

Regulatory Impact Statement

Safer Journeys - Child Restraints

Agency Disclosure Statement

This Regulatory Impact Statement has been prepared by the Ministry of Transport.

It provides an analysis of options to enhance the safety of child passengers.

This impact analysis informs the regulatory decisions to:

- Enhance the safety of child passengers by extending the criteria for appropriate child restraints to be used by children when travelling in motor vehicles.

The analysis in this statement includes an examination of the likely costs, benefits and risks of these actions. It also outlines alternative options that were considered during the policy process.

The analysis in this paper follows on from the analysis in the Safer Journeys strategy. The strategy identified the use of restraints (including child restraints) as an area of continued and emerging focus.

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26 / 09 / 12

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Safer Journeys – Child Restraints

Status quo and problem definition

1. Every year, child passengers are killed and injured in motor vehicle crashes in New Zealand. The data presented in the table below show the numbers of child deaths, serious and minor injuries for children aged 5 to 10 years.

Child Passenger Deaths and Injuries (aged 5 to 10 years) 2002 to 2011)*

Child Age	Fatal	Serious	Minor	Total
Five	7	31	272	310
Six	9	47	314	370
Seven	8	37	325	370
Eight	12	42	378	432
Nine	7	40	374	421
Ten	8	41	409	458
Total	51	238	2072	2361

*The data in the table above relate to child passengers in cars, vans and sports utility vehicles.

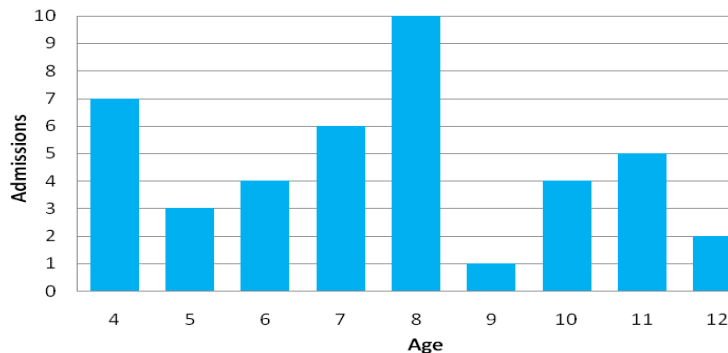
2. The death rate of New Zealand children aged 0 to 14 years¹ in motor vehicle crashes does not compare favourably with most other countries that contribute data to the OECD's International Road and Traffic Accident Database. In 2010 there were around 2.0 deaths per 100,000 population for 0 to 14 year olds in motor vehicle crashes. This is higher than almost all developed countries, including Australia (1.3 deaths per 100,000), and the United Kingdom (0.6 deaths per 100,000)².
3. Research shows that one of the likely causative factors associated with the deaths of 0 to 14 year olds is the inappropriate use of restraints by primary school-aged passengers. The main issue with restraint use for this age group is when children are restrained only by adult seatbelts rather than using booster seats³. (The reasons why child passengers are at risk of serious injury if restrained only by adult seatbelts is discussed further in the section on booster seats).
4. While New Zealand Traffic Crash Reports completed by the Police record whether or not a child is restrained, these reports do not record the type of restraint used. Instead information provided by Starship Children's Hospital has been used to investigate the link between injury severity in New Zealand child passengers and the type of restraint used.
5. Starship Children's Hospital has, over the past 7 years, recorded the number of admissions of seriously-injured child passengers aged 4 to 12 years to the Hospital's Intensive Care Unit. This information is shown in the graph below.

1 It is not possible to use narrower age groups as the numbers are too small. The rates would be subject to substantial fluctuations based on a few cases.

2 The statistics for the United Kingdom are based on 2009 data.

3 A booster seat is a type of child restraint that is used in conjunction with a seatbelt to hold the child in the seat. It is designed for use by child passengers from the age of around 3 to 4 years until around 10 or 11 years when they are tall enough to fit a seatbelt.

*Admissions from 2005 to 2011 to the Intensive Care Unit at
Starship Children's Hospital of seriously-injured child
passengers aged 4 to 12 years*



6. There were 42 admissions in total, including seven post-admission deaths. Many children had severe spinal and/or head injuries, and a number were discharged with permanent disabilities. Only two children were known to have used a booster seat and then only in the front seat of the vehicle rather than best practice – using a booster seat in the rear seat.
7. The above information does not give a full picture of the problem. It does not include children who were treated at other hospitals around the country. Children who died instantly in the crash are not included.

Objectives

8. The objective is to reduce preventable injuries to child passengers. This is consistent with one of the priority areas in the 2011/2012 New Zealand Injury Prevention Strategy which is to reduce unintentional injuries to children.
9. Safer Journeys identified restraints as an area of continued and emerging focus. Bringing our child restraint laws into line with international best practice was identified under the Safer Vehicles stream in Safer Journeys. The *Safer Journeys Action Plan 2011-2012* contained two more specific actions:
 - 9.1. Raise awareness of the benefits of child restraint use by children over the age of 5.
 - 9.2. Investigate extending child restraint requirements by promoting booster seats for children up to a certain age, weight or height⁴.

⁴ The wording of the action in the Action Plan did not further specify which of the criteria (age, weight or height) should be considered.

Booster seats – background

10. Vehicles and seatbelts are designed to fit the dimensions of adults – not children. In order to be able to bend their knees comfortably over the edge of the seat, the child will tend to slide down in the seat. This causes the lap portion of the seatbelt to ride up over the soft tissues of the abdomen instead of lying lower across the bones of the child's pelvis. The shoulder portion of the seatbelt also cuts across the child's neck and face instead of lying across the middle of the shoulder (see Figure 1)⁵.
11. Demonstrations, using crash-test dummies of the approximate size and weight of children in the age-range of interest, have been undertaken to show the impacts of the poor fit of the seatbelt in a crash.
12. In a crash, the positioning of both portions of the seatbelt can cause life-threatening injuries, including serious abdominal, head and spinal injuries. There is also a risk that in a crash, the child will 'submarine' - or slide out from underneath the seatbelt and be ejected from the vehicle. Even if the child survives the crash, they can be left with life-long disabilities.
13. There is physiological evidence relating to specific anatomical features of children that make them more vulnerable to injury in a crash if they are restrained only by a seatbelt. These features include: their small size, short limbs, their relatively large and heavy heads, poorly-developed neck muscles, poorly-developed abdominal muscles, and unprotected and relatively large abdominal organs.
14. The poor fit of the shoulder and lap portions of the seatbelt can be corrected through the use of a booster seat which raises the child to the approximate sitting height of an adult (see Figure 2). As the child can bend their knees comfortably over the edge of the booster seat, this encourages them to sit up straight and not slouch.

Figure 1: Small child using an adult seatbelt without a booster seat



Figure 2: Small child using an adult seatbelt with a booster seat



⁵ Sketches provided by Dr E. Segedin, Paediatric Intensive Care Unit, Starship Children's Hospital

15. International research evidence recording the actual injuries suffered by child passengers who were restrained in booster seats compared to those who were restrained only by seatbelts, is very robust. An American study⁶ carried out in 2003 examined the rate of injuries suffered by children aged 4 to 7 years who were involved in crashes. The study found that the use of a booster seat lowered the risk of injury by 59 percent compared the use of a vehicle seatbelt alone.
16. A number of other studies show similar reductions in the risk of death and serious injuries if child passengers are restrained in booster seats.
17. As a child does not correctly fit a seatbelt until their standing height is at least 148 cm, or around the age of 11 years when their bodies are stronger, there is evidence that all child passengers who are less than 148 cm in height would be significantly safer in booster seats than using seatbelts alone⁷.
18. A New Zealand survey of booster seat usage among children aged 5 to 9 years in 2011 indicated that that booster seat usage for this group was very low (at 23 percent). This is of concern since the majority of children in this age range would need a booster seat in order to be optimally restrained. Seventy-two percent of the children were restrained only by a seatbelt and five percent were unrestrained.
19. A study in 2006⁸ carried out a more detailed examination of booster seat usage by age of child passengers in New Zealand. The survey reported the following percentages of child passengers using booster seats:

Age of Child	Percentage using booster seats
Four	85%
Five	50%
Six	30%
Seven	20%
Eight	10%
Nine to twelve	Less than 10%

20. There was a high usage rate of booster seats by 4 year olds for whom child restraint use is mandatory. After the age of 4 years, the usage rate rapidly declined with increasing age. By the age of 9 to 12 years, very few child passengers were using booster seats.

Options

Option 1 - Increasing awareness of child restraint use for children over 5 years of age

21. Since 2009, SafeKids NZ has run a national campaign on Child Motor Vehicle Passenger Safety. This campaign has attempted to raise public awareness of the need for child passengers to be restrained in booster seats until they reach a standing height of 148 cm.

⁶ Durbin et al (2003) Study based on 3616 crashes involving children aged 4 to 7 years in the United States from 1998 to 2002, *Belt Positioning Booster Seats and Reduction in Risk of Injury Among Children in vehicle Crashes*

⁷ Klinich (1994) *Study of Older Child Restraint/Booster Seat Fit and NASS Injury Analysis*

⁸ Cameron et al (2006) Safe Restraint of the child passenger, *Journal of Paediatrics and Child Health* 42, 752-757

22. The campaign was based on the provision of workshops, information, data and public awareness resources to practitioners who undertake child injury prevention activities. These practitioners work at the community level in a number of workforce sector groups including Plunket, Health, Education, Government Agencies, Territorial Authorities, Maori Providers and Community Services across the country.
23. In 2012, Safekids NZ launched a new website that provides parents and caregivers with short, easy to understand information about child safety – including passenger safety. The *Kids that Click* DVD was also launched in late 2011.
24. Even though Safekids NZ reports that its campaign was well received by those parents with whom it interacted, the usage rate of booster seats, at a national level, remains low. It is not significantly different from the results of a survey, conducted in 2006, that used a different methodology.
25. While increasing awareness of the correct restraint of children is important, it is unlikely to be sufficient on its own to significantly change parental behaviour. Parents would have to reprioritise their household spending in order to purchase a booster seat for each child who needs one. Other factors such as inconvenience and possible resistance from children to use booster seats may also count against achieving high levels of voluntary compliance.
26. Problems with the promotional approach arise when the safety messages being promoted extend beyond the current legal requirements. Parents often rely on the law as the guide as to how they should restrain their children correctly. Safekids NZ reports that a relatively common response from parents is that if it was so unsafe to restrain their children only by a seatbelt, the law would not permit this practice.
27. Developed countries, including New Zealand, have found it necessary to legislate for the mandatory use of child restraints to improve restraint usage by child passengers. Most other developed countries have further extended their child restraint laws to include older or taller primary school-aged children. This is likely to be because improved safety outcomes for child passengers could not be achieved through lower levels of intervention such as educational approaches alone.
28. While raising awareness is a sensible option, it is not recommended as the sole intervention to improve the safety of child passengers.

Legal requirements for child restraints - background

29. New Zealand was once seen as a ‘world leader’ in child restraint requirements in 1994 when the government introduced a requirement for child passengers aged 0 to 2 years to use child restraints at all times. This was extended in 1995 to include all children aged 0 up to 5 years.
30. Since that time significant changes have been made internationally with regard to extending child restraint requirements for older or taller children. New Zealand’s legal requirements now lag well behind the rest of the OECD. The majority of European countries have followed the European Union (Directive 2003/20/EC), which recommends that members require children less than 150 centimetres tall and aged less than 12 years to use a booster seat when travelling in motor vehicles.

Mandatory requirements used by other OECD countries

Country	Height requirement	Age requirement*
Australia	No height requirement	0–7 years
Belgium	No height requirement	0–12 years
Canada	Alberta: No height requirement Quebec: 63 centimetres seated height British Columbia: 145 centimetres	Alberta: 0–7 years Quebec: No age requirement British Columbia: 0–10 years
Germany	0–150 centimetres	0–12 years
Hungary	0–150 centimetres	0–12 years
Japan	No height requirements	0–7 years
Switzerland	0–150 centimetres	0–12 years
New Zealand	No height requirement	0–5 years
Spain	0–150 centimetres	0–12 years
United Kingdom	0–135 centimetres	0–12 years
United States	Varies by State	Varies by state, generally 0–9 years

(*The age requirements are up to the age stated)

Option 2 - Require all child passengers up to 11 years of age or up to 148 cm in height to use an appropriate child restraint at all times (Preferred option)

31. This is the Ministry of Transport’s preferred option. It would capture most of the children who need to use a booster seat in order to be optimally restrained. As a child does not correctly fit a seatbelt until they reach a standing height of 148 cm, or around the age of 11 years when their body is stronger, there is evidence that all children less than 148 cm would be significantly safer in a booster seat than using an adult seatbelt alone⁹.
32. The combined age/standing height option goes further in addressing the outliers (e.g. children who are aged 9 years but already taller than 148 cm and who are therefore safe to use a seatbelt without a booster seat. It is also consistent with most international jurisdictions, including the majority of European countries and jurisdictions in Canada.

Age or Standing Height	Child Age 0 up to 11 years (Younger child)	Child Age 11+ years (Older child)
Child Height under 148 cm (Shorter child)	Must use a booster seat	Can use a seatbelt alone
Child Height 148+ cm (Taller child)	Can use a seatbelt alone	Can use a seatbelt alone

33. The model outlined in the table above assumes that graduation to a seatbelt occurs when whichever of the two criteria (i.e. the age of 11 years or minimum standing height of 148 cm) is reached first. There would still be a small percentage of 11 and 12 year olds who are under 148 cm and would need a booster seat (around 15 percent of 11 year olds and less than 5 percent of 12 year olds). The dual criteria would prevent short adult passengers who are also under a standing height of 148 cm from being required to use booster seats.

⁹ Klinich (1994) *Study of Older Child Restraint/Booster Seat Fit and NASS Injury Analysis*

34. While height is the best criterion for determining whether a child needs to use a booster seat, the Police may find an age-based criterion easier to enforce than standing height. The penalties for non-use of restraints under these extended criteria would be an infringement fee of \$150 or \$1,000 on summary conviction. These are the same as those that currently apply for failing to restrain a child passenger.

Benefits

35. Introducing legislation in New Zealand requiring all child passengers up to 148 cm in height or aged up to 11 years to use child restraints is expected to produce safety benefits. Assuming an 80 percent¹⁰ compliance rate with booster requirements, it is estimated this would prevent 8 deaths, 48 serious injuries, and 528 other injuries over the first 10 years, with a net safety benefit (benefits over and above costs) of around \$43.8 million¹¹. This would result in an estimated benefit cost ratio of 3.2.
36. The benefits arise from the child restraint requirements being extended to include those children who are not currently required to use appropriate child restraints. The usage rate for children aged over 8 years and up to 11 years is approximately 10 percent¹².
37. The Ministry has been conservative in its calculations and the benefit cost ratio could be higher for the following reasons:
- 37.1. A mid-range cost of \$80 per booster seat was used. However, booster seats can be bought online that meet an accepted safety standard for around \$30 to \$50.
- 37.2. It is likely that some children about to turn 5 years of age already have a booster seat which would normally only be used until their fifth birthday.
- 37.3. The costs do not account for families with multiple children handing down booster seats.
38. This option is more consistent with the messages that have already been promoted through public awareness-raising campaigns and in statements made in the media by child safety advocates. Public endorsement by well-recognised child safety advocates (including members of the medical profession) is advantageous in assisting parents to understand the reasons for the change and to accept them.

Costs to individuals

39. A requirement for all child passengers up to 148 cm in height or up to 11 years of age to use an appropriate child restraint at all times would put a maximum total cost burden of \$19.6 million over 10 years on parents and caregivers of the children in this age group who do not currently own a booster seat, and \$10.4 million in the first year. These costs assume an 80 percent compliance rate with booster seat usage requirements.

¹⁰ See Appendix for the results using alternative compliance rates with booster seat requirements.

¹¹ Benefits are social cost savings which are based on current statistical values of life and average accident costs.

¹² Cameron et al (2006).

40. The price of a booster seat can be significant for a low income family that has multiple children that fall within the proposed requirements. There may be other opportunities to reduce societal costs for the purchase of booster seats (e.g. sponsorship or bulk purchasing of booster seats).

Costs to government

41. The NZ Transport Agency has provided initial estimates of the expected publicising and public support activities associated with a change to the child restraints law. Assuming a 6 to 12 months lead in period, these initial estimates range from \$247,000 to \$334,000. Of this, \$160,000 relates to communication activities and \$87,000 to \$174,000 relates temporary customer service staff requirements.
42. The NZ Transport Agency's communication and publicity costs will be funded from revenue from the sale of personalised number plates.
43. Police are unlikely to incur additional costs from enforcement of the extended child restraint requirements. Existing enforcement would continue, and additional enforcement or targeted operations will be carried out through reprioritisation of Police resources.
44. Financial assistance provided by the Ministry of Social Development for the purchase of booster seats for beneficiaries and others meeting the required criteria was not costed for this option as it was not the government's preferred option.

Risks

45. Parents may have more difficulty understanding the dual height and age criteria.
46. Parents may be more at risk of legal sanctions for carrying unrestrained children by this option as a result of the greater numbers of children covered by the extended criteria.
47. For some small to medium sized cars, there may be difficulties fitting three full booster seats (with side and back protection) in the back seat.
48. This option has greater levels of inconvenience for parents and caregivers with regard to ensuring that a booster seat is available when children are travelling as passengers. School-aged children are likely to go on outings with people other than their parents or immediate family (e.g. friends and others involved in school or community-based recreational and sporting activities).
49. This option is likely to generate greater levels of child resistance, especially among older children who would have to resume using a booster seat after having not used one for several years. Managing resistance from children is likely to prove challenging for parents especially in the initial stages of the introduction of new legislative requirements.
50. These risks will be reduced by:
 - 50.1. On-going publicity to explain the legal criteria and the importance of using booster seats.
 - 50.2. The Police currently operate a 'compliance scheme' for offences detected relating to non-use of mandatory child restraints where drivers are given the opportunity to produce evidence of the purchase of a child restraint. If this is provided, the offence notice is withdrawn. It is expected that this scheme would also apply to offences relating to children covered by the extended criteria.

- 50.3. Further consideration will be given about how to use Police discretion or an exemption process to deal with those situations where there may be reasonable practical difficulties complying with the requirements.
- 50.4. Australian research suggests that a mandatory requirement for child passengers to use booster seats is likely to assist parents to resist pressure from children who are reluctant to use booster seats.
- 50.5. Problems persuading older children to use booster seats are likely to reduce over time as booster seat usage becomes accepted as normal behaviour.

Option 3 - Require all child passengers up to 7 years of age to use an appropriate child restraint, and child passengers aged 7 up to 8 years to use an appropriate child restraint if one is available

51. This is the government's preferred option. An extension of the upper age limit to child passengers up to 7 years of age would bring 5 and 6 year old children within the criteria for mandatory use of child restraints. Child passengers aged 7 up to 8 years would have to use a child restraint if one is available.
52. This would provide a partial solution to the child restraint issue. Extending the age limit up to 7 years of age for the mandatory use of child restraints is a pragmatic response to mitigate implementation challenges (especially the costs to families) but it does not provide the optimal safety outcome.
53. It would also align New Zealand's requirements with those that currently apply in Australia.

Benefits

54. Assuming an 80 percent¹³ compliance rate with booster seat requirements, this option is estimated to save 2.2 deaths, 12.8 serious injuries and 131.1 other injuries over the first 10 years. Based on the current values of statistical life, these injury savings have a net safety benefit (benefits over and above costs) of \$2.3 million. This would result in a cost benefit ratio of 1.2.
55. The benefits arise from the child restraint requirement being extended to include child passengers aged 5 and 6 who are not currently required to use appropriate child restraints at all times when travelling in motor vehicles. This proposal would be less costly to parents than Option 2 as fewer children would be required to use child restraints.

Costs to individuals

56. Assuming an 80 percent compliance rate with booster seat requirements, this proposal would put a cost burden over 10 years of \$13.8 million on parents and caregivers of the children in this age group who do not currently own a booster seat, and \$4.25 million in the first year.

¹³ See Appendix for the results using alternative compliance rates with booster seat requirements.

57. The price of a booster seat can be significant for a low income family that has multiple children that fall within the proposed requirements. There may be other opportunities to reduce societal costs for the purchase of booster seats (e.g. sponsorship or bulk purchasing of booster seats).

Costs to government

58. The costs to government for publicity are likely to be similar to those for Option 2.
59. The Ministry of Social Development provides recoverable financial assistance for approved child restraints under Advanced Payment of Benefits (for beneficiaries) and Recoverable Assistance Payments (for non-beneficiaries). In line with the current law, these payments are available for children up to 5 years of age. Work and Income must assess whether a recoverable payment would best meet the need, including looking into other sources of assistance.
60. If the proposal to increase the age for the mandatory restraint of child passengers is adopted, Advance Payments of Benefits will extend to children up to 7 years of age, as it is a discretionary payment. The resulting additional cost is estimated to be \$31,445 in 2013/14 (based on a commencement early in 2014), increasing to \$61,750 in 2015/16 and outyears.
61. In contrast to Advance Payments of Benefits, the Welfare Programme for Recoverable Assistance specifically outlines the items that can be paid for under this scheme. Currently only pre-school aged children are eligible for approved child restraints. It is proposed that the Welfare Programme for Recoverable Assistance is amended to include children up to 7 years of age. The change is estimated to cost an additional \$1,655 in 2013/14 (based on a commencement early in 2014) increasing to \$3,250 in 2015/16 and outyears. Given the very small cost of this change, and the recoverable nature of the assistance, specific funding to meet this cost is not required.

Risks

62. This option has some additional risks to those identified for Option 2. The criteria are less rigorous than international research findings and best practice recommended for the optimal restraint of child passengers.
63. Parents could become confused by apparent discrepancies between the legal requirements for the restraint of child passengers and the optimal safety advice that a number of agencies have already widely promoted. These agencies would continue to promote best practice advice that all children under 148 cm in height need to use a booster seat for optimal levels of protection.
64. Child safety advocates, including members of the medical profession, are likely to express their disappointment that Option 2 was not endorsed. These risks could be managed by providing on-going publicity to explain the difference between legal requirements and best practice advice, and to encourage parents to optimally restrain their children.

Public Consultation

65. Updating New Zealand's child restraint laws received strong support from both the general public and stakeholders in public consultation that was undertaken as part of the development of Safer Journeys. Comments received were that New Zealand's law should be brought into line with international best practice to protect the most vulnerable members of society. Submitters stated that changing the law is vital as parents need to be able to rely on the law for guidance - the current law is providing the wrong information¹⁴. Submitters who did not support the proposal argued that the first step should be better enforcement of the existing law, and that the decision should be left to parents.
66. Discussions and meetings have been held with child safety advocates including the Royal New Zealand Plunket Society, Safekids NZ and intensive care specialists from the Paediatric Intensive Care Unit at Starship Children's Hospital. While these groups have not been consulted on the full range of options presented in this paper, they have previously expressed, on numerous occasions in the media, their support for extending the legislative requirements to include children up to a standing height of 148 cm.

Departmental consultation

67. This Regulatory Impact Statement was provided to the following government agencies for their comment: NZ Transport Agency, NZ Police, Accident Compensation Corporation, Ministry of Social Development, Ministry of Youth Development, Te Puni Kokiri, Ministry of Justice, the Treasury and the Officials' Committee on Economic Growth and Infrastructure.

Section Two:

Conclusions and recommendations

68. An awareness-raising campaign, as suggested in Option 1, to promote safer forms of restraint for older child passengers has not, at a national level, significantly increased the usage rates of booster seats for primary school-aged passengers.
69. The Ministry is of the view that legislative intervention is required to achieve improved safety outcomes for child passengers. Two legislative options are suggested. Option 2 promotes the mandatory restraint use for children up to 148 cm in height or up to 11 years of age. This covers most of the children who need a booster seat in order to be optimally restrained and would therefore provide greater levels of protection for child passengers. It is, however, more expensive.
70. Option 3 promotes the mandatory restraint of child passengers up to 7 years of age; and for child passengers from 7 up to 8 years of age to be restrained if a restraint is available. This is a partial solution. It would provide good levels of protection for 5 and 6 year old children. However it is weak in relation to the mandatory use of child restraints for children aged 7 up to 11 years.

¹⁴ This is in relation to the safe restraint of primary school-aged children.

71. While Option 2 is more expensive, it provides a better benefit cost ratio of 3.2 than the benefit cost ratio for Option 3 which is 1.2. Therefore, the Ministry's preferred option is the mandatory restraint of children up to 148 cm in height or up to 11 years of age.

Implementation

72. A legislative change to the child restraint requirements will need to be made to the Land Transport (Road User) Rule 2004 and the Land Transport (Offences and Penalties) Regulations 1999. A Rule amendment is scheduled for the 2012/2013 financial year.
73. Cost issues can be partially mitigated by allowing a longer lead-in period (e.g. a minimum of 12 months) to the start of the child restraint law change to allow parents to plan ahead and make the most cost effective choice for the longer term. A longer lead-in period would also enable the market to supply the seats at reasonable prices. This issue will be discussed further in public consultation on the amendment to the Land Transport (Road User) Rule 2004.

Monitoring, evaluation and review

74. The road safety outcomes for child passengers will be monitored as part of the ongoing monitoring of road safety outcomes.

Appendix

Calculations of net safety benefits and estimated Injury reduction assuming alternative levels of compliance with child restraint proposals under Options 2 and 3

75. In this Regulatory Impact Statement the calculations of net safety benefits (benefits over and above costs) and the estimated reduction in injuries are based on the assumption of an 80 percent compliance rate with proposed child restraint requirements under Options 2 and 3.
76. The table below shows the net safety benefits (benefits over and above costs) assuming alternative levels of compliance with the booster seat requirements for Options 2 and 3. The alternative compliance rates are full compliance (100 percent) and 60 percent.

Net safety benefit over 10 years (\$m) (Benefits over and above costs)		
	Option 2	Option 3
	Children up to 148 cm height or up to 11 years of age	Children up to 7 years of age
Full compliance	54.8	2.8
80 percent	43.8	2.3
60 percent	32.9	1.7
Benefit-cost ratio	3.2	1.2

77. The table below shows the estimated injury reduction (over 10 years) assuming alternative compliance rates for Option 2 (Children up to 148 cm height or up to 11 years of age).

Estimated injury reduction (over 10 years) for Option 2 (Children up to 148 cm in height or up to 11 years of age)			
	Compliance rate		
Injury type	100 percent	80 percent	60 percent
Fatal	10	8	6
Serious	60	48	36
Minor	660	528	396

78. The table below shows the estimated injury reduction (over 10 years) assuming alternative compliance rates for Option 3 (Children up to 7 years of age).

Estimated injury reduction (over 10 years) for Option 3 (Children up to 7 years of age)			
	Compliance rate		
Injury type	100 percent	80 percent	60 percent
Fatal	2.7	2.2	1.6
Serious	16	12.8	9.6
Minor	163.9	131.1	98.4

Assumptions used for benefit cost and injury reduction calculations

79. The following assumptions were used in the benefit cost and injury reduction calculations:
- 79.1. The cost of a child restraint appropriate for children aged 5 to 10 years is \$80.
 - 79.2. The injury risk reduction between a seat belt and child restraint is consistent with Elvik & Vaa (2004) p.686.
 - 79.3. The proportion of children who are completely unrestrained when they are injured will not change under the new policy. Child restraint surveys from 2011 suggest that five percent of children surveyed aged 5 to 9 years were unrestrained.
 - 79.4. Ninety percent of 10 year olds still require a booster seat (i.e. 90 percent of 10 year olds are less than 148 cm).
 - 79.5. The height profile of the children of New Zealand is comparable to that in the USA.
 - 79.6. The risk reduction profile for children aged 10 years is the same as children aged 9 years. This assumption was necessary due to the limited availability of research for children older than 9 years of age.
 - 79.7. Restraints have a 10 year life - the same restraint can be used from aged 5 to 10 years.