

# Regulatory Impact Statement

## Controlling the import and supply of high-power laser pointers

### Agency Disclosure Statement

This Regulatory Impact Statement (RIS) has been prepared by the Ministry of Health. It was developed to inform policy decisions about whether to introduce new controls on high-power laser pointers. It considers options to manage the health and safety risks from exposure to the beams from high-power laser pointers. Such exposure could arise from accidental or unsafe use or malicious misuse of such laser pointers (e.g., deliberately shining them at aircraft or at other peoples' eyes).

The proposed new controls do not extend to all lasers, or even to all types of laser pointers – just the higher-power classes of laser pointers. Other high-power lasers, such as those used for public displays, are not covered by these proposals. These are more sophisticated devices directed by electronics/mechanical means, and are different from the hand-held pointers.

Concerns are based on a mix of quantitative data and anecdotal evidence, which is summarised below. While this data provides a good indication that there is a problem warranting Government intervention, it does have limitations, so the true extent of the issue is still a little uncertain. Despite the data limitations, officials consider that there is sufficient justification to act now and introduce controls to help protect public health and safety.

Controlling the importation, sale and supply of high-power laser pointers will impose costs on businesses that either import or sell such laser pointers. It will also impact on the ability of people to purchase such lasers for their recreational use. However, such impacts have to be considered against the increasing numbers of such devices being imported, the marked lack of awareness about the potential dangers, and the ease of availability of high-power pointers. These factors are increasing the potential for malicious misuse and inadvertent harm caused by ignorance, including the potential catastrophic effects of a large scale accident such as a plane crash (even though the probability of this occurring is uncertain).

This RIS does not consider new controls on the *possession* of hand-held laser pointers. Parliament will consider this issue further in the context of a Members Bill, the Summary Offences (Possession of Hand-held Lasers) Amendment Bill, which is before the House.

Sally Gilbert, Manager, Environmental and Border Health, April 2013.

## Status quo and problem definition

1. Officials in several government agencies (including the Ministry of Health, the Ministry of Business, Innovation and Employment, the New Zealand Police, the Ministry of Transport, the New Zealand Transport Agency, and the Civil Aviation Authority) have concerns about the risks posed by accidental and malicious misuse of high-power laser pointers.

### Defining high-power laser pointers

2. The joint voluntary Australia/New Zealand Standard for lasers, which covers laser pointers, is AS/NZS IEC 60825.1:2011 *Safety of laser products - Part 1: Equipment classification and requirements* (the “Laser Standard”). This Laser Standard divides lasers into classes depending on their potential to cause injury. As an approximate guide, there is a correlation between laser pointer output power, classification and hazard posed:

Laser pointer output power	Classification	Health risk posed	Covered by the RIS?
Up to and including 1 milliwatt	1 or 2	Low-risk	No
Greater than 1 and up to 5 milliwatts	3R	Relatively low risk, but could still potentially cause some harm to the eye (e.g., if shone into eyes from a short distance).	Yes
Greater than 5 and up to 500 milliwatts	3B	Risk of eye damage	Yes
Greater than 500 milliwatts	4	Can burn skin and damage eyes	Yes

3. The scope of the controls in this RIS cover Class 3R, 3B and 4 laser pointers. They do not apply to laser pointers regarded as low-risk (class 1 or 2).
4. A second voluntary Standard, AS/NZS IEC 60825.14:2011 *Safety of laser products - Part 14: A user's guide* (the “User’s Guide”), provides recommendations for the safe use of lasers.

### Availability and uses

5. High-power laser pointers are cheap (around \$50) and readily available via the internet (auction web sites or retail sale websites) or from shops.
6. Until a few years ago, only low-power hand-held, battery-operated laser pointers (up to Class 3R) were available in New Zealand. Recent advances in technology mean that Class 3B laser pointers are now cheap and easy to obtain. Some of the pointers now readily available fall into Class 4.
7. Astronomers sometimes use high-power laser pointers as aiming devices or to point out astronomical objects, and they may be used as a research tool. Some people obtain them for their own recreational use/amusement (so they can point them at the night sky). For most other purposes (e.g., as a presentation aid) the lower-power pointers can be readily used instead of the high-power ones.

## Risk

8. Generally, the risks associated with the use of lower-power lasers (up to Class 3R) are low. The power output and wavelength are such that the human eye blink and aversion reflexes are enough to protect the retina from permanent damage.
9. By contrast, beams from Class 3B and 4 laser pointers pose a significant risk of eye damage from even momentary exposures. Class 4 laser pointers can also burn skin and may pose a fire hazard if shone on some objects. Apart from the direct risks of exposure of eyes by Class 3B and 4 laser pointers, there are also indirect risks associated with the malicious use of laser pointers. For example, drivers of motor vehicles, aircraft pilots, sea vessel pilots, etc. could be targeted with the beams from laser pointers.
10. Although the beam intensity drops below harmful levels within a few tens or a few hundreds of metres, it is still bright enough to dazzle and cause temporary “flash blindness”. Distracting or dazzling a pilot in this way is a serious aviation safety risk, particularly during critical phases of flight such as take-off and landing, when pilots’ concentration must be at its highest. Car drivers and ship crews are also at risk. Even Class 3R laser pointers can dazzle and distract, but over shorter distances than higher-power lasers.
11. The most serious consequence from the misuse of high-power laser pointers is a person causing a serious plane crash involving hundreds of people. While hard to quantify, the likelihood of this occurring appears low, but the Civil Aviation Authority (CAA) reports that the numbers of incidents involving high-power laser pointers is growing every year.
12. Arguably, the most likely risk of harm is from people accidentally or inadvertently shining the more powerful laser pointers at their own or other people’s eyes and causing damage, without fully understanding the danger or risks involved.

## Magnitude of the problem

13. Over the past decade, there has been increasing concern about accidental injury and the hazards posed by malicious misuse. Officials have considered data from a range of sources. A summary of this information is provided below.
14. ACC records from 30 June 2001 to 31 May 2012 show 131 claims being lodged for injury in relation to laser pointers – of which 100 were successful. The total cost of the 100 accepted claims was \$9,438. More injuries may be sustained but are not captured through ACC data. A serious incident occurred in Auckland in August 2011, when an 11-year old suffered damage to one eye after shining a laser pointer at a mirror. Overseas, there are medical reports of serious eye damage caused by careless use of high-power laser pointers.
15. The number of reported incidents of New Zealand aircraft being targeted by laser pointers steadily increased between 2006 and 2011 (by about 20 additional incidents each year). This may be starting to plateau: in 2011 CAA received 100 laser strike reports, and in 2012 it received 102 laser strike reports. The New Zealand Defence Force advises that its aircraft have encountered 16 flight safety events involving lasers since 2005 (with the most recent one occurring in October 2012). Other reports have been received of people shining them at cars, and sea vessels such as the Interislander ferry. Anecdotal evidence of laser pointers being shone at stock car drivers is also emerging. Overseas incidents include the misuse of laser pointers against the Police in the 2012 Northern Ireland riots and during civil unrests in countries such as Egypt. The devices have also been shone at sports people during games.

16. The Police have secured around ten successful prosecutions in respect of such misuse in recent years.
17. While the probability is uncertain (but likely to be low), the potential consequence of an aircraft pilot being targeted by a high-power laser pointer at final approach would be catastrophic. The CAA measures aircraft accidents in terms of social cost. The value for a statistical life is around \$3.5M (set in 2009). The social cost of a serious injury is 10 percent of this, or \$352,280. Depending on the type of aircraft involved, the maximum social cost for a single aviation crash would range between \$193M and \$238M. The risk of a crash occurring increases with the number of reported events and the CAA reports that the numbers of incidents involving laser pointers is growing every year, which is cause for concern.
18. High-power laser pointers are readily available via on-line auction sites and shops and are cheap (around \$50). For example, records from TradeMe show that in a two month period in 2009, 120 lasers sufficiently powerful to cause permanent eye damage were sold, for an average price of \$54.
19. It is not clear how many laser pointers currently exist in New Zealand – and the proportion of those that are in the high-power category. Customs report that there are approximately 570 shipments of lasers per year (the total number of actual laser pointers within these shipments is unknown). Imports below \$400 are not recorded by Customs so other laser pointers are likely to be entering the country, in unknown amounts – particularly from people importing one or two for their personal use.

#### Existing controls

20. Currently, New Zealand Police can prosecute malicious use, but this is a post-incident control. The lack of supporting regulatory controls makes it almost impossible for the Police or other agencies to prevent unsafe use or deliberate misuse from occurring. Any person with a laser pointer can target an aircraft from a distance and there is very little authorities can do to stop them.
21. There are no regulatory controls relating to the importation, sale, and supply of high-power laser pointers. While there are Standards for addressing safety issues, manufacturing compliance is voluntary. There are currently no controls on the sale and supply of high-power laser pointers. Generally, when these devices are advertised and sold, they:
  - Are not classified according to the Laser Standard (or any other appropriate standard);
  - Do not carry warning labels, or have inadequate warning labels;
  - Do not satisfy the manufacturing requirements; and
  - Do not come with a user guide explaining their safe use.

#### Controls in other countries

22. The malicious use of high-power laser pointers has become a global problem in recent years, with large numbers of incidents involving aircraft reported. In response, a number of countries have introduced controls on the importation, sale, and supply of these devices.
23. In Australia, controls were introduced under the Customs (Prohibited Imports) Regulations 1956. These regulations make it a requirement that any person seeking to import a hand-held laser into Australia must have written permission from the Minister of

Home Affairs or an authorised person prior to the arrival of goods in Australia. Each state or territory then sets its own requirements that are administered through their police forces.

24. In the United Kingdom, advice from the Health Protection Agency (HPA) that lasers above Class 2 should not be generally available to the public has been used to support prosecution of suppliers of laser pointers. The Health and Safety Executive has convinced major British internet suppliers to remove high-power laser pointers from their sites, but it cannot control availability from overseas websites.
25. In the United States, lasers are required by law to meet minimum safety requirements. These requirements are similar to those in AS/NZS 2211.1:2004.
26. In addition, the World Health Organization recommends that the:

*“sale of laser products to the general public should be restricted to Class 1 or Class 2 devices and should be sold with sufficient accompanying information to enable the user to operate the product in a safe manner. Laser pointers higher than Class 2 are considered too powerful for general use as laser pointers and present unacceptable risk in the hands of consumers because they may cause eye injury”.*

## **Objectives**

27. The objective of the policy proposals is to help protect the health and safety of the public from harm from high-power laser pointers. Any new controls need to:
  - Protect people from harm from both *inadvertent or accidental* use and from the *malicious* misuse of such laser pointers;
  - Be risk-based, justified, fit for purpose, and consistent with good international practice;
  - Be appropriate to protect health and safety, while still enabling the sale of high-power laser pointers for legitimate uses; and
  - Not impose any unnecessary or unjustified compliance costs, or unnecessarily restrict access to products unless there is good reason.

## **Identification of policy options**

### ***Non-regulatory options***

#### Option 1: Maintaining the status quo

28. Under the status quo, all types of laser pointers can be imported and sold without any regulatory restrictions.
29. This option would have the least impact on Government to implement and enforce, does not impact on sellers and importers, and would not interfere with the rights of consumers to purchase high-power laser pointers for their recreational use. Current health costs to the health system as measured by ACC claims are also currently low.
30. A key limitation of this approach is that the evidence (despite its limitations) shows the status quo is not working. CAA data shows that instances of laser strikes on New Zealand aircraft have steadily increased. More high-power laser pointers are being

imported for personal use and this also increases the risk of accidental harm to users and other people.

31. A risk with this option is that if something does go wrong, then the consequences could be significant (e.g., a laser strike causes a plane crash or a person is accidentally blinded). There is the potential for Government to be criticised for not ensuring appropriate preventative controls were put in place. This option is also inconsistent with international moves to regulate the high-power laser pointers. Even if the risk of a major aircraft crash is uncertain, the fact that the consequences are potentially so catastrophic, means that officials consider the status quo is not tenable.

#### Option 2: Strengthen voluntary non-regulatory controls

32. Option 2 would involve seeking to bolster the current predominantly non-regulatory approach by raising the awareness of the risks of high-power laser pointers with importers, sellers, and the wider public. This could be done by a programme of writing to stakeholders, promoting voluntary compliance with the Laser Standard, making media announcements, and publishing guidance information. Another initiative would be to ask vendors to request that their manufacturers/suppliers provide warning labels and product safety information with their products.
33. The intent of such initiatives would be to encourage people to only sell and purchase low-power laser pointers (i.e., classes 1, 2) and to educate the public on the potential dangers from the unsafe use of high-power lasers.
34. This option has similar impacts to option 1. There would be less impact on sellers and importers than the regulatory options identified below, and the option would not interfere with the rights of consumers to purchase high-power laser pointers for their recreational use. Some users may decide not to purchase such products as a result of the awareness raising (or purchase a lower-powered laser pointer instead).
35. There would be some compliance costs for sellers to come up to speed with the requirements in the Laser Standard (although similar requirements are commonplace for importers and sellers of other products). Some businesses may decide not to sell the high-power pointers to the general public; others may choose to ignore the advice and guidance. For those that decided to voluntarily add warning labels or produce consumer information, there would be a cost to develop such material. This cost could potentially be passed on to vendors or consumers.
36. Government agencies charged with developing and rolling out a non-regulatory approach would be impacted under this option. The size of the impact would depend on exactly what was developed. Producing basic guidance and media releases could be achieved easily. More significant effort and resources, however, would be required in the outreach to key importers and sellers (and wider public), and maintaining communications over time. It is likely that this cost would be absorbed within baselines, but may mean that resources would be diverted off other initiatives depending on the level of awareness-raising that was undertaken.
37. A key disadvantage is the lack of certainty that this option would materially impact on behaviour or help achieve the policy objective of protecting the health and safety of the public. Even if the risks of the higher-power laser pointers are highlighted, people can still choose to ignore them and maliciously misuse the pointers to cause harm. Raising the profile of high-power pointers further may even have a negative effect with a minority of people, who may choose to deliberately misuse them based on the information provided. Experience to-date has shown this. Media coverage has highlighted the risks, yet instances of misuse are still occurring – in New Zealand and around the world. Additionally, the potential risk of inadvertent harm is considered too high to rely on a

purely voluntary approach, despite the best endeavours of sellers and users and government agencies. In terms of warning labels and safety information, most of the products on the market do not come with such supporting information now. Therefore, it is uncertain whether this state of affairs would change under this option.

38. Initial approaches to vendors and importers to highlight the hazards and asking them to alert consumers have not been effective to-date. Auction websites are unwilling to impose such requirements on sellers, as they do not wish to be surrogate regulators.
39. Relying on a non-regulatory approach is also inconsistent with recent regulatory reforms in other countries – such as Australia.
40. Such an approach potentially leaves the Government open to criticism for not acting decisively enough if a large scale accident does happen, or if further individual cases of eye injury or blindness occur. Conversely, this option would minimise the potential for adverse public reaction if the regulatory options below were considered by the public as an over-reaction to the problem.

#### Limitations and risks with non-regulatory approach

41. The key benefits of the non-regulatory approaches identified are the limited impacts on sellers and importers of high-power laser pointers (and any risk of lost profits or affected business activity) and the benefit obtained by members of the public who value their ability to be able to purchase and use high-power laser pointers (for recreation or other purposes) with no restrictions.
42. However, there are some key limitations and risks with these non-regulatory approaches:
  - The potentially catastrophic consequences of a plane crash (even though the risk is probably low). Evidence shows that the instances of laser strikes against planes have steadily increased.
  - The ease of accidental harm to the user or others, even when there is no malicious intent.
  - The lack of consumer awareness of safety risks from the high-powered laser pointers (compared to the low-powered ones) – which a short term media campaign is unlikely to fully raise.
  - The lack of preventative safety controls in place.
  - The reluctance to date for industry to self-police or voluntarily produce warning labels or safety information.
  - New Zealand would be out of step with recent moves in other countries to regulate the use of these products.
  - The risk to Government if public opinion considers that regulatory controls should be in place and an adverse event happens.
43. For the reasons noted above, a non-regulatory approach (either option 1 or 2) is not considered viable. It is too uncertain that these approaches would achieve the policy objective.

#### ***Potential regulatory options***

44. There is a range of potential regulatory options to minimise the safety risks associated with the use of high-power laser pointers. While sufficient powers exist to prosecute cases of misuse after the fact, there are no regulatory controls on the supply chain in order to prevent accidents or misuse happening in the first place. As noted above, such controls are already in place in some other countries.

45. When considering appropriate legislation in the New Zealand context, officials looked at options available to restrict supply under the Fair Trading Act 1986, the Civil Aviation Act 1990, the Arms Act 1983, the Customs and Excise Act 1996, and Health Act 1956.
46. The former Ministry of Consumer Affairs (now part of the Ministry of Business, Innovation and Employment) considered that the Fair Trading Act 1986 is not suitable for controlling supply of high-power laser pointers. The thrust of controls under this Act is on goods which are inherently unsafe (e.g., are a choking hazard, are made of hazardous materials, etc.), as opposed to goods which are unsafe through misuse. The Civil Aviation Act 1990 makes it an offence to do anything that may endanger aircraft, but contains no provisions to enable controls over the supply of items that could be used to endanger aircraft. New Zealand Police consider that the Arms Act 1983 should not be the vehicle to control the supply or possession of high-power laser pointers. The purpose of this legislation is to control firearms and other weapons, and it is not appropriate for high-power laser pointers, which are not intended to be used as a fire arm or restricted weapon, to be controlled under this Act. The Police also advise that they have adequate powers to prosecute malicious misuse once it has happened (using powers under legislation such as the Crimes Act 1961 or the Civil Aviation Act 1990), but it is often difficult to apprehend the offender.
47. After considering such legislation, officials developed options to introduce regulatory controls under two Acts:
  - The Customs and Excise Act 1996; and
  - The Health Act 1956.
48. The options below aim to reduce the risk of harm from *accidental* exposure and *malicious* exposure.

### Option 3 - Customs and Excise Act 1996

49. A Customs Prohibition Order, made under section 54 of the Customs and Excise Act 1996, would prohibit the importation of the high-risk classes of laser pointers, except with the consent of Director-General of the Ministry of Health (or delegate) and subject to conditions (if any) imposed by the Director-General of Health (or delegate) that are consistent with the prohibition.
50. Such an Order would be similar to the Order that currently restricts importation of knuckledusters and flick knives. Such Orders are made by the Governor-General, if it can be demonstrated that it is in the “public interest” to do so.<sup>1</sup> Officials consider there is a sound case to support this threshold being met. Key reasons include:
  - Health and safety risks arising from accidental or unsafe use, or malicious misuse, of such laser pointers (e.g. deliberately aiming laser pointers at aircraft or at peoples’ eyes);
  - Evidence of increasing number of laser strikes each year on civil aircraft, Defence Force aircraft, and a police surveillance helicopter. Incidents in which laser strikes have occurred on cars and the Interislander ferry have also occurred;
  - Overseas incidents include the misuse of laser pointers against the Police in the 2012 Northern Ireland riots and during civil unrests in countries such as Egypt;
  - The lack of awareness of potential harms from these devices and inherent difficulty for people to readily distinguish a low-power device from a high-power device;

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<sup>1</sup> Section 54(2) of the Customs and Excise Act 1996 refers.



- The ease with which people can be affected by the misuse of laser pointers from a distance;
  - The proposed control will not affect the continued and ready availability of lower risk laser pointers;
  - The proposed regulatory system will continue to enable authorised users to purchase high-power laser pointers for reasonable use; and
  - Other countries have introduced similar controls (e.g., Australia has prohibited imports of these devices without permission from the Minister of Home Affairs or an authorised person).
51. High-power laser pointers are not manufactured in New Zealand, so such an Order would help stem the supply of high-power laser pointers to unauthorised users. The Import Prohibition Order would be enforced by the New Zealand Customs Service at the border and the Ministry of Health would act as the “competent authority” for the controls, including managing the policy issues and operating an efficient system to authorise appropriate importations. The Ministry of Health would need to be readily available for Customs to consult with if they are in doubt as to whether any given import consignment was covered by the Order.
52. This option would impact on importers and sellers of high-power laser pointers as they would need permission to import, which would likely lead to reduced sales (although they could still import lower-power laser pointers without restriction). There would be a flow on effect to the public who wished to purchase a laser pointer from such supplier or who wanted to personally import such products. This option is unlikely to have any international trade issues under the World Trade Organization (WTO) system. WTO allows countries to control imports of products to meet public health and other domestic policy objectives if the measures taken are non-discriminatory and reasonable. There are no domestic manufacturers, so restricting imports would not impose any unfair advantage to New Zealand businesses. Similar controls to imports would be applied to restrict availability if a domestic industry ever developed.
53. The main benefit from this option is that it would help control the supply of high-power laser pointers and stop many that are coming into the country. This would help to reduce potential future safety risks.
54. An Import Prohibition Order does not guarantee that all imports of high-power laser pointers will be identified and intercepted at the border (particularly low volume personal imports). The Order’s effectiveness will depend on a range of factors, such as how many laser pointers are imported, how packages are labelled, and how many packages are inspected.
55. Import Prohibition Orders should not be seen as a total solution in its own right, but one of a set of measures to respond to a policy issue. An Import Prohibition Order can only last up to three years (unless renewed). The temporary nature recognises that import restrictions should usually be introduced under the specific legislation that would normally regulate the manufacture or use of the device, substance, or thing. An Import Prohibition Order is a temporary measure, which can be implemented quickly while further thought is given to other options.
56. In this particular case, however, there are very limited existing legislative vehicles available to control laser pointers. Officials have considered using statutes such the Fair Trading Act 1986, the Civil Aviation Act 1990 and the Arms Act 1983, but none of these are flexible enough to enable the proposed controls to be made. Regulations under the Health Act 1956 have been considered, but this Act does not permit the making of any regulations to control the *import* of these devices. Making an Import Prohibition Order will enable import controls to be applied immediately, allowing for further more permanent legislative changes to be made at a later date.

## Regulatory interventions under the Health Act 1956

57. Section 119(d) of the Health Act 1956 allows for regulations to be made that provide for:

*“The prohibition, restriction, or regulation, of the use, sale, or supply of any apparatus or equipment which may emit electromagnetic radiation (other than X-rays or gamma rays), and the licensing or registration of persons, premises, or things in relation to any such use, sale, or supply”.*

58. This section provides a flexible mechanism for controlling the availability of high-power laser pointers. For example, it would allow restrictions on sale and/or use, standards of manufacture, requirements for labelling and provision of manuals, the establishment of a licensing system for sellers and/or users, or any combination of these. The cost of such controls would depend on what was implemented. Options range from simple low cost options (e.g., limiting sale to commercial or approved users), more detailed requirements (e.g., regulations requiring manufacturing, labelling and use according to the New Zealand Standard on Laser Safety) to more complex higher cost options (e.g., a licensing regime).

### *Option 4.1 - Restrict sale or supply of high-power laser pointers to certain users*

59. The sale and supply of high-power lasers pointers could be restricted to defined categories of ‘authorised users’. For example, this could include astronomers or researchers or other classes of persons who can justify why they require a high-powered laser for a purpose that cannot be achieved with a lower-power laser pointer.

60. The intent of this option is to protect the health and safety of users and the wider public from the accidental or malicious use of such laser pointers, but doing so in a way that is reasonable and efficient to implement and does not unreasonably interfere with people’s access to the products. A detailed licensing regime (like the firearms system) is not required for these devices.

61. The core components of the regulations would involve:

- Defining the classes of laser pointers that would be covered by the controls (both in terms of their physical characteristics and their output power);
- Requiring people to obtain an authorisation from the Director-General of Health (or delegate) in order to sell/supply or use high-power laser pointers;
- Empowering the Director-General of Health to establish and publish a process for making (and revoking) such authorisations and to be able to require reasonable information from the authorised person to make informed decisions;
- Enabling the Director-General of Health to make authorisations subject to any condition the Director-General of Health sees fit (e.g. ensuring appropriate safeguards are in place and procuring the necessary undertaking from the authorised users not to use, or permit the use of, the device in a way that may endanger others);
- Empowering the Director-General of Health to declare approved categories of sellers/users by notice in the Gazette (e.g., members of astronomy societies);
- Empowering the Director-General of Health to develop and publish criteria that must be met before a person can sell/supply or use a high-power laser pointer;
- Imposing a duty on sellers/suppliers to take reasonable care so that they only sell/supply high-power laser pointers to people whom they reasonably believe are authorised users.
- Creating an offence for the selling or supplying of high-power laser pointers to non-authorised users without taking reasonable care;

- Creating an offence against users who obtain or seek to obtain high-power laser pointers by misleading or deceitful means (e.g., by lying about their credentials or intended use); and
  - Other requirements to ensure the workability of the system.
62. The main impact of this option on the wider public is that it would be harder to obtain a high-power laser pointer and some people could view this as an unnecessary restriction on their rights. This option would restrict supply from New Zealand sources and thereby help limit the potential for malicious misuse, or accidental harm from unsafe use. People would still be able to readily obtain the lower-power pointers as they can now.
63. Users such as astronomers, researchers, or the New Zealand Defence Force (NZDF) would still have access to the higher-power pointers, but there would be additional steps to go through to source them. However, these do not have to be overly onerous, and could include applying to the Director-General of Health for permission to source and use them. At the most, this would involve some paperwork that provides clear justification to the decision-maker as to why they need the high-power laser pointer.
64. This option would affect importers and sellers as it would likely mean that many people would either simply purchase a lower-powered pointer or not make a purchase because of the checks or processes involved. This could affect the profit margins of suppliers, and some may decide that the New Zealand market is not big enough and exit the market. However, the Ministry does not believe this would occur. These same importers and sellers would still be able to supply the lower-power laser pointers to the wider public, which comprises most of the existing market in the first place.
65. This option would involve some compliance costs on vendors to check the credentials of prospective purchasers and to take reasonable care to only allow those who satisfy the criteria established to purchase high-power laser pointers.
66. It is acknowledged that this option is unlikely to impact purchases made from overseas websites, unless such sales were also contrary to that country's laws. However, some high-power laser pointers ordered in this way may still be picked up by Customs.

#### *Option 4.2 - Warning labels and user safety guides*

67. High-power laser pointers sold or supplied could be required by regulations to bear appropriate warning labels and be accompanied by user safety information. Selling or supplying a high-power laser pointer which did not satisfy these requirements would be an offence.
68. The Laser Standard specifies labelling requirements for lasers depending on their Class. For example, Class 3B lasers, require a warning label, a label indicating the laser aperture, and labels specifying the laser class, maximum output, wavelength and details of the standard against which it was classified. The standard also requires that a user safety guide be supplied with lasers, outlining the recommended procedures for minimising risks to the user and others. For example, recommended precautions for Class 3B lasers include appointing a designated safety officer responsible for the safe use of the device, using safety glasses if appropriate, and posting warning signs in the area where the laser is being used.
69. The benefit of this option is that it would help raise awareness of the hazards, better inform suppliers and consumers/users, and help reduce the risk of accidental injury if people heeded such information. Such safety information has historically been routinely supplied with many other goods on the market.

70. Initially these requirements could reduce the supply as very few high-power laser pointers available at the moment would satisfy this requirement. The requirements would have a compliance cost impact on manufacturers, sellers, and suppliers to develop such information and to supply it with products. This could therefore lead to a small increase in the cost of these devices if such parties elect to pass these costs on to consumers.
71. The other key disadvantage is that there is no guarantee that warning labels and safety information would be effective in achieving the policy objectives in their own right (without other supporting initiatives). People could choose to ignore the information.
72. On balance, this option is not preferred.

#### *Option 4.3 - Compliance with the manufacturing requirements in the Laser Standard*

73. High-power laser pointers imported into, or sold or supplied in, New Zealand could be required to comply with the manufacturing requirements in the currently voluntary AS/NZS IEC 60825.1:2011. Such manufacturing requirements depend on the class of laser. For example, Class 3B and 4 lasers require a removable key locking device and provision to connect to a remote interlock (which would disable the laser when a door is opened). Selling or supplying a high-power laser pointer which did not satisfy these requirements would be made an offence.
74. These requirements would help reduce the risk of accidental injury by providing a simple means to disable a high-power laser pointer and restrict its use to the person who has the key.
75. Initially, this could reduce the supply as very few high-power laser pointers available at the moment would satisfy this requirement. The requirements would have a compliance cost impact on manufacturers to make the necessary design changes to their products. Some manufacturers may decide not to supply to New Zealand as a consequence. There could therefore be an increase in the cost of these devices, given the supply limitations or if manufacturers elect to pass these costs on to consumers.
76. On balance, this option is not preferred.

#### *Option 4.4 - Licence to sell and maintain a register of sales*

77. Sellers of high-power laser pointers could be licenced and required to maintain a register of sales and information on the credentials of the purchaser. This requirement would provide the mechanism for Government to confirm that the rules on purchase are being followed.
78. Any person who sells high-power laser pointers could be made responsible for obtaining information from potential purchasers about how the laser pointer will be used, and the purchaser's awareness of regulatory controls and risks. The vendor will also maintain a register of sales, which would assist enforcement activity. This register could be subject to audit.
79. Sellers would be expected to take reasonable care in checking purchasers' credentials and follow up in cases of doubt. For example, astronomers wishing to purchase a high-power laser pointer could supply a letter confirming their membership of an Astronomical Society (on society letterhead). University researchers could supply a letter on university or departmental letterhead. Failure to keep proper records, or selling high-power laser pointers to people who do not have a legitimate use, could be made an offence. Sellers who do not comply could have their licence revoked.

80. This option would impact on Government in terms of the costs to establish and maintain ongoing operation of a licensing regime. While such costs will need to be further quantified, they should be able to be accommodated within baselines as the numbers of high-power laser pointers sold each year are not expected to be large. It would predominantly be astronomers and researchers seeking to purchase and in many cases they would do this from an overseas supplier over the internet, rather than from a retail store within New Zealand.
81. For those retailers that supply high-power laser pointers to the public (e.g., some electronic stores, etc.), there would be compliance costs to apply for a licence and to maintain a sales register.
82. Of all of the options, option 4.4 is likely to have the greatest compliance cost for vendors, but this would depend upon the precise nature of any licensing regime developed.
83. The cost of this control system would be largely borne by users, as the administrative costs for sellers, and cost of a licence to sell, would likely be passed on in the purchase price. The requirement to obtain a license and maintain a register of sales could further limit the supply, as many potential sellers might be put off by the administrative effort involved.
84. On balance, this option is not preferred.

#### Option 5: Total prohibition on laser pointers

85. This approach could either involve prohibiting the possession, importation, sale, supply and use of all laser pointers or just all high-power ones (e.g., classes 3R and 4). Appropriate offences would likely need to be created.
86. Government agencies do not support this option. It is overly intrusive and not risk-based, given that there are many laser pointers that are low-risk and can be used for purposes such as presentation aids. The higher-power pointers also are used by astronomers and researchers.
87. This option would have the most significant impact on importers and sellers of such devices, but also on consumers who wish to own and use such lasers.
88. It would impose unnecessary costs – both to industry and the Government to properly enforce. While new imports could be stopped at the border, enforcing this option would involve time and resource on the part of government agencies for those lasers that are already in people's possession. It would initially likely involve a form of amnesty to collect and dispose of the laser pointers, although there would be many people who keep them, so on-going compliance activity would be needed.
89. For the above reasons this option was not considered viable.

## Member's Bill on laser pointers

90. Dr Cam Calder MP has drafted a Members Bill, the Summary Offences (Possession of Hand-held Lasers) Amendment Bill, which would amend the Summary Offences Act 1981 to make it an offence to be in possession of any 'hand-held laser' in public without having a reasonable excuse.<sup>2</sup> The Bill was drawn from the ballot in 2012 and is now part of Parliament's work programme. A wider debate is needed on this Bill, which will be undertaken via a separate process to the regulatory changes proposed in this exercise.

## Impacts

A summary of each option and its likely impacts is provided in the table on below.

Option	Positive impacts	Negative impacts
<b>Option 1: Retain the current voluntary controls</b>	<ul style="list-style-type: none"> <li>Minimal cost to Government to implement and enforce.</li> <li>No compliance cost for industry, importers or suppliers.</li> <li>No restrictions on consumers who want to purchase products.</li> <li>Avoids potential criticism of Government 'over-reaction'.</li> <li>Does not affect the availability of low-power laser pointers.</li> </ul>	<ul style="list-style-type: none"> <li>Will not stop an increase in supply or in the incidents of laser strikes in line with current trends.</li> <li>No preventive controls.</li> <li>Does not reduce the risk to health and safety (through laser strikes and accidental harm).</li> <li>Potential for criticism of Government for not doing enough if something goes wrong.</li> <li>Inconsistent with moves to regulate internationally.</li> </ul>
<b>Option 2: Bolster the current voluntary controls</b>	<ul style="list-style-type: none"> <li>Similar to Option 1 plus the following positive impacts.</li> <li>No costs for Government to develop a new regulatory scheme.</li> <li>Minimal compliance cost for industry.</li> <li>Avoids potential criticism of Government 'over-reaction'.</li> <li>Consumers might be provided with more comprehensive safety information and guidance.</li> <li>Does not affect the availability of low-power laser pointers.</li> </ul>	<ul style="list-style-type: none"> <li>Similar to Option 1 plus the following negative impacts.</li> <li>Resource intensive for Government to maintain and implement over time.</li> <li>Uncertain it will actually work (no guarantee of behaviour change).</li> <li>Industry has been reluctant to self-police (without explicit regulation being in place), so continued voluntary approach may not work.</li> <li>Greater awareness might encourage others to use lasers unsafely (laser strikes).</li> </ul>
<b>Proposed option: a combination of:</b> <ul style="list-style-type: none"> <li><b>Option 3: Prohibit imports using a Customs Prohibition Order</b></li> </ul>	<ul style="list-style-type: none"> <li>Controls/restricts imports (though this is not foolproof) and enables supply chain controls.</li> <li>Introduces preventive controls that are lacking now.</li> <li>Permission to import and purchase can be given to authorised users.</li> <li>Not overly resource intensive for Government to implement compared with some other options (e.g., Option 4.4).</li> <li>Broadly consistent with controls recently</li> </ul>	<ul style="list-style-type: none"> <li>Not all imports are checked (especially small personal imports).</li> <li>Multiple imports of small amounts are unlikely to be detected.</li> <li>Potential loss of business for New Zealand importers and suppliers.</li> <li>Cost to Government to develop regulations and to implement/enforce. Prohibition Orders need to be extended (usually every 3 years).</li> <li>Some will see it as an infringement on their rights to import high-power lasers.</li> </ul>

<sup>2</sup> The Members Bill is available at: [www.parliament.nz/en-NZ/PB/Legislation/ProposedBills/Default.htm?p=2](http://www.parliament.nz/en-NZ/PB/Legislation/ProposedBills/Default.htm?p=2)

<ul style="list-style-type: none"> <li>• <b>Option 4.1: Restrict supply to certain users</b></li> </ul>	<p>introduced by other countries.</p> <ul style="list-style-type: none"> <li>• Reduces supply and limits sales to groups of users, so less likelihood of harm to wider public.</li> <li>• Ensures awareness of hazards.</li> <li>• Does not affect the availability of low-power laser pointers.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not cover high-power lasers that are already owned by people and can continue to be used.</li> <li>• No mandatory requirement for the provision of comprehensive safety information and guidance.</li> </ul>
<p><b>Option 4.2: Require warning labels and safety information</b></p>	<ul style="list-style-type: none"> <li>• Helps raise awareness of hazards and risk.</li> <li>• Consistent with safety requirements for many other goods and products on the market.</li> <li>• Not overly resource intensive for Government to enforce.</li> <li>• Introduces some form of preventive control.</li> <li>• Likely to be seen as less invasive of consumers' right to purchase than some other options.</li> <li>• Does not affect the availability of low-power laser pointers.</li> <li>• Would assist border control to distinguish between high-risk and low-risk laser pointers.</li> <li>• Would encourage importers to use responsible manufacturers.</li> </ul>	<ul style="list-style-type: none"> <li>• Awareness-raising without supporting initiatives is unlikely to change behaviour. Uncertain if it would actually work.</li> <li>• Does not give Government the ability to control the supply chain (e.g., overseas-hosted websites selling non-complying products).</li> <li>• Compliance cost on industry to develop warnings and safety information (largely a one-off cost though). This may see some suppliers exiting the New Zealand market.</li> <li>• Cost on Government to develop regulations and enforce.</li> <li>• Does not cover high-power lasers that are already owned by people and do not comply.</li> </ul>
<p><b>Option 4.3: Require compliance with manufacturing standards</b></p>	<ul style="list-style-type: none"> <li>• Not overly resource intensive for Government to enforce.</li> <li>• Introduces some form of preventive control (lasers can be locked so reduced potential for accidental harm).</li> <li>• Likely to be seen as less invasive of consumers' rights to purchase than some other options (e.g., outright ban or checks on sales).</li> <li>• Does not affect the availability of low-power laser pointers.</li> <li>• Encourages importers to use responsible manufacturers.</li> </ul>	<ul style="list-style-type: none"> <li>• Likely high compliance cost on industry to meet standards if they have to change product design. This would probably see some suppliers exiting the New Zealand market.</li> <li>• Some cost on Government to develop regulations and enforce (but the technical standards have already been developed).</li> <li>• Most products are manufactured overseas: it is hard to stop sales from overseas-hosted websites selling non-complying products.</li> <li>• Does not cover high-power lasers that are already owned by people and do not comply.</li> </ul>
<p><b>Option 4.4: Require sellers to be licensed and keep a sales register</b></p>	<ul style="list-style-type: none"> <li>• Introduces preventive controls.</li> <li>• Introduces supply chain controls.</li> <li>• Enables the tracking of sales, which could assist enforcement.</li> <li>• Would still enable suppliers to continue to operate in the New Zealand market if they obtain a licence.</li> <li>• Does not affect the availability of low-power laser pointers.</li> </ul>	<ul style="list-style-type: none"> <li>• Compliance cost would fall on domestic sellers/suppliers (which could be passed on to consumers).</li> <li>• Does not really target the main supply chain. Some products are sourced from overseas websites, and it is hard to stop sales from overseas-hosted websites selling non-complying products.</li> <li>• Greater regulatory development costs and greater ongoing enforcement costs for Government (compared with some other options; e.g., Option 3).</li> <li>• May be seen as an over-reaction.</li> </ul>

## Consultation

91. In late 2012, a public consultation was undertaken on potential options to manage the health and safety risks of high-power laser pointers. The consultation paper highlighted that officials' preferred approach, subject to consultation, was to restrict supply (including imports) to certain authorised people.
92. A copy of the consultation paper and a draft RIS was posted on the Ministry's website. The Ministry advertised the consultation in the four major daily newspapers and also notified key stakeholders of the consultation exercise. A copy on the summary of submissions will also be posted on the Ministry of Health's web site once Cabinet has made a policy decision on the reform proposals.
93. In summary, twenty-four submissions were received from retail organisations, government agencies, non-government organisations, professional associations, importers, the aviation industry, individuals and other organisations. Seventeen submitters specifically agreed there was a problem with the use of high-power lasers. The remaining seven submitters were either unsure or didn't comment. The potential for a serious air crash was the most commonly noted issue. Some submitters also noted the potential for accidental harm to users or others caused from a lack of awareness of the potential harm (particularly to peoples' eyes).
94. Submitters noted what they regarded as reasonable uses for laser pointers, such as astronomy aids, teaching/presentation aids, research purposes, engineering, surveying or building work, hunting purposes, military use, or medical use. There were clear views that any new controls needed to enable continued use for such purposes. Some submitters expressed concern that any new controls might inadvertently capture either low-risk laser pointers (i.e., the less powerful devices), or other products that are not intended to be covered by the new controls (e.g., hunting binoculars with lasers, surveying instruments on tripods, laser sighting aids on hunting rifles etc.).
95. To help ensure that the proposed regulations do not inadvertently capture other laser devices, it is proposed to define the devices subject to the new controls as those which:
  - Produce a coherent beam of optical radiation (a laser beam) of low divergence; and
  - Are battery powered; and
  - Are intended for use while held in the hand; and
  - Have a power output of greater than 1 mW (i.e., classes 3R, 3B, 4 laser pointers).
96. Additionally, the proposed new controls will authorise the Director-General of Health to declare, by notice in the *Gazette*, those devices or classes of devices that are exempted from the new regulations. For instance, this would include:
  - Devices incorporating a laser specifically intended for use in surveying, construction and general distance measurement;
  - Devices incorporating a laser, specifically intended for military purposes by NZDF;
  - Devices incorporating a laser which are supplied or sold with fixtures for mounting on a firearm as a sighting aid; and
  - Devices which are intended for use as rescue flares.
97. The majority of submitters agreed with the policy objective defined in the consultation paper (see paragraph 27 above). A small number of submitters agreed, but noted caveats. For example, three submitters wanted regulatory controls but felt that the wording of the objective 'watered down' the objective of protecting health and safety by using terms such as "reasonable checks and balances.



98. Across submissions there was broad support for the preferred options of restricting supply (including imports) to authorised persons. Fifteen submitters supported *at least* both of the two preferred options (seven of these submissions also indicated support for introducing further controls such as warning labels, safety information, and licensing of sellers). Two submitters opposed any regulatory controls. One submitter called for a “possession offence” to be created under other criminal justice legislation. This would be similar to that proposed in Dr Cam Calder’s Summary Offences (Possession of Hand-Held Lasers) Amendment Bill, which was recently drawn from the ballot.
99. Very little quantitative information was provided by submitters to help gauge the likely impact of the options on them (e.g., potential costs of lost business, or compliance costs to meet the new regulations). Submitters made qualitative statements about impacts that echoed possible impacts covered in the consultation paper and most comment was on the potential consequences of not passing new controls (e.g., plane crashes, eye injuries).

## Conclusions and recommendations

### ***Preferred approach – a combination of options 3 and 4***

The Ministry’s preference is to use a combination of options 3 and 4.1:

- Making a Customs Prohibition Order, under the Customs and Exercise Act 1996, to control importation of high-power laser pointers at the border; and
- Restricting the supply of high-power laser pointers to certain users.

This view was tested during the recent consultation process as noted above.

The Ministry considers that, together, these two options are reasonable controls to help protect the health and safety of the public. They reflect a pragmatic approach that seeks to prevent harm from occurring in the first place by limiting supply, while recognising the existing enforcement capacities. These responses are also reasonable in terms of compliance costs to all parties while still enabling access to the higher-power laser pointers, but not restricting the supply of lower-power laser pointers to the general public.

## Implementation, monitoring, evaluation and review

100. Standard initiatives would be undertaken to implement the proposed new controls and minimise any impact. This will include a reasonable lead in or transition phasing, a communications strategy, media releases, guidance for stakeholders, and the development of necessary systems and processes to give effect to the regulations, etc.).
101. The effectiveness of the policy approach will be monitored and reviewed as appropriate. This will include keeping a list of import, sale/supply, user authorisations granted, considering Customs data (e.g., interceptions, etc.), and monitoring other data sources such as CAA laser strike notifications and ACC claims data.