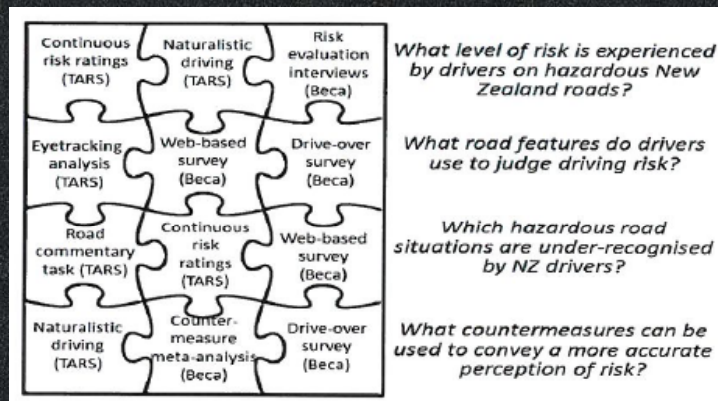




Overview

- Project Questions
- Web Surveys
- In-person Video Surveys
- Drive-over Surveys
- Key Findings

Project Questions for two research teams



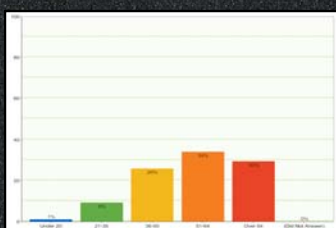
Experimental Methods




- Web survey, using pictures to question drivers about their perception of relative risk
- In-person interviews, using road video to question drivers about their perception of risk
- Drive-over surveys, using real drivers on real roads, followed by a questionnaire with pictures of the drive to determine risk perception
- Meta-analysis of perceptual countermeasures
- TARs – instrumented vehicle (with risk level slider), driver simulator and eye tracking...

Web-based Survey

- To understand what levels of subjective risks are experienced by drivers
- Web survey comprises of
 - Questions on participant profile and driving experience
 - 3 sets of pairwise comparisons
 - 4 sets of 3 photos to rank in order of risks
- Target 100 completed responses from AA members
- **559 completed responses**

Web Survey

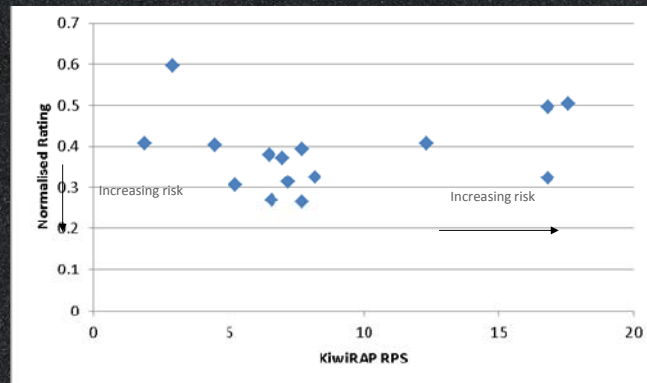


| Question 10 | Participant Ranking (1 being more risky) | Objective Risks (KwiRAP RPS) and Road Features |
|--|---|---|
|  | Mean: All - 1.60 Under 50 - 1.69 Under 35 - 1.76 Male - 1.55 | Average RPS: 7.71 Road Features: Roadside bank, Limited road shoulder |
|  | Mean: All - 1.96 Under 50 - 1.95 Under 35 - 2.10 Male - 1.95 | Average RPS: 8.19 Road Features: Limited road shoulder, No passing lane, Roadside ditch |
|  | Mean: All - 2.44 Under 50 - 2.42 Under 35 - 2.14 Male - 2.50 | Average RPS: 1.9 Road Features: Motorway, divided multi-lane carriageway, Roadside barriers, Good shoulder width |

Findings:
 In this question, the participants mainly rated the last image (motorway) being the least risky, which is consistent with the RPS, although the Under 35 participants have the second image ranked only slightly riskier than the last image.
 The first image, where there are roadside banks on both sides of road, was generally rated as the most risky. This could suggest that participants view the roadside banks to be more risky than the roadside ditch, or simply that the participants' risk perception is influenced by size of hazards (of which is perceived to be risky).
 This results suggest that the Under 35 drivers could be under-perceiving the risks of roadside hazards, particularly those that may not be obvious such as narrow shoulder width and roadside ditch.

Web Survey Result Findings

- Perceived risks do not necessary match with the objective risks



Web Survey Result Findings

- Curves ranked as higher risk (even with barriers) than straight with other roadside hazards (such as power poles).
- Undivided carriageway (with no power poles) ranked as higher risk than a divided carriageway with wide median and wire rope barrier.
- Waikato (TARs) research indicated that intersections have very little impact on perceived risk**
- However presence of intersection consistently ranked as higher risk compared to presence of discrete road-side furniture (i.e. power poles, barriers, warning signs)
- Generally very little difference in the responses between different age groups and gender

In-person video survey

- 6 participants selected to watch video in 2- 5 km sections and be interviewed on perception of risks. Each person looked at a total of 20km.
- Questions around safe speed, level of awareness of hazards/counter-measures and level of hazards.
- Interviewed sections:
 - SH1 between south of Taupiri to north of Ngaruawahia (5km)
 - SH1 between Tahuna Rd Interchange to end of divided carriageway (2km)
 - SH1 from end of divided carriageway to north of Huntly (3km)
 - SH75 (Christchurch to Akaroa route), selected 15km split over 4 sections.
- Compared perceived risks with actual risks from KiwiRAP.

Video Survey

| Section | Perceived Safe Speed (km/h) | Average Safety Rating (10 being safest) / Overall Safety Ranking (1 being safest) | Noted Safe Features | Noted Unsafe Features | KiwiRAP RPS / Overall Safety Ranking (1 being safest) |
|---|-----------------------------|---|--|---|---|
| SH1 between south of Taupiri to north of Ngaruawahia | Mean: 95 Std Dev: 6.1 | 7.8 / =2 | <ul style="list-style-type: none"> ▪ Passing lane ▪ Straight road ▪ Wide shoulder ▪ Well sign posted ▪ Flat terrain | <ul style="list-style-type: none"> ▪ Intersection / side road | 11.0 / =6 |
| SH1 between Tahuna Rd Interchange to end of divided carriageway | Mean: 103 Std Dev: 9.4 | 8.5 / 1 | <ul style="list-style-type: none"> ▪ Median / wire rope barrier ▪ Lamp posts (well lit at night) ▪ Relatively straight section ▪ Well sign posted ▪ Dual carriageway (ease to pass) | <ul style="list-style-type: none"> ▪ Merging | 2.6 / 1 |
| SH1 from end of divided carriageway to north of Huntly | Mean: 89 Std Dev: 8.4 | 7.3 / 4 | <ul style="list-style-type: none"> ▪ No passing lines ▪ Wide shoulder ▪ Well sign posted | <ul style="list-style-type: none"> ▪ Intersection / side road ▪ Roadside activities (shops) | 9.6 / 3 |
| SH75 RP 35 / 0.0 - | Mean: 74 Std Dev: 6.4 | 6.4 / 7 | <ul style="list-style-type: none"> ▪ Well sign posted ▪ Good visibility | <ul style="list-style-type: none"> ▪ Lots of curves ▪ Narrow / limited shoulders | 9.4 / 2 |

Task 2 – In-person video survey results

SH75 (Christchurch to Akaroa route), RS35 (Ataahua – Jones Road Intersection)
Section 1 (2km), Section 2 (3km)

- Average rated safety rating = 7.2 / 10 (with 10 being the safest)
- Considered as safe speed: 50 – 100 km/h
- Features considered safe:
 - Good signage around corners
 - Low traffic route
 - Good visibility at some sections
- Features considered unsafe:
 - Lack of shoulders
 - Narrow roads
 - Ditches on road side
 - Skid marks at intersections

Task 2 – In-person video - countermeasures

Questions on counter measures were also asked and rated by participants.



Existing
Rating: 7.8 / 10
Std Dev 1.1

Without Signage
6.0
1.6

Without Passing Lane Marking
7.7
1.2

Task 2 – In-person video countermeasures

Questions on counter measures were also asked and rated by participants.



Existing
Rating 6.7 / 10
Std Dev 1.1

Without Chevron
5.1
1.6

Task 2 – In-person video countermeasures

Questions on counter measures were also asked and rated by participants.



| | | | | |
|-----------------|-----------------|-----------------|---------------|-----------|
| Existing | High Crash Sign | Wide Centreline | Wide Shoulder | Wire Rope |
| Rating 8.0 / 10 | 8.0 | 7.5 | 7.8 | 8.5 |
| Std Dev 1.3 | 1.2 | 1.3 | 1.6 | 1.3 |

Task 3 – Drive over survey

- 6 participants selected to drive over 1 of the 20km video routes, accompanied by a researcher.
- SH75 (Christchurch to Akaroa route)



Task 3 – Drive over survey results

- Features generally perceived to be safe:
 - Sight distance / visibility
 - Raised pavement markers
 - Signage and curve advisory speeds
 - Straight / gentle curve sections
- Features generally perceived to be unsafe:
 - Lack of no-overtaking lines
 - Narrow road section, including around some tight corners
 - Roadside objects (i.e. rockface) not protected
 - Series of corners
 - Roadside drains / ditch
 - Side road vehicles entering



Drive-over speed results

| Section | KiwiRAP RPS / Ranking (1st being safest) | Average Rated Safe Speed (km/h) | Average Driven Speed (km/h) | Average Rated Safety (10 being safest) / Ranking (1st being safest) |
|---------|--|---------------------------------|-----------------------------|---|
| 1 | 6.4 / =1 | 97 | 87 | 8.3 / 1 |
| 2 | 9.2 / 6 | 91 | 82 | 7.2 / 7 |
| 3 | 8.5 / 4 | 88 | 80 | 7.5 / 6 |
| 4 | 11.0 / 8 | 96 | 88 | 7.8 / 3 |
| 5 | 6.4 / =1 | 95 | 84 | 8.1 / 2 |
| 6 | 6.6 / 3 | 91 | 83 | 7.7 / 4 |
| 7 | 9.7 / 7 | 88 | 82 | 6.9 / 8 |
| 8 | 8.7 / 5 | 96 | 87 | 7.6 / 5 |

Average driven speed for each section is between 8km/h and 10km/h lower than the perceived safe speed

Key Findings/Questions

