

EXPLANATORY MEMORANDUM TO

The Road Vehicles Lighting (Amendment) Regulations (Northern Ireland) 2011

S.R. 2011 No. 49

1. Introduction

- 1.1. This Explanatory Memorandum has been prepared by the Department of the Environment to accompany the Statutory Rule (details above) which is laid before the Northern Ireland Assembly.
- 1.2. The Statutory Rule is made under Articles 55(1), (2), (4) and (6) and 110(2) of the Road Traffic (Northern Ireland) Order 1995 and is subject to the negative resolution procedure.
- 1.3. The rule is due to come into operation on 24th March 2011.

2. Purpose

- 2.1. These Regulations amend the Road Vehicles Lighting Regulations (Northern Ireland) 2000 (the principal Regulations) the purpose of which is to make it mandatory to display, on a bus carrying children to and from school during term time, school bus signs and warning lights.

3. Background

- 3.1. These Regulations amend the principal Regulations in order to introduce new requirements relating to the display of signs and warning lights on buses.
- 3.2. The Regulations specify the size and type of sign that can be used dependent on the size of the bus. They also stipulate how and when the warning lights will be operated. The Regulations provide a lead in period to allow time for the illuminated signs to be fitted, however from 1st September 2014 the fitting of the new signs will be mandatory for all buses carrying children to and from school during term time.

4. Consultation

- 4.1. The Department consulted on the proposed changes from September 2010 until December 2010, and a full economic appraisal of the options for implementing the new requirement was carried out by the Department in September 2006.

5. Equality Impact

- 5.1. On the 25 May 2010 this policy was screened for equality of opportunity and good relations implications and has been screened out for equality impact assessment.

6. Regulatory Impact

- 6.1. A Regulatory Impact Assessment was undertaken as an integral part of the consultation process in May 2010.

7. Financial Implications

7.1. In regard to the Financial impact there will be costs to service providers as follows: Translink £0.8m; Education and Library Boards £2.6m; and Private Operators £1.1m. There will also be some costs to the Department of around £100K for initial and on-going publicity for the new system.

8. Section 24 of the Northern Ireland Act 1998

8.1. The Department has considered the matter of Convention Rights and Community law and is satisfied that there are no matters of concern.

9. EU Implications

9.1. "Not applicable".

10. Parity or Replicatory Measure

10.1. There is currently no GB equivalent to these Regulations.

11. Additional Information

11.1. "Not applicable"



School Bus

Signs and Warning Lights

Final Regulatory Impact Assessment

1 INTRODUCTION

- 1.1 A Regulatory Impact Assessment (RIA) is a tool which informs policy decisions. It is an assessment of the potential impact of a policy proposal in terms of costs, benefits and risks. It is Government policy that all departments and agencies should produce RIAs when considering any new regulations or measures.

2 TITLE OF PROPOSAL

- 2.1 This proposal considers the impact of amending the Road Vehicles Lighting Regulations (Northern Ireland) 2000 to introduce new requirements to display illuminated signs and to use warning lights.

3 PURPOSE AND INTENDED EFFECT

- 3.1 One of the most common casualties involving a school bus occurs when pupils cross the road after alighting from the bus. The school bus can act as a visual barrier to other drivers intent on passing the bus to continue their journey. Motorists are unaware that a pupil has begun to cross from behind the bus and can only react once the pupil suddenly appears in the road. At slower speeds drivers have more time to react and where a collision does take place, the severity is reduced.¹²
- 3.2 It is important that speeds are lowered around stationary school buses so that the casualty risk to children as pedestrians is reduced. To achieve this, motorists will need to be made aware of (1) how to identify a school bus that is picking up or dropping off school children and (2) that there is a legitimate reason for reducing speed around school buses due to the specific risk when passing a school bus of a school child suddenly appearing on the road from behind the bus.

¹ Colin Buchanan and Partners (2002). Child Accidents en route to and from School. Development Department Research Programme Research Findings No.145. Edinburgh: Scottish Executive Central Research Unit. Available at: <http://www.scotland.gov.uk/-Resource/Doc/46951/0029718.pdf>

² On the safety of school bus transport generally, see Kinnear, N. and Smith, L. (2010). Improving School Transport Safety TRL Report PPR 543. (Available at: <http://www.transportscotland.gov.uk/strategy-and-research/publications-and-consultations/improving-school-transport-safety-report>) Also, Thornthwaite, S. (2010) *School transport: policy and practice* Local Transport Today: London.

- 3.3 To achieve these objectives it is necessary to improve school bus signs – ideally by making them larger, more conspicuous and removing them when school pupils are not being carried and by always using hazard warning lights when children are embarking or alighting from the bus.
- 3.4 A recent report and guide commissioned from TRL by Transport Scotland³ identifies “encouraging motorists to reduce their speed when passing stationary school buses” as one of ten key ways to improve school transport safety.
- 3.5 The objective of this regulatory change is therefore to allow and eventually require all buses, coaches and minibuses used to provide ‘school services’ to fit and use a new signs and warning lights system. This should make school buses more visible to passing motorists and remind them to take particular care when passing buses which have stopped to let children on and off. It is intended that this measure will reduce child pedestrian casualties around school buses and contribute to the achievement of the Northern Ireland Road Safety Strategy to 2020 target to reduce the number of children (0 to 15) killed or seriously injured in road collisions by at least 55% by 2020 (measured against 2004-2008 average figures baseline).
- 3.6 Home to school bus services are provided by Translink, the Education and Library Boards (ELBs) and private operators. For the purpose of these regulations a ‘school service’ is defined as a service:
- (i) which operates during term time only in accordance with a timetable and is normally available to members of the general public and is regularly used by such members but the main purpose of that service is to carry a child to or from his school;
 - (ii) is provided or secured by an ELB pursuant to arrangements made under Article 52 of the Education and Libraries (Northern Ireland) Order 1986; or
 - (iii) is provided by a bus which is the property of an ELB and is painted in the distinctive livery of that Board.

³ Kinnear, N. and Smith, L. (2010). Improving School Transport Safety TRL Report PPR 543.

- 3.7 Routine stage carriage services used by children travelling to or from school, but not specifically provided for that purpose, are not covered by the definition. However, it is estimated that children who travel on 'school service' buses make up approximately 80% of all those who travel to school by bus.
- 3.8 The 80% estimate of the proportion of pupils who will benefit from the new signs and warning lights system is based on data and other information provided by 'school service' operators. It takes account of the estimated number of children who travel to school each day and the estimated number of those who travel to school on 'school service' buses. These estimates are, in turn, derived, using known numbers of: 'school service' buses; pupils issued with bus passes and fare paying passengers; and pupils carried on ELB buses and bus services which they contract in.
- 3.9 A list of Translink's 'school service' buses is published on the DOE Road Safety website⁴. Translink and users of Translink services are therefore able to identify on a day-to-day basis which are 'school service' buses and which are not.

Background

- 3.10 In Northern Ireland (NI) three Government departments have a role in the provision and regulation of school bus transport – the Department of Education (DE), the Department of the Environment (DOE) and the Department for Regional Development (DRD).
- DE gives transport assistance for children who meet specified eligibility criteria. This is provided by allowing children to travel on ELB buses or on buses contracted by the ELBs from private operators or by allocating pre-paid sessional passes that allow children to travel on Translink services.
 - DOE is responsible for regulation of school bus safety.
 - DRD has overall responsibility for public transport policy and planning, of which Translink school bus transport is a part.

⁴ Available at: http://www.roadsafetyni.gov.uk/index/buses/buses-school_buses/buses-school_buses-exceptional_use.htm

3.11 In 2000 the Environment Committee of the Northern Ireland Assembly held a public inquiry into the safety of home to school transport. The Inquiry report⁵ recommended that a specification for a new system of signs and warning lights be developed and that this system should be fitted and used on all school buses.

3.12 The Committee's recommendations for the sign were that it:

- should provide significantly more visible impact than the current prescribed school bus sign,
- would apply to the front and the rear of any vehicle with 9 or more passenger capacity,
- would only show the school bus sign when illuminated,
- would be capable of being operated from the driver's seat,
- would be capable of retrofitting to existing vehicles, and
- could be fitted to work in conjunction with high level hazard warning lights at the front and rear.

3.13 The Committee's recommendations for the hazard warning lights were that they should be:

- fitted to the front and rear and as near to roof level as possible, and
- operated for all boarding and alighting in conjunction with the signs.

3.14 An economic appraisal⁶ of these recommendations was carried out in 2006 by DOE, DE and DRD. This concluded that, "the issue of reducing pre-boarding and post-alights child casualties, and in particular the provision of improved signs and warning lights on buses carrying schoolchildren, should be taken forward". Later that year the then Children's Minister, Maria Eagle, announced that school buses would be fitted with these new signs and warning lights.⁷

⁵ Available at: <http://www.niassembly.gov.uk/environment/reports/report1-01r.htm>

⁶ Available at: [http://www.roadsafetyni.gov.uk/310806_economic_appraisal_colour_with_cover\(final_version\).pdf](http://www.roadsafetyni.gov.uk/310806_economic_appraisal_colour_with_cover(final_version).pdf)

⁷ See <http://archive.nics.gov.uk/ofmdfm/060905b-ofmdfm.htm>

- 3.15 A technical specification⁸ for the new system of signs and warning lights which underpins the proposed regulatory changes, was developed by DOE, in consultation with DRD, DE, the ELBs, private operators (via the Federation of Passenger Transport NI – FPTNI) and external experts in lights and bus manufacture.
- 3.16 Agreeing the specification was a difficult task due to the large range of bus types and sizes involved. Consideration was also given to existing bus types (which would have to have the system retrofitted) and new buses (which may have the new system built in as standard).
- 3.17 The new signs and warning lights system includes all of the features set out in the Environment Committee’s recommendations (see Paragraphs 3.12 and 3.13) and addresses a number of problems associated with the current system including that:
- there is a lack of understanding with motorists as to the intention of the school bus signs currently in use,
 - the current sign is not always removed when the bus is not being used as a ‘school service’⁹, and
 - some operators have stopped using the currently prescribed signs and have installed illuminated signs which the existing regulations do not provide for.

Risk Assessment

- 3.18 In Northern Ireland approximately half of all children aged 11 to 16¹⁰ and around 110,000 children of all ages travel to and from school by bus each day. Of these 110,000, it is estimated that 65% are carried by Translink, 27% by ELB buses and 8% by private operators.¹¹

⁸ The specification is published at: http://www.roadsafetyni.gov.uk/school_bus_signs_and_lights_technical_specification.pdf

⁹ Thornthwaite suggests that this results in a diluting of the meaning for other motorists who may not necessarily associate the sign with the presence of school children because much of the time there are no school children present around buses showing the sign. See Thornthwaite, S. (2010) School transport: policy and practice Local Transport Today: London.

¹⁰ NISRA (2008). Young Persons’ Behaviour and Attitudes Survey Bulletin October 2007-November 2007. Available at: [http://www.csu.nisra.gov.uk/YPBAS%202007%-20Head%20line%20bulletin-%20\(FINAL\).pdf](http://www.csu.nisra.gov.uk/YPBAS%202007%-20Head%20line%20bulletin-%20(FINAL).pdf).

¹¹ All figures quoted in this paragraph are taken from Department of the Environment

- 3.19 Those travelling on Translink services are carried on a mixture of routine stage carriage service and 'school services' which only operate during term time. Despite the name, these 'school services' are, in fact, stage carriage services which allow members of the public to travel.
- 3.20 Reported casualty statistics show that schoolchildren travelling to school by bus are relatively more at risk immediately before getting on and, particularly, immediately after getting off the bus than while travelling on it.¹²
- 3.21 In the five years from 2004 to 2008 on bus journeys to and from school no children were killed and an estimated 11 child pedestrians aged 4-18 were seriously injured by a vehicle other than a bus before boarding or after alighting the bus they were travelling on.¹³ The [Home to School Travel Statistical Bulletin](#)¹⁴, published by DOE in 2008, reported that in the years 2002 to 2006 16 school pupils aged 4-18 were killed or seriously injured by a vehicle other than a bus before boarding or after alighting a bus. These casualties accounted for 15% of all pupils killed or seriously injured and 24% of pupil pedestrians killed or seriously injured while travelling to school.
- 3.22 The new signs and warning lights system aims to address this risk and reduce child pedestrian casualties around buses.

Main Provisions

- 3.23 The regulatory amendments will:
- a. Allow/require all buses being used for 'school services' to be fitted with new signs and warning lights.
 - b. Provide for various system options based on the age and size of the bus.
 - c. Set out the requirements for fitting and operation of the signs and warning lights, and

(2006). The Northern Ireland Assembly Environment Committee inquiry into transport used for children travelling to and from school: Assessment of the four key recommendations. Available at: [http://www.roadsafetyni.gov.uk/310806-_economic_appraisal_colour_with_cover\(final_version\).pdf](http://www.roadsafetyni.gov.uk/310806-_economic_appraisal_colour_with_cover(final_version).pdf)

¹² For sources see footnotes 1 and 2 above.

¹³ Source: Central Statistics Unit, PSNI

¹⁴ Available at: http://www.doeni.gov.uk/home_to_school_travel_bulletin.doc

- d. Create offences in relation to a) the illumination of the sign when the bus is not being used on a 'school service' and activation of the flashing lights when children are not getting on or off, and b) non-illumination of the sign when the bus is being used on a 'school service' and deactivation of the flashing lights when children are getting on or off.

3.24 The system options referred to at b. above are as follows:

- Bus capacity >16 seats: two warning lights and a warning sign (must be fitted to the front and rear of the bus so as to be plainly visible to road users ahead of the bus and to the rear of the bus);
- Bus capacity 9-16 seats: two warning lights and a warning sign (must be fitted to the front and rear of the bus so as to be plainly visible to road users ahead of the bus and to the rear of the bus), or if not practicable then a roofbar displaying warning lights and a warning sign;

3.25 The Technical Specification (see Paragraph 3.15) provides further information about the requirements of the new system and how it is intended to operate in practice.

3.26 The new system will be allowable as soon as the regulations come into effect in March 2011 and will become mandatory from 1 September 2014, coinciding with the start of the 2014/15 school year.

3.27 The implementation period of over three years is designed to give bus operators time to take buses out of service for retrofitting and to assist those who may wish to plan their expenditure across a number of financial years.

3.28 It will also provide sufficient time for all existing ELB 'home to school' bus contracts to be re-tendered according to their normal three year cycle.

4 OPTIONS

4.1 Four options have been identified:

Option 1: Do nothing – make no changes to the existing signs and warning lights on school buses;

Option 2: Improve awareness of existing regulation – develop an educational/publicity campaign about signs and warning lights currently used on school buses;

Option 3: Use existing regulation – design and implement a new signs and warning lights system within the provisions of existing regulation;

Option 4: Amend existing regulation – design and implement a new signs and warning lights system and amend existing regulations where necessary.

Option 1: Do Nothing

- 4.2 This option would involve, for example, making no changes to existing regulation and not devising any new educational campaign or guidance to improve compliance and/or raise awareness.
- 4.3 There is evidence to suggest that there is a lack of understanding among motorists about the purpose of the school bus signs currently in use. The [2007 Northern Ireland Road Safety Monitor survey](#)¹⁵ reported that over one-third (35%) of motorists interviewed did not correctly identify the meaning of the school bus sign. This is in line with findings from a recent study of motorists in Aberdeenshire which found that only 70% understood what the school bus sign meant.¹⁶ The Road Safety Monitor survey also found that although most motorists interviewed think it is risky to pass a bus that has stopped to let school children off – either if they were driving behind the bus (89%) or driving in the opposite direction (75%) – 30% of motorists say they would usually pass a bus that has stopped to let school children get on or off if they were driving behind it.
- 4.4 If action is not taken to improve signs and warning lights on school buses the risk of child pedestrian casualties which occur just before boarding and immediately after alighting will not be addressed. This lack of action may make it more difficult for the Department and its road safety partners to achieve the new Northern Ireland Road Safety Strategy target of reducing the number of children (0 to 15) killed or seriously injured in road collisions by at least 55% by 2020 (measured against 2004-2008 average figures baseline).
- 4.5 Adopting the Do Nothing option would also mean that the Environment Committee's recommendations for a revised system of signs and warning lights would not be implemented.

¹⁵ Available at http://www.doeni.gov.uk/road_safety_monitor_2007.pdf

¹⁶ Fraser, R. (2010). Improving school transport safety: The effectiveness of new school bus signage. Unpublished Master's Thesis, Edinburgh Napier University.

- 4.6 Some operators are already using the illuminated signs which the existing regulations do not provide for.
- 4.7 There would be no implementation costs or benefits associated with the Do Nothing option nor would there be any expected casualty reduction benefits.
- 4.8 In light of the above the Department's assessment is that it is not feasible to adopt the Do Nothing option.

Option 2: Improve awareness of existing regulation

- 4.9 This option would address the known lack of understanding among motorists about the purpose of the school bus signs currently in use and would involve developing and delivering an education/publicity campaign to raise awareness of the existing requirements.
- 4.10 Adopting this option would mean that the Department would be failing to take account of growing research on school bus signs and warning lights (summarised under Option 4) which suggests that current signs have little or possibly no impact while those which include illuminated signs with flashing lights are more and conspicuous and recognisable than our existing static signs.
- 4.11 Failure to take effective action to improve signs and warning lights on school buses means that the risk of child pedestrian casualties which occur just before boarding and immediately after alighting will not be addressed. Opting only to improve awareness of the existing requirements for static signs and making no provision for illumination or high impact flashing lights may make it more difficult for the Department and its road safety partners to achieve the NI Road Safety Strategy 2020 child casualty reduction target.
- 4.12 It would also mean that the Environment Committee's recommendations for a revised system of signs and warning lights would not be implemented.
- 4.13 Some operators are already using the illuminated signs which the existing regulations do not provide for.
- 4.14 The costs involved in the Department mounting such a campaign are assumed to be the same as those for a campaign relating to a revised system, that is, up to £100,000 over a three and a half year period. Either no or some small casualty reduction benefit may be expected – a range of 0 to 5% is assumed. Based on Department for Transport valuations (see Paragraph 5.14 below) this is equivalent to

an estimated monetary annual casualty prevention benefit of £0 to £20,812¹⁷

- 4.15 The emphasis in this option would be on education to the exclusion of other possible interventions involving engineering (a revised system of signs and warning lights) or enforcement (new offences).
- 4.16 Best practice suggests that a combination of education, engineering and enforcement measures is a more effective approach when seeking to improve school bus safety.¹⁸
- 4.17 In light of the above the Department's assessment is that it is not advisable to adopt Option 2: Improve Awareness of Existing Regulation.

Option 3: Use existing regulation

- 4.18 This option would involve school bus operators improving signage voluntarily, improving guidance to encourage operators to use larger signs, and developing and delivering an education/publicity campaign to raise awareness of the existing requirements.
- 4.19 The approach of the Aberdeenshire Council, which developed new school bus signage to include the use of high visibility reflective materials, the words 'School Bus', and chevrons to increase the visibility of the sign, demonstrates what can be done in the short term within existing regulation.¹⁹
- 4.20 Existing regulation regarding permitted signs and warning lights on buses is limited and, for example, does not permit the use of illuminated signs or high impact flashing lights of the type described in the regulations.
- 4.21 Relying on existing legislation would mean that the proposed design and anticipated use of the new system as set out in the Environment Committee's recommendations would neither be fully achievable nor

¹⁷ That is, 5% of the total estimated value of preventing all school bus pre-boarding and post-alighting casualties which occurred in the years 2004 to 2008 which at DfT's 2008 casualty prevention valuation is £189,200 x 2.2 (the average annual number of pre-boarding and post-alighting serious casualties in those years).

¹⁸ Thornthwaite, S. (2010) School transport: policy and practice. Local Transport Today: London.

¹⁹ Aberdeenshire Council (2010). New school Bus Signage: Results from a trial in Aberdeenshire. Available at: <http://www.aberdeenshire.gov.uk/transportation-/roadsafety/SchoolBusSignsEvaluation.pdf>

permissible. Thornthwaite doubts whether the traditional school bus sign as currently used (and misused) has any effect on driver behaviour around buses at all. Also, some operators are already using illuminated signs which the existing regulations do not provide for but which would comply with the proposed new system.

- 4.22 Opting to rely on improvements that could be made without amending the existing regulations may make it more difficult for the Department and its road safety partners to achieve the NI Road Safety Strategy 2020 child casualty reduction target.
- 4.23 The average cost of upgrading signage on school buses in the Aberdeenshire trial is estimated to be approximately £75 per bus (excluding fixing costs).²⁰
- 4.24 An evaluation of the Aberdeenshire trial²¹ concluded that their new school bus signs are more effective than the existing signs in raising motorists awareness to the presence of school buses and, in turn, to the presence of pupils. It reported that motorists found it easier to understand and a survey of bus drivers who trialled the new sign on their buses reported noticing positive behavioural change (e.g. not overtaking and more careful driving) by other motorists around their bus. Speed monitoring tests carried out identified negligible reductions (1mph to 3mph) and were judged to be inconclusive.
- 4.25 The research revealed high levels of support for flashing school bus signs with significant numbers of respondents to a survey of motorists suggesting that “high intensity flashing LED lights” be added to the sign. It was observed that this would require legislation and it was noted as a recommendation for further consideration.
- 4.26 A small casualty reduction benefit may be expected if existing regulation was to be used to improve signage – a range of 0 to 10% is assumed. Based on Department for Transport valuations (see Paragraph 5.14 below) this is equivalent to an estimated monetary annual casualty reduction benefit of £0 to £41,624²².

²⁰ Information supplied by Ritchie Fraser Aberdeenshire Council via e-mail 21 February 2011.

²¹ Aberdeenshire Council (2010). New school Bus Signage: Results from a trial in Aberdeenshire. Available at: <http://www.aberdeenshire.gov.uk/transportation-/roadsafety/SchoolBusSignsEvaluation.pdf>

²² That is, 10% of the total estimated value of preventing all school bus pre-boarding and post-alighting casualties which occurred in the years 2004 to 2008 which at DfT’s 2008 casualty prevention valuation is £189,200 x 2.2 (the average annual number of pre-

- 4.27 It is the Department's view that this option would not achieve the desired use nor support the production of a high quality, comprehensive design system and therefore would not adequately address the risk of child pedestrian casualties around buses.

Option 4: Amend existing regulation

- 4.28 Amending the Road Vehicles Lighting Regulations (Northern Ireland) 2000 to require the fitting and use of the new signs and warning lights system on school buses would mean that the Environment Committee's recommendations can be implemented in full in order to improve the conspicuity of buses and therefore encourage passing drivers to slow down and take care.
- 4.29 The proposed regulations set out the specific requirements for illuminated signs and flashing warning lights on school buses. Guidance to be circulated by DOE to all licensed bus operators and published on its website should help ensure that all operators can and do comply correctly with the regulations.
- 4.30 The costs and benefits of this option, which is the preferred option, are considered below.

5 COSTS AND BENEFITS

Sectors and Groups Affected

- 5.1 The new signs and warning lights system must be fitted to and used by all buses being used to provide 'school services'. This means that all 'school service' providers will be affected by the amended regulations i.e. the ELBs, private operators and Translink.

Education and Library Boards

- 5.2 The ELBs operate their own fleets of around 850 buses to transport school children across Northern Ireland subdivided into five areas – Belfast, Northern Eastern, Southern, South Eastern and Western. ELB buses are of varying size (78% large buses, 22% minibuses) and use a distinctive yellow and white livery.

boarding and post-alighting serious casualties in those years).

Translink

- 5.3 Each day Translink use around 400 buses dedicated to the provision of 'school services'. These buses are of varying size (67% single decker, 33% double decker) and will be in either 'Ulsterbus' or 'Metro' livery. The remaining fleet of around 1,000 buses are used in the provision of 'school services' and stage carriage work.

Private Operators

- 5.4 Private bus firms operate under contract to the ELBs. There are around 330 of such buses operating each day. These buses can be of varying size and livery depending on the operator used. The regulations will impact both on those firms already providing school transport and on those who could potentially provide such a service in the future.
- 5.5 The regulations will also impact on the general public, in particular children who travel on 'school services', through improving road safety around buses and the quality of home to school transport.

Benefits

Monetary

- 5.6 There is evidence to suggest that improving signs and warning lights on buses carrying children to or from school could result in a reduction in boarding and alighting casualties. Evidence from Canada, the Republic of Ireland and France relied upon in the 2006 economic appraisal (discussed at Paragraph 3.14 above) suggested that illuminated signs and flashing lights may make buses more distinctive and visible, particularly in poor weather conditions, which may encourage drivers to slow down and take greater care while children are getting on and off. That assessment assumed a modest (10%-20%) reduction in the likelihood of death or injury as a result of enhanced signs and warning lights.
- 5.7 Preliminary testing of the new system found a small (though not statistically significant) reduction in the speed of vehicles around buses²³. Road safety research suggests that even a small reduction in speed can have an impact on collision risk. A study²⁴ by TRL has

²³ The results of the School Bus Signs and Lights Speed Monitoring Test are available at http://www.roadsafetyni.gov.uk/school_bus_signs_and_lights_speed_monitoring_test.pdf

²⁴ Taylor, M.C., Lynam, D.A. and Baruya (2000). *The effects of drivers' speed on the*

established, for example, that cutting average speed by 1 mph cuts average crash frequency by around 5%. Any decrease in speeds is also likely to be associated with increased vigilance, focus and attention to where pedestrians might appear on the roadway and an increased readiness to react all of which may contribute to a reduction in the number and severity of collisions.

- 5.8 In the absence of research on the effectiveness of a directly comparable system of signs and warning lights it is impossible to estimate the likely level of benefits with any great accuracy. Nevertheless, a growing body of international research suggests that a system which includes illuminated signs and flashing lights combined in close proximity is likely to be more conspicuous and recognisable than existing static signs and therefore potentially more effective in getting motorists to slow down and take care in the vicinity of school buses.
- 5.9 A 2005 study in Sweden found that the bus sign alone does not result in any modification of driver behaviour but that if the sign is combined with blinking lights, drivers will decrease their speed.²⁵ A later simulator study found that the use of flashing lights with school bus signs caused drivers to reduce speed earlier, before the signs were in view.²⁶ Similar findings were also made in Tasmania and Western Australia where the most effective option was to add “bright, briskly flashing amber lights” to the school bus sign.²⁷
- 5.10 More recent Swedish research has found that signs with some sort of movement have a higher degree of conspicuity compared to static signs.²⁸

frequency of road accidents TRL Report 421 Available at: <http://www.trl.co.uk>

²⁵ Anund, A., Kronquist, L. and Falkmer, T. (2005). An evaluation of the school transportation vehicles icon – an experimental study VTI Report 516. Sweden: Swedish Road Administration (VTI). Available at <http://www.vti.se/-EPIBrowser/Publikationer%20-%20English/R516Eng.pdf>

²⁶ Kircher, K., Thorslund, B., Kircher, A., Falkmer, T. and Anund, A. (2007). Assessment of safety effects of a speed limit of a 30km/h when passing a bus – a simulator study. VTI Report 573 Sweden: Swedish Road Administration (VTI). Available at: <http://www.vti.se/EPIBrowser/Publikationer%20-%20English/R573eng.pdf>

²⁷ Land Transport Safety Authority (2002) *School bus related safety – a literature review* cited by Thornthwaite, S. (2010) *School transport: policy and practice* Local Transport Today: London

²⁸ Anund, A., Eriksson, L., Kircher, K., Porathe, T. and Strand, L. (2010) Development and testing of a new school bus sign VTI Report 693. Available at: <http://www.vti.se/-EPIBrowser/Publikationer%20-%20English/R693Eng.pdf>

- 5.11 Finally, a small-scale evaluation of school bus signs and their effectiveness in reducing the speed of passing vehicles has recently been conducted in New Zealand.²⁹ The results suggest that combining child pictograms (similar to Northern Ireland's existing school bus sign) with closely spaced flashing lights (similar to the proposed new signs and warning lights system) was twice as effective in reducing average traffic speeds (by 12 kmp/h as compared to 6 kmp/h) than the pictogram alone.
- 5.12 Notwithstanding the growing body of research about the potential benefits of improved school bus signage incorporating flashing lights it remains the case that, as yet, there is no documented evidence that initiatives like those trialled in Australia have reduced school bus-related collisions or casualties.³⁰
- 5.13 In light of the findings outlined above the Department's previous estimated range of a 10% to 20% casualty reduction appears unduly pessimistic. No system of high visibility signs and hazard warning lights – however well designed, implemented and enforced – will ever completely eradicate child pedestrian casualties in the vicinity of buses. But it seems not unreasonable to suggest that the benefits of introducing such a measure could potentially result in a reduction of 50% in pre-boarding and post-alighting casualties.
- 5.14 Each year the Department for Transport calculates average values for avoiding a range of transport collisions and casualties³¹. The Department for Transport's values for avoiding transport collisions and casualties are estimates; however, there is detailed information available in the Reported Road Casualties GB report on the methodology used to arrive at these costs. These are the costs which the Department uses for appraising costs relating to transport casualties and deaths. Using these figures and the average annual statistics for child pedestrians seriously injured while on a journey to/from school in the vicinity of a bus but due to a collision with another vehicle in the years 2004-2008 the possible range of benefit can be estimated.

²⁹ Baas, P., Charlton, S., Taramoeroa, N. and Edgar, J. (2010) School bus safety September 2010 New Zealand Transport Agency research report 408. Available at: <http://www.nzta.govt.nz/resources/research/reports/408/>

³⁰ Kinnear, N. and Smith, L. (2010). Improving School Transport Safety TRL Report PPR 543. Available at: <http://www.transportscotland.gov.uk/strategy-and-research/publications-and-consultations/improving-school-transport-safety-report>

³¹ See <http://www.dft.gov.uk/adobepdf/162469/221412/221549/227755/rrcgb2008.pdf>

- 5.15 A reduction of 10 to 20% translates into an estimated annual casualty prevention benefit of £41,624³² - £83,248³³ and a reduction of 50% is equivalent to a benefit of £208,120³⁴.
- 5.16 Over ten years, assuming a 50% reduction in casualties, the total monetary benefit is therefore estimated to be in the region of **£2.1 million**.
- 5.17 It should be noted that this figure does not apply higher than average values to the prevention of child casualties although it may arguably be appropriate to do.
- 5.18 Nor does it allow for the possibility that a fatality (for which the 2008 valuation is £1,683,800) might occur. No school bus boarding or alighting deaths did occur in the period 2004-2008. However, the likelihood of a collision resulting in a death rather than a serious injury could increase depending on the size and age of the child, the size of the bus and, within even a small range, the speed of the passing vehicle. Therefore the potential for this regulatory measure to prevent one or more child road traffic fatalities over a ten year period cannot be discounted.
- 5.19 Of the four options considered this option is assessed as most likely to contribute to casualty reduction and to the achievement of the target to reduce the number of children (0 to 15) killed or seriously injured in road collisions by at least 55% by 2020 as proposed in the Road Safety Strategy for Northern Ireland to 2020³⁵.

Non-Monetary

- 5.20 The 2006 economic appraisal also indicated that there are a number of non-monetary benefits that could accrue from the introduction of new signs and warning lights on school buses as follows:
- **Addressing public concern** – this proposal goes some way to addressing the concern of the general public about the

³² That is, 10% of the total estimated value of preventing all school bus pre-boarding and post-alighting casualties which occurred in the years 2004 to 2008 which at DfT's 2008 casualty prevention valuation is £189,200 x 2.2 (the average annual number of pre-boarding and post-alighting serious casualties in those years).

³³ 20% of £189,200 x 2.2.

³⁴ 50% of £189,200 x 2.2.

³⁵ Available at http://www.roadsafetyni.gov.uk/consultation_on_preparing_a_road_safety_strategy_for_ni_2010-2020.pdf

perceived safety of children travelling to and from school as highlighted by the Northern Ireland Assembly Environment Committee in 2001.

- **Contributing to a better quality service** – it is expected that the measures will provide some contribution to a better quality school bus service which should maintain, and may increase, existing high levels of bus patronage among post-primary school children thus encouraging sustainability.

Costs

Compliance Costs

- 5.21 School transport providers will, by 1 September 2014, have to ensure that all buses are fitted with the new signs and warning lights. Providers will have the flexibility to choose from a number of system and fitting options, depending on their operational needs.
- 5.22 Costs for an illuminated school pictogram sign plus two flashing warning lights will vary for each bus depending on its type and construction, the ease of fitment of the signs and warning lights, the use of any additional text e.g. 'SCHOOL BUS', the type of sign chosen and the use of any existing light and sign fittings already on the bus.
- 5.23 Current 'school service' providers estimate that the costs per bus are expected to range from £500 (to fit the system to a bus with an existing LED destination panel) to £3750 (to fit the system to a bus without any existing equipment). A detachable roof bar will cost around £315.
- 5.24 The estimated overall cost of fitting the new system on all buses currently used for school transport is set out below. Most of the costs are one-off and there are not expected to be any additional running costs.
- 5.25 The extended implementation period provided for in the regulations (from the operative date in March 2011 to 1 September 2014) will allow operators time to retrofit buses and, if they wish, to plan that expenditure over a number of financial years.

- **Translink**

Of the 1400 Translink buses used for school transport 108 buses will be replaced as part of the company's ongoing bus replacement programme with the new system being

incorporated at build stage at negligible additional cost. A further 798 buses will be retrofitted at an estimated cost of **£0.8 million**.

Translink have indicated that all buses will be fitted with an illuminable destination panel that when switched off shall show only a blank grey or black 'face'.

- **Education and Library Boards**

The estimated cost of fitting 842 ELB buses with the new system is £2.6 million.

- **Private Operators**

The estimated cost of fitting 330 private operator buses is £1.1 million.

The total estimated cost of fitting for all operators is **£4.5 million**.

Costs to enforcement agencies

5.26 It is expected that the new regulations will be taken account of in the normal DOE bus enforcement programme within the available resources.

Advertising costs

5.27 It is also expected that there will be some costs to the Department for initial and on-going education and publicity about the new system over a period of at least three and a half years, from the regulations operative date of March 2011 until the regulations mandatory date of September 2014 and beyond.

5.28 DOE plans, at an assumed cost of up to £100,000, to implement a targeted educational publicity campaign to raise awareness of the signs and warning lights among all road users, including children. This campaign will help inform drivers how they should adapt their driving behaviours when in the vicinity of a school bus which is stopping, or has stopped, to let children on and off. It will also educate children and young people about how they can help keep themselves safe when they are around school buses. The cost of any campaign will have to be met from existing allocations and/or in year bids.

Other Costs

- 5.29 The mandatory fitting of the new signs and warning lights system, in particular the backlit version, to all buses used in school transport may mean that bus resale (8-10% of ELB 'school service' buses enter the resale market, Translink buses have no resale value) is more difficult, particularly outside of Northern Ireland.
- 5.30 Similarly it may limit the use of buses (in particular those belonging to private operators) outside of the school run, therefore reducing earning potential. This will not be an issue where warning lights can be turned off and LED-based signage systems can be reprogrammed.
- 5.31 It may also be less attractive for bus operators to apply for school transport work if it means that they must fit the new system to their buses in order to do so. This may lead to firms choosing to leave or, indeed, not enter the school transport sector, resulting in a less competitive tendering process and, possibly, an increase in the cost of school transport. Again this will not be an issue where warning lights can be turned off and LED-based signage systems can be reprogrammed.
- 5.32 These costs have been at least partially mitigated through the provision of a number of system and fitting options designed to minimise costs and make it easier to switch off and/or remove the system completely.

6 SMALL FIRM IMPACT ASSESSMENT

- 6.1 Account has been taken of the likely impact these measures will have on small as opposed to larger businesses.
- 6.2 While all school bus providers will have to comply with the new regulations, the cost of making such changes may be more easily managed by larger firms. Small bus operators, in particular, may not be able to absorb the additional cost and may have to increase their costs when tendering in order to re-coup monies invested. In response to this issue DE has indicated that the additional signs and warning lights costs, which may be added to school transport tenders, will not be taken into account when assessing and awarding contracts. The intention is, therefore, that bus operators who invest in these improvements, should not find themselves disadvantaged when it comes to bidding for 'school services'.

- 6.3 Firms with a small number of buses have limited opportunity to retain buses which they only use for 'school services', as the signs and warning lights are a permanent feature. This could mean that the use of some buses may be limited outside of the school run. However, as previously indicated, a wide range of system and fitting options has been provided for to help alleviate this problem.
- 6.4 A number of key stakeholder organisations, including the NI Federation of Passenger Transport representing private operators large and small, were involved in the development of the technical specification for the new system.
- 6.5 Aside from the issues discussed above, no significant impact on small bus operators has been identified.

7 COMPETITION ASSESSMENT

- 7.1 It is likely that there will be some small impact on bus resale markets and on the school transport supplier sector, with regard to potential issues around the permanency of the signs and warning lights features. The mitigating factors discussed above are expected to minimise this impact.

8 ENFORCEMENT, SANCTIONS AND MONITORING

- 8.1 From March 2011, operators will be allowed to use the new system, and it will be mandatory to use the system from 1 September 2014. For those operators using the new system the regulations will stipulate that:
- The sign must be illuminated at all times when children are being carried to and from school on a 'school service', and
 - The flashing warning lights must be activated while children are getting on and off the bus, and between 4 and 8 seconds after the door is closed.
- 8.2 From March 2011, new offences will be created as follows:
- The illumination of the sign when the bus is not being used to carry children to and from school, and
 - Activation of the flashing warning lights when children are not boarding or alighting.

- 8.3 The DOE's Driver and Vehicle Agency (DVA) Enforcement Section will continue to monitor school transport operations, including the new regulations, through its ongoing programme of enforcement activities involving checks on coaches, buses and taxis.
- 8.4 Sanctions may include advice and warning, rectification notices being issued to ensure the new requirements are complied with or, where appropriate, prosecution action being instigated.
- 8.5 The impact of implementing the regulations will also be assessed periodically by the Department through a number of means. These may include:
- Analysis of child casualties around buses,
 - Speed monitoring tests, and
 - Driver and school children behaviour and attitude surveys.

9 CONSULTATION

- 9.1 The Technical Specification, the draft regulations and this assessment have all been developed in close consultation with key school transport stakeholders including representatives from DRD, DE, the ELBs, Translink, FPTNI, bus and lighting manufacturers, legislative and enforcement representatives. Their comments and direction have been taken into account both in the regulations and this RIA.
- 9.2 The public consultation on the draft regulations and on the RIA issued on 29 September 2010 and closed on 21 December 2010. Fourteen responses were received in total, of which twelve contained substantive comments.
- 9.3 The main concerns arising from the consultees' responses were as follows:
- whether the signs and warning lights system would have sufficient visual impact and/or would be effective,
 - that a longer timeframe is needed to implement the new system, particularly in the current difficult financial climate, and
 - the additional costs that would be required to meet an implementation deadline of 1 September 2012.

9.4 The Department's response to the above responses is as follows:

- it is the Department's view that its planned advertising campaign will address comments relating to the need to raise awareness about the signs and warning lights,
- the Department has agreed to extend the mandatory date for implementation of the new regulations from 1 September 2012 to 1 September 2014, and
- this extension will give service providers extra time to fit the new system and enable them to spread the cost over a longer period.

9.5 A Northern Ireland Assembly Research and Library Service briefing paper issued on 26 November 2010 on the draft regulations and the RIA.³⁶ The main queries coming out of that paper are listed below followed in brackets by the paragraph number(s) in this RIA which address each point:

- how the figure of 80% of children has been arrived at and whether Translink is able to differentiate between regular and 'school services' (See Paragraphs 3.7 – 3.9)
- how the figure of an estimated 50% reduction in casualties was arrived at, in the absence of any direct comparator (See Paragraphs 5.8 – 5.13)
- that the calculation of the value of the 50% reduction in casualties is based on DfT's values for avoiding transport collisions and casualties, that those casualty valuations should be treated with caution as they are based on estimates, and do not take account of a death occurring (See Paragraphs 5.14 – 5.18)
- that although the Environment Committee had identified that there was a general lack of understanding about the purpose of the current signs and hazard lights, it is reasonable to suggest that regulating to improve signage and lighting on school buses

³⁶ Northern Ireland Assembly Library and Research Service (2010). Outline of Consultation for Draft Regulations for Signs and Warning Lights on School Buses with analysis of Regulatory Impact Assessment Paper 34/11 NIAR 559-10
<http://www.niassembly.gov.uk/researchandlibrary/2011/3411.pdf>

as recommended by the Committee may have no actual impact (See Paragraph 5.28)

- that an education programme based around the current regulation might be sufficient (See Paragraphs 4.9 – 4.17), and
- that the financial impact on small business could potentially mean that small firms are less likely to win contracts based on their costs being higher. (See Paragraphs 6.2 – 6.3)

10 IMPLEMENTATION AND DELIVERY PLAN

- 10.1 It is expected that the regulations will be operational from March 2011 which means that from that date school transport providers can begin to fit the new signs and warning lights to their buses. All bus operators will be notified and receive guidance on the impending changes prior to the regulations coming into effect.
- 10.2 The system will be permissible from March 2011, after which the offences set out in Paragraphs 3.22 d and 8.2 above, (illumination of the sign when the bus is not being used to carry children to and from school, and activation of the flashing warning lights when children are not boarding and alighting) will come into effect.
- 10.3 The mandatory date for implementation of the system is 1 September 2014, by which time all 'school service' buses must be fitted with and operate the signs and warning lights system.
- 10.4 DVA will monitor implementation of the new provisions through an ongoing programme of enforcement activities including roadside checks on buses and coaches. Sanctions may include advice and warning, rectification notices being issued to ensure the new requirements are complied with or, where appropriate, prosecution action being instigated.
- 10.5 Beginning from the operative date of the regulations in March 2011, the Department will undertake appropriate initial and on-going education and publicity to raise awareness about the new system and encourage road users to change their behaviour in the vicinity of school buses.

11 SUMMARY AND RECOMMENDATION

11.1 The following benefits and costs have been identified in respect of the new signs and warning lights proposals:-

Benefits

- Reduction in child pedestrian casualties around buses in line with the Road Safety Strategy for Northern Ireland to 2020 target to reduce the number of children (0 to 15) killed or seriously injured in road collisions by at least 55% by 2020;
- Addresses public concern about the safety of children travelling to and from school;
- Makes buses more distinctive and visible, particularly in poor weather conditions;
- Encourages drivers to slow down and take greater care around buses; and
- Contributes to a better quality school bus service – promotes sustainability.

Costs

- Costs to school transport providers range from £315 to £3750 per bus and will vary depending on the size and type of vehicle;
- DOE advertising costs of up to £100,000;
- Small impact on a small proportion of buses in the resale market;
- Small impact limiting operators use of buses and hence earning potential; and
- Small impact on ELB competitive tendering process.

11.2 The Department considers that the benefits of regulation from a monetary (casualty reduction) and non-monetary (addressing public concern; contributing to a better quality service and improving sustainability) perspective will outweigh the costs, and is satisfied that the proposals are justified.

12 CONTACT POINT

12.1 The contact point for any queries about this Final RIA is:

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DECLARATION

“I have read the Regulatory Impact Assessment and I am satisfied that the benefits justify the costs.”

Signed:

Date:

Name, title, department