

# Auckland Transport Road Safety Progress 2011/12

## Executive Summary

Auckland has seen significant road trauma reductions in both 2010 and 2011. The social cost of crashes in 2011 was estimated at \$787 million. Road deaths reduced 20 per cent from 2011 to a record low of 40 deaths in 2012. Complete crash injury data for 2012 will be reported on in July 2013.

Ten year road trauma trends have been declining in most Safe System areas except for alcohol-related crashes and motorcycle crashes. The leading Auckland road safety issues include alcohol/drugged driving, speed, run-off-road crashes, urban intersections, high-risk drivers, pedestrians, and more recently motorcycles.

The bulk of Auckland road trauma occurs on urban local roads with a smaller number of fatal & serious injuries on local rural roads. High-risk areas of the road network include Urban Central, Urban South, and parts of Rural North and Rural South. At-risk road-users include Maori, Pacific children, alcohol/drugged drivers, young drivers, motorcyclists, pedestrians and cyclists.

AT has created a best practice road safety planning and delivery framework with stakeholders and made specific contributions in crash risk-mapping and safety camera technology, road safety engineering improvements, safety demonstration projects, speed management and behaviour change programmes for schools, drivers, motorcyclists, pedestrians and cyclists.

Opportunities exist for AT to enhance Auckland road safety through increased high-level leadership, that includes:

- advocacy for improved drink-driving legislative changes
- greater use of safety camera technology
- improved risk management systems for high risk roads and road users
- improved safe system speed management approaches
- improved vulnerable road user safety (pedestrians, motorcyclists and cyclists)

## Strategic Context

AT has drafted a Regional Road Safety Plan (RRSP) with stakeholders that is aligned to the United Nations Decade of Road Safety Action to 2020, New Zealand's Safer Journeys to 2020 Road Safety Strategy, the GPS, Auckland Plan and draft Integrated Transport Programme.

The draft RRSP incorporates the national Safe System approach (see Figure 1. Below) which shifts blame away from road users and instead places an emphasis on designing and engineering a more forgiving road environment, particularly for vulnerable road users. It also includes the application of safer speeds, access to safer vehicles & transport choices, and developing competent & compliant road users.

Figure 1. The Safe System



AT chairs the Road Safety Steering Group with NZTA, NZ Police, ACC, MoT and the AA. AT provides leadership in the planning and delivery of local road safety initiatives through the draft RRSP and four local Road Safety Action Plans (RSAP’s) as outlined in Figure 2 below. The draft RRSP target is to reduce road crash fatal and serious injuries (FSI) from 506 in 2010 to no more than 410 by 2020, a reduction of almost 20% over ten years.

Figure 2. Auckland Road Safety Partnership & Planning



The draft RRSP allocates roles and responsibilities for stakeholders across the Safe System areas of Safe Roads & Roadsides, Safe Speeds, Safe Vehicles, and Safe Road users. At a local level these RSAP areas are addressed through a combination of safety engineering initiatives (AT, NZTA), enforcement (NZ Police) and education initiatives (AT, ACC and NZTA).

Auckland road safety performance is monitored annually as follows:

- **SOI measures** – including reduced fatal and serious injuries (FSI)
- **Delivery Outputs:** education, training, enforcement and safety engineering activities
- **Intermediate Outcomes:** road user safety attitudes, average speeds, restraint wearing rates, engineering crash reduction outcomes (see Attachment 1.)

- **Final Outcomes:** overall FSI, social cost, and FSI per Safe System area (see Attachment 1.)

## **2011/12 AT Road Safety Delivery**

AT delivered a range of road safety initiatives during 2011/12 that are outlined below according to Safe System areas.

### **Safe System Management**

#### **Road safety leadership and planning**

AT leads quarterly Road Safety Steering Group meetings and local RSAP meetings to co-ordinate and monitor road safety activities. This has created good working relationships with NZ Police, NZTA, ACC, AA, MoT, SafeKids, Cycle Action Auckland and Brake NZ resulting in more efficient use of road safety partner resources.

#### **Crash-risk mapping and research**

AT has developed a series of maps to identify high crash-risk routes (see Attachment 2.), high-risk intersections, high-risk motorcycle, pedestrian and cycle crash-risk routes. These maps assist with the prioritisation of road safety engineering initiatives and will be turned into a GIS-based predictive 'road safety risk assessment' tool for urban and rural local roads as part of a national Safer Journeys project in 2013.

AT engaged the University of Auckland to complete an analysis of road traffic injuries using hospitalisation data. This research identified significant ethnic and socio-economic differences in road traffic injury at a Local Board level. Injury rates are higher among Māori at all ages, among Pacific children, and among people living in more socio-economically deprived neighbourhoods. Higher injury rates also exist in the Urban South area (see Attachment 3.). This research will be published in 2013 and inform the delivery of AT road safety behaviour change programmes for at-risk road users and communities.

#### **AT road safety investment and overall 2011 outcome**

AT road safety investment for 2011/12 included \$27 million for safety engineering and \$9 million for education initiatives. Combined with the NZ Road Policing investment of \$76 million, this has contributed towards a significant 12% reduction in overall fatal and serious injuries (FSI) in 2011. FSI levels for pedestrians, cyclists and motorcyclists all increased in 2011. Extra programmes are being undertaken in all these areas.

### **Safe Roads & Roadsides**

#### **Safety engineering improvements**

AT has delivered up to 400 road safety engineering improvement projects at high crash-risk locations on local roads including crash reduction studies, pedestrian and cycle safety improvements, school safety improvements, and large safety projects such as Tamaki Drive. AT has commenced a review of cycle infrastructure standards that focuses on existing infrastructure issues rather than new cycle infrastructure standards.

#### **National safety demonstration projects and technology trials**

AT is leading two national safety demonstration projects in partnership with NZTA as part of the governments Safer Journeys Action Plan.

Safer speed demonstration projects such as the AT Self Explaining Rural Road (SERR) project in the Clevedon / Maraetai area are encouraged under the government's Safer Journeys Road Safety Strategy (2010). Such projects are intended to demonstrate the best methods for implementing affordable road safety infrastructure to create safer road environments on high risk rural roads. This project includes full participation with NZ Police

and NZTA, and community and local board feedback is a key aspect to achieving project outcomes.

Successful interactive workshops have been led by University of Waikato behaviour change specialists in the Clevedon and Maraetai communities. These will contribute to the direction of rural road speed limit setting guidelines and benefit AT as well as many RCAs that have rural road networks.

AT is also leading a national Urban Motorcycle Safety demonstration project in Urban West that focuses on developing engineering and behaviour change initiatives to reduce motorcycle crash-risk on high-risk motorcycle routes.

A number of national road safety technology trials were also implemented in Auckland including Rural Intersection Active Warning Signs on Glenbrook Road, Variable Rural School Speed Limits in Rural South and North, and pedestrian crossing LED pavement markers in Urban Central.

### **Safety camera technology**

AT continues to focus on the potential use of red light cameras at high risk intersections. The Ministry of Transport has actively engaged with local government representatives to develop site selection principles and an evidence based approach that selects red light camera sites. AT is to commence testing these principles and the methodology at identified high risk intersections. This includes safety audit procedures to determine site suitability for red light cameras.

AT also contributed to the NZ Police review of fixed speed camera sites in the Auckland region and will work with NZ Police to install the new camera technology when it is approved in late 2014.

### **Crash response and investigation**

AT established a robust fatal crash investigation process and implemented a number of local road improvements as a result. AT is working with the Joint Traffic Operations Centre to improve the crash management response on urban arterials.

### **Safe Speeds**

Safe Speeds is a critical component for achieving a Safe System. System designers and managers share responsibility for managing collision speeds and crash forces to a level that does not result in death or serious injury.

AT has assessed 70% of the speed limits across the network against current legislative requirements. Local area traffic management measures have reduced speeds on residential streets, 40km/h speed zones have been introduced at 14 schools, and new low speed shared zones in the CBD are operating successfully.

AT is also developing draft speed management principles with stakeholders to bring improved consistency to overall speed management across Auckland.

### **Safe Vehicles**

AT has supported NZTA's promotion of safer and more efficient vehicles, and promoted safer travel choices directly to schools and businesses through public transport. AT is also exploring an interactive Fleet Safety programme for staff that will encourage improved driver behaviour.

AT has delivered with NZ Police and Plunket 15 local child restraint checking clinics and 7 restraint education workshops in high-risk communities.

## Safe Road Users

AT has delivered a number of road safety behaviour change and training initiatives at a regional and local level across Auckland. These campaigns complement the safety engineering and NZ Police enforcement activities by targeting high crash-risk locations, road users and communities as follows:

### **Alcohol/drug impaired driving**

AT delivered two regional 'Sober Driver' campaigns and 16 Repeat Drink Driver community rehabilitation programmes.

**Young drivers:** AT delivered 115 Learner and Restricted License programmes.

### **Motorcycle safety**

AT delivered a regional motorcycle safety campaign across Auckland with ACC and NZ Police.

### **Pedestrian safety**

AT delivered a regional pedestrian safety campaign, and 86 local pedestrian campaigns at schools.

### **Cycle Safety**

AT delivered a regional 'Share the Road' campaign, 'Cycle-lane safety', 'Tamaki bunch-riding' and Spring, Summer and Winter cycling promotions. The seasonal cycle promotions were supported by 89 cycle training and education sessions across Auckland.

**School safety:** A large number of road safety engineering and education activities were delivered to 271 schools by AT.

### **Fatigue & Distraction**

A number of fatigue checkpoints were delivered by AT and NZ Police during holiday periods in Rural North and Rural South.

## Next Steps 2012/13

AT has shown leadership in the planning and delivery of road safety prevention. A best practice road safety planning and delivery framework is now in place for one Auckland road network using the Safe System approach.

Challenges ahead include the longstanding upward trend in alcohol-related crashes; increasing motorcycle, pedestrian and cyclist crashes; high-risk urban intersections and rural roads; consistent speed management; and high-risk communities in Urban South. Continued focus in these areas in collaboration with key stakeholders remains a priority.

Planned 2012/13 road safety improvements and projects that can be delivered within existing AT resources are outlined for each Safe System area as follows:

### **Safe System Management**

1. AT to demonstrate high-level road safety leadership to stakeholders and finalise the Regional Road Safety Plan.
2. AT to further integrate the Safe System approach across the organisation and increase access to Safe System training for relevant staff.
3. AT to develop GIS-based risk-mapping of high crash-risk routes, in particular for vulnerable road users.
4. AT to strengthen reporting of road safety delivery on a quarterly basis through the Road Safety Steering Group and local RSAP's.

## Safe Roads & Roadsides

1. Joint Traffic Operations Centre to expand their crash management response to cover urban arterials.
2. AT to provide greater emphasis on cycle safety infrastructure to help address the risk associated with increasing levels of cycling across Auckland, and complete the review and development of the cycle infrastructure.
3. AT to continue targeting high-risk schools for safety engineering improvements and expand this to high-risk town centres.
4. AT to continue implementation of the Urban Motorcycle Safety demonstration project.
5. AT to continue working with government on the need for increased red-light camera operations at high-risk intersections.

## Safe Speeds

1. AT to continue implementation of the Self Explaining Rural Roads safety demonstration project.
2. AT to promote increased use of safety cameras on Auckland's urban arterial network.
3. AT to develop speed management guidelines with stakeholders.

## Safe Vehicles

1. AT to implement a Safe Driving policy that will improve staff road safety behaviour.
2. AT to continue to target improved restraint use in high-risk communities.





## Safe Road Users

1. AT to recommend to government the need for the introduction of a lower 0.05 legal Blood Alcohol Level for drivers to help reduce the longstanding upward trend in drink/driving crashes.
2. AT to continue targeting local road safety campaigns to high-risk communities and road-users, particularly Urban South.
3. AT to target improved vulnerable road user safety for motorcyclists, pedestrians and cyclists.

## Attachments

Number	Description
1	Auckland Road Safety Performance Measures
2.	Regional Road Safety Network Risk mapping
3	Road Traffic Injuries per capita by Local Board
4.	Embedding the Safe System approach to road safety (MoT pamphlet)

## Document Ownership

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## Attachment 1. Auckland Road Safety Performance Measures

Auckland Road Safety Performance by Safe System Area 2007 to 2011 (worsened 2011 performance in yellow)						5 year trend
Year	2007	2008	2009	2010	2011	2007-11
Population (000)	1,396	1,417	1,439	1,462	1,484	Up
<b>OVERALL SAFE SYSTEM INDICATORS</b>						
Fatalities	55	52	68	53	51	Down
Fatal & serious injuries (FSI) 1.	532	549	568	510	449	Down
Social cost of all crashes (\$million in 2011 prices)	\$977	\$935	\$931	\$860	\$788	Down
ACC New Road User Claims (by financial year)	1,517	1,460	1,177	1,036	1,068	Down
FSI per 100,000 population	38.1	38.7	39.5	34.7	30.2	Down
<b>SAFE ROADS &amp; ROADSIDES</b>						
Intersection FSI	197	207	194	179	159	Down
Run-off-road FSI	143	189	181	186	139	Mixed
Local Road FSI – <b>SOI Measure</b>	442	465	460	412	368	Down
State Highways/Motorways FSI	90	84	108	98	81	Mixed
<b>SAFE SPEEDS</b>						
Speed-related FSI	123	149	138	103	85	Down
% vehicles exceeding 100 km/h	57%	54%	55%	46%	56%	Mixed
% vehicles exceeding 50 km/h	81%	81%	78%	73%	75%	Down
<b>SAFE VEHICLES</b>						
Heavy vehicles FSI (bus & truck)	12	12	5	12	7	Mixed
% driver deaths not wearing safety belt (3 year average)	19%	15%	19%	21%	23%	Up
% adult front safety belt wearing rate	96%	96%	96%	97%	96%	Same
% adult rear safety belt wearing rate	92%	88%	76%	77%	80%	Down
% of children under 5 years restrained	90%	90%	89%	96%	93%	Mixed
<b>SAFE ROAD USERS</b>						
Alcohol/drug impaired FSI	126	179	173	164	109	Mixed
'Excess-alcohol' driver deaths as a % of all driver deaths	32%	53%	36%	73%	37%	Up
Young driver FSI	86	93	102	80	67	Down
Motorcycle & moped FSI	80	78	100	79	81	Mixed
Pedestrian FSI	74	88	85	67	76	Mixed
Cyclist FSI	33	41	31	37	50	Up
% cycle helmet wearing rate	89%	85%	88%	89%	88%	Mixed
School-aged road users FSI (5 to 18 years)	101	101	83	78	67	Down
Older road users FSI (75 years plus)	21	24	30	22	15	Down
Fatigue-related FSI	28	34	43	28	29	Mixed
Distraction-related FSI	36	34	54	58	44	Up
<b>SUB-REGIONAL FSI</b>						
<b>Road Safety Action Plan Area (Local Boards) FSI</b>						
<b>Rural North</b> (Rodney)	88	64	62	56	52	Down
<b>Urban North</b> (Upper Harbour, Hibiscus & Bays, Kaipatiki, Devonport-Takapuna)	64	70	88	69	52	Down
<b>Urban West</b> (Waitakere Ranges, Henderson-Massey, Western Whau)	46	41	52	70	47	Up
<b>Urban Central</b> (Albert-Eden, Puketapapa, Waitemata, Orakei, Maungakiekie-Tamaki, Eastern Whau)	140	162	168	144	143	Mixed
<b>Urban South</b> (Howick, Otara-Papatoetoe, Mangere-Otahuhu, Manurewa, Papakura)	137	138	144	122	102	Down
<b>Rural South</b> (Franklin)	50	73	52	45	50	Mixed
<b>Gulf Islands</b> (Waiheke & Great Barrier)	7	1	2	2	3	Down



Notes:

1. A fatal or serious injury (FSI) can be counted in more than one of the Safe System FSI measures above e.g. a vehicle vs pedestrian serious injury could be counted in the speed, alcohol, run-off-road, and pedestrian FSI measures. The headline measure of overall fatal plus serious injuries (FSI) is therefore not an aggregation of all the sub-category FSI measures.

All FSI measures include road crashes that have occurred on both Local and State Highway/Motorway roads in the Auckland region unless otherwise specified.

Information sources include:

**Population** (000) – sourced from Auckland Council, 2011

**Fatal and serious road crash injuries** – sourced from NZTA Crash Analysis System, 2012

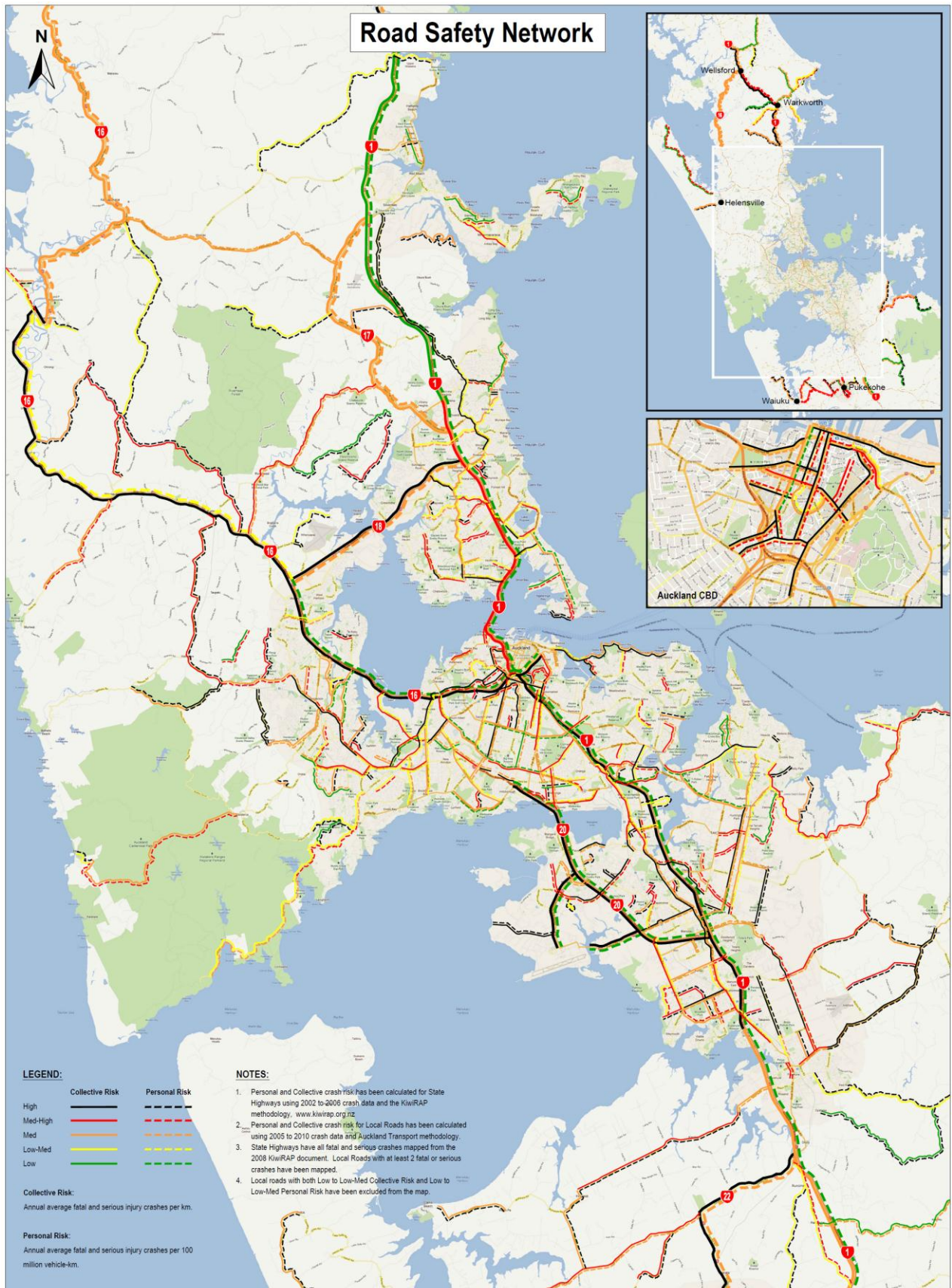
**ACC new motor vehicle claims** – sourced from ACC, 2012

**Speed, restraint and helmet wearing rates** – sourced from annual MoT surveys, 2012

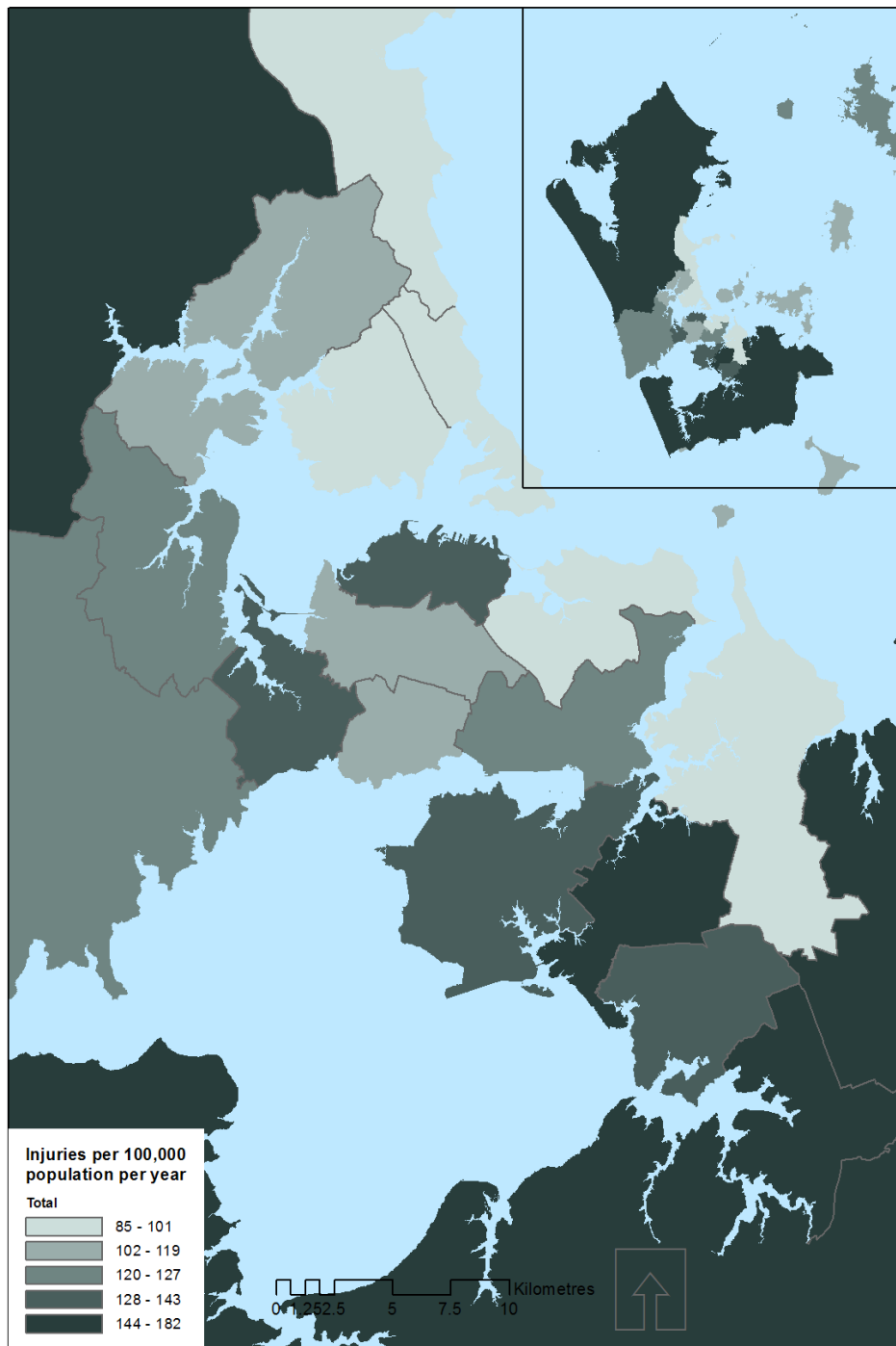
**Social cost of crashes (\$million)** – sourced from NZTA Crash Analysis System, 2012

**Five-year trends** are indicated as either **Down**, **Mixed/Same** or **Up**

## Attachment 2. Regional Road Safety Network Risk-mapping



### Attachment 3. Road Traffic Injuries per capita per annum by Local Board, 2000 to 2008



Note: The above map provides a broad indication of the relative per capita per annum rate of road traffic injuries involving people who live in a specific Local Board area. It is not an indication of where road crashes physically occur in the region. This research is helpful in providing direction for local community road safety education activities in areas with both a high population density and a high injury rate e.g. Otara-Paptoetoe, Papakura, Waitemata, Whau, Mangere-Otahuhu, and Manurewa.

# Attachment 4. Embedding the Safe System approach to road safety (MoT pamphlet)

## The changing focus of our work

Each of us knows the part of the system we can influence to be safer. It is helpful to think about who else we need to share information with and work more closely with, or how we need to work differently to create a safe road system.

### From

Aiming to reduce crashes

Asking: why did that person crash?

Blaming the driver for the cause and severity of a crash

Reacting to crashes or incidents

### To

Aiming to reduce deaths and serious injuries

Asking: why was that person so seriously injured in that crash?

Recognising road or vehicle design plays a part in some crashes, and that good design minimises their severity

Proactively identifying highest risks and working across the whole system to reduce them

Road crashes are system failures

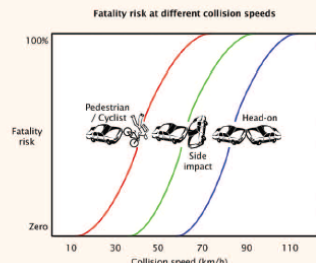


The solution to a problem in one part of the system may lie in another part

## The importance of speed

We want to make sure that if a crash does happen, it will be at a speed that allows people to survive.

Speed at the time of a crash is the biggest predictor of crash forces. In a Safe System, when speeds need to be high, the rest of the system needs to be much more forgiving so that if there is a crash no-one will be hurt or seriously injured.



## How the Safe System approach will result in safer journeys

*Safer Journeys: New Zealand's Road Safety Strategy 2010-2020* has a vision of a safe road system increasingly free of death and serious injury.

This vision challenges everyone who influences road safety to change the way we think about road safety and the way we work together to make journeys on New Zealand's roads safer for everyone.

For more information visit [www.saferjourneys.govt.nz](http://www.saferjourneys.govt.nz)

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New Zealand Government

## Embedding the Safe System approach to road safety

A Safe System recognises that people make mistakes and are vulnerable in a crash. It reduces the price paid for a mistake so crashes don't result in loss of life or limb



Mistakes are inevitable - deaths and serious injuries from road crashes are not



As system designers who influence road safety, we all need to identify what we can do in our jobs to make our road system more forgiving.

Let's all do everything we can to make sure simple mistakes don't turn into tragedies.

## Why we need a Safe System

Scandinavian research shows that even if all road users complied with road rules, fatalities would only fall by around 50% and injuries by 30%. This is supported by recent South Australian research. So if everyone obeyed the road rules, New Zealand would still have more than 140 deaths on the roads each year.

We know that driver error causes many crashes. The Safe System approach works on the principle that it is not acceptable for a road user to be killed or seriously injured if they make a mistake.

We need to look beyond the driver, and identify and address all the causes of crash trauma.

A safe road system is greater than the sum of its parts



System designers include planners, engineers, parents, policy makers, educators, enforcement officers, vehicle importers, suppliers, employers, utility providers, insurers, asset managers, the media, fleet managers etc.

## What is the Safe System approach?



The Safe System approach aims to create a forgiving road system based on these four principles:

### PEOPLE MAKE MISTAKES

We need to recognise that people make mistakes and some crashes are inevitable.

### PEOPLE ARE VULNERABLE

Our bodies have a limited ability to withstand crash forces without being seriously injured or killed.

### WE NEED TO SHARE RESPONSIBILITY

System designers and people who use the roads must all share responsibility for creating a road system where crash forces do not result in death or serious injury.

### WE NEED TO STRENGTHEN ALL PARTS OF THE SYSTEM

We need to improve the safety of all parts of the system - roads and roadsides, speeds, vehicles, and road use so that if one part fails, other parts will still protect the people involved.

## What a Safe System looks like

When we have a safe road system, everyone will expect a very low road toll and serious injuries will be increasingly rare. All parts of the system will be much safer than they are now. For example:

- vehicles will increasingly have advanced safety features, including electronic stability control, front and side curtain airbags and head restraints, collision avoidance systems and better maintenance of tyres and brakes
- roads and roadsides will be safer because transport and urban planning and road design will accommodate errors. Surfaces will be improved and roadside hazards removed or barriers installed

- speed will be managed to safe levels through more appropriate limits, and there will be smarter self-explaining roads and roadsides that show people what safe speed means

- road users will be alert and aware of the risks and drive or ride to the conditions. There will be more in-vehicle technologies to give drivers safety feedback, ensure alertness and reinforce compliance with the road rules.

As well as asking 'Why did that driver crash into the power pole?' we now ask 'Why does that power pole need to be there and how can it be made safer?'

The Safe System approach doesn't take the road user out of the picture or diminish their responsibilities. Instead of laying the majority of blame on the road user, it recognises the need for all system designers and system users to share responsibility for what happens when a crash occurs.