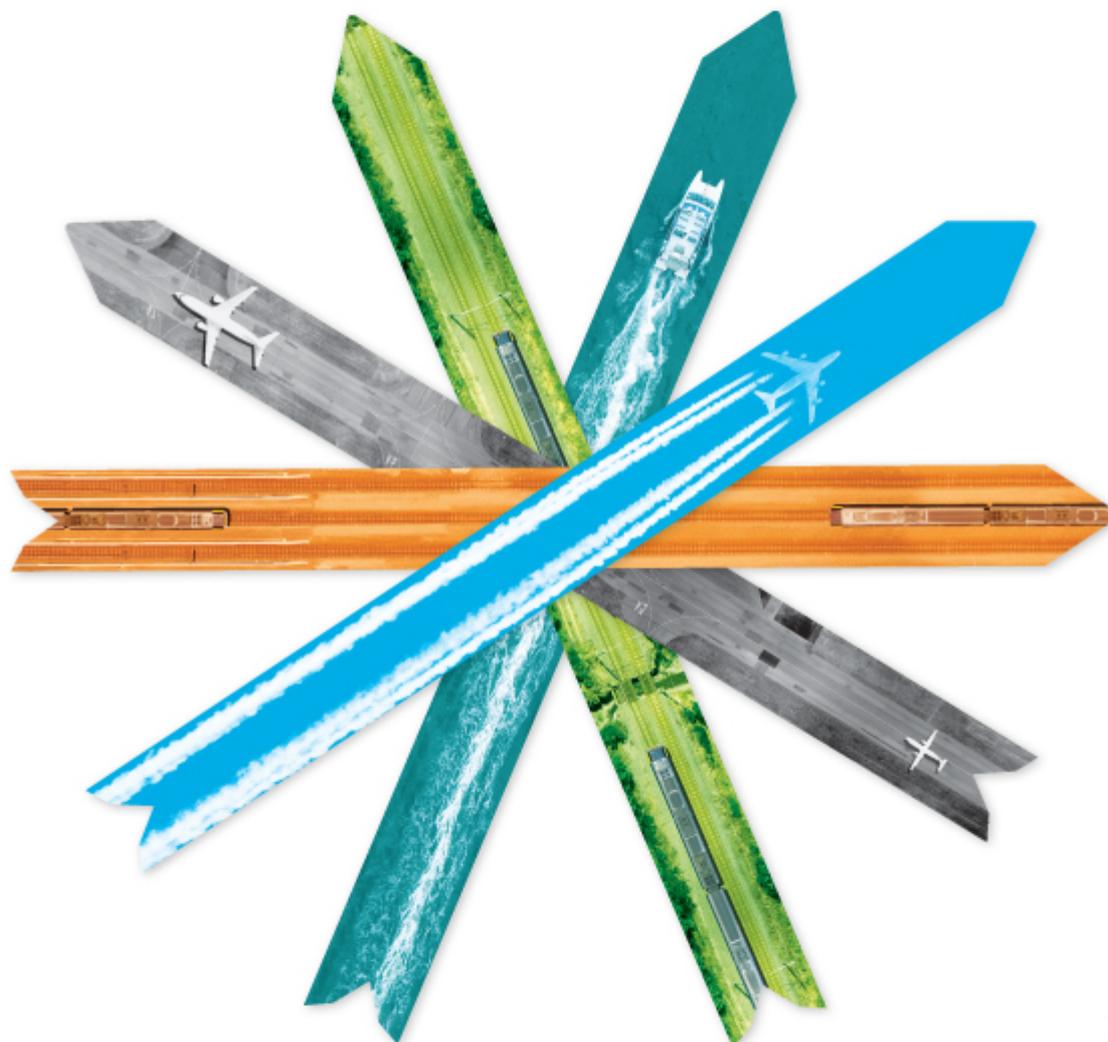


Discussion Paper
Clear heads: options to reduce the risks
of alcohol-and drug-related impairment in
aviation, maritime and rail

March 2015



Ensuring our transport system
helps New Zealand thrive



Section two – background to the issues

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- 2.1 A number of recent high-profile accidents have occurred in the aviation and maritime sectors. As a result, the Transport Accident Investigation Commission (the Commission) and coroners recommend legislation be developed to manage the risks of substance impairment in these sectors more effectively. In particular, the Commission's report *Inquiry 12-001: Hot-air balloon collision with power lines and in-flight fire, near Carterton, 7 January 2012*, released in October 2013, contains specific recommendations.
- 2.2 Laws about drinking alcohol and driving vehicles on roads have been in place for over 40 years, with laws on maximum levels of alcohol being introduced in the 1970s. These laws have become more stringent as research has shown that consuming alcohol adversely affects driver behaviour and driving performance. The government's road safety strategy 2010–2020, *Safer Journeys*, includes measures to prevent driving while impaired by alcohol, in order to reduce the number of deaths and injuries on New Zealand's roads. In contrast, there have been few explicit controls in the maritime, aviation or rail sectors on the use of alcohol or drugs.
- 2.3 The true extent of any problem with alcohol or drug impairment¹ in the aviation, maritime or rail sectors is unknown. Unlike the road sector, the transport agencies², the Commission and Police³ have few legal powers to collect data on impairment following an accident. A coroner can only order forensic toxicology testing of a deceased person involved in a non-road transport fatality. The post-mortem investigation tests levels of alcohol and types of drugs present in bodily fluids. The presence of alcohol or drugs does not necessarily imply impairment.
- 2.4 The Commission has investigated eight events over the last ten years where people have tested positive for performance-impairing substances. These people have either operated aircraft, vessels or rail vehicles or been performing functions that impact the safety of these vehicles. Forty-one people have died in these accidents.
- 2.5 Impairment and the potential for it to be a cause of fatalities or reduce the chances of survival is of real concern to the Commission. There are many more accidents, including fatalities, that do not reach the Commission's threshold for inquiry and are investigated by other agencies. The Commission has said it is seeing more occurrences where performance-impairing substances are involved, although it has not quantified this.
- 2.6 The experience in other countries suggests that alcohol and drug impairment is widespread across all types of transport, with an associated social and economic cost. International data on the number of fatalities linked to impairment from alcohol or drugs is reasonably consistent for

¹ Impairment is defined as where a person's mental or physical ability to perform a task is degraded as a result of ingesting psycho-active or performance-impairing substances.

² Civil Aviation Authority, Maritime NZ and the NZ Transport Agency.

³ Except in relation to international or large domestic vessels.

the recreational maritime sector. Studies have shown alcohol and/or drugs were a contributing factor in 16–28 percent of fatalities⁴.

- 2.7 Estimates of the impact on the number of fatalities are much lower in the highly regulated aviation sector. A 2006 Australian study estimated only 0.4 percent of all accidents were related to alcohol and drugs. Some other estimates are higher – for example, a US study in 2007 estimated ‘substance impairment’ was a factor in 8 percent of all aviation fatalities⁵.

⁴ O’Connor and O’Conner (2005), “Causes and prevention of boating fatalities” *Accident Analysis and Prevention*, US Department of Homeland Security et al (2012), *Recreational Boating Statistics 2011*. Report number COMTPUB P16754.25. Maritime NZ (2008), *Boating safety strategy: 2007 Review of the New Zealand Pleasure Boat Safety Strategy*.

⁵ New Zealand Institute of Economic Research (2014) *A cross-modal risk analysis of substance impairment*.

Table 1: Transport fatalities 2000–2011

Mode	Fatalities ⁶	Estimated % due to impairment ⁷	Estimated industry or passenger fatalities due to impairment ¹⁶	Social costs of impairment by degree of attribution of impairment as a contributing factor ¹⁶			
				Sole factor \$million	High 75% ⁸ \$million	Medium 50% ¹⁷ \$million	Low 25% ¹⁷ \$million
Rail⁹	150	<1	1	3.9	2.9	1.9	1.0
Maritime – Commercial	63	8	5	19.9	14.9	9.9	5.0
Maritime – Recreational	164	25	43	167.8	125.8	83.9	41.9
Maritime – Total	227	20	48	187.6	140.7	93.8	46.9
Airline operators	24	8	2	7.4	5.6	3.7	1.9
Commercial helicopter	13	8	1	4.0	3.0	2.0	1.0
Agriculture and other non-airline aviation	44	8	3	13.7	10.2	6.8	3.4
Aviation – Recreational	71	8	6	22.0	16.5	11.0	5.5
Aviation – Total	152	8	12	47.2	35.4	23.6	11.8
Total – Non-road fatalities over 10 years	529	12	61	238.7	179.0	119.3	59.7
Per annum total – Non-road fatalities			6	24.0	17.9	11.9	6.0
Road	3,929	34	1,336	5,181.8	3,886.4	2,590.9	1,295.5
Per annum total – Road fatalities			137	514.2	388.6	259.1	129.6
Total – All transport fatalities over 10 years	4,458	31%	1,398	5,420.5	4,065.4	2,712.9	1,355.2
Per annum total – All transport fatalities	446		140	\$542.1	\$406.5	\$271.3	\$135.5

⁶ From Ministry of Transport, *Transport safety and security: deaths and injuries* – <http://www.transport.govt.nz/ourwork/tmif/safetyandsecurity/ss004/>.

⁷ From NZIER *A cross-modal risk analysis of substance impairment*.

⁸ An accident can have multiple contributing factors; to reflect this we have used the NZIER's 'probable, possible, and plausible' framework. The percentages reflect the degree to which alcohol impairment was a contributing factor to the accident.

⁹ Many of these fatalities are at rail crossings, with road vehicles colliding with a rail vehicle, and may also be counted in the statistics for road crashes.

The Transport Accident Investigation Commission's recommendations

2.8 The Commission released its final report into the Carterton hot-air balloon accident in 2013, *Inquiry 12-001: Hot-air balloon collision with power lines and in-flight fire, near Carterton, 7 January 2012*. The Commission's report recommends that:

... the Secretary for Transport complete, as a matter of priority, all necessary work that will support the introduction of appropriate legislation or rules that will:

- ▶ *prescribe allowable maximum levels for alcohol*
- ▶ *prohibit persons from operating an aircraft, vessel or rail vehicle if they are impaired by drugs*
- ▶ *require operators to implement drug and alcohol detection and deterrence regimes, including random testing*
- ▶ *prescribe post-occurrence testing requirements for drugs and alcohol.*

This legislation or these rules should apply:

- ▶ *across the aviation, maritime and rail transport modes*
- ▶ *to persons operating an aircraft or a marine craft for recreational purposes.*

Options to implement the Commission's recommendations

2.9 The then Minister of Transport, Hon Gerry Brownlee, and the Secretary for Transport, Martin Matthews, read the report and commented that "there should be zero tolerance of operator impairment, where members of the public are being transported by sea, rail and air". The Minister asked the Ministry of Transport to provide him with options, including legislative options, in order to carry out the Commission's recommendations.

2.10 This discussion paper is a response to the Minister's request. It contains options to implement the Commission's recommendations. Several of the options could be independently actioned, or they could be grouped together as part of a package in a final proposal. All the options would require further work to develop the details before they could be successfully implemented.

2.11 We considered the following points when developing each option:

- ▶ Is it consistent with the Commission's recommendations?
- ▶ Would it improve safety outcomes?
- ▶ Is it likely to be cost effective?

- ▶ Is it consistent with practice in other jurisdictions and relevant international agreements?
- ▶ Does it minimise the risks of operator impairment when transporting members of the public?
- ▶ Is change achievable and consistent with the nature of the industry?
- ▶ Is legislative response proportional to risks?

2.12 Table 4 on page 27 presents a short summary of the options assessed against each of these points.

2.13 This paper does not present a preferred option but rather it is intended to stimulate discussion. It seeks your feedback about the best way to manage risks from alcohol and drug impairment in the aviation, maritime and rail sectors and the costs and benefits of doing so. The purpose of the paper is to ensure:

- ▶ the costs and benefits of taking action justify government intervention
- ▶ decisions are based on risk assessment and empirical enquiry
- ▶ non-regulatory measures are considered before looking at legal regulation
- ▶ the intrusiveness and restrictiveness of interventions are proportional
- ▶ the regulations are flexible enough to respond to changing circumstances within the sectors
- ▶ the regulations are consistent across all the sectors and other regulatory practices and policies.

2.14 The paper makes use of recent work and experiences in the adventure tourism sector. In 2011, the government agreed to amendments to the Health and Safety in Employment (Adventure Activities) Regulations 2011. The government also made equivalent changes to aviation and maritime rules¹⁰. These changes were made to improve safety in the adventure tourism sector.

2.15 The paper uses existing policy in the road transport sector, where appropriate. It is informed by legislative regimes in other comparable countries, especially Australia, the United Kingdom, Canada and the United States of America.

2.16 The Commission's recommendations require actions. There must be a balance between the legitimate need for the public to feel safe and the level of extra costs or restrictions on those in the aviation, maritime or rail sectors, especially when compared to other sectors of the wider economy.

¹⁰ Civil Aviation Rule Part 115, Adventure Aviation. Maritime Rule Part 81, Commercial Rafting Operations (introduced in 2010). Maritime Rules Part 82, Commercial Jet Boat Operations – River.

- 2.17 The options are set out by their increasing breadth of scope and stronger regulation requirements. The Commission's recommendations are in a different order from the options in this discussion paper. Commercial and recreational sectors are treated separately. The sectors have different current regulatory controls. There are different risks associated with impairment for each group. Some options consider impairment only from alcohol and not from drugs and this is discussed in the next section.
- 2.18 The Commission has asked for specific powers to test people for the presence of alcohol or drugs after they have been involved in an incident or accident. We have considered post-occurrence testing in the commercial options 3.1, 3.2 and 4.1 and the recreation options B.1 and B.2. We acknowledge that these options do not fully meet the Commission's proposed recommendation to prescribe post-occurrence testing requirements. A separate amendment to the Transport Accident Investigation Commission Act 1990 would be required to fully implement the Commission's recommendation. This is discussed as a stand-alone option at the end of this discussion paper.
- 2.19 There has been a great deal of discussion by interest groups on the need for mandatory random testing by the Police. We initially considered an option that allowed the Police to undertake random testing as they do in the road sector. However, given the level of intrusion and the cost to implement successfully, we have not included random testing by the Police in this discussion document. Instead, for enforcement purposes we propose either post-occurrence or 'good cause' testing options are trialled in the first instance to establish if these are sufficient. The commercial option 4 enables the Police to test as they see necessary, either after an incident (4.1) or when they have 'good cause to suspect' (4.2).

The options

2.20 The options discussed for the commercial sector are:

- Option 1. Retain the status quo. This option would also include non-legislative actions such as increased education.
- Option 2. Require operators to develop and implement specific alcohol and drug management plans, including appropriate testing requirements, as part of their safety management systems.
- Option 3. Require post-occurrence testing for impairment to enable the Commission to determine the causes and circumstances of the accident, but not for enforcement:

- 3.1. with testing carried out by the commercial operator as part of its drug and alcohol management plan
- 3.2. with testing carried out by an approved third party.

Option 4. Prescribe maximum legal limits for alcohol; prescribe specific alcohol-related offences and penalties; and provide for enforcing maximum legal limits by:

- 4.1. enabling the Police to test for alcohol impairment following an incident or accident (post-occurrence testing)
- 4.2. enabling the Police to test for alcohol impairment where they have 'good cause to suspect' impairment.

2.21 The options discussed for the recreational sector are:

Option A. Retain the status quo. This option would also include non-legislative actions such as increased public education.

Option B. Prescribe maximum legal limits for alcohol; prescribe specific alcohol-related offences and penalties; and enforce the maximum legal limits for recreational operators by:

- B.1. enabling the Police to test for alcohol impairment following an incident or accident (post-occurrence)
- B.2. enabling the Police to test for alcohol impairment where they have 'good cause to suspect' impairment.

2.22 The final option covers any person who is involved in an occurrence.

Option 5. The Commission to have the power to test those involved in an occurrence.

2.23 We will only consider impairment from drugs in relation to an organisation's alcohol and drug policy. We suggest any further consideration on drug impairment is run in parallel with the drug-driving review of the road transport sector scheduled for July 2015. This is discussed further in section 2 *Drug impairment – Deferring consideration of specific legal requirements*.

2.24 Some of the options will require changes to primary legislation. The Acts of Parliament being referred to are the:

- ▶ Civil Aviation Act 1990¹¹
- ▶ Maritime Transport Act 1994

¹¹ The Ministry of Transport is currently consulting on the Civil Aviation Act Review.

▶ Railways Act 2005.

2.25 These three Acts govern the respective transport sectors in New Zealand, and set out the criteria for participating in the sectors and include basic safety obligations. Enforcement measures, penalties or legal consequences would be included in the appropriate Act.

2.26 While the Acts stipulate broad principles of law, each Act also has rules that contain detailed technical standards and procedures. Rules form part of New Zealand law and compliance is required. The Minister of Transport can pass rule changes through a comprehensive process that includes Cabinet approval.

Summary of the options

2.27 The table below summarises the options considered in this paper.

Table 2: Summary of options

		Option 1	Option 2	Option 3.1	Option 3.2	Option 4.1	Option 4.2
Commercial operators	Level of scope and regulation required						
		Status quo	Drug and alcohol management plan (DAP)	DAP with mandatory post-occurrence testing	DAP with mandatory third party post-occurrence testing	Post-occurrence testing for enforcement	'Good cause' testing for enforcement
						Alcohol only	
Recreational	Level of scope and regulation required	Option A				Option B.1	Option B.2
		Status quo				Post-occurrence testing	'Good cause' testing
						Alcohol only	
All						Option 5	
						Post-occurrence testing for all involved in incident	

 No primary legislative change. Changes would be made to rules, regulations, or education campaigns
 Primary legislative (Acts) change

Drug impairment – deferring consideration of specific legal requirements

Point to consider

- ▶ Should the government consider any specific legal requirements around drug impairment at the same time as the planned review in the road transport sector?

- 2.28 The Commission specifically recommended the government consider introducing legislation to address risks associated with impairment from drugs. However, this is more complex than for alcohol impairment, where there is evidence of the effects of alcohol on crash involvement and crash risk¹².
- 2.29 We do not propose to include specific laws to address impairment from drugs. Commercial operators should continue to address these issues in their alcohol and drug detection and management systems. This could be either under existing health and safety legislative requirements or as part of any changes arising from this discussion paper's recommendations regarding alcohol and drug management plans.
- 2.30 A legal framework for drugs is complex to develop because:
- ▶ there are a large number of drugs that can potentially cause impairment, including prescription drugs
 - ▶ it is difficult to establish clear thresholds for impairment for each substance.
- 2.31 At present, there is no low-cost and accurate test for impairment from drugs that is comparable to the roadside breath test for alcohol. Impairment cannot be inferred from the mere presence of a drug (or alcohol) in bodily tissues or fluids.
- 2.32 The Government's *Safer Journeys Action Plan 2013–2015* and other recent road safety strategies have started to look at impairment by drugs. This includes an action to review the drug-driving enforcement regime. The Ministry is due to report the results of this review to the Minister of Transport by the end of July 2015.
- 2.33 We propose the government consider any specific legal requirements around drug impairment in these sectors at the same time as the review of drug-driving in the road transport sector.

¹² Further discussion on this issue can be found in Appendix Two.

The size of the sectors that may be affected

- 2.34 When we look at how to manage the effects of impairment in the transport sector, we need to accept there are differences between the aviation, maritime and rail sectors. Each sector has unique features that need to be considered to achieve the same or a similar level of regulation.
- 2.35 The commercial and recreational aviation sectors are highly regulated. Aviation organisations, pilots, and other personnel must hold licences or an aviation document. This is in contrast to rail organisations, which hold one licence for all employees, so their staff do not have to hold individual licences. The government has recently introduced new safety regulations for the commercial maritime sector. However, the recreational maritime sector has very little regulation and does not require boat registration or skipper licensing.
- 2.36 The size of the sectors also varies greatly, from 99 commercial rail operators to a possible 500,000 recreational boats and other small watercraft. When we consider how to manage the issue of impairment, and the cost associated with this, we must consider the size of the sectors that will potentially be affected and the different risk levels in each sector.

Aviation

Commercial

- 2.37 The aviation sector is made up of airlines operating large commercial aircraft and general aviation using smaller aircraft (usually below 5,700kg or nine passenger seats). The airline sector mostly provides international and domestic scheduled regular public transport operations. The general aviation sector has smaller passenger airlines providing scheduled and non-scheduled public transport operations, such as: sightseeing using fixed wing aircraft and helicopters; agricultural operations; adventure aviation (also covered under specific regulation); and sport and recreation activities. There is also a growing remotely-piloted aircraft systems sector.
- 2.38 This discussion paper proposes options that could affect more than 700 operators and 9,000 commercial licence holders. These include pilots, engineers and air traffic controllers.

Recreational

- 2.39 There are around 4,000 private pilot licence holders. Around 150 of these licences are Recreational Pilot Licences¹³.

¹³ A Recreational Pilot Licence applies to simple, non-high-performance, single-engine aeroplanes, with only one passenger. It includes microlights, gliders, paragliders or hang gliders.

Maritime

- 2.40 The maritime sector is diverse, ranging from very large ocean-going freighters to kayaks and other small watercraft.

Commercial

- 2.41 This discussion paper proposes options that could affect around 2,000 commercial operators, skippers of 4,000 vessels, and 10,000 employees. This is in addition to the 55 vessels that are currently subject to regulatory Standards of Training, Certification and Watchkeeping for Seafarers. Ninety commercial maritime adventure tourism operators are already covered under specific maritime rules for jet boating and rafting.

Recreational

- 2.42 There has been a large increase in recreational boating in the past 20 years, especially in smaller craft such as kayaks. There are no official figures for the number of boats in the recreational sector; estimates vary from 500,000 to 900,000 craft. These figures cover both powered and unpowered boats (including canoes and kayaks).

Rail

- 2.43 Two large operators dominate the rail sector: KiwiRail and Transdev Auckland (which operates the Auckland commuter trains). There are 98 smaller organisations; about half are industrial, generally operating on private rail sidings, and half are tourism and heritage. The smaller organisations mostly operate on their own networks, but there are a few which may use the main rail network. New Zealand does not have recreational railways. Small 'playground' train ride operations are classed as amusement devices and are outside the scope of these proposals.

International experience

- 2.44 Internationally, all three sectors have a range of regulations, testing policies and workplace programmes that involve education and training. Formal requirements for organisational drug and alcohol management plans are common across most comparable jurisdictions.
- 2.45 The table in Appendix Three summarises the current requirements in the United States of America, the United Kingdom, certain Australian states and relevant international agreements.

Summary of options

2.46 The following two tables summarise the paper's options and assess them against the criteria. Table 3 outlines the options in relation to the Commission's recommendations. No one option will address all of the recommendations. Table 4 outlines the options against the policy criteria set out on page 17.

Table 3: Summary of options in this paper and compatibility with the Commission's recommendations

Included in option Options	Targeted group	Explicit drug and alcohol policy	Post-occurrence testing allowed	Reasonable cause testing allowed	Random testing allowed	Maximum limits	Maximum penalties for breaching limits	Requirements for employees	Requirements for passengers	Requirements for recreation sector
1 – Status quo		No	As per DAP if applicable	As per DAP if applicable	As per DAP if applicable	No	No	No	No	No
2 – Drug and alcohol management plan (DAP)	All aviation, maritime, rail operators	Yes	As per DAP	As per DAP	As per DAP	No	Cancelled registration	Yes	Yes	No
3.1 – DAP with mandatory post-occurrence testing	All aviation, maritime, rail operators	Yes	Mandatory under DAP	As per DAP	As per DAP	No	Cancelled registration	Yes	Yes	No
3.2 – DAP with mandatory third party post-occurrence testing	All aviation, maritime, rail operators	Yes	Mandatory under DAP	As per DAP	As per DAP	No	Cancelled registration	Yes	Yes	No
4.1 – Post-occurrence testing for enforcement	All aviation, maritime, rail operators	Yes	Yes	As per DAP	As per DAP	Yes TBD*	Yes TBD	Yes	Yes	No
4.2 – 'Good cause' testing for enforcement	All aviation, maritime, rail operators	Yes	Yes	Yes	As per DAP	Yes TBD	Yes TBD	Yes	Yes	No
B.1 – Post-occurrence testing	All recreational aviation, maritime	No	Yes	No	No	Yes TBD	Yes TBD	No	No	Yes
B.2 – 'Good cause' testing	All recreational aviation, maritime	No	Yes	Yes	No	Yes TBD	Yes TBD	No	No	Yes
5 – Post-occurrence testing for all involved in incident	Any person involved in an incident	No	Yes	No	No	No	No	Yes	Yes (including third parties and spectators)	Yes

Table 4: Assessment of options against criteria

	Option 1	Option 2	Option 3.1	Option 3.2	Option 4.1	Option 4.2	Option A	Option B.1	Option B.2	Option 5
	Status quo	Drug and alcohol management plan (DAP)	DAP, mandatory post-occurrence testing	DAP, mandatory third party post-occurrence testing	Max alcohol limits, post-occurrence testing	'Good cause' testing	Status quo, increase education	Post-occurrence alcohol testing	'Good cause' alcohol testing	Commission tests people involved in occurrence
Is it consistent with the Commission's recommendations?	No	Partially for commercial operators. No max limits or mandated post-occurrence testing	Partially for commercial operators. No max limits	Partially for commercial operators. No max limits	Yes for commercial operators	Yes for commercial operators	No	Yes for recreational purposes	Yes for recreational purposes	Partially. It will allow the Commission to prescribe post-occurrence testing
Would it improve safety outcomes?	Neutral (maintains status quo)	Moderately. Difficult to quantify	Moderately. Testing will allow for quantification	Moderately. Testing will allow for quantification	Yes, but less than where enforcement is more direct	Yes, if actively enforced	Neutral (maintains status quo)	Yes, but less than where enforcement is more direct	Yes, if actively enforced	For data collection purposes. Testing will allow for quantification
Is it likely to be cost effective?	Yes	Yes. There would be cost for a small number of businesses if currently no DAP (\$400–\$2,500)	There would be cost for businesses of \$100 for each test beyond the DAP costs in option 2	Unknown. Dependent on costs of establishing third party post-occurrence testing	Unknown. Dependent on scale of incidence. No data exists to determine extent of costs	Yes. Depends on scale of enforcement effort	Yes	Unknown. Dependent on scale of incident. No data exists to determine extent of costs	Yes, although this depends on scale of enforcement effort	Depends on if it is all incidents or just accidents investigated by the Commission. If the latter, yes
Is it consistent with practice in other jurisdictions and relevant international agreements?	No	Some places require random testing as part of DAP	No	No	Yes	Yes	No	Yes	Yes	No
Does it minimise the risks from operator impairment, when transporting members of the public?	Neutral (maintains status quo)	Yes. As monitored by commercial operators	Yes. As monitored by commercial operators	Yes. As monitored by commercial operators	Yes, but less than where enforcement is more direct	Yes. Depends on scale of enforcement effort	N/A	N/A	N/A	No
Is change achievable and consistent with the nature of the industry?	Neutral (maintains status quo)	Yes	Yes. Testing may be impractical for some small business	Yes	Yes	Yes	Neutral (maintains status quo)	Yes	Yes, although this depends on scale of enforcement effort	N/A
Is legislative response proportional to risks?	Neutral (maintains status quo)	Yes	Yes, although may not be sufficient to fully change behaviour	Yes, although may not be sufficient to fully change behaviour	Yes, although may not be sufficient to change behaviour	Yes	Neutral (maintains status quo)	Yes, although may not be sufficient to change behaviour	Yes	Dependent on the level of testing undertaken and the reach of the intervention