

# Signature Programme Evaluation: Visiting Drivers Project

Report for ACC and New Zealand Transport Agency

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## Executive Summary

### Introduction

This report provides a synthesis of outcomes and learning to date from the Visiting Drivers project. Visiting Drivers is a multi-faceted initiative to improve road safety for, and of, visiting drivers, while maintaining New Zealand's reputation as an attractive and safe tourist destination. It is based generally in Otago, Southland and West Coast, but elements support improvements nationally.

Visiting Drivers was developed under the auspices of the Signature Programme, an umbrella of four projects intended to trial ambitious and innovative road safety approaches. These are to give effect to the Safe System road safety framework, with the aim of reducing deaths, serious injuries, or the risks of these occurring.

### Programme outcomes

Visiting Drivers has substantially delivered on the Signature Programme's objectives; in particular, demonstrating the features of collaborative practice in innovation projects that are necessary to bring about system change and facilitate culture change. It is also providing valuable learning about challenges that can arise and necessary ingredients for success. Highlights include:

- Successful collaboration is in place. This has laid the groundwork for taking innovative approaches to changing systems that impact on road safety, and challenge existing models.
- Visiting Drivers is demonstrating how different elements of the safe system approach can be applied locally.
- The project is showing evidence of some local and regional-level system change, and some national-level changes are also emerging.
- The number of deaths and serious injuries among visiting drivers have remained relatively stable despite a sustained increase in tourism volumes.
- An analysis of crash data indicates that fatal and serious crash rates among visiting drivers in the target regions in 2016 and 2017 are estimated to be lower than they would have been if the Visiting Drivers project had not been implemented. However, given the relatively high variation in crash rates over time, it is too early to estimate these effects with a high level of confidence. Although the trends are not statistically significant, they align with other data sources, and are consistent with the intended outcomes of the project.
- The monetary cost associated with the average estimated reduction in crashes is around \$275,000 per year and the total social cost could be as high as around \$10.5m per year if the full value of lost life and permanent disabilities associated with these crashes is included.

### Key learning

Collaborative partnerships within Visiting Drivers brought tangible successes, and there was a common view that this success could not be achieved through the efforts of one organisation alone. The collaborative way of working brought in new ways of thinking and approaches, and reduced a range of risks for partners by sharing ownership of issues and solutions. Factors that supported successful partnerships included the following:

- Having a common purpose and shared ownership, where each sees the role they bring.
- Leadership to drive change and hold the course across partners; with supportive governance structures for collaboration, and flexibility when multiple agencies are involved.

- Clear structures, processes, and coordination roles; the project was an exemplar in the Signature Programme of project leads/managers who could bring together partners, engage stakeholders, coordinate/negotiate activity and provide central points of contact.
- Building respect and trust, built on a willingness of all partners to come together, bring something to the table, and adapt delivery.

Visiting Drivers was notable in that the Safe System approach was front and centre for all partners. Through the Visiting Driver process, partners obtained a comprehensive understanding of the Safe System approach, which informed the project's development.

The project displayed features of 'communities of practice', or partnerships that use each other's experience as a learning resource about a particular domain. This enabled participants to work together in making sense of and addressing challenges, and in turn support project outcomes.

### Conclusions

Visiting Drivers has reached a high level of collaborative practice, with evidence of the group expanding their influence beyond the project, into other regions of the country. Partners in the project from central and local government, police and industry, are making a wide range of changes to their practice as a result of their involvement in Visiting Drivers.

The project has delivered strongly against key evaluation criteria for the Signature Programme, of collaborative practice, system change and culture change, and the changes made can be expected in the short term to support improvements in road safety outcomes.

However, a key challenge for the project is its transition to business as usual, which may ultimately affect whether the achievements to date can be sustained. There was concern voiced by many partners that the gains and momentum achieved could be lost.

Visiting Drivers actively sought to equip people with knowledge of driving in New Zealand throughout the journey of travel with simple and clear advice, and also to work proactively to influence media stories and present more accurate depictions of driving by visitors to the New Zealand public.

A key lesson from Visiting Drivers and the wider Signature Programme is that translating knowledge and evidence into action for road safety, requires approaches that engage with the user journey and equip people with the knowledge, and supportive safe driving environment, that allows safe interaction with their surroundings.

## 1. Introduction

Visiting Drivers is a multi-faceted project to improve road safety for, and of, visiting drivers, while maintaining New Zealand's reputation as an attractive and safe tourist destination. It is based generally in Otago, Southland and West Coast, but elements support improvements nationally.

The project is one of four Signature Programme projects, which was established to enable and facilitate the implementation of projects that are ambitious, innovative, and apply the Safe System principles and approach with the aim of reducing deaths, serious injuries, or the risks of these occurring (the Safe System approach is detailed further in Appendix 1). Other projects delivered under the auspices of the Signature Programme are:

- Behind the Wheel (the Māngere pathfinder project for the wider High Risk Young Drivers programme)
- Future Streets (a controlled intervention study trialling innovative street design processes, based in Māngere)
- Eastern Bay of Plenty rural road safety case study, concluded in 2015.

This report provides a synthesis of outcomes and learning from the Visiting Drivers project, building from analysis undertaken in the wider Signature Programme evaluation (Field et al 2018). The Signature Programme evaluation is in many respects a learning mechanism and provides a way through which individual project learning can be shared across all the signature projects and partner organisations. The Signature Programme evaluation rubric (see out in Appendix 2) details the outcomes envisaged by the Signature Programme against which the Visiting Drivers project was assessed. These outcomes include:

- Collaborative practice
- System change
- Culture change
- Life and limb (i.e. road safety outcomes)

Underpinning the evaluation was a developmental evaluation approach. With developmental evaluation approaches, the evaluation team works alongside project teams, and iteratively reflects on processes, outcomes and learning from innovation as it unfolds, in a way that is customised to the context of each innovation (see for example Patton et al 2016). A developmental approach does not necessarily separate processes and outcomes into separate stages, but instead often provides ongoing feedback to project teams on both processes and outcomes. This report follows this approach and explores learning from how Visiting Drivers developed, and the outcomes it has produced to date.

This report draws on analysis of interviews, workshops and engagement with project leadership by the Signature Programme evaluation team. This is combined with key documentation collected by Visiting Drivers project leadership, including media analysis, road safety data, tourism data and survey data. A final component of the evaluation, completed in 2019, was an outcomes and economic analysis of fatal and serious crashes among visiting drivers over 2011 to 2017.

Informing this report were also several pieces of work for the Signature Programme that are available as separate reports/publications:

1. A detailed evaluation framework (King et al 2015)
2. A literature scan exploring innovation transfer and how innovative thinking and practices can shift to business as usual (Davies et al 2017)
3. Annual project forums across the three Signature Projects
4. Online surveys of stakeholders in the three signature projects (Field et al 2017a)
5. Document analysis and interviews with project leadership, which informed annual project updates (Field et al 2017b, Field et al 2017c)

Illustrations in this report are drawn from sketch-noting and earlier reporting undertaken for the Signature Programme in 2016 and 2017.

This evaluation was funded by ACC and supported by the New Zealand Transport Agency.

## 2. Background to Visiting Drivers

Visiting Drivers is a multi-faceted project to improve road safety for, and of, visiting drivers, while maintaining New Zealand's reputation as an attractive and safe tourist destination. It is based generally in Otago, Southland and West Coast, but elements support improvements nationally.

The project was established following the 2013/14 summer season when tourists driving on New Zealand roads became an issue of intense public and media interest. Many media articles reported unsafe driving and road crashes involving visitors, including some crashes that seriously injured or killed New Zealanders. This is in the context of sustained tourism growth in New Zealand; most recent figures indicate that in the 12 months to June 2018, 3.8 million international visitors came to New Zealand, an increase of 4% from the previous 12 months (Stats NZ July 2018), continuing a long-term trend of growth discussed later in this report.

The project put in place a range of initiatives to reach visitors at each stage of their holiday – planning, booking, in-flight, arriving in New Zealand, and when actually driving on the road. The project is focused on the Otago, Southland and West Coast regions, where visiting drivers make up a large proportion of the traffic. However, many of the initiatives benefit all visitors to New Zealand and other road users through national implementation.

Visiting Drivers combines the efforts of many organisations to ensure all visitors have a safe and enjoyable holiday experience. Partners include central government (including NZTA, Police, Tourism NZ, and ACC), local government, the private sector (including industry associations and individual rental vehicle operators) and others in New Zealand and overseas (New Zealand Transport Agency 2017).

Visiting Drivers is designed to support the safety and experience of visitors to New Zealand across the spectrum of travel to New Zealand, through the following:

- **Planning and booking** information that assists visitors to make well-informed and safe choices, providing consistent information about New Zealand via multiple channels in multiple languages
- **In-flight** information while travelling to New Zealand
- **On arrival** information to assist travellers with their vehicles, route planning and key elements of the road code
- **Journey** support with travel and safety information/collateral, infrastructure to support safer journeys, and speed and enforcement of rules.



The key strands to the project are:

1. A communication and education campaign, which includes safety campaigns and messages delivered by project partners to their audiences in a variety of ways through their

communications channels, and coordination of communications across partners, including responses in situations where crashes involving visiting drivers occurred.

2. A safety improvements programme, delivering roading improvements in the key intervention areas

A Working Group met regularly to plan joint communications and campaigns, share information on forthcoming events and issues (e.g. British and Irish Lions rugby team tour) to support joint planning, and develop changes in organisational/sector practice that supported the wider goals of the project. This was overseen by a Governance Group and supported by a communications group.

Figure 1: Sketchnote of Visiting Drivers activity, taken from 2017 project forum



Developed by Carol Green for the Signature Programme evaluation

The project was established in 2014 by the National Road Safety Committee as part of the Safer Journeys Signature Programme. In 2017/18, the project transitioned to business as usual activity, with the project’s working group disbanding. The Governance Group and communications group continue to function as needed.

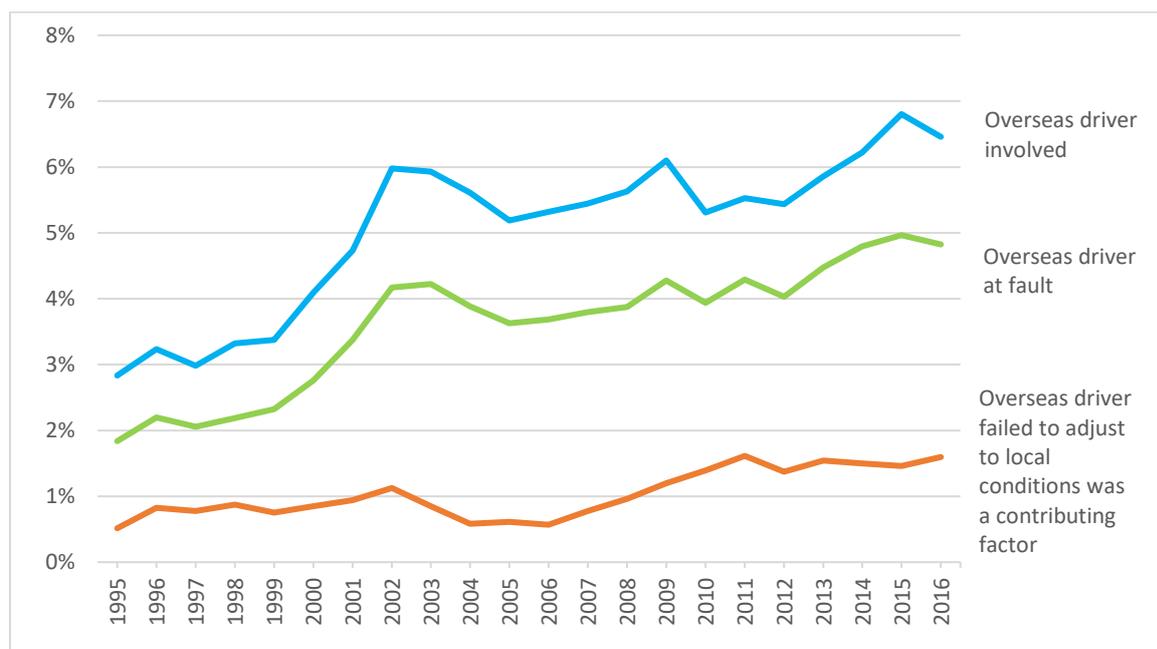
### 3. Project achievements to date

#### Trends in crashes involving visiting drivers

A common theme among stakeholders interviewed was that deaths and serious injuries involving visiting drivers has remained steady despite a strong increase in tourism numbers. This is to some extent supported by available data that indicates the level of fatal and injury crashes nationally has remained generally stable (Figure 2 and Figure 3) (Ministry of Transport 2017), whilst at the same time visitor numbers have increased substantially to reach almost four million by 2016 (Figure 4), presumably along with visiting driver numbers. In addition, available data suggests some 50% of visitors to New Zealand drive during their stay.

This may suggest that the risk of deaths and serious injuries among visiting drivers has fallen; however there are gaps in available data to verify this – NZTA staff point out that five years of data is needed to ascertain if this is a verifiable trend, and little is known about the extent of travelling undertaken by visiting drivers. The estimated impacts of Visiting Drivers in the target regions are discussed in the next section, and in detail in Appendix 3.

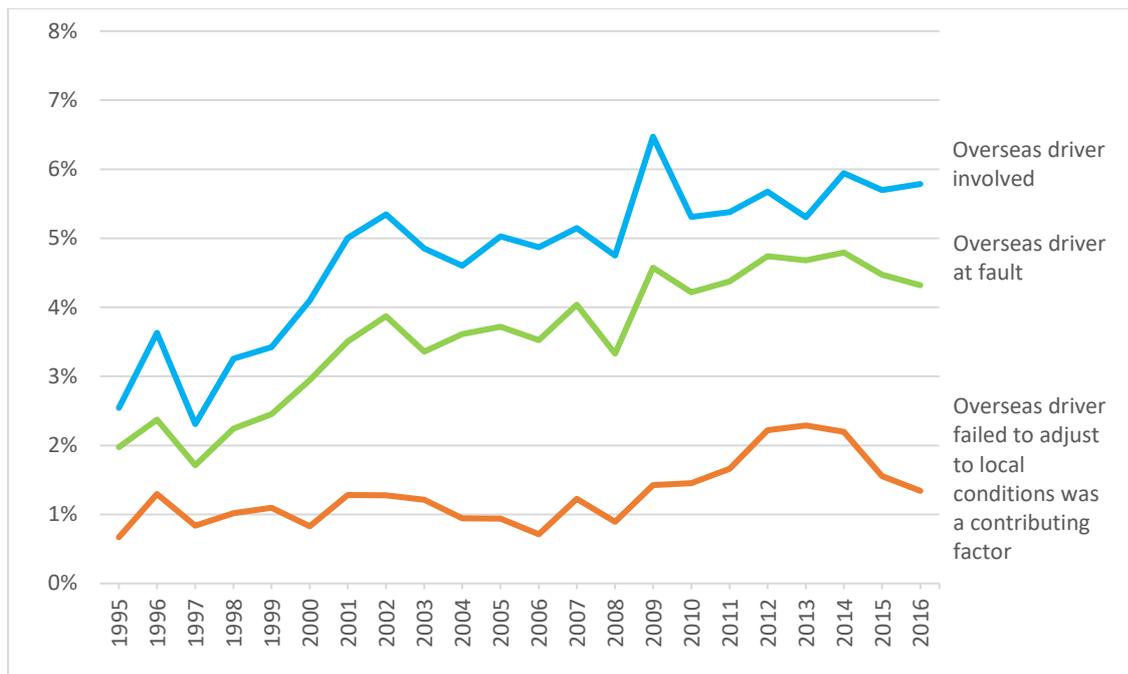
Figure 2: Percent of fatal and all-injury crashes that involve an overseas licence holder<sup>1</sup>, 1995-2016



Source: Ministry of Transport

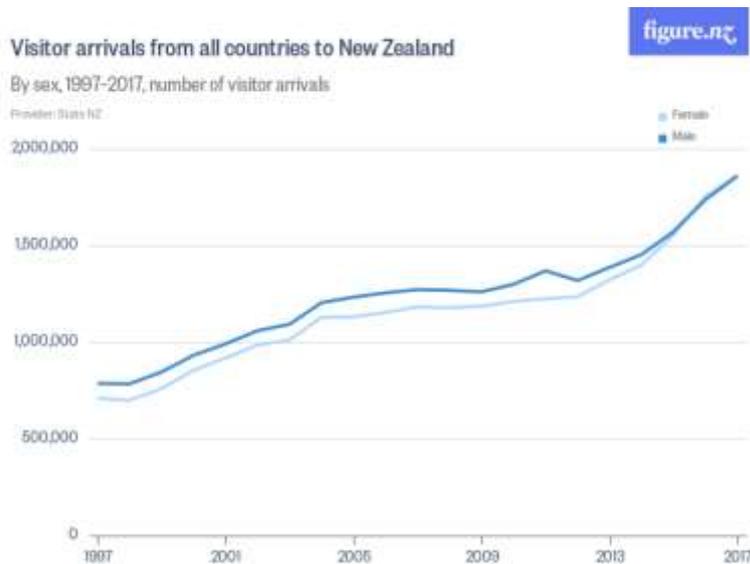
<sup>1</sup> Overseas license holders include short term visitors, recent immigrants and students

Figure 3: Percent of fatal and serious injury crashes that involve an overseas licence holder, 1995-2016



Source: Ministry of Transport

Figure 4: Visitor arrivals to New Zealand 1997-2017



Source: Figure.NZ (via Statistics NZ)

National level data can obscure regional and local differences. The proportion of crashes involving a visiting driver varies due to regional differences in the size of the visitor population and their driving patterns. The following table lists the top 20 local authorities, firstly based on the number of crashes involving overseas drivers, secondly by the proportion of crashes in that region that involve an overseas driver. In the project regions, crashes involving an overseas driver are a significant proportion of the crashes, but the largest number of crashes involving overseas drivers is from Auckland.

Table 1: Top 20 local authorities by fatal and injury crashes involving overseas drivers (2012-2016)

Top 20 by number of crashes involving overseas drivers			Top 20 by proportion of crashes involving overseas drivers		
Local body	Crashes involving overseas drivers	Percentage of crashes that involved an overseas driver	Local body	Crashes involving overseas drivers	Percentage of crashes that involved an overseas driver
Auckland	713	5%	Westland	72	40%
Christchurch	241	6%	Queenstown-Lakes	146	31%
Southland	150	23%	Mackenzie	27	30%
Queenstown-Lakes	146	31%	Southland	150	23%
Far North	90	10%	Kaikoura	20	19%
Dunedin	74	4%	Central Otago	46	17%
Westland	72	40%	Buller	31	15%
Tasman	65	14%	Hurunui	45	15%
Waikato	60	5%	Tasman	65	14%
Waitaki	59	14%	Waitaki	59	14%
Selwyn	56	11%	Thames-Coromandel	48	13%
Rotorua	54	8%	Grey	23	12%
Taupo	53	10%	Waitomo	25	11%
Marlborough	51	10%	Selwyn	56	11%
Thames-Coromandel	48	13%	Marlborough	51	10%
Western Bay Of Plenty	47	8%	Clutha	45	10%
Central Otago	46	17%	Ruapehu	27	10%
Hurunui	45	15%	Ashburton	31	10%
Clutha	45	10%	Far North	90	10%
Hamilton	42	3%	Taupo	53	10%

Source: Ministry of Transport

Interviews with stakeholders in 2018 across a range of participating organisations indicated a strong sense, particularly among rental vehicle operators, that crashes involving the rental vehicle fleet had fallen substantially since the introduction of the project. This has meant a reduction in damage costs and which in turn has positively affected profitability.

As one interviewee indicated, these crashes may not have involved deaths or injury, but they support the reliability of the fleet and the visitor experience:

*“The feedback I've had is that most operators have experienced in the last two years a significant drop off in damage costs, and certainly significantly less write-offs than they previously had. What that percentage is, I can't get individual figures on, but they're all saying it's made a significant difference, which has had a big impact in their profitability.”*

## Estimated road safety impacts of Visiting Drivers

To explore the road safety impacts of Visiting Drivers more systematically, an independent analysis of fatal and serious crashes was undertaken in early 2019. Appendix 3 (page 31) provides more detailed discussion of the methods employed and findings; this is also available as a standalone report.

The analysis estimated the impacts of the Visiting Drivers Project on the number and economic costs of fatal and serious road crashes in New Zealand involving overseas drivers in the project's three main target regions (Otago, Southland, and the West Coast) in a two-year period after its introduction (2016 to 2017).

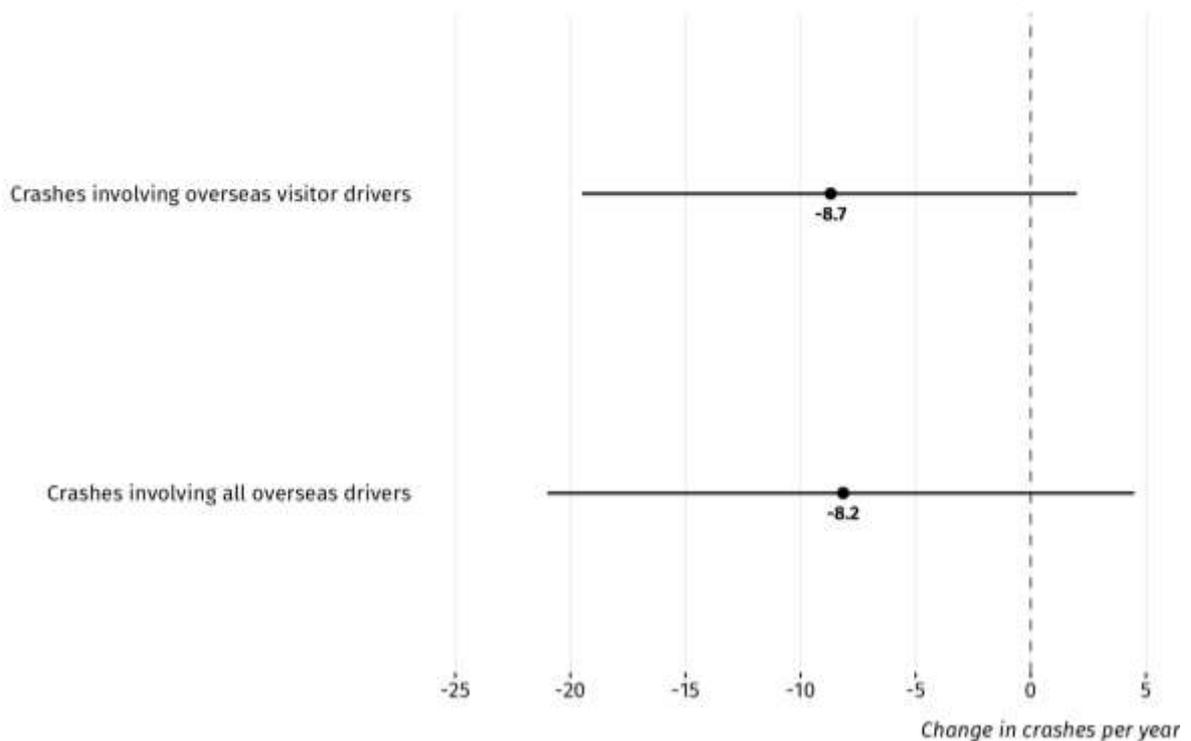
Fatal and serious crash rates among visiting drivers in the target regions in 2016 and 2017 are estimated to be lower than they would have been if the Visiting Drivers Project had not been implemented, but given the relatively high variation in crash rates over time, it is too early to estimate these effects with a high level of confidence. It is also important to note that some of the state highway improvements that were part of the Visiting Drivers Project were not completed by the end of 2017 and so will not be included in this analysis.

Figure 5 on the following page shows the estimated changes in the number of crashes involving visiting drivers in the target regions combined that could be attributable to the project, with 95% confidence ranges. In the figure, "Crashes involving all overseas drivers" refers to all crashes where the driver was on an overseas licence at the time of the crash, while "crashes involving overseas visitor drivers" is crashes involving drivers who were on overseas licences and who were recorded as being visitors to New Zealand in the corresponding crash report. The visitor status for around 20% of crashes involving drivers on overseas licences is not recorded, hence this analysis uses two alternative definitions of visiting drivers.

Under either definition, it is estimated that the project was associated with a reduction of around eight to nine fatal and serious crashes per year in the target regions combined, but there is relatively high uncertainty associated with these results, and it is possible that the project had no effect. The monetary cost associated with the average estimated reduction in crashes is around \$275,000 per year and the total social cost could be as high as around \$10.5m per year if the full value of lost life and permanent disabilities associated with these crashes is included.

Given that this analysis is based on only two years of crash data, while the results indicate that the Visiting Drivers Project may have led to a reduction in crashes involving visiting drivers, it is recommended to re-evaluate the road safety impacts of the project after 2020 using crash data for the five-year period from 2016 to 2020 to test whether these initial findings are statistically robust.

Figure 5: Estimated impacts of the Visiting Drivers Project on visiting driver fatal and serious crashes per year in the three target regions combined, with 95% confidence bands.



### Visitor experience

The project surveyed people in the intervention areas about their visitor experience. Data from 2016 surveys indicated that generally, in the three intervention areas:

- Around half of surveyed visitors drove while in New Zealand
- More than 90% of overseas visitors believed the roads to be safe to drive (slightly higher than domestic visitors)

Of those who drove:

- Around two-thirds felt fully prepared for driving in New Zealand
- 40% had received information before coming to New Zealand and approximately one-third while in New Zealand
- More than 90% felt the information received had prepared them for driving in New Zealand (Opus 2016).

The overall results of the survey suggested that all respondents, whether they were overseas visitors, non-local New Zealand residents or locals to the region felt the roads were safe, they were satisfied with their driving experience the day of the survey and that the level of safety on the road had positively affected their view of the regions as tourist destinations. Suggestions for improvement, specifically from overseas drivers, included more stopping places, more overtaking spaces, wider road shoulders and more signage (Opus 2016).

Taken together, these findings suggest a positive visitor driving experience and that visitors are receiving information to support their driving whilst in New Zealand, consistent with the aims of the programme. Data from these surveys are detailed further in Appendix 2.

## System changes

### Pivots in activity

A recurrent theme in the Visiting Drivers project is the strength of collaboration across partners. Notably, all partners saw themselves as having a role to play in road safety. Collaboration in the project meant more than people around the table willing to work together; all partners also implemented significant shifts, or 'pivots' in activity to support safety and visitor experience outcomes. These include the following:

- Tourism operators seeing their role in road safety; that investing in road safety initiatives for their customers was good for business. As one interviewee indicated:  
*"If you talk to any of the individual operators they say it has made them much more aware of the risks of some drivers, much more attuned to making some assessments, both in the way they market, but also making some individual judgements around who they actually give keys to when people turn up"*
- Tourism New Zealand buying into the Visiting Driver's purpose and messages, which are being promoted worldwide. Their campaign has also pivoted its messaging about travel to New Zealand from a focus on simply coming to enjoy the beautiful landscape and scenery, to come and enjoy, but to take care.
- Among Transport Agency roading engineers, there was a shift or pivot from seeing infrastructure and roading as 'a drainpipe', to viewing roads as a key amenity for people wanting to take advantage of New Zealand's attractions and views; roads therefore have to be safe for people to use, as well as safe to pull off from and then re-enter.
- Police systematically changed how they deploy staff, going from a focus on speed and alcohol enforcement, to a focus on prevention; for example, when there is peak flow on roads, identifying where there are pinch points, and where visitors are typically getting into trouble. Police have also changed how they communicate with visitors, and they now have mobile apps in multiple languages so they can communicate more effectively. Police now tend to not report the nationality of the driver where this was not pertinent to the crash (e.g. if it was a crash that was also typical of New Zealand-based drivers).  
*"[Police] consider have they actually crashed because they've forgotten they're supposed to be driving on the left, or have they just crashed for the same reason New Zealand drivers crash, in which case we don't need to mention in the media where they're from, because it's just a person's crashed."*
- NZTA challenged its decision making processes to take more of an amenity and wider tourism benefit focus (e.g. pull-over places for scenic views) from purely a safety focus.
- Police and Rental vehicle operators in some areas (Queenstown and Christchurch) are sharing information on clearly unsafe drivers so that these drivers cannot continue to rent vehicles, and assisting these drivers to make alternative travel plans.  
*"We've got what we call a safer driving network in Queenstown, so where someone has a vehicle cancelled as a result of either, they've significantly damaged a vehicle and the*

*operators got concerns about their driving skill or attitude, or as a result of police intervention, they notify all the other operators in the area.”*

### Safety messaging

NZTA and partners undertook short-term safety messaging, that included the following (detailed further in Appendix 3):

- Point of sale material (such as steering wheel tags, driving in New Zealand booklets and keep left stickers)
- Messages on coffee cups
- Truck and coach backs with safety messages
- Digital screens in petrol stations, hotel lobbies and public toilets
- Billboards
- iSite posters
- Facebook and other social media targeting
- In-flight messaging
- Cook Strait Ferry posters.

There was general feedback that these were important contributions to the programme. Many of these innovations have been adopted for national implementation, particularly safety information that is distributed by rental car operators.

### Infrastructure improvements

There were also a range of longer-term infrastructure improvements, which included rumble strips, arrows on the road, carpark exit signs reminding people to keep left, and road safety signage on some key tourist routes. These were able to be implemented across many parts of the state highway network in the intervention areas. However, funding available to enable cost sharing between NZTA and local government on parts of the local road network remained underspent owing to constraints in local authorities' own budgets.

Looking ahead, one interviewee raised the concern that the easy changes had been made, but with continued growth in volumes of people coming to New Zealand, the risk is in two to three years there will be a similar and larger problem, with an accompanying need to improve infrastructure.

### Code of practice for rental vehicle operators

An important element of system change in the Visiting Drivers project is the code of practice for rental vehicle operators. By 2017, some 80% of the rental vehicle fleet had adopted the code of practice. This was seen to have a range of benefits:

- A reduction in accidents which reduced operator costs (discussed above)
- Some operators felt there was increased business as a result of promoting that they were part of the programme
- Businesses also saw good impacts with the visitor experience through the code of practice; they were seen as caring that they would have a safe journey
- It was seen to have a positive effect on staff, by reinforcing an organisational/industry sense of care for customers

- The code also enabled the industry to mitigate risk; from a media perspective, they were able to demonstrate being responsible.

The collaborative foundations of the project enabled people within the project to create new partnerships, or to link people in related areas. One view was that the code of practice could have been developed without the Visiting Drivers project, but it wouldn't have been as successful, and that having the government behind it gave it more momentum.

Some spoke of the project opening doors for people, and enabled enquiries or opportunities to be steered towards those working in relevant areas, rather than having to take ownership for a solution. People in the tourism industry found themselves in a wider series of conversations than had existed previously, such as through road controlling authorities' forums, and forward planning in NZTA.

### Coordinating communications

Many stakeholders spoke of the way in which communications (in terms of both proactive outreach through planned campaigns, and reactive responses to issues as they arose), were well coordinated and enabled all to be on the same page, telling similar stories to the media. In instances where there were visiting driver crashes, all partners were alerted and key messages were communicated. This often prevented over-dramatisation of a situation by media, particularly in instances where the type of crash was no different to one that was common among New Zealand-based drivers.

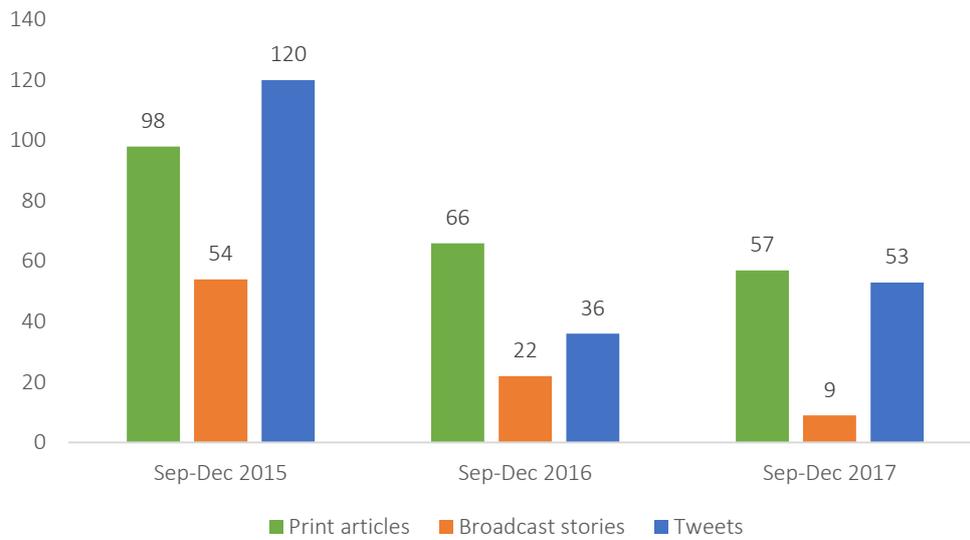
*“When something came up [NZTA lead] was the first person they rang, and we'd often get an email, I've just spoken to [media], these are the points that were made, this is what the questions they're asking, they're likely to follow up the following people on these three to four things.”*

*“When something public happens, or there's a risk of something public happening, we're all on the same page, and we communicate with a single message if you like, so the public and the media aren't getting mixed messages from us.”*

There was a sense among interviewees that the strength of this collaboration contributed to reduced media hype around the crashes that happened. Although there were some very serious crashes throughout the project timeframe, there wasn't generally the type of media attention experienced in previous years. It was also felt that the public debate became more informed, and what was reported in the media is now generally more balanced, and informed by the statistics and evidence.

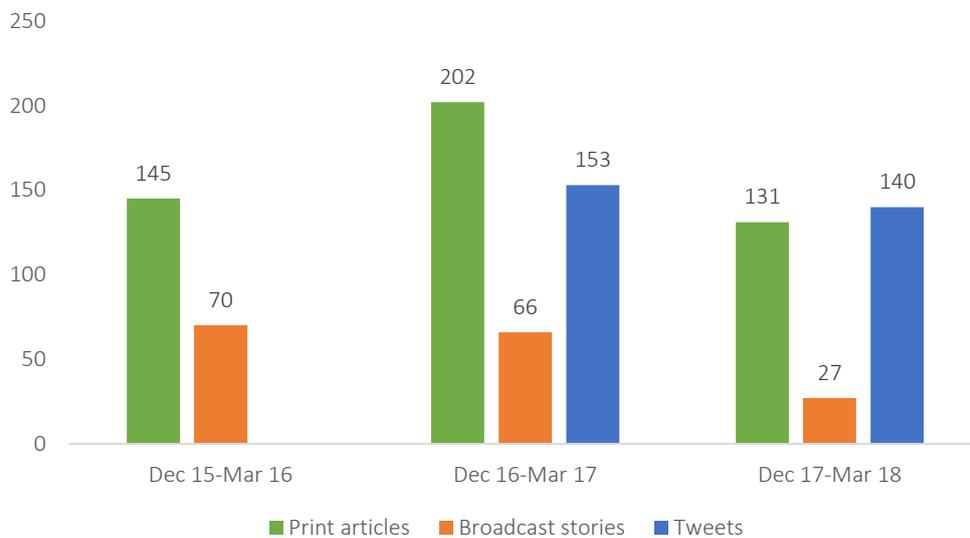
In volume terms, there was a general pattern of declining media coverage; this is particularly so for the September to December quarters over 2015 to 2017. Over each of these quarters there was a decline from 98 print and 54 broadcast media stories in the September to December quarter of 2015, to 57 print and 9 broadcast media for the same quarter in 2017; an overall decline of 57% across both forms of media. Twitter coverage fell from 120 in the September to December quarter of 2015, to 36 the following year, but increased to 53 in 2017, although this remains substantially lower than the 2015 quarter, as indicated in Figure 6) (McNamara Research Group 2018).

Figure 6: Visiting Driver media analysis September to December quarters 2015-2017



An overall decline is also evident for the December to March quarters from 2015/16 to 2017/18, although there was a substantial peak in print media for 2016/17 (Figure 7) (McNamara Research Group 2018).

Figure 7: Visiting Driver media analysis December-March quarters 2015/16 to 2017/18



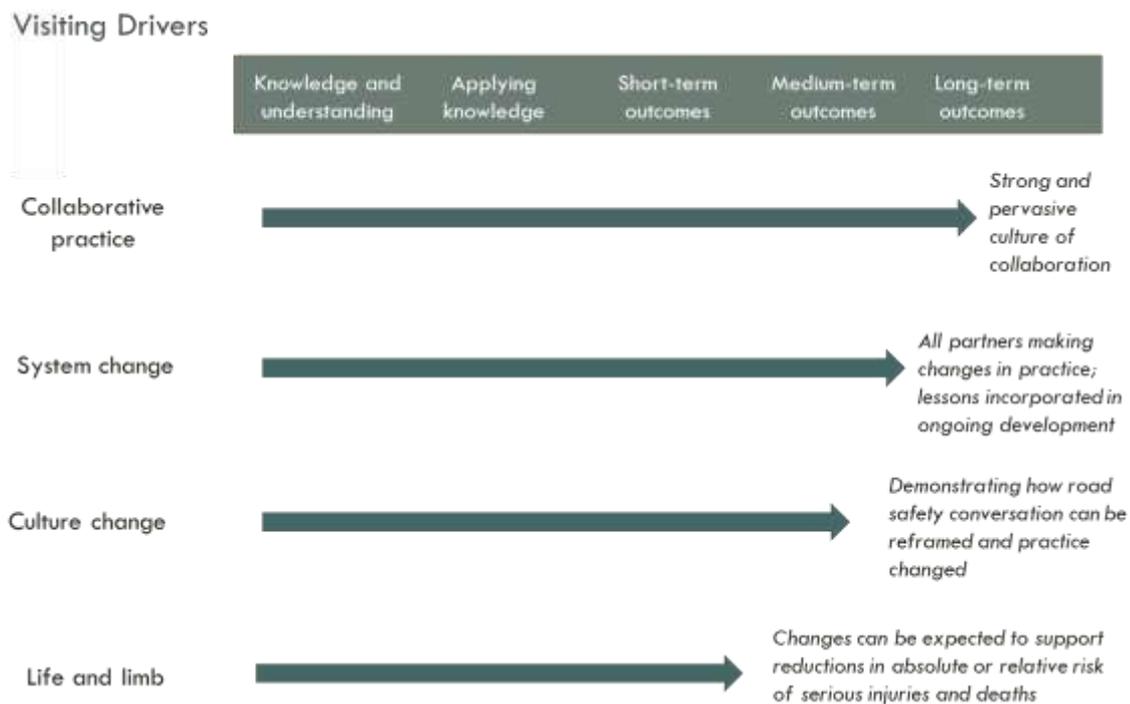
Note: 2015/16 social media data was not reported in sufficient detail to enable inclusion.

The reduction in media coverage and more balanced and informed public opinion on visiting drivers is widely seen as a success of the project.

## Progress towards Signature Programme objectives

Figure 8 below summarises the very strong progress made by Visiting Drivers against the four key evaluation criteria for the Signature Programme (collaborative practice, system change, culture change and life and limb). The project has delivered strongly against collaborative practice, system change and culture change, and the changes made can be expected in the short term to support improvements in road safety outcomes. As discussed later, the transition of the programme to business as usual may ultimately affect whether the achievements to date can be sustained.

Figure 8: Visiting Drivers rubric analysis



## 4. Project reflections

### Collaboration as a key enabler

Consistent with other Signature Projects, collaboration was a critical enabler of the goals of the Visiting Drivers project, and not an end in itself. Across the partnership, there was an attraction to work in an inclusive environment with a shared ownership of a problem; this enabled the problem to be tackled from a variety of angles rather than siloed activity. One stakeholder went so far as to describe Visiting Drivers as a blueprint for working across New Zealand agencies.

A feature of the Visiting Drivers partnerships was the willingness to take new approaches, with determination from all partners to contribute in ways that achieved their collective needs and visions. In surveys of Visiting Drivers stakeholders, there was a high degree of agreement among project stakeholders with the following statements:

- The project feels like a safe environment to have frank conversations
- Partners (local and national) have developed relationships, trust, communications and information sharing conducive to cross-agency, cross-sectoral collaboration
- Partners are committed to a shared vision, shared sense of direction, co-investment of time/resources, and shared problem solving
- Partners recognize different perspectives, agendas and areas of expertise within the project team
- Partners are demonstrating successful collaboration between agencies, working toward shared goals
- Through the project, partners are expanding the field of influence (Field et al 2017).

Each partner brought their own reasons for participation to the project. For the tourism industry, the visiting drivers issue was seen as a reputational issue, where crashes and encountering negative behaviour from locals were eroding the tourism experience. From a road safety perspective, there was value seen in taking action to prevent crashes among this group of drivers.

Gaining new perspectives or insights was considered to be an advantage of collaborative practice:

*Partners get to see the Visiting Drivers Programme through other partners' eyes through our joined / group sessions, it is often refreshing and eye opening.*

Different cultures and expectations challenged partnerships at times. Partners in Visiting Drivers' inevitably had varying levels of willingness to undertake some strategies, but ultimately had determination to take new approaches consistent with the vision of the project.

It was widely agreed that no one partner has enough levers to make a significant difference; this was an issue that needed everyone at the table.

*"Delivering to their own strengths has really give us a very powerful story to be able to use, to combat the negativity to bring balance, and to be able to show that actually agencies will come together and can work together to try and make a difference to the problem."*

*“I've sat in on NZTA workshops around their forward planning so, it has brought about a bit of a change in terms of more people thinking about this impact of tourism on the work that they do, whereas in the past probably tourism's just been off over there doing its thing.”*

Contributors to effective collaboration included the following:

- A genuine desire to be a member of the partnership, to reach individual and mutual goals
- A common purpose that brought partners together
- Skin in the game – a willingness and ability to offer something from participants' own sectors
- Good process across the partnership; this included sharing briefing papers to ministers
- Resourcing of the partnership and activities
- Respect across partners.

Mutual respect and trust, which developed over time, was enabled by a willingness of all partners to come together, bring something to the table, and adapt delivery. The project was also marked by significant levels of information sharing, including draft ministerial papers and industry data.

Interviewees agreed that the partnership offered a coordinated approach, which meant issues could be dealt with at a senior level. The government resourcing, and active coordination from staff within NZTA were all helpful, along with regular meetings, action plans, and plans that were actually implemented.

A common theme was that collective purpose to make a difference on the issue was a key foundation for Visiting Drivers; with one interviewee noting that this has never been achieved with the freedom camping issue.

*“When you bring collective minds to an issue, you can make a difference in some of these really challenging issues, what we need to do at this point is replicate the kind of framework that was set up around Visiting Drivers, and apply it to freedom camping, and tackle that drama.”*

## **Leadership and coordination**

Leadership of the issue from within NZTA was key success factor. Visiting Drivers was notable for the role of NZTA in taking ownership, allocating funding, and setting up the systems around the initiative. NZTA were then able to bring in partners, and partners were subsequently given the license or freedom to work as the expert in their areas, and to come up with solutions and deliver on these.

NZTA's leadership was noted by one interviewee as very good at keeping people focussed on solutions rather than problems, and bringing people back to the issues when they weren't thinking about things from a collective point of view.

Programme leadership was able to drive change and hold the course across partners. There were also seen to be supportive governance structures for collaboration, along with flexibility to manage delivery across multiple organisations.

There were also clear structures, processes, and coordination roles in place. The project had project leads/managers who could bring together partners, engage stakeholders, coordinate/negotiate activity and provide central points of contact.

## Safe system approach

The Safe System approach was a pivotal backdrop to the Signature Programme, with the intention that the four parts of the system - safe speeds, safe road use, safe vehicles and safe roads and roadsides – would be addressed through each of the four Signature Projects.

Visiting Drivers was notable in that the Safe System approach was front and centre for all partners. Through the Visiting Driver process, partners obtained a comprehensive understanding of the Safe System approach, which informed the project's development. One stakeholder highlighted the breadth of engagement in the Safe System approach:

*There are 15 agencies working together. Some such as Tourism NZ, the RVA and Tourism Industry Aotearoa would not normally be involved with road safety. They have understood the safe system approach and become advocates as well as playing an important part in influencing foreign licence behaviour.*

Responses to a 2017 survey of project stakeholders (Field et al 2017) highlighted many aspects of safe system approaches that were widely considered by stakeholders to be embedded in Visiting Drivers:

- The project recognises that mistakes and crashes can be reduced and/or prevented
- The project recognises that all elements of the road safety system need to be strengthened
- The project has systems in place to identify and disseminate lessons
- The project is influencing action in the road safety system
- The project feels like a fertile environment for innovation and adaptation
- The project demonstrates how partners can share responsibility for strengthening the safety of the road system.

There was however a critique of the approach by one stakeholder who saw the approach taken as having some key limitations, as opposed to a wider system approach:

*"The project has a huge focus on the driver, from direct messaging to giving the right cues. There has been very little discussion on the quality of rental vehicles, especially assisting crash avoidance; the quality of roads and roadsides...; and no discussion on speed management for tourists."*

There were seen to be some aspects that didn't work as well, such as some collateral, messaging and a fund for local road improvements (the latter was under-utilised by territorial authorities, largely due to their own capacity to contribute their share of investment). One criticism of the approach suggested that there was at times solution development ahead of substantive problem solving:

*"...there seems to be more "shared solution development" rather than actual problem solving. There is a lot of jumping to conclusions/solutions without going more in depth into the problem."*

There was however a clear willingness to try new approaches and to learn from activity to support ongoing improvement.

## Business as usual transition

In late 2017, a decision was made to transition the programme to business as usual. The working group was disbanded, and the governance group considered issues on an as needed basis.

Communications work in the visiting drivers space, both reactive and proactive, was continuing.

The project had reached a point where many lessons from Visiting Drivers were rolled out nationally, including some of the collateral in the rental car industry, and approaches adopted by police. From NZTA's perspective, there were resource constraints in the organisation and new priorities to respond to, which ultimately meant a reprioritisation of NZTA resource support for the project.

However, for many stakeholders, the project was experienced as simply stopping. There were concerns regarding the loss of the people as key contacts across the programme, having all partners on the same page when issues do occur, and what appeared to be a very well-functioning structure. The ending of the working group was thought by one as signalling there are no more new initiatives that need to be undertaken.

*"The governance group decided to scale back, but it was hard to see the reasons why. It concerned me that it sent a signal about this issue, having invested a lot in the project."*

*"The job is not complete. The project needs to continue to ensure any benefits are not lost if the expectation is now that it is business as usual. The relationships need to keep being fed to survive."*

One stakeholder thought that a strength of the programme is that people understood that it wasn't just about visiting drivers on the road, it was about the tourism experience. The risk of business as usual was losing some of the strength and relationships that helped solve a lot of problems informally.

*"All I have observed is a loss of the people that I had as key contacts, as places to go to in what appeared to be a very well functioning structure."*

A further concern was that while the industry code of practice significantly changed activity in 80% of the fleet, in the past few years new medium-sized entrants have emerged, who have not been part of the conversation and who haven't bought into the code.

## Communities of practice

Communities of practice are proposed by Etienne Wenger as the basic building blocks of a social learning system (Wenger 2000). Wenger suggests that belonging in a community of practice can be characterised by three modes:

- Engagement, such as the doing of things together such as talking, participating in meetings, creating products
- Imagination, which is about the identity that people construct of themselves, as members of a community, to reflect and act on situations as they unfold
- Alignment, which relates to making sure the activities of the community are sufficiently linked or aligned to other processes so that they can be effective beyond engagement in a particular community of practice (Wenger 2000).

Wenger describes a community of practice as a “learning partnership among people who find it useful to learn from and with each other about a particular domain. They use each other’s experience of practice as a learning resource. And they join forces in making sense of and addressing challenges they face individually or collectively” (Wenger et al 2011).

Visiting Drivers clearly showed features that aligned with communities of practice, which in turn supported project outcomes. Governance and working groups came to operate very much as communities of practice, creating a shared identity for those participating in the group, and a range of value across the continuum from immediate to transformative value.

However, the loss of the Visiting Drivers working group – the community of practice – is likely to be significant for the ongoing traction and spread of learning from the project. The strategic value of the project was high in the early days, given the political context and interest. This strategic value has clearly waned over time to a point where Visiting Drivers is struggling to maintain clarity around its identity and purpose; this has been further exacerbated with the restructuring within NZTA.

### People-centred approaches

People-centred approaches seek to understand an issue from the perspectives of those using the system. Such approaches involve and value citizens’ participation and input, and provide a greater understanding of the various needs and factors influencing people’s behaviours and decisions. They compel organisations to take a much broader, collaborative, and inclusive view of who needs to be part of the process of co-creating initiatives that will actually work in the real world (Bason 2013).

Visiting Drivers considered key elements of the visitor experience covering phases of planning and booking, in-flight, arrival and travel within New Zealand to identify points where key messages could be communicated. Through working collaboratively and understanding the challenges visitors face on New Zealand roads, project partners adapted their service delivery within New Zealand to support a safe and enjoyable visitor experience. Available data from Visiting Drivers indicates that the visitor journey remains positive and that safety appears to have been at least maintained. This has also benefited the rental car industry through fewer vehicle crashes.

### Reframing risks

Innovative methods and processes frequently rely on changes or modifications to previous approaches and ways of thinking. Making it more likely that innovation can occur within an organisation is dependent upon the systems and processes in place, the opportunities for “out-of-the-box” thinking, and a supportive environment that fosters innovative approaches and enables learning from both the achievements and challenges (or successes and failures). The public sector’s aversion to risk and risk-taking (associated with adopting new approaches and ways of thinking) is repeatedly cited as a barrier to innovation within this sector – for if an organisation (employees to management) is not receptive to change, then new or innovative practices will fail to gain and maintain traction in the long term (Yee & White 2016).

In a literature review prepared for the Signature Programme (Davies et al 2017), we identified three key mechanisms for reducing perceptions of risk:

- Reframing or redefining the ‘problem’, by looking at issues in different ways so that new approaches can be fostered; the Vision Zero policy is an exemplar of this approach (Belin et al 2012)
- Prototyping, to allow ideas and designs for an ‘imagined future’ to be tested at relatively low cost and at lower risk (Donovan & Gunn 2012, Yee & White 2016)
- Embracing failure, recognising that a system that learns and innovates requires a willingness to tolerate failure, and the ability to deal with failure quickly (New Zealand Productivity Commission 2015).

For Visiting Drivers, a key shift in understanding and practice was in acknowledging that different partners could bring their varying expertise and resources together to make a viable and sustainable change occur. Key to this was recognition that although different partners had different motivations, all ultimately wanted the same solution of a safe and enjoyable visitor experience. So instead of the issue being limited to a ‘road safety problem’ it was reframed to be a wider New Zealand tourism issue. This enabled shifts in practice across all partners. Reframing was a mechanism that opened the door for new collaborative partnerships which helped to adapt previously siloed activity, and allow for road safety messages to be dispersed more widely.

## 5. Conclusions

In many respects, Visiting Drivers is an exemplar of successful collaborative practice. The project built a well-functioning community of practice that embedded collaborative working. This laid the groundwork for changes in systems and processes, and challenge existing models of delivery.

Collaborative partnerships within Visiting Drivers brought in new ways of thinking and approaches, and reduced a range of risks for partners by sharing ownership of issues and solutions. The project also created an environment for information sharing, reflection and adaption of thinking and practice.

The project demonstrates how different elements of the safe system approach can be applied locally, and that these can flow through into some regional and national-level changes.

The number of deaths and serious injuries among Visiting Drivers have remained relatively stable despite a sustained increase in tourism volumes. Although it is too soon to definitively establish if the project has delivered reductions in deaths and serious injuries (and may well be impossible to conclusively attribute), the available evidence indicates that the interventions taken by Visiting Drivers are supportive of this outcome.

Key success factors for the project included the following:

- Common purpose and shared ownership, where each sees the role they bring
- Leadership to drive change and hold the course across partners; with supportive governance structures for collaboration, and flexibility when multiple agencies are involved
- Clear structures, processes, and coordination roles
- Building respect and trust, built on a willingness of all partners to come together, bring something to the table, and adapt delivery.

Visiting Drivers engaged comprehensively with the visitor journey and implemented approaches that equipped people with the knowledge, and supportive safe driving environment, that allows safe interaction with their surroundings.

A challenge for the initiative will be its transition to business as usual, which may ultimately affect whether the achievements to date can be sustained. There was concern voiced by many partners that the gains and momentum achieved could be lost.

## Appendix 1: Safe system framework

Underpinning the Signature Programme is the Safe System approach, represented in Figure 9 below. This provides a platform for continuous improvement and innovation in improving road safety. The framework has widespread international support and is consistent with leading road safety thinking.

A driver of the Signature Programme was that while specific effort has gone into embedding the Safe System approach into New Zealand's road safety systems, there are still many areas of everyday practice that do not reflect the Safe System approach. The Signature Programme was intended to showcase how aspects of the Safe System approach could be implemented through innovative demonstration projects.

Four key principles underlie the Safe System approach adopted in New Zealand:

- Human fallibility: People make mistakes and crashes are inevitable.
- Human vulnerability: The human body has a limited ability to withstand crash forces without being seriously injured or killed.
- Shared responsibility: Road system designers and road users must all share responsibility for managing crash forces to a level that does not result in death or serious injury.
- All of system approach: It will take a whole-of-system approach to implement the Safe System in New Zealand and all elements of the system need to be strengthened. As shown in Figure 9 below, this includes roads and roadsides, speeds, vehicles, and road use – so that if one part fails, other parts will still protect the people involved.

Figure 9: Safe System framework



## Appendix 2: Signature Programme evaluation rubric

	Collaborative practice	System change	Culture change	Life and limb
<p><b>Te Puāwai (the flower):</b> Achieving long-term outcomes</p> 	<p>The Signature Programme fosters collaborative practice at an inter-agency level, above and beyond the individual projects. Relevant organizations are collaborating deeply, systematically, and effectively, on safe system enhancements</p>	<p>Signature Programme has contributed to national partners adopting and embedding safe system principles as part of business-as-usual (e.g., understand value of investing in a safe system; changing funding criteria and processes to enable this investment).</p>	<p>Signature Programme has contributed to demonstrating the benefit of a safe road system to the public, reframing the road safety conversation, and sector acceptance that deaths do not have to be inevitable.</p>	<p>Attributable reduction in very serious injuries and/or deaths to a sufficient extent that a positive ROI can be confidently projected for the Programme overall.</p>
<p><b>Te Puanga (the bud):</b> Achieving medium-term outcomes</p> 	<p>Through the Signature Programme, partners (local and/or national) are expanding their field of influence and/or seeking new partners.</p>	<p>Significant uptake and/or adaptation of successful interventions; and/or</p> <p>Agencies are working to embed learnings from successes and failures; and/or</p> <p>Innovative aspects pioneered through the Signature Programme are adopted more widely as part of business as usual (including but not limited to 'just-do-its').</p>	<p>The Signature Programme is demonstrating the benefit of a safe road system to programme stakeholders and contributing to re-framing the road safety conversation with those stakeholders; and reprioritising safety-oriented investments.</p>	<p>Identifiable reduction in absolute or relative risk of serious injuries, traumatic injuries and/or deaths (and/or relevant markers, such as crashes or changes in systemic, organisational or individual behaviours).</p>

<p><b>Te Pihanga (the shoot): Achieving short-term outcomes</b></p> 	<p>Through the Signature Programme, partners (local and national) demonstrate successful cross-agency, cross-sectoral collaboration in different contexts to address a range of issues (e.g., working effectively with shared objectives, mutually reinforcing activities, recognizing different perspectives, agendas and areas of expertise, leveraging resources and participation)</p>	<p>The projects are a fertile environment for innovation and adaptation, and lessons learned are challenging inconsistencies within the system and/or influencing action within the system.</p> <p>Actions not requiring regulatory change, appropriations ('just-do-its') are being implemented more widely.</p>	<p>The Signature Programme is demonstrating how partners can successfully apply the safe system approach to addressing road safety issues (note that while some elements of the safe system approach can be applied locally, others would involve national-level policy changes).</p>	<p>Identifiable systemic changes have been implemented which, on the basis of existing evidence, are expected to lead to a reduction in absolute or relative risk of serious injuries, traumatic injuries and/or deaths.</p>
<p><b>Te Kākano (the seed): Application of knowledge and understanding</b></p>	<p>Commitment to a common agenda including a shared understanding of the problem, a joint approach to solving it, co-investment of time and/or resources, shared problem solving. Shared measurement of results to ensure efforts remain aligned and providers hold each other accountable.</p>	<p>Projects are applying safe system principles (note that while individual projects might not reflect every pillar, collectively these are reflected for the Signature Programme as a whole).</p> <p>Learnings are identified and disseminated.</p>	<p>The projects understand what they are doing and why. They are implementing the Safe System approach and principles and beginning to re-frame the road safety conversation at project level.</p> <p>The projects are demonstrating a culture of continuous improvement.</p>	



**Te Tāpapa (seed bed): Building knowledge, understanding, acceptance**



**Whenua whai hua (fertile ground): Laying the**

Partners (local and national) agree on who the willing leaders are; understand the different capabilities and capacities of different partners and how they can contribute to projects in mutually reinforcing ways. Dedicated staff and skills provide backbone support to coordinate the project.

Projects are building knowledge, understanding and acceptance of safe system principles.

The Signature Programme is helping the projects to understand what they are doing and why – i.e., the programme is guiding implementation of the Safe System approach and principles with a view to re-framing the road safety conversation.

The Signature Programme is supporting a culture of continuous improvement (e.g., a safe environment to try new things and new processes, opportunity to succeed or fail, testing and learning what we should and shouldn't do again).

Partners (local and national) develop relationships, trust, communications and information sharing conducive to building trust, mutual objectives and common motivation; a safe environment

Projects were initiated.  
If any failed, learnings were identified and disseminated.

foundations



to have frank conversations;  
emergent success in  
demonstrating collaborative  
practice.

Ineffective  
(programme  
failure)

Any of the conditions at the 'Whenua whai  
hua' level not met.

## Appendix 3: Detailed road safety outcomes analysis

### Introduction

This report summarises empirical analysis of the estimated impacts of the Visiting Drivers Project on road crashes in New Zealand. The project was introduced in 2015 and its main aspects were targeted at international visitors to three geographic regions: Otago, Southland, and the West Coast. For this analysis, crashes in the period from 2011 to 2014 are used as the pre-implementation baseline, and crashes in 2016 to 2017 are used to measure post-implementation outcomes, while crashes in the implementation year (2015) are excluded from the analysis.

The total number of short-term international visitors to New Zealand increased from 2.6 million in 2011 to 3.7 million in 2017 (44%).<sup>2</sup> Everything else equal, it is expected that more visitors to New Zealand will result in more crashes involving visiting drivers. Accordingly, the estimates of the safety impacts of the Visiting Drivers Project in this report are based on crash rates that adjust for the number of international visitors (i.e. crashes per million visitors per year). However, the cost of crashes depends on the absolute number of crashes rather than the crash rate, and for the purpose of economic analysis, impacts of the project on the annual number of crashes is calculated from the crash rates under assumptions about the number of visitors per year.

### Empirical methods

The empirical methods used for this analysis were designed to estimate the impacts of the Visiting Drivers Project in the three target regions relative to a counterfactual of the absence of the project, during 2016 and 2017. Impacts were measured in terms of crash rates (i.e. crashes per million visitors per year), the total number of crashes per year, and total economic costs per year associated with these crashes. Since counterfactual outcomes were not observed, empirical methods were used to estimate these outcomes. This was done by using non-target regions as a control group to crash rates for visiting drivers in the target regions in the counterfactual.

Specifically, to test whether changes over time in crash rates in the target regions could be attributed to the Visiting Drivers Project or were due to general trends in crash rates (as measured by crash rates in non-target regions) and/or due to random chance, we estimated Poisson regression models that explained the visiting driver crash rate in each region and each year as a function of the following variables:<sup>3</sup>

- *Target region*: An indicator of whether or not the region was one of the three Visiting Drivers target regions. This variable picks up the overall difference in crash rates in the target regions versus other regions.
- *Intervention period*: An indicator for years when the Visiting Drivers Project was active (i.e. 2016 and 2017). This variable picks up the overall difference in crash rates in the post-intervention period compared to the pre-intervention period across all regions and captures the general effects of road safety trends over time. However, it should be noted that some of the state highway improvements that were part of the project were not completed by the end of 2017 and will not be reflected in this analysis.
- *Target region x Intervention period*: An interaction between the two indicators described above. This variable represents the overall combined difference in crash rates in the target regions when the

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<sup>2</sup> Figures obtained from Statistics New Zealand. Short-term visitors are defined as those staying in New Zealand for less than 12 months continuously.

<sup>3</sup> Poisson regression models of the number of crashes in each region and year were estimated with the number of visitors to that region in that year as an offset variable, i.e. the models predict annual crash rates per visitor.

Visiting Drivers Project was active, i.e. it is the estimated effect of the project on crash rates in the regions where it was implemented, relative to what those crash rates would have been without the project.

- *Region-specific indicators*: A set of indicators for the geographic regions. These variables capture differences in crash rates across geographic regions due to the different characteristics of those regions, e.g. whether they are mainly urban or rural, and the types of roads in each region.

These models were estimated using a panel dataset of all combinations of the 14 regions and all years between 2011 and 2017 (excluding 2015), i.e. 84 observations in total. These “difference-in-differences” type models essentially assume that the change in the crash rate between the pre- and post-intervention periods observed for the control regions can be used to estimate a counterfactual for the crash rate in the target regions in the post-intervention period if the Visiting Drivers Project had not been implemented.<sup>4</sup> This estimated counterfactual allows estimation of the impact of the Visiting Drivers Project in the target regions as distinct from changes in crash rates that were due to general trends in crash rates for visiting drivers, based on the trends observed in non-target regions.

The estimated regression models predict the impact of the Visiting Drivers Project on crash rates involving visiting drivers. The models were also used to predict the impact of the project on the annual number of crashes involving visiting drivers in 2016 and 2017, based on the actual number of visitors to New Zealand in those years. The estimated impacts on the annual number of crashes were translated into economic costs using assumptions about the average cost saved per prevented crash.

## Data sources

### *Number of international visitors to New Zealand regions*

Counts of the annual number of international visitors to each of 14 geographic regions was obtained from Statistics New Zealand’s International Visitor Survey.<sup>5</sup> Figure 10 shows the annual number of international visitors to the three target regions combined and all other regions combined.<sup>6</sup> Between 2011 and 2017, the number of international visitor visits to the target regions increased by 93% while the number of international visitor visits to all other regions increased by 65%. In both cases, most of the increase in the number of visits occurred after 2013.

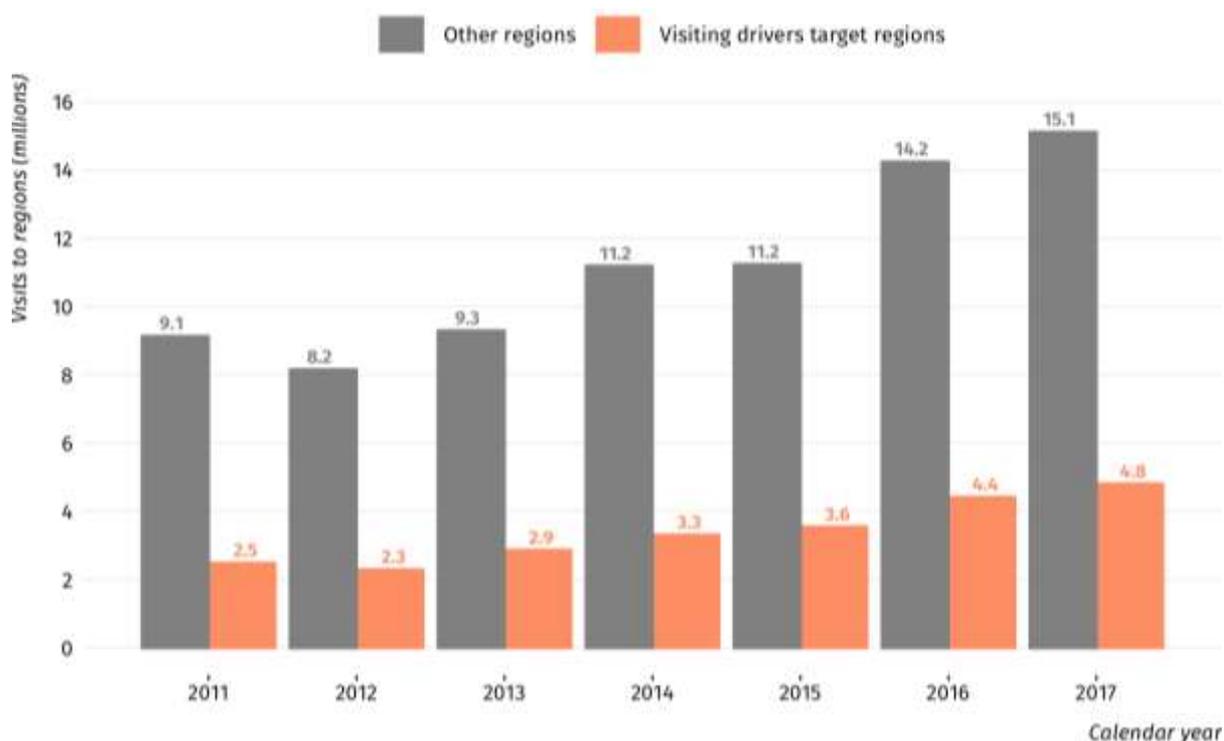
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<sup>4</sup> “Difference-in-differences” (DiD) is a widely-used and relatively robust technique for evaluating the impacts of an intervention on outcomes for a “treatment” group relative to a “control” group when treatment is not randomly assigned. A useful guide to DiD is provided in the World Bank’s *Impact Evaluation in Practice*, available at <http://www.worldbank.org/en/programs/sief-trust-fund/publication/impact-evaluation-in-practice>.

<sup>5</sup> The 14 regions correspond to the 16 regional council areas with Tasman/Nelson/Marlborough as a combined region. This reflects the disaggregation of visitors to regions in the International Visitor Survey.

<sup>6</sup> In constructing this figure, the annual number of visitors to regions in these two groups have been added, e.g. the annual number of visitors to the Visiting Drivers target regions is the sum of the annual number of visitors to Otago, Southland, and the West Coast.

Figure 10: Annual number of international visitor visits to regions within the target regions and all other regions combined.



Source: Statistics New Zealand International Visitor Survey

#### Crashes involving visiting drivers

Data on road crash involvements of visiting drivers was obtained from NZTA's Crash Analysis System (CAS). Data in CAS is sourced from crash reports that are created by Police officers attending crashes or soon afterwards. This data records whether the driver(s) involved in each crash held a New Zealand or an overseas driver licence, but in many cases whether or not the driver was a short-term visitor to New Zealand is not recorded. Accordingly, the analysis that follows is based on two alternative definitions of visiting drivers:

1. All crashes involving drivers on overseas licences. This probably over-counts the number of crashes involving short-term visitors, as it may include some recent migrants who have not yet converted to New Zealand licences.
2. Crashes involving drivers on overseas licences recorded as visitors in the CAS data. This probably under-counts the number of crashes involving short-term visitors, as for around 20% of crash involvements the visitor status of the driver is not recorded.

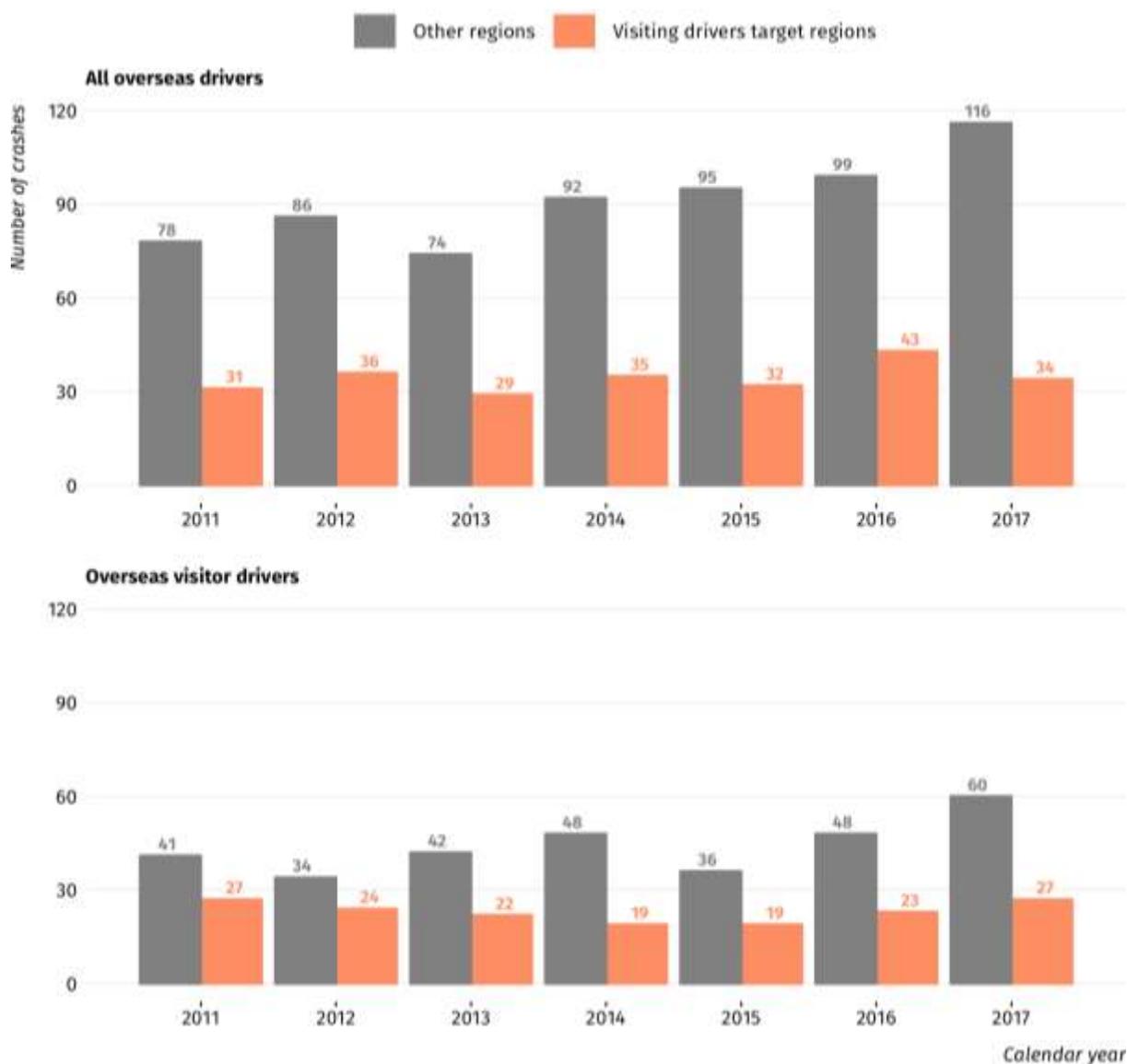
The analysis that follows is based only on involvements of visiting drivers in *fatal and serious* crashes.<sup>7</sup> This is because other (non-injury) crashes are known to be under-reported. To the extent that the Visiting Drivers Project had an effect on fatal and serious crashes, it is also likely to have affected non-injury crashes, and the overall effects of the project on road safety are likely to be greater than the estimated impacts on fatal and serious crashes.

Figure 11 shows the annual number of crashes in the target regions combined and all other regions combined, under the two alternative definitions of visiting drivers above. Between 2011 and 2017:

<sup>7</sup> Serious crashes are typically where at least one person required medical treatment as a result of the crash.

- The number of crashes involving all drivers on overseas licences in the target regions fluctuated in a range between 29 to 43 crashes per year, while in other regions the number of crashes increased from 78 to 116 (49%), with all of this increase occurring after 2013.
- The number of crashes involving visitors on overseas licences in the target regions fluctuated in a range between 19 to 27 crashes per year, while in other regions the number of crashes increased from 41 to 60 (46%), with all of this increase occurring after 2013.

Figure 11 Annual fatal and serious crashes involving drivers on overseas licences.



Source: NZTA CAS data

### *Other data sources investigated*

Two additional data sources were investigated to try to broaden the analysis of road safety outcomes for visiting drivers:

- ACC claims relating to road traffic accidents by visitors to New Zealand: The time-series claims data provided by ACC showed some unexplained large changes in the number of claims over time, which are likely due to data quality issues, e.g. changes in recording and/or reporting of such claims over time. This data was determined to be too unreliable to use for analysis.
- Data on rental vehicle accident costs: The New Zealand Rental Vehicle Association (RVA) was given an opportunity to contribute to this study by providing information about the direct costs of its members due to accidents involving vehicles hired by visiting drivers. As noted above, non-injury crashes are under-reported in the CAS data and it was expected that RVA members would have better information about such crashes, to the extent that these translate into rental vehicle repair and write-off costs. However, RVA members declined to provide data for this study.

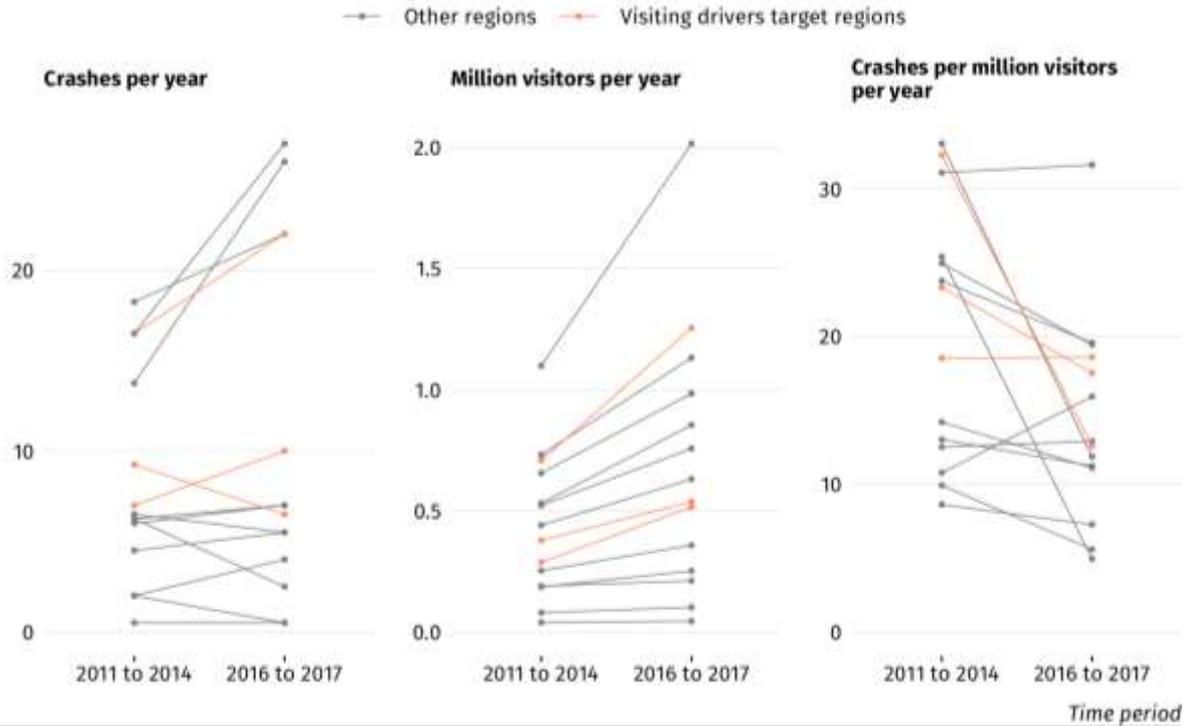
### **Road safety analysis**

From Figure 10 and Figure 11 above it appears that in non-target regions the increase in the number of international visitors after 2013 was associated with an increase in the number of crashes involving visitors to these regions (under both definitions of visiting drivers). In the target regions, the relationship is less clear — the number of visitors increased each year between 2012 and 2017 but the number of crashes involving visitors to these regions fluctuated without a clear trend.

Figure 12 and Figure 13 show the number of crashes per year, number of visitors per year, and crash rate for all overseas drivers and overseas visitor drivers respectively, in the combined periods from 2011 to 2014 and 2016 to 2017. This shows that crash rates in the target regions are relatively high compared to many other regions. Comparing the two time periods, in most regions the number of crashes per year increased, and the number of visitors per year increased in all regions. In terms of changes in the corresponding crash rates:

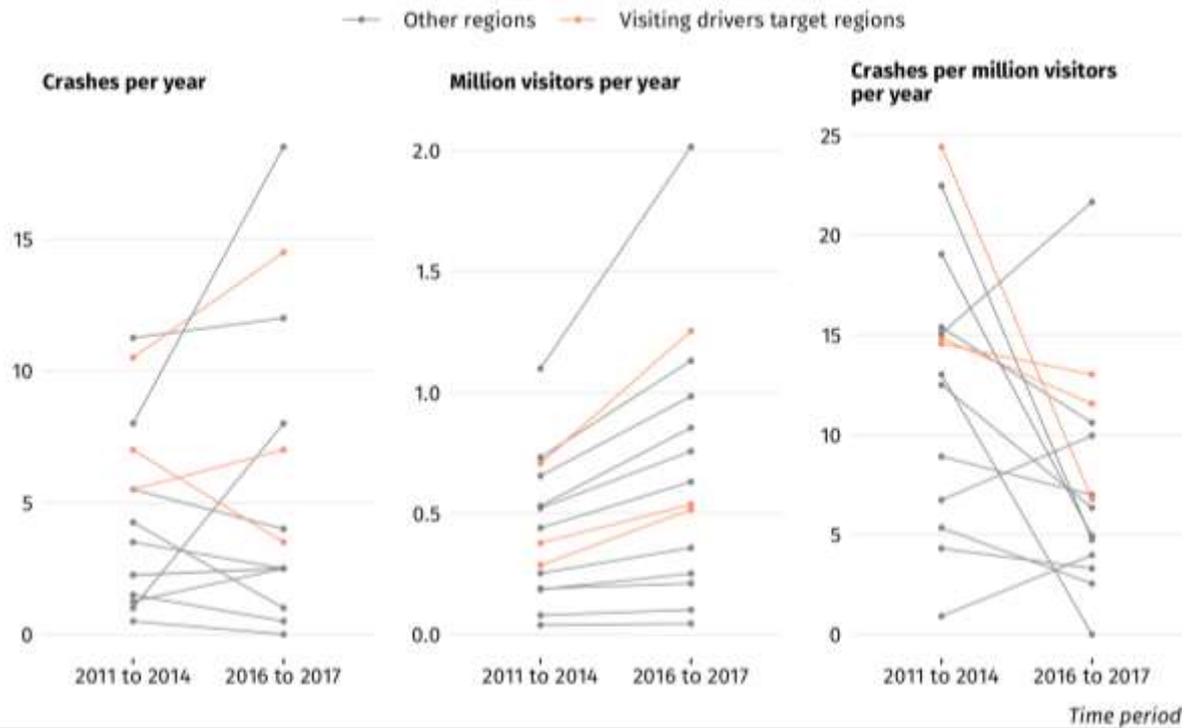
- The crash rate for all drivers on overseas licences decreased in two target regions and marginally increased in one region. Across all other regions, this crash rate decreased in eight regions and increased in three regions.
- The crash rate for visitors on overseas licences decreased in all three target regions. Across all other regions, this crash rate decreased in eight regions and increased in three regions.

Figure 12: Crashes involving drivers on overseas licences in the period before and after the Visiting Drivers Project.



Source: Calculated from NZTA and Statistics New Zealand data

Figure 13 Crashes involving visitors driving on overseas licences in the period before and after the Visiting Drivers Project.



Source: Calculated from NZTA and Statistics New Zealand data

The above analysis suggests that, comparing crash rates between the pre- (2011 to 2014) and post- (2016 to 2017) Visiting Drivers Project periods, crash rates generally reduced in the target regions, but since crash rates also reduced in many non-target regions, it is not clear whether these reductions can be attributed to the project.

The estimated crash rate ratios from the regression model of all crashes involving drivers on overseas licences are shown in Table 2. These show the multiplicative effect of the relevant variable on the visiting driver crash rate in a region, i.e. a crash rate ratio of one implies no effect, a ratio greater than one implies an increase in the crash rate, and a ratio less than one implies a reduction in the crash rate. These results show that for all crashes involving drivers on overseas licences:

- The Visiting Drivers Project was associated with an 18% reduction in the crash rate in target regions relative to what the crash rate would have been without the project, but we cannot be very confident that this difference is not due to random variation in crash rates from year to year (p-value 0.25, 95% confidence range from 41% lower to 14% higher).
- Crash rates in the target regions are around 2.5 times higher than in other regions on average. Thus, the Visiting Drivers Project was applied in regions with relatively high crash rates.
- Crash rates across all regions in the post-intervention period were around 26% lower than in the pre-intervention period. To some extent this may reflect aspects of the Visiting Drivers Project that were implemented nationally, e.g. information about driving in New Zealand provided to all visitors prior to arrival and on rental vehicle collection. However, it is likely that other factors affected crash rates of visiting drivers over the same period time, and it is not possible to determine the extent to which this overall reduction in crash rates can be attributed to the Visiting Drivers Project directly.
- Crash rates vary considerably across regions and are relatively high in Auckland, Canterbury, Manawatu-Whanganui, Tasman/Nelson/Marlborough, Northland, Taranaki, and Waikato.

Table 2: Estimated crash rate ratios from a model of crashes involving all drivers on overseas licences in each region and each year.

Variable	Crash rate ratio	p-value
Target region x Intervention period	0.82	0.25
Target region	2.47	0.00
Intervention period	0.84	0.05
Auckland	1.59	0.03
Bay of Plenty	1.00	0.99
Canterbury	2.81	0.00
Gisborne	1.52	0.49
Hawke's Bay	1.59	0.14
Manawatu-Whanganui	3.13	0.00
Tasman/Nelson/Marlborough	1.60	0.05
Northland	2.73	0.00
Otago	1.13	0.58
Southland	1.26	0.25
Taranaki	2.15	0.04
Waikato	3.91	0.00

Crash rate ratios from a similar model of crashes involving visitors on overseas licences are shown in Table 3. These results show:

- The Visiting Drivers Project was associated with a 26% reduction in the crash rate in target regions relative to what the crash rate would have been without the project, but we cannot be very confident that this difference is not due to random variation in crash rates from year to year (p-value 0.16, 95% confidence range from 52% lower to 13% higher).

- Overall crash rates in the target regions are nearly four times higher than in other regions on average. Again, this suggests that the Visiting Drivers Project was applied in regions with relatively high crash rates.
- Overall crash rates (across all regions) in the post-intervention period were around 13% lower than in the pre-intervention period, but we cannot be very confident that this difference is not due to random variation in crash rates from year to year (p-value 0.27).
- Crash rates vary across regions and are relatively low in Auckland and relatively high in Canterbury, Hawke’s Bay, Manawatu-Whanganui, Tasman/Nelson/Marlborough, Northland, Taranaki, and Waikato.

Table 3: Estimated crash rate ratios from a model of crashes involving visitors on overseas licences in each region and each year.

Variable	Crash rate ratio	p-value
Target region x Intervention period	0.74	0.16
Target region	3.98	0.00
Intervention period	0.87	0.27
Auckland	0.62	0.16
Bay of Plenty	1.07	0.85
Canterbury	3.43	0.00
Gisborne	2.11	0.32
Hawke’s Bay	2.06	0.08
Manawatu-Whanganui	4.12	0.00
Tasman/Nelson/Marlborough	2.55	0.00
Northland	2.09	0.05
Otago	0.98	0.91
Southland	1.18	0.48
Taranaki	3.47	0.01
Waikato	4.65	0.00

Overall, these results suggest that the Visiting Drivers Project may have reduced crash rates in the target regions, but at this stage we cannot be very confident that the observed differences in crash rates are not due to random variation in crashes from year to year.

Figure 5 above showed the results of using the two models above to estimate the difference in the annual number of crashes involving visiting drivers in the target regions in the post-intervention period with and without the Visiting Drivers Project, with 95% confidence bands.<sup>8</sup> The project is estimated to have been associated with a reduction of around eight to nine crashes per year in the target regions, although as shown there is relatively high uncertainty associated with these estimates and, in both cases, it is possible that the project had no effect.

### Economic impacts

The Ministry of Transport publishes estimates of the monetary and social costs of fatal and serious crashes. The latest estimates are shown in Table 4 and correspond to an average cost of just under \$5 million per fatal crash and just over \$0.5 million per serious crash.<sup>9</sup> Around 99% of the cost of a fatal crash and 94% of the cost

<sup>8</sup> Confidence bands in Figure 5 were calculated using the bootstrap method to simulate a large number of post-intervention outcomes in the target regions with and without the Visiting Drivers Project and reflect the 2.5<sup>th</sup> and 97.5<sup>th</sup> percentiles of the differences in the simulated number of crashes.

<sup>9</sup> *Social cost of road crashes and injuries 2017 update*, Ministry of Transport, December 2017.

of a serious crash is the estimated value of the harm experienced by the people involved in the crash (e.g. value of lost life and disability). The remainder of the costs are monetary costs associated with medical treatment, legal processes, and vehicle damage.

**Table 4: Average social cost per crash.**

Cost component	Per fatal crash (2017 \$)	Per serious crash (2017 \$)
Loss of life / permanent disability	4,865,300	482,000
Loss of output (temporary disability)	700	1,900
Medical	13,600	17,100
Legal and court	24,200	4,500
Vehicle damage	12,000	7,500
<b>Total</b>	<b>4,915,900</b>	<b>513,000</b>

Source: Ministry of Transport.

From a policy perspective, it is not clear whether the full social costs of prevented crashes should be attributed to the Visiting Drivers Project. Some of these costs are borne by visitors to New Zealand, and New Zealand policy is usually aimed at maximising the welfare of New Zealand citizens and/or residents. However, some of the crashes involving visiting drivers will also involve New Zealand residents. In addition, the intention of the Visiting Drivers Project was to “improve road safety for, and of, visiting drivers, while maintaining New Zealand’s reputation as an attractive and safe tourist destination”. This suggests that costs borne by visitors to New Zealand may be relevant to evaluating the project, to the extent that such costs affect New Zealand’s reputation among international visitors.

Given this ambiguity about the appropriate treatment of crash costs, the costs of prevented crashes that may be attributable to the Visiting Drivers Project have been estimated in two alternative ways:

1. Using only the monetary costs per crash listed in Table 4, i.e. \$49,800 per fatal crash and \$29,100 per serious crash.
2. Using the full social costs per crash, i.e. \$4,915,900 per fatal crash and \$513,000 per serious crash.

The CAS data used for the analysis summarised in section 0 indicates that around 85% of the fatal and serious crashes involving visiting drivers were serious, and the remaining 15% were fatal. This implies a weighted average monetary cost per crash of around \$32,000 and a weighted average total social cost per crash of around \$1.2 million.

Under these assumptions, Table 5 shows the estimated average reduction in crash costs per year that could be attributable to the Visiting Drivers Project, assuming the expected changes in the number of crashes per year as shown in Figure 5 above. Given that the estimated effects of the project are relatively uncertain, there is also high uncertainty associated with these estimates of cost reductions.

**Table 5: Estimated average reduction in crash costs per year in the target regions.**

Crash type	Reduction in monetary costs per year	Reduction in full social costs per year
Crashes involving overseas visitor drivers	\$283,000	\$10.5m
Crashes involving all overseas drivers	\$266,000	\$10.6m

## Appendix 4: International Visitor Survey findings 2016/17

As part of the development of the State Highway safety improvement programme the Transport Agency surveyed visiting driver experiences in different locations in the intervention areas. The first surveys were conducted in 2016 and the intention was for these to continue into future years. The tables and graphs below present currently baseline data from these surveys and targets for each KPI.

### Driver experience in intervention areas, 2016

KPI	Southland		Otago		West Coast	
	Baseline 2011-2015	Target 2017- 2021	Baseline 2011-2015	Target 2017- 2021	Baseline 2011-2015	Target 2017- 2021
<b>Deaths and Serious Injury crashes per 100m vkt:</b>	4.96	4.47	3.52	3.17	<b>6.36</b>	<b>5.72</b>
<b>User satisfaction (measured by annual surveys):</b>	Baseline Mar2016	Target	Baseline Mar2016	Target	Baseline Mar2016	Target
Percentage of <i>overseas</i> participants believe the region's roads to be safe to very safe prior to arrival	84%	≥84%	97%	≥97%	96%	≥96%
Percentage of <i>domestic</i> visitor participants believe the region's roads to be safe to very safe prior to arrival	90%	≥90%	88%	≥88%	89%	≥89%
Percentage of <i>overseas</i> participants feel the region's roads are safe to very safe to drive	94%	≥94%	93%	≥93%	96%	≥96%
Percentage of <i>domestic</i> visitor participants feel the region's roads are safe to very safe to drive	92%	≥92%	80%	≥80%	94%	≥94%

Source: Otago West Coast Southland NZTA Baseline Driver Intercept Survey (Opus Consulting, 2016)

### Suggested safety improvements to routes in intervention areas, 2016

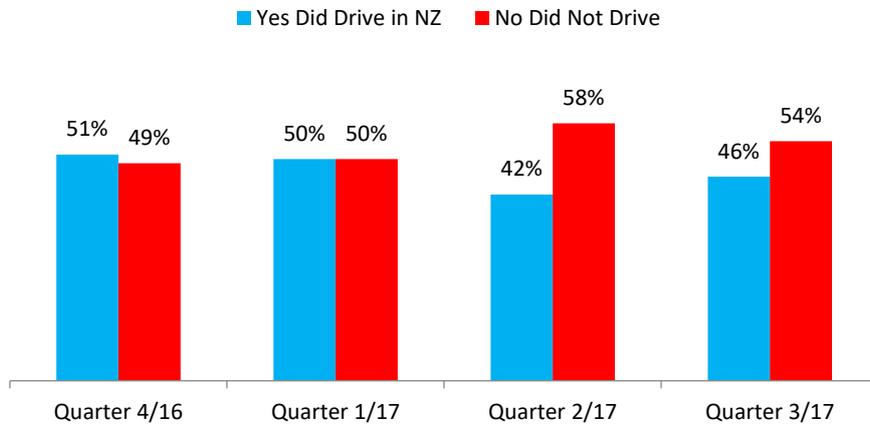
Suggested safety improvement	Overseas visitors	Non-Local New Zealanders	Locals
More overtaking opportunities	9.4	19.0	23.1
More stopping places	5.7	4.8	3.8
Wider road shoulders	8.2	4.8	3.8
Review speed limit downwards	3.3	3.2	7.7
Reduce number of corners	1.2	6.3	0.0
More crash barriers	2.9	0.0	0.0
Smoother improved road surface	5.3	4.8	3.8
Reduce number of one lane bridges	3.7	3.2	0.0
More signage	6.9	1.6	7.7
More arrows	0.4	4.8	0.0
Other road user behaviour	2.0	4.8	11.5
Homer tunnel improvements	1.2	1.6	0.0
Road design and maintenance	2.0	4.8	19.2
Nothing required/no suggestion	45.3	31.7	11.5
Other	2.4	4.8	7.7

Source: Otago West Coast Southland NZTA Baseline Driver Intercept Survey (Opus Consulting, 2016)

MBIE's International Visitor Survey provides quarterly national information on the expenditure of international visitors to New Zealand, as well as their behaviours and characteristics. In 2016 questions about

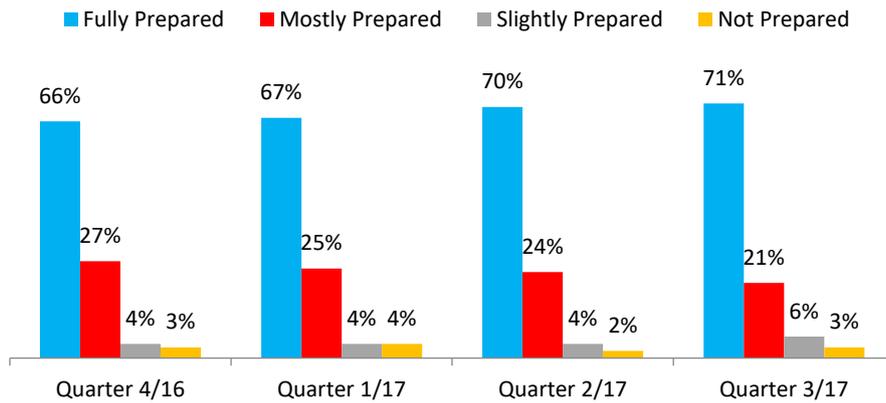
visitors driving in New Zealand were added to the survey. The following tables show the responses to these four questions.

### Drove motor vehicle while in New Zealand

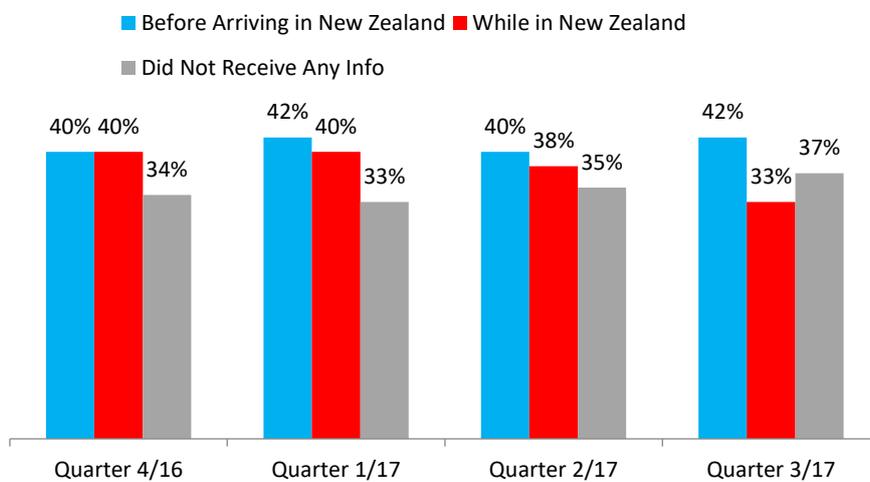


The increase to 58 in Quarter 2 2017 is significantly higher than the prior quarter

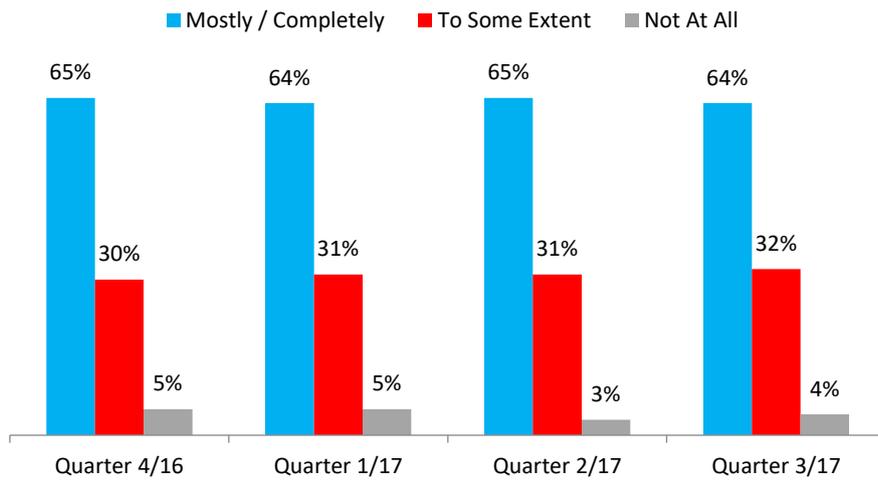
### How prepared for driving in New Zealand



### Received information about driving in New Zealand



### Did information received prepare you for driving in NZ



Source: MBIE International Visitor Survey 2016/17

## Appendix 5: Communications workstream delivery

The tables below detail the range of communications activity undertaken over 2015 to 2017 (New Zealand Transport Agency 2017).

Communications objective	Measurement	Delivery as at December 2017
<i>Contribute to improving the safety of visiting and domestic drivers</i>	<i>Overall Project evaluation</i>	<i>In progress.</i>
<b>Provide</b> international visiting drivers with clear information at all parts of the tourism supply chain (planning, booking, in-flight, arrival, and when self-driving in New Zealand)	Measure 'outputs' delivered to international visiting drivers via partners:	
	<b>Number of visits on relevant websites:</b>	
	<ul style="list-style-type: none"> <li>newzealand.com driving pages (Tourism NZ)</li> </ul>	2015: <b>71,454</b> 2016: <b>421,252</b> 2017: <b>514,300</b>
	<ul style="list-style-type: none"> <li>drivesafe.org.nz (TIA)</li> </ul>	19 Jan – 4 Aug 2015: <b>22,306</b> 1 Sept 2015 – 30 Apr 2016: <b>46,700</b> 1 May 2016 – 31 December 2016: <b>57,959</b> 1 Jan 2017 – 31 December 2017: <b>90,456</b> 1 Jan 2018 – 30 June 2018: <b>43,177</b>
	<ul style="list-style-type: none"> <li>Visiting driver training programme (AA)</li> </ul>	<ul style="list-style-type: none"> <li>From launch in Nov 2015 to July 2018 213,154 total unique visitors; broken down into the following:               <ul style="list-style-type: none"> <li>2016 108,865</li> <li>2017 102,769</li> <li>2018 74,422</li> </ul> </li> <li>Visitor numbers have been generally consistent since launching the programme, averaging around 1,500 visitors per week.</li> <li>The highest numbers have been recorded each year in January (with Jan/Feb/Mar 2018 being the strongest summer period).</li> <li>The lowest numbers have consistently been recorded in Apr/May/June each year.</li> <li>On average 33% of the people who start the programme complete the full 15 questions.</li> </ul>
	<b>Number of other materials distributed:</b>	
	<ul style="list-style-type: none"> <li>'Driving in NZ' booklets ordered (NZTA)</li> </ul>	2014: <b>76,325</b> 2015: <b>182,825</b> 2016: <b>176,475</b> 2017: <b>207,700</b>
<ul style="list-style-type: none"> <li>'keep left' stickers (NZTA)</li> </ul>	2014: <b>2,895</b> 2015: <b>33,170</b> 2016: <b>34,300</b> 2017: <b>35,060</b>	
<ul style="list-style-type: none"> <li>Steering wheel tags printed (RVA)</li> </ul>	2015: <b>8548 books of 50</b> 2016: <b>6333 books of 50</b> 2017: <b>4671 books of 50</b>	
<ul style="list-style-type: none"> <li>Number of overseas travel agents completing Tourism NZ's online Driver Safety training module (Tourism New Zealand)</li> </ul>	2015: <b>1515</b> 2016: <b>2414</b> Sept 2017: <b>3074</b>	

	<p>Rental vehicle surveys – percentage of visitors who had received some education material.</p>	<table border="1"> <thead> <tr> <th colspan="4">TOTAL RESULTS BY YEAR</th> </tr> <tr> <th></th> <th>2014/15</th> <th>2015/16</th> <th>2016/17</th> </tr> </thead> <tbody> <tr> <td>Number surveyed</td> <td>251</td> <td>528</td> <td>290</td> </tr> <tr> <td>Driving in NZ</td> <td rowspan="6">45%</td> <td>71%</td> <td>71%</td> </tr> <tr> <td>Keep left stickers</td> <td>81%</td> <td>83%</td> </tr> <tr> <td>Steering wheel tag</td> <td>60%</td> <td>62%</td> </tr> <tr> <td>Drive Safe pamphlet</td> <td>52%</td> <td>53%</td> </tr> <tr> <td>Carried out research</td> <td>65%</td> <td>52%</td> </tr> <tr> <td>Wearing seat belt</td> <td>not measured</td> <td>95%</td> <td>91%</td> </tr> </tbody> </table> <p>Survey was not undertaken 2017/18.</p>	TOTAL RESULTS BY YEAR					2014/15	2015/16	2016/17	Number surveyed	251	528	290	Driving in NZ	45%	71%	71%	Keep left stickers	81%	83%	Steering wheel tag	60%	62%	Drive Safe pamphlet	52%	53%	Carried out research	65%	52%	Wearing seat belt	not measured	95%	91%
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<p><b>Ensure</b> the New Zealand public understand what measures are being taken to address the safety of visiting drivers (and other road users) and ensure they know how they can play a part in the solution</p>	<p>Measure ‘outputs’:</p> <ul style="list-style-type: none"> <li>Number of briefings/interviews with media</li> <li>Number of media releases that reference project activity</li> <li>Number of unique pages views on Project webpage <a href="http://saferjourneys.govt.nz/visitingdriversproject">saferjourneys.govt.nz/visitingdriversproject</a></li> <li>Number of views of the Project video</li> </ul> <p>Measure ‘qualitative out-takes’:</p> <ul style="list-style-type: none"> <li>Analysis of media coverage over time (positive/negative/neutral)</li> <li>Number and content of related Ministerials over time</li> </ul>	<p>2015: Proactive media briefings in project regions, Otago, Southland and the West Coast and interviews with media as requested. 2016: Proactive media briefings in project regions, Otago, Southland and West Coast and interviews with media as requested. 2017: Two proactive media briefings in Southland and the West Coast and interviews with media as requested.</p> <p>2015: 15 2016: 8 2017: 1</p> <p>2015 (from August): <b>668</b> 2016: <b>1,866</b> 2017: <b>1,657</b></p> <p>3 December 2015 (publication) – Dec 2016: <b>1,348</b> 1 Jan 2017 – 23 July 2017: <b>181</b> 24 July – 31 Dec 2017 (updated version): <b>393</b></p> <p>Sept 2015 – Dec 2015: Coverage of the project was almost entirely positive Dec 2015 – Mar 2016: Tone shifted away from negative attacks on visiting drivers Sept 2016 – Dec 2016: Media coverage 73% positive or balanced Dec 2016 – Mar 2017: Media coverage 8% positive; 32% balanced; 60% negative Sept 2017 – Dec 2017: Coverage of the project diminished slightly, with positive print coverage and negative social media coverage. Dec 2017 – Mar 2018: Coverage of the project diminished, with a mix of positive and negative coverage.</p> <p>2014: 9 2015: 88 2016: 60 2017: 35</p>																																

	<ul style="list-style-type: none"> <li>'Mood of the Nation' tourism survey results</li> </ul>	<p>Percentage of respondents that agreed <i>tourism increases the risk of serious road accidents</i>:</p> <p>2015: 42%</p> <p>2016: 40%</p> <p>2017: 33%</p> <p>Percentage of respondents that agreed <i>tourism results in a higher number of road accidents</i>:</p> <p>2015: 41%</p> <p>2016: 42%</p> <p>2017: 31%</p>
<p><b>Ensure</b> a consistent approach to communications and messaging across all project partners and beyond</p>	<p>Partners all use key messages in their communications</p> <p>Media releases and other key information are shared by project partners</p>	<p>Media analysis indicates that partners are aligned on messaging.</p> <p>Media releases are shared between project partners.</p>
<p><b>Education Campaign objectives</b></p>	<p><b>Education campaign measures</b></p>	<p><b>Interim Evaluation December 2017</b></p>
<p>Provide international visitors with information to help them drive more appropriately on New Zealand roads</p>	<p>Number of people reached through education campaign activity</p>	<p>2016/17 campaign: From November to April the campaign reached over 733,000 people and over 2,600 engaged with social media posts (comments, shares, reactions).</p> <p>2017/18 campaign runs from October 2017 to April 2018.</p>
<p>Increase international visitors' awareness of the nature of New Zealand roads</p>	<p>Visiting Drivers questions in the International Visitor Survey (IVS)</p> <ol style="list-style-type: none"> <li>Did you drive a motor vehicle while in NZ? (yes, no; filtering question).</li> <li>How prepared were you for driving in NZ? (fully prepared, mostly prepared, slightly prepared, not prepared).</li> <li>Did you receive information about driving in NZ? (before arriving, while here, none).</li> <li>Did the information you received prepare you for driving in NZ? (mostly/completely, to some extent, not at all).</li> </ol>	<p>See responses of IVS questions (Appendix 2)</p>

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