

STU KEARNS

SENIOR CRASH ANALYST/ROAD & VEHICLE SAFETY CONSULTANT

NZ POST VEHICLE LIVERY TESTING & RECOMMENDATIONS

Qualifications

- Former New Zealand Police Sergeant with over 28 years' enforcement service and the former Officer in Charge of the Waitematā District Serious Crash Unit
- University Qualified Senior Crash Analyst and was one of New Zealand Police's most experienced in the field of Crash Analysis
- In 2010 became a consultant in specializing in road safety and compliance across the public and private sectors
- Provides evidence as an expert witness at NZ Court Hearings
- Conducts vehicle safety reviews, testing of vehicles, consulting on road safety and legislative requirements, conduct lectures in field
- Developed safety initiatives and policies for NZ Fire Service, St John Ambulance and several large Private Fleet owners

Notes about this report:

- This relates to field testing with a variety of vehicles at the NZ Post Warehouse, 86 Plunket Ave, Wiri on the 16th April 2021 and the RNZAF Air Base at Whenuapai on the 14 May 2021.
- It refers to two types of reflective material used on the vehicles being Normal Grade Reflective (NGR) and High Conspicuity Reflective (HCR).
- NZ Post photographers took photographic references of the testing on the field-testing day. These photographs are referred to in the body of the report and are attached in Appendix B.

Introduction

I have been engaged by NZ Post to:

- Review the proposed new livery/branding on fleet vehicles
- Conduct field testing which includes:
 - i. visibility testing
 - ii. distance testing

- iii. environmental conditions (day and night/urban and 2nd design option)
- iv. comparison of existing and new branding designs
- Provide recommendations on safety and approved visibility and safety standards for NZ Post in rolling out the new livery/branding across the fleet

A. Reviewing the proposed new livery

The approach:

I worked with NZ Post's Transport, Safety and Brand teams to develop a robust testing programme to assess the new designs and use of materials on selected vehicles. The approach needed to consider:

- The importance of visibility and safety
- Use of materials for different graphical elements and safety enhancements
 - reflective (Normal Grade Reflective (NGR)) and non-reflective graphics,
 - high-intensity chevrons (High Conspicuity Reflective (HCR)),
 - lighting bars located on the vehicle roof (for 2nd design option)
- Materials being fit for purpose, aligned with the vehicle type; and the different driving environments and operational activities
- Compliance with NZTA regulations and New Zealand legislative requirements
- Application of graphics is straightforward and not overly complex

Driving conditions

Vehicle testing considered the typical driving conditions NZ Post operational vehicles experience on NZ roads. This included:

- Variable lighting and weather conditions, including daylight and darkness with limited natural or no lighting and limited or no artificial lighting
- Activities: around mailboxes and in/out/driveways, road verges, crossing centre lines, and facing oncoming traffic.
- Roads: sealed & unsealed through to state highways

- Speeds: stationary to 100km/hr zones

Colours

- The dark base colour provides an excellent canvas for the contrasting red and white reflective graphics.
- Monash University conducted a study into the relationship between vehicle colour and crash risk. The study highlighted that blue performs better than red and silver. It needs to be put in perspective that the dark colours are certainly not the safest by any means, it is what you do to enhance the colour with highlights such as the livery that makes the difference. Reference: An Investigation Into The Relationship Between Vehicle Colour and Crash Risk, by Stuart Newstead Angelo D'Elia Report No. 263 May 2007).
- Lighter colours, and in particular, the red used on the old branded vehicles, is a known colour to go to a blackish colour at night. Lighter base colours on vehicles fade first in reducing light conditions such as dusk and night time. This is why road signage uses contrasting colours and reflective material to highlight the text or graphic to great effect. Likewise, traffic lights have contrasting black surrounds to highlight the colour of the light.

