrade, are a major impediment to tougher enforcement and effective deterrence all year round.

There is a risk that a section of the community will claim enforcement is all about raising revenue for government and will resist the changes on that (inaccurate) basis. Options to reduce the appeal of these populist claims include establishing a national road safety support fund, accruing income from camera fines (less operating costs of operating the cameras and the upgraded camera offence processing system) nationally. Funding would then be allocated transparently to regions for the purposes of additional safety investment on local roads and promotion activities.[8]

CONCLUSION: Enforcement levels which would effectively deter speeding are severely hampered by:

- central government's reluctance to lower the enforcement tolerance of speed limits over the full 12 months
- less than half good practice levels of covert mobile speed cameras in operation
- constraints on camera offence processing
- inadequate fixed intersection red light cameras
- failure to apply demerit points for camera offences or failure to wear a seat belt
- inadequate fines ($30) for low level speeding offences, less than a parking ticket
- no higher fine levels for heavy vehicles
- increased speed limits on some national roads without any offsetting reductions on less safe roads.

Drink driving prevalence

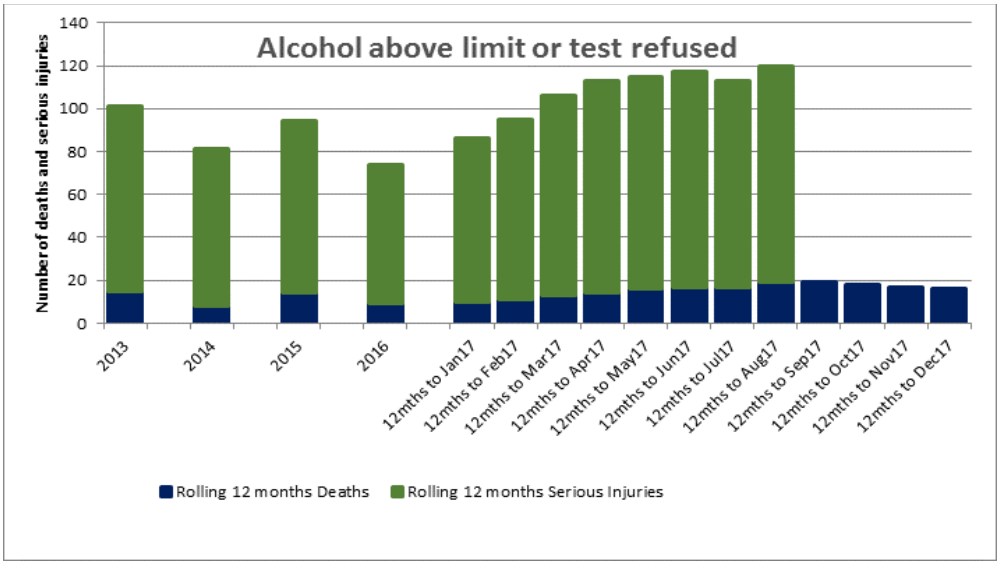
The most measurable example of the imposed reduction in enforcement effort is in drink driving. Since 2015, deaths in Auckland involving alcohol have risen 28% and serious injuries by 31%. **Drink driving related deaths in Auckland have increased by 100% over 2017 compared to 2016 (9 to 19). Serious injuries related to an intoxicated driver in a crash have increased by 63% in that period (from 74 to 123).** New Zealand performance data has not shown the same deterioration. NZ deaths have risen 13% and serious injuries by 8%.

Figure 20 below indicates the quite substantial progressive monthly increases in numbers of alcohol-related DSI (where alcohol is above the legal limit or in the case of surviving drivers, was refused) from 2016 progressively through 2017. It is considered that this can be attributed in most part to the reduced enforcement resourcing available to Auckland Police.[9]

[8] The distribution to the regions rather than to central government coffers is an important element. There are states in Australia that operate a broadly similar arrangement (Western Australia) and could be contacted for detailed advice.

[9] The alcohol-related Auckland DSI of 125 in the 2017 figures (106 serious injuries to end September and 19 deaths to the end of 2017) are the numbers provided earlier in Table 5.

Figure 20: Number of fatally and seriously injured crash victims with alcohol level above limit



RBT nationwide has fallen from a recognised good level of three million tests (about one per driver per year) in 2013/14 to two million tests in 2016/17 (0.7 per driver per year). In Auckland RB tests have fallen from around 771,000 tests in 2013/14 to around 537,000 tests in 2014/15 to around 396,000 tests in 2016/17. In late 2014, a new lowered adult alcohol impairment limit was introduced and numbers of alcohol infringements increased significantly. While drink driving offences across NZ have fallen from 25,000 in 2012/13 to 19,000 in 2016/17, this may reflect reduced RB testing levels. Drink driving related fatalities increased in 2017 in New Zealand to 75 from an average of 60 (24%) in each of the previous 3 years (66 in 2016).

Experience elsewhere shows any reduction in RBT to below one test per driver per year leads to substantial increases in drink driving DSI. This dose response relationship is certain and usually rapid.

Table 15: Police RBT numbers and offences Auckland

Fiscal Year	Number of Roadside Alcohol test conducted in Tamaki Makaurau
2011/12	638,716
2012/13	722,074
2013/14	771,253
2014/15	536,582
2015/16	321,575 (* under recording due to system issue)
2016/17	396,120

Table 16: New Zealand Random Breath Test numbers, offences and infringements

Year	**2011/12**	**2012/13**	**2013/14**	**2014/15**	**2015/216**	**2016/17**
Tests	2,721,876	2,952,138	3,013,272	2,555,957	1,473,187	2,115,280
Year	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Offences	28,000	25,000	21,000	19,000	19,000	19,000
Infringements	1,000	1,000	1,000	9,000	8,000	8,000

NZ Police

While NZ has adopted good global practice in recent years in licensing and drink driving, these improvements were introduced well after many jurisdictions had adopted them. NZ has fallen behind good global practice in a number of areas such as the imposition of adequate penalties and demerit points for certain offences in order to deter illegal/unsafe behaviours, and permitting courts to allocate a work related permission to drive while suspended for drink driving. NZ has taken some time to come to the position of requiring the fitting of mandatory alcohol interlocks for repeat and serious drink drive offenders. Interlocks are an effective means of breaking the drinking and driving link and it is pleasing to note the planned introduction of mandatory interlocks for repeat and serious drink drive offenders in 2018. Victoria operates a major mandatory interlock programme (expanding since 2003) which now requires *all* drivers returning from a drink driving suspension (even those committing a 0.05 to 0.07 BAC offence) to fit court supervised interlocks for three months upwards at their own cost.

The substantial increases in drink driving DSI in Auckland in 2017 compared to the previous years are most concerning and clearly indicate how imperative it is that there is (a) a return to full road policing numbers across Auckland (and New Zealand) and (b) a return to some 1.1 million random breath tests across Auckland, (i.e. 3 million random breath tests across New Zealand), if adequate performance is to be restored for drink driving fatalities and serious injuries. Further initiatives will be required to make additional progress beyond that point.

CONCLUSION: RBT needs to return to good practice levels of one test per driver per year. It will be critical for the Roadsafe partners to support Police in their approaches to Wellington for necessary resourcing. Drink driving offenders should not have recourse to the courts to seek a work-related driving license while serving a full licence suspension.

See chapters 10 and 11 for recommendations to improve performance on drink driving enforcement.

Drug Impaired driving

The drug driving contribution is not known as there is no random roadside testing for presence of some impairing drugs in the systems of drivers, riders and cyclists

Australian experience would suggest that the presence of methamphetamine and the active component of cannabis as well as the contribution from some prescription drugs in drivers and riders would result in a contribution to fatalities and serious injuries of equivalent scale to alcohol. That is, up to 18 deaths and 105 serious injuries in a year for Auckland. Unfortunately the prevalence of drug impaired driving is not known in New Zealand.

It is understood that drug toxicology screening is not routinely conducted in the New Zealand hospital system. (Indeed it is understood that only in the Northern and Central regions, is alcohol testing routinely conducted for major trauma patients). It is suggested by the trauma surgery community that the understanding about driver impairing drug presence is sporadic and unsystematic. Methamphetamine is anecdotally becoming much more prevalent, particularly combined with alcohol, in hospitalised trauma patients.

This is a serious flaw in New Zealand's capacity to develop understanding of these risks and respond in order to combat drug impaired driving, which is a serious road safety issue in Australian states.

Adequate responses to the above policy issues are the foundation of good road safety performance and it can be asserted that not enough has been done by government in introducing new life saving policy directions for these measures in New Zealand.

Inadequate investment in safer infrastructure

Safety was always to be implicitly traded off for mobility in infrastructure safety project business case evaluation by AT whenever the NZ Transport Agency provided part funding for infrastructure safety projects – and this would also apply for the other major AT road projects funded by the agency. A vision zero underpinning which refused to trade off human life for other economic benefits, especially mobility, and targeted elimination of death and serious injury as an end objective, was never embraced.

CONCLUSION: The Austroads Safe System Assessment Process is not applied to AT/NZTA funded projects, including major projects, where significant safety gains at very little marginal cost are likely to be available if such assessments are carried out at the concept stage. This is a missed opportunity. AT's road infrastructure safety programmes should be evaluated and learnings identified as inputs for future programmes.

See chapter 10 for more detailed discussion on AT's safer infrastructure programme, including recommendations to increase funding and improve performance.

Analysis of possible factors in DSI increases

Underlying road user behaviours, related enforcement levels and the extent of separation of different road users are clearly among the key factors in the deterioration of performance.

Analysis of the effects of possible factors associated with the net increase in fatality levels in 2017 compared to 2016 is summarised in Table 17 below.

Table 17: Analysis of possible factors associated with the net increase in fatality levels and serious injury levels in 2017 compared to 2016

Factor	Increase in fatalities of 18 (from 46 to 64), 2016 to 2017	Increase in serious injuries of 154 (from 617 to 771), 2016 to 2017
Drink driving	9	41
Increased travel 5.1%	2.1	32
Motorcycling	-	50
Cycling	2	(2)
Pedestrian deaths	5	(7)
Drug driving related, say	4.5 estimate (50% of alcohol)	20 estimate (50% of alcohol)
Inappropriate speed. Usually factor in at least 30% of fatalities. Up 85% (from Police reports) in 2017	0.30 (64-46) = 4.8	(55 – 4.8) /2 (serious injury effects of increased speed ½ that for fatalities) = 25.6
Total	**27.4* x 0.75 = 21**	**161.6* x 0.75 = 121**

Note: Some duplication by offence type and road user type. Apply 75% reduction factor. (Other increases and reductions not brought to account).

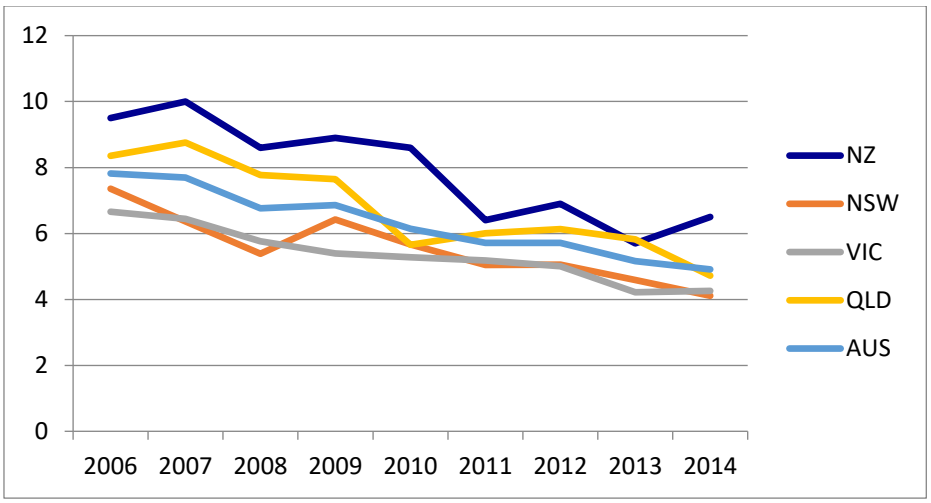
This analysis is based on actual data (drink driving fatality numbers) or estimated outcomes and based on experience in assessing impacts of changes in inputs upon outcomes. Carrying out a similar exercise for serious injuries to determine linkages between factors and outcomes with any precision is very difficult. These estimated outcomes should be recognised for what they are – an attempt to better understand the reasons for the substantial increase in DSI in 2017.

5. Comparison with international road safety outcomes

This chapter compares New Zealand's performance on DSI against both Australia and then a range of countries across the globe, highlighting even further Auckland's poor performance in recent years.

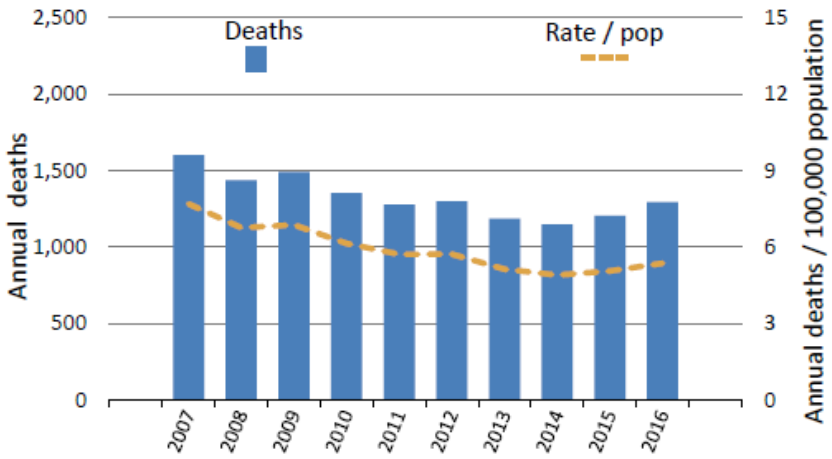
Comparison with Australian jurisdictions

Figure 21: Annual Fatalities, Australia, New Zealand and the larger Australian States



For 2017, New Zealand road safety performance was 7.93 fatalities per 100,000 population, compared to 5.0 in Australia. For Auckland, performance was 3.93 fatalities per 100,000 in 2017.

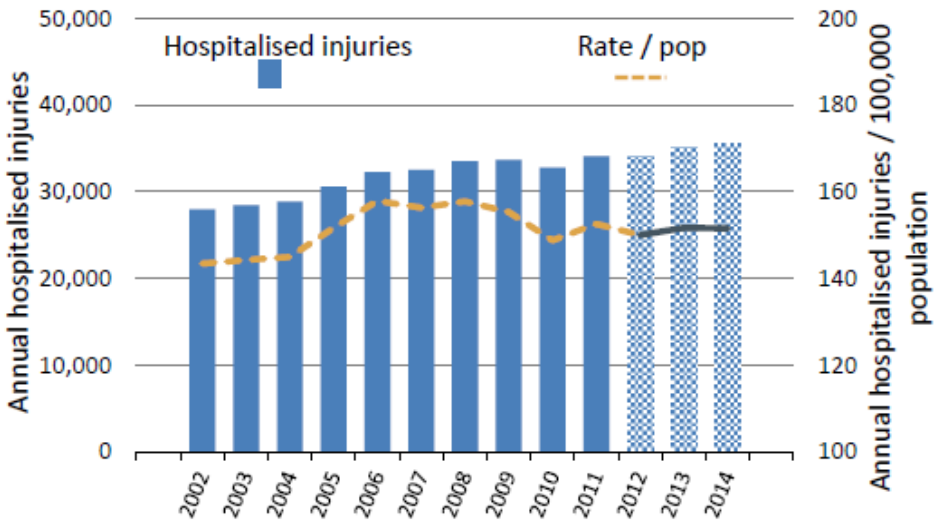
Figure 22: Road safety performance in Australia: Number of fatalities and fatalities per 100,000 population 2007-2016



Auckland's annual rate of increase in hospitalised injuries (serious) from 2012 to 2014 (380 to 447) of 17.6%, represents an annual rate of increase of some 8.5%. In 2016, serious injuries in New Zealand were 54.2 per 100,000 population and in Auckland 38.5 per 100,000.[10] The Australian annual rate of increase from 2010 to 2014 = 1.0% pa. Note the steady increases in hospitalised injuries in Australia, from 2010 onwards.

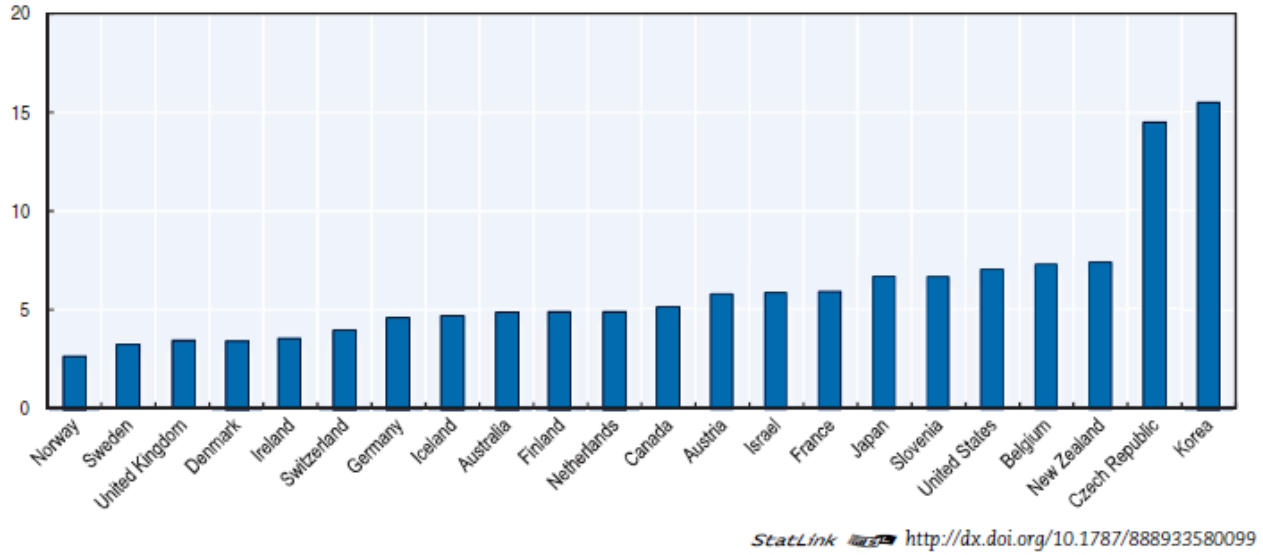
[10] Serious injury definitions for New Zealand are not comparable to Australian definitions. See Australian data.

Figure 23: Road safety performance in Australia: Hospitalised injuries



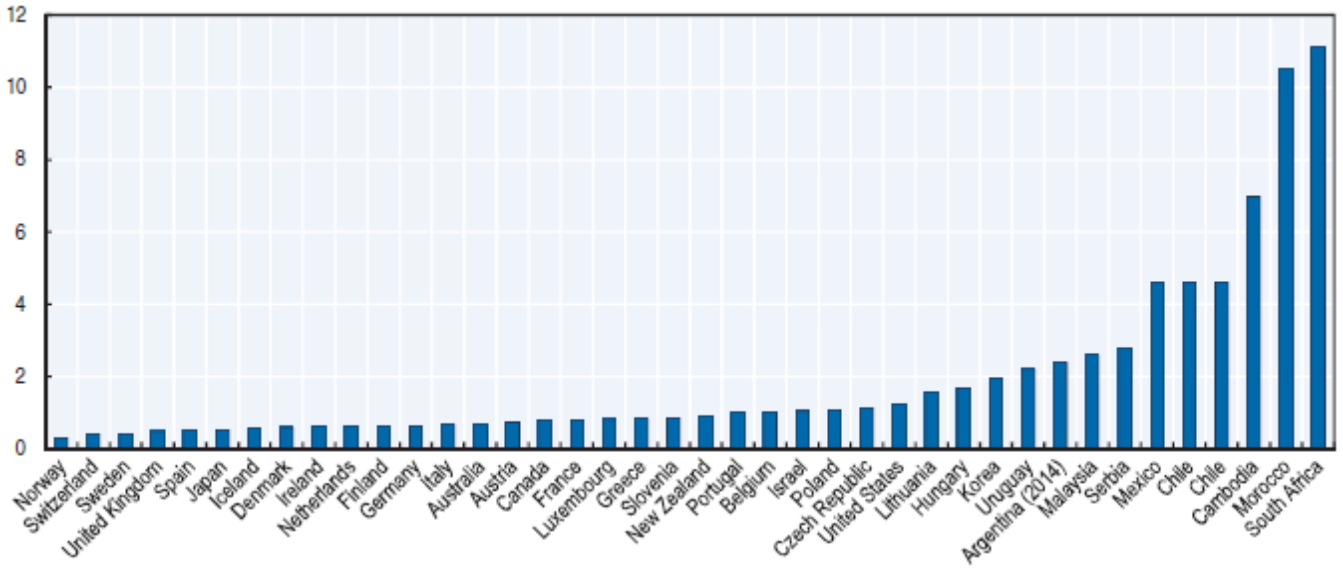
Comparison with international jurisdictions

Figure 24: Road Fatalities per billion vehicle – kilometres, 2015 (IRTAD 2017)



Note that New Zealand is towards the poorer performing end of country fatalities / vkt performance as shown above in Figure 24.

Figure 25: Road Fatalities per 10 000 vehicles, 2015, (IRTAD, 2017)



New Zealand is in the middle ranking of country performance in Figure 25 above, on the basis of fatalities per vehicle.

The IRTAD 2017 Annual Report on figures to the end of 2015 comments that: *In the best performing countries – such as the UK and the Netherlands – advances have been modest. In Sweden, traditionally a leader in road safety advances, the number of road deaths even increased.*

The slow-down of progress in countries that achieved notable successes during the previous decades and can boast some of the lowest fatality rates worldwide may also point to the limits of current safety measures and the need for innovation in roads safety policies. The report Zero Road Deaths and Serious Injuries: Leading a Paradigm Shift Towards a Safe System[11] *(ITF, 2016) contains a range of policy suggestions that extend beyond the approaches traditionally employed in most countries. Generally, strong and innovative policies need to be brought to bear worldwide in the remainder of the decade to reach the target of halving the number of road deaths by 2020, set in the United Nations Sustainable Development Goals.*

Table 18: 2015 Comparative road safety performance data across key countries who are IRTAD members

Country	Fatalities per 100,000 population	Fatalities per billion vkt	Fatalities per 10,000 vehicles
New Zealand	6.9	7.4	1.2
Canada	5.2	5.1	0.8
UK	2.8	3.4	0.5
Australia	5.1	4.9	0.7
Denmark	3.1	3.4	0.6
Germany	4.3	4.6	0.6
Korea	9.1	15.5	2.0
Ireland	3.5	3.5	0.6
Malaysia	21.5	N/A	2.6
Poland	7.7	N/A	1.1
Serbia	8.4	N/A	2.8

[11] Zero Road Deaths and Serious Injuries: Leading a Paradigm Shift Towards a Safe System[11] (ITF, 2016).

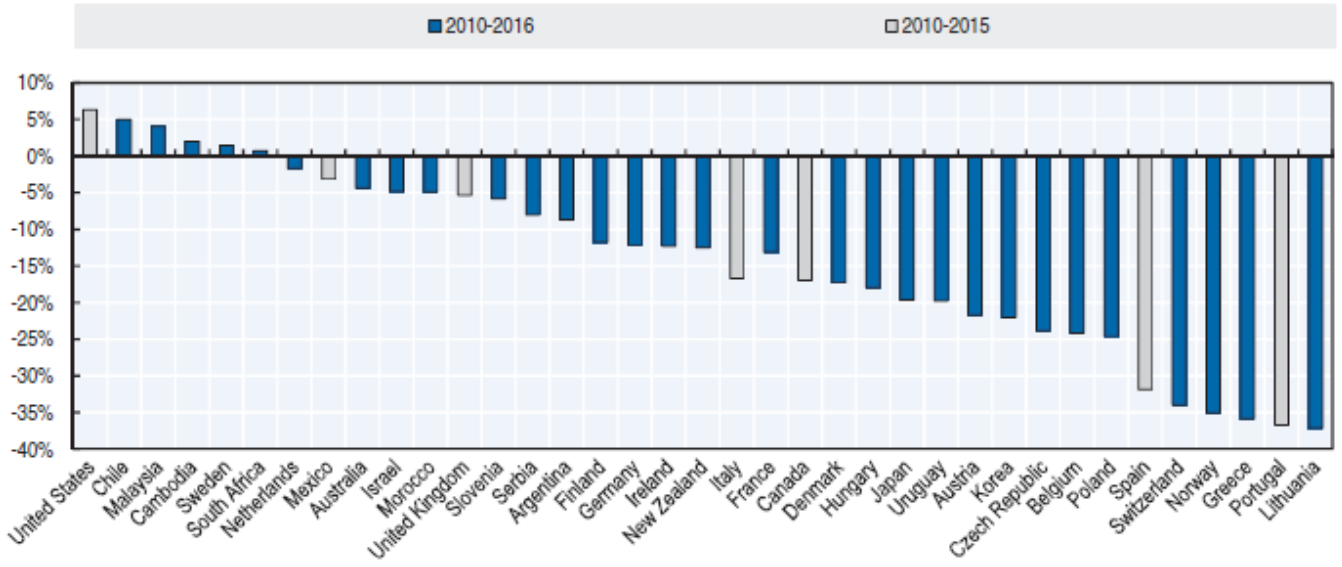
South Africa	**23.6**	**N/A**	**11.1**
US	**10.9**	**7.0**	**1.2**
Sweden	**2.7**	**3.2**	**0.4**
Netherlands	**3.7**	**4.9**	**0.6**

IRTAD Annual Report, 2017

The list above shows that New Zealand remains ahead of Poland, South Africa, Serbia, the US, Korea and Malaysia in fatalities per population performance, it is ahead of Korea in terms of fatalities per vkt and ahead of Korea, Serbia, Malaysia and South Africa in terms of fatalities per vehicle performance.

Figure 26 shows that New Zealand performed very well from 2010 to 2015/16, sitting in the middle of IRTAD countries performance. However, the situation has unfortunately turned around very rapidly and relative poor performance is even more concerning in Auckland.

Figure 26: Percentage change in the number of road deaths, 2010 – 2016 (or 2010 – 2015 where provisional or final data are not available) IRTAD 2017



6. Why Auckland's outcomes differ from other comparable cities

Auckland through AT is participating in the ITF *Safer City Streets* network of cities which is convened by the International Transport Forum. The Forum met in December 2017 and plans to meet again in 2018. The Network is working to establish a Global Road Safety Benchmark for Cities.

In its *Working Document* prepared to support the December meeting, the ITF prepared a series of data comparisons between cities. It commented:

The indicator which is the most frequently used to measure road safety is the number of road fatalities per unit population, also called road mortality. Results reflect a wide range of situations, with a median figure of 2.5 fatalities per 100 000 population per year, and with a highest value nearly 10 times this.

Some cities have provided information on commuter trips which enables the calculation of daytime population. The daytime population can be much greater than the residential population and is a better metric to capture the level of activity within the city.

The number of fatalities per daytime population is indicated between brackets on the figure. It makes Inner London stand out as much safer than Greater London as a whole. Likewise, Greater London is safer than the wider London urban zone or FUA. The use of daytime population significantly affects the benchmarking results (as can be seen in Paris City, Zürich, Lisbon, Brussels, Milan, Warsaw, etc.) and all cities are encouraged to estimate their daytime population.

Safer Cities Network recommendations

Monitor active travel
We recommend that local governments intensify their efforts to measure and monitor the use of different modes of transport, especially walking and cycling. Where funding is an issue, we recommend working in partnership with metropolitan authorities, national authorities, and authorities in charge of public health or using some simplified but standard survey methods.

Adopt ambitious targets
We recommend cities adopt ambitious targets on fatalities and on serious injuries, in line with the Safe System principle. We recommend cities adopt cycling safety targets expressed as a number of casualties per unit bicycle traffic.

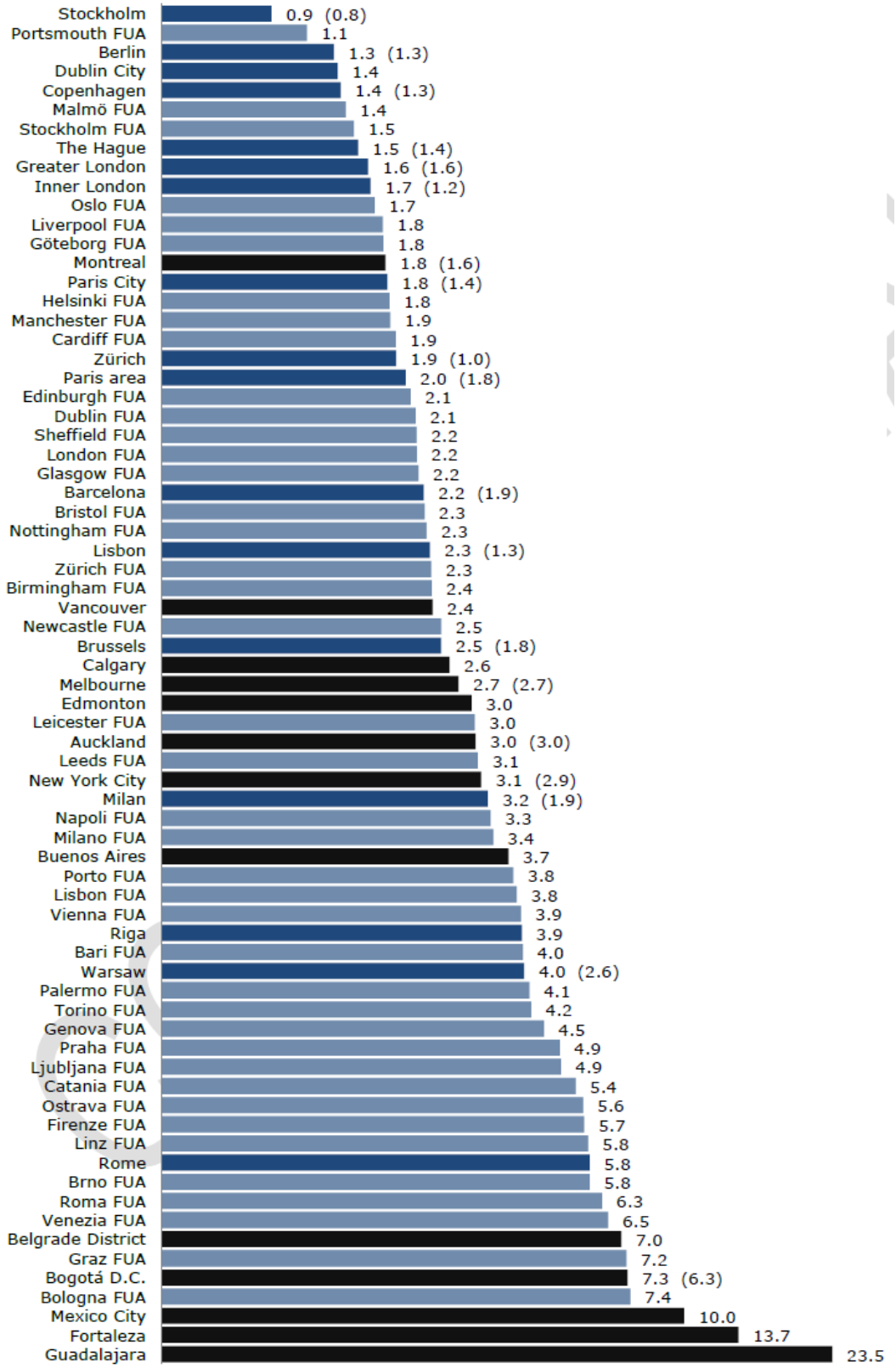
Focus on protecting vulnerable road users
We recommend that cities focus their efforts on the safety of vulnerable road users, as they make up the vast majority of urban traffic fatalities and experience a much greater level of risk.

Enable active travel
We recommend that cities enhance provisions for people to walk and cycle more. Not only does it have positive impacts on public health and inclusiveness, it may also reduce the risk of casualty per unit distance walked and cycled.

Focus on speeds
We recommend that cities implement and enforce lower speed limits, in line with the Safe System principles, in places where there is a significant risk of death or serious injury.

The relevant data for fatalities per 100,000 (daytime) population for the member Cities of the Network is shown in Figure 27.

Figure 27: Fatalities per 100,000 (daytime) population, 2011 – 2015, OECD/ ITF Safer City Streets



These fatality rate comparisons have to be interpreted with care. The car dependency of cities, such as in most Australasian and most North American Cities has resulted in lower density, more widely dispersed urban communities than is found in Europe or many other countries.

Table 19: Fatality rate comparisons: Selected Cities from Figure 27

City	Density (persons per square kilometer)	Fatalities/ 100,000 population (2011 – 2015)
Auckland	300	3.0
Riga 2300	2300	3.9
Roma (Full urban area)	2200	6.3
Calgary	1500	2.6
Edmonton	1400	3.0
Melbourne	500	2.7
Belgrade	500	7.0
Stockholm	4900	0.9

For example, the density of Auckland City is recorded as 300 persons per square kilometre, which is comfortably the lowest density city in the network of cities. Stockholm has a density of 4900 persons per square kilometre.

However, a more relevant comparison to Auckland would be Stockholm County which is effectively greater Stockholm, including rural areas and the urban fringe. It has an area of 6519 square kilometres and a population density of 350 persons per square kilometre. While numbers of road crash fatalities for the County were not readily available, the rate of deaths per 100,000 population would lie between the inner urban Stockholm figure of 0.9 (average of 2011 to 2015) and the whole of Sweden figure of 2.6 (in 2015).

Inner Stockholm has extensive public transport supported by its compact nature (and supportive public transport policy decisions) and lower rates of car ownership and it does not have the extensive higher speed roads in rural outer areas which are a feature of outer Auckland (and greater Stockholm). Swedish car ownership is much lower than in New Zealand and a number of other factors (including the costs of obtaining a driving license in Sweden – which serves to delay initial licensing until a mean age of more than 22 – and costs of operating and owning a car) serve to reduce car dependency and increase public transport patronage.

Table 20 provides a snapshot of historical movements in fatalities for both high- and low-density cities.

Table 20: Number of people killed in road traffic accidents per 100 000 inhabitants

	Auckland	New York	Stockholm	Melbourne
1997	9.3		2.3	
2013	3.2	3.6	0.7	2.5
2014	2.4	3.0	0.9	2.6
2015	3.3	2.7	0.4	2.6
2016	3.0	2.7	0.4	3.1
2017	3.92	N/A	N/A	2.2

Higher rates of car ownership

The rate of vehicle ownership per population is higher for car dependent societies including most Australasian and US cities.

New Zealand has a high vehicle ownership rate of 765 vehicles per 1000 population compared to 875 in the United Sates and 752 in Australia. These reflect low density cities where car use has extended urban development and encouraged commuting from longer distances by road. Canada and Sweden are in the next highest bracket of countries for vehicles per population. Netherlands and UK have lower vehicle ownership levels again.

Table 21: Vehicles per 1000 population by selected countries, (2015)

Country	Vehicles per 1000 population
New Zealand	765
Australia	752
USA	875
Canada	667
Sweden	618
Netherlands	600
UK	577

Across the 16 areas with figures available at both local and national level, the median share of vulnerable road users is 78% in cities, against 43% in the country as a whole. This is a very deep difference which explains the high level of interest for vulnerable road users in the Safer City Streets network.

Also, whilst Berlin and Copenhagen and The Hague have the highest share of bike fatalities, further examination of the level of risk indicates that these are among the safest cities for cycling. The corollary is that one should be cautious when making an interpretation of this graph. Above all, it shows the importance of working on vulnerable road users in Cities.[12]

There is interest in the AT road safety group in using Melbourne as a more relevant benchmark City for safety comparisons with Auckland. This is supported. Both are car dependent urban areas with considerable undeveloped outer urban hinterland, and longer distance commuting by road is a common occurrence. Melbourne has a density of 500 persons per square kilometre compared to Auckland's 300.

CONCLUSION: Auckland determine to benchmark its future road safety performance against Melbourne.

Risks to vulnerable road users

For all of the difficulties in comparing cities which are fundamentally different in development and travel modes, there is data from the recent ITF Working Paper which provide an interesting input to the safety issues faced by Auckland road users.

While Auckland is characterised by a high proportion of road users being vehicle occupants, (similar to but greater than Melbourne, Edmonton and Calgary) there are three rankings in the working document of 29 Cities for (i) pedestrian fatalities per distance walked, (ii) cyclist fatalities per distance cycled and (iii) motorcyclist fatalities per distance travelled. Most of the distance figures used would be estimates and may contain inaccuracies. However, the published data shows Auckland as having the *second* highest pedestrian fatality rate, the *sixth* highest cyclist fatality rate and the *highest* motorcyclist fatality rate per distance travelled. If the travel distance estimates for Auckland submitted to the ITF are in fact reliable then it confirms local concerns that suggests a major safety issue exists for vulnerable road users.

[12] *Safer City Streets, A Global road safety benchmark,* Working Document prepared to support 2nd meeting of the Safer City Streets network, 7 – 8 December 2017, ITF.

7. Good practice road safety systems and management

The Safe System/Vision Zero goal, principles, elements and tools

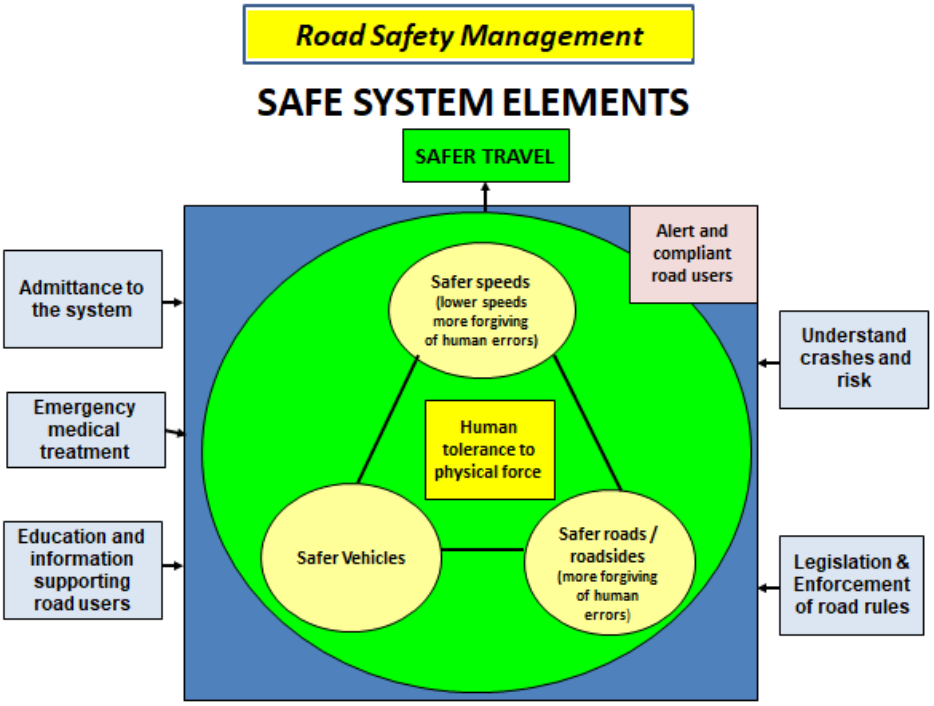
What is Safe System

Safe System is a critical reframing of the way in which road crash risk is understood, considered and responded to. It requires greater emphasis and awareness within all of AT.

A Safe System is sustainable. It can help meet broader environmental, social, and health goals. By promoting public transport, walking, and bicycling, it can help mitigate climate change and improve air quality by reducing carbon dioxide emissions from transport. Increasing the safety of public transport, walking, and bicycling also increases people's physical activity and enhances their quality of life and ability to access jobs and education. A mobility system that offers a variety of safe transportation options can better address the needs of a variety of demographic groups, including women, poor people, elderly people, the very young, and people with limited mobility.
Sustainable & Safe, A Vision and Guidance for Zero Road Deaths, EMBARQ, World Resources Institute, World Bank, GRSF, Bloomberg Philanthropies, 2017

A Safe System approach in its application is a human-focused view of what is required for safe road travel by light and heavy vehicle occupants, riders and cyclists and pedestrians. It is fully consistent with a citizen centric view of service provision to the people of Auckland.

Figure 28: Representation of the safe system elements



There are a wide range of benefits that come from a Safe System approach including reduced social costs, improved network efficiencies from reduced crash delays, improved uptake of public transport, walking & cycling, improved health benefits, reduced emissions, and other sustainable transport benefits (housing, employment & access) as outlined in the United Nations Sustainable Development Goals for urban cities (SDG Goals 3 & 11).

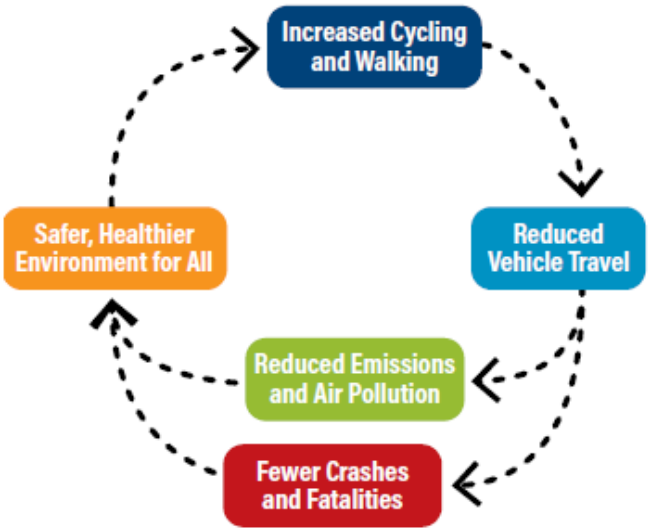
The action areas of the Safe System approach are integrated and go far beyond attempting to persuade people to change their behavior through education or enforcement alone. They include addressing underlying factors—such as land use and mobility planning—to reduce vehicle dependence and promote safe, healthy, and environment-friendly travel modes; comprehensive speed management to set safe speeds; intersection design to allow people to cross safely; road design that accounts for human error; improved public transport; safe vehicle design and technology; and better coordination and quality of post-crash emergency response and care.

Addressing road safety also requires addressing less obvious systemic issues that reduce the threat of physical force that a traffic crash brings, such as controlling speeds, designing easily understandable roads, and requiring high safety standards for vehicles. By taking an integrated approach to road safety and planning that is both sustainable and safe, it is possible to transform expectations around traffic fatalities and serious injuries and dramatically reduce this preventable global health problem.

Sustainable & Safe, A Vision and Guidance for Zero Road Deaths, EMBARQ, World Resources Institute, World Bank, GRSF, Bloomberg Philanthropies, 2017

There are many environmental and health benefits inherent to a Safe System Approach and Figure 29 refers to some of these benefit areas.[13]

Figure 29: Environmental and health benefits of a safe System approach



Tools:

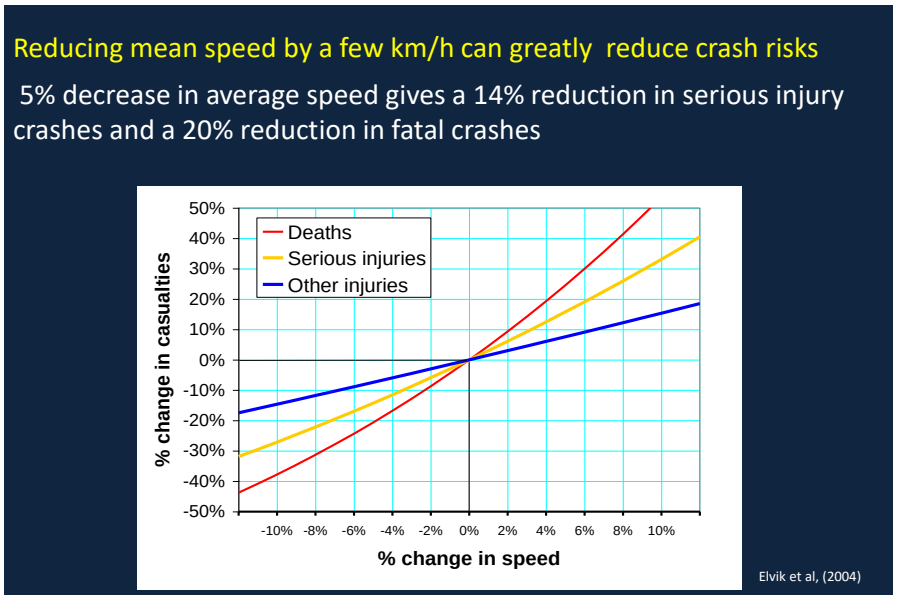
- Develop sound understanding of relationships between serious crash rates and level of protection provided against these crash outcomes on a road – to identify ways to better manage crash forces
- Austroads Safe System Assessment Framework
- NZTA High Risk Rural Roads Guide
- NZTA High Risk Intersections Guide
- KiwiRAP
- Speed /Fatality and Injury crash risk curves
- Recognition that crash outcome severity is strongly related to speed of travel**.**

[13] *Sustainable & Safe, A Vision and Guidance for Zero Road Deaths,* EMBARQ, World Resources Institute, World Bank, GRSF, Bloomberg Philanthropies, 2017.

Speed and crash risk by injury severity

Risk of serious crash outcomes is highly sensitive to speed of travel of traffic. Two or three kilometres per hour of additional speed in any situation can often exceed the level at which outcomes of certain crashes will not result in serious injury. Fatal crash outcomes are even more sensitive to small changes in travel speed than serious injury outcomes. The effects of small additional levels of speed in the traffic stream – what is usually termed low level speeding – have remarkably substantial effects on DSI, as shown in Figure 30 below.

Figure 30: Changes in mean speeds and changes in numbers of fatalities and serious injuries on any road

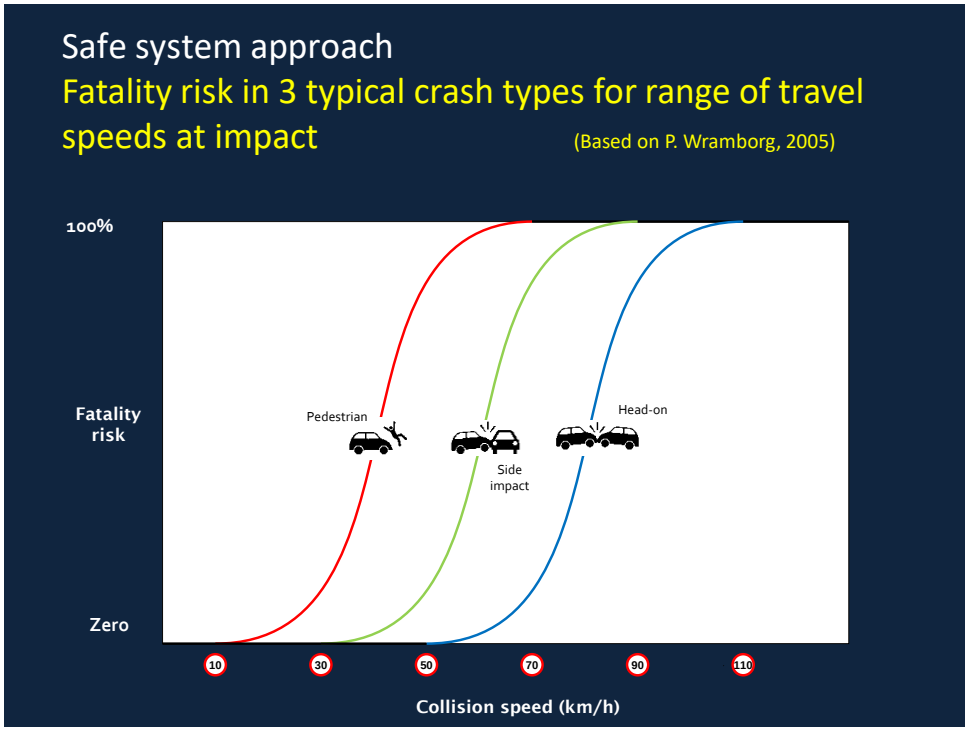


Speed and fatality risk thresholds for the major crash types

There are known speed levels for each of the major four crash types, above which the risk of fatal outcomes exceeds 10% likelihood and that risk escalates rapidly.

Figure 31 endeavours to represent this reality in a readily understandable way. For example, **a pedestrian (or cyclist or motorcyclist)** impacted by a vehicle moving at 30 km/h will have a 10% risk of fatality. (The risk of serious injury is higher especially for small children and older pedestrians). As traffic speeds increase the risk of fatality increases rapidly as shown in the graphic.

Figure 31:Fatality risk and crash types for crashes at varying travel speeds



For **side impact** crashes (the major crash type at intersections) the speed at which a 10% risk of fatality for the vehicle occupant on the side struck by the impacting vehicle is exceeded is 50 km/h and then the risk escalates rapidly for greater speeds, even a few more kilometres.

For **head on** crashes between two vehicles the speed at which a 10% risk of fatality for the vehicle occupants is exceeded is some 70 km/h with fatality risk ring rapidly at speeds above that level.

For **run off** road crashes there are many variables and the situation is not shown here. However, it is usually suggested that around 50 km/h is the speed above which run off road crashes will produce rapidly increasing fatal crash outcomes.

These threshold speed/fatal crash risk levels are fundamentally important considerations, especially in an urban space such as Auckland City. If speeds were at 30 km/h where pedestrians and cyclists were most likely to be moving about then vulnerable road user deaths could be reduced dramatically. Similarly, at intersections, if travel speeds were at 50 km/h the risk of many side impact crashes producing fatal crash outcomes would drop substantially.

Head on risk could be reduced if travel speeds on higher risk two lane two-way roads (such as the rural roads in outer Auckland) were reduced from 100 km/h to, at most, 80 km/h.

Motorcycle top speeds of 40 km/h would provide for some protection in the event of a rider coming off the bike. While this is unlikely to be entertained by the motorcycling community it is at present all that can be suggested to bring motorcycling within a safe system operating envelope. They are unprotected road users and are essentially pedestrians on a piece of metal with some head protection with helmets and light body protection with leather clothing and gloves and riding boots. Every effort needs to be made to deliver improved safety solutions for motorcycling. There are of course many other measures that should be deployed to improve motorcycle safety.

It is also important to note that serious injuries would reduce as well, although not to the same percentage degree as fatalities.

Locations where speed limits are set at too high a level for the inherent safety of the infrastructure (i.e. which has a high serious injury crash outcome risk) and for the volume and mix of traffic need to be identified and reduced on a risk priority basis.

Lowering limits in higher crash risk locations will provide immediate benefits in DSI reductions. These benefits can be more fully realised through adequate police enforcement using technology (mobile cameras)

Two supporting pieces of evidence demonstrate the certain benefits in reduced DSI that would accompany lower speed limits.

(a) The *Sliogeris 1992 study* measured the effect of an increase in speed limits from 100 km/h to 110 km/h on urban and rural freeways and some rural highways in Victoria, Australia in 1989. Casualty crashes increased substantially (+21.5%) and the government after 27 months of operation of the higher speed limits lowered the limits back to 100 km/h. Crashes subsequently reduced (-18.2%).

Table 22: increases in casualty crashes and later reductions in casualty crashes

Location	Before 110 vs during 110 – comparison % change	During 110 vs after 110 – comparison % change
Total Victoria	+24.6	-19.3
Rural	+14.8	-16.8
Urban	+48.9	-11.7
Victoria - High Severity Crashes	**+21.5**	**-18.2**

(b) *Elvik and Vaa* carried out metadata studies which are published in *The Handbook for Road Safety Measures*, 2004 which detailed the effect on accidents of reductions in speed limits:

- For speed limit reductions from 90 to 70 km/h or 80 to 60 km/h the reduction in fatal crashes was 43% and injury crashes 23%.
- For speed limit reductions from 70 to 60 km/h or 60 to 50 km/h the reduction in fatal crashes was 23% and injury crashes 9%.
- For speed limit reductions from 60 to 40 km/h and 50 to 30 km/h the reductions in fatal and injury crashes were not differentiated. The reduction in overall injury crashes was 67%.

Note: Cameron and Elvik more recent research indicates that for travel speeds in urban areas below 60 km/h the reduction in fatalities with lower speeds is less than the chart above indicates. (i.e. power of 2.7 cf 4 for higher speeds)

Comment: *It's also the 100km rural roads that shouldn't be 100 km/hr. Now there are more and more people out driving on those roads with townies moving out to the fringes. And the tolerance is too high so they are driving at 110-120 km/h and then they look at their phone or make a small mistake.* [and have a serious crash]

Safe speeds and how this principle can be applied to the road networks are further discussed in Chapter 9 on opportunities for improved performance. Chapter 9 also includes detail on how safer infrastructure and safe walking can be delivered with the underpinning Safe System principles.

CONCLUSION: There is currently a very limited understanding of what a Safe System approach means at Board and Executive Leadership Team level and throughout all but the specialist road safety areas in the organisation. It is a major leadership challenge for the AT Board and the whole organisation to embrace the familiarisation efforts needed to better understand the Safe System principles.

The Global Network for Road Safety Legislators have prepared a series of recommendations[14] which highlights the need to integrate road safety with sustainable transport policies. This also highlights how safety aligns strongly with Auckland Council's goals for Auckland to become a sustainable city. Three highly relevant recommendations are for Parliament to:

1. adopt the Safe System Approach with improved speed management serving as a critical overall policy instrument
2. review their national road safety policies and legislation
3. support the integration of road injury prevention with policies promoting sustainable development such as speed limits which will both reduce casualties and vehicle emissions and by prioritising non-motorised transport.

Vision Zero principles and adoption process

A complete safe system/vision zero approach asserts that it can never be acceptable that people are killed or seriously injured as an accepted by-product of other activity on the road network – as is now the accepted situation with workplace safety in developed nations – a major shift from 20 to 30 years ago.

A set of principles:

- Human beings make mistakes, the road network and its features must be forgiving of road user error.
- The human body has a known tolerance to forces/ energy transfer in various crash types. Prevent exposure to forces that exceed their tolerance to injury. Speed management is crucial.
- Safe mobility. Safety is to become the limiting condition for mobility. Achieving safe travel speed on individual sections of the network over time is the key objective, reflecting the protective features of the infrastructure and the vehicle to avoid death and serious injury. Safety should not be traded off against mobility goals.
- Responsibility for safe operation of the network is ***shared*** between users and providers.
- Sustained innovation is needed to proactively build safety into the road system, rather than reactively and incrementally adjusting to system failures.
- Improved safety to be aligned with achieving other sustainable development goals - to secure environmental, energy and health co-benefits.

A set of elements/interaction opportunities

- Road safety management
- Safe roads and roadsides
- Safe speeds
- Safe road users
- Safe vehicles
- Post-crash care.

As set out in Figure 32 below from Dr Matts Ake Belin of the Swedish Transport Authority, a fundamental basis for the complete application of the Safe System Approach is to embrace Vision Zero.

[14] www.4roadsafety.org/summary-of-recommendations/

Figure 32: Safe system approach

The *Safer Journeys* safe system basis is commendable and has delivered substantial benefits in changed thinking by the road safety partners at regional and national levels. However, with the benefit of hindsight, the central government embrace of Safe System since 2012 could correctly be considered as less than fulsome. There are many elements of good practice deterrence of unsafe and illegal behaviours for example that are not in place nationally across New Zealand. Examples will be detailed later in this report.

Safer Journeys did not establish a targeted reduction in overall DSI (although there were four specific targets set for specific user groups). Most significantly it has a restricted vision and does not extend to embracing the concept of *vision zero,* i.e. the longer term ultimate goal of zero loss of life and zero serious injuries. The essential *vision zero* concept of not trading off human life or serious injury for other objectives such as mobility has not been embraced to date by Government, including its agencies. This objective is most challenging, requiring innovative solutions to be developed and applied to tough challenges to achieve win-win outcomes, and cannot of course be achieved immediately. If the vision zero goal was adopted, all new roadworks designs would need to meet this objective from that time and the network progressively retrofitted to deliver on zero DSI over the years ahead. Policies which trade off safety against other goals such as improved mobility are not to be maintained but progressively adjusted in the future.

Comment*: Safer journeys was more about vehicle to vehicle interactions. Auckland is about vehicles with pedestrians, cyclists and motorcyclists and I wonder if the safe system is as applicable as it should be. Have we adapted to changing patterns?*

Adopting Vision Zero as an objective would have a number of early ramifications, for example as to how projects are to be evaluated in future. The current NZTA road investment business case development approach for part NZTA funded road infrastructure projects (including safety projects) insists upon time delay costs of any treatment (e.g. signals or roundabouts) for all affected motorists to be offset against the value of estimated safety savings over the life of the treatment, resulting in some projects with substantial safety benefits not receiving funding.

This approach is somewhat puzzling as the allocations for road safety infrastructure are “ring fenced” and do not compete openly for overall national road funding. Of course, the highest safety value projects per dollar of expenditure should always be prioritised but this objective has little to do with relative delay costs to motorists. It suggests that a very worthy road infrastructure safety project may not receive funding approval from NZTA in favour of a project with much lower safety benefits but with few delay costs.

Comment: NZTA are very much aware of these issues and have been for decades

There are numerous leadership challenges in reinforcing safe system/introducing vision zero thinking:

- It is a major paradigm shift in how safety is viewed and tackled
- The objective is progressive movement towards a safe road transport system
- Life and health are paramount and cannot be traded off for mobility. The demand for protection of life is to be the driving force in the road traffic system
- A substantial change management program is required – for AT, the regional road safety partners, the national government agencies, the political level and the community
- Adopting this approach is only the first step. "*Plans or ideas without execution mean nothing".*

CONCLUSION: There needs to be pressure at the highest levels of the central government to obtain change. Adoption of the introduction of Vision Zero thinking at national level needs to be openly discussed.

Committing to a full Vision Zero objective within the Safe System approach and embedding this within the operations of AT (and AC and local boards) would assist achieving reductions in road crash casualties, building on steps taken in recent years. While Safe System principles are to be brought to the table for consideration of each road safety issue, safety imperatives are not to become absolute overnight and simply push out other considerations about access and mobility and more. A much more nuanced and extensive dialogue within AT's ELT will be needed to find a path to safe system outcomes while recognizing the City has to continue to function in many other ways. Over time many currently held positions by officers within AT and the community will need to change. Extensive discussion, debate and piloting of innovative solutions is the means by which sensible medium term change can be brought about to resolve very different positions, and these steps can be progressively strengthened as knowledge and innovation improves.

In practical terms the necessary safety retrofitting of infrastructure and review of travel speeds to improve the safety of vulnerable road users in 'place' locations, to improve travel speeds for vehicle occupants on 'flow' roads, and to define the roles of roads on the network in this way is a task which will take some years to complete. In the interim, working with the outlier risks, applying the safe system principles and looking for innovative opportunities to reduce serious injury crash risk will be the paths to take. The term "Towards Zero" is often used to convey this intent. This commitment to the Towards Zero journey will drive innovation and delivery of acceptable solutions for the community.

Management issues and requirements

One of the major learnings in road safety over the past 10-15 years is the importance of the institutional management functions which produce high quality interventions, which in turn produce improved results. Key to this is analysing crash risk issues, developing and implementing a strategy and action plan to address these risks, coordinating the activity of various parties, revising and renewing legislation and standards, obtaining adequate funding and allocating resources to safety, monitoring and evaluating safety results, and undertaking research and development and knowledge transfer programmes.

Critical management issues influencing road safety results in any jurisdiction are:

- the strength of the focus by agencies, government and others on delivering improved road safety results, built upon a clearly stated and understood expectation for improvement set out in a strategy and action plan
- the effectiveness of the identified lead agency in supporting this focus on results
- the effectiveness of the management arrangements between and within institutions across government and their shared and individual responsibilities for supporting achievement of the desired results
- the extent to which this focus on results is brought to bear upon the development and delivery of interventions

- joint and individual agency accountability for delivery of results.

How effectively a jurisdiction addresses these issues largely determines the quality of its road safety management system. This approach applies within organisations such as AT and also critically to the partnership across road safety agencies, (Roadsafe Auckland and central government) essential to achieving desired outcomes.

There are critical requirements for any region or country which determine its capacity to set meaningful road safety targets and achieve their delivery.

The availability of:

- DSI data
- the existence of the calculated value of the social cost of crashes
- and the identification of crash risks faced by road users on various parts of the network

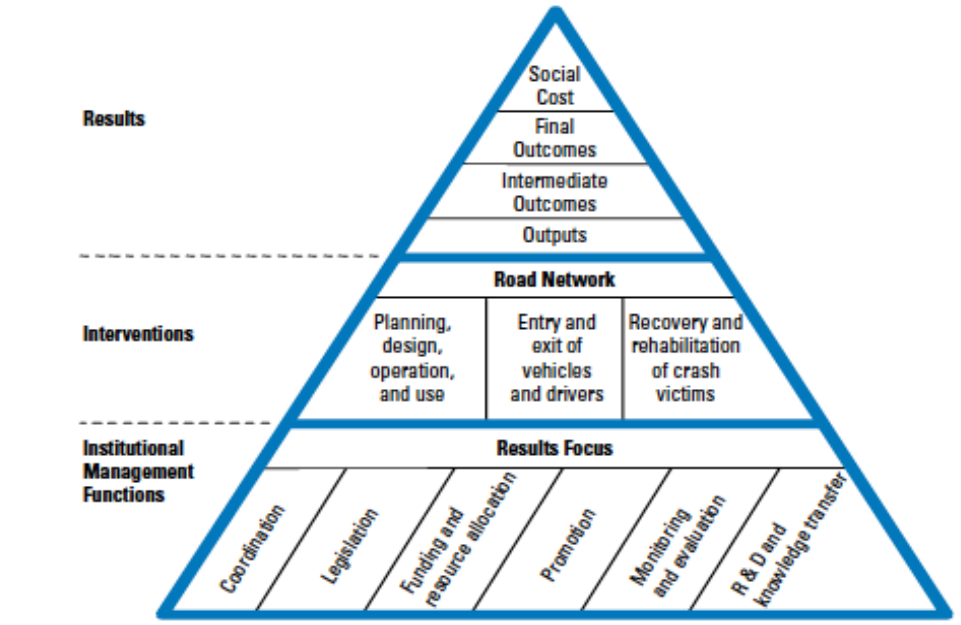
are necessary data to define the current road safety situation and trends - and to enable an informed vision and road safety targets to be set. Based upon those targets and the agreed actions to achieve them, usually defined in a strategy and a series of action plans, clear responsibilities and accountabilities for delivering required performance would be set for the road safety agencies to meet those expectations. Industry and community performance responsibilities should also be clearly defined. This would constitute a strong *results focus.*

Unless there is adequate road safety management capacity and a strong results' focus then efforts made to (a) develop effective interventions and (b) deliver them well, will not lead to road safety performance which matches expectations.

The overall purpose of a road safety management system is to significantly improve results over time, and this requires safety standards and rules and associated performance targets to be in place and driving forward safe planning, design, operation and use of the road network. The Safe System provides the framework for moving progressively towards zero fatalities and serious injuries (Vision Zero). Figure 33 below shows the importance of sound institutional management functions[15] which are all focused on results. They are the essential underpinning of road safety intervention development, adoption and implementation which then produce the required results (reduced road trauma).

[15] *Country guidelines for the conduct of road safety management capacity reviews and the related specification of lead agency reforms, investment strategies and safety programs and projects*, T Bliss and J Breen (2009), Global Road Safety Facility, World Bank, Washington.

Figure 33: Country guidelines for conducting road safety management capacity reviews



Source: Bliss and Breen, building on the frameworks of Land Transport Safety Authority, 2000; Wegman, 2001; Koornstra et al, 2002; Bliss, 2004.

Road safety lead agency responsibilities

The road safety activities of central government involve a number of departments/agencies to varying degrees. It is vitally important that a government department or agency is identified as the lead agency and operates effectively in this role. AT is clearly the lead agency in the Auckland Region. The lead agency is expected to drive the focus on results of the jurisdiction, through leading the establishment of a vision, the adoption of road safety targets and the associated strategy and action plans. This has a major (while not complete) reliance on similar action being taken at national level, which is not understood to have been the case in New Zealand in recent years. It is also necessary that it establishes mechanisms which clearly specify lead agency, partner agency and other stakeholder accountability for delivery of results and to measure that performance over time.

AT as the lead agency has the responsibility for both effective horizontal coordination of the regional road safety agencies and the stakeholders outside government, and effective vertical coordination with national government. It is also expected to coordinate specific delivery partnerships with government and non-government stakeholders, and maintain effective relations with nationally elected representatives.

Within Auckland, the relationship of AT with AC, its owner, and local boards is vitally important and should be effective, given the direct relationship of these entities. There are a number of issues which need to be addressed here and these are discussed in chapter 10 Opportunities within AT for improving performance. An effective lead agency at regional level:

- reviews the scope of existing road safety legislation looking for opportunities to advocate strengthening of existing laws and regulations to the national government
- leads the securing of adequate resources for necessary investment in safety management and interventions including the advocacy, promotion and negotiation with national government, building on informing, developing and utilising support from the community, in order to achieve support for implementing the agreed road safety actions
- champions and promotes multi-sectoral shared responsibility and interventions among high level decision makers and influencers at national level
- measures final outcomes and specifies and measures intermediate outcomes at regional level, while also

keeping track of national level performance
- reviews regional outcomes and its own performance while supporting other agencies to review their performance
- relies upon and fosters research, develops and implements demonstration projects, and ensures good practice road safety guidelines are developed and published by the agency and its partner agencies.

These are the critical concerns of a lead agency. The functions may not always be performed by the same organisational unit, but there is one unit which is concerned with all of these matters and makes a business out of the necessary cajoling and coordination of various parties to deliver their responsibilities.

Other road safety agency responsibilities

While the lead agency has specific responsibilities, the other road safety agencies have their own responsibilities for performance in substantially contributing to overall improved outcomes. They need their own capability to perform the major management functions required for successful road safety performance, and to deliver effective interventions.

Invariably, the interventions delivered by one agency are enhanced through coordination with other agencies as they are advocated for, developed and delivered. This often requires both horizontal and vertical consultation, negotiation, incentivisation and persuasion, and may require robust partnerships with industry and communities.

Promotion: Road safety needs to be regularly promoted. Classic public sector management mechanisms can be effectively used to build understanding of road safety within local government, to national government and Parliament, and with the wider community. The better this understanding at the highest levels, the more straightforward it becomes to identify and win support for investment or policy changes which are needed. AT, particularly the Board and CE, have a critical role to play in these activities.

Adequate funding and resource allocation are critical to successful road safety performance. Sustainable funding arrangements, formal resource allocation procedures, and a recognised contemporary Value of Statistical Life need to be in place, and used to make the best use of resources and enable the desired results to be achieved.

Regular **monitoring and evaluation** activity is required which relies on good practice crash data systems, and the availability of data on seatbelt use, helmet wearing and travel speeds on each category of road and the DSI crash risk rating for each road to be in place. Data on drink driving fatality numbers and trends and drug driving fatality numbers and trends (when a widespread drug driving regime is put in place by the central government) are required. Availability of output data on the quantity and quality of engineering safety treatments, police operations such as drink driving testing volumes and rates of failure of tests by drivers, percentage of drivers passing speed cameras and complying with speed limits, emergency medical services, promotional and campaign activities, vehicle safety ratings in the overall fleet, and on-road user surveys are also needed.

Research and development and knowledge transfer need to be sufficiently supported with a regional research and development strategy. Auckland has particular road safety issues to understand and then to deal with. A robust R&D capability – even to evaluate programmes to enable a sharpened focus on effectiveness of the next programme – is a most worthwhile activity. It should focus on necessary vehicle, highway infrastructure, human factors, and institutional factors required to deliver improved results. Pilot and demonstration projects need to be utilised as necessary to support implementation of change.

Other critical institutional management functions are legislation and regulation.

The key outcomes sought by effective road safety management in a jurisdiction, can be summarised as follows:

- Applying these principles to the regional road safety partnership (Auckland Roadsafe), as outlined in chapter 11 Opportunities within AT's external partnerships for improving performance
- Understanding the inherent implementation capacity of the road safety management system, as this will shape the nature, scale and sequencing of initiatives taken to improve the system's performance.

Comment: *AT is in a complex place, it deals with New Zealand Ministries of the Crown. AT has not achieved trusted advisor status with MOT to the extent it should have. AC is the planning authority for Auckland. AT has all the grunt. AC and AT are not that linked up. AT's role in shaping the game is not as strong as it should be and can be.*

CONCLUSION: **Implementing the Safe System Approach requires:**

1. **adopting a Safe System vision – Vision Zero – as a long-term objective**
2. **establishing the required institutional road safety management functions and capacities to apply these within AT and partner organisations and**
3. **implementing the Safe System principles and applying the safe system tools.**

Substantial training within AT (from Board members and ELT through the organisation) plus regional partners and local elected members is required.

8. Analysis of strategic outcomes and operational delivery within AT

This report has so far addressed the first two key areas of the Terms of Reference summarised in the Introduction, namely analysis of road safety outcomes over time with reasons for current increases and why Auckland's outcomes would differ from other cities of similar size. This chapter addresses two further key areas:

- Analysis of strategic outcomes for road safety and the extent to which these are aligned with strategy, understood and owned within AT, being properly measured and alignment with the annual work programme.
- Analysis of operational delivery against current and desired measures.

This chapter focuses on direct AT functions. The next chapter focuses on the external Roadsafe and central government partnerships.

Extent of alignment with strategy

A number of national and regional strategies and plans provide the Strategic Context for addressing Auckland's road trauma challenges. Those most relevant to AT's own actions (i.e. Within AT) are:

- Safer Journeys Road Safety Strategy to 2020 and related Action Plans and Guides
- Draft 2015 Government Policy Statement
- 2015/18 National Land Transport Programme and Investment Assessment Framework
- 2012/15 Road Policing Programme
- Auckland Plan
- Auckland Integrated Transport Programme, and 2015/21 Regional Land Transport Plan
- Activity Management Planning, One Network Road Classification & Network Operating Plan
- Regional Road Safety Action Plan and local Road Safety Action Plans (AT's direct responsibilities).

The documents most relevant to AT are all of the above, plus:

- Letter of Expectation and Statement of Intent
- Roadsafe Auckland, Strategic Road Safety Case, 2014 (never formally approved)
- Roads and Streets Framework.

The 2018 Letter of Expectation from the Mayor of Auckland to the Chairman of AT, received in January, asks AT to undertake a *robust analysis of causes behind the (increased DSI) trend and come up with options to reverse it. This should:*

- *integrate with national safety initiatives*
- *draw on international evidence as to what works*
- *embody "Vision Zero" principles*
- *comprehensively review all options to improve safety outcomes.*

AT should engage with the council on the different options for improving safety and their implications, including financial impacts.

Auckland Council has clearly indicated it is a willing partner in the battles ahead to reduce unacceptable recent road safety performance.

Auckland Transport has no road safety strategy (this would usually be developed and recommended by the Auckland Roadsafe Executive). A comment made during the review was that "*There is no existing overarching Auckland road safety plan in place, which can be proudly pointed to, and the Board is feeling anxious.*"

Roadsafe Auckland prepared (in December 2014) a Strategic Road Safety Case (SRSC) which outlines the 2015 to 2018 Auckland road safety strategic context, the proposed road safety investment proposals and sets out the case

for change. It is a useful document, providing some guidance about directions and priority actions in the absence of a formally adopted strategy. It was forwarded to the NZ Transport Agency to support the 2015 – 2018 funding round application but has never been considered by the AT Board I am advised, nor published. It is understood that a recommended 2023 DSI target for Auckland was presented to the RoadSafe Executive in July 2016 which emphasised that road safety target setting was good international practice. The recommendation for a target and its adoption was not supported at that time.

At the time of its preparation, 484 DSI had been experienced in the previous 12 months in Auckland. The targeted reduction nominated in this Strategic document by 2020 was to reduce DSI levels to 410. Performance specified in the 2014-2017 Statement of Intent was the delivery of an annual 2.6% reduction in DSI on the local road network.

The Investment Options and Analysis contained in the SRSC identified four major problem areas for action: Safe Roads, Safe Speeds, Safe Road Users and Safe Vehicles. Three strategic responses were proposed: (1) Road improvements – where activities planned have generally been implemented by AT since 2014; (2) Road policing – where as we have seen, enforcement has fallen away due to announced (and later reversed) national funding cuts and (3) Road safety promotion – which could not be considered to have been effective given the reduction in police enforcement efforts since 2016 and the increase in DSI in Auckland since 2014.

Comment: *Approach to making mobility safe needs to be consistently applied. Too road/vehicle focused at present. Leadership picture is needed, the road safety team needs encouragement to question, get other insights, analyse further. Consider local network issues for pedestrians and cyclists.*

A new draft Strategy has recently been prepared and is being considered by the Auckland Roadsafe Partners.

Extent of understanding and ownership

Lack of priority

Senior staff readily confirmed that road safety had not been a high priority in the business since startup seven years ago. Comment was received that safety had kept getting pushed downwards within the organisation. There was some frustration expressed by AT Board Members that they had received little information about road safety performance, strategy, key issues and actions being taken to respond to those issues. Executive Leadership Team (ELT) members clearly recognized that road safety had not been a priority and that this needed to change. Most responded positively to this foreshadowed shift in priority. They were keen to be engaged in doing what was required to turn around performance but there are many challenges ahead. For example, they displayed limited awareness of what the term safe system meant, although it underpins the national Safer Journeys strategy.

Comment was received that safety kept getting pushed downwards within the organisation. This treatment of road safety as a lower priority would not be unique to Auckland Transport, however in most developed countries in the past 10 years the opposite trend has been evident.

Clearly the major focus for change within AT has to be on the linkage that ELT has in future to road safety expertise in the organisation and how any barriers to that flow of knowledge and consequent open informed discussion taking place within ELT in the past few years can be addressed. It is critical that effective road safety knowledge can be established in the highest levels of corporate communication.

Comment: *Many issues go through ELT to the Board. Don't know why it would be a problem to have road safety go through ELT to the Board. Difficult I suppose if you don't have a strategy or don't know how to communicate that to the Board. Everything has been about travel times.*

A further reflection of the low priority accorded to road safety is that the mid-level staff involved in road safety policy are four levels below the CE level. The first person with a sole focus on road safety strategy is at level 5. This gap has impacted on quality of communication to ELT and their lack of understanding about the importance of

adopting a strategy. The road safety team by comparison appears highly competent and aware at strategic and operational levels of the current situation and immediate and medium term needs but is under-resourced to deliver on those needs, especially the necessary whole of organisation influencing and involvement actions which will be required, and the road safety management support required for the critical partnership leadership, coordination and lobbying roles with the external partners, regionally and nationally. It is important that the major barriers that safe system implementation will face in its early stages of implementation within AT, do lead to open and frank discussion within AT at ELT level.

At present the Operations Director position has a multifaceted set of responsibilities. This role has a direct report position with a similar mix of responsibilities that could lead implicitly to trade-offs of safety for other purposes. This is not fair nor sensible in the view of the reviewer, and certainly now given the directions Board members have signaled that they wish to take road safety. The issues and any tensions around priorities - (traffic management, safety, asset management, bus operations and others - should finally be resolved through discussion at ELT level particularly over the next two to three years as the organisation struggles with embedding safe system in a workable and sustainable way in its method of doing business.

Auckland Transport currently applies Safe System thinking to its specific infrastructure safety programme (of some $20m annually, but actually only $11.5 million of major infrastructure safety works) wherever feasible. Overall, however, AT appears to have been focused on implementing the national cycling action plan and relatively smaller scale (but targeted and important) safety investments on AT's roads. It has not been targeting the critical bigger direct opportunities: leveraging the annual AT major road Capex programme and the annual AT maintenance programme to deliver important low marginal cost road network safety improvement over time, and actively moving to manage free operating speeds which are in general terms too high for appropriately safe road network operation including for underlying safety of cyclists and pedestrians.

Vision zero as a paradigm shift

Whether or not AT determines to adopt the Vision Zero goal with its implied acceptance that it can never be acceptable that people are killed or seriously injured on the Auckland road network, the related safe system basis still represents a major paradigm shift from accepted road safety approaches. It challenges traditional ways of thinking and makes it apparent that every part of a road transport related organisation has a key part to play in delivering it, by revising thinking, policies, guidelines and related ways of operating. If change is desired then aspiration matters. Adopting a vision zero commitment and objective will require an even greater effort to rethink and recommit to safety as a fundamental and increasingly non-negotiable goal for AT, and – it would be hoped - for its regional and central government partners. If it is adopted (which is supported) then there must be a recognition that progressive movement towards this goal is the only practical way for AT to operate. There will always be unavoidable needs for (undesirable) trade-offs in the early years. Of course, situations and needs should be rigorously examined to minimise this or preferably avoid it by delivering win- win outcomes but the reality will be that to keep traffic flowing there will be a need to make some conscious trade-offs while innovative and complete vision zero solutions are developed in the medium term. This is a major challenge for the ELT in the years ahead, to be open and honest about the issues competing with safety for prominence but within a context that gives safety priority wherever possible.

CONCLUSION: AT must prioritise resourcing for a whole-hearted embrace of safe system/vision zero across the whole organisation. This is a mission critical issue for AT in its future road safety activity. While challenging in the absence of any targeted reduction at national level, AT should also follow good international practice and adopt a target for reducing DSI over the next three years to 2020 and then review this. It should also strongly advocate to the new government to do the same at national level.

Comment: *Safety budget hasn't changed for 4 years. 200,000 more people are now planted on the outskirts of the Auckland network in that time. More drivers, pedestrians and passengers especially. How are we going to get any change when we are not investing more?*
Comment: *We don't sell the story to AC about why we need to invest more in safety, we should be seeking greater $ and higher priority for safety works*.

Comment: *We could prioritise safety works more than public transport, more than new road projects. Where new development leads to an inadequate intersection on an existing road, why not invest $ there proactively. We choose not to invest in these matters as opposed to supporting other investment.*

Comment: *Opposing priorities in the SoI need to be resolved by ELT and the Board, e.g., get freight moving quickly, improve congestion, improve public transport, improve safety. Will require difficult extended discussion and review at ELT, to forge new policy. We are trying to put too much into too little a space. Need to have an adult conversation about this. Don't seem to be able to!*

Comment; *If safety is about reducing speeds (in some locations), shifting people to public transport (modal shift), separate routes, separate cycleways and busways, we can do that tomorrow if we had the will.*

Comment: *There is a contrast in priorities - cycling programme well-funded by central government and infrastructure safety expenditure is $11.5m pa with a massive backlog. Not expressing lack of support for cycling but need for much more $ for safety. Cycling spend appears to have been effective today in placing adequate safety investment to prevent increased DSI – a proactive safety approach. This thinking needs to extend to all road user groups.*

Data collection, measurement, monitoring and evaluation

Current KPI measures for AT are a reduction in DSI by nine per year and reducing DSI per population.

Resourcing, obtaining and maintaining a broad data set of injured road users in Auckland is strongly supported to ensure comprehensive records, particularly for vulnerable road users. As much as 30% of injuries to this group of road users (based on recent New South Wales data) are not reported and therefore not recorded in the Police crash data system. A process of cross-checking data from the Police, ACC, NZTA, MoT, and Health is needed, and AT advises this activity is now starting.

AT has good crash data sources and reports internally (but not at a high level) on a regular basis. It has a good level of knowledge of road safety trends. AT completes an annual evaluation (via consultants) of a sample of Minor Improvement projects that were delivered three years ago. However, comprehensive independent evaluations of AT's road safety infrastructure safety programme are not conducted. This is a major issue. Evaluation of the last two years of minor improvement projects (2014 and 2015) is required as a priority. It is difficult to make the case for greater if the benefits have not been measured and recorded and shared.

Comment: *Usually, we get less data than was made available for this review. We don't get police data for RSAP quarterly reporting and don't know if the police are doing their job or how effective it is.*

Detailed reporting of rolling 12-month levels of DSI – by crash type, by road user type, by national road and local road location categories, by rural and urban local road location categories, with trend data also provided – are important inputs to support more extensive analysis. More detailed data should be used for analysis and that analysis could be provided monthly to the ELT Task Force and the Roadsafe Executive, in combination with a report

on implications. That report – including any modification by ELT Task Force or Roadsafe – should be considered by ELT and forwarded to the Board for noting or decision making.

Comment: T*here's a lot of desire to do more from beneath a layer. It's time for the organisation to erupt and disrupt and get to the Board. Especially with the new CE. Need to get people from different departments involved, see what comes out of this. Do it for a few weeks.*

Alignment with annual work programme

There is potential for improvement in alignment but it relies on AT, internally or through the Roadsafe Auckland Strategy and Action Plan having a documented rationale and plan of action. At present, it is simply an inherited programme and its basis needs to be freshly stated.

A two -year action plan to refresh and renew Auckland's road safety efforts would fill a major gap.

Operational delivery against measures

It is not known what impact the AT infrastructure safety programme had upon DSI annually. This programme is discussed in greater detail in Chapter 10 under opportunities for improving performance within AT.

Road safety promotion by AT

The Community Transport team have traditionally delivered Road Safety Promotion at levels of up to $9m in the Auckland region. They also provide a significant road safety co-ordination function through leading Local Road Safety Action Plans (RSAP) with NZ Police, NZTA, ACC and other stakeholders.

The road safety promotion or behaviour change/community transport area has been regularly evaluated and scrutinised, compared to policing or infrastructure safety works programmes.

- The behaviour change programme is highly dependent on police enforcement. All projects are evaluated to track change in awareness and attitudes and where possible behaviour change. (See 2016 evaluation report, AT collect and report on all those measures). Limited information from Police on any infringement results from these campaigns makes the evaluations challenging.
- The schools programme is dependent on infrastructure accompanying this behaviour change work. The evaluation attached above shows the effectiveness of the two being used together.
- The Community Transport team has an approximately 1/3 to road safety to 2/3 to school travel promotion split in staff time.

This RSAP co-ordination function is not formally evaluated, but it is understood that nationally AT's efforts in this area are quite advanced in Local RSAP co-ordination compared to other regions and provide a lot of knowledge transfer to those regions.

CONCLUSION: Ongoing improvement for the Community Transport (CT) programme includes:

- ensuring that activities are targeted to areas/communities of highest risk
- demonstrating the linkage between intermediate outcomes of education/enforcement campaigns (awareness ratings, infringement rates, wearing rates etc) and final DSI results.
- negotiating changes to be able to target emerging risks (e.g. restraints & distractions) nationally with NZTA.

9. Analysis of strategic outcomes and operational delivery within external partnerships

This chapter analyses, from an external partnership perspective:

- strategic outcomes for road safety and the extent to which these are aligned with strategy, understood and owned within AT, being properly measured and alignment with the annual work programme.
- operational delivery against current and desired measures.

Extent of alignment with strategy

Central and regional strategies and plans that provide context were listed at the start of chapter 8. These documents are central to the Roadsafe Auckland programme partners.

Auckland Transport, it is considered, has not been sufficiently active in leading the region or pressing its national partners at high level to deliver improved road safety. AT should be acting as the suitably resourced lead agency for road safety in Auckland on behalf of AC and leading advocacy to Wellington. It is not doing so.

A well-devised Roadsafe Strategy is being prepared but has yet to pass through ELT consideration. The recently prepared draft Revised Road Safety Framework 2017 to 2023 is a good quality piece of work but also awaits consideration by ELT, the Board and the heads of partner agencies before being formally adopted. These documents represent the means to start to turn around unsatisfactory performance in Auckland. They need to be finalised and formally implemented as a matter of urgency.

An integrated approach is required when threading together the strategic signals from these documents to achieve a programme response that will deliver the right outcomes in Auckland for all stakeholder investment. These documents are central linkages between AT and its central partners, extending into enforcement, NZTA direct infrastructure safety and major infrastructure project investments, public campaigns and promotion, and vehicle safety and driver and rider licensing.

Improved compliance with road rules, speed limits and road laws achievable through enhanced enforcement, including application of new technologies, will bring material gains but may require implementation over time for political reasons associated with potentially adverse community reaction to change. This is a leadership challenge.

This is the priority influencing role of other regional partners and with them the influencing of central government. Developing congruence about key priorities with the partners and jointly advocating to ministers about adopting these priorities (and the safe system/vision zero approach) is required.

Management experience shows that sustainable road safety gains cannot be achieved without strong committed partnerships – at regional and national levels. While NZ has adopted good global practice in recent years in licensing and drink driving, these improvements were introduced well after many jurisdictions had adopted them. NZ has fallen behind good global practice in a number of areas such as comprehensive speed management, deterring drug affected driving, imposition of adequate penalties and demerit points for certain offences in order to deter illegal/unsafe behaviours, permitting courts to allocate a work-related permission to drive while suspended for drink driving and the delays in introducing mandatory alcohol interlock requirements for certain drink driving offenders

CONCLUSION: AT would deliver improved road safety performance for Auckland more certainly and more quickly if it moved strongly to influence the regional and central government partners, by better understanding and influencing how effectively the central agencies discharge their own responsibilities under the *Safer Journeys* strategy and pressing very hard for the introduction of new potentially material policies and interventions for which the central agencies have been unable to date to secure government support. AT should also as a priority pursue comprehensive fresh governance and management arrangements for the Roadsafe

regional partnership.

Inadequate policy/ legislative/ technology investment arrangements that require attention

There are a number of critical intervention issues (certainly including speed management but extending to many other potential activities) in Auckland which are the direct responsibility of the regional/central government partners and which are unable to be impacted upon due to inadequate policy or legislative or funding or electronic and other enforcement capability. The limitations include:

- An inadequate level (number of hours of operation, currently 950 per month), of covert mobile speed camera hours of operation which is less than half good practice levels operated in larger Australian States
- Varying enforced speed levels (at 10 km/h above the speed limit for 85% of the year) reflecting a lack of understanding by the government of the dangers of low level speeding in aggregate terms across the year - well in excess of high level lesser frequency speeding crash risk.
- Government constraints on camera offence processing which limits current detected offences sent to infringing motorists and imposes a major constraint on any expansion of the camera programme.
- An inadequate number of fixed intersection red light cameras and no deployment of combined red light and speed cameras at intersections to deter red light running and illegal speeds.
- Absence of demerit points for all camera generated offences, including red light and speed cameras
- Inadequate penalty levels for fines for illegal behaviours, e.g. the fine for speeding up to 10 km/h over the limit is $30
- No higher fine levels for speeding offences for heavy vehicles compared to light vehicles. The risk of a serious crash outcome for a speeding heavy vehicle is of course much greater than for a light vehicle and penalties should reflect relative risk.
- No random roadside general deterrence drug driving enforcement (utilizing saliva testing).
- No testing for the presence of impairing drugs for fatally or seriously injured persons presenting at hospitals to enable the prevalence of impairing drugs in the system of drivers and riders to be established.
- It is understood that safety investment projects by NZTA in national roads does not require the application of the Austroads Safe System Assessment Framework
- NZTA operational decision to increase speed limits on some national roads without any offsetting national road speed limit reductions on less safe roads
- NZTA project assessment systems requiring safety infrastructure projects to offset safety benefits with the time costs of any delays due to the speed or infrastructure treatments as a project funding condition
- Inability to engage with ACC to date to consider business case presentations offering investment returns for safe infrastructure programmes. ACC have funded motorcycle safety improvement programmes in New Zealand and offered to work with AT to see what can be done through potential infrastructure safety programmes and more to improve motorcycle safety. This approach needs to be supported and responded to. Other opportunities exist.
- Absence of demerit points for failure to wear a seat belt.
- Failure to introduce a zero BAC legislative requirement for all public transport and heavy vehicle drivers.
- Opportunity to seek a work-related driving license from the courts if a license is suspended for a drink driving offence.
- Random breath testing levels for alcohol impaired driving across the country (including impacts in Auckland) have reduced from 3 million per year to 2 million per year in recent years, below the 1 test per licensed driver per year intensity considered standard good practice. On a pro rata basis this would result in some 660,000 tests in Auckland. The accepted good practice standard is one test per year per driver, which would require 1.1 million tests annually for Auckland.

- A failure to mandate ABS for all new motorcycle sales
- Allowing some used vehicles to enter the country with an outdated level of safety features.

The substantial cut to dedicated road policing numbers in late 2016 which was later reversed but has seen major delays in re-staffing to former policing levels in Auckland [until April 2018 it is estimated] is a particularly unfortunate example of the loss of life and increased serious injury flowing from inappropriate national decision making. Further, it needs to be considered whether the pre-reduction levels of road policing drink driving enforcement resourcing were in practice adequate?

The proposals to improve deterrence of illegal behaviours by tightening enforcement will result in a higher level of offences, particularly in the initial stages of implementation before behaviour progressively changes. Experience elsewhere is that offences (for example for speeding) fall back to similar rates of non-compliance but at a lower base level of speeds.

Working with regional partners (Police, NZTA, ACC) to ensure robust enforcement operations planning and delivery by Police – deterrence of illegal and unsafe behaviours to achieve high levels of compliance with road safety related legislation and road rules regulations through:

(i) delivery of agreed outputs for random breath testing, covert mobile camera enforcement of speed limit compliance (at not more than 4km/h over the posted speed limit)
(ii) combined working with the health system in Auckland and with ACC to establish systematic ongoing collection of crash data and its calibration with police crash data to extend the data set (to include the 20% plus level of bicycle and motorcycle injury crashes that are not captured in police reported crashes).

Working with central government partners (Minister, MoT, Police, NZTA, ACC) to gain their support for change is a priority. It is understood that the Ministry of Transport was planning to brief the Minister with responsibility for road safety in the recently elected national government on *Reducing road trauma in New Zealand* in November 2017 as an immediate priority.

The briefing note indicated that "*the rising level of deaths and serious injuries on New Zealand roads over the last four years is of serious concern. The Ministry of Transport, along with its road safety partners, is responsible for developing and implementing the government's approach to reducing road trauma.*

We would welcome an opportunity to discuss with you the key factors contributing to the rising road toll, and what interventions you would like to prioritise to make travel safer".

Extent of understanding and ownership

In-depth awareness of safe System is variable and in some cases limited in the partners. NZTA is aware of the challenges in spreading the safe system message and principles and would be supportive in assisting. Roadsafe has been an important, but (it appears) a low key partnership since the establishment of AT.

Data collection, measurement, monitoring and evaluation

For a partnership to work effectively in road safety there needs to be clear targets set for inputs and expected outputs and outcomes by each of the partners areas of responsibility. Each then needs to be measured against those desired metrics in a transparent way. The input and ownership of the other partners should be encouraged to assist the particular implementing partner for that issue to find ways to reach the targets set. This requires detailed monitoring of inputs, (e.g. hours of camera operation), outputs (intermediate outcomes, e.g. lower speeds passing cameras) and final outcomes (reduction in DSI due to lower speeds).

Performance indicators need to be agreed and monitored and reported on to check that the (adopted) strategy remains on track.

A weakness in being able to measure outputs and outcomes is the lack of access to police data on police outputs and results in Auckland. While Police were very supportive, it was necessary to go to considerable lengths to obtain data during this report process as one example.

Comment: *Usually, we get less data than was made available for this review. We don't get police data for RSAP quarterly reporting and don't know if the police are doing their job or how effective it is.*

Alignment with annual work programme

NZTA has delivered the funding earmarked and it works to improve road safety outcomes in a number of policy areas across the country. However, it suffers from apparent MoT and central government reluctance to embrace a whole-hearted road safety programme to ensure New Zealand (and Auckland) move Towards Zero.

Operational delivery against measures

The urgent need for a new strategy and action plan against which to measure efforts is a pre-requisite. Much more active leadership in monitoring outcomes (intermediate outcomes) and holding other agencies accountable is required by AT.

Potential measures:

- Police drink driving enforcement data has now been received for Auckland. Performance has been poor. The resource shortfall caused difficulties but the numbers of RB Tests had been falling in the years prior to 2017. Rebalancing is urgently required.
- Police speed enforcement has been constrained by reduced resources, limits imposed by central government on deployment of technology and infringement processing and inadequate government legislative support. Officer issued infringements fell in 2017. Not all infringements are processed and sent out due to system processing constraints. A plan for upgrading is required.
- Police outputs on drug driving are minimal as there is no legislative power for random roadside enforcement Random saliva testing for drugs is urgently required as it will identify levels of drug impaired driving for the tested drugs in the driving population, which will assist enforcement planning, and most importantly, it will deter drug impaired driving. There is currently little deterrence of this behavior.
- Police outputs on seat belt wearing enforcement need to be enhanced

Future partnership measures should include:

- NZTA proposed outputs - direct and in a support role to Roadsafe Auckland/AT
- Number of Auckland Roadsafe Submissions to Wellington seeking new road safety policy positions, approved by AT Board
- MoT and government support for new and strengthened interventions
- Number of Auckland Roadsafe submissions for policy change actually approved by Central Government
- Auckland Health trauma management outputs? Need additional funding support to upgrade trauma management systems to achieve 10 to 15% morbidity improvement.
- ACC support and new intervention and policy introduction by national government and agencies.

10. Opportunities within AT for improving performance

Auckland Transport has a capacity to do much more directly to improve road safety performance. To deliver high-level strategic improvement requires a high-level focus on this task. Alternative objectives, worthy and important as they may be – cannot compete with preserving life and avoiding injury as a first priority.

Comment:

- *Need to become more customer centric. Customer approach is currently mode focused, not comprehensive.*
- *Need to become more citizen centric. AC comes from here. It's a move AT practitioners will need to take. Placemaking.*
- *Safe mobility. How does this look and feel? Put this around everything. How are people safe when they move around? What does this mean?*

Embrace the Safe System

Making this step to a safe system approach and its institutional management is not a trivial task. It is likely to take many years to make real progress and a decade or so to embed the practices and policies necessary. Major transformations of policy and processes will be required. The information and training task will be substantial. Chapter 8 discussed the importance of the Board and ELT being on the same page in their vision, their objectives and their approach for substantially improved road safety performance. The first step is a check on what the Board and ELT are prepared to commit to turn around (and substantially improve in the medium term) the current totally unacceptable road safety situation in Auckland. It will require funds, resources and especially time from Board members and ELT. The next step is rapid knowledge development about safe system, its implications for AT internal priorities and its interactions with the national government, the national partner agencies, the agency regional officers, AC and the Auckland community.

CONCLUSIONS: Recommendations at the start of this report include establishing a high-level Task Force within AT to oversee and drive the necessary change. This could include three ELT members (Transport Operations, Infrastructure and Strategy and Development) two senior road safety strategic and partnership support managers and a newly created position of Safe System Implementation Manager/Facilitator, reporting to the CE. They should meet each two weeks with predetermined agendas, minutes to be produced and report to the CE/ELT each two weeks on progress with their responsibility for road safety management strengthening, safe system training and implementation across the organisation, and AT road safety action planning (including advocacy planning) finalization and implementation. They would also provide the lead agency input and coordination to the AT Roadsafe Partnership including finalization and implementation of the Roadsafe Auckland Strategy. They would be responsible for developing safe system literacy across the whole organisation, including Board knowledge, and have sufficient depth of knowledge (and the responsibility) to convincingly advocate road safety measures and their necessary enabling measures to the rest of AT, to the community, to AT regional partners, to the National government agencies and elected representatives.

Council group working together

Auckland Council's Letter of Expectation 2018, referred to earlier, is an important statement about extending the assistance crucial to early and ongoing progress with road safety in Auckland. AT and AC need to be closely aligned with the direct road safety activities AT identifies as a priority. They must ensure that knowledge is shared in depth about safe system/vision zero (through training, workshopping and shared action), and about the elements of effective road safety management arrangements (and monitor the status of those elements) and that processes to support close cooperative working (planning, design, delivery and operation) are reinforced to ensure delivery of improved road safety outcomes (e.g. lower speed and improved amenity treatments in town centres, lower speeds

in the CBD, removal of parking to enable bus lanes to be installed, ensuring bus speeds are not above limits, lower speed limits on high risk urban and rural roads, promotion of safe system/vision zero messages to the community and more.)

Comment: *Support from AC Is available where logical and consistent e.g. parking on arterials, 30 km/h zones, City Centre masterplan. The AT Link with AC has been understated, AC willing to do more. Auckland Plan is expected to be drafted with a Road Safety emphasis. Letter of Expectation (LoE) should reflect this. While there is not an opportunity for AT to work proactively with AC on LoE this time given timing, AT should respond in the Statement of Intentions (SoI).*

The goal of working closely with local communities, including local boards, to target appropriate local implementation is a significant part of further requests from AC in the Letter of Expectation. It refers *to the need for an integrated governance model for all of Auckland's urban development priority areas. All CCOs with a role in this need to actively participate in the development of fit-for-purpose governance models for each area.*

For Auckland Transport, this will provide opportunities to reach broad-based agreement on how the Roads and Streets Framework will be implemented in each area, and how it should guide streetscape designs, intersection re-designs, renewal programmes and better integration of walking and cycling elements into new projects and upgrades. Auckland Transport should work closely with local boards to do this.

Local Boards have a key role to play in gaining community support for necessary changes and AT will need to ensure it works closely with AC and with local communities/ Local Boards to achieve agreement on how the Roads and Streets Framework will be implemented in each area, to meet the LoE outcomes identified above.

There is a need to maximise urban design features in locations where the concept of "place" is paramount (Strip shopping areas/ town centres/ CBD). It is essential that joint project development occurs between AT and AC Urban Design Group to make the most of these opportunities to improve amenity in addition to safety. AC's urban design team carry a responsibility to be seen to be delivering AC's urban design strategies. By working closely in cooperation with AT on road safety infrastructure safety works, more effective urban design outcomes can be achieved. Therefore, to maximise opportunities to improve amenity in addition to safety, ensure that joint project development occurs between AT and AC Urban Design Group and that adequate timelines are scheduled for any substantial differences in urban design and traffic management treatments to be resolved (e.g., Applying Roads and Streets Framework to guide streetscape designs, intersection re-designs, renewal programmes and better integration of walking and cycling elements into new projects, ensuring bus speeds are not above limits, lower speed limits on high risk urban and rural roads, promotion of safe system/vision zero messages to the community and more.

CONCLUSION: The Traffic Design Committee should develop recommendations on process and timelines for AT and AC to consider and adopt.

Adequate consideration for the safe movement needs of business, freight and light vehicles also needs to be a priority. AT and AC need to continue to resolve as much as is possible, any inconsistencies in the (to be adopted) 2018 SoI which represent potentially unresolved tensions between various transport objectives, some of which will improve and some worsen (unless carefully reviewed) the current road safety situation. Pragmatic progress towards safer outcomes is required, with some desirable change taking time to be achieved in a way that is satisfactory in meeting various objectives other than safety while also improving road crash outcomes.

AT and AC have a major close working challenge before them in requesting the national government to enable so many of the road safety policy and legislative positions which apply in good practice jurisdictions and which are not in place in New Zealand and require their action to be established. The political pressures will be significant in achieving breakthroughs here but progress will have to be made if Auckland (and New Zealand's) road safety

deterioration is to be stopped and in due course improved.

There are also opportunities to deliver cost effective and substantial safety gains through minimal safety investment where programmes can be aligned and brought together, such as AT Metro and other major projects.

Implement speed limit reductions

Speed of travel in relation to the actual environment on any length of road is a fundamental component in determining crash risk at that location.

Speed limit reductions as a tool to (i) reduce serious crash risk for vulnerable road users in higher activity locations – such as town centres and much of the city centre and on lengths of road where cyclists have to share the road with motorised vehicles and (ii) to better harmonise existing travel speeds with existing infrastructure safety quality to deliver lower, more appropriate, crash risk – are an essential tool to deliver more adequately safe travel.

Reductions have only been applied sparingly to date as an effective tool to reduce with certainty serious crash risk for vulnerable road users in higher risk locations (such as town centres) and for all road users on higher crash risk road lengths as identified by AT. Only a handful of roads are planned to receive lower limits in 2018. A targeted crash risk programme, as the Safer Journeys action plan envisages, is urgently needed in locations with (i) greater levels of vulnerable road users, in concert with local boards and AC, and (ii) on identified higher risk road lengths where funding to alter the infrastructure safety standard to permit current travel speeds (as influenced by speed limits) to safely apply is more than three years away. AT needs to review and reduce speed limits in higher risk locations and implement the CBD change process separately from the town centres and then treat them progressively over time.

This set of interventions would need to be supported with a well formulated, resourced and sustained two-year community information programme. The sensitivity of DSI to small changes in levels of mean free speeds needs to be conveyed to the public in extensive campaigns to build a case for rational safe system compliant speed limits. The opportunities available from sensible application of measures building on this knowledge should be promoted. The high crash risk lengths and intersections across Auckland are all mapped on the road network and these maps should be publicised.

Speed management

- Establish strong speed management as a point of focus for safety, with strong advocacy for the safety value of managing speeds effectively.
- Set speed limits that are appropriate for the type of road and the safety of road users: 30 kilometers an hour or less where large numbers of pedestrians are present and no more than 50 kilometers an hour on urban roads. Grade-separated and median-divided urban expressways can have speeds of 80 kilometers an hour or more when there is full separation between motorized and nonmotorized modes, depending on the curvature and side protection of roads. Base rural road speed limits on the type of road users and adjacent land uses (WHO 2013b).
- Manage speeds on rural roads and highways to levels that favor the probability of survival in the case of a collision, considering the possibilities of side-impact, head-on, and off-road crashes.
- Design roads to limit driving speeds to the safe speed limit, through features such as speed humps, crossings raised to pedestrian level, roundabouts, chicanes, and road narrowing.
- Make signs highly visible in places where drivers are supposed to change from one speed limit to another. Facilitate compliance through regulation and design at “gateways” to lower speed areas, such as a staggered reduction in the limit.

Sustainable & Safe, A Vision and Guidance for Zero Road Deaths, EMBARQ, World Resources Institute, World Bank, GRSF, Bloomberg Philanthropies, 2017

As outlined in the recommendations, but also provided here given the fundamental importance of these measures to successfully reducing DSI, AT is advised to conduct a review as a priority and appropriately lower speed limits:

- On currently identified high risk sections of road where investment to improve the infrastructure safety will not be available for three years (on high risk rural arterial road lengths to 80 km/h and on high risk urban arterial road lengths to 40 km/h, if after the enforcement threshold by Police is lowered to 54 km/h the crash risk remains unacceptably high (or if police do not lower their enforcement threshold) and on high risk urban arterial road lengths with a current speed limit of 60k/h to 50 km/h.
- In high pedestrian use areas including town centres/ strip shopping centres to 30 km/h
- In the Auckland city centre to 30 km/h (with exceptions for selected major flow arterials to remain at 50 km/h)
- On all arterial roads with non-separated (by physical separation barriers or kerbs) lanes for cycling, to 40 km/h
- On approaches to all intersections to a maximum of 50 km/h.

NZTA has recently increased some speed limits on national roads around New Zealand. There may be some crash risk sections of national road in Auckland where this could be investigated. However, whenever this action is considered by NZTA there has to be a preparedness to review those national roads where the crash risks are currently too high and travel speeds (through speed limit reductions) need to be lowered to achieve acceptable levels of crash risk/safety.

CONCLUSION: If AT were to robustly implement a programme of speed limit reductions in high VRU locations, on high risk lengths and intersection approaches, and on high risk rural roads, there would be substantial benefit. The impacts of introducing these lower limits plus whole hearted enforcement of the speed limits across the network would be a major breakthrough in reversing Auckland's DSI trend compared to the essential but longer-term benefit of the (currently limited) infrastructure safety improvement programme that AT implements on local roads.

Investment in innovative safe physical separation of cycling from motorised vehicles should remain the preferred treatment. In locations where road space is shared or where linemarking is the only delineation of cycling and non-cycling use, lower speeds/ lower speed limits are required.

Comment: *Speed limits – we should review and adjust all at once! Why didn't we do Richmond road since we have done Ponsonby road? Why Wynyard and not elsewhere? We need to take our community with us. Everything goes in through the broad consultation. Discuss everything, put it all out there. Then you can have a conversation about it.*

Comment: *Speed limits – we should review and adjust all at once! Why didn't we do Richmond road since we have done Ponsonby road? Why Wynyard and not elsewhere? We need to take our community with us. Everything goes in through the broad consultation. Discuss everything, put it all out there. Then you can have a conversation about it.*

Comment: *It's also the 100km rural roads that shouldn't be 100km/ hr. Now there are more and more people out driving on those roads with townies moving out to the fringes. And the tolerance is too high so they are driving at 110-120km and then they look at their phone or make a small mistake.* [and have a serious crash]

Address infrastructure and maintenance funding and benefits

Expand the safer road infrastructure programme

AT has a capacity to influence DSI directly in Auckland through its safer infrastructure programme but this programme is limited to some $13m annually – down from $15m five years ago. Not all of this funding is in fact for

infrastructure safety projects, with the actual significant project allocation being some $11.5m in 2017/18.

That is, funding is available to treat two to three high risk intersections each year out of an identified 300 intersections and to treat 20km or so of high risk roads each year out of a pool of 1025km of high risk roads. NZTA have estimated that a programme to treat 88 high risk intersections and 230km of high risk roads in Auckland will cost $325m.[16] This programme would only address 30% of the 300 high-risk intersections and 22% of the 1,025 km high-risk routes identified by Urban KiwiRAP.

The slide below (which it is understood was part of a presentation to the Board in August 2017), highlights the mismatch between the scale of the high-risk infrastructure safety treatments requirement and the funding currently allocated to address it.

Figure 34: AT Auckland, local roads, priority infrastructure safety investment locations, preliminary identification

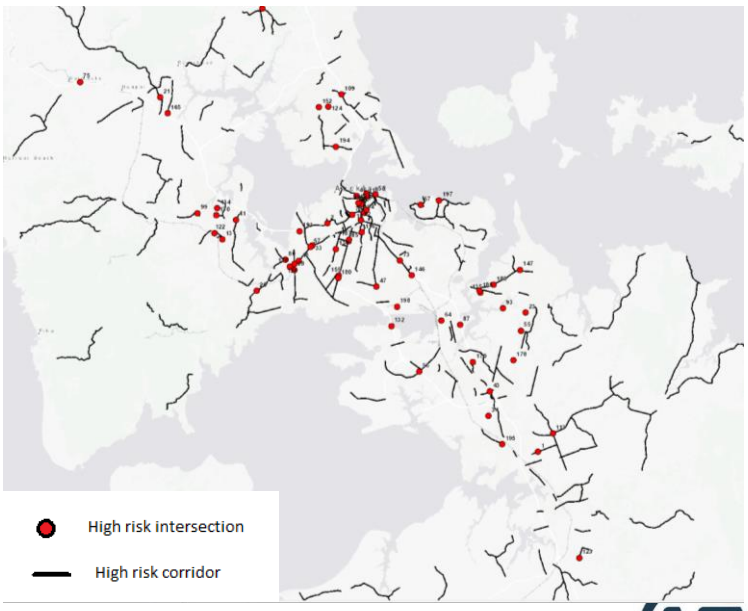
Prioritising Investment on The Network

High risk roads and intersections are prioritised for investment.

50% of New Zealand's high-benefit investment opportunities are on Auckland local roads.

Targeting to Risk = Value for Money

- 300 High risk intersections (2% of 15,553) carry 25% of crash-risk
- 1,025km of High-risk roads (13% of 7,624 km) carry 51% of crash-risk
- Existing funding levels address major transformation at 2 to 3 high-risk intersections and on 2 to 3 high-risk roads



Auckland Transport
An Auckland Council Organisation

AT has engaged consultants to produce a Programme Business Case that more accurately estimates the safety Capex costs involved in addressing all of AT's high-risk intersections and routes. This work will be complete in June 2018 and it is likely that the costs for treatment of the identified high-risk locations will be closer to the $500m mark. This suggests that more than 40 years of investment at current allocation levels would be required to treat this currently identified infrastructure safety backlog on the AT network.

CONCLUSIONS: AT could consider increasing its contribution (perhaps from its major project budget), NZTA could be asked to match this AND increase the FAR to say 75%. Serious discussions should be commenced with ACC to pursue a potential safer infrastructure programme which provides ACC with a satisfactory estimated cash return

[16] The $325m estimate was made using a model that included average crash rates, volumes, typologies, interventions and average BCR's. The model does not include the practical challenges of implementing urban transformational projects e.g. land acquisition, major service relocations, funding eligibility when measured against travel dis-benefits, or the Opex costs involved.

on its investment. Business cases for a suitable programme should be developed and refined to meet ACC's required hurdle rate of investment return. This can be assisted by choosing higher return projects from the overall pool of identified higher risk road lengths and higher risk intersections. In general, higher risk intersections have the potential to provide a higher return if suitable treatments can be devised and implemented.[17]

If required, options for supplementing ACC investment with AT or NZTA funding to improve the cash return to ACC (from a doubling of investment) and also deliver an improved social cost benefit to the community should be pursued as a priority.

In Summary, substantial adjustment to available funding will be critical if early substantial gains are to be achieved. AT needs to produce a plan and finalise cost estimates and timeframes. The business case for the plan should draw on innovative treatments to reduce overall cost and be in alignment with Safer Journeys to ensure it meets funding requirements.

Leverage additional safety benefits from the major road infrastructure programme

AT's major road projects programme invests approximately $241m annually. These projects are not currently subjected to a safe system assessment, i.e. the Austroads Safe System Assessment Framework, (ASSAF) which has been developed by New Zealand and Australian practitioners over recent years. The ASSAF tools enable designs to be adjusted at concept stage to substantially boost future DSI reductions when constructed compared to the traditional design approaches. Additional project costs are estimated to be less than 5% of total project costs and this represents a major low-cost high-return opportunity in safety terms for AT.

These 'currently untapped' safety benefits can be readily captured over time as future projects are designed and implemented. VicRoads, the State Road Authority in Victoria, Australia, is currently developing the application of the ASSAF to their larger projects at the concept stage.[18] Initial indications are that substantially increased DSI reductions (estimated savings based on empirical data from various installed safety treatments) are achievable through a safe system assessment and redesign activity and these further DSI reductions will be at a level which is similar to or greater than basic DSI reductions achievable with designs based on traditional manuals and guidelines.

Extend AT's road maintenance programme to include low cost safety treatments

There is substantial add-on opportunity for the $219m annual renewal/maintenance programme to include lower cost safety treatments for some 5-10% of overall programme cost, delivering a substantial safety dividend over 5-10 years and beyond at efficient marginal costs. Items which could be included are:

- tactile edge lining
- minor barrier treatments, e.g. to protect motorized road users from isolated dangerous roadside objects such as bridge end posts
- curve alignment markers
- painted narrow medians on curves with reduction of any sealed shoulder width on the inside of the curve where that exists
- warning signage
- measures to improve motorcycling safety

This approach will impact upon the Transport Operations Division (Network Management and Safety) and also the Infrastructure Division (Asset Management).

Comment: *Public safety is a core component of Auckland Transport's Maintenance (and renewals) contracts. The effort however appears biased to safety of the workers and public around work sites with a lesser emphasis on*

[17] Returns from reducing serious crashes can be considered as cash returns (reduced medical, hospital and rehabilitation costs) plus other economic and social cost returns (loss of productivity, reduced quality of life, other resource costs. Ministry of Transport New Zealand April 2017. http://www.transport.govt.nz/research/roadcrashstatistics/thesocialcostofroadcrashesandinjuries/report-overview

[18] *Safe System Assessment: Network Design Services Technical Update*; January 2018, VicRoads.

the safety of the public at large using the network as part of normal operation. Whilst there are performance objectives (to inspect and action) issues on the network they are of a project nature and arguably don't carry sufficient weight in the overall performance framework to motivate continuous safety improvements. As the Asset and Maintenance team also deliver new safety works, as determined by Transport Services team, they are already partially exposed to the broader safety environment so there is existing opportunity and an easy win to overcome the bias by building off the root cause and understanding that give rise to these minor works projects.

Senior management have already identified a number of initiatives which are already underway to improve safety outcomes in the maintenance space. These include establishment of a dedicated fund to allow maintenance staff to initiate safety works (within clear parameters) as they encountered, optimising treatment selection to give more weight to safety outcomes, reviewing the maintenance contracts framework to elevate safety as one of four key performance outcomes, and embedding safety outcomes in staff Performance Development Plans (PDP's). While these will undoubtedly contribute to the necessary safety improvements it is important to highlight that they will achieve an even greater effect if AT embed a wider 'safety aptitude' across all its business streams as well as the wider council family and stakeholders. In essence having more safety eyes on the network will yield improved safety outcomes

Focus on vulnerable road users

Improve motorcycle safety

Motorcycles are one of the fastest growing transport mode in Auckland, up 23% from 2012 to 2016, second only to light commercial vehicles (up 40% from 2012 to 2016).

Crash data shows that motorcycle crashes in bus lanes is a major issue, due to car drivers not seeing them when making right turns across the bus lane. The turning vehicle may often have visibility affected by opposing traffic queuing to turn right. This issue needs careful monitoring and it may be necessary to reduce travel speeds in bus lanes to 40 km/h. When traffic signals with full turn movement control can be fitted at all necessary intersections, right hand turns on the through route at other intersections could be banned and travel speeds returned to a 50 km/h limit.

The AT maintenance programme should ensure that it is taking safe conditions for motorcycling into account. What is merely a nuisance for a four-wheeled vehicle can be life threatening for a motorcycle. When renewals occur, requirements for safe motorcycling, especially on popular motorcycling routes, should be considered. The NZTA published the second edition of the *Safer Journeys for Motorcycling on New Zealand Roads Guide* late in 2017. It contains substantial input from AT on urban motorcycling safety issues. There needs to be some level of annual audit and reporting on this activity to ensure it is receiving attention.

ACC have increased their investment in road injury prevention, particularly motorcycling. The motorcycle levy budget is only $2m, but ACC investment has expanded that expenditure for projects such as the Coromandel Northern Loop. ACC have indicated interest in investing in motorcycling safety infrastructure treatments in Auckland.

CONCLUSION: Motorcycle use of bus lanes needs monitoring and potential lowering of the speed limit to 40 km/h. The AT maintenance programme should ensure that it is taking safe conditions for motorcycling into account. The MoT investigation into mandating ABS for motorcycles should be supported by AT to achieve mandation of ABS for all new motorcycles imported into New Zealand as soon as possible. The ACC infrastructure investment opportunity should be pursued as a priority.

Fund safer walking

There is no AT programme to fund safety improvements for pedestrians particularly around key activity areas and this is a major impediment to implementing necessary change. Most 'walking safer' works have not been eligible for NZTA funding consideration in the past, as NZTA has not had a footpath funding category, nor funded footpath maintenance and renewals to date. There are understood to be no adequate allocations to deliver traffic calming at many locations in town centres where lower speed limits will potentially be considered for introduction in the near future.

AT is rolling out extensive public transport routes without adequate safe pedestrian crossing opportunities to access bus stops on either side of the road. This is an emerging pedestrian safety problem. AT Metro say they have no funding to put these in place. The issue has I understand been raised a number of times without resolution and needs addressing.

AT used to operate a small but effective 'traffic calming around schools' programme. This was discontinued. It needs to be renewed as it gives momentum and leverage to other 'getting to school safely' management activities through the school community.

It is understood that very little if anything is spent by AT on promoting safe mobility for walking – there is a limited investment in new footpaths but no strategic investment in enabling safe walking, particularly around key activity centres. NZTA have in the past not subsidised walking - that may change in the new GPS.

CONCLUSION: The overall issue of safe walking needs to be discussed and proposals developed to accompany lower limits in town centres and the CBD. AT should seek to establish a safer walking programme for 2019 and request AT Metro to invest in a pilot programme for pedestrian crossings at bus stops in higher risk locations.

Continue to construct cycleways

The safer cycling programme funding for new cycleways is some $20-30m per year for 2015-2018, and this will drop back to $50m over the next 10 years, i.e. approximately $5m per year.

Protected cycleways include shared paths, off-road cycle paths, and on-road separated cycle lanes. These make up 50% of total cycleway length. Non-protected routes make up the other 50% and include on-road cycle lanes (buffered by a painted separator strip or unbuffered) and mixed traffic on quieter, local streets.

Auckland University confirm the growth in the Auckland region of injuries arising from reduced separation between different road user types. Cyclists mixing with heavy vehicles and buses, particularly left-turning heavy vehicles, are at substantial risk of fatal or serious injury even at very low speeds. Similarly, cyclists sharing road space with other vehicles without a separating physical barrier such as a kerb, at traffic speeds above 40 km/h are in a high-risk environment.

Investment in innovative safe physical separation of cycling from motorized vehicles should remain the preferred treatment and where this is not possible, lower speeds/ lower speed limits are required.

Road safety associated with public transport

Public Transport is generally considered safe.[19] In New Zealand, a recent report by Frith and Ors for NZTA indicated that: *passengers in cars and vans are seven times more likely than bus passengers to be killed or injured in a crash (for the same time spent travelling), indicating that bus travel is comparatively a very safe mode of travel for passengers. Note that this does not include falls inside of buses or injuries sustained entering or exiting buses.*

Bus drivers are very seldom killed, with no deaths in 2012, but six drivers were seriously injured and 43 sustained

[19] The role public transport can play in *Safer Journeys* and, in particular, to advance the Safe System approach, December 2015 B Frith, J Burton, M Trotter, G Rive, Opus Research, Lower Hutt, NZ Transport Agency research report 581.

minor injuries in that year. The literature and case studies from the Auckland and Wellington main urban areas indicate that PT is indeed safer than motorised personal transport modes. However, when injuries to PT users accessing PT, exiting from PT, on PT, and journeying to and from PT, are taken into account, the difference narrows. These injuries relate to walking and cycling infrastructure, including lighting, PT interchange and bus stop design, PT vehicle design (and internal infrastructure) and the driving behaviour of PT drivers. Journeys to and from PT vehicles may use vulnerable modes. It is important for walking and cycling safety to be a high priority to encourage people to use these modes and access the health benefits they afford. Also, fewer injuries will occur if there is good urban planning to provide efficient transport and reduce unnecessary journeys.

The Report further states that: *All the above could relate to Safer Journeys priorities accompanied by Safer Journeys action plans without changing the framework. In New Zealand, improvement would involve taking actions within the present Safer Journeys system to better ensure the safety of PT-related travel. These actions could include better recognition of non-motor vehicle pedestrian injuries and injuries entering/exiting PT in the present system. Safer Journeys currently addresses injury that occurs on the road network and about which we have accessible data. There is some information on cycling where no motor vehicle is involved. However, the following injuries in relation to buses and trams are recorded in separate databases that do not feed into Safer Journeys*:

- *injuries on/within the vehicle*
- *injuries boarding/alighting the vehicle*
- *injuries walking to/from the vehicle (unless a motor vehicle is involved).*

Expansion of bus services is clearly crucial to delivering alternative transport for Aucklanders however, all transport modes including bus operations should be seen to embrace Safe System thinking as a fundamental core action. For example, in Gothenburg Sweden, the Bus Company (owned by the city) faces not just a speeding fine (usually the responsibility of the individual driver) but also a contract penalty amount under their service contract with the city, on each occasion a bus is detected exceeding the 30 km/h urban downtown speed limit.

CONCLUSION: AT should discuss how it intends to collect sufficient data on first and last legs of public transport use and to consolidate that to provide intelligence on higher risk situations and support intervention identification.

Buses should be required under operating contracts (as they are progressively renewed or clauses are renegotiated earlier) to achieve full compliance with road rules including with speed limits. Alcohol interlocks should be progressively fitted to all buses. Contractor fleets could similarly have requirements imposed to improve road safety outcomes in their fleet use. Maximum speeds on busways should respect safe system principles and speed limits need to be reviewed wherever buses share space with cyclists.

Other programmes and initiatives

Review signal optimisation for safety priorities

Signal phasing is a powerful tool to achieve safer traffic operation, by prioritising non-motorised traffic in specific locations, but signal optimisation activity has led to tensions at ELT level, e.g. over cycling treatments at signals and priorities. ATOC signal phasing is a major issue which requires workshopping when some enhanced knowledge of safe system principles is in place, to better promote the adopted agenda (safety not to be compromised but at certain times and in certain arterial locations travel is safer than elsewhere).

Workplace safety initiatives

There is a great deal that AT can put in place to encourage or require safer road user practices by its own staff, by AC staff and by other agencies in Auckland. Distraction from phone use, hands free or hand held by drivers is known to be a serious risk for safe road travel. AT could for example, promote as preferred practice that staff phones are turned off while driving, and mandate this practice six months or so later. This approach could be promoted to all public and private sector organisations.

AT should actively monitor its own work-related driver offences, actively promote safe travel and safer fleet vehicle

use and procurement. Procurement arrangements could include seeking suggestions from contractors on road safety improvement actions and scoring submitted suggestions in the tender evaluation process to drive change in attitudes throughout AT, the contracting industry and ultimately throughout the community.

Research needs

A budget is necessary for AT and for Roadsafe Auckland to enable basic applied safety research and safety cost effectiveness evaluations to be carried out as a support to the road safety programme. It is also recommended that AT work with the central government/NZTA to obtain removal of the NZTA requirement for calculations of crash reduction benefits for a proposed infrastructure safety treatment to be offset against the value of time costs due to delays attributable to the treatment (e.g. signals, roundabouts).

Comment: *Where are the pedestrianised spaces? Why not bolder in recent years?*

Comment: *Need a different lens. What are our targets? Our approach is reactionary. Time to broaden outlook*.

Setting benchmark and stretch targets

Benchmark and stretch targets should be derived from the detailed discussions AT will be conducting in coming months and formally included in organisational action planning and KPI's.

Performance measures recommended for adoption and monitoring include:

- Mean free speeds on urban roads and rural roads
- Length of cycle lanes by year, by type of treatment, by speed limit
- % of cycle lanes (separated only by painted line) on arterial, collector and distributor roads with travel speeds greater than 40 km/h
- % of those cycle lanes using bus lanes where travel speed is greater than 40 km/h
- % of villages with 30 km/h speed limit
- % of identified village centres with free travel speeds less than 30 Km/h
- proportion of safe pedestrian/cycle crossings
- proportion of five star intersections (star rating to be developed)
- proportion of five star pedestrian crossing facilities (star rating to be developed)
- number of high risk road lengths treated from programme inception by year to current time
- number of high risk intersections treated from programme inception by year to current time
- number of speed limits on lengths of roads reviewed and reduced by year to current time by rural roads and urban roads
- DSI per kilometer of travel for light vehicles, motorcycles, mopeds, pedestrians, cyclists, heavy vehicles[20]
- Establishing a measure for walkability and measuring and reporting on it
- travel mode share levels and shifts.

Comment: *Road Safety data is presented to the Board but it's statutory reporting which is not that relevant. Talking about deaths on the roads is a blunt instrument. No one is talking about "we constructed x km of safety*

[20] This will require travel in these modes plus urban bus travel and urban rail travel to be measured and trends in this travel identified. This will impose a cost. But it is the type of information a rapidly developing Auckland needs.

improvements on our high risk roads last year. They talk about cycleways. In safer journeys, we talk about cars, walking, cycling, heavy freight and motorcycles. We need to separate these out, to better understand underlying pressures and trends.. Not all roads are used by motorcycles, or freight but we know which ones are and should added that into our reporting and planning. The car fleet is increasing by some 800 a week in Auckland. Motorcycles have gone substantially from 60 000 -100000. Need to get a per capita or per VKT measure to capture all these things, put it into a context, go back into the past 3-4 years and project forward.

Comment*: We could do a lot more on road safety, the board would especially would like the data to look at. Then you have the ability to look at targets and KPI's and say we could have a crack at that. As a board we have no oversight of safety improvements. We just assume it's done to the best safety standards. We need more than that.*

Comment: *Now's the time to redirect thinking in the organization. It's all about timing. First it was all about legacy projects, very little freedom to act, issue after issue, congestion whatever. A lot has been done. The time has come to broaden the outlook to what could be.*

Comment: *My view is it's not so much about adding cost it's about changing the way we do things.*

11. Opportunities within AT's external partnerships for improving performance

Responsibilities and challenges

AT (as the designated agent of AC) is unique in NZ in terms of scale as a local authority with community responsibility for road safety. Yet, while AT has key direct responsibilities for delivery of road safety interventions (especially infrastructure safety improvements on local roads and lower speed limits on local roads), and an important responsibility to the Roadsafe Auckland partnership at regional level, it does not itself have the direct authority to introduce many of the required interventions in the national action plan.

While there is good awareness of the safe system approach within the road safety group within AT and understanding of what is required to meet AT's direct road safety outcomes, the readiness to take the initiative to ask the tough questions of the partners at regional level is not evident. There has (understandably) been little appetite to question the national level agencies whose policies in recent years are considered to have been a drag on road safety performance in New Zealand generally, including Auckland. These are ELT responsibilities and indeed are Board responsibilities.

AT's responsibilities include advocating to and influencing central government (and informing its constituents) about:

- weaknesses in the current action plan and strategy implementation, including restricted funding which is impacting other agency performance
- making the priority policy changes (including funding to achieve their implementation) to turn around unacceptable road safety performance
- opportunities to further improve community safety/reduce road crash trauma by encouraging greater national leadership in introducing new, improved safety interventions beyond those identified in the Safer Journeys strategy and the current national action plan (2016 – 2020).

Requesting central government to:

- adopt Vision Zero as the underpinning goal of S*afer Journeys* as an early priority
- revise the Safer Journeys Action Plan to address the many gaps in New Zealand's road safety strategy, including a commitment to safe system/ vision zero principles, a long term target of Zero DSI, and the many new policy/ legislative measures Auckland has indicated elsewhere in this Report that it wishes to see introduced including new regulatory settings for alcohol, drugs and speed and funding of necessary enforcement action and campaigns.
- set an intermediate target for reduction of fatalities and serious injuries based on application of the revised Safer Journeys Action Plan over the next three-year period as a priority
- request involvement in discussions between Police and NZTA about resourcing priorities for policing operations.

These priorities influence Auckland DSI to a substantially greater extent than any direct actions of AT itself.

It would be useful for AT's future road safety strategy to reflect upon the adequacy of central government road safety leadership and central agency road safety performance in recent years, as to what existing actions at regional level have been constrained, or not tackled at national agency and government levels – through budget cuts, lack of full commitment to the safe system principles suggested within Safer Journeys and ultimately lack of appetite and support for necessary change to adopt interventions considered good international practice. Indeed, in some instances there have been reported examples of outright hostility to the concept of speed management as a public good.

The Institutional management challenges[21] for effective partnership outcomes through application of the safe system framework can be summed up as follows:

- Is there a strong shared results focus and identified and agreed organisational accountabilities for (i) AT and AC and Local boards and (ii) AT's external partners at regional level - and national level?
- Does an agreed basis for road safety action and performance exist (i.e. vision zero/ safe system) among all partners? Is there a strategy and set of action plans and set of targets that are not inconsistent and clearly reflect a shared set of outcomes – at local, regional and national levels?
- Do strong partnership agreements exist in writing with effective decision making, liaison and support arrangements in place to achieve effective coordinated results?
- Are there clear documented accountabilities for performance and supporting mechanisms for meeting that accountability at local and regional levels?
- Can improved road safety legislative settings be agreed and achieved – progressively but also relatively quickly – at national level?
- How can increased funding be brought on line to reflect the serious current lack of performance and underpin a shared commitment to meeting the challenges faced?
- How can sufficient knowledgeable resources be deployed by AT and the regional partners to skilfully advocate for required change to the Council, local Boards and the Community, and to National partners.
- How rapidly can effective performance monitoring arrangements be put in place and what should be measured and monitored at local and regional levels.
- How can targeted high value R and D programmes be put in place, especially road safety programme evaluations
- How can knowledge transfer arrangements be arranged quickly initially and ongoing into the future as a continuous learning and feedback process.

CONCLUSION: With no regional strategy there is an absence of outputs to measure efforts against. This report recommends AT support adoption of comprehensive fresh governance and management arrangements for the Auckland Roadsafe regional partnership based on the Draft Revised Auckland Road Safety Framework 2017 to 2023[22], December 13, 2017.

Deliver a fresh road safety narrative for Auckland

Informing Aucklanders that a fresh approach to road safety is underway is an important requirement and opportunity. A fresh road safety narrative and approach, built around vision zero and safe system described in chapter 7, its human centred and holistic injury reduction approach and its connection with sustainable outcomes, and emphasising the aspiration and outcomes AT and AC and its regional partners wish to see in place for Auckland, will let the community know that major change is coming.

AT should not hesitate to continue to draw on the 2017 road safety performance experience to make the non-negotiable case for immediate change.

There will be many more considered and expert inputs available but a suggested narrative for Auckland around the themes of "a safe enjoyable relaxing place with high amenity for people wishing to travel to and from and through its various "place locations" especially the CBD and town centres, which make walking, cycling and use of public transport preferred options to private car use for many Aucklanders over time, while providing for our business needs, freight movements and through traffic flows" is one starting point.

[21] T Bliss and J Breen (2009). *Country guidelines for the conduct of road safety management capacity reviews and the related specification of lead agency reforms, investment strategies and safety programs and projects*, Global Road Safety Facility, World Bank, Washington.

[22] Draft *Revised Auckland Road Safety Framework 2017 to 2023[22], December 13, 2017,* Auckland Transport, which includes: 1. Road Safety Governance, 2. Strategy & Performance Indicators, 3. Tamaki Makaurau Vision Zero - Terms of Reference

Regional partnerships - the Roadsafe relationship

Within the Auckland Roadsafe relationship, a suggested decision-making arrangement is set out below in Figure 35. All Executive Group members have significant outcome responsibilities beyond road safety, but more than any other group of individuals they will determine the level of success of the strategies and the responsiveness of government to emerging road safety issues. They have the authority to commit their agencies to a course of action.

They all need to be able to understand and communicate the essence of *Safer Journey and the* Auckland Road Safety Strategy, be made aware of emerging performance issues in a timely manner and lead responses which support the strategic intent of the strategies. As a collective they need to be singular and energetic in purpose, and committed and unrelenting in advocating for specific safety actions and ongoing safety improvement. In short, they need to ensure the necessary momentum for planned change to deliver the agreed action plan, is maintained.

Figure 35: Recommended arrangements for decision making and implementation by Auckland Roadsafe

The decision-making arrangements for the Auckland road safety partnership group (Roadsafe) proposed in a recent draft[23] by the AT road safety section are generally supported. However, the **Executive Group membership** should be the CE AT, Road Policing Commissioner NZ, CE ACC, Manager Safety NZTA, Senior Officer AC.

Steering Group membership should be the Operations Manager AT, Waitemata Road Policing District Commander, NZTA regional relationships upper north island Director, senior officer AC, and Senior Auckland Health Officer.

Working Group membership could be the key road safety strategy and action planning officer in each organisation who should also attend the Steering Group (and indeed as necessary the Executive Group).

Critical considerations to support the decision making and implementation work of the road safety Groups are adequate support for the necessary management and administration of meetings and the need to establish a formal liaison committee for consultation – to enable the Steering Group to inform stakeholders (such as the RTF and the AA) about planned measures and to hear their views on agreed matters. They could meet twice a year with the Chair of the Steering Group.

[23] *Draft Revised Auckland Road Safety Framework 2017 to 2023*, Auckland Transport, December 2017.

The Steering Group chair and members need to run the engine room for road safety strategy and action in Auckland – supporting and energising the Executive Committee and partner organisation heads, as well as developing and implementing solutions without recourse to them wherever possible. They need to act as a strong road safety advocacy group to the Executive Committee, the partner agencies and other stakeholders, taking whole of community issues into account but always driving, unapologetically, a strong and aspirational safety improvement line. The Steering Group on behalf of the Executive Committee needs to step in and give strong leadership to implement identified measures to deliver the available annual savings in lives and injuries as a matter of urgency.

A stronger, more direct road safety leadership role within and between the agencies will be needed from this Group.

Central government partnerships

Just as AT has the lead agency role at regional level, so the MoT has the lead agency role at national level. The central government and relevant Minister should be encouraged to support the MoT to ensure it has the mandate and the capacity to fulfil this key leadership role as actively as possible – to achieve fresh new policy positions by government, strong focused monitoring of performance, acceptance of accountability by each member agency and action by (and advice to government from) a well-functioning and reinvigorated National Road Safety Committee.

AT has the opportunity to lead recognition by the central government and its agencies that major change is not only required but is essential if the number of Auckland residents killed or seriously injured is to be reversed. This will not occur without substantial commitment and action. It requires positive policy change, adequate funding by the national (and local) government, frank but sensitive discussions with regional (and national) partners about roles, responsibilities and accountabilities and courageous leadership and decision making by those in senior roles within Auckland Transport, Auckland Council - and at national level, the Ministry of Transport, NZTA, the NZ Road Policing Command and ACC.

Action on enforcement levels

The most immediate positive change available lies within Road Policing Command. **AT needs to be at the table when any revised national policing agreement is discussed between Police and NZTA, and it is essential that AT is part of the regional discussion about policing operations by quantum and type and distribution. It is too important to Aucklanders for Police resourcing and operations and reporting to Roadsafe to be discussed without AT present. Again, these priorities influence Auckland DSI to a substantially greater extent than any direct actions of AT itself.**

The issues related to enforcement – of managing safe speeds, deterring drink driving and drug impaired driving – were discussed in detail in Chapter 4 on Reasons for the current increases. A number of recommendations are made at the start of this Report that relate directly to these issues, including technology innovations.

CONCLUSIONS: Levels of random breath testing (assuming Police resources in Auckland will be re-established shortly) need to be reviewed for Auckland by Police and discussed by Roadsafe Auckland Group to support Police in conducting 1.1 million tests each year in Auckland.

Further initiatives will be required to make additional progress beyond that point. The methods of enforcement employed could also usefully be reviewed by Police to ensure general deterrence enforcement receives adequate attention. Support for identified Police resourcing needs through advocacy to the central government will be required from Roadsafe Auckland and all its partners.

Good practice drink driving management in Australia includes a zero BAC limit for drivers of heavy vehicles and public transport vehicles, including buses and taxis. This could usefully be introduced in New Zealand.

. Courts in New Zealand have a capacity to consider and grant applications by suspended drink drivers for a work-

related license. This certainly undermines the deterrence value of drink driving detection and suspension and should be discontinued.

Urgent discussions between AT and the Roadsafe partners with MoT are suggested to work with the Ministry of Health to introduce hospital screening for alcohol and for drugs of road crash trauma patients. There are reportedly privacy concerns raised by the Health sector but discussions are needed to work to resolve this matter, and authorize the agreed collection of the data to establish prevalence of drugs (and a more complete alcohol impairment record).

Random roadside testing of drivers and riders for specific impairing drugs should be introduced as a priority.

Speed management opportunities

It is a long-established practice that 50 km/h means up to 60 km/h in New Zealand. Exceptions to this are lower thresholds nears schools, for heavy and towing vehicles and for public holidays and part of the summer holiday period. The sensitivity of crash outcomes to small variations in speed around these levels is acute, for example, for vulnerable road users and for side impact crashes, which are major crash types in Auckland. It will be an important component in the recovery in road safety performance for Auckland that the speed enforcement tolerance is set at 54 km/h all year rather than a few weeks a year in 50 km/h zones. Ramping up camera hours (doubling of hours) is also supported. Back office processing capacity needs to be upgraded as soon as possible with specific central government funding to enable expanded deterrence to work.

The education achieved (through issuing a greater number of infringements due to greater non-compliance) by a lower tolerance is very clearly seen. This potential light application of a sensible safer speed is currently a lost opportunity which in fact reinforces current unsafe levels of speeding behaviours as acceptable.

In Victoria, Australia, the "enforcement tolerance" or margin of speeds above limits at which those limits were enforced (by mobile cameras) was reduced from 10km/h to less than 6 km/h in 2002. The combination of this measure, plus increased penalties (fines and lower demerit point thresholds) plus a doubling of covert camera hours and installation of combined speed and red light cameras at higher risk intersections, lead to an increase in infringements from 50,000 per month to 100,000 per month.

The level of fatalities commenced falling almost immediately and fell 18% over a 12-month period. The level of infringements fell back to 50,000 per month after 12 months but compliance had increased from 98% to 99% with mean urban speeds falling by 2 km/h in 60km/h zones, a 3.3% reduction, which was predicted to deliver a 16.5% reduction in fatalities (compared to the 18% achieved).

SEE ANNEX 4 FOR SUBSTANTIAL FURTHER DETAILS

While there has been some increase in speeds passing cameras over recent years across New Zealand, it has been suggested that people are not generally driving much faster than they used to. The issue here could well be the high base of acceptable speed. It may not have increased but it is too high, is well above speed limits and is an entrenched behavior for many. Enforced speed levels are well above limits and have always been so, so the base behaviours need to be changed through enforcement to deter illegal speeds and lower travel speeds to legal levels. Closing this gap would deliver lower free speeds as the limits imply and deliver substantial serious crash reduction/ safety benefits.

To examine speed behaviours mid-block (to better understand if drivers and riders speed up mid-block after being delayed at intersection signals) some AT free speed trend data obtained from loop counts in the road (at mid-block loops only) and for those mid-block locations where AT hold longer term historical data have been graphed. There were more than 2000 locations with some long-term data, but the data is not set up to easily query/determine whether the locations are mid-block or in many cases what the speed is.

The sample of graphs (8 No. locations) shown in Annex 11 is not claimed to be representative, simply what was readily accessible. Only one road (Whangaparaoa Road) has a 60 km/h limit, the others have a 50 km/h limit.

The 85th percentile speeds are usually, in these speed environments, some 4 km/h above mean speeds. This suggests that there is good flow on those roads, admittedly speeds are reducing over time but travel is still on average at the speed limit or above it in most cases. Enhanced camera enforcement tends to shrink the gap between 85th percentile speeds and mean speeds and contributes to the serious casualty reductions achievable. As referred to in chapter 4, see Annex 4 case study on successful use of mobile speed cameras in Melbourne.

Given the much higher risk that heavy vehicles represent in any crash it is suggested that a 50% higher speed penalty (fine) for heavy vehicle drivers (vehicles above 3.5 tonnes) be introduced to reflect that greater risk of these higher mass vehicles speeding. This is the practice in Victoria and has been the case for many years.

It is understood that NZTA had planned to report to the National Road Safety Committee by the end of 2017 with a draft automated compliance strategy for mobile covert cameras, followed by a Ministerial briefing early in 2018 for decisions on next steps. AT should seek early discussions involving NZTA and Police to agree a substantial new technology investment programme for rapid rollout of improved enforcement (Mobile camera expansion, combined speed/red light cameras, point to point cameras on arterials, random roadside saliva testing for selected drug influence while driving plus laboratory support and testing, all including back office support).

Improving the Road Trauma Management System in New Zealand

The Victoria trauma group has recently reviewed post-trauma care in New Zealand. Early results are that mortality for acute brain injury is 25% higher in New Zealand than in Victoria. The mortality rate in Victoria is 5.3%, in New Zealand it is between 9% to 11%. Improvement is largely about getting the patient to the right hospital the first time.

The TAC funds road trauma care in Victoria and has an active involvement in the monitoring of the trauma Registry. They provide absolute budgetary certainty which ensures practitioners have confidence to set up longer term management systems. NZ wish to retain their trauma registry and derive the benefit from it that Victoria has seen.

It is understood that ACC have engaged for the last five years with the New Zealand trauma network, 53% of which is road crashes. A business case is in place with ACC to support the work as in Victoria, where research by Dr Belinda Gabbe documents benefits in reduced mortality through improved trauma management over 10 years based on analysis of comprehensive trauma registry data.

NZTA (Harry Wilson) are very engaged in exploring the benefits of post-crash care investment with Professor Ian Civil of Auckland University.

Assessing freight industry standards

Heavy vehicle involvement in serious crashes has increased in recent years. Along with partner the NZ Transport Agency, AT should be investigating:

- What are the industry safety standards for speed and fatigue management, for alcohol/drug driving management?
- Are they adequate and consistent with a safe system approach to road safety outcomes? What is the pattern of heavy vehicle driver drug impairment, speeding, driving excessive hours?
- What new technologies should be encouraged, what mandated?

Consultation with the Road Transport Forum was beyond the scope of this Review. No recommendations have been proposed. This issue warrants further investigation and action.

Reviewing national road funding arrangements

Additional safety investment will be needed to meet the safe system outcomes which *Safer Journeys* aspires to.

There is a major funding gap for the infrastructure safety programme carried out by AT. The National Land Transport Fund is clearly not providing adequate funding to deliver the infrastructure and related infrastructure safety needs that New Zealand requires. This needs to be accepted as a current major deficiency in New Zealand public policy. **A review of the fund and adoption of sensible sources of increased funding is urgently required.**

Options for funding the balance, and for shortening the programme, need to be discussed with the central government. The first option is examination of ACC funding of road infrastructure investment in conjunction with government, which delivers a commercial cash return to their motor vehicle accident fund while delivering reduced road trauma in Auckland (and the rest of New Zealand). The second option is that additional fine net revenue from an upgraded speed enforcement programme which is badly in need of reform could be allocated to this infrastructure safety task.

Public campaigns

It is most important that the public are fully informed about the potential benefits – the savings in lives and serious injuries - behind enforcement activities. Auckland is experiencing substantial levels of immigration from various countries, some of which do not have the same developed social norms for road use (i.e., respect for the rule of law on the roads). In these circumstances sustained enforcement is a critical means of education to establish acceptable behaviours. It would be most useful to ask Professor Ian Civil of the University of Auckland to participate in public advertising about road trauma and the need for investment in infrastructure, trauma management and enforcement and for speeds to be lowered by lower limits and rigorous enforcement

Comment: *Around 2005, the government realized that the NLTF was not up to the task. The hypothecated funding has put blinkers on ways New Zealander's think about transport. Safety has struggled to come out of that. The Fund has been inadequate for over a decade.*
AT is going to employ 230 transport officers to do safety on the train network, but we're not doing anything like that for road safety.

Setting benchmark and stretch targets

Benchmark and stretch targets should be derived from the detailed discussions AT will be conducting in coming months with its partners and formally included in Auckland Roadsafe plans and KPIs. Progress with agreed actions to be taken by MoT, NZTA and Police at national level needs to be monitored, measured and reported upon regularly to the ELT and Board. Performance measures recommended for adoption and monitoring include:

- RBT numbers and offence and infringement rates – Auckland needs to get back to 1.1 million tests per year
- Seat belt offence rates
- % compliance of motorists detected passing speed cameras (mobile covert and fixed separately)
- Age of used vehicle imported in past year to New Zealand
- Vehicle age New Zealand
- Changes in traffic offence levels by type in Auckland year to year
- A walkability measure
- A cyclability measure
- Mode share shifts
- Travel by all road user groups annually.

12. Cost of delivery covering current, historic and projected outputs

Table 23 below indicates the components (Capex and Opex and Community Transport) of the road safety programme within AT for the 2016/17 and 2017/18 years.

Table 23: Details of the components and expenditures of the road safety Capex programmes within AT for2016/17 and 2017/18 (and for road safety and community transport Opex for 2016/17)

TYPE	TEAM & BUDGET	Description of activity 2016/17	2016/17 Plan ($m) with High Risk (HR) component shown	2017/18 Plan ($m) with High Risk (HR) component shown
Capex Road Safety	1. Safer Communities	Small pedestrian safety improvements: walking, town centre and school treatments	5.5 (HR Nil)	5.5 (HR 1.7)
	2. Safety and Minor Improvements	~$3m (HR) infrastructure safety programme, projects > $1m. Balance of $ 6.3m on efficiency, traffic management, requested works, safety projects	9.3 (HR 3)	11.3 (HR 4.3)
	3. Safety Speed Management	Speed signage and markings	0.1	0.1
	4. Regional Safety Programme	~$5m (HR) infrastructure safety programme, safe system compliant projects > $1m, 2-3 per year	5.3 (HR 5)	(HR) 1.8 for urban, 3.7 for rural
	5. Crash Reduction Implementation	Prioritised response to fatal crashes	0.2	0.2
CAPEX TOTAL			**20.46 (HR) = $8m**	**22.6 (HR) = $11.5m**
Opex Road safety	6. Safer Communities Investments	Support for 1. Safe Communities capex item above	1.44	N/A
	7. Minor Improvements and Regional Safety Investments	Support for 2. and 4. above in capex	1.32	N/A
	8. Crash Reductions	Support for 5. above	0.3	N/A
	9. Regional Road Safety Planning and Education	Road safety strategy, Action planning, Monitoring, Evaluation, Regional partnership (Auckland Roadsafe) leadership and support	0.68	N/A
	Sub Total		**3.73**	**N/A**
Opex Community Transport	10. Community Transport	50/50 split – behavioural change campaigns costs and Team supporting campaigns: alcohol, speed, restraints to support police enforcement[1], programmes to encourage walking to schools, young driver safety, vulnerable road user safety, etc. through radio, web based and print with NZTA providing national TV campaigns	6.4	N/A
OPEX TOTAL			**10.14**	**N/A**

2016/2017 Capex High Risk treatments - allocation of $8m

2017/2018 Capex High Risk treatments - allocation of $11.5m

[1]There is considerable difficulty in establishing the detail of the police funding allocation and the outputs to be delivered in their agreement with NZTA. There is no readily available link to detail the inputs and outputs.

AT Infrastructure safety programme

While there have been minor adjustments between the above 10 items from year to year, the overall annual allocation has varied by less than $1m to $2m since 2012/13. The actual infrastructure safety spend was about $8m of the overall total. It is noted that for 2017/18 $11.5m has been allocated for this purpose. However, in comparison to the task identified earlier of a potential $500m high-risk intersections and road lengths backlog, a discussion at Board level and ELT about the gap between funding needs would appear to be warranted.

The nominal $20m programme in 2016/17 was essentially only $8m of substantial infrastructure safety works (projects over $1m). This amount has increased to $11.5m in 2017/18. The programme is implemented annually in practice with other categories of expenditure such as small pedestrian safety improvements (walking, town centre and school treatments) and efficiency, traffic management, requested works and minor safety projects making up the balance of the $20m programme annually (2016/17).

A high-level estimate based on the Minor Improvement funded component of the overall safety infrastructure program delivering a 30% reduction in all crashes per project (referencing the NZTA evaluation of Crash Reduction Studies delivering 30% reduction) suggests that 1 DSI per $1m of infrastructure safety investment can be achieved through that Minor Improvements programme. $4.3m is allocated this year in that programme out of the $11.5m total for infrastructure safety. The balance of the $11.5m is allocated to traffic engineering activities.

However, staff advise that the Regional Safety programme component would deliver less effective DSI reductions per $ of expenditure.

Community Transport – Road safety promotion

The Road Safety Promotion component of the Community Transport activity has historically shown to provide a significant Benefit Cost ratio of 8:1 for promotional interventions that support road policing activities.[24] This generic BCR applies to a lot of the joint regional advertising campaigns. In some of the highly targeted community-based interventions, such as Repeat Drink Driver rehabilitation (outsourced to Specialist NGO's) and Driver Training, they can provide a higher Benefit Cost ratio of up to 20:1[25]

An example of evaluation of the Community Transport programme 2015/16 is available.

Looking to the future

A major injection of funding is required for AT to manage its identified high-risk intersections and roads. Options include a revised and expanded NLTF or a road safety support fund built from net fines income. The early Auckland Transport Alignment Programme (ATAP) proposals thinking within AT (in recent days) offer some hope that additional capital funding could be found to address Auckland's transport capital investment needs.

The focus of the organisation needs to be on "bringing the safety of the network towards safe system compliant conditions," a major investment challenge, rather than the continued use of the term "minor safety improvements." The individual pieces of the jigsaw may be smaller scale, but the overall impact will be most substantial – and the wording used in making these cases for funding for road safety infrastructure investment needs to reflect that change in thinking.

[24] Taylor, Duigan, Barry, 2007 – attached.
[25] John Bolland, 2015/18 BCR Assessment – also attached.

13. Conclusions

The challenges ahead for AT are numerous and very substantial. Leadership and persistence will be essential in pursuing local solutions while pressing central government very hard to make up for an absence of good practice interventions that have not been embraced to date and seem to represent many years of inaction.

The solutions to the current unacceptable deterioration in Auckland road safety do exist and gains can readily be delivered if there is preparedness by Wellington to do something, much of which will undoubtedly meet some community resistance. AT should not be deterred. Seek central government support for major change but get on and do what AT can do locally with speed limits, working with AC to improve place and amenity, resolve as many tensions within AT functions that impact on safety as possible, embrace Safe System principles and thinking and deliver safer infrastructure though all AT's programmes.

Get Auckland Roadsafe working well and build on the existing partner relationships to achieve better enforcement outcomes with available Police resources. AT needs to be at the table when road policing budgets are discussed between Police and NZTA. This is a critical priority opportunity for AT and Auckland road safety and should become a long-term regular link. Decisions about Police technology investment, including camera expansion programmes, police enforcement support requirements from the courts system to build deterrence and actual outputs to be delivered should all be discussed in that forum.

Telling the Auckland community what has happened to the safety of their travel in recent years and pointing out some of the reasons is part of the fresh new strategy conversation AT and AC need to have with Aucklanders.

The tasks ahead for AT in leading the needs of its external environment can be summed up as adopting a vibrant regional Road Safety Strategy and action plan including open consultation with Aucklanders, delivering an effective community education programme reflecting that adopted strategy, actively moving to manage free operating speeds which are in general terms too high for appropriately safe road network operation, developing strategies and funding support to improve the underlying safety of walking, motorcycling and cycling, increasing public transport use and safe access to it, and substantially extending AT's infrastructure safety programme. Adequate knowledge development and resourcing within AT at high levels as well as mid-management levels for the substantial task of building and maintaining active partnerships to influence, support and lead the regional partners and their critical activity and to press for the whole-hearted embrace of Safe System/vision zero (as well as the many critical and necessary supportive enabling initiatives to be taken) by the national partners/central government is necessary.

14. References

New Zealand Road Crash Injury Data: **https://www.nzta.govt.nz/resources/road-deaths/toll.html#road-fatalities**

IRTAD *Annual Report*, 2017

Country guidelines for the conduct of road safety management capacity reviews and the related specification of lead agency reforms, investment strategies and safety programs and projects, T Bliss and J Breen (2009), Global Road Safety Facility, World Bank, Washington.

Draft Revised Auckland Road Safety Framework 2017 to 2023[26], Roadsafe Auckland, Auckland Transport, *December 13, 2017*

The role public transport can play in Safer Journeys and, in particular, to advance the Safe System approach, December 2015, B Frith, J Burton, M Trotter, G Rive, Opus Research, Lower Hutt, NZ Transport Agency research report 581

Zero Road Deaths & Serious Injuries - Leading a Paradigm Shift to a Safe System, OECD/ ITF, 2016

Towards Zero: Ambitious Road Safety Targets and the Safe System Approach, OECD/ ITF, 2008

Sustainable & Safe, A Vision and Guidance for Zero Road Deaths, EMBARQ, World Resources Institute, World Bank, GRSF, Bloomberg Philanthropies, 2017

Safer Journeys Action Plan 2016 – 2020, National Road Safety Committee, MoT, New Zealand

Strategic Road Safety Case, 2014, Roadsafe Auckland, (never formally approved)

Draft Auckland Urban Street and Road Design Guide, Auckland Transport

[26] Draft *Revised Auckland Road Safety Framework 2017 to 2023*[26], *December 13, 2017,* Auckland Transport, which includes: 1. Road Safety Governance, 2. Strategy & Performance Indicators, 3. Tamaki Makaurau Vision Zero - Terms of Reference.

15. Annexes

Annex 1: Term of reference

Business Improvement Review – Road Safety

Purpose

These Terms of Reference set the requirements for a Business Improvement Review for Auckland's road safety management.

Scope

The scope includes:

- A review of the existing strategic documents to test alignment between over-arching organisational strategy and measurement of subsequent performance
- The strategic alignment of the parties involved in road safety planning and delivery in Auckland and nationally including Auckland Transport's alignment with the Safer Journeys Strategy and Action Plans
- The appropriateness of existing performance measures
- Benchmark standards from similar jurisdictions and the identification of best of breed targets for Auckland
- The method of prioritisation and allocation for resources between agencies and between prevention, education, monitoring, enforcement and physical safety
- Analysis of trends in Auckland's death and serious injury over recent years including demographic and mode data
- Cost, revenue and staffing at Auckland Transport and elsewhere in Auckland road safety delivery agencies
- Emerging good practice in road safety
- Technology innovations that could accelerate improvements

The scope excludes:

- Legislative or regulatory requirements
- Funding adequacy (the review is primarily focused on allocation of existing resources although analysis of the impact of more or less resources would be useful)
- Funding arrangements
- Incident response and emergency services
- Determining the views of customers

Method

The review will encompass:

- Interviews with key staff and at least two Board members nominated by the Board
- Interviews with key external stakeholders including road policing, NZ Transport Agency and ACC.

- Review of AT's key documentation including strategies and work programmes.
- Review of related documentation such as modelling, budgets and business cases

Deliverable

The review will deliver a draft report for the Board at a date to be agreed. The reviewer will then meet with the Board to discuss the report before finalising the report.

The report will cover:

- Analysis of the strategic outcomes for road safety and the extent to which these are:
    - Aligned with wider strategy
    - Understood and owned within AT
    - Being properly measured
    - Aligned with the annual work programme
- Analysis of road safety outcomes over time (including reasons for current increases) and across jurisdictions (including empirical analysis as to why Auckland would have different outcomes to other cities of a similar size)
- Analysis of operational delivery against current and a desired set of measures. This includes current, historic (past three years) and projected
- Identification of benchmark and stretch targets for good practice performance
- Analysis of cost of delivery covering current, historic and projected outputs including any proposed shift in resourcing between agencies and activities

Reporting

The client for the review will be the AT Board of Directors. The Board point of contact will be Dame Paula Rebstock. The internal contact within AT will be the Chief Transport Operations Officer, Andrew Allen. He will provide logistic support in terms of meetings and assist in the provision of background material.

Reporting

Report	Detailed requirements
Draft Report	Available by 23 January to be discussed at the Finance and Risk Board Committee on 30 January 2018
Final Report	Report to be completed at a date to be agreed, but likely to be within one month of the draft report consideration.

Annex 2: Road policing cuts in 2017

AT was first consulted with by Local Police Districts of the Road policing 're-purposing' in March 2017. It proposed a reduction of 71 Road Policing FTE's across the three Auckland Police Districts (Auckland City, Counties-Manukau & Waitemata). AT responded via email and at RoadSafe Exec meeting in March raising our concerns with Auckland Police and NZTA (see email copy below).

From: *Andrew Bell (AT)*
Sent: *Saturday, 18 March 2017 8:43 a.m.*
To: *Randhir Karma (AT) <Randhir.Karma@at.govt.nz>; Andrew Allen (AT) <Andrew.Allen@at.govt.nz>*
Cc: *Kathryn King (AT) <Kathryn.King@at.govt.nz>*
Subject: *Auckland Road Policing Reductions*

Kia ora Andrew & Randhir

Auckland Road Policing Managers have been advising AT of significant reductions in Road Policing FTE's as per Police National Headquarters direction which present a significant risk for the enforcement of AT local roads, given the increasing growth and levels of road trauma on our roads.

Police advise there was a constrained funding envelope for the 2015/18 Road Policing Programme which has meant a required national reduction of 111 full time Road Policing constabulary positions. The Police Executive Leadership Board engaged an evidence based process using social harm arising from road trauma to calculate where the allocation would occur from.

Recent consultation documents from the Waitemata & Auckland City Police Districts indicate that Auckland region will be losing 71 Road Policing FTE's across the region (64% of the national reduction). This change mostly impacts on Local Road Policing Teams, reducing them by between 40% to 30% and I estimate it as a conservative $10,650,000 reduction in Auckland road policing investment on local roads.

Given that the reduction is mainly focused on Local Road Enforcement it will have a significant impact on:

- *Reduced ability to meet Local Road safety customer requests for both enforcement and traffic management*
- *Less visibility of enforcement at high-risk locations*
- *Less joint education/enforcement operations in high-risk areas of Speed, Intersection safety, Young Drivers, Motorcycle Safety, Distraction, Fatigue and Restraint use.*

Given the increasing transport growth and levels of road trauma on AT Local Roads, I recommend AT request a high-level consultation with the national Road Policing Manager to clarify the following:

- *Understanding of the evidence-based process used for reducing Road Policing which has resulted in Auckland receiving 64% of the national reduction in FTEs*
- *Opportunities for re-visiting the reduction in Road Policing FTEs in Auckland*
- *Opportunities for increasing the use of enforcement technology to help compensate for the reduction in Road Policing FTEs*

My personal view is that it is very disappointing to receive advice of such a significant reduction in Auckland Road Policing investment at a time when levels of local road trauma are very challenging, and without engagement with Road Police at the highest level.

Can you please consider raising these risks with our local Road Police and NZTA at RoadSafe Auckland mtg next week.

Regards

Andrew Bell

This note was taken to the Roadsafe Executive by AT and raised for discussion, but the decision by government had apparently already been taken. It appears that other stakeholders (from related media coverage) also raised their concerns, including the Police Association and Road Transport Forum, resulting in the Minister for Transport & Police Minister reaching an agreement on additional funding.

Media coverage suggested a revised funding agreement was reached between NZTA & Police in April.

At June 2017 RoadSafe meeting, Harry Wilson (NZTA) advised AT that additional funding had been secured to prevent the 're-purposing' and to retain and increase Road Policing service levels. Also that NZTA and Police are reviewing the contract model for Road Policing and are keen to receive feedback from AT, particularly around measuring the impact of the Road Policing on DSI reduction.

There is an opportunity for AT to get involved in this review. This should be a priority for AT.
The impacts of this reduction (for some 12 months) in policing resources is now clear.

POLICE RANDOM BREATH TESTING NUMBERS AND OFFENCE DATA IN RECENT YEARS PARTICULARLY 2016/2017 WHEN RESOURCING CUTS LIMITED TESTING

Number of Random Breath Tests
New Zealand: Police take around 2 million breath tests/year. Used to take around 3 million/ year before funding/staff cuts.

Auckland: Police took 396,000 tests in 2016/17, some 30% of accepted good practice for Random Breath Testing

Auckland needs to get back to 1.1 million tests per year.

- Used to get around 30,000 offences a year across New Zealand.
- In 2014 lower BAC limit came in and infringements were issued as well.
- In 2015 and 2016 total of 27,000 offences of which 8,000 were infringements.
- Could mean alcohol compliance is improving or reflect the lower level of tests taken.
- Police are receiving more funding so will be increasing test numbers again.
- Across New Zealand and in Auckland enforcement approaches may need to be reviewed to ensure future deterrence effectiveness. (i.e. use general deterrence techniques with some specific deterrence approaches)

Figure 36: Monthly alcohol offences and infringements

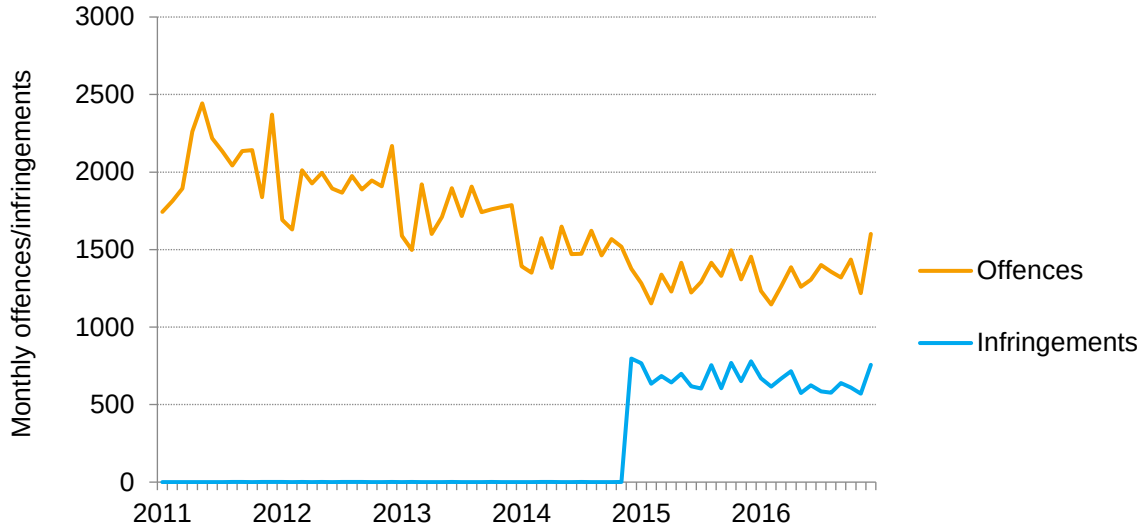


Table 24: Police RBT numbers – Tamaki Makaurau/Auckland and New Zealand

Fiscal Year	Number of Roadside Alcohol test conducted in Tamaki Makaurau	Number of Roadside Alcohol test conducted in New Zealand
2011/12	638,716	2,721,876
2012/13	722,074	2,952,138
2013/14	771,253	3,013,272
2014/15	536,582	2,555,957
2015/16	321,575 (*under recording due to system issue)	1,473,187 (*under recording due to system issue)
2016/ 17	396,120	2,115,280

Table 25: Police Random Breath Test offence and infringement data – Auckland and New Zealand

	Tamaki Makaurau/Auckland				New Zealand			
	Traffic Infringement	Traffic Offence	Warning	Sum:	Traffic Infringement	Traffic Offence	Warning	Sum:
1998	0	8,816	0	8,816	0	28,075	0	28,075
1999	0	9,164	0	9,164	0	26,522	0	26,522
2000	0	8,073	0	8,073	0	25,482	0	25,482
2001	0	7,502	0	7,502	0	25,261	0	25,261
2002	0	6,711	0	6,711	0	24,555	0	24,555
2003	0	6,727	1	6,728	0	25,135	1	25,136
2004	0	7,681	0	7,681	0	26,322	0	26,322
2005	0	8,284	0	8,284	0	27,042	0	27,042
2006	0	9,179	0	9,179	0	29,298	1	29,299
2007	0	10,580	0	10,580	0	33,172	0	33,172
2008	0	11,518	0	11,518	0	36,012	0	36,012
2009	0	11,362	0	11,362	0	36,026	0	36,026
2010	0	10,133	1	10,134	0	32,821	1	32,822
2011	133	9,286	0	9,419	579	31,621	1	32,201
2012	246	8,809	1	9,056	1,071	27,964	3	29,038
2013	188	8,231	0	8,419	799	24,948	1	25,748
2014	364	6,390	1	6,755	1,371	20,735	4	22,110
2015	2,522	5,805	0	8,327	8,601	18,778	6	27,385
2016	2,134	5,509	1	7,644	8,045	18,819	2	26,866
2017	2,265	5,878	0	8,143	7,572	19,261	7	26,840

Annex 3: Penalties for speeding offences, Victoria

The penalties for full license holders caught speeding are:

Exceeding the speed limit (km/h)	Penalty (as at July 1, 2017)	Demerit points (limit of 12 in 3 yrs)	Automatic License Suspension
By less than 10 km/h	$198	1	
10 – 24 km/h	$317	3	
25 – 29 km/h	$436	4	1 month
30 - 34 km/h	$515	4	1 month
35 – 39 km/h	$595	6	6 months
40 – 44 km/h	$674	6	6 months
By 45 km/h or more	$793	8	12 months

The penalties for full licence holders caught speeding in a heavy vehicle (Max loaded weight > 4.5 tonnes) are:

Exceeding the speed limit (km/h)	Penalty (as at July 1, 2017)	Demerit points (limit of 12 in 3 yrs)	Automatic License Suspension
By less than 10 km/h	$277	1	
10 – 14 km/h	$436	3	
15 – 24 km/h	$634	3	
25 – 29 km/h	$872	4	1 month
30 - 34 km/h	$1110	4	1 month
35 – 39 km/h	$1348	6	6 months
40 – 44 km/h	$1586	6	6 months
By 45 km/h or more	$1824	8	12 months

Annex 4: Case study on mobile speed camera enforcement by Police, Victoria 2002 to 2004

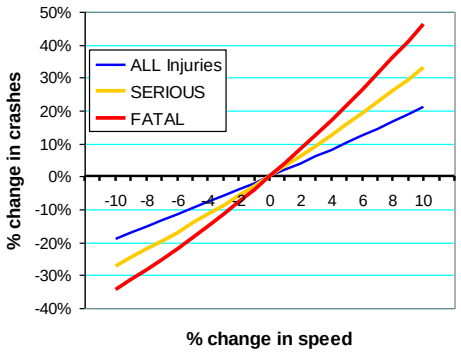
(EFFECT OF SUSTAINED REDUCTION IN TRAVEL SPEEDS [THROUGH ENFORCEMENT] ON DSI.)

Sustained decreases in travel speeds on any road will reduce DSI (casualty crashes). The effect is quite surprising to those who are unaware of the sensitivity of serious crash outcomes (DSI) to small changes in average (mean) speeds.

An example drawn from respected international research is shown below. For example, a 5% reduction in mean travel speed of the whole traffic stream on a length of road, anywhere, with a speed limit above 50 km/h, would result in 20% reduction in fatalities, a 15% reduction in serious injuries and a 10% reduction in minor injuries.

Speed change/ crash change
Speed Risk/ Relationship

- Change in fatal crashes related to 4th power of relative change in speed
- Change in casualty crashes related to 3rd power of relative change in speed
- Change in all crashes related to 2nd power of relative change in speed



Based on Andersson and Nilsson, 1997

Note that for a sustained mean speed decrease of some 3% (i.e. 2 km/h in a 60 km/h zone for example), casualty crashes on that length of road would reduce by some 15%. This is a substantial benefit.

The currently enforced speeds in Auckland are at 10 km/h above the relevant limit for all but a few weeks of the year. For those 4 to 8 weeks a year, speeds are enforced at 4 km/h over the speed limit.

There is opportunity therefore to achieve free speed reductions on average of some 3 km/h (50% of 6 km/h (allowing for the cohort of drivers currently driving well below 60 km/h in a 50 km/h zone and also the periods of congested travel when speeds are impacted by traffic queueing at intersections.)

Small changes in speed result in relatively large changes in casualty crashes

A small percentage drop in average speeds would be expected to lead to at least double that percentage drop in casualty crashes and a much higher reduction for fatal crashes.

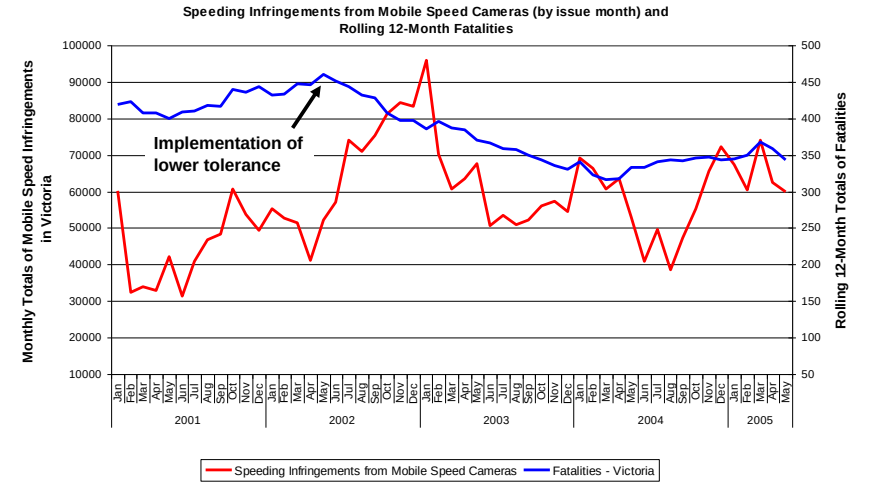
Mobile covert camera operation is highly effective in reducing speeding.
For reasons that are not yet fully understood, mobile covert cameras are more effective in reducing fatalities than any other technology for speed enforcement.

The Melbourne, Victoria experience with speed enforcement from 2001/ 2002

- In early 2001 a 50 km/h urban default limit (from 60 km/h) was introduced - but not on 60 km/h arterial roads in urban areas where most traffic operated
- In late 2001 – covert mobile camera operations commenced in metropolitan Melbourne (mobile camera effectiveness and practical operation is limited in fully rural settings where a parked car by the roadside, even unmarked, is an indicator that a camera may be present.)
- Late 2001/early 2002 onwards – police progressively introduced the 50% increase in mobile camera hours
- In May 2002, Victoria Police introduced tougher enforcement of speeding (lower enforcement threshold from 10 km/h to 5 km/h)
- In late 2002 the government introduced tougher speeding penalties, higher fines, lower speed thresholds for increased demerit points:
- Fines and demerit points today in Victoria, See Annex 3, Penalties for speeding offences, Victoria.
- License loss occurs when 12 demerit points are incurred in a 3 year period. As an example, red light running is 3 demerit points and speeding at 10 to 24 km/h over the speed limit is 3 demerit points
- 0 – 10 km/h over the limit is now $198 and 1 demerit point, 10 - 24 km/h over the limit is $317 and 3 demerit points and 25 - 29 km/h over the limit is $436 and 4 demerit points with 1 months license suspension
- Comprehensive advertising campaigns were run on television, radio and in print media to warn of the tougher enforcement and explain the sensitivity of death and injury to small speed differences.

Here is what occurred.

Outcomes: Trends in fatalities and speeding infringements issued since 2001



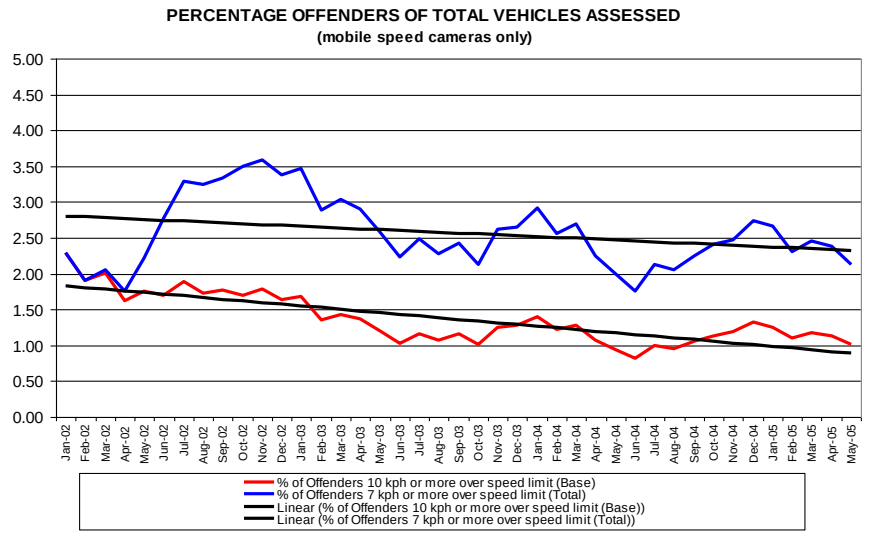
The red line graph is the number of camera infringements issued. The lower tolerance caused a surge in infringements from some 50,000 per month in May 2002 to 95,000 per month for December 2002 for a brief period.

There was a great deal of unhappiness expressed on talkback radio over that period, much of which was inaccurate and political leaders were under pressure.

From the time the enforcement tolerance was lowered in May 2002, fatalities in Melbourne – the blue line graph above – started to collapse. They continued to fall through 2002, when they levelled out in 2004.

Infringements also began to fall from January 2003 as behaviours changed and were back to around 50,000 per month from mid-2003.

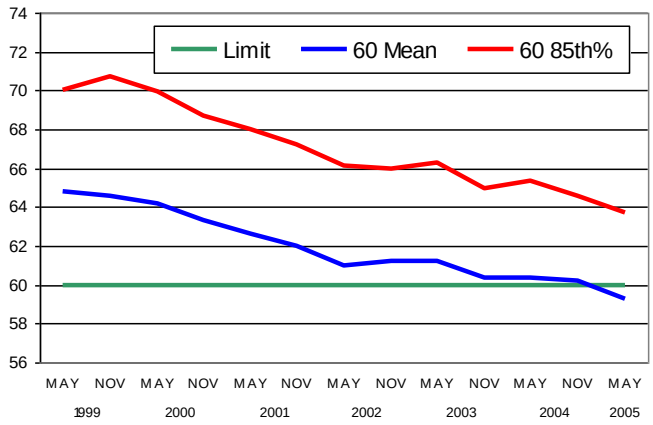
Outcomes: Improved compliance



Police camera data shows the continuing improvement in compliance by drivers from May 2002 to May 2005 (for those measured at 7 km/h or more over the limit and those measured at 10km/h or more over the limit) as behaviours continued to shift. It can be seen that the group travelling at 10 km/h or more over the limit fell from 2.00% of drivers to 1.00% . This seems a small reduction but in fact it is a halving in lower level excessive speed behaviour and is a very substantial benefit.

Mean speeds and 85th percentile speeds as measured on the 60 km/h speed limited arterial network fell as shown on the following graph. The reduction from May 2002 to May 2005 seems small. It is in fact a 2km/h reduction. For a 60km/h limit, that is a 3.3% mean speed reduction.

Outcomes:
Change in free speeds for metropolitan Melbourne – 60km/h zones



The research tells us that for every 1% reduction in mean speeds, fatalities will fall by around 5%. A reduction of some 15% to 20% could therefore be expected.

From 2001 to 2004 the actual number of fatalities in Melbourne reduced by 33% as shown below. There were the usual other interventions but nothing was as established or as broad in its scale as the speed enforcement programme.

Fatalities in Metropolitan Melbourne 2001 to 2004

Road User	2004	2001	2004 V 2001 % Change
Drivers	68	86	-21%
Passengers	42	52	-19%
Pedestrians	36	66	-45%
Motorcyclists & Pillions	17	39	-56%
Cyclists	3	4	-25%
Total	**166**	**247**	**-33%**

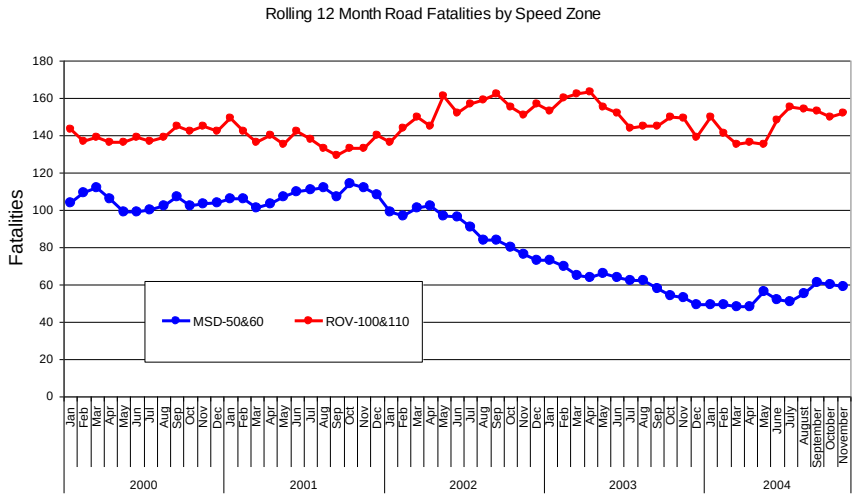
Victorian Road Crash Data System, VicRoads, 2004

It remains a model today which simply requires jurisdictions to have the commitment to implement it to achieve large benefits. There are ways in which the introduction could have been done more gradually to perhaps moderate the public reaction, but it succeeded. Victoria Police deserve great credit for taking this step and holding firm throughout.

The impact of the speed enforcement by mobile covert cameras- essentially focused on metropolitan Melbourne given the safety challenges of an operator parking on a rural highway roadsides and the visibility issues around a roadside vehicle in a country area – and the contrast over the 2002 to 2004 period is shown in the contrast

between rural fatality trends (Red, ROV) and metropolitan Melbourne (Blue, MSD) fatality trends shown in the graphic below.

Fatalities by Speed Zone



The road user group that was the greatest beneficiary of the slightly lowered speeds was pedestrians with fatalities for that group falling across all Victorian urban areas by some 19% to 20% from 2001 to 2004.

Note prepared January 25, 2018 by Eric Howard, from data prepared in 2005 when General Manager Road Safety, VicRoads, Victoria.

Annex 5: Additional road crash data for New Zealand

Figure 37: Deaths on all NZ roads by road user type 2011-2017

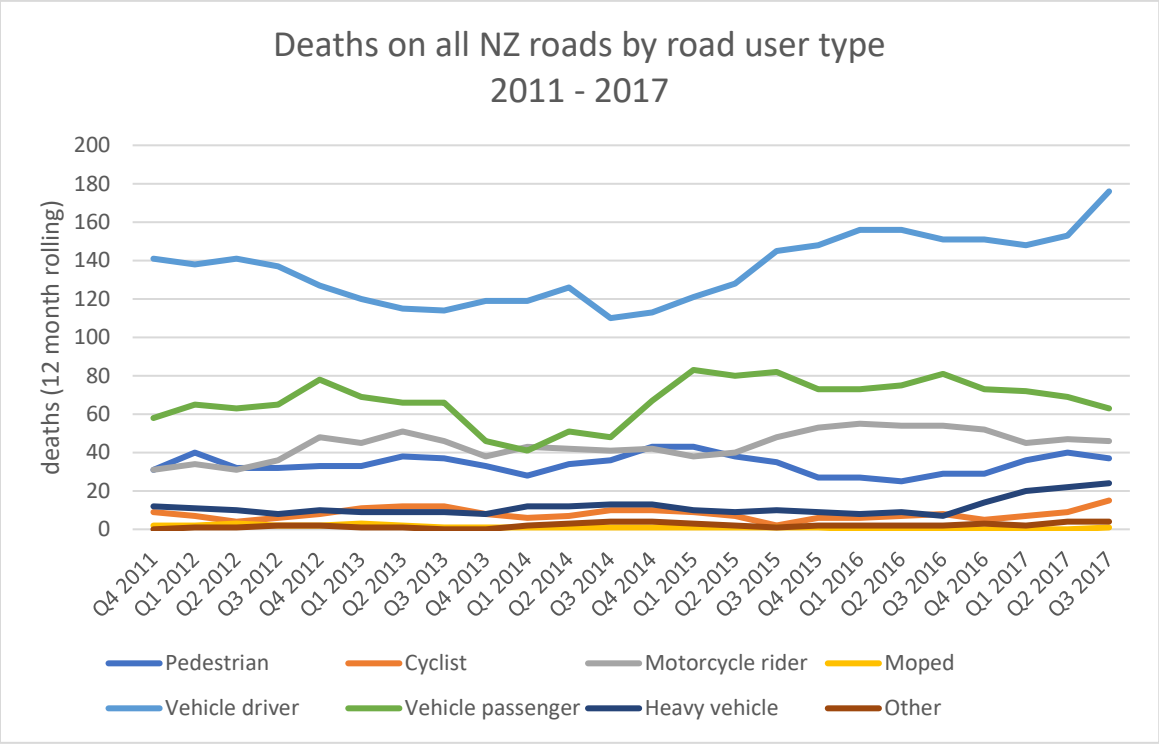


Figure 38: Deaths on all NZ roads by crash type 2011-2017

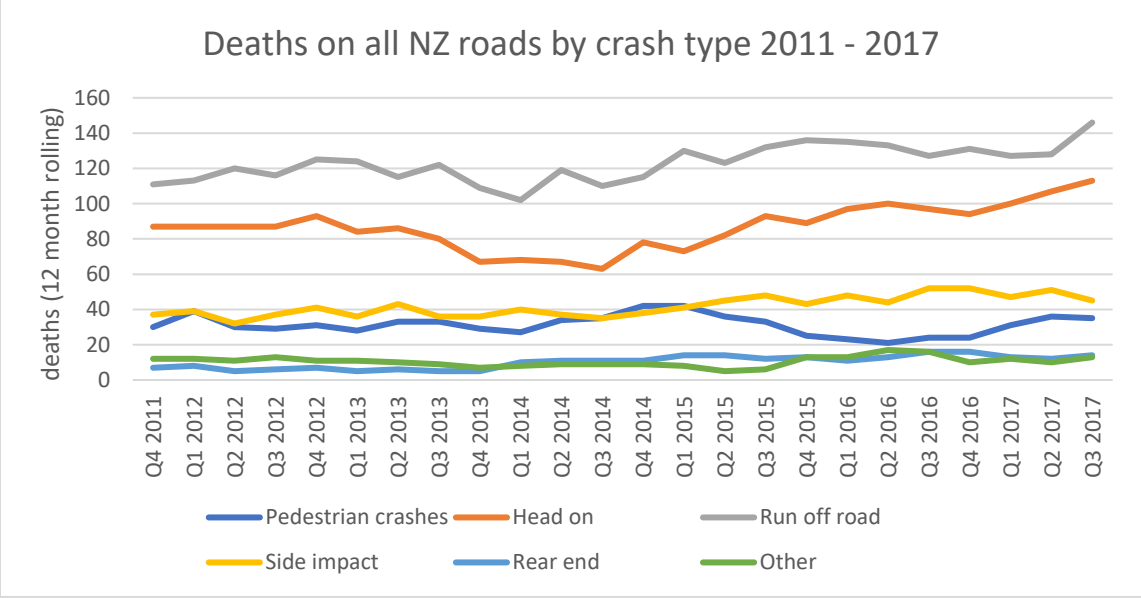


Figure 39: Serious injuries on all NZ roads by crash type from 2011 – 2017

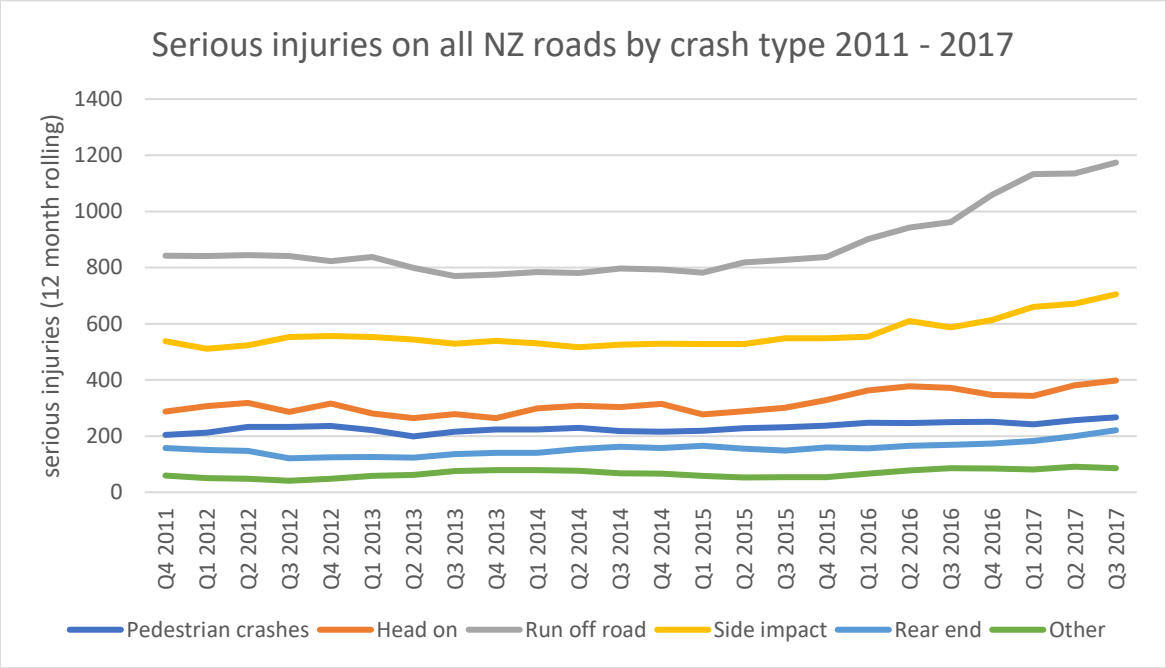
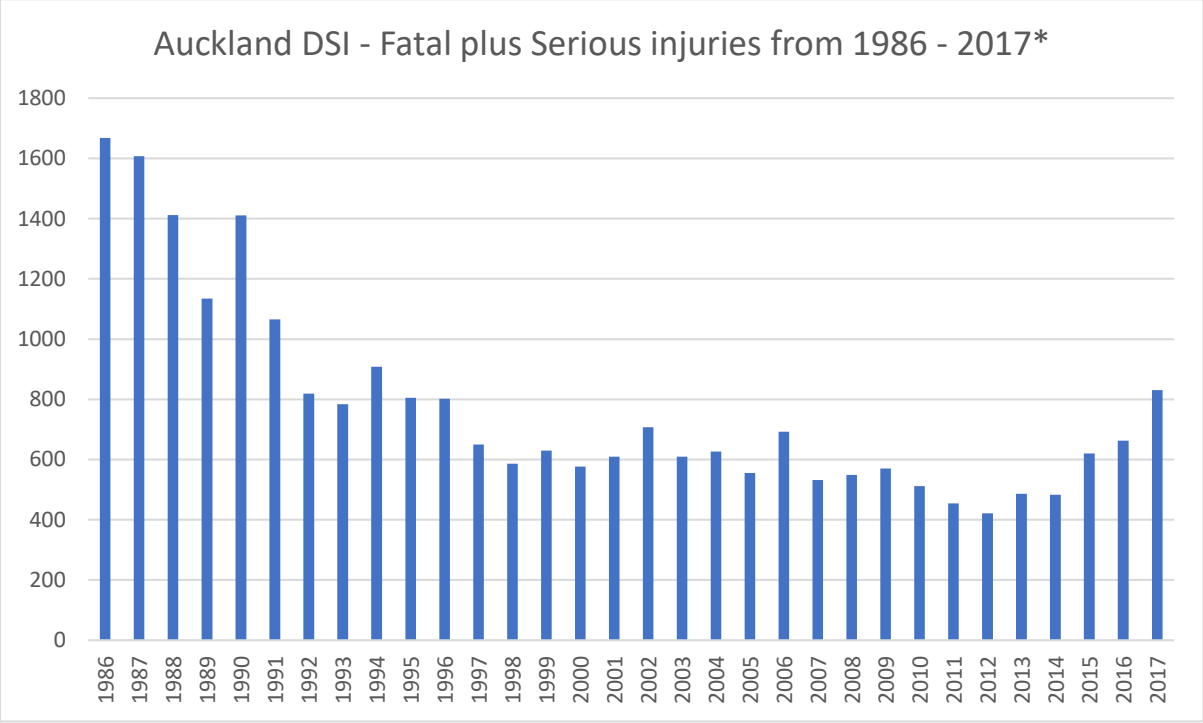
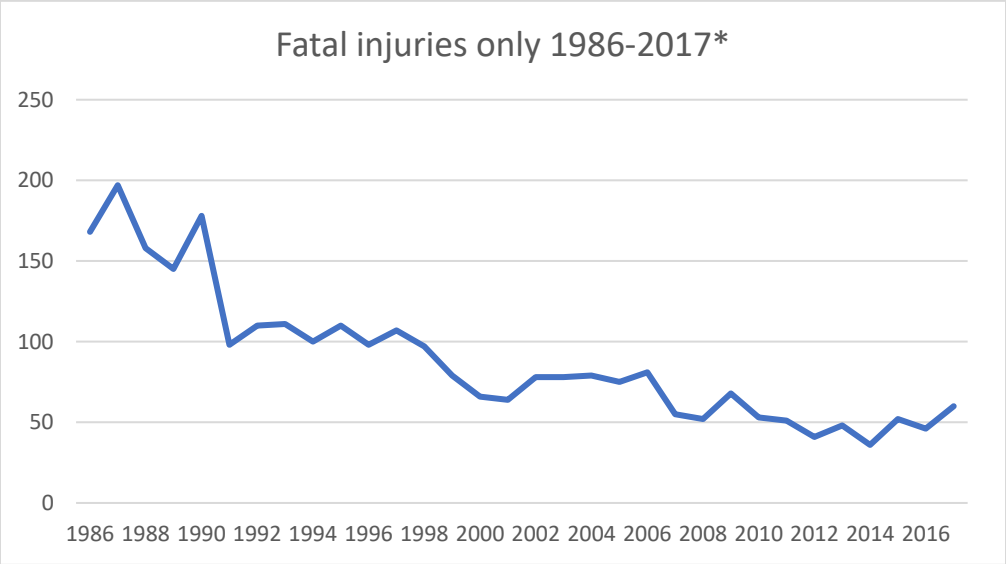


Figure 40: Long term road crash injury trends 1986 – 2017



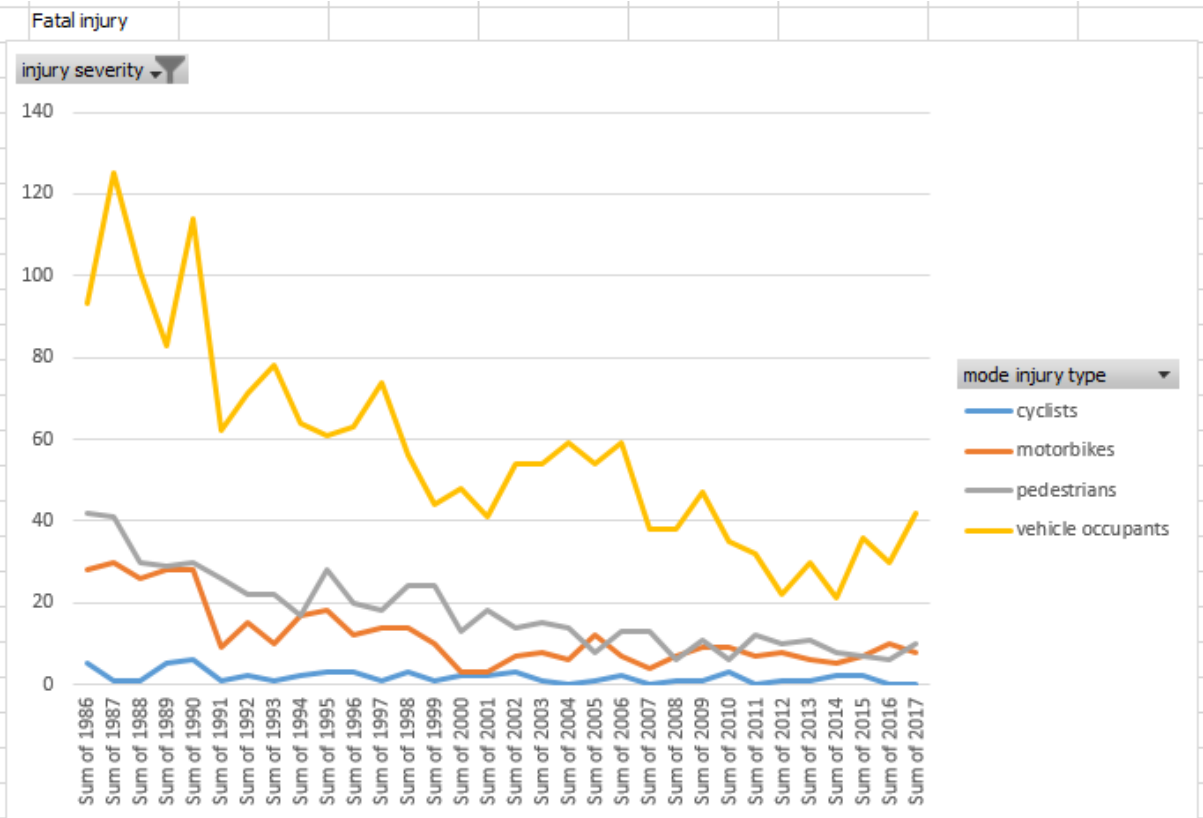
*2017 figures are a rolling 12 month DSI figure to September 2017

Figure 41: Long term road crash fatal injury trends, Auckland 1986 – 2017



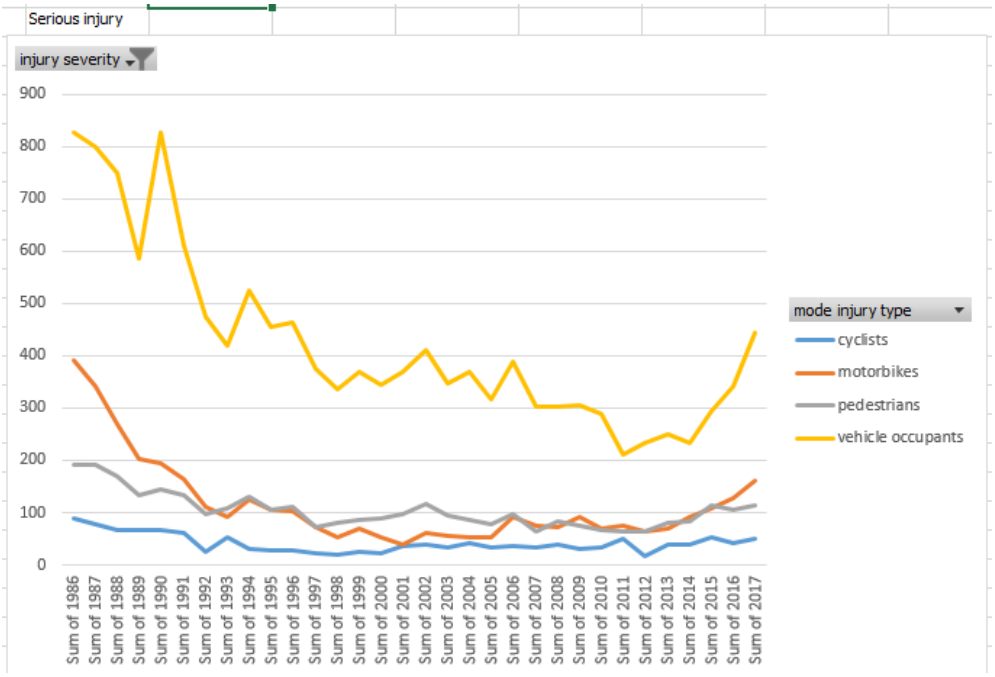
*2017 figures are a rolling 12 month DSI figure to September 2017

Figure 42: Fatalities by road user type, Auckland 1986 to 2017



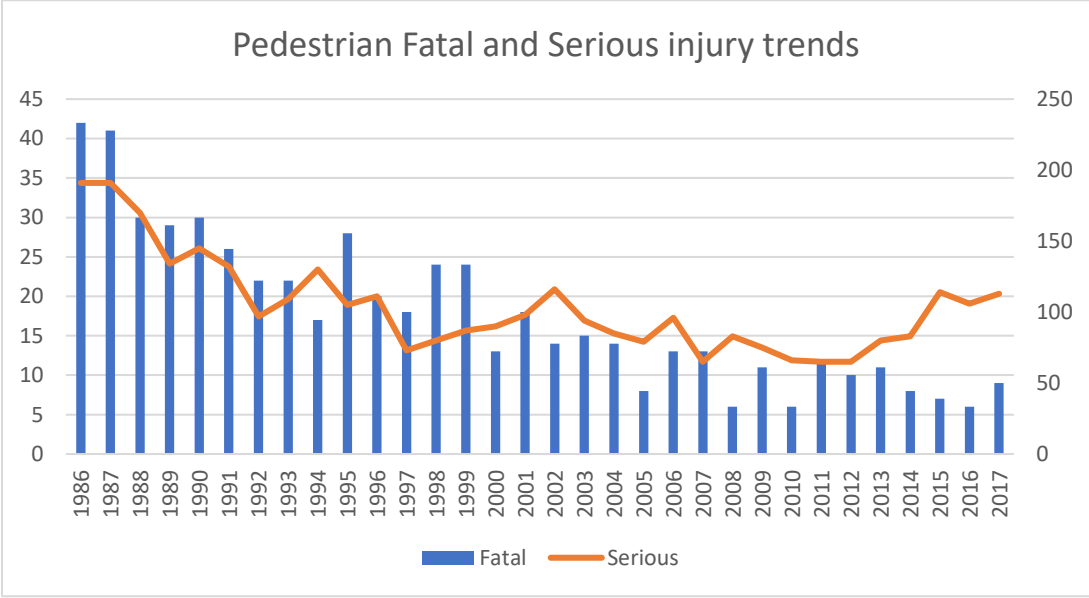
*2017 figures are a rolling 12 month DSI figure to September 2017

Figure 43: Serious Injuries by road user type, Auckland, 1986 to 2017



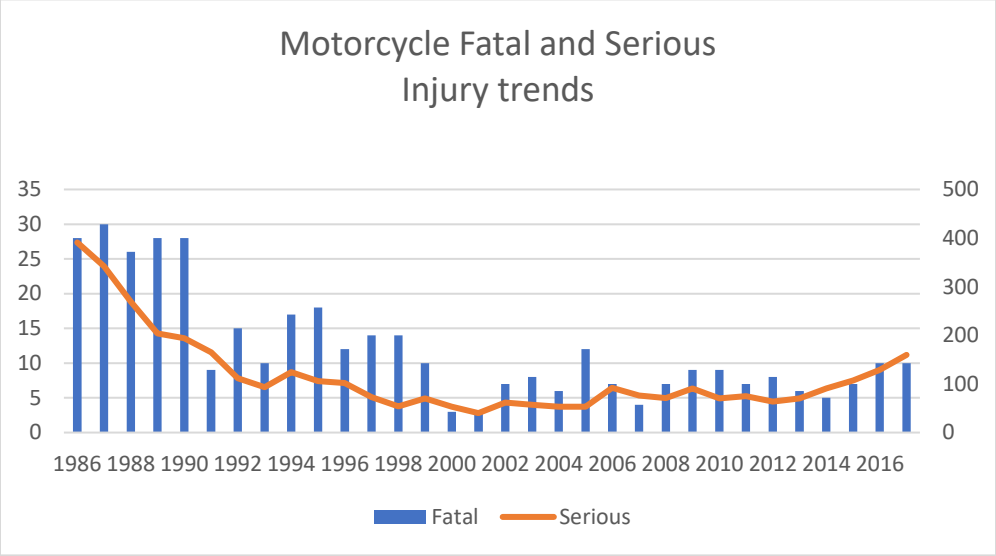
*2017 figures are a rolling 12 month DSI figure to September 2017

Figure 44: Pedestrian fatalities and serious injuries, Auckland 1986 to 2017



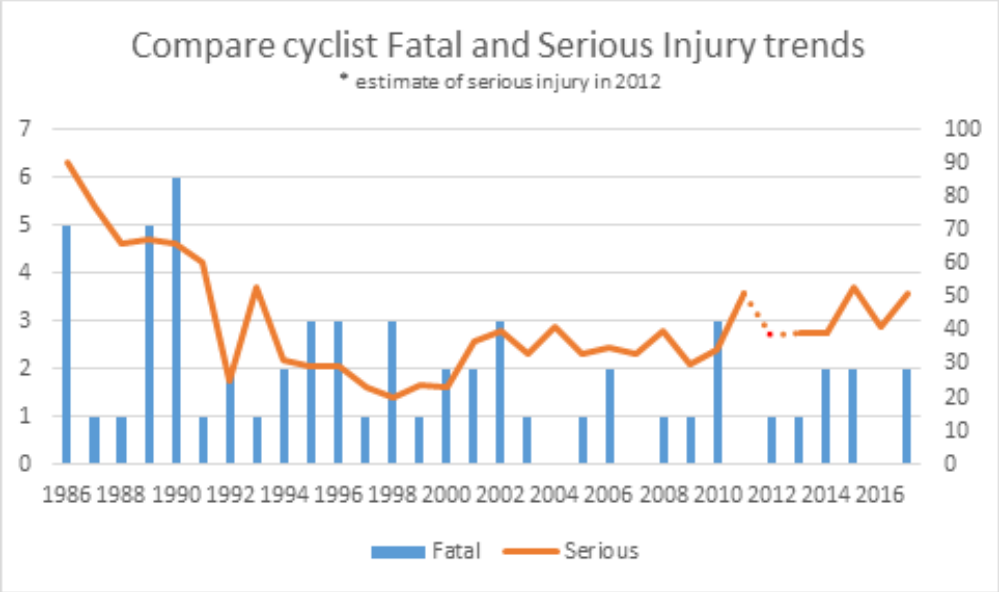
*2017 figures are a rolling 12 month DSI figure to September 2017

Figure 45: Motorcyclist fatalities and serious injuries, Auckland 1986 to 2016



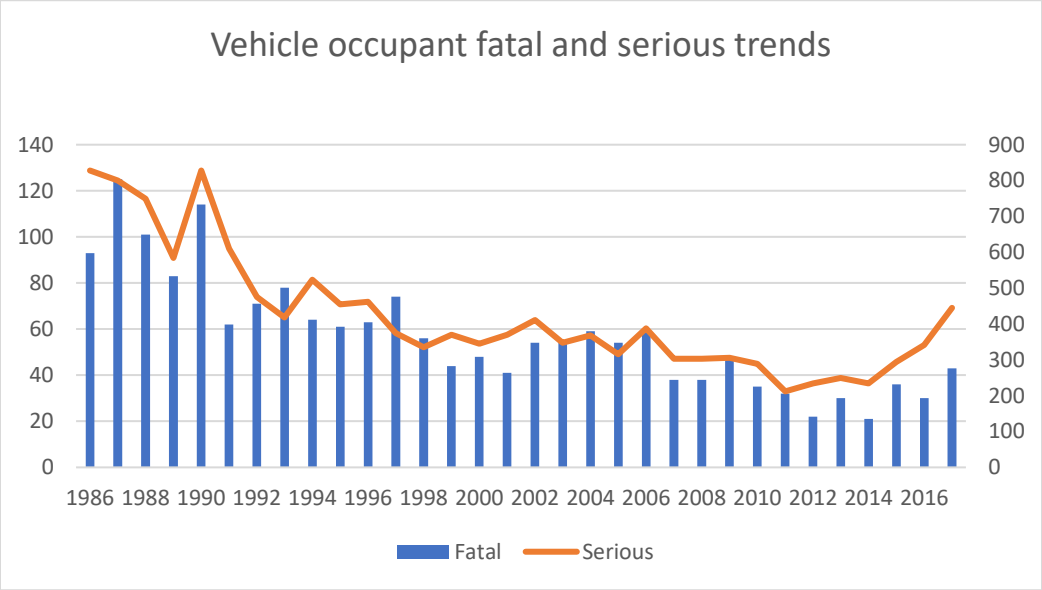
*2017 figures are a rolling 12 month DSI figure to September 2017

Figure 46: Cyclist fatalities and serious injuries, Auckland 1986 to 2017



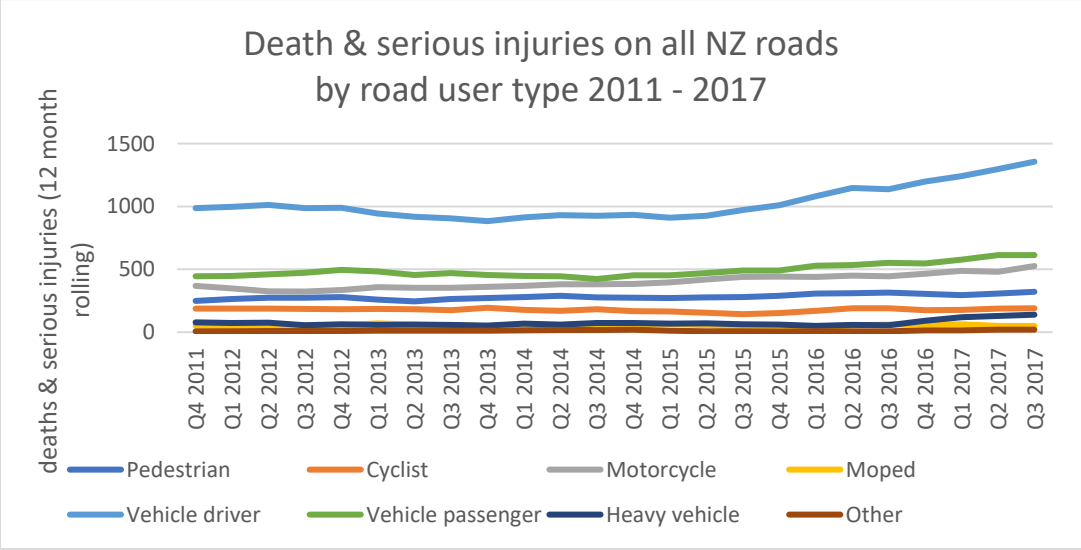
*2017 figures are a rolling 12 month DSI to September 2017

Figure 47: Vehicle Occupant fatalities and serious injuries, Auckland 1986 to 2017



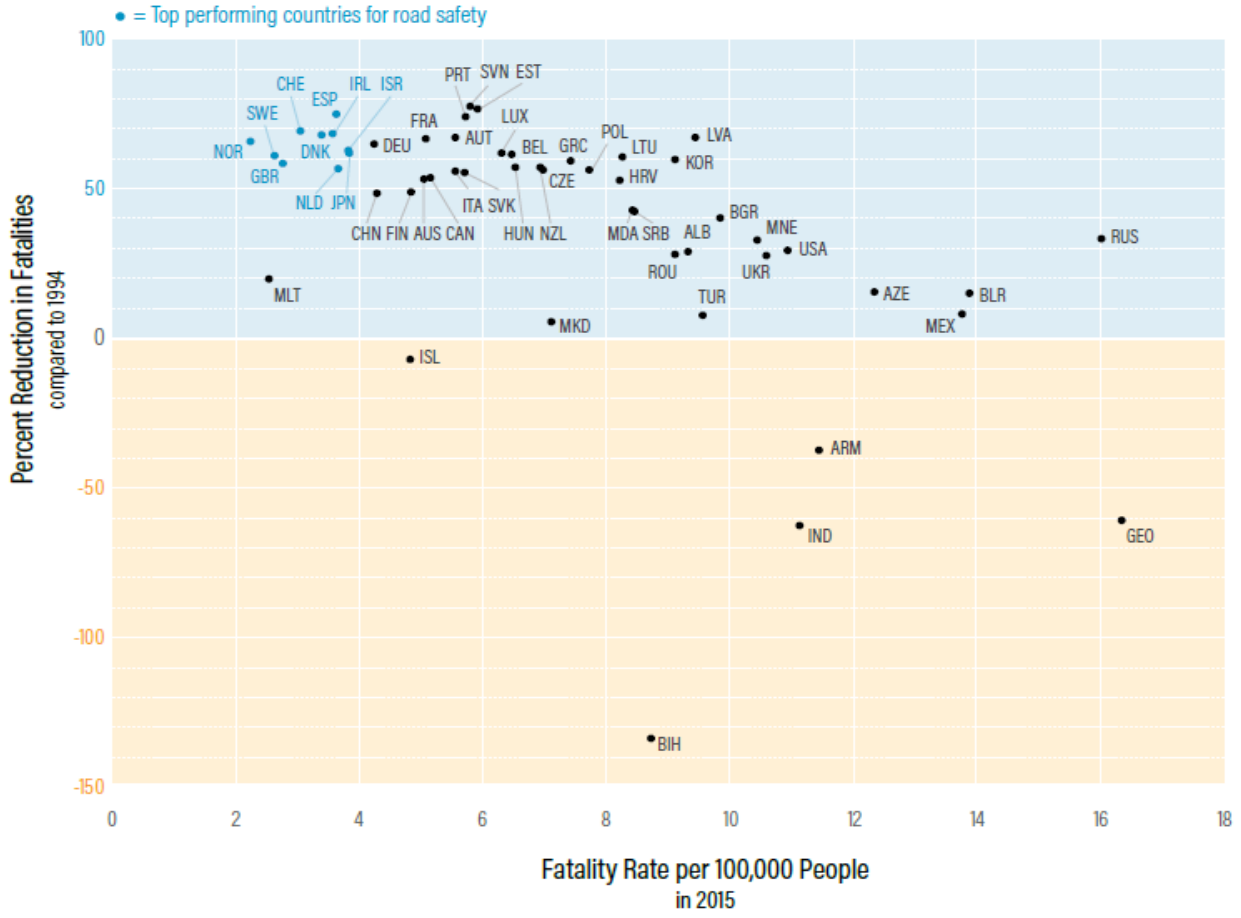
*2017 figures are a rolling 12 month DSI figure to September 2017

Figure 48: Death & serious injuries on all NZ roads by road user type from 2011 – 2017



Annex 6: Fatality reductions and fatality rate in 53 countries, WRI

Figure 2.2 | Reduction in Fatalities between 1994 and 2015 and Fatality Rate in 2015 in 53 Countries



COUNTRY CODES:

ALB = Albania	CRO = Croatia	HUN = Hungary	MDA = Moldova	ROU = Romania
ARM = Armenia	CZE = Czech Republic	IND = India	MEX = Mexico	RUS = Russia
AUS = Australia	DEU = Germany	IRL = Ireland	MKD = Macedonia	SRB = Serbia
AUT = Austria	DNK = Denmark	ISL = Iceland	MLT = Malta	SVK = Slovakia
AZE = Azerbaijan	ESP = Spain	ISR = Israel	MNE = Montenegro	SVN = Slovenia
BEL = Belgium	EST = Estonia	ITA = Italy	NLD = Netherlands	SWE = Sweden
BGR = Bulgaria	FIN = Finland	JPN = Japan	NOR = Norway	SWZ = Switzerland
BIH = Bosnia and Herzegovina	FRA = France	KOR = South Korea	NZL = New Zealand	TUR = Turkey
BLR = Belarus	GBR = Great Britain	LTU = Lithuania	POL = Poland	UKR = Ukraine
CAN = Canada	GEO = Georgia	LUX = Luxembourg	PRT = Portugal	US = United States
CHN = China	GRC = Greece	LVA = Latvia		

Source: WRI, based on data from OECD 2017.

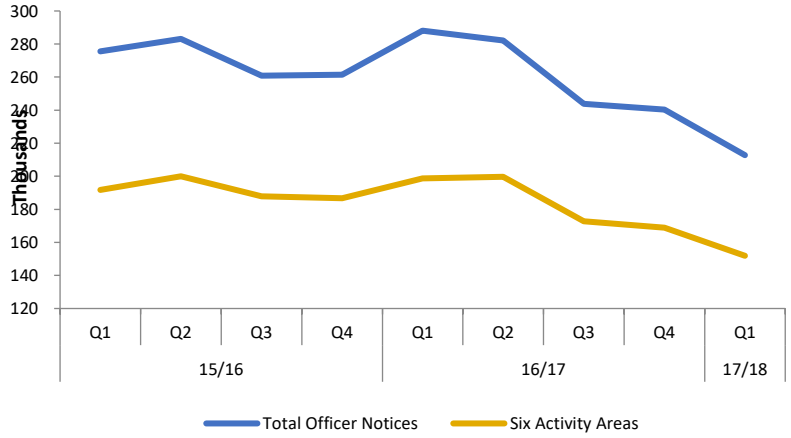
Sustainable & Safe, A Vision and Guidance for Zero Road Deaths, EMBARQ, World Resources Institute, World Bank, GRSF, Bloomberg Philanthropies, 2017

Annex 7: Police speed enforcement data

APPENDIX A: Data Tables

Police Enforcement – all of New Zealand

Police Enforcement	Jul–Sep15	Oct–Dec15	Jan–Mar16	Apr–Jun16	Jul–Sep16	Oct–Dec16	Jan–Mar17	Apr–Jun17	Jul–Sep17
All IONs and Summonses incl. safety cameras	360,283	516,179	469,559	358,177	381,903	468,987	420,925	362,954	342,478
All IONs and Summonses excl. safety cameras	275,606	283,206	260,938	261,428	288,092	282,133	243,732	240,258	212,774
All traffic warnings	7,714	7,536	6,543	7,239	9,174	9,046	8,257	8,045	



- Total offence volumes fell by 6% from the previous quarter and were 8% below the average of the previous two Jul-Sep quarters.
    - Camera notices were 7,000 more than the previous quarter.
    - Officer issued offences were 27,500 fewer than the previous quarter. The result for the first quarter of the fiscal year was significantly below previous first quarter results.
- Warning data is incomplete for the current quarter and only eight quarters can be reported on. Despite the decrease in warnings in the Jan-Mar quarter, the overall trend in warnings is showing average growth of 3% per quarter.

The Police website shows the enforcement output in terms of offences over the past few years in the Auckland region. It was not possible to readily find Auckland offence data relating specifically to speed, which might not be included on the website because it may be mainly classed as infringements. At the national level, officer-issued speed offences account for 27% of all officer-issued offences (see attached), so this percentage could probably be similar in the Auckland region.

New Zealand does not have good nationally-measured speed data. As an alternative, it is useful to assess the reported Police offence data as a surrogate for actual speeds. At the national level Police have been reporting a steady increase in the number of vehicles exceeding the 100km/h and 50km/h limits as they travel past the speed cameras – see the second and fourth rows in the table below, which is also in the attached Appendix A to the

quarterly Road Policing Programme report.

Speed	Jul–Sep15	Oct–Dec15	Jan–Mar16	Apr–Jun16	Jul–Sep16	Oct–Dec16	Jan–Mar17	Apr–Jun17	Jul–Sep17
Motorcycle speed offences detected	891	1,747	1,671	1,146	930	1,621	1,852	1,031	778
Number of vehicles detected speeding in 100 km/h zones	220,334	298,016	267,502	214,551	248,087	260,416	288,059	230,776	251,871
Percentage of vehicles detected speeding in 100 km/h zones	3.1%	3.3%	3.2%	3.0%	3.3%	3.4%	3.3%	3.9%	3.3%
Number of vehicles detected speeding in 50 km/h zones	1,547,470	1,933,157	1,513,826	1,440,767	1,511,409	1,562,613	1,466,223	1,458,746	1,706,039
Percentage of vehicles detected speeding in 50 km/h zones	18.9%	17.2%	14.1%	13.9%	13.9%	14.2%	13.8%	14.5%	15.2%

Data from the Police website shows the enforcement output in terms of offences over the past few years in the Auckland region. Identifying Auckland offence data relating specifically to speed does not appear to be included on the website because it is mainly classed as infringements. At the national level, officer-issued speed offences account for 27% of all officer-issued offences (see attached), so this percentage is probably similar in the Auckland region.

Annex 8: ACC active claims costs paid out for Auckland region 2010-2017

Table 26: ACC: Active costs paid out for the Motor Vehicle Account for the Auckland region: 2010 - 2017

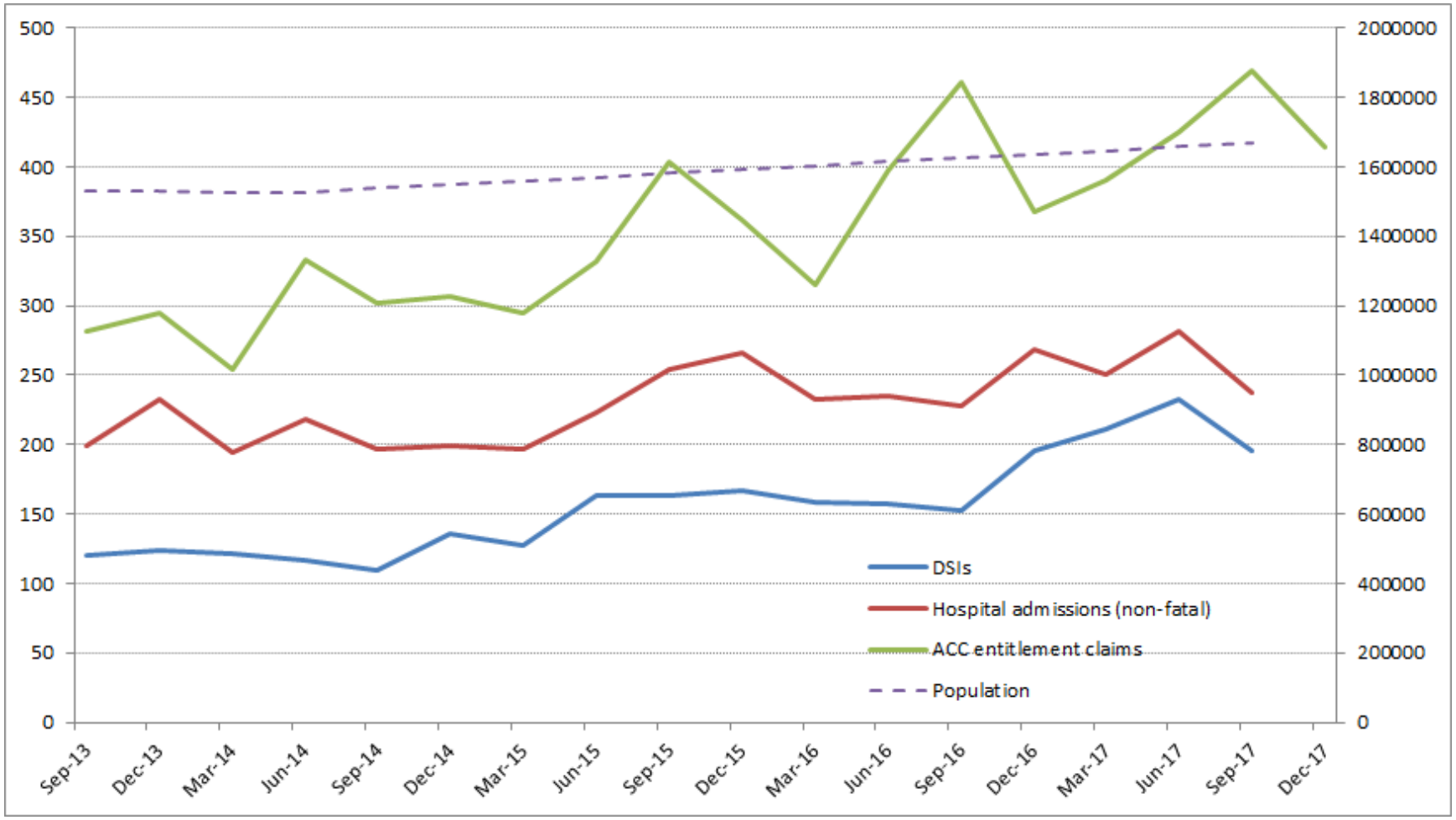
	2010	2011	2012	2013	2014	2015	2016	2017	Total
Auckland City	$47,424,387	$46,037,990	$49,271,155	$51,898,384	$57,836,122	$62,040,707	$65,376,698	$74,286,776	$454,172,219
Franklin District	$4,673,565	$4,051,579	$4,317,912	$4,509,871	$4,227,834	$4,259,073	$4,717,331	$4,564,969	$35,322,133
Manukau City	$14,320,685	$13,292,512	$12,140,290	$18,017,217	$12,541,237	$12,981,452	$15,091,481	$16,926,298	$115,311,172
North Shore City	$5,381,448	$4,905,572	$4,573,534	$4,597,112	$4,967,674	$6,082,831	$5,198,032	$5,526,691	$41,232,893
Papakura District	$2,730,903	$2,540,878	$2,924,082	$2,577,405	$2,892,442	$3,163,105	$3,330,141	$3,345,668	$23,504,624
Rodney District	$5,418,259	$5,840,833	$4,605,601	$4,856,593	$5,615,550	$6,457,462	$5,536,492	$6,481,987	$44,812,777
Waitakere City	$5,484,911	$5,236,151	$4,734,116	$4,642,387	$4,954,746	$6,338,324	$6,489,371	$7,505,712	$45,385,717
Total	$85,434,156	$81,905,514	$82,566,689	$91,098,971	$93,035,604	$101,322,954	$105,739,545	$118,638,102	$759,741,535

Table 27: ACC: Active costs paid out for entitlement motorcycle claims for the Auckland region

	2010	2011	2012	2013	2014	2015	2016	2017	Total
Auckland City	$8,670,128	$9,771,481	$9,854,324	$10,366,670	$13,482,475	$12,443,296	$13,781,492	$14,504,362	$92,874,227
Franklin District	$485,560	$499,024	$665,462	$732,770	$618,721	$611,678	$566,025	$641,841	$4,821,081
Manukau City	$2,505,849	$1,913,074	$2,031,372	$1,793,504	$1,977,819	$1,705,269	$2,169,524	$2,777,949	$16,874,361
North Shore City	$1,746,914	$1,703,216	$1,439,405	$1,466,124	$1,394,632	$1,418,737	$1,271,719	$1,301,688	$11,742,435
Papakura District	$553,174	$502,743	$515,442	$527,848	$633,901	$535,710	$570,233	$577,112	$4,416,163
Rodney District	$956,365	$888,453	$881,775	$843,204	$1,361,526	$1,395,166	$1,139,493	$1,289,244	$8,755,225
Waitakere City	$1,804,421	$1,839,908	$1,620,092	$1,531,482	$1,643,916	$1,402,487	$1,581,637	$2,321,568	$13,745,511
Total	$16,722,412	$17,117,898	$17,007,872	$17,261,602	$21,112,989	$19,512,343	$21,080,122	$23,413,765	$153,229,003

Annex 9: Comparative figures by quarter for Auckland showing casualty counts

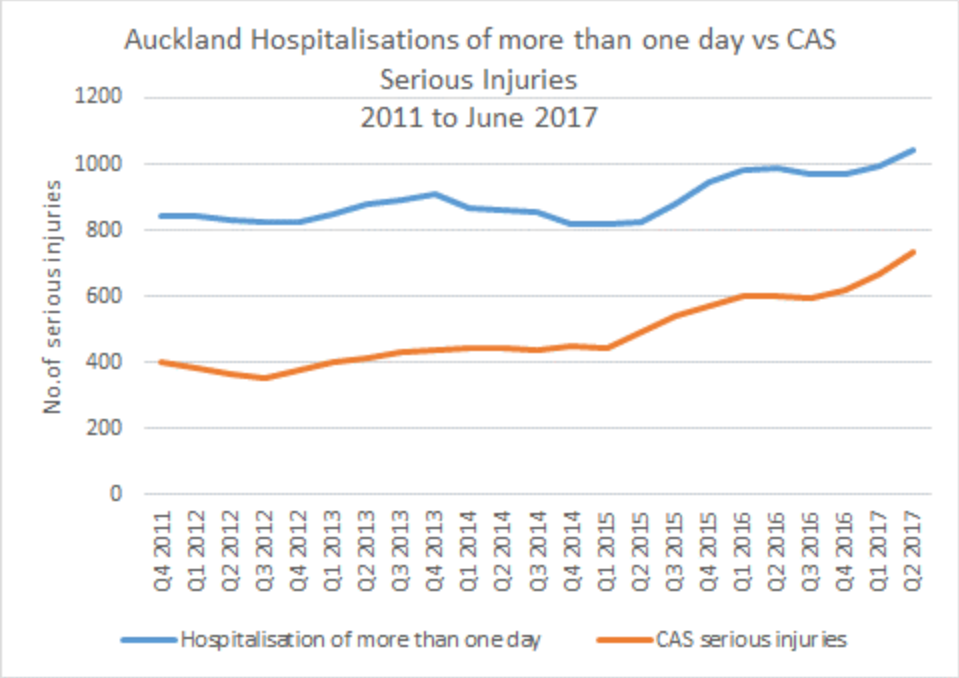
Figure 49: comparative figures by quarter for Auckland showing casualty counts



It does look as if there has been an unusually large increase in Police-reported DSIs since mid-2016, which is not quite confirmed by the hospital and ACC data, but the differences are not beyond credibility. NZTA

ANNEX 9 Continued

Figure 50: Hospitalisations vs CAS serious injury data, Auckland, rolling totals by quarter Q4 2011 to Q2 2017

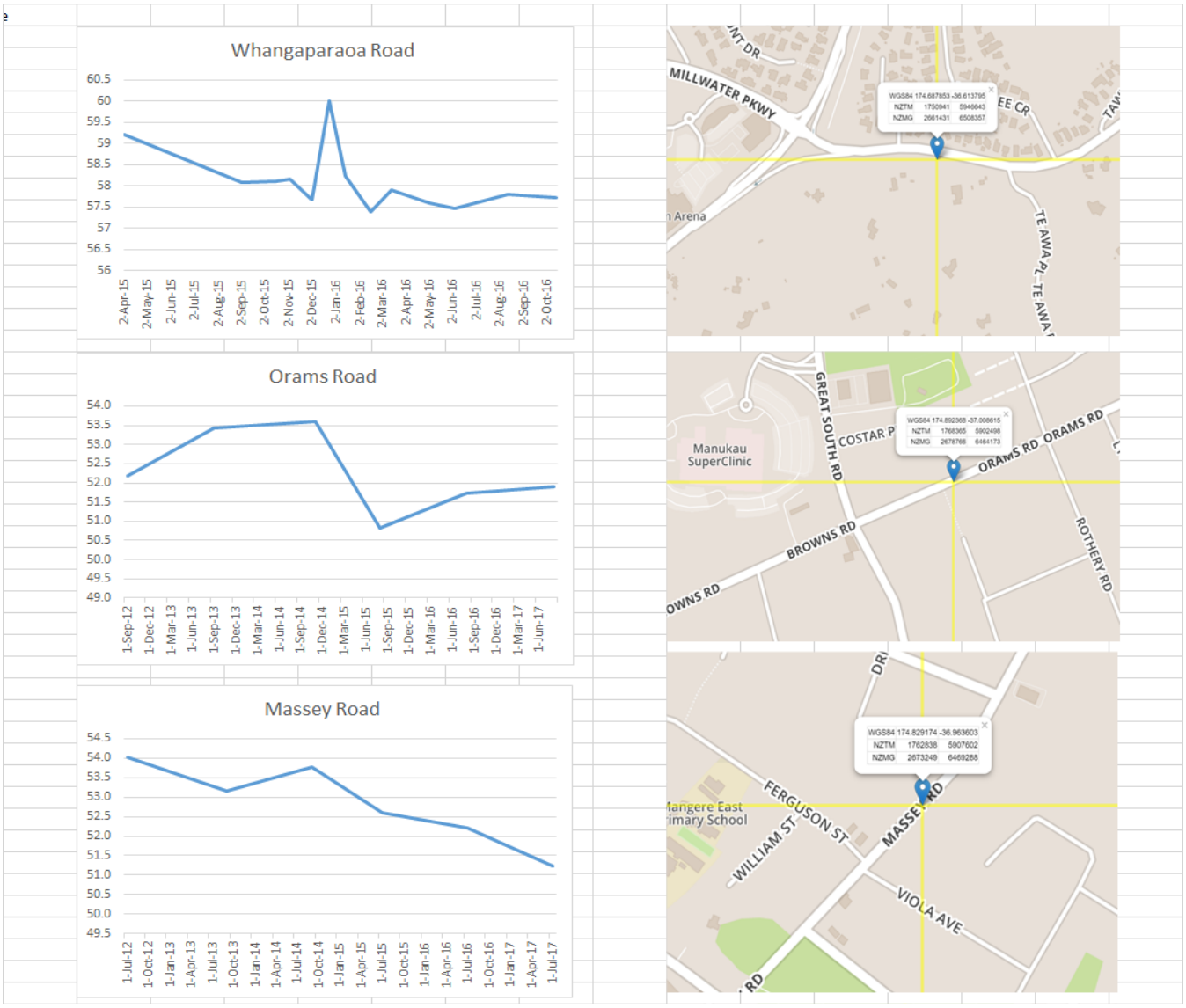


Annex 10: ACC motor vehicles and motorcycle accounts active costs payouts

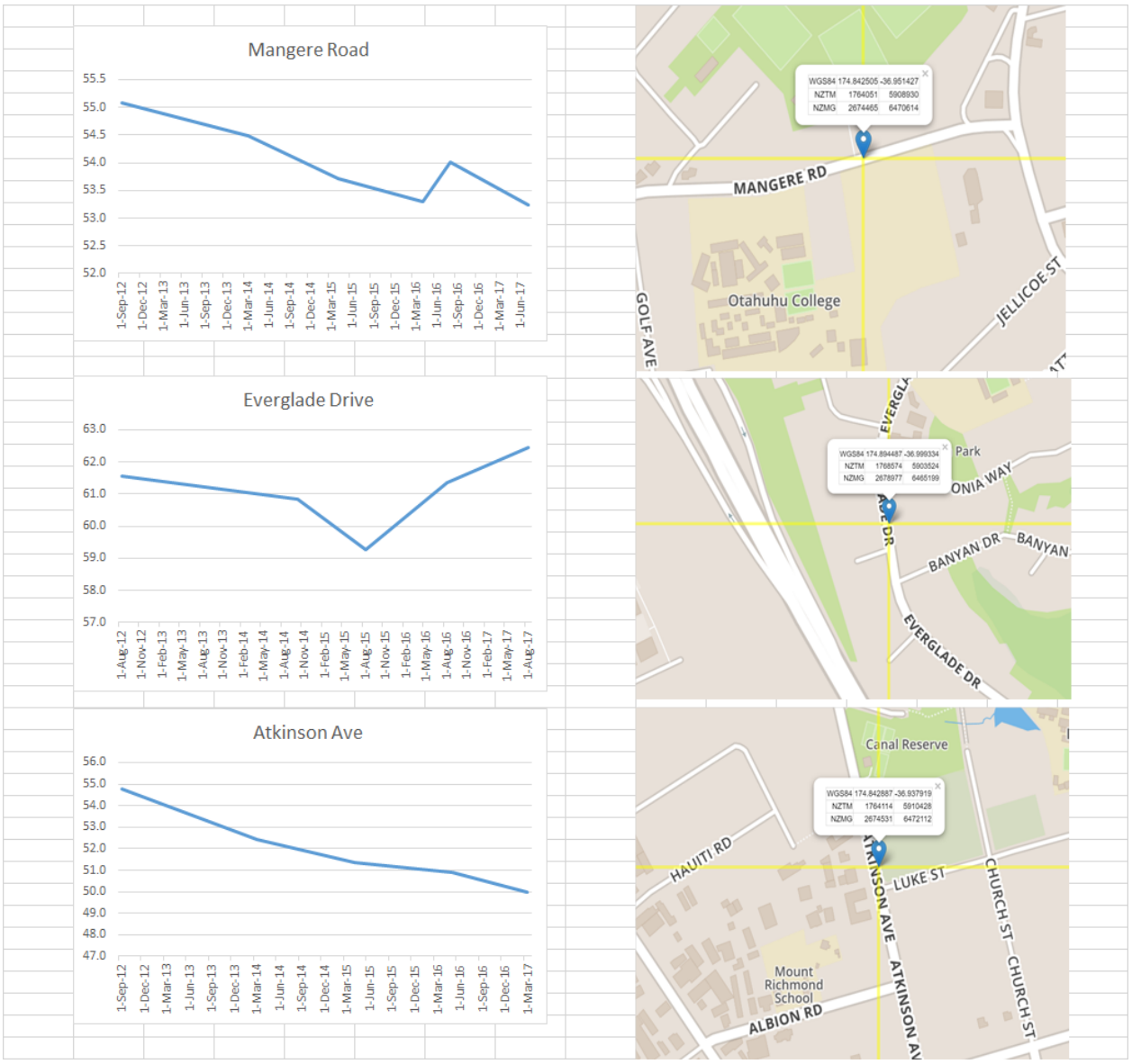
Table 28: ACC motor vehicles and motorcycle accounts active costs pay-outs

2012 to 2017	Active costs pay-out in 2012 ($ m)	Active costs pay-out in 2017 ($ m	Increase in pay-out figure from 2012 to 2017 ($ m)	% increase in pay-out figure from 2012 to 2017
Motor vehicle A/C	**82.57**	**118.64**	**36.07**	**43.7%**
Motorcycle A/C	**17**	**23.41**	**6.41**	**37.7%**
2016 to 2017	**Active costs pay-out in 2016 ($ m)**	**Active costs pay-out in 2017 ($ m)**	**Increase in pay-out figure from 2016 to 2017 ($ m)**	**% increase in pay-out figure from 2016 to 2017**
Motor vehicle A/C	**105.74**	**118.64**	**12.90**	**12.2%**
Motorcycle A/C	**21.08**	**23.41**	**2.33**	**10.69%**

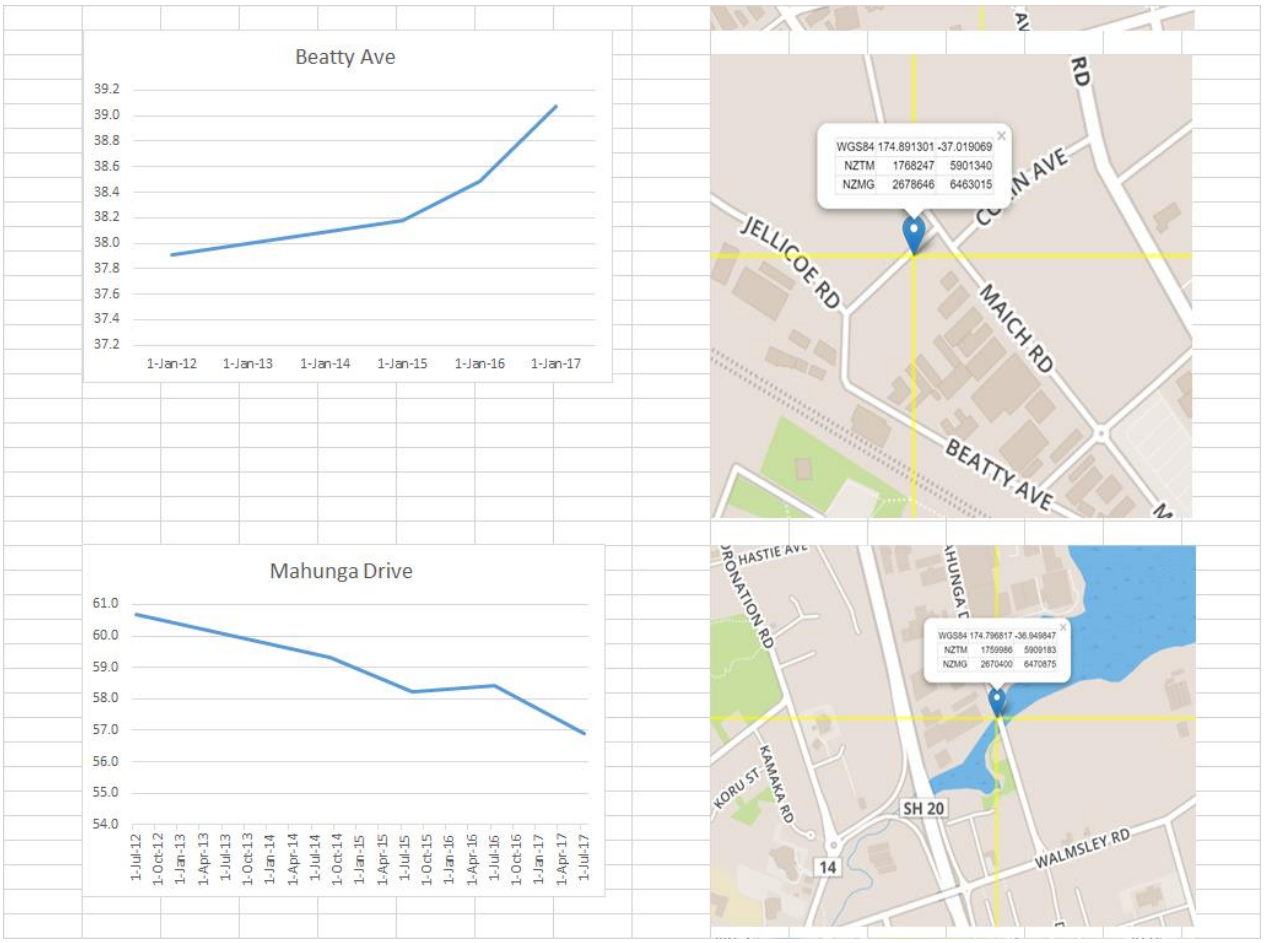
Annex 11: 85th percentile midblock speeds on a sample of Auckland's roads



ANNEX 11 85th percentile midblock speeds on a sample of Auckland roads (page 2)



ANNEX 11 85th percentile midblock speeds on a sample of Auckland roads (page 3)


Beatty Ave
39.2
39.0
38.8
38.6
38.4
38.2
38.0
37.8
37.6
37.4
37.2
1-Jan-12
1-Jan-13
1-Jan-14
1-Jan-15
1-Jan-16
1-Jan-17
WGS84 174.891301 -37.019069
NZTM 1768247 5901340
NZMG 2678646 6463015
JELLICOE RD
MAICH RD
BEATTY AVE
Mahunga Drive
61.0
60.0
59.0
58.0
57.0
56.0
55.0
54.0
1-Jul-12
1-Oct-12
1-Jan-13
1-Apr-13
1-Jul-13
1-Oct-13
1-Jan-14
1-Apr-14
1-Jul-14
1-Oct-14
1-Jan-15
1-Apr-15
1-Jul-15
1-Oct-15
1-Jan-16
1-Apr-16
1-Jul-16
1-Oct-16
1-Jan-17
1-Apr-17
1-Jul-17
WGS84 174.796817 -36.949847
NZTM 1759986 5909183
NZMG 2670400 6470875
KORU ST
KAMAKA RD
SH 20
14
WALMSLEY RD

Annex 12 Powerpoint presentation to Board briefing on draft report February 2018

Road Safety Business Improvement Review for Auckland's Road Safety Management

Whiting Moyne

February 1, 2018

Auckland Transport
An Auckland Council Organisation

Fig 4 New Zealand and Auckland Region Death & Serious Injuries (DSI) 2012 to 2017

Area and injury category	Crash Year 2012	2013	2014	2015	2016	2017 (rolling 12 months^)	2017 rolling cf 2015
All New Zealand DSI	2,411	2,275	2,370	2,485	2,855	3,230	
All NZ Deaths	308	253	293	319	327	379	**+18.8**
All NZ Serious injuries	2,103	2,022	2,077	2,166	2,528	2,851	**+31.6**
All NZ DSI related to Alcohol	366	332	299	315	281	373	**+18.4**
All NZ Deaths related to Alcohol	67	53	48	66	66	81	**+22.7**
All NZ Serious injuries related to Alcohol	299	279	251	249	215	292	**+17.3**
All Auckland DSI	421	486	483	620	663	835	
Auckland Deaths	41	48	36	52	46	64	**+23**
Auckland Serious injuries	380	438	447	568	617	771	**+35.7**
Auckland DSI - Local Roads (AT)	354	431	400	542	553	705	**+30**
Auckland DSI - State Highways (NZTA)	67	55	83	78	110	130	**+66.7**
Auckland DSI - Urban Roads	291	352	334	449	447	596	**+32.7**
Auckland DSI - Rural Roads	130	134	149	171	216	239	**+39.8**
Auckland DSI related to Alcohol	89	101	81	94	74	125	**+33**
Auckland Deaths related to Alcohol	10	15	8	14	9	19	**+35.7**
Auckland Serious injuries related to Alcohol	79	86	73	80	65	106	**+32.5**

^rolling 12 months to the end of September 2017 except for Auckland and NZ deaths which are for all of 2017

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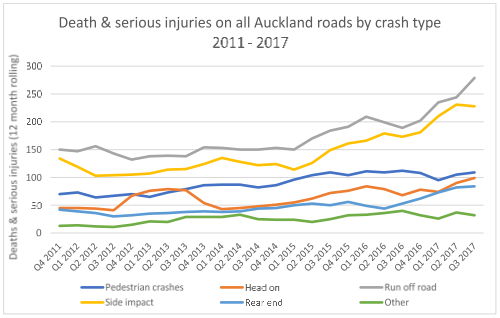
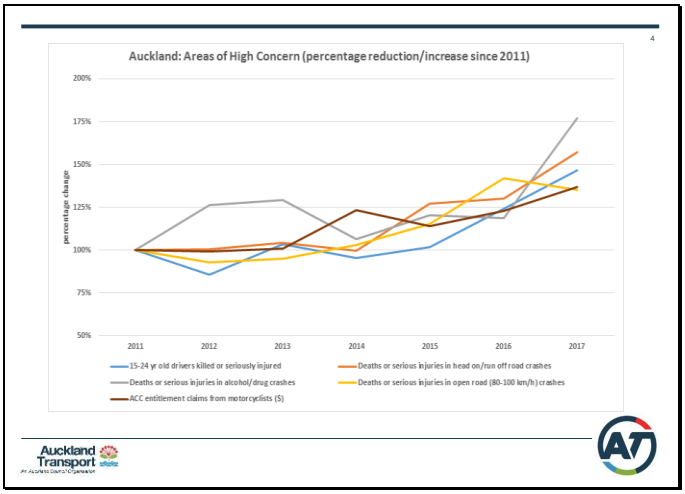
Fig 20 Death & serious injuries on all Auckland roads by crash type from 2011 – 2017





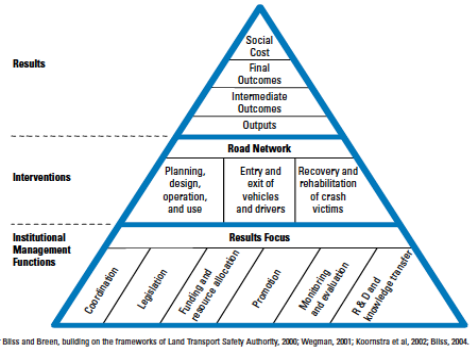
Key Findings - 1

- Road safety performance in Auckland - most concerning. Key crash types and road user types at risk are evident
- Road safety has been a small, "necessary add-on" to AT's core activity
- Safe System principles (basis of *Safer Journeys* - except zero DSI goal) not well known in AT
- AT has important but limited direct road safety delivery responsibilities. (Slow to act on speed limit reform)
- Roadsafe Auckland has no adopted strategy (previous regional strategy expired in 2012) nor has one been considered by ELT
- Relies on Roadsafe Auckland partnership to deliver enforcement initiatives

Key Findings - 2

- Focus on 3 functions: "*Within AT*", "*AT with regional partners*" & "*AT/ Roadsafe with central government partnership*"
- AT insufficiently active in getting the most from Roadsafe partnership
- Relies heavily on central government to deliver on the adopted Strategy (*Safer Journeys*), national campaigns, emerging issues and identified areas of legislation/policy not meeting accepted international practice
- AT has not successfully pressed the central government for priority change
- **Substantial change management required in AT to improve understanding, direct role, advocacy role, performance**
- Staff positive about likely new safety direction

Road safety management



Source: Bliss and Breen, building on the frameworks of Land Transport Safety Authority, 2000; Wegman, 2001; Koornstra et al, 2002; Bliss, 2004.

A COMPLETE *SAFE SYSTEM/ VISION ZERO* APPROACH ENTAILS:

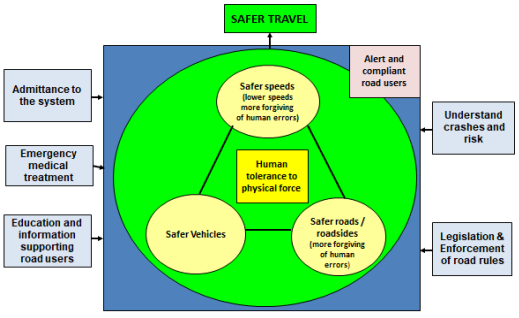
A vision: Vision Zero. It can never be acceptable that people are killed or seriously injured as an accepted by - product of other activity on the road network - as is now the accepted situation with workplace safety in developed nations

A set of principles:

- Human beings make mistakes, road network must be forgiving
- The human body has known tolerance to forces/ energy transfer in various crash types. Speed management is crucial.
- Safe mobility. Safety is to become the limiting condition for mobility. Achieving safe travel speed on individual sections of the network over time is the key objective, reflecting the protective features of the infrastructure and the vehicle to avoid death and serious injury. Safety should not be traded off against mobility goals.
- Responsibility for safe operation of the network is ***shared*** between users and providers
- Sustained innovation is needed to proactively build safety into the road system, rather than reactively and incrementally adjusting to system failures.
- Improved safety to be aligned with achieving other sustainable development goals - to secure environmental, energy and health co-benefits.

Road Safety Management

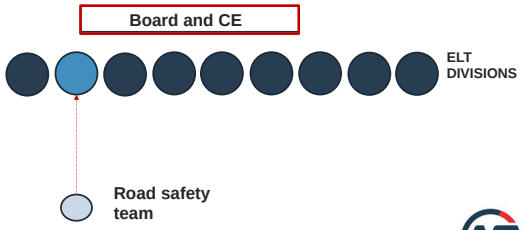
SAFE SYSTEM ELEMENTS



10

Auckland Transport
Road Safety Business Improvement Review

FROM:



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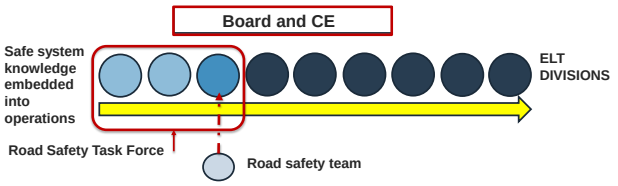
11

Auckland Transport
Road Safety Business Improvement Review

TO:



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12

Recommendations – "*Within AT*" - 1

- **Adopt vision zero as long term safe system objective**
- Strengthen Institutional management capacities/build results focus.
- **Safe System Task Force**: Transport Operations, Infrastructure, Strategy & Development Directors with support of 2 senior road safety strategic/ partnership support managers + Safe System Implementation Lead/ Facilitator.TF to report to CE.
- **Safe System Implementation Lead**/ Facilitator
- **Lead Division** – Transport Operations
- Training to extend safe system road safety knowledge across AT (and to regional partners)
- Use of ELT to address competing demands between issues which can tend to push safety aside
- Regular reporting of issues and performance to Board and work with Board members to assist advocacy challenges

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Recommendations – "*Within AT*" - 2

13

- Embrace & embed safe system principles
- Deepen bonds with AC
- Increase visibility of road safety and set PDP's/ KPI's to support
- Upgrade AT current infrastructure safety programme contribution from some $6m annually
- Pursue Safety in new projects (apply SSAF) and in maintenance/renewals
- Lower speed limits on HRR (rural) & (urban incl. intersections), CBD and other pedestrian areas, cyclist routes
- Improve M/C, pedestrian, bus operations and cyclist safety
- Organisation to be a strong road safety role model

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Recommendations –"*AT with regional partners*"

14

- Auckland Roadsafe – support - and be lead agency
- Strengthen Institutional management capacities of the partnership. (Results focus, coordination, legislation, funding, promotion, monitoring and R & D)
- **Adopt vision zero as long term safe system objective** & embrace & embed safe system principles within partnership
- Introduce new governance and management arrangements for Roadsafe
- Adopt a fresh road safety narrative for Auckland
- Develop & run a speed management public campaign
- Work with police to support early introduction of lower speed enforcement tolerances

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Recommendations –"*AT/ Roadsafe with central government*" - 1

15

- Influence central government Ministers and Agencies - to adopt vision, actions and targets
- Advocate improved resourcing for road policing: mobile speed camera & drink driving enforcement, a place at the table for police resourcing discussions, improved road safety prioritisation within NZTA/ MoT/ Police decisions
- Request MoT to have mandate and resourcing to fulfil lead agency role in policy development, monitoring of agency performance and accountabilities and advice to government
- Request review of funding opportunities for infrastructure safety, including revised NLTP and/or a road safety fund drawing on increased nett revenues from required investment in expanded speed/ red light camera enforcement
- Request central govt for improved speed management camera hours, higher penalties, demerit points application.

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Recommendations –"*AT/ Roadsafe with central government*"- 2 [16]

Request central government to implement:

- zero BAC for public transport vehicle and heavy vehicle drivers
- mandatory fitment of Alcohol interlocks for suspended drink drivers upon return to driving.
- removal of capacity for courts to award a work related license for a suspended drink driving offender
- roadside saliva testing for presence of selected impairing drugs by police with laboratory testing required to confirm positive roadside tests.

Request central government to:

- introduce legislation and fund point to point camera enforcement on major rural and selected urban arterials
- promote safe vehicles and restrict used imports to less than 7 years age
- mandate ABS for all new motorcycle sales
- authorise collection of data on presence of impairing drugs in blood of drivers and riders killed and injured in crashes

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Recommendations –"*AT/ Roadsafe with central government*"- 3 [17]

Encourage ACC to support strengthening of major trauma management systems - by guaranteeing multi-year support funding

Work through Roadsafe Executive to:

- Support police to achieve delivery of 1.1 million RBT's annually and increased seat belt wearing compliance
- deliver public campaigns which focus on enforcement priorities, safer vehicles and the safe system/vision zero principles and their linkage to key road safety actions.
- discuss with NZTA in advance, any proposals NZTA have to increase speed limits on their roads
- support ongoing collection of crash data from ACC records/ Auckland Hospitals and their calibration with police crash data to deliver best available intelligence about crashes

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18

QUESTIONS

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