NEW ZEALAND POST GROUP

Integrated Delivery Health and Safety Risk Assessment and Management Plan

June 2016

Reference

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Sponsor	[redacted], Integrated Delivery Workstream Lead
Prepared by	[redacted] Safety and Wellbeing Specialist [redacted] People and Change Lead, Network of the Future
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Contents

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Introduction

Risk management is fundamental to ensuring that the new Integrated Delivery (ID) model is a safe operating environment for our people and the public. Trial and piloting of this proposed work system and tools, particularly the delivery vehicles, has provided valuable insight into the nature of risks and the effectiveness of control measures.

This paper consolidates key learnings about the health and safety risk profile for implementing Integrated Delivery. Notably, it focuses on:

- identifying hazards that are new or substantially different to those associated with the current Postie and courier driver roles,
- applying a consistent methodology to risk assess each hazard,
- outlining controls to eliminate or minimise harm and
- recommending actions to further reduce the risk profile of the ID system of work.

The paper identifies and individually risk assesses each of the following key hazards:

1. driving the Paxster on public roads,
2. driving the Paxster on footpaths,

3. exposure to moving vehicles,
4. driver fatigue,
5. delivering in extreme weather conditions,
6. manual handling,
7. working in isolation and
8. stressful situations.

Before outlining how each of these risks was assessed and controlled, the paper provides background information to put the assessment in context. This includes an overview of the proposed ID work system, New Zealand Post's continuing commitment to health and safety throughout the change process and how governance will be provided via the Integrated Delivery Working Group (IDWG).

The information presented in this assessment is a 'snapshot' of our current understanding of the risks and how they can be effectively controlled. Given that risk management is a dynamic and continual process, the content requires regular review to ensure new risks are included and controls for existing risks are working effectively to prevent and mitigate harm.

Context: Integrated Delivery

New Zealand Post's traditional letter business has been declining and its parcel business, whilst growing, operates in a fast moving and highly competitive environment. Integrated Delivery, merging parcel and mail delivery using electric Paxster vehicles, leverages delivery of mail volumes to significantly improve price competitiveness of our residential parcel delivery services. Instead of having separate posties and couriers in residential areas, one 'Delivery Agent' will be delivering parcels and mail on a Paxster (where this makes sense).

New Zealand Post will be rolling out Integrated Delivery around the country over the next 18 months. This change in delivery model will result in profound changes in the manner in which delivery work is done. The Integrated Delivery project will be implementing new tools, systems, and work processes that will be used by integrated delivery agents. This risk assessment is intended to identify foreseeable risks and New Zealand Post's plans to manage these in the interests of keeping Delivery Agents safe and healthy at work.

This section provides background information about the ID Project to place this assessment in context. It focuses on how the ID work system has developed via trial and pilot, information about the new Paxster delivery vehicle and operating conditions for Delivery Agents.

IDA trials and pilot

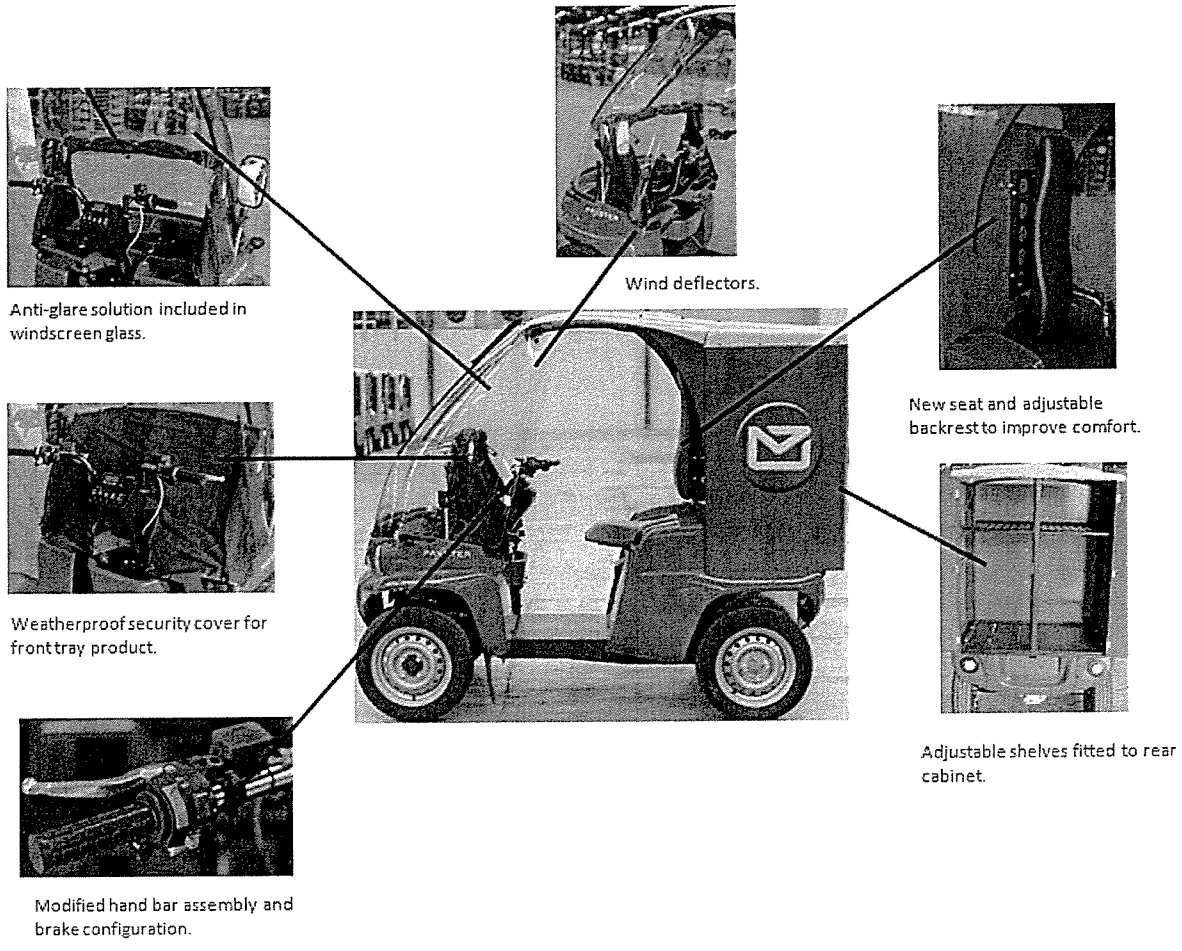
Since 2014, the concept of integrated delivery using electric vehicles to deliver both parcels and mail has been extensively tested in a range of contexts. The first trial in Wellington involved an assessment of the suitability and effectiveness of different modes to deliver future product. A further trial was conducted in Auckland to test the concept in a key metropolitan area.

Two new electric vehicles, a Loyds Paxster and Kyburz DXP, were procured to trial. Both vehicles are designed and used in Europe as postal delivery vehicles, and were sought because they have a greater capacity to transport larger bulkier items and remove physical distance constraints of New Zealand Post's current delivery modes.

Based on trial results, the Board of Directors approved a large scale commercial pilot involving the procurement of 50 vehicles for roll out in New Plymouth. The aim was to prove the ID concept at scale by making a permanent change to a provincial city. Since June 2015, all delivery rounds in the Taranaki District have implemented integrated delivery. The Kyburz was used for "on day" delivery while Paxsters were used for priority mail and parcel delivery to "off-day rounds". This provided an opportunity to test the vehicles and work system with different Postie populations under variable conditions for an extended period (e.g. peak and low product volumes, different terrain and weather seasonality).

Learnings from the New Plymouth pilot were used to develop a business case for presentation to Board in November 2015. A national roll out of ID was approved. This included acquisition of a fleet of Paxster vehicles (Gen 2 with modifications – see Figure 1 for an image of the vehicle, including new key features). Implementation is due to begin in mid-2016.

Figure 1. Loyds Paxster: the four wheeled postal delivery vehicle



Paxster delivery vehicle

Under European Union Directive 2002/24/EC, the Paxster is classed as a light quadricycle and meets minimum safety requirements under this Directive. In the absence of an equivalent vehicle classification, the NZTA classed the Paxster as a motor vehicle to enable its operation on local roads. NZTA allow the Directive to dictate the requirements that vehicles must meet to ensure roadworthiness. Technical standards also apply in New Zealand, which maintains the integrity of the safety standards developed for this unique class of vehicle across the European Union.

Vehicle classification is important to articulate because it necessitates minimum safety features and terms governing the use of the vehicles (see Table 1). Notably, Paxster operators require a class 1 license and a helmet is the only legally mandated personal protective equipment (PPE) required. The vehicle is subject to fewer safety standards than passenger vehicles because they carry goods and are engineered to travel at lower speeds (maximum 45 km/hr). For instance, vehicles do not require fitted seat belts, head restraints or impact testing regimes.

Table 1. Paxster vehicle classifications and exemptions

EU classification	L6e light quadricycle
NZ vehicle classification	Class NA (Light Goods Vehicle)
Exemptions required for motor vehicle classification	Interior Impacts 2001, section 2.3(1) Seatbelt and Seatbelt Anchorages 2002 - All requirements. Seat and Seat Anchorages 2002, section 2.1. External Projections 2001, section 2.1. Light vehicle brakes 2002, section 2.5.
Driver license	Class 1
PPE	Helmet

Vehicle specifications for the Paxster are presented in Table 2. Notably, the vehicle is battery powered, and engineered to operate at a maximum speed of 45 km/hr.

Table 2. Vehicle specifications for the Paxster

Manufacturer	Loyds Industri AS, Norway
Dimensions (width/length, mm)	1120 x 2150
Weight	400kg
Payload (theoretical)	300kg
Payload (measured)	96 kg
Maximum speed	45km/hr (limited)
Power output	6kw - electric

Operating conditions

Redacted - out of scope to the request

[redacted]

Vehicles will be driven on the road according to a pre-determined route in an urban area. Agents have permission to drive on the footpath to get to, and move between, delivery points to deposit product in letter boxes. The distance between the delivery points will be greater for Agents when delivering priority items. Vehicle dismounts are required if letter boxes are inaccessible from the vehicle. Agents are also required to travel down driveways to deliver and pick up parcels directly from customers.

[redacted]

Commitment to health and safety

New Zealand Post remains fundamentally committed to health and safety as the Integrated Delivery work system is designed and implemented. Our *Safety and Wellbeing System and Standards* remain applicable to this process. Key elements of the system are noted along with how they apply to the ID project implementation.

1. **Assessment of hazards and risks**
   In addition to this high level assessment, sites will be supported to undertake their own local risk assessments to determine how ID impacts upon their current hazard and round registers. Any changes made within branches will also need to be assessed for any new hazards that are introduced. For instance, physical changes to the layout of the branch.

To support branches, checklists will be made available and monitored via a "branch fitness check". A Safety and Wellbeing Specialist will visit branches within 7 days of implementation to check branch set up, operator comfort, hazard and incident registers and address any concerns.

2. Training

New Zealand Post is committed to ensuring Delivery Agents and their leaders are properly trained to safely operate vehicles, handle parcels and carry out their other duties prior to implementing integrated delivery at a site.

Safety training will be provided to agents via on line learning modules with learning reinforced through practical instructor led training for small groups of agents (approx 4 per session). Agents will then have an opportunity to practice their skills on the job while continuing to receive coaching and feedback prior to undertaking a competency assessment. The latest learning pathway for Delivery Agents is attached at Appendix A.

If any additional or ongoing safety training is identified as necessary from time to time then New Zealand Post will provide this to Delivery Agents.

3. Incident reporting and investigation

New Zealand Post will remain committed to the accurate and timely reporting, recording and investigation of all incidents. Incidents include near misses, early symptoms of pain and discomfort, injuries and property damage. Incident data and investigation findings from sites where integrated delivery has been implemented will be centrally monitored and regularly analysed for trends by a Safety and Wellbeing Specialist.

The Safety and Wellbeing Specialist may determine from time to time to request the assistance of a suitably qualified external expert to investigate incidents that appear may have complex or multiple contributing causes that should be identified to improve risk management.

4. Injury management

As an Accredited Employer in the ACC Partnership Programme, New Zealand Post will continue to actively support our people affected by work-related injury and illness. This includes a commitment to providing appropriate medical, social and vocational support, including light or alternative duties whenever possible and practicable to facilitate the rehabilitation process. Case management will be provided by either Gallagher Bassett or ACC for motor vehicle claims.

5. Communication and employee participation

New Zealand Post will continue to consult with employees and their representatives about the proposed ID work system and associated health and safety risks. The company and unions have agreed to the establishment of a joint Integrated Delivery Working Group (IDWG) to oversee national implementation of integrated delivery. One of the roles of this group is to ensure employees' views are communicated to the company and can influence decision making.

Additional opportunities for employees' input and direct participation at site level will include training, team briefings, feedback surveys and conversations with their leaders.

Employees can also access traditional representative channels including Safety and Wellbeing Action Group (SWAG) members or attend SWAG committee meetings.

6. **Contractor and visitor management**

The company has robust procedures in place for contractor and visitor management at its sites, and these will continue in line with the new provisions introduced by the Health and Safety at Work Act.

Emergency management

New Zealand Post has identified and implemented response procedures to protect and appropriately support its workforce through a variety of emergency situations. These procedures are regularly reviewed and updated at a Group level. Implications for emergency management at an individual site will be considered when integrated delivery is implemented at a site.

7. **Employee wellbeing**

As New Zealand Post employees, Delivery Agents will have access to wellbeing initiatives such as EAP Services.

8. **Performance measurement and reporting**

Safety and wellbeing performance will be regularly measured and reported to senior stakeholder groups and the IDWG .

Health and safety governance for integrated delivery nationally

The Integrated Delivery Working Group has been established as an engagement forum and stakeholder reference group for the Integrated Delivery project. Specifically, the union members of the Working Group will contribute on behalf of their members to the development of safe work processes and practices for IDA nationally and monitor:

- Roster design in integrated delivery sites;
- Additional resource plans for high peak periods in ID sites;
- Work measurement and round sizing

Membership will include three representatives from each union (ETu and PWUA) and six managers or business representatives. Local and expert representation will be seconded as required.

Risk assessment method

To facilitate compliance with the new Health and Safety at Work Act, a risk management method was used to assess the risk profile of the new Integrated Delivery Agent role. This involved a dynamic and continual six steps process of hazard identification, risk evaluation, risk control, documentation, communication and review.

Step 1: Identification of hazards

In order to manage risks to health and safety, New Zealand Post has identified hazards for Delivery Agents that could give rise to reasonably foreseeable risks to their health and safety. Hazards in this context include anything that could cause physical and/or mental harm to any person and damage to property.

Hazards associated with introduction of the Paxster and new ways of working were identified using a range of methods. These included reference to:

- User feedback – employees who participated in trials and the pilot provided feedback about hazards via multiple channels (e.g. team briefings, SWAG meetings, surveys).
- Manufacturer's instructions and guidance.
- Industry injury/disease information and literature sources from other postal operators with similar work systems and tools.
- Analysis of incident reports and investigation findings from trials and the pilot.
- Consideration of current risks encountered by posties and couriers and how this profile could change as working conditions, systems and tools are revised.
- Internal subject matter experts – specialist vehicle trainers, product specialists, business owners of vehicle fleet policy, and safety and wellbeing specialists.
- External subject matter experts – NZTA, New Zealand Police, local road controlling authorities, discussions with WorkSafe and advice sought from those listed below.

A number of external experts were engaged to support the risk assessment process. Information about these experts is provided in the table below.

Table 3. External experts engaged to support the ID risk assessment process

Name and Affiliation	Profession	Scope
Dr Hamish Mackie, Mackie Research and Consulting	Ergonomist	Assessment of the likelihood of fatigue and ergonomic risks associated with proposed work system.
Stu Kearns, independent	Serious crash unit investigator	Assessment of risks when operating vehicles on footpaths and roadways and suitability of the XTR helmet.
Transport Specifications Limited (TSL)	Vehicle engineers	Provided a range of physical vehicle tests to assess performance and safety for Agents and pedestrians (e.g. handling, and impact tests).

Step 2. Evaluation of risk

Risk is the chance, rare to almost certain, that a hazard will cause harm. The level of risk was estimated using the health and safety risk assessment matrix presented in Figure 2. This is a generic matrix used by New Zealand Post Group Risk, but has been tailored for health and safety related events.

Likelihood and consequence are cross referenced to determine risk (definitions of likelihood and consequence are included in Appendix B). This is defined as inherent risk or the level of risk that exists without any controls in place to manage or mitigate the likelihood of harm. As part of this process, consideration was also given as to who and what could be harmed and how.

Figure 2. Health and safety risk assessment matrix

		Consider the *likelihood* of a hazardous event occurring				
		Rare	Unlikely	Possibly	Likely	Almost certain
Consider the *consequence*	Catastrophic (e.g. fatal)	Low	Moderate	High	Extreme	Extreme
	Major (e.g. permanent disability)	Low	Moderate	High	Extreme	Extreme

	Moderate (e.g. hospitalization/short or long term disability)	Low	Moderate	Moderate	High	High
	Minor (e.g. first aid)	Low	Low	Moderate	Moderate	High
	Superficial (e.g. no treatment)	Low	Low	Low	Low	High

Level of risk determines ownership of of the risk and required actions. For instance, extreme risk is owned by the Chief Executive and Board of directors. See Appendix for more detail about risk level, ownership and action.

Step 3. Control of risk

New Zealand Post has a duty of care to do everything reasonably practical to control the risk of harm to people. 'Reasonably practical' is a new phrase introduced by the Health and Safety at Work Act. To determine if something is reasonably practical, we are required to weigh up and consider the following factors:

- How likely are any hazards or risks to occur?
- How severe could the harm that might result from the hazard or risk be?
- What a person knows or ought to reasonably know about the risk and the ways of eliminating or minimising it?
- What measures exist to eliminate or minimise the risk?
- How available and suitable is the control measure(s)?

Lastly, we have to weigh up the cost:

- What is the cost of eliminating or minimising the risk?
- Is the cost grossly disproportionate to the risk?

This means that level of inherent risk determines priority for action. Higher risks with serious consequences should be prioritised and controlled with reference to the new 'hierarchy of control measures' introduced by the Health and Safety at Work Act (see Figure 3).

Figure 3. Hierarchy of control measures

Most effective			
	ELIMINATE:		
	1	**Eliminate the hazard** – remove it completely from your workplace.	If this isn't reasonably practical, then...
	MINIMISE:		
	2	**Substitute the hazard** – with a safer alternative.	If this isn't reasonably practical, then...
	3	**Isolate the hazard** – prevent people from coming into contact with it	If this isn't reasonably practical, then...
	4	**Engineering controls** – adapt tools or equipment to reduce risk	If this isn't reasonably practical, then...
	5	**Administration controls** – change work practices and	If this isn't reasonably

		organisation (e.g. job rotation, rules)	practical, then...
Least effective	6	**Use personal protective equipment (PPE)** – this is the last option after you have considered all others.	

Elimination strategies should be considered as part of proposed changes to systems of work, equipment, processes, procedures or physical lay out. This promotes the 'prevention through design principle', which is considered the most effective method of preventing or controlling occupational injury and disease. Essentially, it enables risk to be anticipated and 'designed out'.

If elimination is impractical, risks need to be minimised by taking one or more of the following actions that is most appropriate and effective in relation to the nature of the risk: substitution, isolation, engineering controls, administrative controls and provision of PPE. These measures need to be fit for purpose; suitable for the nature and duration of work; and installed, set up and used correctly. Maintenance regimes are necessary to ensure that some control measures remain effective.

Once these controls are established, residual risk can be determined. This is defined as the risk that remains once appropriate control measures have been put in place to manage and reduce the risk to as low as reasonably practical.

Step 4. Documentation of risk

The purpose of this paper is to document reasonably foreseeable risk in the context of implementing integrated delivery.

Step 5. Communication of risk

NZ Post will communicate the risks and hazards identified with Delivery Agents and Delivery Fleet Leaders who will be working with, or affected by them. This information will include:

- the nature of the risks and hazards and how they can be affected by it,
- controls in place to manage the risk and their responsibilities to follow the controls,
- any specific training or personal protective equipment required,
- requirement to report where controls are not working or could be improved and
- consequences of not following control measures.

Step 6: Review of risk

NZ Post will centrally monitor and review and, as necessary, revise control measures during the period of implementation to ensure the IDA remains a safe and healthy system of work for our people and the public. Ensuring multi-site visibility and learning while implementing a new work system is highly desirable. A Safety and Wellbeing Specialist has been assigned the responsibility for overseeing this and providing specialist support to leaders for the duration of the implementation project. In particular, they will focus on hazards that are controlled by minimization strategies (e.g. administrative controls or PPE) to determine their effectiveness. At the conclusion of the implementation project, responsibility for ongoing review and monitoring will be transitioned to Delivery Fleet Leaders having primary responsibility as part of their normal daily working practice with more detailed oversight and multi-site reviews occurring at regular intervals.

The level of risk and effectiveness of controls will determine how often a risk needs to be reviewed. This is usually:

- when a new relevant hazard or risk is identified,
- on a regular time framed basis (annually at a minimum),
- when a control measure has failed to control a risk it was intended to mitigate (e.g. in the event of a serious incident or near miss),

- before a change at the workplace that is likely to give rise to a new or different risk (e.g. a change to a system of work, a process or a procedure and changes to the physical work environment),
- where monitoring indicates that controls are failing to control a risk it was intended to mitigate.

Risks and controls

1. Driving Paxsters on public roads

There is a risk that vehicles operating on public roads may crash; strike, or be struck by, another vehicle; and/or strike pedestrians.

Possible implications

- Death or serious injury to Agent and/or members of the public.
- Damage to public and/or privately owned property.
- Prosecution of New Zealand Post and/or Agent under the Health and Safety at Work Act.
- Enforcement action taken against the individual operator found to be driving carelessly, which includes fines, demerit points and/or prosecution.
- Damage to New Zealand Post's brand and reputation and/or cancellation of NZTA approval to use the vehicles in New Zealand.

Examples of pre-conditions

- Agent inexperience or lack of training to operate a vehicle.
- Vehicle may be travelling at a speed inconsistent with the flow of traffic in a situation where there is no room for faster travel to pass the vehicle safely.
- Vehicle may not be seen by another driver using the roadway.
- Compromised roadworthiness due to lack of warrant, servicing and maintenance.
- Vehicle instability due to overloading, uneven distribution of product and/or steep or even terrain.
- Inadequate time in which to complete delivery resulting in driver inattention or distraction.
- Agents may be physically impaired or incapable of operating the vehicle safely.
- Agent fatigue or discomfort.

Inherent risk rating

Inherent risk is the level of risk that exists without any controls in place to manage or mitigate the likelihood of risk. Inherent risk ratings are as follows:

- Consequence: catastrophic
- Likelihood: likely
- Inherent rating: extreme

Controls

Risks could be eliminated if vehicles were not operated on public roads, but this is impractical given the businesses operating model.

Minimization strategies will be applied to reduce the risk rating to as low as reasonably practical. These include vehicle selection, improvements made to vehicle usability, adherence to vehicle class technical standards, fleet management practices to ensure road worthiness, enhancements to vehicle visibility, training Delivery Agents about safely managing vehicle speed, driver's license requirements and monitoring, personal protective equipment, safe loading principles, rules to

minimize driver distraction, round design, workload management, fatigue and fitness for driving, first aid, training and supervision.

1.1 Vehicle selection

One of the reasons the Paxster was selected as the vehicle of choice for national rollout was because it was found to be the safer of the two vehicles independently tested. While both the Paxster and Kyburz are designed for the purpose of postal delivery within Europe, the Paxster was found to be more suited to the tasks and conditions under which it will be operated in New Zealand.

A transport engineer from Transport Specifications Limited provided a direct comparison between the vehicles in relation to safety, practicality and ease of operation. The Paxster outperformed the Kyburz in most tests.

The following key findings were made in relation to the safety of the Paxster:

- *Stability* – the Paxster could be operated at higher speeds before cornering limits were reached with the limitation being loss of traction and a tendency to slide.
- *Performance and battery life on delivery*– the Paxster performed well and maintained power allowing Agents to focus on the task of driving.
- *Crash impact* – sufficient operator survival space was maintained when the frontal impact strength was tested.
- *Pedestrian impact* – the lower and more rounded front end of the Paxster means that pedestrians are likely to be deflected away, rather than dragged under, the vehicle. Mirror design was also superior from a pedestrian safety perspective as they collapse on impact.
- *Reliability* –speedometer and park brake were found to be unreliable, but these issues were addressed with the manufacturer when New Zealand Post ordered the new model of Paxster.

1.2 Vehicle usability

During trial and pilot, there was a process of refinement to make the vehicle as usable as possible for the driver. User feedback resulted in the retro-fitting of items to improve comfort (e.g. 'wings' were fitted to the front of the vehicle cab to deflect wind). Lloyds was consulted about fundamental design changes for the next iteration of the vehicles for national roll out. For instance, the handle bar assembly on the current version of the vehicle has been redesigned to improve performance.

To improve usability and comfort while driving, consensus amongst Agents in New Plymouth was that more training could be provided to 'fit' the person to the vehicle. This included training on customizing new adjustable seating positions and how to operate the vehicle using minimal body forces (to apply brakes, steering). An ergonomist also advised that there should be training provided to Agents on the safest means of mounting and dismounting the vehicle given the repeated nature of this activity during the course of a working day. This training module requires development for deployment on-line. For initial implementation, it will be provided by a physiotherapist.

1.3 Adherence to vehicle class technical standards

The Paxster is manufactured to meet the minimum safety requirements for its light quadricycle vehicle class under European Union Directive 2002/24/EC. The NZTA allow this standard to also dictate the safety requirements in the New Zealand context.

1.4 Roadworthiness

To further mitigate risks associated with operating vehicles on roads, New Zealand Post is required to ensure vehicles are maintained in a roadworthy and legal condition at all times. When vehicles arrive in the country, they undergo entry certification to gain registration and a warrant of fitness

(WOF). This involves checking, certifying, registering and licensing vehicles to ensure they are safe enough to drive on roads.

In addition to one-off registration, Delivery Fleet Leaders will be required to ensure vehicles are regularly licensed and have a warrant of fitness. Given vehicles are new, the first WoF will be issued for three years. Thereafter, a WoF is required every 12 months. Vehicles will be expected to undergo a WoF if they have been involved in a serious incident. Checks by a certified agent ensure vehicles meet required safety standards at the time of inspection (e.g. tyre condition, brake operations, structural condition).

To ensure vehicles are in a warrantable condition at all times, Delivery Agents will conduct a daily inspection using a checklist to systematically assess the safety and roadworthiness of their vehicle. Damage and defects should be noted and reported to their Delivery Fleet Leader. Vehicles that are unsafe to drive will be placed out of service immediately and repaired by an independent agent approved by Loyds before being made available to drive. All reported faults should be reviewed by a competent person with feedback to the driver of the outcome of the review and/or the action that was taken. This procedure needs to be outlined in training and information for Agents and leaders.

Vehicles will be regularly serviced at intervals determined by the manufacturer. Loyds have approved an independent service agent to provide national support to the Paxster fleet. This ensures there is adequate mechanical support to maintain these unique vehicles.

Each vehicle should have its own maintenance record to keep track of this activity. Records should note faults reported/repaired, routine maintenance required/completed, repairs undertaken. Records should be regularly monitored to identify recurring faults, gaps in maintenance programmes or lapses in preventative maintenance.

1.5 Vehicle visibility

Paxsters will be painted red with accents of yellow to reflect the colours of the New Zealand Post brand, and operated with their headlights on regardless of lighting conditions. An expert has recommended a range of further measures to improve the visibility of the Paxster to other road users. This included retro-fitting vehicles with additional daytime LED lights and adding reflective chevrons to the rear doors. Stu Kearns has been engaged to sign off on the solution implemented.

The independent service agent and Loyds have developed solutions that meet the expert's expectations and these will be retrofitted to all vehicles prior to deployment. Agents will require training and information about when and how to activate lighting. For initial deployments this training will be provided during the one day practical training by the vehicle instructor.

1.6 Vehicle speed

As per the New Zealand Road Code, Agents are expected to travel within all posted speed limits and at a speed consistent with traffic flows to minimise the likelihood of collision and reduce injury severity in the event of collision.

Engineered to move at a maximum speed limit of 45 km/h, the Paxster can maintain this speed on the flat or downhill when fully loaded. This 45 km/h speed is within normal NZTA expectations for 50km/h speed limit areas where considerations on setting the speed limit include the high likelihood that vehicle traffic will frequently encounter cyclists, pedestrians, turning vehicles, parking vehicles and attendant frequent requirements to slow or to stop.

On moderate uphill sections, speeds of 25-35km/h are typical for the Paxster. This reduces to 20-22km/hr on steeper uphill sections. While the engineered speed restriction is a safety feature in itself, the slowness of the vehicles when fully loaded in these circumstances may pose a risk to other road users and Agents if traffic flow is unduly impeded.

During early trials, other road users were found to have potential to become abusive to Agents if hindered by the vehicle. For the New Plymouth pilot and future planned implementations on-line training followed up with practical training has been developed on the Agents' obligation not to impede faster moving traffic and to pull over or stop to let other vehicles pass. Steps have also been taken to increase the visibility of the Paxster vehicle to improve safety in situations where other road users are attempting to pass the vehicle.

In New Zealand there are no minimum speed restrictions and it is a daily occurrence for slower moving vehicles to be operating on our roadways (e.g. farm vehicles and cyclists). Advice from an independent expert has concluded that with visibility enhancements, including daytime LED lights and reflective chevrons, the vehicle could in many situations be operated safely for travelling short distances on many 70km/h roadways. In making this assessment, the expert noted that one of the factors NZTA requires in approving speed limits greater than 50km/h is greater physical width of the roadway to provide opportunity for faster moving traffic to pass slower moving vehicles safely. NZTA accepted this advice and the expert's opinion that operation would not unreasonably impede traffic on 70km/h roadways. NZ Post intends to retain the independent expert to assess any proposals to use the vehicle on 70km/h roads in early implementations with the expert also training internal round designers on how to make these assessments in the longer term.

1.7 Driver's license

Agents must hold a current class 1 license (restricted at minimum) to drive a Paxster. This ensures Agents have studied the Road Code, which is the basic guide to safe, legal and considerate road user behaviour in New Zealand. As per law, Agents must carry their license while driving and need to comply with their licensing conditions (e.g. wearing of prescription glasses).

Driver licenses will be monitored in the NZTA's Transport Organisation Register Online (TORO). This enables managers to check that only licensed drivers are operating the Paxster as well as their drivers' license status and activities. Leaders should also conduct 'spot checks' to ensure Agents are carrying their licenses while driving the Paxster. Agents will be reminded of this requirement as part of initial and ongoing training.

1.8 Personal protective equipment

A helmet approved by the NZTA is the only legally mandated item of PPE required to protect the head in the event of a collision. Use and maintenance of PPE should be included in training for Agents.

As per current procedure, equipment issued to Agents must be documented in a PPE register. Ongoing monitoring of PPE use is required to ensure it remains fit for purpose, is correctly worn, maintained and replaced.

1.9 Safe loading principles

Overloading and the uneven distribution of product could potentially undermine vehicle performance and stability thus increasing the likelihood of a vehicle incident. To mitigate this risk, principles of safe loading will be included in Agent training. This will encompass generic principles such as weight distribution and the security of loads. Agents will receive initial training and regularly

reminded of these principles. Regular monitoring is required to ensure Agents are packing their vehicles safely and redistributing load as the vehicle gets lighter while on delivery.

1.10 Rules to minimize driver distraction

Driver inattention or attention diversions are common contributing factors in crashes resulting in injury. To minimize distractions, Agents are expected to abide by a set of rules to ensure they maintain focus on the driving task at hand. For instance, Agents are not permitted to sort and scan while driving, use cell phones or listen to music devices. This information is included in training material and requires regular reminder and monitoring.

1.11 Round design

Rounds specify the route that Agents should take on public roadways while out on delivery. The way in which a round is designed will impact upon an Agent's exposure to hazardous roadways. Therefore, a number of safety factors need to be considered and controls applied to the design of rounds in order to eliminate or minimize risk the risk of collision and injury.

Here are examples of factors that Delivery Support Systems will be considering when designing rounds for integrated delivery:

- *Left-hand delivery* – Delivery rounds will be designed so that operators are required to drive on the left-hand footpath of the road to ensure vehicles enter and exit roadways with the flow of traffic.
- *Gradient assessments* – Paxsters are not permitted to travel up roadways with gradients of more than 30% (17 degrees) or more.
- *Speed limit zones* –A risk assessment is required for every situation where it is proposed that a Paxster may need to travel on a road with a speed limit of 70km/hr. An external expert, Stu Kearns, will be providing initial assessments and training for Delivery Support Systems to undertake these assessments in the longer term. This training needs to be arranged.

1.12 Workload management

The management of workload is fundamental to ensuring that Agents have sufficient time in which to complete delivery safely with sufficient rest periods for recovery during and between shifts. During a shift Delivery Agents receive 5 minutes per hour as paid breaks.

The collective bargaining process has established that ID Rosters will be designed so that the combination of hours per day and the pattern of days on and off are such as to minimise the potential for employee harm. The joint union and company IDWG will oversee the implementation of Integrated Delivery nationally and its oversight role extends to:

- roster design in integrated delivery sites;
- additional resource plans for high peak periods in ID sites;
- work measurement and round sizing.

Workload will be monitored as part of the IDWG meetings and will feature as part of the controls to manage the risk of fatigue.

1.13 Fatigue and fitness for driving

Controls for the risk of fatigue and fitness for driving are presented in risk *4. Driver fatigue*.

1.14 First aid requirements

In the event of a collision that causes injury, a quick first aid response can mean the difference between life and death, or can reduce the severity of the injury. All Paxsters carry a vehicle first aid kit.

Agents will all carry mobile phones as a job requirement enabling them to call for assistance from emergency services or from their Delivery Fleet Leader in the event of an incident.

1.15 Training

Training is fundamental to mitigating risks associated with operating the Paxster. A bespoke in-house training package has been developed to support the Integrated Delivery Agent role. All Agents and their leaders will be trained and assessed as competent before being permitted to drive vehicles.

The training programme encompasses e-learning modules that focus on safe driving principles, defensive driving techniques, frequently encountered hazards and controls, and information about reporting incidents. This will be reinforced with practical training and competency assessments that will be managed by qualified vehicle instructors. The training pathway is attached at Appendix A.

Given the majority of the risk mitigation strategies lie with the Delivery Agent training needs to be regularly assessed and monitored for effectiveness with cross-checking against incidents reported to ensure that Agents are complying with all safety procedures and that they understand all the operating rules.

1.16 Supervision

NZ Post accepts that it has a legal obligation to ensure employees are supervised by a person who has knowledge or experience. This is challenging for employees who work independently across geographically dispersed locations and developing a compliance monitoring approach will be essential.

In addition the company will ensure that many of its senior leaders, Fleet Delivery Leaders and Delivery Support Officers undertake Delivery Agent training and are familiar with and can contribute to ongoing development of the safe operating procedures that apply to Delivery Agents.

Recommended actions

The current risk rating is high given that the consequence is extreme, but unlikely. The following actions are recommended to further minimise the risk of harm.

#	Title	Action	Owner
1.1	Vehicle usability	Develop training material to improve the usability and comfort of Paxsters for Agents (e.g. adjusting seat, how to dismount vehicle).	ID Project
1.2	Vehicle visibility	New Paxsters require visibility enhancements to be retro-fitted.	ID Project
1.3	Driver's licenses	Develop system to collect driver license information for entry into TORO monitoring tool	ID Project
1.4	PPE	Monitoring ongoing effectiveness of operator PPE (helmet) and any additional requirement.	ID Project
1.5	Safe loading principles	Ensure safe loading principles included in training and develop material for subsequent follow up by leaders.	ID Project
1.6	Round design	Engage Stu Kearns to provide tools and training to support Delivery	ID

	risk assessment	Support Systems undertake risk assessments of roadways with speed limits of 70 km/hr if this use is proposed.	Project
1.7	Training	Ensure training modules for Agents and leaders outline key risks and mitigants.	ID Project
1.8	Supervision	Consider how to supervise and monitor compliance for Agents who work independently across geographically dispersed locations and document how this will be done. Ensure that representative numbers of Senior Leaders, Fleet Delivery Leaders and Delivery Support are trained in and are familiar with safe operating procedures for Delivery Agents.	ID Project

Residual risk rating

Residual risk is the risk that remains once control measures have been put in place to reduce the risk to as low as reasonably practical. Once all possible mitigating activities have been put in place, the risk will shift from extreme to high (see risk matrix below, which maps inherent, current and residual ratings).

		Likelihood				
		Rare	Unlikely	Possibly	Likely	Almost certain
Consequence	Catastrophic (e.g. fatal)			Current Residual	Inherent	
	Major (e.g. permanent disability)					
	Moderate (e.g. hospitalization/disability)					
	Minor (e.g. first aid)					
	Superficial (e.g. no treatment)					

2. Driving Paxsters on footpaths

Operation of Paxsters on footpaths creates risk to the public and to Delivery Agents. Risks include:

- colliding with vehicles entering/exiting driveways,
- striking or running over footpath users (pedestrians, mobility devices and recreational devices), and
- 'forcing' footpath users onto the road and exposing them to oncoming traffic.

Possible implications

- Death or serious injury to members of the public and/or the Agent.
- Damage to public and/or privately owned property.
- Prosecution of New Zealand Post and/or the vehicle operator under the Health and Safety at Work Act.
- Enforcement action taken against the individual Agent found to be driving carelessly, which includes fines, demerit points and/or prosecution.

- Damage to NZ Post's brand and reputation.
- Members of the public petitioning councils to revoke permits if vehicles are perceived to be operating carelessly or recklessly on footpaths resulting in revocation of permits to operate.

Examples of pre-conditions

- Vehicles travelling at speed that is unreasonable and inappropriate to safe operation on the footpath (up to 45 km/hr).
- Operators failing to give way to other footpath users or vehicles moving across footpaths.
- Operator inattention or attention diversions (e.g reading mailing addresses).
- Operators may not see other footpath users, particularly where their line of sight is obscured (e.g. high fences or when turning a corner).
- Operator may be impaired to drive a vehicle (e.g. under the influence of drugs or alcohol).
- Vehicles may occupy most or the full breadth of a footpath forcing a pedestrian or other footpath user to give way or take evasive action to avoid the device by moving onto the road and into traffic moving at 50 km/hr or higher.
- Footpath users may unduly impede the passage of the vehicle or act unpredictably around the vehicle, especially children.
- Obstacles (e.g. utility services or rubbish bins) may unduly impede the passage of the vehicle increasing the number of times an Agent is required to exit the footpath and enter the roadway to navigate the obstacle.
- Footpath users and drivers exiting driveways may not see or hear the vehicle approaching.

Inherent risk rating

Inherent risk is the level of risk that exists without any controls in place to manage or mitigate the likelihood of risk. Inherent risk ratings are as follows:

- Consequence: Catastrophic
- Likelihood: likely
- Inherent rating: extreme

Controls

Risks could be eliminated if vehicles travelled solely on public roads, but this is an undesired control measure. For reasons of delivery efficiency, New Zealand Post has for many years applied for Council approval to operate cycles and motorcycles on footpaths for the purpose of delivering mail. The company has obtained permission from NZTA and NZ Police to seek and in many cases hopes to be granted approval to operate Paxsters similarly.

Accordingly, risks associated with the operation of vehicles on footpaths need to be controlled through minimization strategies. A set of rules, presented below, will primarily govern the operation of vehicles on the footpath. However, all risk mitigation strategies that apply to driving Paxsters on public roads also apply to the operation of vehicles on footpaths. These include:

1.1 Vehicle selection
1.2 Vehicle usability
1.3 Adherence to vehicle class technical standards
1.4 Road worthiness
1.5 Vehicle visibility
1.6 Vehicle speed
1.7 Driver's license
1.8 Personal protective equipment
1.9 Safe loading procedure
1.10 Rules to minimize driver distraction

1.11 Round design
1.12 Workload management
1.13 Fatigue and fitness for driving
1.14 First aid requirements
1.15 Training
1.16 Supervision

2.1 Footpath rules

Operating vehicles on footpaths, with limited exceptions since a 2009 amendment, is illegal under the Land Transport (Road User) Rules 2004 . New Zealand Post has applied for and been granted an exemption to this rule (by NZTA) that allows the company to apply to local road controlling authorities for approval to allow Paxsters to use footpaths in a similar way that bicycles are used to deliver to letterboxes within that authority's area.

The NZTA exemption and subsequent Council approvals have been granted on condition that vehicles are driven in accordance with safety rules to minimise the risk of harm to footpath users, other road users and Delivery Agents. In the absence of regulations governing this type of operation in the Road User Rules, New Zealand Post has developed and refined the rules based on learnings from the New Plymouth pilot and expert advice from serious crash investigator, Stu Kearns.

Rules governing the use of the Paxster on the footpath are articulated, below, along with the rationale for each.

1. *Maintain a safe driving speed on the footpath that is reasonable for the conditions.*

a. Agents are required to use their judgement to determine a safe speed of travel while operating on footpaths. Operators are required to assess local conditions in order to determine a safe speed, such as the presence of other footpath users, obstacles (e.g. rubbish bins), blind spots, high fences, slippery surfaces and reduced visibility. According to Stu Kearns, travelling at a speed of 15 km/hr may be safe in most instances. Speeds of 20 km/hr or more will never be acceptable.

2. *Footpath driving is only permitted when the operator is delivering mail or other product in areas approved by the Road Controlling Authority.*

a. Operation of vehicles on footpaths is only permitted for the purpose of delivering postal product. If the operator is not delivering postal product, they should move onto the road to minimise interaction between vehicles and footpath users.

3. *Operators are required to give way to pedestrians, mobility devices and wheeled recreational devices being used on the footpath. This means that the vehicle must be pulled off the footpath if possible as to not obstruct the other user and come to a complete stop until the user passes.*

. The NZTA has exempt new delivery vehicles from operating on footpaths on condition that operators give way to all footpath users. Operators have a basic duty to exercise care and consideration in order to minimise the risk of injury to these parties.

4. *Vehicles should never be operated in a way that forces another user of the footpath to step off the footpath, into traffic, take any other evasive action, or force the other user into an unsafe situation.*

. This rule is intended to reduce the likelihood of footpath users moving on to the road to avoid the vehicle. This reduces the risk of footpath users being struck by a passing vehicle, which is likely to be moving at least 50 km/hr.

5. *Vehicles must not block the footpath.*

. This ensures footpath uses are able to continue along the footpath as a safe passage as opposed to being 'forced' or choosing to step into the road to get around the vehicle.

6. *Driving on berms or grass verges is prohibited.*

. New Zealand Post has only been granted approval to operate vehicles on foot paths. Operation of a vehicle on a berm is illegal.

a. If berms are wet or slippery, vehicles could sink.

b. Operating a vehicle on a berm would damage the lawn.

7. *Operators must not sort and scan mail while driving (or use cell phones or listen to music devices).*

. Driver inattention or attention diversions are common contributing factors in crashes resulting in the injury of pedestrians in New Zealand. To minimise the risk, Agents are prohibited from undertaking activities that are known to cause distraction.

8. *Operators must only exit footpaths from driveways or other formed access points. Vehicles must never be driven up or down the kerb.*

. Driving up or down kerbs creates instability that could lead the vehicle to tip or roll increasing the likelihood of injury to operators and members of the public.

9. *Driving on the footpath is not permitted for the purpose of avoiding traffic.*

. Operation of vehicles on footpaths is only permitted for the purpose of mail delivery. If the operator is not delivering product they should move onto the road to minimise interaction between vehicles and footpath users.

10. *Driving on the footpath is not permitted when an operator is travelling to and from a delivery branch and any 'dead-rides'.*

. This ensures operators travel at a higher more efficient speed on the road. It also prevents footpath users from being needlessly exposed to the vehicle on the footpath.

11. *Driving on the footpath is not permitted if there is no mail for some distance i.e. 50 meters or greater distance between delivery points (unless during a formal hazard assessment it is demonstrated to be unsafe on the road).*

. This ensures operators can travel at a higher, more efficient speed on the road. It also prevents footpath users from being needlessly exposed to the vehicle on the footpath.

12. *Driving on the footpath is not permitted in areas where there is reason for the operator or leader to expect that there will be high footpath usage at the time vehicles passes the area. These include:*

- *outside schools, preschool or other learning institutions;*
- *outside hospitals, rest homes or other medical facilities;*

- *outside any retail business which would typically be trading during delivery working hours;*
- *any industrial area where there is business activity that may extend onto the footpath;*
- *any other area where there is reason to suspect that there will be high footpath usage.*

a. This rule is intended to give operators discretion over when they travel on footpaths. Operators should make this decision based on an assessment of the contextual variables. For example, the risk of hitting a pedestrian outside a school would be low during the school holidays, so vehicles are likely to be able to travel safely along the footpath. However, operators would be expected to travel on the road when passing a school at 3pm when children are exiting the school grounds.

Avoiding footpaths during times of high pedestrian activity reduces the likelihood of collision between vehicles and pedestrians. This is particularly critical in areas where there are likely to be higher densities of vulnerable pedestrians who may act unpredictably, such as children and the elderly.

Ultimately, this control measure is heavily reliant upon Agents behaving according to a comprehensive set of rules and exercising good judgment. This is a risk, as it assumes an Agent will comply with all of the rules all of the time. Given there are significant risks associated with breaching the footpath rules, a compliance assurance process is required to provide assurance that rules are being complied with.

In addition to monitoring by supervisor/trainer observations, from time to time, the Company is currently undertaking an assessment of other potential monitoring approaches such as inviting comment on driver behaviour from members of the public and installation of a static camera in the vehicle so that footage can be reviewed in the course of investigating a serious incident or accident.

2.2 Training

On-line training modules and practical 1 day training sessions to be provided to Delivery Agents include information about footpath rules and how to safely operate vehicles on footpaths. Specifically, training encompasses the:

- nature of the hazards associated with driving on footpaths;
- rules to manage the risk and their responsibilities to follow these rules,
- defensive driving techniques (eg driving to weather conditions, slowing and moving to the right outer curve when approaching a left hand turn, slowing down when approaching driveways)
- requirement to report where controls are ineffective or could be improved and
- the serious consequences that could eventuate if control measures are not followed.

Agents also need to be regularly reminded of the footpath rules and the consequences of failing to comply.

Recommended actions

The current risk rating is moderate given that the consequence could be catastrophic, but is unlikely to occur. The following actions are recommended to further minimise the risks associated with the operation of Paxsters on footpaths:

#	Title	Action	Owner
2.1	Footpath rules	Develop and implement a compliance and assurance process to detect any systemic non compliance with footpath rules.	ID Project

Residual risk rating

The residual risk rating is the risk that remains once control measures have been put in place to manage and reduce the risk to as low as reasonably practical. Once all possible mitigating activities have been put in place, the residual risk will continue to be moderate (see risk matrix below, which maps inherent, current and residual ratings).

		Likelihood				
		Rare	Unlikely	Possibly	Likely	Almost certain
Consequence	Catastrophic (e.g. fatal)			Current	Inherent	
	Major (e.g. permanent disability)		Residual			
	Moderate (e.g. hospitalization/disability)					
	Minor (e.g. first aid)					
	Superficial (e.g. no treatment)					

3. Exposure to moving vehicles

As pedestrians, there is a risk that Delivery Agents could be struck by a moving vehicle. This risk for Delivery Agents is extremely similar if not identical to that faced by Posties delivering mail product.

Possible implications

- Death or serious injury to Agent.
- Prosecution of New Zealand Post and/or Agent under the Health and Safety at Work Act.
- Enforcement action being taken against the individual Delivery Agent for careless or negligent behaviour as a pedestrian.
- Damage to brand and reputation.

Examples of pre-conditions

- Exposure to slow moving vehicles within interchanges and car parks where vehicles are typically stored and loaded. This includes forklifts, trucks, courier vans and cars.
- When vehicles are unable to travel on footpaths, Agents stop the vehicle on the road-side and may be required to walk on the road to reach the delivery point.
- Agents walking on sections of footpath or driveways to reach letter boxes or the customer's front door.

Inherent risk rating

Inherent risk is the level of risk that exists without any controls in place to manage or mitigate the likelihood of risk. Inherent risk ratings are as follows:

- Consequence: catastrophic
- Likelihood: possible
- Inherent rating: high

Controls

3.1 Branch traffic management risk assessment

New Zealand Post has the greatest control of risks associated with moving vehicles within delivery branches. When branches are converted to Integrated Delivery the project implementation plan will require branches to conduct a traffic management risk assessment to determine the local risks and possible control measures suitable for the characteristics of the site. For instance, this will involve considering whether people and moving vehicles can be separated, erecting signage to direct customers to visitor car parks and managing the times at which operational vehicles use interchanges. The Project will support leaders to undertake this assessment and Project stage-gate and toll-gate processes will ensure that these are in place prior to implementation.

3.2 Left hand delivery

Rounds will be designed so that operators deliver product to addresses on the left-hand side of the road. This ensures Agents exit the Paxster if using the roadway rather than the footpath (not recommended in training) from the left side on to a berm or footpath instead of stepping to the right side of the vehicle into a flow of traffic.

3.3 Enhanced visibility of the Delivery Agent

High visibility aspects have been deliberately designed into the shirts/jackets in the proposed Integrated Delivery uniform range to make an Agent more visible to vehicle operators in the Agent's vicinity. These visibility aspects are consistent with those that appear in the current Postie Uniform.

Neither the Postie nor the Delivery Agent uniform as manufactured fully complies with the Australia/New Zealand Standard for high visibility garments (4602:1999). This Standard specifies best practice requirements for high-visibility clothing for persons working in high risk situations (e.g. roadway construction workers, utility workers, survey crews, emergency responders).

New Zealand Post will continue to monitor and review the risk rating.

Recommended actions

The current risk rating is high given that the consequence is catastrophic and the likelihood is possible. The following action will further minimise the risks associated with Delivery Agents working within proximity to moving vehicles.

#	Title	Action	Owner
3.1	Branch traffic management risk assessment	Develop guidelines to assist Delivery branches to conduct a traffic management risk assessment.	ID Project

Residual risk rating

The residual risk rating is the risk that remains once control measures have been put in place to manage and reduce the risk to as low as reasonably practical. Once all possible mitigating activities have been put in place, the risk will be moderate (see risk matrix below, which maps inherent, current and residual ratings). Although the consequences of the risk are extreme the controls should significantly reduce the likelihood of incidents occurring.

		Likelihood				
		Rare	Unlikely	Possibly	Likely	Almost certain
Consequence	Catastrophic (e.g. fatal)		Residual	Current	Inherent	
	Major (e.g. permanent disability)					
	Moderate (e.g. hospitalization/disability)					
	Minor (e.g. first aid)					
	Superficial (e.g. no treatment)					

4. Driver fatigue

Driver fatigue is a recognised risk factor for people who drive vehicles commercially. When fatigued while driving, judgment and decision making are affected and reaction times slow down thus increasing the risk of collision and injury.

Possible implications

- Death or serious injury to Agent and/or members of the public.
- Damage to public and/or privately owned property.
- Prosecution of New Zealand Post and/or Agent under the Health and Safety at Work Act.
- Enforcement action taken against the individual operator found to be driving carelessly, which includes fines, demerit points and/or prosecution.
- Damage to New Zealand Post's brand and reputation and or cancellation of NZTA approval to use the vehicles in New Zealand.

Examples of pre-conditions

- Delivering mail and parcels is demanding work with Agents needing to be alert for extended periods to look out for traffic and footpath users. Fatigue can easily lead to slips and lapses and a moment of not checking properly for traffic could lead to a collision.
- Drugs, prescribed medications or alcohol consumed by Agents even if/when not at work can contribute to the onset of fatigue.
- Total amount of time Agents spend working, including driving, either in a continuous period or over a day and/or week can contribute to physical and mental fatigue.
- Lack of rest periods while working or driving combined with sustained mental/physical effort.
- Environmental stresses such as heat, cold and vehicle vibration can result in fatigue.
- Challenging road and climatic conditions can increase mental and physical demands and may combine with other factors to increase fatigue risk.

Inherent risk rating

Inherent risk is the level of risk that exists without any controls in place to manage or mitigate the likelihood of risk. Inherent risk ratings are as follows:

- Consequence: catastrophic
- Likelihood: likely
- Inherent rating: extreme

Controls

4.1 Fatigue management policy

During the recent CEA negotiations both unions and the company referred to the NZTA's *Preventing fatigue in the commercial road transport industry: A good practice guide* (2010). The parties agreed that rosters shall be designed with a view to ensuring that the combination of hours per day and the pattern of working and non-working days are such as to minimise the potential for employee harm.

It was also agreed to establish a joint IDWG to engage over and oversee the implementation of Integrated Delivery nationally including:

- roster design in ID sites;
- additional resource plans for high peak periods in ID sites; and
- work measurement/round sizing.

A number of factors recommended in the Guide are already well established within New Zealand Post's workplace and systems. For instance, management practices, assessing fitness for duty, driver health management, work environment, induction and training, vehicle management practices and systems for reporting incidents and near misses.

Independent ergonomist, Hamish Mackie, recommended the most effective way of managing fatigue hazards is to focus on the design of the Delivery Agent role and shift patterns. He noted that the proposed role shift patterns caused "no immediate cause for alarm", especially in relation to the working hours of truck drivers and the more dynamic nature of the Agent's role.

To habituate Agents to new longer shifts, Hamish recommended a stepped introduction to longer shifts. Notably, on the job habituation is achieved by gradually increasing shift left over time or starting with more rest breaks than usual and gradually reducing the rest periods until Agents become accustom to working longer hours.

Overall, it was recommended that a long-term monitoring framework be developed and implemented to track Paxster usability and safety as the vehicle becomes embedded in the work system and the length of the outdoor delivery component increases. This includes reviewing shift and break patterns and aggregating reports of discomfort, pain and injury, near misses and incidents.

Recommended actions

The current risk rating is moderate given that the consequence could be catastrophic even if occurrence is unlikely. The following action will be taken to further minimize the risk of harm.

#	Title	Action	Owner
4.1	Fatigue management policy	Review current fatigue management policies and practices in line with the NZTA's *Preventing fatigue in the commercial road transport industry: A good practice guide* (2010). Identify any gaps requiring further development and implementation (e.g. training modules for Delivery Fleet Leaders on identifying driver fatigue).	ID Project
4.2	Monitoring and review	Establish monitoring framework for incidents and near misses to identify indicators and trends indicative of fatigue risk increasing.	ID Project

Residual risk rating

The residual risk rating is the risk that remains once control measures have been put in place to manage and reduce the risk to as low as reasonably practical. Once all possible mitigating activities have been put in place, the risk will be moderate.

	Likelihood				
	Rare	Unlikely	Possibly	Likely	Almost certain

Consequence	Catastrophic (e.g. fatal)		Current Residual	Inherent		
	Major (e.g. permanent disability)					
	Moderate (e.g. hospitalization/disability)					
	Minor (e.g. first aid)					
	Superficial (e.g. no treatment)					

5. Delivering in extreme weather conditions

Weather conditions are one of a number of contributory factors that lead to vehicle incidents.

Possible implications

- Death or serious injury to Agent and/or members of the public.
- Enforcement action being taken against the Agent for careless use of a vehicle if lapse of judgment or not driving reasonably for the conditions.
- Prosecution of New Zealand Post and/or Agent under the Health and Safety at Work Act for failure to manage the risk of driving in extreme weather conditions.
- Damage to public and/or privately owned property.
- Damage to brand and reputation.

Examples of pre-conditions

- Road and climatic conditions increase mental and physical workload and may combine with other factors to increase risk of fatigue or driver inattention.
- Agents may slide or lose control of vehicles in slippery conditions.
- High winds moving through the cab could rock the Paxster causing driver distraction.
- Subjecting Agents to extreme cold and heat compromises their ability to concentrate on the task of driving and increases the likelihood of error.

Inherent risk rating

Inherent risk is the level of risk that exists without any controls in place to manage or mitigate the likelihood of risk. Inherent risk ratings are as follows:

- Consequence: catastrophic
- Likelihood: likely
- Inherent rating: extreme

Controls

5.1 'Weather policy'

As per current 'weather policy', leaders will continue to conduct daily assessments of weather and road conditions to ensure agents can work safely and comfortably, particularly in adverse conditions (e.g. high winds, icy roads). The risk of harm is typically eliminated via a decision to postpone or cancel delivery until conditions improve and the linehaul network is able to deliver product to site.

5.2 Vehicle characteristics

Vehicle performance in adverse weather conditions was assessed as part of the pilot in New Plymouth, and vehicle handling in slippery conditions formed part of the independent testing by TSL. The Paxster's performance was one of the reasons why it was selected as the vehicle of choice. In addition to having superior stability, the roof and windscreen provided better weather protection for the driver. Further retrofitting of items, such as wind deflectors, are hoped to further improve driver comfort.

Further retrofits may be required to protect the Agent in icy conditions. Risk assessments will be made at the time of implementation in colder regions. For instance, vehicles could be fitted with improved slip reducing floor grip plates, winter tyres and chains if necessary. Norway Post, who use the Paxster, have advised that these accessories are fitted when temperatures drop below zero. In New Zealand's warmer climate these conditions will occur with less frequency than in Norway.

5.3 Delivery Agent Uniform

While the vehicle provides a degree of protection, Agents require a uniform and accessories to mitigate against the effects of climatic conditions when out on delivery. The Agent uniform is based on the Postie uniform, which has developed over years of experience to maximize comfort to those directly exposed to the elements. Notably, it's built on the concept of a garment layering system so individuals can adjust layers to regulate temperature. This includes base layers, mid-layers and outer shells for protection from wind and rain. Accessories are provided to protect extremities (socks, gloves, hardy footwear and if needed Yaktrax).

The uniform is also designed to protect against exposure to ultraviolet light. To protect the face, sunglasses and visors are supplied. The windscreen in the Paxsters has been modified to incorporate sun shielding foil in the manufacturing process. The Agent's body is protected by long sleeved garments with collars, and outer fabric layers are manufactured with a special sun protective fabric. Ongoing monitoring of uniform will continue to ensure it's effective at protecting Agents from extreme weather conditions.

Recommended actions

The current risk rating is moderate given that although consequence is catastrophic, but incidents are unlikely to occur. The following actions are recommended to further minimise the risks associated with the operation of Paxsters in extreme weather conditions:

#	Title	Action	Owner
5.1	Uniform	Ongoing monitoring of the effectiveness of the Agent's uniform is required.	ID Project
5.2	Weather-proofing vehicles	Ongoing feedback and assessments may be required to 'weatherproof' the Paxster if operating in colder regions.	ID Project

Risk rating

The residual risk rating is the risk that remains once control measures have been put in place to manage and reduce the risk to as low as reasonably practical. Once all possible mitigating activities have been put in place, the risk will shift from moderate to low.

		Likelihood				
		Rare	Unlikely	Possibly	Likely	Almost certain
Consequence	Catastrophic (e.g. fatal)	Residual	Current	Inherent		
	Major (e.g. permanent disability)					
	Moderate					

	(e.g. hospitalization/disability)					
	Minor (e.g. first aid)					
	Superficial (e.g. no treatment)					

6. Manual handling

Manual handling involves any activity requiring Agents to lift, lower, push, pull, carry, move, restrain, hold or handle objects. Manual handling of mail and parcel product puts Agents at risk of discomfort, pain and injury.

Possible implications

- Agents may experience pain, discomfort and injury (e.g. back injury, acute low back pain, disorders of the knees, arms and hands). Repeat exposure to poor practices over extended periods can lead to gradual process injury.
- New Zealand Post will incur costs to provide treatment and cover absences or in the case of extended exposures see increased incidence of medical retirements.

Examples of pre-conditions

Not all manual handling is harmful, but the chances of discomfort, pain and injury increase if one or a number of risk factors are present. Examples of risk factors include:

- *Load* – heavy, bulky uneven in its weight distribution, difficult to grip;
- *Environment* – slippery, sloping or with steps, carried outside;
- *People* – inadequately trained, insufficient in number, wearing clothing or footwear that may compromise manual handling.
- *Task* - large horizontal or vertical reaches, reaching above shoulder height or below mid-thigh, handling over long distances, postures (awkward, twisted, stooped);
- *Management* – inadequate rest breaks, insufficient people assigned to workload.

Inherent risk rating

Inherent risk is the level of risk that exists without any controls in place to manage or mitigate the likelihood of risk. Inherent risk ratings are as follows:

- Consequence: moderate
- Likelihood: almost certain
- Inherent rating: high

Controls

Complete elimination of manual handling risk is impossible given the nature of the business. However, the amount of manual handling required to sort mail will reduce and eventually be eliminated as the sequencing process will be automated at mail processing sites. In the mean-time, a number of strategies will be used to reduce the number and severity of injuries relating to manual handling.

6.1 Parcel streaming process

A number of the risk factors for discomfort, pain and injury associated with manual handling will be eliminated via the parcel streaming process. Under the ID model, parcels will be streamed to either a courier van or a Paxster for delivery depending on their characteristics. Parcels that are larger, heavier and awkwardly shaped will be delivered via a courier van, which can hold more volume and has space for a trolley to facilitate safer handling. Agents will receive smaller and lighter items for delivery.

6.2 Manual handling training

A number of manual handling training resources have been developed to support ID implementation along with checklists to verify application of learning. The *Safe sorter* e-learning module has been developed to train agents how to safely handle mail at the sort case. Additionally, a parcel handling module has been developed to demonstrate the safe handling of parcels within the delivery branch.

Further training material will be developed as an e-learning module to provide guidance to Agents about how to safely manual handle out on delivery. The external environment is riskier with a plethora of factors that are difficult to control (e.g. uphill, weather conditions, uneven and slippery terrain). For initial implementations, training will be provided by a physiotherapist.

After implementation at a site any issues or incidents arising will be centrally monitored. If appropriate, a local physiotherapist should be invited to visit branches to assist individuals and provide practical advice and training to improve safe practices.

6.3 Assessment of equipment in branch

In planning for implementation, a branch check will be completed to ensure the necessary equipment is available to facilitate the parcel sorting process (e.g. ergo barrows and tables). Unsuitable equipment will be removed from the work area or replaced.

6.4 Uniform

The IDA uniform has been designed to facilitate the manual handling process. Garments are made of flexible fabric to move with the body. The garments are also tapered to the body to prevent fabric from catching or creating a hazard (e.g. as high viz vests often do).

6.5 System for early reporting of discomfort and pain

As per current process, Agents will be encouraged to report early signs of pain and discomfort to their team leader. This allows for the Agent to seek appropriate medical treatment, if appropriate, and for causes to be investigated and corrected.

Recommended actions

The current risk rating is high. The following actions are recommended to further minimise the risks associated with manual handling mail and parcel product:

#	Title	Action	Owner
6.1	Manual handling training	Develop e-learning training material to guide Agents about how to manual handle out on delivery. Develop checklist for leaders to help ensure correct manual handling practices are being followed.	ID Project
6.2	Manual handling equipment	Develop branch checklist to assess whether branch has suitable equipment for manual handling parcels.	ID Project

Residual risk rating

The residual risk rating is the risk that remains once control measures have been put in place to manage and reduce the risk to as low as reasonably practical. Once all possible mitigating activities have been put in place, the risk will shift from high to moderate (see risk matrix below, which maps inherent, current and residual ratings).

		Likelihood				
		Rare	Unlikely	Possibly	Likely	Almost certain
Consequence	Catastrophic (e.g. fatal)					
	Major (e.g. permanent disability)					
	Moderate (e.g. hospitalization/disability)					Inherent
	Minor (e.g. first aid)				Residual	Current
	Superficial (e.g. no treatment)					

7. Working in isolation

The new Health and Safety Work Regulations 2016 provide that businesses must manage risks to the health and safety of workers who perform isolated work. Delivery Agents will be working independently for significant portions of their work day in the Integrated Delivery business model. The new role will thus have less contact with colleagues but, in the course of delivering parcels, increases the amount of contact with customers compared with the current Postie role.

Possible implications

- Agent's may receive reduced psycho-social satisfaction from working closely with colleagues in a team environment.
- Delivery Agent's may become less engaged with New Zealand Post's business objectives resulting in lower standards of customer service.
- Delivery Agent's may have higher rates of attrition if the nature of the work does not meet their personal needs or expectations of working collegially.
- Agents may not be able to summon assistance when it is needed.

Examples of pre-conditions

- Agents will be out on delivery working on their own for over seven hours per day.

Inherent risk rating

Inherent risk is the level of risk that exists without any controls in place to manage or mitigate the likelihood of risk. Inherent risk ratings are as follows:

- Consequence: moderate
- Likelihood: possible
- Inherent rating: moderate

Controls

7.1 Mobile Phones and work tools

To minimize the risks of working in isolation to the health and safety of Agents, they will be required to carry mobile phones with them while on delivery to send and receive messages.

Postie and Courier work also involves a considerable amount of time working independently and this manner of working suits many who choose these roles. The potential to communicate effectively with Agents and enhance their easy access to relevant information and to keep in touch should be assessed on an on-going basis and whenever the company is considering potential for introducing new work tools.

7.2 Company communications
New Zealand Post will look to supplement team briefs with additional information channels (eg videos, noticeboards, 'tiki tours', e-learning). This ensures Agents have access to and receive information that they need for their role and to foster connection to the wider organisation. Guidelines for managing personal safety while out on delivery will be one of the first briefings at implementation.

7.3 Teamwork
Agents will be required to start their day at a Delivery or satellite Branch and will be loading their vehicles in a team environment. Delivery performance information will be assembled at a team level to reinforce Agents' sense of contribution to team achievement. Within branches the process of ensuring that Agents are familiar with more than one round and buddy training will continue.

7.4 Role description and profile
Clearly describing the nature of the role and the amount of work that is carried out independently to potential Delivery Agents will help potential candidates who would not be suited to a role with reduced social contact to self select "out".

Residual risk rating
The residual risk rating is the risk that remains once control measures have been put in place to manage and reduce the risk to as low as reasonably practical. Once all possible mitigating activities have been put in place, the risk will continue to be moderate.

		Likelihood				
		Rare	Unlikely	Possibly	Likely	Almost certain
Consequence	Catastrophic (e.g. fatal)					
	Major (e.g. permanent disability)					
	Moderate (e.g. hospitalization/disability)		Current Residual		Inherent	
	Minor (e.g. first aid)					
	Superficial (e.g. no treatment)					

8. Stressful situations

Events, such as theft or poorly behaved members of the public, may adversely affect an Agent's stress levels. Some consideration should be given as to how to support Agents who are negatively impacted if encountering these risks.

Possible implications

- Agents may experience stress or trauma as the result of an encounter, increasing propensity for errors on and off the road.
- Agents may feel anxious about returning to a particular delivery point where they've encountered a stressful situation.

Examples of pre-conditions

- Agents may be targeted by thieves wishing to steal parcel product.
- Agents may be confronted by a customer who becomes abusive if their parcel is late.

Inherent risk rating

Inherent risk is the level of risk that exists without any controls in place to manage or mitigate the likelihood of risk. Inherent risk ratings are as follows:

- Consequence: moderate
- Likelihood: almost certain
- Inherent rating: high

Controls

8.1 Dealing with challenging customer situations

New Zealand Post has developed (and piloted in New Plymouth) a range of communications material that is designed to make customers aware of proposed changes to services and modes of delivery ahead of changes being implemented.

An online e-module has been developed to help agent's foster positive engagement with customers and the general public. This will include skills that may be required to handle customers perceived to be difficult or abusive, and will be supplemented with leader-led conversations and coaching.

8.2 Dealing with theft of vehicle or product

Group Risk Security is helping to adapt Kiwibank's procedures on dealing with theft. The overarching message to agents will be, "Don't be a hero" look out for your personal safety first.

8.3 Manager support and Employee Assistance Programme

In the event of incidents when out on delivery the training provided to Agents requires them to look after themselves and anyone else impacted by the situation first and to call for assistance from their Delivery Fleet Leader as soon as practical to do so.

New Zealand Post also provides access to an employee assistance programme (via EAP Services) for its employees. Agents can access professional advice and support for a broad range of issues on a '24/7' basis. The support service is free and is fully confidential.

Recommended actions

The current risk rating is moderate. The following actions are recommended to further minimise the risks associated with stressful situations:

#	Title	Action	Owner

8.1	Training on managing stressful situations	Finalise e-learning training material to guide Agents about how to handle stressful situations.	ID Project

Residual risk rating

The residual risk rating is the risk that remains once control measures have been put in place to manage and reduce the risk to as low as reasonably practical. Once all possible mitigating activities have been put in place, the risk will shift from high to moderate (see risk matrix below, which maps inherent, current and residual ratings).

		Likelihood				
		Rare	Unlikely	Possibly	Likely	Almost certain
Consequence	Catastrophic (e.g. fatal)					
	Major (e.g. permanent disability)					
	Moderate (e.g. hospitalization/disability)					Inherent
	Minor (e.g. first aid)				Residual	Current
	Superficial (e.g. no treatment)					

Actions register

The following table summarises the outstanding actions that are being undertaken by a Safety and Wellbeing Specialist dedicated to the Integrated Delivery work stream.

#	Title	Action	Responsible
1.1	Vehicle usability	Develop training material to improve the usability and comfort of Paxsters for Agents (e.g. adjusting seat, how to dismount vehicle).	ID Project
1.2	Vehicle visibility	New Paxsters require visibility enhancements to be retro-fitted.	ID Project
1.3	Driver's licenses	Develop framework to monitor that Agents have current driver's licenses and that they carry them on delivery.	ID Project
1.4	PPE	Monitoring ongoing effectiveness of operator PPE.	ID Project
1.5	Safe loading principles	Develop a framework to monitor the safe loading principles.	ID Project
1.6	Round design risk assessment	Engage Stu Kearns to provide tools and training to support Delivery Support Systems undertake risk assessments of roadways with speed limits of 70km/h.	ID Project
1.7	Training	Ensure training modules for Agents and leaders outline key risks and mitigants.	ID Project
1.8	Supervision	Consider how to supervise and monitor compliance for Agents who work independently across geographically dispersed locations. Ensure that representative numbers of Senior Leaders, Fleet Delivery Leaders and Delivery Support are trained in and are familiar with safe operating procedures for Delivery Agents.	ID Project

2.1	Footpath rules	Develop and implement a compliance and assurance process to detect any systemic non compliance with footpath rules.	ID Project
3.1	Branch traffic management risk assessment	Develop guidelines to assist Delivery branches to conduct a traffic management risk assessment.	ID Project
4.1	Fatigue management policy	Review current fatigue management policies and practices in line with the NZTA's *Preventing fatigue in the commercial road transport industry: A good practice guide* (2010). Identify any gaps requiring further development and implementation (e.g. training modules for Delivery Fleet Leaders on identifying driver fatigue).	ID Project
4.2	Monitoring and review	Establish monitoring framework for incidents and near misses to identify indicators and trends indicative of fatigue risk increasing.	ID Project
5.1	Uniform	Ongoing monitoring of the effectiveness of the IDA uniform is required.	ID Project
5.2	Weather-proofing vehicles	Ongoing feedback and assessments may be required to 'weatherproof' the Paxster if operating in colder regions.	ID Project
6.1	Manual handling training	Develop e-learning training material to guide Agents about how to manual handle out on delivery.	ID Project
6.2	Manual handling equipment	Develop branch checklist to assess whether branch has suitable equipment for manual handling parcels.	ID Project
8.1	Training on managing stressful situations	Finalise e-learning training material to guide Agents about how to handle stressful situations.	ID Project

Appendix A. Learning pathway for Delivery Agents (Draft)

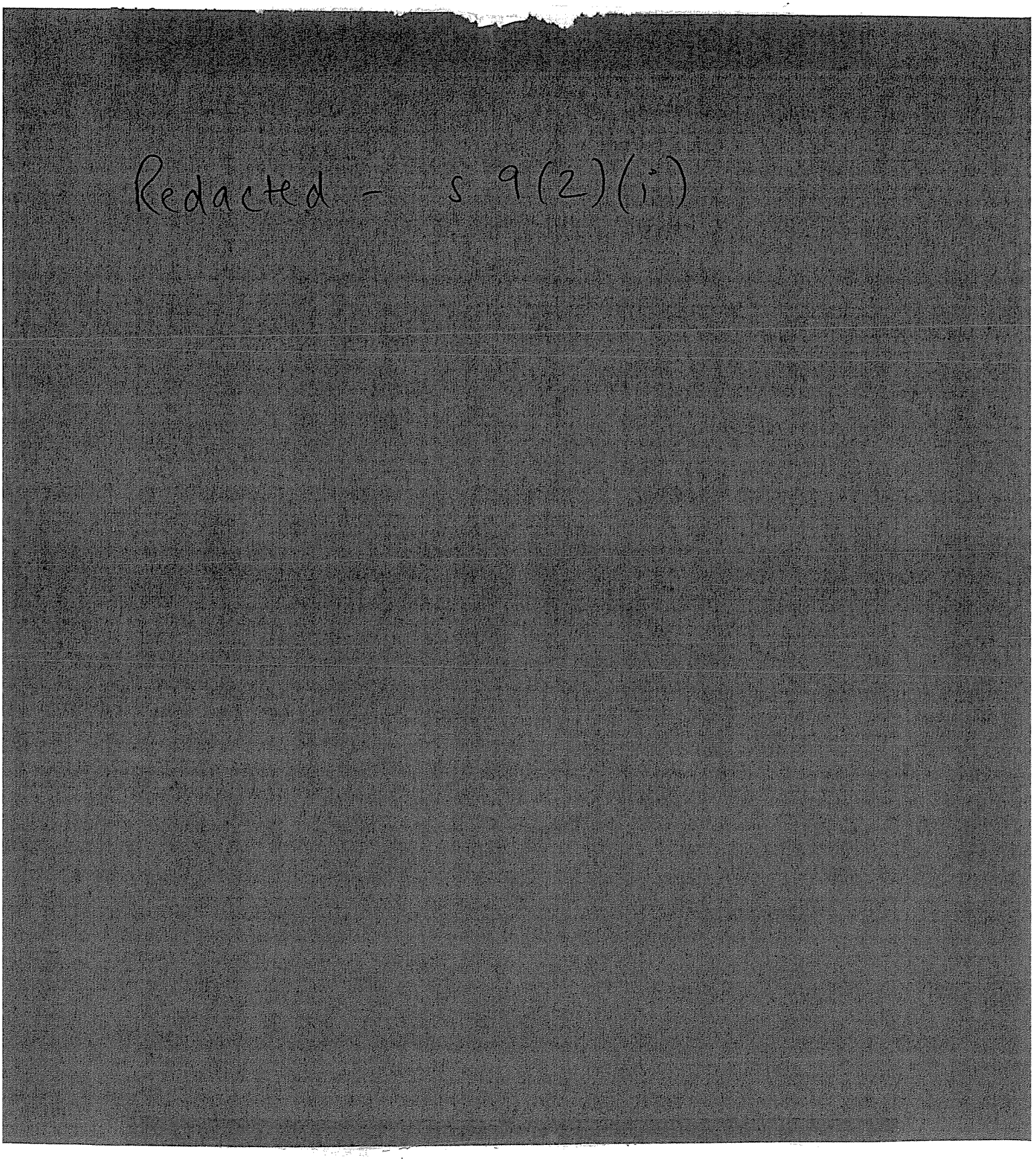
Appendix B. Definitions of likelihood and consequence

When estimating risk, the following tables can be cross referenced to determine likelihood and consequence. Table 1 provides definitions of likelihood while Table 2 provides a range of possible consequences.

Table 1. Assessing likelihood of harm

Almost certain	The event is almost certain to occur within the next two financial years. There is an 80-100% expectation that the event will occur during the time period.
Likely	The event will probably occur within the next two financial years. There is a 50-80% expectation that the event will occur during the time period.
Possible	The risk exposure may possibly occur in the next two financial years. There is a 30-50% expectation that the event will occur during the time period.
Unlikely	The event may occur in the next two financial years. There is 5-30% expectation that the event will occur during the time period.
Rare	There is <5% chance of the event occurring in the next two financial years.

Table 2. Assessing consequence



Required Action

Risk Owner Rating	Required Action
CE/Board (Extreme)	• Only the Chief Executive and Board can accept this level of residual risk. • The Chief Executive and Senior Management must be informed of any risk at this level and must implement remedial action immediately. • The Board must be told of this risk in the month of identification. • The Chief Executive must monitor conformance with the remedial action plan. • There should be contingency plans developed to deal with these risks occurring.
GLT Member (High)	• Only Senior Management/General Manager can accept this level of residual risk. • The Chief Executive and Senior Management must be told of any risk of this level and remedial action must implemented within one working week of identification. • The Finance Risk Investment Committee and the Board must be informed of these risks in the course of usual performance reporting mechanisms. • Senior Management must monitor conformance with the remedial action plan and risk mitigation activity in the ordinary course of performance reporting. • Where appropriate, there should be contingency plans developed to deal with these risks occurring.
3rd Tier Managers (Moderate)	• The relevant 3rd Tier Manager • The Chief Executive and Senior Management must be informed of these risks in the usual course of performance reporting.
Managers within Business Units (Low)	• Business Unit Managers can accept this level of residual risk. • These risks should be managed as part of business as usual. • These risks should be reported to the relevant member of the Senior Management Team if they occur.

Appendix C. Personal Protective Equipment Risk Assessment

Hazard	Description	PPE control measures
Pedestrian interaction with moving vehicles in variable lighting conditions	Pedestrian/vehicle interaction is a significant hazard that could lead to serious injury or fatality. Agents risk being hit by moving vehicles when: • vehicles are loaded in interchanges and parking lots; • agents have to stop on public roads, dismount and walk to reach letter boxes inaccessible by vehicle and • when they walk across driveways to deliver parcels to front doors. Interaction occurs in a variety of lighting conditions: • indoors under artificial lighting, • Daylight, • darkness in early	• Agents are required to wear garments that increase their visibility to drivers. This is considered NZ 'best practice' (e.g. under the *Code of practice for temporary road management, WorkSafe's Keeping safe around moving plant fact sheet*. • High visibility components must be designed and manufactured into the garments. Garments added over the top are inappropriate as they add bulk and get caught in hand grips. • Garments must be designed and manufactured to conform to two Australia/New Zealand Standards. Notably, *AS/NZS 4602.1:2001 High*

	morning/evening in winter when sorting component is removed from agent's role.	*visibility safety garments - Garments for high risk applications* and *AS/NZ 1906.4:2010 Retroreflective materials and devices for road traffic control purposes. Part 4: High-visibility materials for safety garments.* These provide guidance for the design and manufacture of garments to be worn in situations where visibility is critical.
UV exposure	UV exposure is a significant hazard that requires control to protect agents from sunburn, skin damage and cancer. Agents require personal protection from UV exposure while out on delivery between September and April.	• Manufacture garments with sun protective UPF fabrics (especially outer garments e.g. polos, pants) • Long pants that are breathable in warmer conditions. • Breathable long sleeved collared shirts. • Gloves to protect back of hand from sun damage. • Sunglasses that adhered to Australia New Zealand Standard 1337. Alternatively sun protective visor on helmet. • Helmet with peak (Based on guidance from Cancer Society of New Zealand)
Manual handling	Manual handing is a significant hazard. Clothing and PPE is considered an individual risk factor that is known to impact upon a person's ability to safely handle product. E.g., clothing that is too tight will restrict movement and adversely affect manual handling technique. If too loose, it restricts the agent's ability to carry load close to the body and may snag during lifting. Feet also require protection from objects that fall or drop (up to 16kg).	• Well fitted garments that flex with the movement of the body. • Enclosed footwear to protect the feet falling parcels that weight up to 16kg. (Base on guidance from Manual Handling Guidelines for the Workplace (OSH)).
Cold temperatures	People working in uncomfortably cold environments are more likely to behave unsafely because their ability to make decisions and/or perform manual tasks deteriorates. For instance, people may take short cuts to get out of cold environments. Their ability to concentrate is	• Agents need to wear thermally rated garments that are breathable to ensure sweat is wicked away to maintain comfort. Garments should include: o long john base layer, o long sleeve top base layer, o gloves (in combination with

	impaired, which increases the risk of errors and likelihood of accidents.	heated hand grips), o mid-layer fleece and o neck gaitor. • Pair with wind-proof outer shell garment for insulation in windy conditions. • Protection for ears (e.g. thermally rated beanie or ear flaps on helmet) • 'Winter footwear' that is insulated and water resistant.
Hot temperatures	Hot summer months may increase risk of heat stress for some people, especially given the physical nature of postal delivery. Typical symptoms of heat stress include an inability to concentrate and fatigue (HSE). Employees are unlikely to wear personal protective equipment properly in hot environments as a way of regulating thermal comfort (HSE).	A number of possibilities for cooling are possible, including: • manufacture of garments from breathable, lightweight fabric; and • breathable footwear.
Variable temperatures between seasons and work environments	Uniform is required to provide thermal comfortable in extreme temperature variations. For instance, in winter the uniform needs to keep agents comfortable indoors in a heated environment and warm when they head outdoors into cold conditions.	Best way of optimising thermal comfort is to give people individual control over their environment. For instance, allowing them to add/remove garments to adapt to conditions (HSE). Uniform should be based upon a layering principle that enables the addition and removal of clothing depending on level of activity, environmental conditions and personal preference. Layering systems include base layers for heat retention, a mid-layer to trap warmth and an outer layer for windproof protection.
Rain	Agents are exposed to rain within the vehicle and when they dismount to deliver. Rain wets clothing and the body causing discomfort and cooling. Agents may also become more obscure to drivers when they dismount vehicles in heavy rain.	• Provision of waterproof outer garments, including pants and jacket, for heavy rain. Other garments require water resistance ratings for wet conditions. • Manufacture garments from fabrics that dry quickly. • Breathability of garments is important to ensure sweat is wicked away to maintain comfort. • Agents are required to wear garments that increase their

		visibility to drivers in poor weather conditions where light may be dim.
Wind	Cold winds cause thermal cooling of the body.	Provide agents with wind proof outer shell garments to protect from wind chill factor.
Hygiene	Agents perform a physically demanding role causing sweat production. The uniform needs to be kept clean and dry to prevent fungal infections and odour.	Provide agents with multiple garments and pairs of shoes so they can alternate items to air and/or launder. • Manufacture garments from breathable materials that are easy to launder, dry and resistant to odour (e.g. bamboo fabric is used effectively for Postie uniform). • Footwear should be made from breathable fabric to keep feet warm and dry.
Prolonged standing and walking	Agents spend over half their working day on their feet sorting mail, packing their vehicles and walking back and forth between their vehicle, front doors and letterboxes. Long periods of walking and standing causes pain, discomfort and injury.	• Provide socks to cushion, absorb pressure and allow feet to breathe. • Footwear must be designed for walking – well-made, low heeled, fully enclosed, supportive with flexibility through ball of the foot and arch support.
Variable surface types on which agents walk	Agents walk on a variety of surfaces on which they can slip, trip and fall.	• Footwear is required to provide grip on a wide range of surfaces e.g. lino, tiles, grass, cement, wooden decking (in wet, dry and frosty conditions) • Yaktrax must be available to put over their footwear when working in icy conditions (hard frost and snow)
Feet are exposed to sharp objects	Agents will be exposed to a range of sharp objects on delivery that may cause injury to feet, such as broken glass.	Footwear to protect against sole puncture and penetration risks.
Impact/collision	Agents are at risk of being injured in an impact/collision. They could be flung forward onto the windshield or flung out of the vehicle. By law, vehicles are engineered to provide little, if any, protection in such an event (e.g. no seatbelts, no roll bars or airbags). Without this protection,	Helmet is legally mandated to protect the head in the event of a collision. Ideally, PPE must strike a balance between comfort and protection. During initial trials in Wellington, armoured motorcycle PPE was found to be too heavy and restrictive. Lightweight fabric padding added to

	the risk of injury has to be minimised with PPE. While this type of equipment will provide protection, it creates further hazards that also need to be managed (discomfort and heat stress).	garments during the pilot was found to be uncomfortable and ineffective at protecting against abrasion. Agents in New Plymouth requested permission to revert back to the Postie Uniform because it was comfortable and was perceived to offer a suitable level of protection in the event of an incident.
Breaking and/ or dropping technology while on delivery	Psychosocial hazard that agents discussed in relation to cell phones and scanners. They were concerned about dropping and breaking the equipment.	Agents recommended designing large pockets in garments to protect equipment.