

OCTOBER 2012

SCHOOL BUS SAFETY COMMUNITY ADVISORY COMMITTEE

Inquiry into School Bus Safety in Rural and Regional NSW



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Glossary

Term	Definition
3 for 2 Seating	Seating of three children apparently under the age of 12 years in a seat designed for two adults
ALARP	As low as reasonably practicable
BOAS	Bus Operator Accreditation Scheme
Bow Tie Methodology	A simple diagrammatic way of describing and analysing the pathways of a risk from hazards to outcomes, and reviewing controls. Combines the logic of a 'fault tree' that analyses the cause of an event (represented by the knot of a bow tie), with an 'event tree' that analyses the consequences
Contract A Services	Bus contracts let by TfNSW which are exclusively for the provision of dedicated school bus services
Contract B Services	Bus contracts let by TfNSW which may provide for regular passenger services and dedicated school bus services
Environment 1 (E1) Routes Environment 2 (E2) Routes Environment 3 (E3) Routes	A system for classifying school bus routes according to the conditions which are experienced, ranging from lower risk (E1) routes through to routes with extreme risks (E3 routes). Refer Appendix 11.3: National Guidelines for Risk Assessment of School Bus Routes (ATC, 2005)
Local Traffic Committee (LTC)	Primarily a technical review committee that is required to advise a Local Council on traffic related matters referred to it by Council. Is an advisory body only, having no decision-making powers. Formal LTC membership comprises four representatives from the Local Council, NSW Police, RMS and State Parliament. There is also provision for informal (non-voting) advisors, which incorporates bus operator representation.
Metropolitan Bus Contracts	TfNSW bus contracts that cover the Sydney region bound by Gosford and the Hawkesbury River in the north, Blue Mountains in the west and Wollondilly and Wollongong in the south
Non-urban areas	Areas outside of town boundaries
Outer Metropolitan Bus Contracts	TfNSW bus contracts that cover the Newcastle and Hunter region, the Blue Mountains and Wollongong
RMS	Roads and Maritime Services (formerly Roads and Traffic Authority)
Rural and Regional Bus Contracts	TfNSW bus contracts that cover all areas in NSW outside of the Sydney, Central Coast, Newcastle/Hunter, Blue Mountains and Wollongong regions
School Bus Exchange	A place where students change from one bus to another as part of their journey (cf interchanges, which usually refer to places where passengers change from one mode of transport to another mode of transport)
School Student Code of Conduct	Sets out expectations for student behaviour. The Code is part of the Guidelines for Managing School Student Behaviour on Buses
School Student Transport	All school student transport, including journeys to and from school, also transport to and from extra-curricular activities including educational courses etc. This includes TfNSW contracted services and non-contracted services
SSTS	School Student Transport Scheme administered by TfNSW
TfNSW	Transport for NSW
Urban areas	Non-metropolitan urban cities and towns in rural and regional areas. Includes residential and/or commercial/industrial 'built-up' areas. The term is used to refer to regional centres such as Wagga Wagga, Albury etc.

Chair's Foreword

29 October 2012

For most people in the community, there are few things more valuable than ensuring the safety and security of our children. Parents and carers, and the community generally, have a right to expect that all that can reasonably be done is being done to protect children, particularly when they are being entrusted into other people's care.

While bus travel remains a relatively safe form of transport, there has been increasing concern expressed by parents, carers, community groups and safety organisations that more can be done to reduce the risks that children are exposed to when they travel by bus to and from school and on extra-curricular activities. This is particularly the case for children travelling by bus on high speed, single lane roads and for children moving in and around bus stops and interchanges. Safety data confirms that some of these risks are more pronounced in rural and regional environments.

My colleagues and I were honoured to be asked by the Minister for Transport, the Hon Gladys Berejiklian MP and the Minister for Roads and Ports, the Hon Duncan Gay MLC to inquire into issues relating to school bus safety in rural and regional NSW.

We have been given broad terms of reference, and have considered the full range of activities that can impact on school bus safety. This includes the design of buses; the condition of roads and other infrastructure such as bus stops and interchanges; bus operations on and around the bus; and the safety awareness of schools, parents, carers and children as well as other motorists sharing the roads.

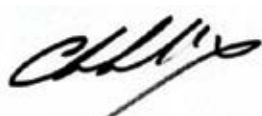
We have identified areas of good practice, as well as opportunities to further enhance the safety of school bus transport. Specific recommendations to Government are contained in this report. Our findings were informed by submissions made to the Committee from a range of individuals and organisations, as well as consultations in rural and regional communities. We would like to thank all those who took the time and effort to provide such input to our Inquiry.

I would also like, on behalf of the Committee, to convey our appreciation to the Ministers and their staff. We have been afforded every resource and support required to fulfill our task. We would particularly extend our thanks to the Parliamentary Secretary for Transport, the Hon John Ajaka MLC for his courteous and cheerful assistance and personal attendance at meetings when requested.

The Committee also appreciates the assistance of its secretariat within Transport for NSW. A special thanks goes to Mr Craig Dunn who worked tirelessly to support the Committee's activities.

Finally, I would like to convey my personal thanks to the members of the Committee. Your professional and constructive approach to our deliberations has led to a report which, I trust, has the potential to significantly impact on the safety of school bus transport in rural and regional NSW.

I, and my fellow Committee members, commend this report to Government.



Carolyn Walsh
Independent Chair



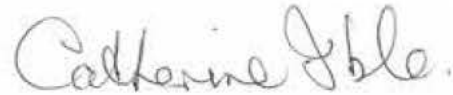
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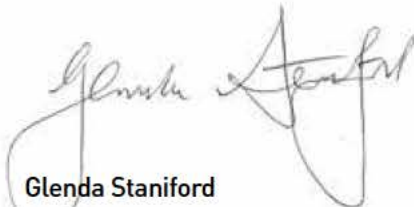
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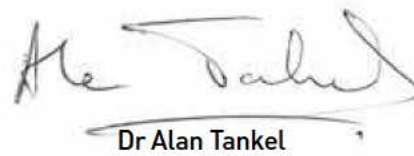
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Executive Summary

The School Bus Safety Community Advisory Committee was established on 29 April 2011 by the New South Wales Minister for Transport, the Hon Gladys Berejiklian MP and the Minister for Roads and Ports, the Hon Duncan Gay MLC to examine school bus safety in rural and regional NSW.

The Committee was comprised of representatives from parent organisations across the Government, Catholic and independent schools sectors; the Belt Up for Safety Action Group; an emergency department doctor; BusNSW; the Country Mayors Association; the NRMA; Transport for NSW (TfNSW); and Roads and Maritime Services (RMS).

The Committee was chaired by an independent expert in transport safety and regulation.

The purpose of the Committee was to inquire into and report on issues relating to the safe transportation of children in rural and regional NSW.

Terms of Reference

The Inquiry's Terms of Reference required the Committee to:

- Assess the status of school bus safety in rural and regional NSW;
- Consider the full range of school bus safety measures, with reference to national and international experience; and
- Recommend the most effective ways to make school bus travel as safe as possible.

The Terms of Reference were interpreted broadly to include all aspects of school bus safety, including safety while on board the bus, and while moving near or around school buses. The scope of the Inquiry encompassed all school bus travel, including travel in relation to curricular and extra-curricular activities as well as journeys to and from school and home.

School Bus Safety Performance

While school buses provide a relatively safe form of travel, significant incidents involving buses carrying school children can and do occur. Fortunately, incidents of a catastrophic nature such as frontal crashes and roll-overs are rare. However, the impact on the community when such events do occur is both devastating and enduring.

It is therefore the strong view of the Committee that any action that could reasonably be taken to mitigate the consequences of such incidents should be implemented. This position recognises, in particular, the relatively higher degree of risk attached to school bus travel in rural and regional areas, with a rate of injury to school children inside the bus (as opposed to outside or around the bus) double the rate of that experienced in the Sydney metropolitan and outer metropolitan (Hunter, Blue Mountains and Wollongong) regions. This reflects the environment where bus travel is at higher speed on country roads with significantly greater hazards than in metropolitan areas.

Core Reforms

The Committee has made 35 specific recommendations (listed below) that focus on preventing or mitigating the consequences of risks both inside and outside the bus. These consider infrequent events such as serious crashes as well as more common slip/trip/fall type incidents caused, for example, by sudden braking, which also have potential to cause serious injury, as well as significant financial and non-financial cost to the community.

While we consider all the recommendations to be important in enhancing school bus safety, we strongly support four core reforms to school bus travel in rural and regional NSW.

1. A phased program to provide ADR 68 compliant buses fitted with lap/sash seat belts for all Rural and Regional school student bus travel operating outside of lower speed urban environments as soon as possible, to be completed within 10 years;

2. The elimination of standing passengers where buses are required to travel on unsealed roads or on roads with a speed limit of 80km/h or more that are outside of urban areas, no later than day 1 of term 3 of the 2013 school year;
3. Prioritisation of school bus routes and bus stops when infrastructure spending is being allocated;
4. Enhancement of programs to educate and develop safety awareness amongst stakeholders, in particular for motorists who share roads with school buses.

Of all the recommendations, those that have the greatest potential impact on the cost of school bus services relate to the prohibition of standing on higher speed routes and the introduction of seat belts on buses operating outside of low speed urban environments. There are two broad cost impacts: accelerating the replacement of existing buses to meet the recommended timeframe for availability of seat belts on all buses; and the ongoing, additional cost of procuring buses with seat belts and the additional capacity (buses and drivers) that will be required once standing is prohibited and seat belts are fitted.

TfNSW provided the Committee with a model to assess the cost of the phased introduction of seat belts over various time periods. Section 6.9 details the parameters of the TfNSW cost model and analyses the cost impact for replacement of buses with seat belted vehicles within 5, 10 and 15-year periods.

Ideally, we would welcome across the board presence of seat belts within as short a timeframe as possible. However, we recognise there are a number of operational and financial impediments in doing so. These include the impact on operators who have to purchase and raise finance for new buses (albeit they are recompensed by Government through the bus contracting scheme) and a finite market that can absorb the resale of used buses.

Weighing these costs and operational constraints with the safety benefit, we strongly endorse a program that would result in seatbelts on all buses operating on non-urban Rural and Regional routes within 10 years. TfNSW advised that the cost to Government to implement this under TfNSW Rural and Regional Bus Contracts would be \$7 million in year one, rising incrementally to an annual cost of \$55m per year from year 11. Current total expenditure under the Rural and Regional Bus Contracts is \$372 million per year.

The phased introduction of seat belts would therefore represent an increase in the Rural and Regional Bus Contract funding of two per cent in year one, rising to 15 per cent per annum at year 11.

A number of our recommendations relate to issues that will need to be addressed to support the introduction of the core reforms listed above. These include:

- An appropriate compliance framework for seat belt adoption addressing issues such as the responsibilities of bus operators and drivers in enforcing seat belt use, with corresponding revision of the School Student Code of Conduct;
- Amendment to the TfNSW Rural and Regional school bus contracts to require all new and replacement buses that are to be used on Rural and Regional school bus routes on non-urban roads to fully comply, as a minimum, with Australian Design Rule (ADR) 68 (*Occupant Protection in Buses*); and all new buses that are to be used on regular route passenger services in urban areas to comply, as a minimum with the compartmentalisation intent ADR 66 (*Seat Strength, Seat Anchorage Strength and Padding in Omnibuses*), or, for replacement buses (i.e. bought on the second hand market) to be used in the same urban areas, at minimum to comply with ADR 59 (*Standards for Omnibus Rollover Strength*);
- A standard approach to the safe design of rural bus stops, together with strategies to improve bus visibility where the bus effectively 'becomes' the bus stop when pulling off roads in rural areas;
- A review of speed limits in Rural and Regional areas to ensure the NSW Speed Zoning Guidelines have been correctly applied;

- Strategies to minimise the impact of heavy vehicle traffic on narrow/steep/winding rural and regional school bus routes, with reference to locally-developed initiatives;
- Improving and expanding measures available to schools to achieve safe school bus travel outcomes, such as incorporation of 'safe' school bus zones into the design of new schools;
- Strategies to improve communication between school bus safety stakeholders, and to share and promote school bus safety 'best practice' across the network.

Recommendations

Through our research, we have identified and analysed a range of school bus hazards and risks, and considered the measures in place to address these, with the aim of identifying opportunities for improvement in school bus travel safety.

These recommendations are grouped around four key themes relating to improvements to safety, and around monitoring of the implementation of our recommendations:

- Bus Design and Usage (see Chapter 6);
- Road Infrastructure (see Chapter 7);
- Service Delivery (see Chapter 8);
- Stakeholder Education and Awareness (see Chapter 9); and
- Implementation (see Chapter 10).

Bus Design and Usage

1. That TfNSW amends the Rural and Regional school Bus Contracts to require:
 - 1.1 All new and replacement buses that are to be used on Rural and Regional school bus routes on non-urban roads to fully comply, as a minimum, with ADR 68 (*Occupant Protection in Buses*); and
 - 1.2 All new buses that are to be used on regular route passenger services in urban areas to conform, as a minimum, with the compartmentalisation intent of ADR 66 (*Seat Strength, Seat Anchorage Strength and Padding in Omnibuses*); or, for replacement buses (ie. bought on the second hand market) to be used in the same urban areas, at minimum to comply with ADR 59 (*Standards for Omnibus Rollover Strength*) (refer Section 6.2.3).
2. That TfNSW regularly monitors new and emerging vehicle safety technologies and, where safety benefits are clearly achievable, stipulates use of these technologies, or at least encourages their introduction, through amendments to Rural and Regional Bus Contracts (refer Section 6.3).
3. That all buses used to transport school students on Rural and Regional roads in NSW, including transport for curricular and extra-curricular activities, meet the same minimum design standards as those stipulated under TfNSW Bus Contracts, including minimum ADR requirements and fleet age restrictions.
 - 3.1. That this requirement be mandated through regulation; and
 - 3.2. That, in the interim, the Department of Education and Communities, the Catholic Education Commission and the Association of Independent Schools of NSW examine mechanisms to encourage schools within their sectors to ensure such minimum standards are reflected in their bus hiring or procurement policies (refer Section 6.4).
4. That TfNSW conducts trials of improved school bus warning lights, markings and school bus zone warning signage for the purpose of maximising bus visibility, given that in country areas the bus 'becomes' the bus stop (refer Section 6.5.3).

5. That, based on the outcomes of trials under Recommendation 4;
 - 5.1. The NSW Minister for Transport submits to the National Standing Council on Transport and Infrastructure recommendations for improving national standards for bus warning lights, markings and school bus zone warning signage; and
 - 5.2. TfNSW implements appropriate improvements to bus warning lights, markings and school bus zone warning signage at a local level pending the reform of the national standards (refer Section 6.5.3).
6. That TfNSW includes in Rural and Regional Bus Contracts a requirement to fit and maintain CCTV in all new and replacement buses (refer Section 6.7).
7. That TfNSW amends the Rural and Regional Bus Contracts to prohibit standing or sitting in the aisle of a bus where buses are required to travel on unsealed roads or on roads with a speed limit of 80km/h or more that are outside urban areas, to be implemented no later than day 1 of term 3 of the 2013 school year (refer Section 6.8).
8. That TfNSW implements a phased program to provide ADR 68 compliant buses fitted with lap/sash seat belts for all Rural and Regional school student bus travel operating outside lower speed urban environments as soon as possible, and to be completed within 10 years. (refer Section 6.9.5).
9. That the implementation program for the installation of seat belts be based on the following risk priorities:
 - 9.1. allocation of seat belt-fitted buses to school bus routes using unsealed roads, and any routes zoned at speed limits that are 80km/h and above; and
 - 9.2. Replacement of buses based on age, with older buses phased out first (refer Section 6.9.6).
10. That, for buses that are already compliant with ADR 68 seat anchorage standards, TfNSW determines, in consultation with bus operators, whether it is more cost-effective to retrofit seats and lap/sash seat belts, than to replace an individual bus (refer Section 6.9.7).
11. That TfNSW develops guidelines under the Rural and Regional Bus Contracts for bus operators providing pragmatic approaches to the maintenance and repair of damaged seat belts on a school bus (refer Section 6.9.8).
12. That TfNSW develops guidelines with BusNSW under the Rural and Regional Bus Contracts setting out bus operator responsibilities to encourage students to wear seat belts, for instance by providing appropriate signage and audio announcements. Such guidelines should make it clear that drivers must not be distracted from their key task of driving safely, and so are not, nor should be, responsible for enforcing compliance (refer Section 6.9.10).
13. That TfNSW revises the NSW School Student Code of Conduct in consultation with parent and carer groups and BusNSW in light of the recommendations of this report, including clarifying the rights and obligations of school bus travel stakeholders (refer Section 6.9.10).
14. That TfNSW, in conjunction with parent and carer groups and BusNSW, develops appropriate protocols setting out responsibilities and processes for booster seat use, storage, loss/damage etc. (refer Section 6.9.11).
15. That all bus operators providing services for school student travel be required to meet the same minimum standards for the prohibition of standing on bus routes, and the use of buses fitted with lap/sash seat belts as those recommended by this Committee for TfNSW School Bus Contracts.
 - 15.1. That this requirement be mandated through regulation; and
 - 15.2. That, in the interim, the Department of Education and Communities, the Catholic Education Commission and the Association of Independent Schools of NSW examine mechanisms to encourage schools within their sectors to ensure such minimum standards are reflected in their bus hiring or procurement policies (refer Section 6.9.12).

Road Infrastructure

16. That TfNSW works in collaboration with contractors, bus operators and Local Councils to expand the existing NSW school bus route classification process to include non-RMS routes and to facilitate risk-based allocation of resources to improve bus safety on those routes (refer Section 7.1).
17. That TfNSW and RMS review relevant regulations and guidelines with a view to recommending to Government amendments that mandate that school bus safety become a standing item on Local Traffic Committee agendas, and that local bus operators be invited and actively encouraged to participate in these Committees (refer Section 7.2).
18. That TfNSW and RMS develop a standard Methodology for fixed Rural Bus Stop Location/Design, with reference to existing 'best practice' examples, for use by Local Councils (refer Section 7.3).
19. That TfNSW reviews the Regulations that set speed limits around school buses when school bus warning lights are flashing, to more appropriately define the distance behind and in front of the bus to which the speed limit applies, and to make the speed limit applicable in both directions when used on single lane roads (refer Section 7.3.2).
20. That Local Traffic Committees, with assistance from RMS and NSW Police ensure that NSW Speed Zoning Guidelines have been correctly applied to school bus routes (refer Section 7.4).
21. That bus operators, Local Councils, local police and other stakeholders (e.g. trucking companies) develop and implement risk prevention strategies to minimise the impact of heavy vehicle traffic on Rural and Regional school bus routes during school commuting times (refer Section 7.5).
22. That TfNSW and RMS explore options in consultation with stakeholders to improve student safety around School Bus Exchange points and multiple bus loading areas (refer Section 7.6).
23. That TfNSW, RMS and the Department of Education and Communities develop guidelines for Local Councils to use when considering the design of new school developments (refer Section 7.7).
24. That TfNSW examines the feasibility of extending the NSW Country Passenger Transport Infrastructure Grants Scheme (CPTIGS) funding to support upgrading of rural school bus stops in NSW (Refer Section 7.9).

Service Delivery

25. That TfNSW provides resources for a joint TfNSW/BusNSW Bus Operator Accreditation Scheme (BOAS) and Safety Management System (SMS) training and education program (including web-based training) aimed at improving operators' risk management practices. This should include funding to assist smaller bus operators provide 'on-road' training for bus drivers (refer Section 8.2.1).
26. That TfNSW recognises Rural and Regional risk in its auditing of bus operators under the BOAS scheme (refer Section 8.2.2).
27. That all bus operators providing services to schools be required to meet the same minimum standards for operator and driver requirements as those required under TfNSW Rural and Regional Bus Contracts, such as the Bus Operator Accreditation Scheme (BOAS) requirements, and Driver Authorities. This would apply to 'commercial' bus services procured by schools, but not (for example) where single buses are purchased and used by schools for student transport purposes.
 - 27.1. That this requirement be mandated through regulation; and
 - 27.2. That, in the interim, the Department of Education and Communities, the Catholic Education Commission and the Association of Independent Schools of NSW examine mechanisms to encourage schools within their sectors to ensure such minimum standards are reflected in their bus hiring or procurement policies (refer Section 8.2.3.2).

28. That TfNSW consults with BusNSW and other key stakeholders to develop and provide guidance material for bus drivers in key risk aspects including around-bus protocols, management of students and handling of emergency situations in rural areas (refer Section 8.2.3.3).
29. That RMS works in consultation with key stakeholders to improve bus incident information capture mechanisms to enable effective root cause analysis and evaluation of risk control strategies (refer Section 8.2.4).

Stakeholder Education and Awareness

30. That TfNSW develops standard Guidelines for School Bus Safety Stakeholder Liaison at the local level defining roles and responsibilities of key parties in regard to creating and maintaining a safe school bus travel environment (refer Section 9.1).
31. That TfNSW, in collaboration with RMS and other key stakeholders, develops and implements a Stakeholder Education and Awareness Program in relation to the upgrading of bus warning lights and signage, focusing on 'other driver' behaviour in school bus zones. This should include a targeted media campaign in relation to speeding around school buses and rural bus stops (refer Section 9.2).
32. That TfNSW and RMS develop and implement, in conjunction with the Department of Education and Communities, the Catholic Education Commission of NSW and Association of Independent Schools of NSW, a targeted education program for students, parents and carers, focusing on the need to wear seat belts on Rural and Regional routes (refer Section 9.3).
33. That TfNSW designs and implements a communication strategy to identify, share and promote good school bus safety practice (refer Section 9.4).

Implementation

34. That all recommendations, if accepted by Government, be implemented in close consultation with the bus industry, parent and carer associations, Local Government, education bodies, and other key stakeholders where applicable (refer Section 10).
35. That TfNSW monitors progress towards implementation of the Committee's Recommendations and reports on a regular basis via the Department's website, and through a publicly available annual report to the Ministers for Transport and for Roads and Ports (refer Section 10).

1. Introduction

1.1 Terms of Reference

The School Bus Safety Community Advisory Committee was established on 29 April 2011 by the New South Wales Minister for Transport, the Hon Gladys Berejiklian MP and the Minister for Roads and Ports, the Hon Duncan Gay MLC. The Ministers tasked the Parliamentary Secretary for Transport and Roads, the Hon John Ajaka MLC, with providing support and assistance to the work of the Committee.

The purpose of the Committee was to inquire into and report on issues relating to the safe transportation of school children on buses in rural and regional NSW. The Terms of Reference required the Committee to:

- Assess the status of school bus safety in rural and regional NSW;
- Consider the full range of school bus safety measures, with reference to national and international experience; and
- Recommend the most effective ways to make school bus travel as safe as possible.

The Committee adopted a charter through which it committed to consider the costs and benefits of proposals arising from its Inquiry and to make, where possible, evidence-based recommendations. The Terms of Reference were broadly interpreted to include all aspects of school bus safety, including safety while on board the bus, and while moving near or around school buses.

1.2 Committee Membership

The Committee included representatives from Government road safety and transport agencies, bus transport industry and motoring organisations, parent, carer and school associations, the health sector, community groups and local councils.

The Committee membership comprised:

Carolyn Walsh	<i>Independent Chair</i>
Anne Crabb	<i>NSW Parents' Council Inc.</i>
Michael Davis	<i>Isolated Childrens' Parents' Association</i>
Jack Haley	<i>NRMA Motoring and Services</i>
Catherine Ible	<i>Council of Catholic School Parents NSW/ACT</i>
John Karaboulis	<i>Transport for New South Wales</i>
Adam Marshall	<i>NSW Country Mayors Association</i>
Darryl Mellish	<i>BusNSW</i>
Keith Simmons	<i>NSW Centre for Road Safety</i>
Glenda Staniford	<i>Belt Up for Safety Action Group</i>
Dr. Alan Tankel	<i>Coffs Harbour Health Campus</i>
Helen Walton (to March 2012)	<i>Federation of Parents and Citizens Associations of NSW</i>
Rodney Johnson (from March to April 2012)	
David Hall (from May 2012)	

The Committee was supported by a Secretariat within Transport for NSW (TfNSW), led by Craig Dunn. We gratefully acknowledge the professionalism and commitment provided by the Secretariat.

Committee meetings were also attended, when requested by the Chair, by the Parliamentary Secretary for Transport, the Hon John Ajaka MLC, and by representatives from the Offices of the Minister for Transport, and the Minister for Roads and Ports. The Committee welcomed the support and encouragement of the Minister for Transport, Minister for Roads and Ports, the Parliamentary Secretary and their staff in the course of our deliberations.

1.3 Meetings

The Committee met nine times during the course of its Inquiry. Meetings were held in Parliament House on 4 July 2011, 18 August 2011, 29 September 2011, 1 December 2011, 15 March 2012, 26 April 2012 and 23 July 2012; at the Roads and Maritime Service (RMS) Crash Laboratory, Huntingwood, on 9 February 2012; and at the Medina Executive, Chippendale on 30 May 2012.

The Committee also held regional public meetings during visits to Coffs Harbour on 17 November 2011, and Albury and Wagga Wagga on 30 January 2012.

Minutes of Committee meetings are available at:

<http://www.transport.nsw.gov.au/content/school-bus-safety-community-advisory-committee>

1.4 Submissions

The Committee called for public submissions through a variety of channels to help inform its findings.

A summary of key issues raised in public submissions is included in section 4.3.1, and a full listing of submissions in Appendix 11.1. Submissions are available in full at:

<http://www.transport.nsw.gov.au/content/school-bus-safety-community-advisory-committee-submissions>

1.5 Expert Opinions

The Committee invited the following experts to attend a Committee meeting to discuss specific issues of interest to the Committee:

- **John Bailly** – Manager School Bus Services, Western Australia Public Transport Authority; and
- **Assistant Commissioner John Hartley** – Commander, Traffic and Highway Patrol Command, NSW Police Force.

In addition, the Committee sought information from the school bus program managers of the South Australian Department of Education and Child Development, particularly Messrs Peter Whiteman and Ashley Smith.

1.6 Report Structure

Chapter 1: Introduction

Provides an overview of the process of establishment of the Inquiry undertaken by the School Bus Safety Community Advisory Committee.

The section also outlines the structure of this report.

Chapter 2: The School Bus Task

Sets out the scope of rural and regional bus routes, student passenger profiles and contract types.

Chapter 3: Bus Safety Regulation and Operator Requirements

Overviews the regulatory arrangements in NSW governing bus transport safety, including state and federal legislation and TfNSW requirements.

The section also provides a comparison of school bus safety policy across all Australian states and territories, and outlines the arrangements and initiatives in place within each jurisdiction.

Chapter 4: Safety Performance

Looks at different approaches to the evaluation of school bus travel safety performance, and presents an analysis of recent NSW school bus incident data with reference to on-bus and off-bus incident types.

The section also outlines stakeholder concerns around school bus safety raised through public submissions and consultative forums, and concludes with an overview of the key issues arising from the Committee's research into school bus safety performance.

Chapter 5: Opportunities for Improvement

Considers school bus travel hazards and risks including the relative effectiveness of existing safety measures and where these may need to be improved. The analysis takes into account the outcomes of the Committee's research, the nature of school bus operating environments and the potential for serious bus incidents on rural and regional routes.

The section includes an outline of the techniques used in the Committee's analysis.

Chapter 6: Bus Design and Usage

Describes the technical criteria adopted in Australian Design Rules that influence safety-related aspects of bus design in Australia. The section also looks at emerging technologies that have potential to improve school bus safety, and adoption of strategies to speed the introduction of those where demonstrable safety gains can be achieved.

The need to improve the visibility of a 'stopped' school bus to motorists is highlighted as a particular challenge on rural and regional roads.

The section then looks specifically at the issues of 'standees' on rural and regional school buses, and explores the question of whether seat belts should be provided for passengers. Three options are proposed for the introduction of seat belts, with consideration of the costs of each option. The WA experience in regard to seat belt introduction on school buses is presented as a case study.

Other recommendations are made around provision of size-appropriate seating.

Chapter 7: Road Infrastructure

Provides an overview of the work undertaken to date by TfNSW to identify and prioritise individual school bus routes according to risk.

Comment is also made on the issue of route maintenance undertaken by Local Government in light of the needs of bus operators, and the challenges of establishing 'safe' rural bus stops.

The section concludes with a review of other significant rural and regional infrastructure-related issues including the need for school buses to share 'high-speed' zones with heavy vehicle traffic.

Chapter 8: Service Delivery

Considers the ways in which delivery of school bus services is managed by TfNSW to ensure a safe, reliable means of school student transport.

The section focuses on how these systems and requirements impact on bus operators and drivers; and how the effectiveness of current arrangements may be improved in regard to operators' risk management processes. Inconsistencies in service standard requirements for operators, drivers and vehicles not subject to TfNSW contracts are also highlighted.

The section concludes with discussion around circumstances where responsibility for school student safety becomes 'shared' or ambiguous, for example at bus interchanges.

Chapter 9: Stakeholder Education and Awareness

Examines the roles of parents, carers, students and schools in the provision of a safe school student transport service.

The section explores opportunities for improvement in regard to consultation, co-operation and co-ordination between parties on key safety-related issues, which can be achieved through modification to existing processes, and introduction of educative strategies and consultative mechanisms.

Issues relating to the behaviour of motorists and police enforcement of 40km/h speed zones are also discussed.

Chapter 10: Implementation

Discusses the way forward in implementation of the Committee's recommendations, and the need for effective stakeholder consultation. It proposes ongoing monitoring of the status of individual recommendations via the TfNSW website and an annual report by TfNSW to the Ministers for Transport and for Roads and Ports.

2. The School Bus Task

This chapter describes the characteristics of contracted school bus services in relation to their geographic spread and scope under the TfNSW contract system. The different types of TfNSW school bus contract are clarified for both dedicated school bus services, and regular passenger services. An overview of 'non-contract' services including school-arranged and community transport is also provided.

The section concludes with a range of TfNSW Contract A and B bus fleet profile data by vehicle age and contract category.

2.1 TfNSW School Bus Contracts

School bus services in NSW are procured in a number of ways. The majority of school bus operations are purchased by TfNSW under its School Student Transport Scheme (SSTS).

TfNSW's school bus contracts are grouped into three broad geographic regions outlined on the map at Figure 1. These are:

- Rural and Regional Contracts, which cover all areas outside of the Sydney, Central Coast, Newcastle/Hunter, Blue Mountains and Wollongong regions.
- Sydney Metropolitan Contracts bound by Gosford and the Hawkesbury River in the north, Blue Mountains in the west and Wollondilly and Wollongong in the south.
- Outer Metropolitan Contracts, including the Central Coast, Newcastle and Hunter region, the Blue Mountains, and Wollongong.

TfNSW manages all the contracts from regional offices in Sydney, Newcastle and Wollongong.

The Committee's Terms of Reference relate to school bus safety in the Rural and Regional contract area which represents the vast majority of the State geographically.



Figure 1: Map of Bus Contract Regions (Source: TfNSW)

2.1.1 The Size of the Task

The Total annual net payment to bus operators under the TfNSW bus contracts in 2010-11 was approximately \$1.28bn. The cost of Rural and Regional services was around \$372m, which represents 29% of the total cost of TfNSW school bus contracts in NSW.

At the end of June 2012, there were 737 bus contracts operating school bus services under TfNSW contracts in NSW. Of these, 712 contracts managed services in the Rural and Regional contract region, ranging in size from small operators with only one or two buses, to much larger multi-bus operations. All operators in Rural and Regional NSW are private operators.

As at August 2011, the total number of buses in the TfNSW contracted fleet was around 8000. The total school bus fleet for Rural and Regional NSW comprised approximately 3265 buses. The Rural and Regional school bus fleet therefore comprises approximately 40 per cent of the State's contracted bus fleet.

The total number of kilometres travelled by buses for each of the three bus contract regions in 2009-10 was as follows:

Rural and Regional	Metro	Outer Metro
84.3m km	174.4m km	46.2m km

Table 1: School Student Bus Kilometres Travelled 2009-10 (Source: TfNSW)

Rural and Regional contracts therefore comprise around 27 per cent of the bussing task by school bus kilometres.

The total number of school students enrolled in each of the contract areas in 2009 was as follows:

Rural and Regional ('000)	Metro ('000)	Outer Metro ('000)
311.9	623.8	176.5

Table 2: Total number of students by Contract Region 2009 (Source: TfNSW)

Rural and Regional areas therefore comprise around 28 per cent of the student population in NSW.

Of course, not all school students use a bus as a form of transport to go to or from school. Unfortunately, data is not available to identify the exact number of students who regularly use school buses as a form of transport across the contract types.

Students using TfNSW contracted buses may either be fare-paying passengers, or may be eligible for the SSTS, which is also managed by TfNSW. The SSTS provides subsidised travel for eligible school students on rail, bus, ferry and long distance coach services. A subsidy is also available for transport to and from school in private vehicles in areas where there is no public transport. Transport operators issue passes to eligible students, and schools play an important role in verifying students' eligibility and liaising with transport providers.

2.1.2 TfNSW Contract Types

TfNSW provides two different types of bus contracts in Rural and Regional NSW:

- Type A Contracts: for dedicated school bus services;
- Type B Contracts: for both regular passenger services, that is where school students use a bus that is also used by the travelling public at large, and dedicated school bus services.

Of the 3265 buses operating under Rural and Regional Contracts in 2011, 1689 were Contract A buses and 1576 were Contracts B buses. Contract A buses (dedicated school buses) therefore comprise just over 50 per cent of the TfNSW contracted bus fleet.

2.2 Other School Bus Services

As noted above, not all school bus services in NSW are procured through TfNSW. Other bus services used to transport school students are listed below.

2.2.1 Non-contract Services

Some non-Government schools may acquire bus services to transport students to and from school under private commercial arrangements. In addition, schools (both Government and non-Government) may privately procure buses and drivers for the purpose of school excursions and transport to/from extra-curricular activities. These types of arrangements are deemed 'non-contract services'. Non-contract services, other than charter services (see below), may not be regulated under the TfNSW Bus Operator Accreditation Scheme (BOAS), although drivers are required to undergo 'Working with Children Checks' in accordance with the Commission for Children and Young People Act 1998 (NSW).

Requirements under the BOAS are discussed further in Chapter 8.

2.2.2 Charter Buses

A charter bus service is a passenger service in which a bus and the services of a driver are pre-booked to take passengers for an agreed fee, where:

- the hirer is entitled to determine the route and the time of travel;
- all passengers' journeys have a common origin or common destination (or both);
- individual fares are not payable by passengers (either to the operator or the driver);
- the service is not provided according to regular routes and timetables.

These services may also be used for extra-curricular school activities.

Long distance, tourist and charter bus services are regulated under the TfNSW Bus Operator Accreditation Scheme. This means that the following requirements apply:

- the service must conform to the service definitions specified in the relevant Act;
- the bus operator must be accredited with TfNSW and comply with relevant regulations and accreditation conditions (including public and passenger safety requirements); and
- the driver must have a Driver Authority, and comply with relevant regulations and driver authority conditions, including the 'Working with Children Check'.

2.2.3 Community Bus Transport

Community transport meets the needs of transport-disadvantaged groups in the wider community. These groups include isolated families, the frail aged, people with disabilities and their carers. Community transport provides people within these groups with transport services where conventional public transport systems are not generally viable or appropriate.

TfNSW has direct administrative responsibility for a number of NSW Government community transport programs, including community bus services.

2.2.4 Department of Education Assisted School Travel Program

Students with a disability who are unable to travel to and from school under TfNSW Bus Contracts may receive transport assistance under the Department of Education and Communities' Assisted School Travel Program, which provides subsidised travel to school directly to and from the student's home.

The number of buses operating under this scheme is relatively few.

2.3 Bus Age and Profile of Fleet

Durability and service life are key considerations in the selection of school bus fleet vehicles. Under the conditions of Rural and Regional Bus Type A Contracts, operators must ensure that the maximum age of each bus does not exceed 25 years and an average age of 12 years for bigger buses and eight years for smaller buses. Requirements under the Type B Contracts relate to the average age of the fleet.

Figure 2 shows the number of buses by age of vehicle, for the total Contract A bus fleet.

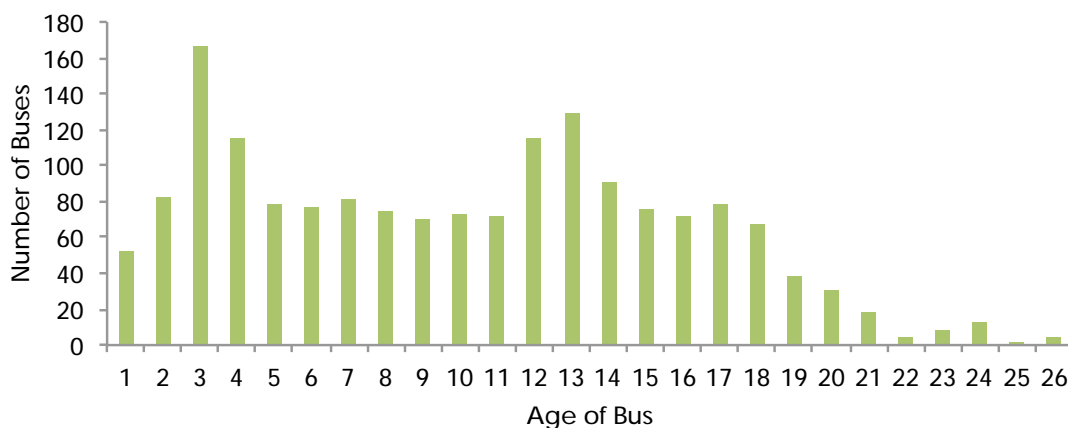


Figure 2: Contract A Bus Fleet Profile by Age (Source: TfNSW)

Figure 3 below depicts the Contract B Fleet profile by age of vehicle:

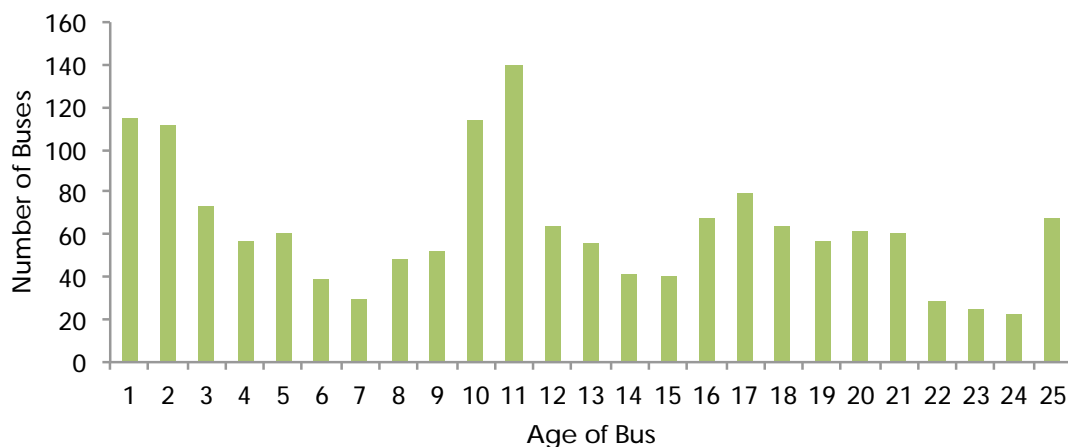


Figure 3: Contract B Bus Fleet Profile by Age (Source: TfNSW)

As can be seen from Figures 2 and 3, the Contract B fleet (ie. providing regular passenger services) has a relatively older age profile than the Contract A fleet (ie. providing dedicated school bus services).

For Contract A purposes, four categories of bus are defined which relate to the size of the bus.

Bus Category	Maximum Authorised Adult Seating Capacity	Maximum Primary School Student Numbers	Maximum High School Student Numbers
C1 – Category 1:	8-13	13	13
C2 – Category 2:	14-24	32	24
C3 – Category 3:	25-41	61 + Authorised Standees	41 + Authorised Standees
C4 – Category 4:	42+	85 + Authorised Standees	57 + Authorised Standees

Table 3: Bus Category Definitions (Source: TfNSW)

C1 buses are fitted with seat belts, and standing is not allowed.

C2 buses are generally not fitted with seat belts. Standing is not allowed but “3 for 2” seating is allowed for smaller primary school students.

C3 and C4 buses are generally not fitted with seat belts and the “3 for 2” rule is allowed. Standing is allowed, but buses are only allowed to travel at 80km/h when students are standing, irrespective of the zoned speed of the road.

Table 4 below shows the number of Contract A buses by age of vehicle, broken down into the four bus categories.

Age Category	←5 yrs		6 to 10 yrs		11 to 15 yrs		16 to 20 yrs		21 to 25 yrs		TOTAL
	No:	%	No:	%	No:	%	No:	%	No:	%	No:
1	60	43%	55	39%	25	18%	1	0%	0	0%	141
2	197	40%	154	31%	140	28%	4	1%	0	0%	495
3	73	31%	35	14%	71	30%	53	22%	7	3%	239
4	243	30%	126	15%	246	30%	175	21%	24	3%	814
TOTAL	573	34%	370	22%	482	29%	233	14%	31	2%	1689

Table 4: Contract A Bus Fleet Profile by Age and Vehicle Category (Source: TfNSW)

Note: Percentages may not total 100 due to rounding.

Contract B buses used for regular route services are predominantly larger sized buses.

3. Bus Safety Regulation and Operator Requirements

This chapter overviews the regulatory arrangements in NSW governing bus transport safety. These include state and federal transport and general safety-related legislation, as well as the NSW Bus Operator Accreditation Scheme (BOAS) administered by TfNSW.

The chapter also provides a comparison of school bus safety policy across all Australian states and territories, and outlines the arrangements and initiatives in place within each jurisdiction.

3.1 Safety Regulation in NSW

A framework of legislation is designed to regulate the provision of safe bus transport services in NSW. This includes the key Acts and Regulations listed below:

- *Passenger Transport Act 1990* and *Passenger Transport Regulation 2007* (NSW) - set out requirements for the accreditation of bus operators and authorisation of bus drivers; passenger vehicle condition, maintenance and signage; insurance requirements; and other aspects including obligations relating to passenger conduct, including school student behaviour;
- *Road Transport (Safety and Traffic Management) Act 1999* (NSW) - deals with various aspects of driver safety and traffic management, including issues relating to the use of alcohol and other drugs;
- *Road Transport (Safety and Traffic Management) Regulation 1999* (NSW) - includes requirements relating to school bus signage and warning lights, and other bus safety systems/features;
- *Road Rules 2008* (NSW) - imposes a 40km/hr speed limit in school bus zones or when passing or overtaking a school bus when bus wig-wag lights are flashing;
- *Road Transport (Vehicle Registration) Regulation 2007* - establishes vehicle standards required for registration;
- *Work Health and Safety Act 2011* (enacted in NSW on 1 January 2012) - places obligations on 'Persons Conducting a Business or Undertaking' to eliminate, or if elimination is not possible, to minimise risks to health and safety as far as is reasonably practicable.

(Source: Austlii Website)

A summary of the key features of each piece of legislation is set out in Appendix 11.2.

TfNSW administers the Bus Operator Accreditation Scheme (BOAS), which provides a comprehensive framework for managing and reviewing contractual obligations of bus operators, including those relating to the provision of a safe and reliable bus service. A key requirement of the BOAS is that bus operators establish and maintain a Safety Management System (SMS) to support their operations. The BOAS conditions complement the legal duties of bus operators outlined in the Work Health and Safety Act 2011, and provide them with a legal compliance template.

The Committee acknowledges that the TfNSW Bus Contracts and school bus operators are operating at the forefront of school bus travel safety within Australia in relation to the mandatory application of risk management and safety management systems to bus operations. The Committee also notes that the implementation of Safety Management Systems do not necessarily mean that bus operators will adopt specific safety features, such as the fitment of seat belts. Notwithstanding the advances in safety management in the NSW school bus industry as a result of the BOAS requirements, this Inquiry has identified opportunities for further improvements to the safety of school bus services as set out in Chapters 6 to 9 of this report.

As noted in Section 2.2.1 above, “non-contract” services procured by schools outside of the TfNSW contracts may not be subject to the BOAS requirements.

3.2 School Bus Safety Initiatives Across Australia

The Committee’s research encompassed school bus safety policy across Australia.

A summary of school bus safety arrangements and initiatives relevant to rural and regional areas in each Australian State and Territory is set out below:

New South Wales

Number of School Buses:	3265
Seat Belt Policy:	Seat belts are not mandatory.
Retrofitting Policy:	No retrofitting policy is in place.
3 for 2 Seating Rule:	Applies for children less than 12 years old.
Standing Policy:	Standing for students on school buses is allowed, but buses are not permitted to exceed 80km/hr when students are standing.
Other Safety Initiatives:	Bus door interlocks are required. Additional seat padding is required. Wig wag lights are required with a 40km/h speed limit for passing traffic however, this is not well enforced. Additional mirrors are provided. A ‘Student Transport Code of Conduct’ is in place. School bus education programs are provided. A Safety Management System is required for bus operators, linked to their accreditation. Drivers are required to have ‘working with children’ clearance.

Western Australia

Number of School Buses:	920
Seat Belt Policy:	Seats belts are being phased in on school buses over a 10 year period, commencing in 2006. Booster seats are provided by the WA Public Transport Authority.

Retrofitting Policy:	Retrofitting of seat belts was undertaken as a one-off project during 2006-07. Retrofit costs vary between \$26,000 (ie. no modification just the cost of new seat belted seats) to \$71,000 per bus depending on the structural modification required.
3 for 2 Seating Rule:	As a general rule, seat weight limits for the McConnell Educator school bus seat (seat of choice for 57 Adult seat buses or Toyota Coaster conversions chosen by the PTA) means that students up to Year Five are the proxy for 3 to 2 seating.
Standing Policy:	Standing for students on school buses is not permitted.
Other Safety Initiatives:	Distinctive colours and warning/safety signs are provided on school buses. All bus contractors are required to have a current safety management plan. All drivers and bus aides are required to have 'working with children' clearance and a first aid certificate.

South Australia

Number of School Buses:	490
Seat Belt Policy:	All school buses are progressively being fitted with seat belts by 2016 (program commenced in 2006).
Retrofitting Policy:	Retrofitting is permitted where applicable (i.e. not on older buses).
3 for 2 Seating Rule:	Not applied.
Standing Policy:	Standing for students on school buses is permitted where handholds are provided however not for longer than 20 minutes.
Other Safety Initiatives:	Government owned school buses (220) are painted yellow. Not compulsory for contracted buses. Flashing lights and 25km/h limit. CCTV cameras are in the process of being installed. Drivers are required to have 'working with children' clearance.

Queensland

Number of School Buses:	2,400
Seat Belt Policy:	Seat belts are being phased in since 2005 for Environment 3 (more hazardous) routes.
Retrofitting Policy:	No retrofitting policy is in place.
3 for 2 Seating Rule:	The 3 for 2 rule applies.
Standing Policy:	Standing for students on school buses is permitted.
Other Safety Initiatives:	Flashing lights; Warning signs. A 'Safe School Travel' educational program has been introduced and a school road safety curriculum is in place. A state-wide Code of Conduct for school children travelling on buses is in place. A school bus upgrade program is in place to replace buses which are not roll-over compliant (ADR 59).

Victoria

Number of School Buses:	1,502
Seat Belt Policy:	Seat belts are not mandatory.
Retrofitting Policy:	No retrofitting policy is in place.
3 for 2 Seating Rule:	3 for 2 rule applies.
Standing Policy:	Standing was banned in 1997 on rural routes. Standing for students on other school buses is permitted for a maximum of 12 students for trips of up to 10 km but buses cannot exceed 80km/h speed limit.
Other Safety Initiatives:	Flashing lights and improved emergency management system warning lights are required. Yellow 'school bus' sign displayed front and back. Route classification (road safety assessment) is required. School bus stop audits are provided to improve safety with 'line of sight'. Driver work checks are made. Drivers are required to have 'working with children' clearance as part of driver accreditation. School operated training programs are in place for safety around buses.

Tasmania

Number of School Buses:	750
Seat Belt Policy:	Seat belts are being phased in since 2007 on contracted school buses (Not MetroTas buses).
Retrofitting Policy:	No retrofitting policy is in place.
3 for 2 Seating Rule:	3 for 2 rule applies where no seat belts are provided. (Not applied by MetroTas)
Standing Policy:	Standing for students on school buses is permitted.
Other Safety Initiatives:	Flashing lights and a 40km/h zone applies outside prescribed urban zones.

Australian Capital Territory

Number of School Buses:	304 school routes (no designated school fleet)
Seat Belt Policy:	Seat belts are not mandatory.
Retrofitting Policy:	No retrofitting policy is in place.
3 for 2 Seating Rule:	3 for 2 rule applies for primary school students under 12.
Standing Policy:	Standing for students on school buses is permitted.
Other Safety Initiatives:	CCTV is in operation. Bus safety training programs are provided. Code of Conduct is in place for school children. Field Transport Officers and Customer Service Managers attend schools and ride on buses to monitor behaviour when required.

Northern Territory

Number of School Buses:	94
Seat Belt Policy:	Policy requires all new buses to be purchased with seat belts
Retrofitting Policy:	No
3 for 2 Seating Rule:	No
Standing Policy:	No policy however legislation allows for standing passengers
Other Safety Initiatives:	All school buses fitted with flashing lights CCTV fitted on all new buses Code of Conduct is in place for school children.

While the NSW requirement for operators' SMS provides 'better practice' in comparison with other jurisdictions, the most notable state/territory variation in bus safety policy relates to the use of seat belts, and the extent to which students are allowed to stand on bus services.

4. Safety Performance

This chapter examines different approaches to the evaluation of school bus travel safety performance, and suggests that available statistical data needs to be carefully considered to ensure meaningful comparisons.

An analysis of recent RMS NSW school bus incident data is provided, with reference to the ratio of rural to urban, also on-bus to off-bus, incidents. A summary of stakeholder concerns around school bus safety that were raised in public submissions to the Committee is included, together with an outline of regional issues explored during the Committee's community consultation meetings.

The chapter concludes with an overview of the key issues arising from the Committee's review of school bus safety performance, drawn from its literature search, consultation and public submissions.

4.1 Relative Safety Performance of Bus Travel

It is not the task of our Committee to justify investment in safety improvements to school bus travel compared to investment in other modes of transport. Our Terms of Reference simply require us to "recommend the most effective ways to make school bus travel as safe as possible".

Nevertheless, to set the context of our Inquiry, we considered the relative safety performance of bus travel compared to other forms of transport.

In general, the evidence suggests that bus travel is considered to be a relatively safe form of transport.

For example, a 2002 study commissioned by the Bus and Coach Association of NSW employed a measure of 'passenger kilometres travelled' to indicate the level of exposure to the risk of injury to travellers. Transport casualty data was normalised against passenger kilometres using a 'Relative Risk Factor Index', with the resulting data suggesting that, although bus travellers contributed 4.6 per cent of total passenger kilometres, bus travel resulted in only 1.97 per cent of total casualties. The researchers concluded that 'bus travel is overall, the safest form of land passenger transport for all passengers and the safest for school children between five and 16 years old [excluding train travel]. (Hensher, 2002)

This is an important finding, as outcomes from our Inquiry should not, either deliberately or as an unintended consequence, result in a modal shift away from school buses to an alternate, and potentially less safe, form of road transport.

However, available statistical information comparing the safety performance of different types of transport requires careful interpretation. Firstly, although the number of crashes in NSW over recent years resulting in fatalities for bus occupants has been (thankfully) very few, one multiple fatality crash has the potential to significantly vary the statistical results.

Secondly, such a conclusion can lead to a complacent view that there is no room for improvement to safety in this mode. This is clearly not the case. Bus/coach crash data prior to 1994 supported the introduction of ADR 68 (including the requirement for seat belts) to be fitted in coaches. Data since then has demonstrated that the introduction of seat belts on coaches has reduced the annual road toll to zero for coach passengers wearing their seat belts in a coach crash. There is a strong rationale for school buses that travel on the same rural and regional highways and roads as seat belted coaches to have commensurate safety features.

The evidence to our Inquiry points to two other key drivers for pursuing improvements to the safety of school bus travel in rural and regional NSW.

Firstly, as discussed further in this report, the hazards associated with rare, but potentially catastrophic high speed school bus crashes are generally more prevalent in rural and regional operating environments. Those hazards include travel on high speed roads, often with single lanes and with high volumes of other heavy vehicle traffic. The condition of the road infrastructure, as well as weather and geographic features also contribute to increased hazards in rural and regional areas.

In addition, irrespective of the potential for catastrophic high risk accidents, an analysis of the actual safety performance of school bus travel in rural and regional NSW reveals a significantly higher rate of injury of students travelling inside the bus than for their metropolitan counterparts.

4.2 Relative Safety of School Bus Travel in Rural & Regional NSW

4.2.1 Incident Type

TfNSW provided the Committee with data for all bus incidents involving injury to school children aged five to 16 years over a two-year period from September 2009 to September 2011. This was broken down into incidents by Contract region, ie. Metropolitan, Outer Metropolitan and Rural and Regional school bus regions.

School Children Injury by Region				
	Region			Total Over 2 Years
	Metropolitan	Outer Metropolitan	Rural & Regional	
Total Reported Incidents	102	37	58	197

School Children Injury by Incident Type				
Cause	Region			Total Over 2 Years
	Metropolitan	Outer Metropolitan	Rural & Regional	
Assault & Offensive Behaviour	4	2	5	11
Bus Doors (no collision)	3	2	2	7
Collision	38	11	9	58
Fire on Bus (no collision)	0	0	1	1
Medical Incident (no collision)	13	4	6	23
Projectiles	0	0	3	3
Slips, Trips & falls (e.g. via sudden braking)	42	17	30	89
Threatening /intimidating behaviour	2	0	1	3
Vandalism	0	1	1	2

Table 5: School Children Injury by Region and Incident Type: September 2009 - September 2011 (Source: TfNSW)

The NSW Centre for Road Safety have produced normalised statistics for injuries incurred both inside the bus and outside the bus, in relation to the number of kilometres travelled, the number of student enrolments and the number of student bus passes issued. This analysis was based on average crash data collected from 2000-2010 as follows:

School Children Injury Rates - Inside the Bus Based on average annual crash data between 2000 and 2010			
Normalised By:	Metropolitan	Outer Metropolitan	Rural & Regional
Per 10 Million Km travelled	1.01	1.12	1.98
Per 100,000 enrolments	2.8	2.9	5.4
Per 10,000 bus passes	0.87	0.57	1.13

School Children Injury Rates - Outside the Bus Based on average annual crash data between 2004 and 2010			
Normalised By:	Metropolitan	Outer Metropolitan	Rural & Regional
Per 10 Million Km travelled	0.80	1.13	0.69
Per 100,000 enrolments	2.2	3.0	1.9
Per 10,000 bus passes	0.69	0.57	0.39

Table 6: Normalised Injury Statistics – Inside/Outside the Bus 2000-2010 (Source: Centre for Road Safety)

The available crash data does not specifically report school children and school bus involvement. An estimate of their involvement was made by extracting from the database any crash that occurred during the period 07:30-09:30 and 14:30-17:00 on weekdays that were gazetted school days; where the word 'bus' appeared in the crash narrative; and where the involved person was aged from five to 16 years. While it is acknowledged this excludes 17-year-old school students, their inclusion would have compromised the data by including non school student 17-year-olds in the report.

The data may over-represent injuries received in crashes for occupants (inside the bus). Police reports are used to populate the crash database. Every child taken to hospital (even for observation) is recorded by police as being injured in the crash, regardless whether they are released without further treatment by the hospital. This contrasts with casualties outside the bus, where pedestrians struck by a moving vehicle will normally be injured in some way, often seriously. It should also be noted that most injuries to students go unreported, as police are not advised of braking incidents which represent approximately 41 per cent of injuries inside school buses (TfNSW).

These statistics are represented graphically in the figures below.

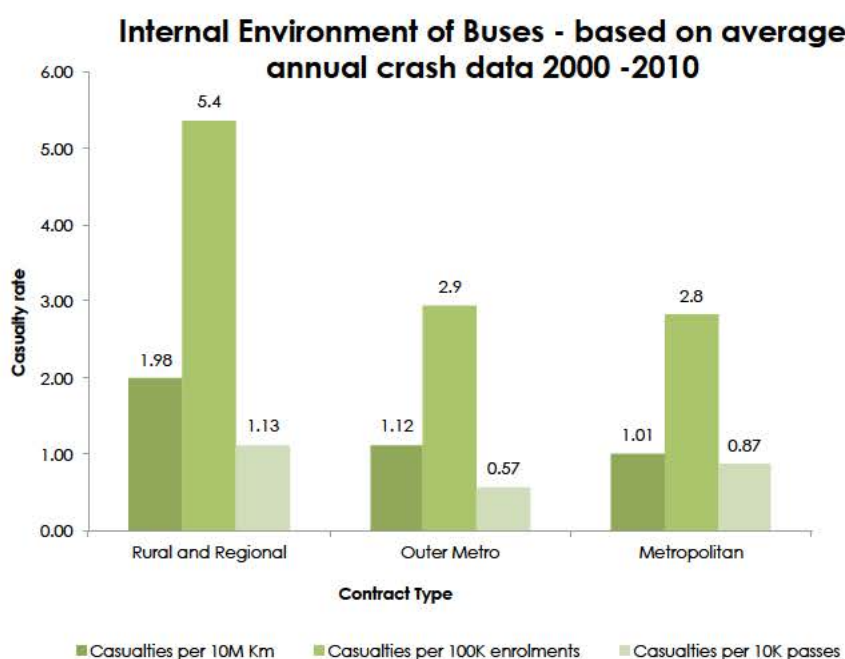


Figure 4: Normalised Injury Statistics: Internal Environment of Buses 2000-2010 (Source: RMS)

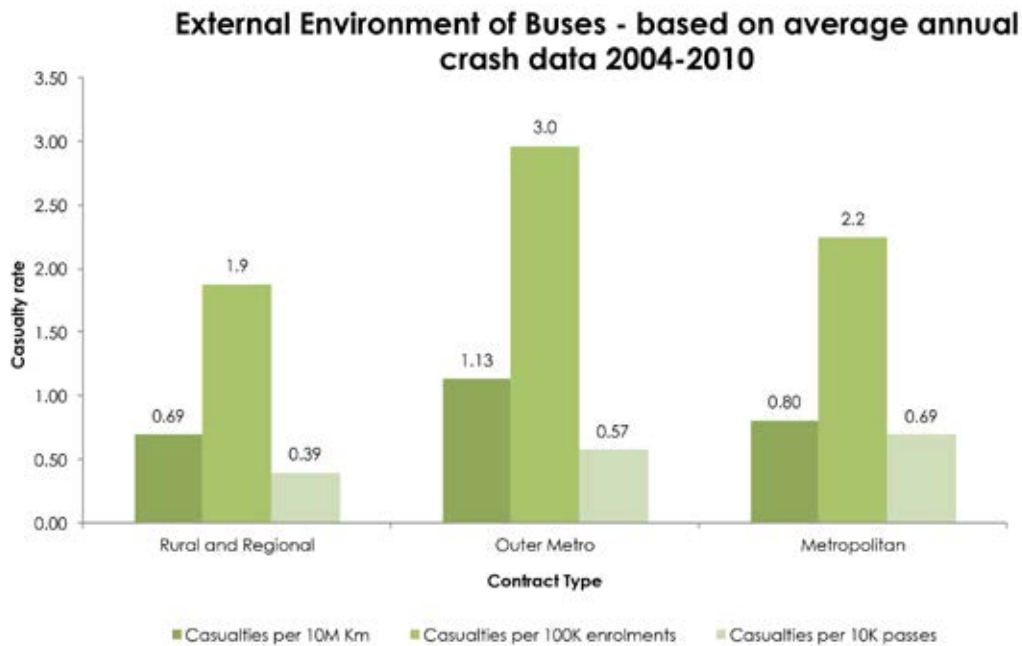


Figure 5: Normalised Injury Statistics: External Environment of Buses 2004-2010 (Source: RMS)

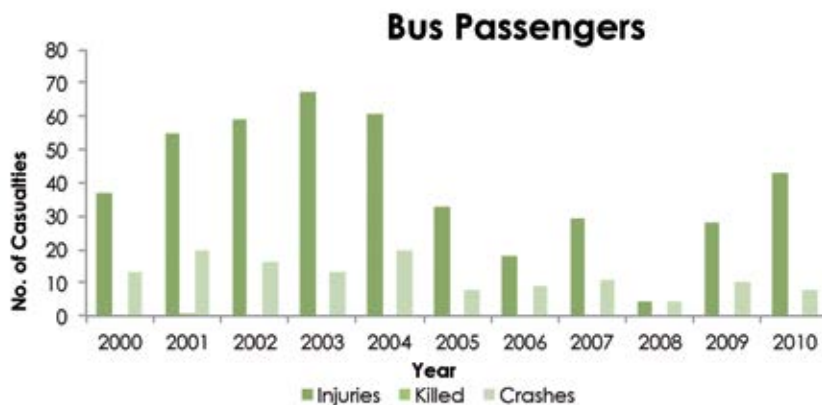


Figure 6: Normalised Injury Statistics: Bus Passenger Casualties 2000-2010 (Source: RMS)

The preceding graphs show that the risk of injury to students in rural and regional NSW for the internal bus environment (inside the bus) is almost three times greater than for outside the bus. This reflects the environment where bus travel is at high speed on country roads and yet there is lower exposure of country children to traffic as pedestrians. The graphs also show that the risk of injury to students inside the bus in Rural and Regional NSW is almost double that of their metropolitan counterparts.

The following table provides a sample of the types of significant school bus incidents occurring across all areas of NSW over the past five years. This is not intended to provide a comprehensive list, as it does not include all school bus incidents. During this period, four out of the five school student fatalities occurred outside of the bus. This reflects the fact that, while injury rates inside the bus a relatively high, the likely seriousness of the injury is greater for pedestrians struck by moving vehicles outside the bus.

Location	Date	Type of Occurrence	Consequence	Subject
Urunga	September 2007	Vehicle collided with school bus - bus rolled down embankment	Fatality	17yo student passenger*
Parklea	November 2007	School bus struck cyclist	Fatality	8yo cyclist
Bangalow	February 2008	Car collided with school bus	Fatality	Car driver
Medowie	February 2009	Rear wheels of school bus came adrift	No injuries	
Ingleburn	August 2009	School minibus struck student crossing the road	Fatality	9yo student
Junee	September 2009	School bus struck student	Fatality	11yo student
Lucas Heights	September 2009	Head-on collision between school bus and car – fire resulted	Two fatalities; Serious injuries	Car driver and passenger killed; Student bus passengers injured
Springwood	May 2010	Two school buses collided	Multiple injuries	Student passengers
Mona Vale	May 2010	Car collided with school minibus – minibus rolled over	No injuries	
Farley	August 2010	Car collided with empty school bus	Fatality	Car driver
Casula	August 2010	School bus collided with two cars	Multiple injuries	Bus driver and student passengers
Maryland	October 2010	School bus and car collided	Multiple injuries	Bus student and car passengers
Boambee	December 2010	School bus braked suddenly	Injury	11yo student passenger
Tweed Heads	April 2011	School bus collided with parked car	Multiple injuries	Student passengers
Bellevue Hill	February 2011	School bus collided with car	Multiple injuries	Two people (unknown)
Macleay	March 2012	Two school buses collided	Multiple injuries	7 Student passengers
Taree	March 2012	School bus and car collided	Multiple injuries	Student bus passengers and car passengers
Singleton	September 2012	School bus and prime mover collided	Fatality and serious injuries	9yo student and other student passengers

Table 7: Sample of Significant School Bus Incidents 2007-2012 – NSW (Source: TfNSW)

* As explained above, this fatality is not included in the data at Figure 6 due to the exclusion of 17 year olds from that data source.

The Committee notes that, over this period, there has not been a serious multiple fatality crash involving a school bus collision or roll-over such as that occurring in the recent tragic crash in Switzerland which killed 22 children. We acknowledge, however, that such a high consequence event, although it may seem unlikely, is possible given the risks inherent in road transport. A single crash of that type significantly skews existing bus safety performance data, as occurred after the 1989 Kempsey and Grafton bus crashes where 55 passengers were killed (providing a catalyst for the introduction of coach seat belts and other safety features).

In our Inquiry, we have therefore paid significant attention to measures that would reduce the likelihood, and mitigate the consequences, of such an event occurring in NSW.

4.3 Consultation Processes

4.3.1 Public Submissions

The Committee called for public submissions to its Inquiry on 1 September 2011 via a release on the TfNSW website. Feedback was sought on the range of issues falling within the Committee's Terms of Reference relating to school bus safety performance in rural and regional NSW; applicable safety measures; and recommendations for improvement. In total, 114 submissions were received. A list of all submissions received is provided at Appendix 11.1. Full versions of the submission documents can be found at the following weblink:

<http://www.transport.nsw.gov.au/content/school-bus-safety-community-advisory-committee-submissions>

The graph below summarises the 'Top 12 issues' raised through the submissions. The lack of seat belts on buses; the issue of students standing, particularly on higher speed routes; and the relatively poor condition of rural and regional roads were the three most frequently raised issues in submissions.

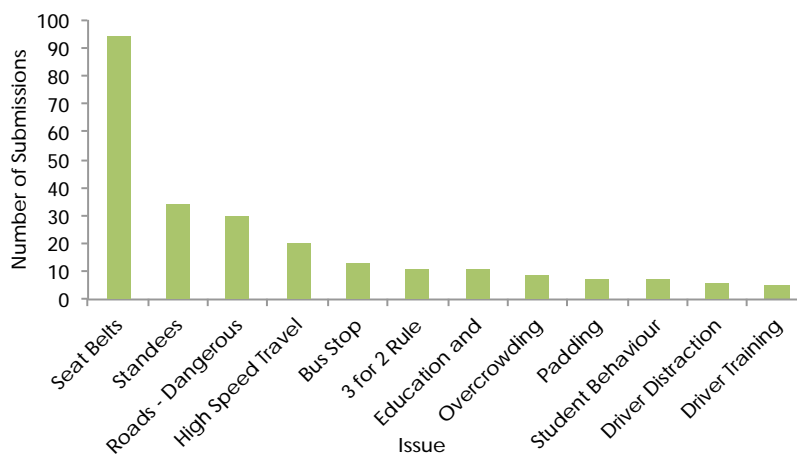


Figure 7: Public Submissions Top 12 Issues (Source: TfNSW)

4.3.2 Country Meetings – Coffs Harbour, Albury and Wagga Wagga

As part of our review, Committee members conducted a number of regional forums involving school bus operators, school principals, parents, Local Council Road Safety Officers, RMS, NSW Police, Members of Parliament and other community representatives to gain first-hand insight into local concerns and issues in regard to school bus travel safety.





Road maintenance was a common complaint, especially after extensive flooding throughout NSW in 2011. Local Councils acknowledged the challenges of maintaining roads to adequate standards, due to insufficient resources being available to provide necessary road repairs and improve safety for motorists.

Issues raised at these meetings included:

- Road users disregarding 40 km/h speed limit at bus stops and in school zones;
- Local road maintenance backlog, and communication issues between bus operators and some Local Councils;
- Parents/carers endangering students around schools by double parking, not dropping children off in standing zones provided, and parking on the wrong side of the road. Reinforced education through school newsletters or police enforcement was suggested;
- Students standing or sitting in the aisle of buses on 'open' or high speed roads;
- Overcrowding on buses;
- Safe bus stops at schools: the need for better infrastructure at schools, with bus stops separate from other traffic and on the same side as the school;
- Safe bus stops en route: the need for improved bus stop locations on highways and Council road routes;
- The lack of seat belts on buses, especially on high speed roads. If seat belts were introduced, stakeholders recommended funding for education programs to ensure high levels of compliance with wearing the seat belts on trips to and from school and on excursions (by teachers and students);
- The provision of booster seats for small students;
- Whether bus drivers can or should be held responsible for seat belt enforcement, or provision or storage of booster seats, if seat belts were fitted;
- Added congestion around schools because parents drive children to school as buses have no seat belts;
- Concern that the Federal 'Seatbelts for Kids' funding is not sufficient to retrofit old buses; and that current TfNSW capacity requirements in School Student Transport Scheme contracts restrict bus operators from applying for federal funding;

- Concerns around student behaviour and on-bus bullying, and whether adequate support from TfNSW, schools and parents is provided to bus operators to prevent such behaviour;
- A need to educate students that noise distracts the bus driver's ability to concentrate, creating a risk for all road users;
- The impact of heavy vehicles operating on school bus routes – traffic has doubled, and is forecast to increase further;
- The continued operation of older buses with unsafe hard seats and little padding;
- The adequacy of first aid and emergency procedures training for bus drivers in the event of a crash;
- Concern around the amount of time students travel on buses and the need for some timetable changes; and
- The ability of country hospitals to cope with large numbers of student casualties in the event of a major crash, and the capability of emergency services to ensure all students receive critical care to increase their chance of survival at a crash site.

The Committee heard evidence from local communities about the challenges faced by bus operators and drivers in the rural and regional environment.

Bus drivers encounter a range of hazards such as fog and sun glare, and the prevalence of kangaroos and other wildlife which can cause sudden braking events.

Bus operators and Councils have to plan and manage constant changes to bus routes and bus stops as families move in and out of rural communities.

We also heard about the challenges of ensuring the personal security of children as they wait for their bus, or get dropped off on more isolated routes. For instance, drivers on rural routes often have to wait for disembarking students to be met by a parent or carer, rather than leaving children alone.

In listening to the concerns of local communities, we were struck by the individual commitment of stakeholders to the safety of students as they travel to and from their schools. We were particularly impressed by the professionalism and commitment of the school bus operators and drivers who participated in our community consultations and displayed a clear concern for children's safety. Several bus operators described a high level of communication and co-operation with their Local Council representatives in managing aspects of school bus route hazards. Our consultation also highlighted examples of excellence in the management of traffic safety around schools, such as that of the Wagga Christian School, with their designated pedestrian, bus and car 'kiss and drop' zones.

It became evident, however, that there is concern around "grey areas" of accountability for students' safety. For instance, concern was raised about the safety of students who arrive at school before teacher supervision is available; who wait outside the school for a bus to arrive after a 're-run'; who transfer from one bus to another at bus interchanges that are not supervised by schools; or who wait at bus stops when no adult is present.

Many of these issues can only be addressed at the local level and require effective communication between all stakeholders, including bus operators and drivers, parents and carers, schools, Councils (and their Road Safety Officers) and Roads and Maritime Services officers. Regular meetings at the local level to plan safety improvements would allow all stakeholders to work together in a productive way.

The Committee appreciated the time given by participants who attended our regional community consultations.

4.4 Recent Reviews

As part of our Inquiry, the Committee considered a range of recent research and commentary focusing on various aspects of school bus safety. Key issues highlighted through our review include:

- The relative safety of school bus travel compared to other types of transport, with a higher ratio of child casualties occurring inside of buses for rural and regional bus services;
- The latent risk of low probability-high consequence school bus crashes due to the presence of 'rural' road hazards;
- That most school bus occupant casualties occur in frontal crashes, with roll-overs less common, but still able to produce serious injuries, particularly where students are ejected from a bus due to impact;
- The effectiveness of lap/sash seat belts in preventing fatal or disabling injuries in a serious bus crash;
- The superiority of Australian standards for occupant protection set by ADR 68;
- The need to review 'standee' allowances on school buses, particularly on high speed routes;
- The importance of an 'holistic' approach to the adoption of seat belts on school buses, eg. to consider the obligations of operators in enforcing compliance, maintaining and repairing damaged seat belts, providing booster seats etc;
- The relative merits of retrofitting buses with seat belts;
- The importance of not relying exclusively on seat belts to ensure student safety;
- The need for a stronger focus to protect children at drop-off and pick-up points, including bus stops and school zones;
- The importance of stakeholder consultation, co-ordination and co-operation in achieving safer school bus travel outcomes; and
- The key role of the BOAS, including the SMS, in bus operators' risk management processes.

The Committee's review of recent studies was used to inform the development of its recommendations for improvement in school bus travel safety, through the analyses in Chapter 5.

The Committee does not necessarily agree with all the conclusions or interpretations of these reviews. We also note that few of the reviews specifically addressed the particular risks and hazards associated with rural and regional school bus travel. However, the reviews helped inform our Inquiry and provided useful input to our deliberations.

Source information for all of the reports reviewed is included in the List of References in Appendix 5.

5. Opportunities for Improvement

This chapter considers school bus travel hazards and risks, and the relative effectiveness of existing safety measures, taking into account the outcomes of the Committee's research. In our analysis we have considered the nature of school bus operating environments and the potential for serious bus crashes to occur on rural and regional routes.

In pinpointing the opportunities for improvement in school bus safety practice identified in this section, we have drawn on the evidence reviewed during our research, including anecdotal reports received through our consultation with parents and carers, the bus industry, Local Councils and other stakeholders, all of which are discussed in the relevant sections of this report.

The Chapter begins with an outline of the techniques used in our analysis.

5.1 Risk Assessment Methodology

A 'Bow Tie' diagram was used as a model to highlight areas where a need to improve existing school bus safety measures has been identified. (Bow Tie methodology is described in the International Standard IEC/ISO31010:2009 Risk Management – Risk Assessment Techniques.)

The Bow Tie model emphasises the importance of the 'Defence in Depth' principle, where individual safety measures should be supported by other controls to ensure that they remain effective over time in light of changing conditions, intentional non-compliance, or simple human error.

The Bow Tie analysis begins with identification of a risk 'event' (such as a bus leaving the road). Possible pathways to, and from, the event are then shown on the diagram, that is, the types of hazards that may lead to the event, and the various outcomes or consequences that could result.

The control measures that are (or could be) in place to:

- prevent a hazard from eventuating (such as Road Rules to prevent speeding vehicles on school bus routes) and/or
- reduce the severity of Event outcomes (for example, bus compartmentalisation to reduce impact in a roll-over) are then added to the diagram.

5.2 Event Scenarios

Our analysis identifies the following scenarios:

1. **Bus Collision** - a school bus colliding with an obstacle (including a stationary or moving vehicle).
2. **Bus Roll-over** - a bus leaving the roadway for any reason, leading to a roll-over of the vehicle.

For clarity, these events are both shown on the same diagram, owing to their common risk factors. Key differences between these events relate to the types of injuries that may result; although an analysis of possible injury types is beyond the scope of this report, the topic has been addressed by other researchers (such as Langford, J. & Congiu, M. [2006]; the U.S. National Highway Transport Safety Administration [2002]; and Lapner, PC, Nguyen, D, & Letts [2003]).

3. **Around-Bus Fatality** - a student pedestrian being struck by another vehicle either prior to getting on, or after getting off, a stationary bus; or, being struck by the bus itself whilst nearby.
4. **Near Miss Event** – a bus swerving or braking violently to avoid a crash, where the occupants are thrown around inside the bus, even though no crash occurs.

For the purpose of the Bow Tie analysis, the risks associated with a near miss event are included under collision or rollover event, as the pre-cursors and consequences are similar, with actual crashes likely to have more severe outcomes.

5.3 Preliminary Analysis – Risk Controls Effectiveness

The two bow tie diagrams at Figures 8 (Bus Collision or Rollover) and Figure 9 (Around Bus Fatality) depict the range of controls that can prevent an event from occurring, or which can mitigate the consequences of the event should it occur. The diagrams indicate where 'direct' safety measures are designed to be supported by 'indirect' measures.

Key examples are bus operators' SMS and Vehicle Management System requirements under the BOAS. The SMS is designed to ensure that measures such as driver training, liaison with schools, auditing and other controls are effective. The Committee acknowledges the role of TfNSW in consulting with and introducing some safety measures identified by RMS, to ensure school bus contracts reflect 'best practice' in the chain of responsibility for school bus safety.

Safety measures can, and do, however, become less effective over time; for example, the decline in 'other' motorist compliance to the 40km/h speed limit required when bus wig wag lights are flashing. Controls can also be 'defeated' despite best efforts to enforce them - such as when a child gets off a bus and runs across the road in response to a parent or carer's call, against the bus driver's efforts to ensure the child waits until oncoming traffic has passed.

Measures to control school bus safety risks should be selected according to the 'Hierarchy of Hazard Controls' (refer Appendix 11.4 for definitions of each level of control). The hierarchy ranks potential control options according to their effectiveness in eliminating or minimising a risk (SafeWork SA, 2012). For instance, a student code of conduct (an 'administrative' measure) falls towards the bottom of the hierarchy in preventing an around-bus fatality; while a median barrier fence to physically stop students from running across a busy road after alighting from a bus would appear towards the top.

If a measure such as seat belts, for example, is to perform effectively, a range of supporting measures is essential – including education, awareness, inspection/maintenance and other strategies.

In developing the bow tie diagrams, the Committee considered all the safety measures that are, or could be, used or improved to reduce the risk of injury involved in school bus travel. Where a safety measure is in place, and considered to be working effectively, the measure is depicted by a solid green line. Where a safety measure is not in place, or is not considered to be working effectively, the measure is depicted by a striped green line.

In this way, and in accordance with our Terms of Reference, the Committee has identified a range of opportunities to improve the controls around safety risk and therefore make school bus travel as safe as possible. Recommendations for improvement relate to measures involving:

- Bus Design and Usage (see Chapter 6);
- Road Infrastructure (see Chapter 7);
- Service Delivery (see Chapter 8); and
- Stakeholder Education and Awareness (see Chapter 9).

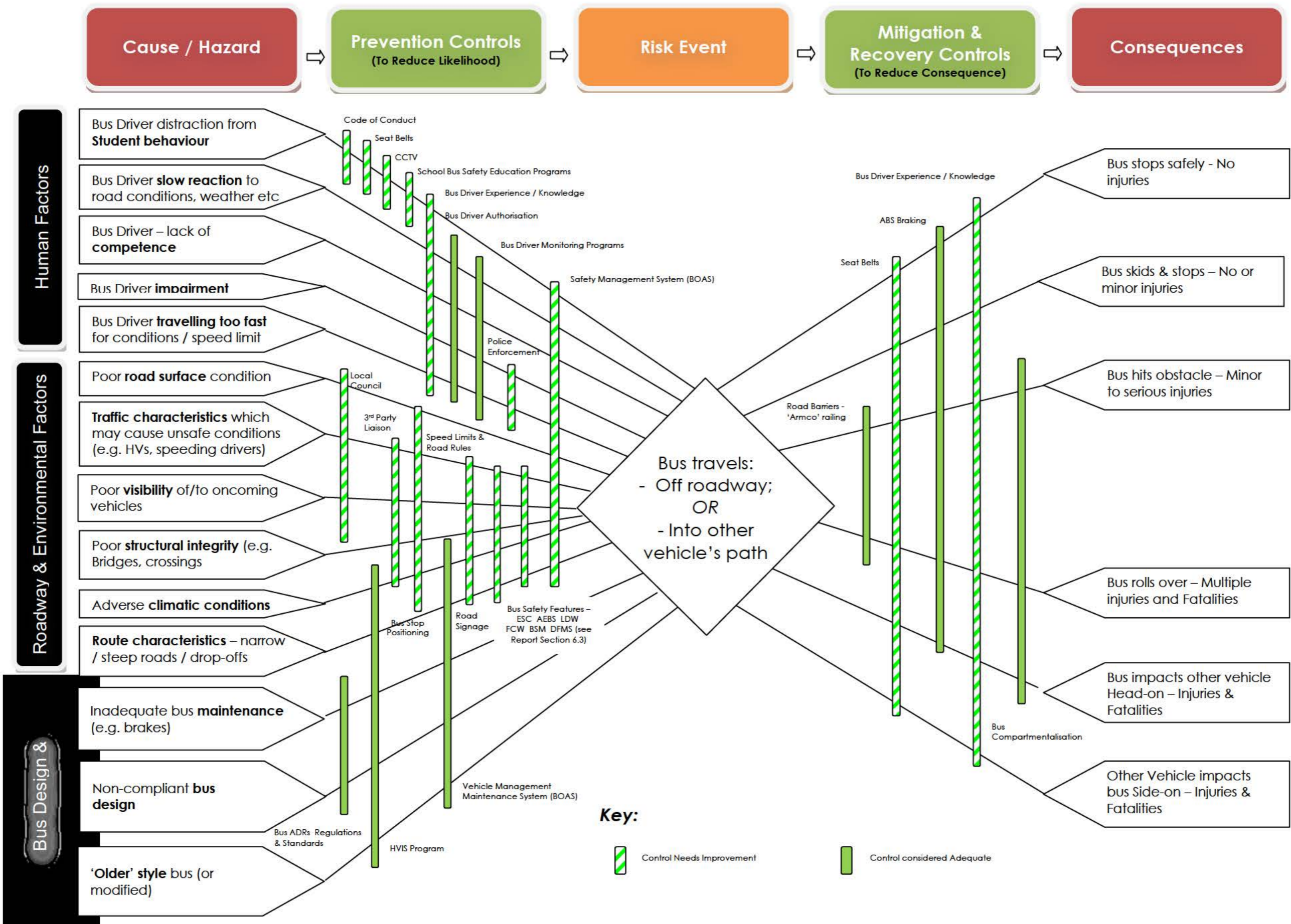


Figure 8: Bow Tie Diagram – Scenario 1: Bus Collision or Roll-over

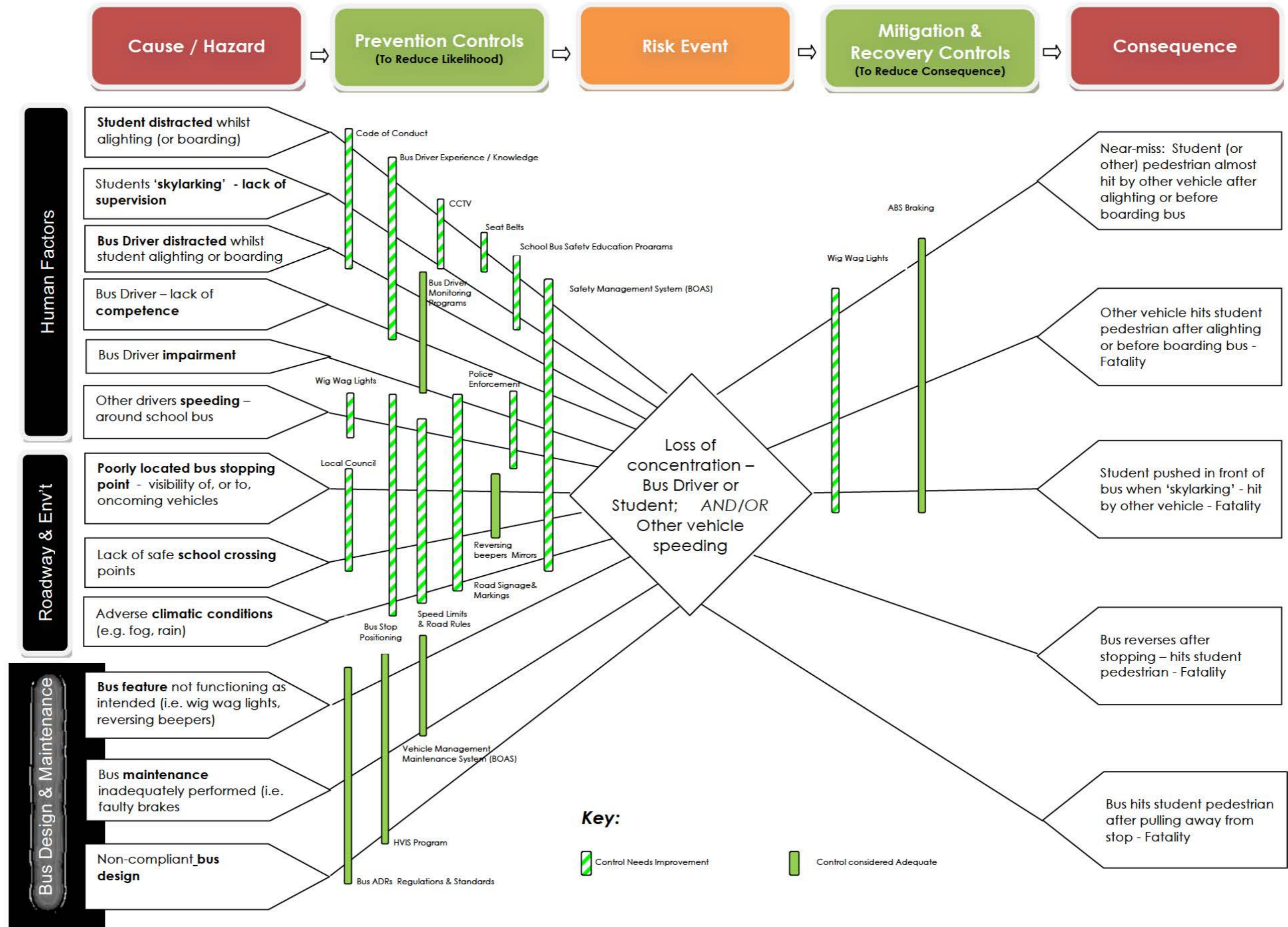


Figure 9: Bow Tie Diagram – Scenario 2: Around-bus Fatality

6. Bus Design and Usage

This chapter describes technical requirements for safe bus design in Australia, including vehicle crashworthiness, visibility, handling and warning features.

Due to the nature of rural bus routes, the Committee has also focused on the need for school buses to perform as safe 'bus stops' in themselves, and has identified opportunities for improvement in this area.

The final section in this chapter discusses a range of matters surrounding the introduction of seat belts on NSW rural and regional school buses, with specific consideration of the costs and other issues relating to their introduction.

6.1 Upgrading Bus Standards

The Committee notes that vehicle safety standards improve over time, in line with the available vehicle technology and our collective understanding of road safety risks. We are aware that it is simply not possible to replace all existing fleet vehicles when safety standards improve. Apart from the significant capital cost of new buses, and a finite market that can absorb used buses, changes within a fleet impose significant burdens on operators that must be managed.

The TfNSW bus contract scheme imposes average and maximum age requirements on contracted buses. For instance, Contract A buses (for dedicated school bus services) have a maximum age of 25 years and an average age of 12 for bigger buses and an average age of eight for smaller buses. As older buses are generally more expensive to run and maintain and are less reliable, bus operators tend to reserve them for short distance trips, or surge capacity (including as a replacement bus when a newer bus is off the road for any reason). The maximum age establishes a balance between the cost of providing buses and the need to ensure a modern, safe and reliable fleet for the task. The school bus contract can (and should) be used to speed the introduction of new standards and technologies that will improve safety and lower fleet operating costs, but there will always be a lag between the introduction of new standards and full penetration through the fleet.

A good example of this is ADR 59 *Standards for omnibus rollover strength*. ADR 59 came into effect for large (ME category – refer definition below) buses in 1992. While the bus fleet has been progressively replaced with new buses that comply with ADR 59, there are still some buses in the fleet that pre-date this ADR requirement. As it is now 20 years since the introduction of ADR 59, there are only a small number of non-complying buses remaining and these are generally low usage vehicles. TfNSW contract managers need to balance the cost of early replacement of these remaining buses, with the level of risk created by their continued use.

History has shown school buses are a relatively safe form of travel in NSW, however if bus replacement is to be accelerated to bring seatbelts into service earlier, then these older buses should be targeted for early retirement, as they do present a more significant risk to passenger safety than a compliant bus.

6.2 Australian Design Rules

The Australian Design Rules (ADR) set minimum requirements for vehicle safety, security and environmental performance. As new ADRs are introduced, any new vehicle registered for use in Australia must comply with those design requirements.

The ADRs are administered by the Federal Department of Infrastructure and Transport under the *Federal Motor Vehicle Standards Act 1989*. Some exemptions from ADR requirements exist (refer 6.2.2 below).

6.2.1 Bus Definition

'Omnibuses' are defined under the ADRs as a passenger vehicle having more than nine seating positions, including that of the driver. An omnibus comprising two or more non-separable but articulated units is considered as a single vehicle.

The Australian Design Rules (ADR) bus definitions are based on the number of seating positions and the gross vehicle mass (GVM). Buses subject to Third Edition ADRs (i.e. manufactured after 1 July 1988) are grouped into five ADR categories as follows:

- MD1 – Light omnibus up to 3.5t GVM and up to 12 seats
- MD2 – Light omnibus up to 3.5t GVM and over 12 seats
- MD3 – Light omnibus - GVM over 3.5t and up to 4.5t GVM
- MD4 – Light omnibus - GVM over 4.5t and up to 5t GVM
- ME – Heavy omnibus - GVM over 5t

(DIT, 2012)

6.2.2 Crashworthiness

A vehicle's 'crashworthiness' is a measure of how well it can protect its occupants in a crash. Crashworthiness does not refer to how the vehicle can assist a driver to avoid a crash occurring, or to reduce the severity of a crash that is otherwise unavoidable.

In this regard, bus-related ADRs comprise:

- **ADR 58 – Requirements for Omnibuses Designed for Hire and Reward**

This ADR sets out requirements for construction of buses designed and intended for licensing for hire and reward, built since 1 July 1988.

- **ADR 59 – Omnibus Roll-over Strength**

This ADR specifies minimum 'roll-over' strength requirements for the bus superstructure, for all buses with more than 12 seats from 1 July 1993 (some categories of bus were required to comply from July 1992).

- **ADR 66 – Seat Strength, Seat Anchorage Strength and Padding in Omnibuses**

This ADR was introduced in two stages from 1 July 1992 and 1993, depending on bus type. It specifies improved safety requirements for bus compartmentalisation, greater strength of seats, and seat anchorages capable of withstanding impact at 10g forces (equivalent to a bus travelling at 55km/hr and coming to an abrupt halt).

- **ADR 68 – Occupant Protection in Buses**

This ADR was introduced between 1994 and 1995 in the wake of the 1989 Kempsey and Grafton bus disasters, where 55 passengers were killed and 54 seriously injured. ADR 68 requires retracting three-point seat belts on all passenger seats.

Concern had arisen around the ability of ADR 66 to provide protection in roll-over crashes (ie. that passengers would not be restrained in their seats), and that lap/sash or three-point seats belts would provide better overall protection. Seat anchorage strength was increased to 20g to withstand the forces generated in a bus crash at higher speed, to minimise the risk of fatality or injury. This is in contrast to the European EC80 Seat Belt Standard, which requires a 10g holding capability – a difference highlighted by Henderson and Paine following the recent crash in Switzerland where 22 Belgian children returning from a school excursion died when their bus collided with a motorway tunnel wall. (Henderson, M. & Paine, M., 2012)

A 1995 report by the Federal Office of Road Safety, 'Cost Benefit Analysis of Retrofitting Occupant Protection Measures To Existing Buses' analysed bus crashes from 1987-1994 and concluded that actual fatality numbers would have been reduced from 109 to 60, and serious injuries from 438 to 90, in 17 bus crashes, if seat belts had been fitted.

The 1992 Regulatory Impact Statement (RIS) for the introduction of ADR 68 sets out the intended outcome of the ADR as being 'to reduce the number of fatalities and the severity of injuries resulting from bus crashes.

The proposed regulation is designed to provide occupant protection benefits equivalent to those given by seat belts in passenger cars. Complying systems will withstand the forces generated in bus crashes at highway speeds.'

Both ADRs 66 and 68 contain specific exemptions for 'Route Service Omnibuses' or omnibuses with less than 17 'Seats' including the driver and crew, or to vehicles in which all passenger 'Seats' have a "reference height" of less than one metre.

Exempting the smaller buses (those with less than 17 seats) means that these buses do not have the mass advantage that ME Category buses have in a collision, and will undergo a higher deceleration rate. This will increase the probability of serious injury for unrestrained or uncontained occupants. Exempting buses with a low seat reference height means that in a crash, there is a greater chance of the occupant hitting the top of the seat in front; or of hyperflexion of the neck over the seat back in a rear impact or crash rebound. The Committee considers that these exemptions increase the risk of fatal or lifetime care injuries.

- **ADR 5 – Anchorages for Seat Belts**

This rule specifies requirements for belt anchorages so that they may be adequately secured to the vehicle structure or seat, and to meet comfort requirements. (DIT, 2012)

6.2.3 Implications for the School Bus Fleet

Introduction of the above ADRs resulted in a rapid improvement in crashworthiness and safety in the Australian coach fleet.

This improvement has not, however, occurred in rural school buses operating on the same roads and highways. This is due to two factors:

- The age of the school bus fleet: TfNSW Bus Contracts allow buses to be used without specifying a minimum ADR requirement. Therefore, some buses in the fleet pre-date ADR 59 and ADR 66 requirements, and therefore have lower standards of roll-over protection and seat anchorages;
- ADR exemptions have been applied to TfNSW Contract Buses so that Category 2 to 4 Buses (ie. the larger buses) are exempt from some ADR 66 and ADR 68 requirements (including the fitment of seat belts). While bus operators may procure buses that comply with the ADRs, aspects of the TfNSW bus contracts, including bus capacity issues, have not provided adequate incentives for bus operators to purchase new ADR 68 compliant buses, or retrofitting seat belts to newer buses within their fleets. This means that only a very small proportion of these buses are fitted with seat belts.

Given that ADR 59 was introduced in 1993, and that the maximum age of buses allowed under TfNSW Type A contracts is 25 years, it can be assumed that, within the next six years, all buses in the Type A contract fleet will be ADR 59 compliant.

ADR 68 was introduced in 1994. However, the exemptions provided under the ADR requirements mean that a large proportion of the TfNSW contract fleet is not fitted with seat belts. TfNSW data indicate that of the total 1,689 buses in the Type A contract fleet, around 1,280 buses (76 per cent) are not fitted (except for the driver seat); 135 (eight per cent) are partially fitted (eg drivers and front seats); and only 270 (16 per cent) are fully fitted. Around half of the buses that are fully fitted are Category 1 buses (ie. minibuses with a seating capacity of eight-13).

TfNSW advised that very few of the 1,576 Type B contract buses are fitted with seat belts.

The Committee acknowledges that the provision and use of seat belts in higher density, low speed urban environments (for example, in non-metropolitan urban cities and towns in rural and regional areas) may not be practicable, or justified given the lower safety risks. The requirement to use seat belts in that environment may increase traffic congestion and may lengthen the time required for passengers to get on and off a bus.

We acknowledge that full compliance with ADR 68 (in relation to seat belts) is therefore not appropriate in such settings. Circumstances where seat belt usage is recommended are discussed further in Section 6.9.

As noted above, the Committee is of the view that the exemptions allowed under both ADR 66 and ADR 68 have increased the risk of fatal injuries or serious injuries requiring life time care. We believe that all new and replacement buses procured under the TfNSW bus contracts should require full compliance with ADR 66 where the bus is to be used on low speed urban routes and with ADR 68 (ie. with seat belts) where the bus is to be used on non-urban routes.

Recommendation 1:

That TfNSW amends the Rural and Regional school Bus Contracts to require:

- 1.1 All new and replacement buses that are to be used on Rural and Regional school bus routes on non-urban roads to comply, as a minimum, with ADR 68 (*Occupant protection in Buses*); and**
- 1.2 All new buses that are to be used on regular route passenger services in urban areas to conform, as a minimum, with the compartmentalisation intent of ADR 66 (*Seat Strength, Seat Anchorage Strength and Padding in Omnibuses*); or, for replacement buses (i.e. bought on the second hand market) to be used in the same areas, at minimum to comply with ADR 59 (*Standards for Omnibus Rollover Strength*).**

6.3 Safety Technology

6.3.1 Technical Specifications

In addition to the ADRs, RMS has introduced further technical specifications to support the provision of a safe bus environment for student passengers. These include:

- TS 142 – Warning Signs and Lights (wig wag) for school buses: comprises signs, flashing headlights and wig wag lights that warn approaching motorists that students are boarding or disembarking from the bus. TS142 defines an offence by motorists to exceed 40km/hr when relevant signs and wig wag lights are present/activated.
- TS 146 – Bus Door Safety System: the bus must incorporate a brake and door interlocking system to prevent the bus from driving away with the doors open.
- TS 147 – Field of View System: outlines requirements for internal and external rear-view mirrors in school buses to ensure optimum visibility.
- TS 148 – Safety Padding: specifies high-density padding for seat bars, rails and frames to mitigate the risk of injury through impact.

The mandatory requirement for all new contracted buses to have an automatic air-conditioning system from June 2010 is also a positive initiative to enable maintenance of a clear windscreen and window interiors. (RMS, 2012)

6.3.2 Available and Emerging Vehicle Safety Technologies

Improvements to the design of heavy vehicles and the range of safety features are likely to contribute to the reduction of casualties in bus crashes. A number of vehicle safety technologies either available now, or emerging into the Australian market, have potential to reduce the likelihood or severity of a crash. Technologies include (but are not limited to) the examples in the table below:

Bus Safety Systems	Advanced Braking Systems	Driver Assistance Systems	Other Safety Systems
Available Technology	<p>Electronic Stability Control (ESC)</p> <p>System detects loss of control and brakes wheels individually to help steer the vehicle</p>	<p>Forward Collision Warning System (FCW)</p> <p>Monitors the road ahead and warns driver of imminent crash threat (1)</p> <p>Vehicle collided with school bus - bus rolled down embankment</p>	<p>Front Under-run (Intrusion) Protection Barriers (FUPS)</p> <p>Prevents other vehicle damaging steering and brakes, and allows their safety systems to function correctly</p>
	<p>Autonomous Emergency Braking System (AEBS)</p> <p>Monitors road ahead and applies brakes in an emergency</p>	<p>Lane Departure Warning System (LDW)</p> <p>Monitors vehicle position in lane and warns driver when departing lane unintentionally (1)</p>	<p>Fire Suppression systems</p> <p>Detects fire and floods engine compartment with water or fire retardant chemicals</p>
	<p>Electronic Brake-Force Distribution. (EBD)</p> <p>Improves brake balance between axles to ensure maximum braking capability and prevent skidding</p>	<p>Adaptive Cruise Control (with Braking) (ACC)</p> <p>Monitors road ahead and maintains gap to leading vehicle. Will apply brakes if gap closes too fast or crash is imminent</p>	
Emerging Technology		<p>Enhanced Night Vision System (ENV)</p> <p>Uses infra-red camera to monitor road ahead and warn driver of hazards (e.g. pedestrians, animals, other vehicles)</p>	
		<p>Driver Fatigue Monitoring System</p> <p>Monitors driver behaviour and detects onset of fatigue. Provides warning to driver and may reduce power to limit top speed of vehicle</p>	

Table 8: Available and Emerging Vehicle Safety Technologies (Source: RMS)

Note (1): A combination of LDW and FCW can act as a proxy system for monitoring fatigue and distraction among drivers as the indicator events are similar in nature.

Recommendation 2:

That TfNSW regularly monitors new and emerging vehicle safety technologies and, where safety benefits are clearly achievable, stipulates use of these technologies, or at least encourages their introduction, through amendments to Rural and Regional Bus Contracts.

This will form a key part of the overall school bus safety continuous improvement strategy.

6.4 Vehicle Standards for non-Contract Student Transport

The standard of buses and coaches used for the transport of school children in NSW varies considerably.

For example, services provided under TfNSW Bus Contracts must meet vehicle age standards, which are an important requirement for safety. However, services provided outside of the TfNSW contract framework do

not have to meet vehicle age requirements and, although the vehicles have to be registered and roadworthy, they do not go through the same level of scrutiny and audit processes that applies to vehicles providing services under government contract.

The Committee is concerned that a vehicle that is considered unsuitable for the transport of school students under a NSW government contract, is apparently suitable if the service is provided outside a TfNSW contract, which can involve travelling longer distances and at higher speeds.

Recommendation 3:

That all buses used to transport school students on Rural and Regional roads in NSW, including transport for curricular and extra-curricular activities, meet the same minimum design standards as those stipulated under TfNSW Bus Contracts, including minimum ADR requirements and fleet age restrictions.

3.1 That this requirement be mandated through regulation; and

3.2 That, in the interim, the Department of Education and Communities, the Catholic Education Commission and the Association of Independent Schools of NSW examine mechanisms to encourage schools within their sectors to ensure such minimum standards are reflected in their bus hiring or procurement policies.

This recommendation is in addition to those regarding compliance with ADRs.

6.5 Bus Visibility

The Committee has concerns around the impracticability of addressing all rural bus route hazards through infrastructure spending. This highlights a need to pursue alternative improvement options, not least of which relate to improving the safety and visibility of rural bus stops.

As local communities expand, this presents increasing challenges to Local Government. Issues relate to the nature of rural roads, including their frequent narrowness, poor surfaces, limited visibility, heavy vehicle traffic, high speed sections, adverse weather conditions and other aspects. The location of 'established' stops may also vary due to changing demand.

In these circumstances, the school bus itself 'becomes' the bus stop, and must be clearly distinguishable to enable student passengers to board and alight safely. For this reason, we recognise the need to make school buses highly visible when pulling up on the roadside.

A range of opportunities for improvement exist here, relating to bus warning lights and signage, on-bus markings and parent, carer and motorist education.

6.5.1 Upgrading of Bus Warning Lights and Signage

RMS has produced a draft paper regarding a review of safety around school buses, arising from an Office of Transport Safety Investigations report into a school bus fatality in Ingleburn, NSW, in August 2009. (RMS, 2011)

Recommendations in the draft report focus on improving the visibility of bus warning lights and speed signage on school buses, specifically in relation to:

- Visibility and effectiveness of bus warning (wig wag) lights;
- Visibility of 40km/h speed limit signage on the bus exterior;

- Limiting the nature and extent of advertising on the rear of buses; and
- The potential effectiveness of incorporating a flashing red annulus to the 40km/h sign on the rear of buses.

Other studies have also called for upgrades to the existing system, including those by Henderson & Paine and the University of NSW Injury Risk Management Research Centre (Henderson, M. & Paine, M., 2007; Hatfield, J., 2010).

In addition to the RMS recommendations, discussions with stakeholders endorse the introduction of rear-of-bus flashing red 40km/h signage, suggesting this would increase bus visibility, particularly in foggy conditions.

Consultation indicates that, to be effective, the review of warning light and signage arrangements should be supported by a revision and re-launch of driver education programs around school buses.

The Committee recognises and supports the current RMS initiative to review and upgrade bus warning lights and signage systems.

6.5.2 Use of Fluorescent Reflective Tape Markers

The Committee's research also indicates that benefits may be gained from the use of fluorescent reflective tape on the rear and sides of school buses to make buses more visible when stopping on roadsides, particularly after dark and in fog-prone regions.

The Australian Trucking Association has produced a technical advice document 'Heavy Vehicle Visibility Advisory Procedure', which is a Voluntary Code of Practice for outline marking of heavy vehicles for Australian conditions.

We suggest that TfNSW encourages bus operators to adopt the voluntary code, to improve bus visibility in all conditions.

This initiative is currently being considered by the National Transport Commission via the National Heavy Vehicle Accreditation Scheme. The Committee supports this initiative.

6.5.3 Trial Measures

The Committee recommends the use of flashing red 40 km/h signs and enhanced vehicle markings is to be trialled by TfNSW in a selected region or route area.

Discussion around the issue of school bus zone warning signage is included in Chapter 7: Road Infrastructure.

Recommendation 4:

That TfNSW conducts trials of improved school bus warning lights, markings and school bus zone warning signage for the purpose of maximising bus visibility, given that in country areas the bus 'becomes' the bus stop.

Recommendation 5:

That based on the outcomes of trials under Recommendation 4:

5.1 The NSW Minister for Transport submits to the National Standing Council on Transport and Infrastructure recommendations for improving national standards for bus warning lights, markings and school bus zone warning signage; and

5.2 TfNSW implements appropriate improvements to bus warning lights, markings and school bus zone warning signage at a local level pending the reform of the national standards.

6.6 Footrest Location

School student behaviour may also drive critical improvements in the safety of bus design. For example, the practice of 'bus surfing' has recently become prominent through various incidents and fatalities – such as the death of an 11 year-old in 2009 in NSW. Following this tragedy, coronial recommendations were made in relation to the need to develop bus safety awareness around the issues in question as part of the school curriculum; and that the relevant ADR be revised urgently to ensure that all external emergency footrests that are less than 1500 mm above the ground are designed so that it is not possible to fully wrap fingers around the foot rest form. (NSW State Coroner, 2011)

The first recommendation is being progressed by the Department of Education and Communities together with the NSW Centre for Road Safety (TfNSW).

In respect of the second recommendation, the relevant design rules are ADR 44/02 – Specific Purpose Vehicle Requirements and ADR 58 – Requirements for Omnibuses Designed for Hire and Reward. ADR 58 is in the late stages of a full review by the Australian Government, and the issue of footrest design will be considered as part of this. TfNSW is part of this process through its membership of the Australian Motor Vehicle Certification Board (AMVCB) and Technical Liaison Group (TLG). The Committee understands that ADR 58 is expected to be revised by the end of 2012.

An accreditation alert was also issued by TfNSW requesting bus operators to ensure that no-one is 'bus surfing' before the bus leaves for its next destination. This has been supported by an active education program. (TfNSW, 2010)

6.7 Closed Circuit Television

The Committee understands that the installation of Closed Circuit Television (CCTV) monitoring systems has been mandated under TfNSW Metropolitan and Outer Metropolitan bus contracts. They have not been mandated under Rural and Regional Contracts.

The rationale for the installation of CCTV in the Metropolitan and Outer Metropolitan Contracts was largely due to a spate of passenger behaviour leading to risks to the personal security of drivers, or driver distraction. The use of CCTV has other safety benefits, including the ability to review any on bus incident affecting driver or student security. CCTV footage could also be reviewed from time to time to assess seat belt compliance.

Recommendation 6:

That TfNSW includes in Rural and Regional Bus Contracts a requirement to fit and maintain CCTV in all new and replacement buses.

This requirement needs to be supported by funding for provision, installation and maintenance of CCTV equipment.

6.8 Standing Passengers

Under NSW bus operator accreditation guidelines, bus drivers are required to limit their speed to a maximum of 80km/h whenever student passengers are required to stand. This applies equally to travel within metropolitan and rural and regional environments, including identified 'high risk' routes.

Restricting the speed of buses carrying standees to 80km/h is essentially reliant on bus driver compliance, which may not effectively reduce the high risk to standing passengers. A bus travelling at 80km/h can still collide with oncoming traffic travelling at speed, particularly on roads with a higher speed limit. Sudden deceleration in a crash at 80km/h would result in a high probability of fatalities and serious injuries to standing students.

The Committee is concerned that the requirement to drive at a lower speed than the speed zoned for the road may also increase the likelihood of other traffic including heavy vehicles attempting to overtake the bus in unsafe conditions.

Standing, sitting in the aisle and overcrowding on buses were raised as serious concerns in public submissions to the Committee, and during community consultation. Some bus operators at the Committee's three country meetings indicated that relatively few buses have students standing once they reach areas outside of the lower speed urban environments.

Prominent engineering experts have confirmed the high risk of injury associated with standing on buses, and the potential for multiple fatalities and serious injuries in the event of a crash or sudden braking incident. Joubert states that 'With a high-speed crash the standing passengers have no chance whatever of maintaining their equilibrium, and move forward with the pre-impact velocity of the bus while the bus structure has come forcibly to rest. If there are a number of standing passengers then the forces on the first passenger on impact with the front of the bus are increased by the number of passengers standing behind him.'

Troutbeck confirms the risk of extreme forces to children standing, stating that 'Students, clinging to bars and straps could not survive a crash in which, for example, a bus hits a bridge pylon. Passengers would be thrown around with a force equivalent to 12Gs (twelve times the force of gravity) ... some students have no hand strap to keep them upright and may be too small to hold the metal handrail effectively, exposing them to being thrown around by sudden braking or extreme forces in a crash – hitting seats, handrails, other students, school bags or the windscreen. Multiple fatalities and serious injuries are therefore highly likely, and the legal implications for bus operators and TfNSW who provide student transport are plainly evident.

The Committee acknowledges the added risk of heavy school bags hitting students and students being thrown through the bus windscreen onto the road or roadside.

The European Commission's Road Safety in School Transport Report (2004) recommended a prohibition on students standing in school buses outside of urban areas in light of the much higher speeds travelled by vehicles on non-urban roads, which significantly increases the risk of injury and fatality to standing passengers in the event of emergency braking, and in crash situations.

Recommendation 7:

That TfNSW amends the Rural and Regional Bus Contracts to prohibit standing or sitting in the aisle of a bus where buses are required to travel on unsealed roads or on roads with a speed limit of 80km/h or more that are outside urban areas, to be implemented no later than day 1 of term 3 of the 2013 school year.

TfNSW in cooperation with bus operators needs to plan for, and provide, sufficient seating capacity on all non urban routes to ensure that no student is required to stand when the bus is operating on such roads. This will require rescheduling of some services and additional services in some cases.

6.9 Seat Belts

6.9.1 Background

The Committee notes that parents and carers living in rural areas have been actively advocating for the provision of seat belts on buses for over two decades. We agree that children need seat belt protection, and that standing in the aisle should be banned where school buses travel on high speed roads, and share the road with large numbers of heavy vehicles.

After the tragic 1989 Kempsey and Grafton bus crashes where 55 passengers were killed and 54 seriously injured, the Federal Office of Road Safety determined that 'all buses and coaches other than city route buses' should be fitted with 'three-point seat belts to all passenger seats'. (FORS, 1992) Since July 1995, all coaches have been fitted with seat belts. Since that time, no seat belted passenger has been killed or maimed in a coach incident. This is an enviable record demonstrating the safety benefits of seat belts.

As noted in Section 6.1, school buses used under the TfNSW Bus Contracts have been exempted from aspects of the most recent ADRs, including the requirement to have seat belts fitted. Few buses operating in the rural and regional contract areas therefore have seat belts fitted, or have the higher structural safety standards designed to withstand a high speed crash.

The Committee notes that all other jurisdictions in Australia, with the exception of the Australian Capital Territory and Victoria, are in the process of phasing in seat belt requirements on their bus fleets.

6.9.2 Risk Analysis

As with any decision over Government funding in relation to public policy issues, there is a need to determine how spending will be justified on a cost-benefit basis. In regard to the question of funding for seat belts on school buses in rural areas, the majority of studies to date have concluded that school bus travel is significantly safer than available alternatives. These findings have led some researchers to conclude that mandatory provisions for seat belts on school buses cannot be justified purely on a cost/benefit basis.

The Committee does not agree with those conclusions and believes there is a compelling case for introducing seat belts for buses used in high speed non-urban rural and regional environments.

Much of the current literature on seat belts in school buses includes buses used in both rural areas and buses used in metropolitan/urban areas. The latter generally travel at speeds of less than 60km/h, are not involved in many crashes and when they do crash, tend to impact at low speed. This results in fewer fatalities and serious injuries. Combining the data for rural and regional with metropolitan/urban school buses, therefore, obscures the real risk for school buses travelling at higher speeds with other traffic on undivided highways with higher speed limits.

The Committee notes that the risks of school buses on rural and regional roads are more akin to coaches travelling on the same roads, where evidence shows that seat belts have saved lives and reduced the incidence of serious injury, than school buses in metropolitan/urban areas where speeds are lower and the potential for high risk crashes such as roll-overs and head-on collisions at high speed are much less.

The Committee also notes the diverse nature of school bus routes in rural NSW, even compared to most other Australian states. A range of regional risk factors were identified through our consultation, including snow and icy conditions in mountainous regions, and fog and sun glare affecting visibility for bus drivers and other motorists.

A significant hazard in rural areas is the speed that school buses travel at, whilst sharing roads with high volumes of heavy vehicles of equal, or greater, mass than a bus. We understand that exposure to this hazard will increase over future decades as the freight task increases. In addition, unpredictable wildlife movements can also lead to sudden vehicle braking, which can cause a truck or car to impact the rear of a school bus. All of these risks (to buses and other motorists) increase when vehicles travel at higher speeds.

The importance of balancing risk-based and hazard-based approaches to school bus safety has been highlighted by groups such as the Safety Institute of Australia (SIA) in their Submission to the NTC's 2008 Position Paper on Improving Safety Management in Australia's Bus Industry (SIA, 2008). In addition, the Royal Australasian College of Surgeons stated that, while a 'serious casualty crash' was relatively unlikely, the probability of 'serious injuries and mortality' if such an event was to occur was 'extremely high' and was 'one of the most likely mass casualty events that could occur in Australia'. (Atkinson, R., Cass, T., 2008)

A purely statistical risk-based approach disregards the presence of significant hazards that may lead to a low probability, but nonetheless catastrophic, school bus incident resulting in fatalities and major injuries. A 'hazard-based' approach considers the inherent dangers, and how these may best be eliminated or mitigated.

The Committee, therefore, has considered both hazard-based and risk-based approaches to school bus safety, acknowledging the possibility for a single, catastrophic, school bus crash with multiple fatalities to occur in NSW. Such an incident would significantly skew the data, as occurred with coach crashes such as those in Kempsey and Grafton in 1989.

The Committee has also considered the application of the principle of reducing risks to safety 'as low as reasonably practicable' (ALARP). This principle has been applied at common law for many years, and is now enshrined in the Work Health and Safety legislation (using the phrase 'so far as is reasonably practicable'). The process of determining what is 'reasonably practicable' action in eliminating or reducing the level of a risk requires a weighing up of relevant factors. These include, on one hand, the likelihood of the risk eventuating, and the degree of harm that could result; what the 'duty holder' knows, or ought to know, about the risk and how to treat it; and the availability and suitability of risk controls. On the other hand, the costs of available mitigation measures need to be taken into account. The balancing process must consider whether the costs are 'grossly disproportionate to the degree of harm'. Control measures are only seen as not 'reasonably practicable' if the 'time, trouble and cost involved in their introduction' are deemed 'grossly disproportionate to the risk'. (Johnstone, R., 2008)

In 'weighing up' the question of seat belt introduction to reduce the risk of serious harm to student passengers to a level that is 'as low as is reasonably practicable', the issue is not whether belts will control the hazard in question, but how effective they will be, given the cost of their introduction.

Griffiths et al in their paper 'Three Point Seat Belts On Coaches – The First Decade In Australia' noted that the only fatalities in coach crashes since the implementation of seat belts in coaches in 1994 were in unrestrained passengers; that is, no passenger wearing a seatbelt in a coach since the introduction of mandatory seat belts on coaches travelling on Australian highways has been fatally injured in a crash.

It has been estimated that 'about 60 per cent of all bus crashes in which passengers are injured could be expected to be influenced by lap/sash seat belts' and 'that seat belts would be 50 per cent effective in reducing passenger fatalities in frontal crashes' (NHTSA 2002). It was also noted that 'belt systems are particularly effective in reducing ejection in roll-over crashes'. Griffiths et al stated that when applied to Australian long distance coaches, 'three point seat belts could be expected to save about 30 per cent of all fatal and serious injuries to coach occupants', a figure which is 'within the range for cost effectiveness derived by FORS (1992)'. (Griffith, M., Paine, M., Moore, R., 2005)

In a 2012 update to their 2007 and 1994 reports on the effectiveness of seat belts on school buses relating to the recent bus tragedy in Switzerland, Henderson and Paine stated 'this appears to be a crash where Australian ADR 68 seats (with integral three point seat belts tested at 20g) would have prevented many of the fatalities' (Henderson, M. & Paine, M., 2012). Hatfield's 2009 review noted that 'lap/shoulder seatbelts provide better protection against head and neck injury than compartmentalisation alone or with lap-only seat belts' and that 'most fatal crashes are frontal or side impacts, followed by non-collision (typically roll-over) and rear impacts' (Hatfield, 2009).

A pivotal European study strongly recommended the use of seat belts in coaches and buses, reporting that 'part of the injuries in roll-over crashes are caused by the impact of the occupants on the side panel and on the luggage rack and also by the effects of occupant interaction. The number of injured occupants and the injury and severity of the casualties is less if the bus is equipped with a proper seat restraint system'. (European Commission, 2003)

A 2004 report for the European Commission, 'Road safety in school transport', noted that the use of seat belts in school buses was already mandatory in several European countries, and recommended the mandatory use of restraint systems in school student transport throughout the European Union.

The above studies include data from coach crashes travelling on similar roads to those encountered in Rural and Regional NSW. School buses in rural and regional areas are travelling on the same roads (often undivided) as coaches, where high-speed frontal crashes and roll-overs with ejection are more likely to occur and the risk of serious injury or fatality is much higher, and where the evidence shows that seat belts are more likely to make a difference.

On a purely practical note, the adoption of seat belts on school buses may also have incidental benefits in several areas. These include:

- Decreasing distraction to school bus drivers caused by children moving around the bus. Some drivers of belted buses report considerable benefits in this area, particularly with younger students; and
- Reducing traffic congestion around school zones, arising from parents and carers who prefer to drive their children to school rather than put them on a bus without seat belts. Introduction of seat belted buses should result in fewer children walking to/from cars in around-bus areas, and increase available parking.

6.9.3 Urban Versus Non-urban Risk Environments

As noted above, the risk of fatalities and injury arising from a bus crash in a low speed urban environment is considerably lower than for higher speed, non-urban routes.

In addition, the operational impact of requiring seat belts on buses in more congested, low speed urban areas (such as in non-metropolitan urban cities and towns in the rural and regional area) would be significant. Such a requirement would increase loading and unloading times and therefore impact on timeliness of services and on urban traffic congestion. The Committee recognises that there will be an on-going need to allow regular passenger services in urban areas (which may provide school student travel) to continue without the fitment of seat belts on those services.

Weighing up the consideration of the ALARP principle, the Committee therefore notes that, for bus operations in non-urban, higher speed environments:

- The risk of a high speed crash or rollover, though unlikely, is possible and the consequences of such an event could lead to multiple fatalities and injury;
- Sudden braking events are more common and do lead to injuries;
- The provision of seat belts and compliance with ADR safety features is an accepted response to such risk and has been proved to significantly reduce the consequences of the above events;
- The installation of seat belts is now mandated in coaches, is being introduced in other jurisdictions in Australia, and is therefore becoming standard safety practice across the country.

6.9.4 Costs of Lap/Sash Seat Belt Implementation

The balancing question in the ALARP principal is whether the time, cost and trouble of the introduction of seat belts would be “grossly disproportionate” to their benefit. The Committee therefore sought advice from TfNSW on the likely cost involved in introducing seat belts.

TfNSW provided a detailed costing model to enable analysis of contract and funding implications relating to the introduction of seat-belted buses for Type ‘A’ Rural and Regional School Bus Contracts (ie. for dedicated school bus services). As noted in Section 2.1.2, Type A contracts fund approximately 50 per cent of the bus fleet under Rural and Regional Contracts.

TfNSW advised that the model included the following direct operational costs:

- An additional cost of \$5,000 per bus for new Category 2 buses fitted with seat belts;
- An additional cost of \$30,000 per bus for new Category 3-4 buses fitted with seat belts;

- An increase in the total number of buses required to address the reductions in existing vehicle capacity (noting also that standees would be eliminated);
- Costs associated with running a larger bus fleet, including drivers, maintenance and fuel;
- While these represent the most significant additional costs that would be incurred with the introduction of seat belts, it should be noted that the model did not incorporate other costs that may be incurred, including:
 - Amendments to operators' Safety Management Systems to include systems for the maintenance and application of seat belts;
 - Handling, maintenance and replacement of child size-appropriate seating units ("booster seats"), if required (see section 6.9.11);
 - Depot facilities for larger bus fleets;
 - On-bus seat belt compliance signage; and
 - Possible additional running times for school bus journeys to account for seat belt protocols.

Balanced against these costs are the direct savings to the scheme should reduced injury rates result in lower insurance premiums which could reasonably be expected to be lowered as the improved safety performance of buses fitted with seat belts becomes evident. More importantly, the benefits relate to the economic and social benefits from fatalities and injuries prevented.

The TfNSW model was based on the following assumptions:

- Continuation of the "3 for 2" rule, allowing smaller children to sit three to a seat;
- A 15-minute "run-back time", ie. that buses can undertake a run back to pick up additional students if necessary where the bus reaches capacity prior to finishing its route (or at the beginning of the route after school) as long as it can do so within 15 minutes;
- The replacement of existing buses with new ADR-compliant buses with seat belts, rather than retrofitting existing buses.

Applying this model, TfNSW concluded that the additional annual cost to fund seat belts on the Rural and Regional Type A Bus Contracts across the full fleet would be approximately \$28.3m.

As noted above, Type A Contracts account for approximately 50 per cent of the bus fleet used for school bus travel, and around 50 per cent of the total cost of running Rural and Regional Bus Contract services. Data available to TfNSW has not enabled as detailed an analysis of the impact on the cost of Type B contracts. Importantly, some proportion of Type B Contracts that provide regular passenger services in low speed urban environments will not require seat belts to be fitted.

It is therefore unlikely that the cost to Contract B services would be as high as those for Contract A services.

Nevertheless, TfNSW advised that applying a similar cost to contract B services would provide a conservative estimate for Government consideration. That is, it is likely that the costings provided are at the outer limits of what would be required to fund the introduction of seat belts on all non-urban routes in Regional and Rural NSW.

This would result in a (conservative) estimate of approximately \$55 million per year in the ongoing cost of the Rural and Regional School Bus task if seat belts were fitted on all non-urban routes.

This represents an increase of around 15 per cent in the annual cost of the Rural and Regional Bus Contracts (from approximately \$372m to \$427m per year in current dollar terms), or four per cent of the total cost of the NSW Bus Contracts (from \$1.28bn to \$1.33bn per year).

Importantly, such an investment has been seen to be necessary for coach operations (by regulation) across Australia, and for rural and regional school bus operations in all other Australian jurisdictions other than Victoria and the ACT.

Having carefully analysed the available evidence, we agree that allocation of funding for the provision of seat belts for Rural and Regional school buses is an appropriate response, as it has the potential to significantly reduce the risk of multiple fatalities or serious injuries in a low probability/high consequence crash scenario such as a high speed bus collision or roll-over. It also has the potential to reduce the incidence of injuries occurring inside the bus, for instance as a result of sudden braking events, which is currently occurring at a higher rate in Rural and Regional areas than in the Metropolitan and Outer Metropolitan Contract areas.

In the context of the "ALARP Principle", the Committee **does not** consider this cost to be "grossly disproportionate" to the safety benefit to be derived from this investment. The successful introduction of seat belts in school buses in other states and territories supports and reinforces this view.

6.9.5 The Phased Introduction of Seat Belts – Cost Considerations

The Committee acknowledges that it is not feasible to purchase new buses or refit the entire bus fleet with seat belts immediately. This would need to be done over a period of time.

Other jurisdictions have phased in the introduction of seat belts to their fleets, typically over a 10-year period.

Issues which need to be considered in determining the time period within which seat belts could be fitted over the entire non-urban rural and regional bus fleet include:

- The safety benefit to be gained. The faster the implementation period, the sooner the full safety benefit of the initiative is achieved;
- The cost of replacing buses that have not yet reached their full services life (or retrofitting buses that would continue in service). The shorter the transition period the greater this cost;
- The increase in the total number of buses required as capacity reduces, and the additional operational costs of operating the buses (eg drivers, fuel and maintenance). The shorter the transition period, the greater this cost;
- The ability of the second hand bus market to absorb the sale of buses that are not seat belted;
- The capacity (financially and operationally) of bus operators to acquire new buses (or retrofit existing buses). Under the TfNSW Bus Contracts, bus operators bear the initial up-front cost of procuring buses, and are compensated for those costs through the annual funding instalments from TfNSW. The cost to Government is effectively spread over the life of the contract.

The Committee considered *three options* for seat belt implementation:

Option 1: To provide seat belts for all non-urban rural and regional school buses over a five-year period.

Under this option, accelerated bus procurement (and/or retrofitting program) would be implemented so the entire fleet for non-urban routes is fitted with seat belts within five-years. The accumulated additional cost to Government for operating the Rural and Regional Contracts would increase incrementally over five years by around \$15m in year one reaching an additional \$55m per year at year six.

Option 2: To provide seat belts for all non-urban rural and regional school buses over a 10-year period.

Under this option, the same program would be implemented within 10 years. The accumulated additional cost to Government would increase incrementally over 10 years by around \$7.0m in year one reaching an additional \$55m per year at year 11.

Option 3: To provide seat belts for all non-urban rural and regional school buses over a 15-year period.

Under this option, the program would be implemented within 15 years. The accumulated additional cost to Government would increase incrementally over 15 years by around \$4m in year one reaching an additional \$55m per year at year 16.

The following graph illustrates the annualised cost impact of an accelerated seat belt introduction program and assumes that the incremental annual costs for Type B contracts will increase at the same rate as Type A Contracts.

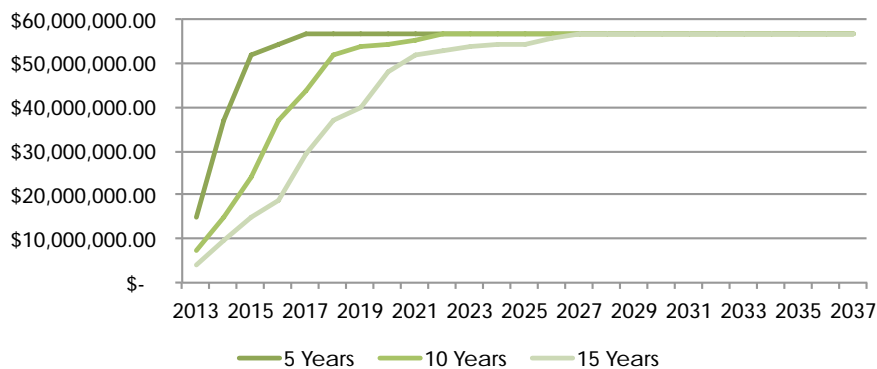


Figure 10: Annualised Cost Impact of Accelerated Program (Source: TfNSW)

Given the potential safety benefit, the Committee recommends the introduction of seat belts as soon as possible.

The Committee acknowledges, however, that implementation within five years may introduce a range of unwarranted and unintended complications. Resale values of older buses would drop considerably as the market may not absorb the rate of disposal that this scheme would require.

The roll out of seat belts to certain Type B contracts will require significant changes to the TfNSW Bus Contract model, that is in relation to the split between Type A (dedicated school buses) and Type B (regular route service contracts). Attempting to transition these arrangements within such a short time frame may result in a program cost blow out. In addition, the changeover costs to some operators may be excessive, with significant losses on stockholding of spare parts and specialist tools etc. being lost from supporting workshops, and the need to access additional drivers and for staff training.

The Committee therefore formed the view that, while a five-year program was the preferred outcome, the cost to Government would be substantially higher, so the phased introduction of seat belts with completion within a 10-year period is strongly recommended and is consistent with timeframes adopted elsewhere in Australia. We believe a 10-year program is achievable and consider a 15-year program unacceptably long for students to wait for safer bus travel.

Recommendation 8:

That TfNSW implements a phased program to provide ADR 68 compliant buses fitted with lap/sash seat belts for all Rural and Regional school student bus travel operating outside of lower speed urban environments as soon as possible, and to be completed within 10 years.

6.9.6 Allocation of Seat Belted Buses Under a Phased Program

An unavoidable consequence of a phased program to introduce seat belts is that, over the transition period, there will be some buses with, and some without, seat belts. This raises the important question of how the new seat belted buses will be allocated to Contracts and routes over the period.

The Committee is of the strong view that, to maximise the safety impact of this initiative, the implementation program should be structured to minimise the residual risk on the Rural and Regional network. Opportunities to reduce the residual risk include:

- Ensuring that the replacement program target in the first instance older buses with poorer safety features such as crash worthiness. The accelerated bus procurement program will offer the opportunity to phase out these buses from the network earlier than would be the case under the current contracts;

The allocation of seat belted buses on more hazardous routes, such as unsealed country roads, and high speed roads. TfNSW and bus operators should work together to ensure that, as new buses become available, buses within that operators' fleet are reallocated such that the seat belted buses operate on the more hazardous routes of that operator.

Recommendation 9:

That the implementation program for the installation of seat belts be based on the following risk priorities:

9.1 Allocation of seat belt-fitted buses to school bus routes using unsealed roads, and any routes zoned at speed limits that are 80km/h and above; and

9.2 Replacement of buses based on age, with older buses phased out first.

In respect of route-related hazards, opportunities exist for consultation with Local Traffic Committees to assist in prioritisation of routes for seat belted buses. The Committee also acknowledges the ongoing work undertaken by TfNSW to classify rural and regional school bus routes according to risk (see Chapter 7). The outcomes of this program should progressively inform the prioritisation of school bus routes, and ensure consistent provision of seat belted buses across the network.

The process of allocation of seat belted buses to higher risk routes should commence immediately upon the Government's acceptance of the Committee's recommendation.

6.9.7 Retrofitting Existing Buses – Seating and Seat Belts

The costing model provided by TfNSW was based on an assumption of procuring new buses throughout the replacement program, rather than retrofitting seat belts on existing buses.

In the Committee's view, the question of purchasing new buses, as opposed to retrofitting existing buses is fundamentally a financial question. TfNSW and bus operators should determine whether a bus should be replaced or retrofitted as they work through the implementation program. If the age of the bus and the cost of replacement means that it would be more cost-effective to retrofit seat belts to the bus then they should do so.

Recommendation 10:

That, for buses that are already compliant with ADR 68 seat anchorage standards, TfNSW determines, in consultation with bus operators, whether it is more cost-effective to retrofit lap/sash seat belts, than to replace an individual bus.

The WA Government found that the retrofitting of school buses over five years old with seat belts did not present an economical option. The Queensland Government came to a similar view. (Paine, M, 2004).

However, retrofitting may provide a viable strategy for individual bus operators, for example on newer model buses. Given the age profile of the NSW fleet, and the aim to replace older buses first, retrofitting may not be a dominant feature of the program.

Nevertheless, if retrofitting is to occur, it should be done in accordance with applicable ADRs.

A National Code of Practice for Retrofitting Passenger Restraints to Buses was published by the National Transport Commission in 2007. The Code was based on investigations of bus occupant safety research conducted since the 1994 code was introduced; and commercial availability of ADR 68 seats with integral lap/sash seat belts from several local and overseas manufacturers. (NTC, 2007)

The TfNSW costing model for the program was based on an assumption of continuing to allow for "3 for 2" seating for smaller children. This is a lower cost option for the program as a whole as it increases the capacity of the fleet.

An innovative seat design is currently available (and was utilised in the WA initiative) which allows 'quick change' seating to be fitted for three primary school age children or two adults on regular school buses or charter buses. The WA experience indicated an overall cost range for this of between \$26K and \$71K per bus, depending on the extent of modification required. It should be noted that this seat is weight-restrictive for the 'middle' child, and would not easily accommodate booster seating if required.

Any new bus procured with lap/sash seat belts fitted should be fully compliant with ADR 68 standards, including higher backed seats. Should older buses be retrofitted, it is imperative that seat belts be combined with a high backed seats, or seats with built in head restraints. Seat belts without an appropriate seat back structure to support the head and neck in rear impact crashes or rebound in frontal crashes have potential to significantly increase the risk of catastrophic neck injuries.

6.9.8 Defective Seat Belts

Under current bus safety guidelines, any damage to seat belts results in a 'Defect Notice' being imposed on the vehicle in question. The defect notice requires the vehicle to be rectified and presented for inspection within a defined period, normally 28 days. The seat with a defective seat belt should not be used until the defect notice is cleared. This has implications for operator running costs and service quality.

For school bus services, requirements around how promptly damaged belts must be repaired should be set out in bus operator maintenance programs in conjunction with TfNSW guidelines.

A defective seat belt may be caused by normal wear and tear or by vandalism. In South Australia, the Department for Education and Child Development (DECD) has introduced a program where individual schools are required to bear the cost of damage to seat belts and seats on school buses caused by vandalism. The DECD suggests that schools aim to recover such costs from the parents and carers where practicable.

Recommendation 11:

That TfNSW develops guidelines under the Rural and Regional Bus Contracts for bus operators providing pragmatic approaches to the maintenance and repair of damaged seat belts on a school bus.

6.9.9 Federal Government 'Seat Belts for Kids' Program

The Federal Government recently announced an extension of its Seat Belts for Kids program, which provides funding to encourage the adoption of seat belts in buses in rural and regional areas. The scheme provides a subsidy of up to \$25,000 per bus to fit lap/sash seat belts to new buses or retrofit them to existing buses to meet ADR 68/00 standards. Availability of the funding commenced in September 2007 and was to cease in June 2012, initially providing \$40 million, however in the May 2012 federal budget a four-year extension was

granted, providing \$4 million to enable a further 160 buses to be fitted with seat belts. Funding assistance is allocated following the assessment of applications from eligible bus operators.

The subsidy program has not received significant support to date in NSW, as the TfNSW contract model does not provide sufficient incentive for operators to apply for federal assistance due to bus capacity requirements.

The Committee notes the extension of the Federal Government program, and encourages TfNSW and bus operators to explore ways in which to better tap into this funding resource.

6.9.10 Seat Belt Compliance and Education

Previous studies have pointed out that, in relation to wearing of seat belts, misuse and 'incorrect use... is likely to be at least as common as ... in passenger cars, and may increase injury risk...' (Hatfield, J., 2010). Research suggests that strategies that 'target students from an early age' will be most effective. (Coutts, M., Newman, S., Roper, P. & Styles, T., 2003).

An evaluation of the 2003 Seat Belt Trial in Queensland concluded that 'if seat belts were introduced on school buses, consideration would need to be given to a strategy to encourage higher seat belt wearing compliance, including reinforcement and punishment options'. In WA, seat belt usage rates on school buses are reportedly substantial (refer WA Case Study below). With effective education strategies, similar results are expected in NSW particularly once students starting school (who are already 'trained' to wear a seat belt) progress to high school. The benefits should then flow on when school leavers become car drivers.

In the Northern Territory, the NT Code of Conduct for School Bus Travel includes an addendum setting out specific behavioural standard requirements around the use of seat belts, with consequences including a ban on travel for up to 10 school days for not wearing a fitted seat belt. (Northern Territory Department of Lands & Planning, 2009)

The Committee's consultation with bus operators and drivers highlights considerable concern over their 'personal liability' for the correct wearing of seat belts by children on school buses, including issues such as injury claims following crashes occurring with seat belted buses, physical contact with students, and other considerations.

This demands a clear response from Governments. In South Australia, the DECD maintains that no personal liability will rest with a DECD employee in regard to a negligence claim arising from a school bus incident, providing the staff member has not engaged in 'serious or wilful misconduct'. Staff are instructed to encourage students to wear the belts but not to 'physically intervene', and bus drivers and operators are required to report any child who refuses to wear a seat belt to the relevant school principal. (This approach may work better in a system where the bus is primarily servicing a single regional school, rather than a network of schools as occurs in NSW).

The Committee considers an 'holistic' approach to be essential to the effective introduction of seat belts on rural and regional school buses, which must consider the need for understanding and acceptance by all stakeholders. We acknowledge that the introduction of seat belts presents a challenge, in terms of student compliance in the absence of parental supervision. We note that enforcement is not the role of the bus driver, whose primary responsibility is to drive the bus in a safe manner.

In line with a need to demonstrate 'reasonably practicable' action to ensure student safety, our review highlighted the importance to bus operators of applying a 'checklist' of actions to show that they have done everything 'reasonably practicable' to get students to wear the belts appropriately. We consider that once drivers have taken 'reasonably practicable' action to have students wear seat belts (eg. on-bus signage, and, if the bus is fitted with appropriate equipment, an audio announcement whenever students board the bus), the onus of responsibility should then pass to the student and their parent or carer.

A complementary framework to reinforce and support the introduction of seat belts should therefore include:

- Revision and reinforcement of the TfNSW School Student Code of Conduct to students, parents and carers;

- Ensuring BOAS conditions clearly reflect obligations of school bus operators and drivers;
- Reinforcement of appropriate student management strategies through guidance material for bus drivers; and
- Development and implementation, in conjunction with the Department of Education & Communities, TfNSW, Association of Independent Schools of NSW and the Catholic Education Commission of NSW, of a targeted education program for students and parents or carers, focusing on the need to wear seat belts on rural and regional routes.

The fact that the NSW road framework is embedded within a national network also needs consideration, and initiatives must be progressed in a nationally-consistent manner accounting for regulatory differences between the various states and territories.

The Committee suggests that monitoring of the effectiveness of phase-in strategies through stakeholder consultation will be a critical part of a seat belt implementation strategy. It is also important to ensure that related bus incident data is appropriately captured and classified to provide a reference point for the future evaluation of seat belt effectiveness.

Recommendation 12:

That TfNSW develops guidelines with BusNSW under the Rural and Regional Bus Contracts setting out bus operator responsibilities to encourage students to wear seat belts, for instance by providing appropriate signage and audio announcements. Such guidelines should make it clear that drivers must not be distracted from their key task of driving safely, and so are not, nor should be, responsible for enforcing compliance.

In line with recommendations from previous studies, TfNSW has commenced work on reviewing and updating the School Student Code of Conduct. The Committee recognises the importance of this in clarifying the roles of all stakeholders.

Recommendation 13:

That TfNSW revises the NSW School Student Code of Conduct in consultation with parent and carer groups and BusNSW in light of the Recommendations of this report, including clarifying the rights and obligations of school bus travel stakeholders.

The Committee suggests the revised Code should:

- Define student behavioural standards, and examples of how to meet these (eg. 'Expected Behaviour');
- Include direction for students and bus drivers relating to safety when alighting from or boarding buses;
- Clearly identify student, parent and carer responsibilities in relation to wearing of seat belts, and the consequences of non-compliance. We suggest development of a standard 'seat belt protocol' to provide consistent advice to bus drivers;
- Define driver responsibilities and authorities around student management. These should address wearing of seat belts, also the scenario of a child being 'left' on the bus;
- Include an assessment/acknowledgement or similar in the Code's 'delivery' process to ensure that its content is fully understood and accepted by stakeholders;

- Highlight the responsibility implications of signing a student transport agreement to parents and carers when enrolling children in the School Student Transport System; and
- Make the wearing of belts, where fitted, a 'Condition of Travel'. This process should be supported by schools and parent and carer associations.

We also suggest that student behaviour reporting mechanisms be reviewed to ensure these are prompt, effective and fair to all parties.

6.9.11 Size-Appropriate Seating and Booster Seats

Previous studies emphasise that seat backs on buses need to be high enough to prevent passengers 'overriding' seats in a frontal collision, but also point out that smaller children 'may not be appropriately restrained' through improved seat design alone (Hatfield, J., 2010). In NSW from 1 March 2010, all children up to the age of seven are required to be safely fastened into an approved child restraint, appropriate for their age and size, when travelling in a passenger vehicle. (RMS website - February 2012)

Under a previous version of the Australian and New Zealand Standard for Child Restraints used in motor vehicles (AS/NZS 1764), 'booster cushion' type seat bases were permitted for use in Australia. The latest version of this standard no longer approves their use, which means they cannot be imported into, or sold in, Australia (although if already owned in Australia, they can continue to be used by their owner). The Child Restraint Standards Maintenance Committee (CS-085) is currently considering whether booster cushions might be re-introduced for use only in school buses. (Booster cushions do not provide the same side-impact protection as a high backed booster seat with side wings, however a larger bus would not be subjected to the same reaction in a side impact crash as a light vehicle). To provide the best protection in a frontal crash, it is important that the seat belt anchors the wearer's hips downwards and does not cut into the stomach, known as submarining. Booster cushions provide a simple means of raising the seating position, reducing the risk of submarining.

Trials undertaken by RMS indicate that booster cushions may, with appropriate approval, be suitable for use in bus seating by smaller children when they are restrained with an approved size-appropriate lap/sash seat belt.

In South Australia, the Department for Education and Child Development (DECD) has initiated a progressive replacement program of non-seat belted DECD-owned and private contracted buses, with buses that are fitted with seat belts. Currently, the decision whether to use a booster seat in conjunction with a seat belt remains with the parent or carer, with the DECD placing the onus onto school principals for ensuring that smaller children can travel safely on a bus, in consultation with parents, carers, and bus drivers. If it is felt that seating is not safe for a particular child, then either properly fitted booster seating must be provided or alternative travel options explored. Parents and carers are responsible for providing an approved booster seat and ensuring their child is correctly seated. The DECD provides online guidance in regard to 'approved' types of booster seating.

Options for addressing the use of booster seating on NSW school buses include the management of seating by bus operators, or by parents and carers. The first option is, realistically, not practicable for bus operators/drivers. The Committee agrees that provision of a lap/sash seat belt increases the chances of survival in a crash substantially, and that prescriptive regulations for booster seats may delay safety benefits for students on buses. We therefore consider that:

- TfNSW should continue to seek re-introduction of booster cushions within the Australian Standard for use on school buses; and
- Responsibilities for the provision and use of booster seating for children aged less than seven years should remain with parents and carers.

We believe that with suitable guidelines, any issues around the use of booster seating can be resolved at the local level.

Recommendation 14:

That TfNSW, in conjunction with parent and carer groups and BusNSW, develops appropriate protocols setting out responsibilities and processes for booster seat use, storage, loss/damage etc.

6.9.12 Non-Route and Non-Contract Services

As noted in Chapter 2, the TfNSW Bus Contracts procure the vast majority of school bus services in NSW. However, there are other non-contract services procured directly by schools.

In 1999, the NSW Department of Education & Communities issued a communication to school principals outlining the measures introduced by the NSW Government to improve school bus safety, including upgrading of safety features in bus design. It was emphasised that although seat belts were not mandatory at the time of writing, where these are fitted to buses used by schools, student passengers are required by law to wear them.

BusNSW has issued a guideline to schools titled 'Chartering a bus in NSW – What to look for', which sets out current rules and minimum requirements relating to travel details, bus capacity, driving hours, Driver Authority and other aspects. (BusNSW, 2009)

The Committee considers it essential that these services adopt the same safety standards as those required under TfNSW contracts. Should the Government accept the recommendation to adopt seat belts on non-urban Rural and Regional Contracts, we believe that the same standards should be required for non-contract services. This is consistent with Recommendation 3 at Section 6.4.

Recommendation 15

That all bus operators providing services for school student travel be required to meet the same minimum standards for the prohibition of standing on bus routes, and the use of buses fitted with lap/sash seat belts as those recommended by this Committee for TfNSW School Bus Contracts.

- 15.1 That this requirement be mandated through regulation; and**
- 15.2 That, in the interim, the Department of Education and Communities, the Catholic Education Commission and the Association of Independent Schools of NSW examine mechanisms to encourage schools within their sectors to ensure such minimum standards are reflected in their bus hiring or procurement policies.**

6.9.13 Case Study: The WA Experience

Whilst contractual and operational school bus conditions in WA are different to those in NSW, the WA Government experience provides a useful comparison for the purposes of the Committee's Inquiry.

Seat belts are being phased in over a 10-year period on WA Government-contracted 'orange' school bus services, as well as Education Department-owned buses, from the beginning of 2006. The change has not impacted on privately-owned or operated school buses, ie. for independent schools. The initiative was driven by a collision between a school bus and a truck in 2005, in which three students were seriously injured. The Government allocated \$83m for seat belt implementation, of which approximately \$53m was required; around 67 per cent of contracted school buses have been seat belted to date. A 'Route assessment' approach was not used in WA.

The initiative involved fitting seat belts on new buses, and retrofitting belts on buses under five years old. No legislative amendment was required, as the change was introduced via ADR 68, such that lap/sash seat belts only are now permitted. The experience emphasised that the cost of retrofitting older buses may be considerable – varying between \$26,000 and \$71,000 per bus, depending on the extent of modification required – a figure roughly consistent with those provided in the Costs and Benefits of School Bus Roll-over Strength and Seat Belt Report prepared for Queensland Transport (M.Paine, 2004).

No issues were encountered in regard to ADR 59 for older buses, since none were in the fleet. When bus replacement is due, a five-year survey is conducted to determine the appropriate bus size. Within each class of bus, operators generally opt for the highest seating capacity, for example 12.5-metre buses have 57 seats. An option exists to pay a conveyancing allowance if student numbers exceed bus capacity (in WA, adults are not permitted on school buses).

A 'No standees' rule was in place both before and after the seat belt introduction. The McConnell Educator 2/3 school bus seating was used to maximise student seating capacity, however presents a weight limit issue - ie. if an 'H' child harness is used, then a weight limit of 38kgs applies, essentially restricting '3 for 2' seats to students up to Year 5. Booster seats (which prevent '3 for 2' seating) are provided by the WA Public Transport Authority (PTA) upon operator request.

In regard to safety performance, WA statistics indicate slightly more contracted school bus incidents in the last five years, compared to the previous five – ie. seat belts have not influenced the injury rates substantially.

Contractors or bus drivers are responsible for managing seat belt compliance, supported by a Behaviour Management Plan process. Suspension provisions apply if a child continually refuses to use a seat belt; there is as yet no knowledge of a child being suspended for this reason. Anecdotal evidence suggests younger students are more likely to comply with belt requirements, although overall wearing rates are considered to be 'very high'. Over the past five years the WA PTA has reimbursed 13 invoices to repair vandalised seat belts, at a cost of approximately \$8700.

The WA Department of Education has a policy of requiring seat belted buses for school excursions. Department-owned buses were replaced with new seat belted buses, including those bought by the Department, and those purchased by schools through P&C funding for old second hand buses (approximately 200 buses).

7. Road Infrastructure

The purpose of this Chapter is to discuss existing measures to ensure that the road infrastructure used by rural and regional school buses provides adequate safety, and to identify further improvements to enhance the safety of this infrastructure.

An overview is provided of the work undertaken to date by TfNSW to classify individual school bus routes according to risk, in the context of the National Guidelines for Risk Assessment of School Bus Routes. The TfNSW initiative is designed to enable prioritisation of rural and regional school bus safety improvement measures.

The role of Local Government is discussed in relation to route maintenance, and establishment of 'safe' rural bus stops.

This section highlights concerns raised with the Committee around non-compliance by 'other' motorists with 40km/h rules, and the need to review applicable legislation; and the impact of high-speed zones in combination with a prevalence of heavy vehicle traffic on rural and regional school bus routes.

7.1 Risk Work on Route-specific Issues

7.1.1 Route Profile

The hazard profile of rural and regional roads differs vastly from that of urban infrastructure. Rural and regional roads feature a wide range of dangers to motor vehicles, including steep gradients, deteriorating road surfaces, obscured visibility due to vegetation or sharp curves, large variation in speed limits, roadside and on-road obstacles such as large trees, wildlife and stock, adverse weather conditions such as ice and fog, and heavy vehicles (for example, agricultural).

In contrast, urban routes generally (but not always) involve well-maintained roads, safer bus stops, slower speeds and more ready access to emergency facilities (such as hospitals).

The significant hazards present around rural and regional roads call for specific approaches in ensuring safe outcomes for school bus passengers. The Committee recognises that it is simply not practicable to provide funding to address all of the identified issues. Therefore, it is necessary to ensure effective decision-making in prioritising the allocation of limited resources.

7.1.2 National Guidelines for Risk Assessment of School Bus Routes

In November 2005, the NSW Minister for Transport took a proposal for 'Guidelines for the Risk Assessment of School Bus Routes' to the Australian Transport Council, based on guidelines already used by the Queensland Government.

The Guidelines are designed to assist in the identification and classification of three broad levels of school bus operating environments as follows:

- Environment 1 (E1) – Urban high population density, low speeds, shorter journeys
- Environment 2 (E2) – Non-urban lower density; higher speeds; longer journeys; narrow, undivided, unsealed and winding roads; hazards such as livestock, wildlife, trees close to the road; and heavy vehicle traffic at higher speeds.
- Environment 3 (E3) – Non-urban with extreme risk factors ie. long steep roads with precipitous drop offs; high volumes of heavy vehicle traffic; narrow, undivided roads and blackspots; climate conditions such as fog, snow and ice.
- An extract from the Guidelines are reproduced in Appendix 11.3 of this Report.

The main aim of route classification is to enable prioritisation of actions by Governments and other stakeholders to improve safety on school bus routes.

Although endorsed by all jurisdictions, these Guidelines are voluntary, and do not specify any particular action (e.g. the use of ADR 68-compliant buses) to make bus travel safer. Queensland is the only state currently using the Guidelines to prioritise seat belt introduction.

NSW has identified approximately 300 'high risk' school bus routes using the Guidelines. Other states and territories in Australia are introducing seat belts on new buses, retrofitting existing buses where possible and replacing old buses on E2 and/or E3 routes.

The Committee has found no evidence to suggest that the application of seat belted buses should be restricted to E3 routes alone. The Committee has not as yet found any evidence that E3 routes are 'riskier' than E2 routes, in the sense that the crash type and location cannot be predicted. This position is supported by a Queensland-commissioned report ('Costs and Benefits of School Bus Rollover Strength and Seat Belts', Paine, 2004).

Even with the best crash avoidance features, the presence of high speed opposing traffic creates an ever-present risk of a catastrophic crash, whether on an E2 or E3 route. The consequences of this risk are best mitigated by ADR 68-compliant seats and seat belts (designed to provide the highest level of protection for passengers in a crash at high speed).

While the route assessments have not, to date, been used to allocate bus types to routes in NSW, they are being used to identify improvements to road and bus stop infrastructure. Issues around road and bus stop infrastructure (rather than the design or use of the bus) are the focus of the remainder of this Chapter.

7.1.3 School Bus Route Assessment - NSW

In 2009, GHD Australia were commissioned by TfNSW to undertake an assessment of school bus routes based on the National Guidelines for Risk Assessment of School Bus Routes. (ATC, 2005) The assessment process was completed for more than 3000 rural and regional school bus routes. However, these only included data on RMS state roads, not 'local' roads managed by Local Government. (GHD Australia, 2009)

A subsequent project was undertaken by TfNSW as part of the RiskTech study to develop and trial a suitable tool to enable hazard data collection of the non-RMS road component of rural and regional school bus routes. (RiskTech, 2012)

The checklist tool was designed to allow routes to be readily ranked, so that control strategies (such as staged implementation of seat belts) can be prioritised and justified. The checklist looks at five key hazard factors based on the ATC Guidelines, including:

- Road Curvature;
- Lane Width;
- Road Gradient;
- Heavy Vehicle Traffic; and
- Zone Speed.

Following the pilot study, discussions with participants pointed to the importance of identifying additional criteria which could magnify the key hazard factors, for example, whether a feature (such as a 'high' speed zone) appeared only once, or multiple times on a route; or whether other characteristics were present, such as 'poor visibility' around a sharp curve. The draft tool was refined in light of feedback from participants, TfNSW and BusNSW. For each key hazard factor, a number of sub-factors that could amplify the relevant risk were also identified and incorporated into the tool, which was then re-sent to the pilot participants to obtain their feedback on the changes.

The draft tool has recently been agreed with TfNSW, who is now responsible for building an appropriate on line facility to enable collection and compilation of data. Validation processes will then be considered once data has been collated.

The best methodology for collecting route assessment data, i.e. by individual bus operators or through a contracted consultant, is currently under discussion between TfNSW and BusNSW.

The Committee acknowledges the development work undertaken by TfNSW to enable identification and prioritisation of rural and regional bus routes based upon the type and degree of hazards present.

Recommendation 16:

That TfNSW works in collaboration with contractors, bus operators and Local Councils to expand the existing NSW school bus route classification process to include non-RMS routes and to facilitate risk-based allocation of resources to improve bus safety on those routes.

The objective of this exercise will be to categorise the remaining rural and regional school bus routes as Environment 1, Environment 2 or Environment 3 routes.

Following the launch of the data collection program, an independent validation of the program's outcomes could be conducted.

7.2 Local Government Liaison – Maintenance of Rural & Regional School Bus Routes

Local Councils are responsible for managing more than 157,000 km (81 per cent) of local roads in NSW. Currently, Councils spend more than \$1.3 billion of their own funds maintaining these roads. (*Source – NSW Country Mayors' Association*)

The limited nature of financial resources available to Local Councils to maintain road infrastructure places a key onus on the operation of Councils' Local Traffic Committees (LTC). The LTC is a technical review committee whose role is to provide advice to the Local Council, primarily on issues relating to traffic control facilities and devices. The Committee may also advise on or investigate other traffic-related issues as outlined in the Guide to the Delegation to Councils for the Regulation of Traffic (RTA (RMS), 2009). The LTC structure provides for 'informal' membership by bus operators, which promotes timely action to address local issues and informed decision-making around funding allocation.

In recognition of the importance of consultation and co-operation between bus operators, Local Councils and the RMS in ensuring safe outcomes for school bus passengers, the Committee's research highlighted both positive and negative experiences. Although Traffic Officers generally liaise effectively with bus operators, limited responses by some Councils were reported around issues such as overhanging vegetation, potholes, mud surfaces or 'suspect' road structures. This may be due to limited local resources for ongoing road repairs, and/or a Council position that 'bus stops are not our responsibility' where perceived as unsafe. The latter is seen as a 'grey area' by bus operators, ultimately addressed through consultation with Traffic Committees, parents, carers and schools.

In relation to ongoing route maintenance, operators may try to fix minor hazards themselves (such as chain-sawing branches etc.) but are concerned about personal liability implications.

Operator strategies to improve co-ordination with Local Government where necessary include:

- Regular meetings between Traffic Committees and regional bus operators to discuss and resolve priority route issues;
- The use of Council pro-formas for notification of bus route issues that operators can quickly fax to the relevant contact; and
- Bus operators gaining a seat on the Traffic Committee.

Recommendation 17:

That TfNSW and RMS review relevant regulations and guidelines with a view to recommending to Government amendments that mandate that school bus safety become a standing item on Local Traffic Committee agendas, and that local bus operators be invited and actively encouraged to participate in these Committees.

Operators' Risk Registers or other relevant information could be used at these Committees to help identify and prioritise 'problem' routes. LTCs must recognise that a particular route is a school route and give priority when allocating funding.

Protocols should also encompass issues such as:

- Safe location of bus stops;
- Adequacy of school bus warning signage;
- Projected works that may create an increase in heavy vehicle traffic, or other related issues; and
- Provision of 'safe' bus access via town planning processes.

Arrangements should allow for flexibility in regard to local circumstances; and enable escalation of issues to third parties where necessary, for example inadequate provision of warning measures at rural rail crossings.

7.3 Rural Bus Stops

The challenges of establishing 'safe' bus stops in rural areas have been discussed elsewhere in this Report (refer Section 6.5).

The Committee is of the opinion that there is not sufficient attention placed on the safety of schoolchildren at the roadside. We note that Workplace Health and Safety guidelines require roadside workers to be highly visible, protected by barriers where possible and for traffic to be slowed to a safe speed around a roadwork site. In contrast, a school bus can drop a child dressed in dark school uniform at an unprotected location on the roadside facing traffic speeds of up to 100 km/h. The Committee believes more can and should be done in this area.

On the positive side, some Local Councils are reportedly becoming more stringent in their application of safety criteria around the establishment of new bus stops, for example by ensuring that buses can fully pull off the road.

One best practice example is that of Cowra Shire Council, which has developed draft guidelines for rural bus routes and bus stops. The document sets out clear responsibilities relating to funding, assessment and set up of rural stops; use of bus stops; and safety of children before and after boarding/disembarking from the bus. The guidelines provide comprehensive assessment criteria for routes and bus stops, around factors such as road geometry, sight distances, ability of buses to pull off the road, 'pavement' width, bus size, gradient, climatic conditions, car parking and others. Template matrices for assessors are included, relating to bus stops used by a single family; by multiple users; or at school interchanges. In relation to route signage, the document states 'Where guidelines have been met, signage should not be required. It is not intended that Rural School Bus warning signs be used to justify unsafe school bus stopping areas.' (Cowra Shire Council, 2012)

Where circumstances inhibit establishment of a proper bus stop, the bus itself needs to become the distinguishable 'safe' stopping point.

The Committee has identified a range of preferred improvement actions to ensure adequate visibility of buses, set out in Section 6.5.

Recommendation 18:

That TfNSW and RMS develop a standard Methodology for fixed Rural Bus Stop Location/ Design, with reference to existing 'best practice' examples, for use by Local Councils.

The model should address factors including:

- speed zones;
- acceleration/deceleration lengths;
- vehicle and pedestrian visibility;
- ability of the bus to draw fully off the road;
- provision for parents to turn vehicles around, and park off-road, when dropping off/picking up children;
- condition of road surface – for example, unsealed road shoulder or loose gravel that may impact on traction;
- provision of safe zones protected by crash barriers;
- distance to intersections/junctions;
- suitability of road crossing points; and
- provision of footpaths leading to bus stops; maintenance of bus stops, etc.

Reference to other models in NSW and other states may also provide guidance, such as the Riverina Eastern Regional Organisation of Councils' Guidelines for Rural School Bus Routes and Bus Stops (REROC, 2004); and Queensland's Guide for the Road Safety Management of School Bus Routes and Bus Stops (QTMR, 2002)). RMS has also provided principles for the design of safe vehicle stopping areas, including bus stopping areas in rural locations. (RTA, 1999)

7.3.1 Road Signage

Rural road signage is reportedly a significant issue in relation to the provision of a safe bus travel environment.

On many routes, there is anecdotally insufficient or inadequate School Bus and Bus Stop warning signs, although it is not unusual to see a 'proliferation' of signage appearing in a location following an incident.

Consultation with rural bus operators drew suggestions that improved roadside signage, used in conjunction with school bus zone signage (as opposed to only on-bus devices) may be more noticeable/visible from an approaching driver's perspective. Such markings could also warn drivers of the possible presence of a child waiting or playing at a roadside bus stop when the bus is not present.

The existing signage and speed zone described by the NSW Road Rules 2008 (shown below) could be supplemented by additional approach signage, such as standard 'children about' signs (two children on yellow background):

School bus stop zone sign



End school bus stop zone sign

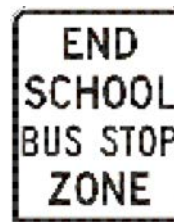


Figure 11: NSW Road Rule 21-1 School bus stop zone sign is speed limit sign (Source: RMS)

The Committee notes that these are issues that should be the subject of close consultation between Local Traffic Committees and bus operators.

7.3.2 40km/h Zones around School Buses

The Committee's research included consultation with the NSW Police Force to identify and consider various enforcement matters relating to 'around bus' safety.

A key concern is the limited compliance of 'other' motorists with the 40km/h speed limit around buses with flashing wig wag lights, which applies to vehicles approaching, or passing, the bus. In essence, there is some confusion and difficulty in determining exactly where the speed limit applies, and how it can be enforced at the roadside.

The Committee suggests that better definition is required in regard to the rule applying to vehicles travelling for a set distance behind a bus; while alongside a bus; and to a set distance immediately in front of a bus, that is operating its warning system. This would provide improved around-bus safety when in a lane of traffic, also making enforcement easier for police, if the distance before and after the bus that the speed limit applies is clearly defined. We also believe that, given the number of cases of children emerging from the kerb behind or beside the bus being struck by vehicles travelling in the opposite direction, a rethink of the 40km/h rule is justified in terms of whether it should apply to oncoming traffic when the bus is on a single lane, two way road. This initiative would provide a road safety improvement around all school buses in NSW, not just those in rural and regional areas.

The Committee acknowledges the role of police in recommending improvements to roads travelled by school buses.

Recommendation 19:

That TfNSW reviews the regulations that set speed limits around school buses when school bus warning lights are flashing, to more appropriately define the distance behind and in front of the bus to which the speed limit applies, and to make the speed limit applicable in both directions when used on single lane roads.

7.4 Speed Limits on Rural & Regional School Bus Routes

The need for school buses to travel in 'high speed' traffic zones (for example, 80km/h and above), on routes featuring significant hazards such as narrow/steep lanes and a prevalence of heavy vehicles, is considered to have the highest potential to lead to incidents such as bus crashes and roll-overs.

Bus drivers also report significant safety concerns where bus stops are located on 'high speed' sections, where other vehicles can find it difficult to slow to 40km/hr when passing a stationary bus.

NSW Speed Zoning Guidelines ensure the needs of safety are carefully balanced against the need for mobility. In some locations, road condition, usage by vehicle type or traffic volume may have changed over time. It may be appropriate for speed limits to be reviewed to ensure the guidelines are being correctly applied. Advice from the NSW Centre for Road Safety is that bus operators or parent/school groups with serious concerns about speed limits, can approach their local RMS regional office to seek speed zone reviews be conducted on particular bus routes.

The Committee's view is that road speed limits in rural and regional areas should be appropriate for school bus usage, considering the distance that a bus is required to travel, as well as the existence of bus stops on 'high speed' road sections.

Recommendation 20:

That Local Traffic Committees, with assistance from RMS and NSW Police, ensure that NSW Speed Zoning Guidelines have been correctly applied to school bus routes.

Data to be collected via the Route Assessment program in conjunction with TfNSW should provide an input to this review.

7.5 Heavy Vehicle Traffic on Rural & Regional School Bus Routes

The Committee's research also highlighted community concerns regarding the presence of heavy vehicle traffic on rural and regional school bus routes. This is perceived as a significant and increasing contributor to the potential severity of a serious school bus incident.

High volumes of heavy vehicle traffic increase the risk to students on buses significantly, as these vehicles are of equal or greater mass than a bus. Most occupants of a car crash involving a heavy vehicle fare much worse than passengers on a bus, because of the difference in vehicle mass.

Studies have identified the use of effective locally-developed strategies by rural and regional school bus operators for liaising with third parties managing the risks arising from, for example, forestry, quarry, livestock, garbage and other heavy vehicles sharing school bus routes. These include the use of two-way radios, seasonal liaison, third-party websites and other mechanisms.

We recognise the value of timely consultation with NSW Police and Local Traffic Committees in identifying practical strategies to minimise such traffic at times of increased risk due to the presence of school buses.

Recommendation 21:

That bus operators, Local Councils, local Police and other stakeholders (eg. trucking companies) develop and implement risk prevention strategies to minimise the impact of heavy vehicle traffic on Rural and Regional school bus routes during school commuting times.

Locally-developed strategies and protocols may provide helpful reference points, for example, implementing two-way radios and communication protocols with heavy vehicle road users. It is strongly suggested that RMS invites bus operators to participate in Councils' regular Local Traffic Committee meetings.

Where necessary, a formal escalation process may be required for resolution of unresolved issues.

7.6 School Bus Exchange Points

The Committee recognises the need to improve student protection in areas where responsibility for their safety is 'shared' or ambiguous.

A good example is that of school bus exchange points (sometimes due to contractual 'overlap'), which involve multiple pedestrian and vehicle movements, passing vehicle traffic, and groups of students waiting for buses, parents or carers. In many cases, students may not attend the school at which they are required to wait for a school bus.

The Committee witnessed the operation of a school bus exchange point, where a number of buses within one region all converge on a set location, to exchange students between buses that service different routes and sectors. The exchange occurred outside a public school, after the school had closed.

Parents in private motor vehicles were present, collecting some students from these buses. There are normally no external safety supervisors monitoring the movement of students. The exchange occurred between buses parked on both sides of a public road, with no speed or traffic controls present other than the school bus wig-wag lights being active. While this 'system of organised chaos' appeared to be working, the Committee considers there is significant potential for safety improvements to be made and suggest that TfNSW (Interchanges) be tasked to explore these further.

Recommendation 22:

That TfNSW and RMS explore options in consultation with stakeholders to improve student safety around School Bus Exchange points and multiple bus loading areas.

Some improvements could include:

- Ensuring exchange points are located at appropriate points, with a road safety assessment completed for each point prior to its introduction (including delineated parking for parent and carer vehicles);
- Providing adequate hard standing off or away from the main road, to allow buses to be physically separated from through-traffic;
- Supplementing the exchange points with 'school bus zone' signage and proposed associated road markings; and
- Investigating provision of cover/shelter for students dropped off or waiting collection by parents or carers at an exchange point.

7.7 New School Development

It is also the view of the Committee that the safety of students who need to use school bus services should be considered during the development process for designing new schools, to ensure that provision is made for essential features such as safe stopping and crossing areas.

Recommendation 23:

That TfNSW, RMS and the Department of Education and Communities develop guidelines for Local Councils to use when considering the design of new school developments.

Changes to school bus environments over time also impact the effectiveness of risk controls, for example:

- Where nearby facilities such as shops/cafes change the 'safe crossing point' dynamics outside schools;

- Where residential and other developments affect bus access (eg. by creating sharp corners or narrow laneways); and
- Where heavy vehicle traffic volumes increase (eg. due to protracted roadworks) in combination with limited spots for 'safe' overtaking of a stationary bus.

Issues such as these should be addressed through Local Traffic Committees in consultation with bus operators and school representatives.

7.8 Rail Crossings

Another issue with potential for low probability/high consequence incidents is the existence of rail crossings in rural areas with poor or no traffic controls or warning signals. The location of a crossing in a rural area does not necessarily mean that rail services are 'infrequent', nor do they relate to the speed zone of the road or the railway. Again, Local Traffic Committees should be able to provide assistance/leverage for bus operators with state rail authorities to bring action to bear in this potentially safety-critical area.

It was suggested at a community forum that traffic lights instead of flashing lights at rail crossings would give drivers a clear message that if a red light is showing, they must stop.

7.9 Infrastructure Grants

In regard to the limited availability of funding to address rural and regional route issues, the question was also posed by some regional bus operators as to whether the NSW Country Passenger Transport Infrastructure Grants Scheme (CPTIGS) could be extended to encompass upgrading of safety aspects of identified rural and regional school bus stops.

Administered by TfNSW, the CPTIGS provides support funding to improve the amenity of passenger transport infrastructure in rural, regional and remote communities. (TfNSW, 2012)

Recommendation 24:

That TfNSW examines the feasibility of extending the NSW Country Passenger Transport Infrastructure Grants Scheme (CPTIGS) funding to support upgrading of rural school bus stops in NSW.

8. Service Delivery

This Chapter considers how delivery of the school bus service is managed by TfNSW to ensure a safe, reliable means of school student transport, how related systems impact on the operation of bus services and options for improving the effectiveness of current safety management arrangements.

The section initially outlines the Safety Management System (SMS) criteria within the Bus Operator Accreditation Scheme (BOAS), and looks at issues around its effectiveness for accredited operators. The role of BOAS audits in driving continuous safety improvement is also examined. Other key aspects impacting service delivery are also discussed, including bus driver competency. Lastly, this Chapter looks at bus travel arrangements for extra-curricular and other school-related activities, and other circumstances where responsibility for the safety of student travellers may be ambiguous.

8.1 Service Procurement Arrangements

In NSW, school student transport is provided by a number of different arrangements. The bulk of the Rural and Regional student transport task is provided by bus operators under TfNSW Rural and Regional Bus

Contracts. Some student travel is also provided by organisations (usually schools) that own or charter their own buses to transport a group of students to and from school or school events, which are not covered by Government contracts. Students with special needs that cannot travel on the bus services contracted by TfNSW are provided with transport by the Department of Education and Communities.

There are higher standards set for services provided under Rural and Regional Bus System Contracts than for those that fall outside the contract systems.

8.2 Service Standards

The NSW Bus Operator Accreditation Scheme (BOAS) provides for a high standard of safety and reliability in Australia and involves annual self-assessment and regular external audits. This is in addition to the standards set under Rural and Regional Bus System Contracts. A copy of the BOAS Manual and the BOAS Audit Tool can be viewed at www.transport.nsw.gov.au

8.2.1 Safety Management System

Under the BOAS and Workplace Health and Safety legislation, operators are required to assess and mitigate the risks that may arise from the provision of rural and regional school bus services. This includes poor road infrastructure, student behaviour and adverse weather conditions.

Since 2005, bus and coach operators have been required to establish and maintain a documented Safety Management System (SMS) under the conditions of the BOAS.

SMS requirements comprise the following elements:

- i. Policy and Commitment
- ii. Management Responsibilities
- iii. Risk Management
- iv. Procedures and documentation
- v. Employee Monitoring (including fatigue and drug & alcohol impairment)
- vi. Training
- vii. Incident Management and Monitoring
- viii. Audit and Evaluation.

TfNSW has published a Handbook (TfNSW, 2009) to assist operators in establishing their SMS, and BusNSW provides a number of accreditation management tools. The Risk Management methodology of the SMS is based on key requirements of ISO31000 - Risk management – Principles and guidelines.

The SMS Handbook provides materials such as sample procedures and pro-formas to help operators create the necessary documentation. This includes a sample 'Risk Register', which operators must establish to identify where and how specific hazards and risks could impact their operation, and the actions required to eliminate or minimise these 'as far as reasonably practicable', in line with their legal duty. BusNSW provides a similar guide to building an SMS via their Bus Operator Accreditation Manual, available to members via their website (BusNSW, 2010). Members also have access to additional tools such as training material for operators and drivers.

TfNSW also circulates and monitors 'Hazard Alerts' to highlight particular safety issues/hazards to operators, and the necessary actions to address these.

The Committee was advised that regular meetings are held between TfNSW and BusNSW to monitor and update BOAS and SMS mechanisms to ensure safety issues are being addressed and improved.

In 2011, TfNSW engaged RiskTech to look at the effectiveness of the SMS for accredited operators. Key findings of the study indicated a need for improvement around understanding of SMS requirements for those operators that fall under the accreditation scheme, smaller operators in particular. Key issues highlighted include:

- Lack of clarity around the *purpose* of the SMS – ie. what should be achieved through its use, or how to customise the TfNSW templates to suit individual circumstances;
- Finding the language and concepts of the SMS difficult to grasp – for example, how to ‘review and evaluate system effectiveness’; and
- A lack of realisation that one’s SMS needs to be revisited/ revised when circumstances change, such as when taking on new drivers, after an incident, if a school bus route changes, students join or leave a route, etc.

When applied effectively, the tools provided by TfNSW and BusNSW SMS help accredited operators improve their risk management capability. There is, however, room to enhance operators’ understanding of the proactive use of risk assessments to improve safety outcomes.

Recommendation 25:

That TfNSW provides resources for a joint TfNSW/BusNSW Bus Operator Accreditation Scheme (BOAS) and Safety Management System (SMS) training and education program (including web-based training) aimed at improving operators’ risk management practices. This should include funding to assist smaller bus operators provide ‘on-road’ training for bus drivers.

Programs should include guidance to operators in understanding the concepts of the SMS, in particular the Risk Management process, including the purpose and use of the Risk Register and Risk Matrix, and the importance of identifying and assessing hazards, conditions, aspects and associated risks of each individual bus route.

This training and education material should be available to all bus operators.

Opportunities to share learnings from incidents and near misses across the network should also be provided.

8.2.2 BOAS Audit Process

The BOAS Audit program provides a mechanism to assess the level of bus operator compliance with the conditions of their accreditation. As noted above, this only applies to TfNSW accredited operators. Non-contract, unaccredited operators transporting school students are not subject to such audits.

In line with the three-year renewable accreditation cycle, a ‘pool’ of TfNSW-approved auditors undertakes audits under the BOAS scheme. Operators select an auditor from the list available on the TfNSW website. Outcomes of audits are analysed by TfNSW, and provide an input to future improvement directives. It is stated that the program shows evidence of improved audit scores across the broader network, and that only a small percentage indicate the existence of ‘critical’ failures. BOAS Auditors are seen as knowledgeable and helpful in terms of how to develop and apply an SMS. Although impressions of the scheme are generally positive, some opportunities for improvement are indicated by previous studies. These include:

- A need to consider higher areas of risk, such as rural and regional environments, in audit scheduling; and
- The potential benefit of providing timely guidance in SMS implementation before a BOAS license is granted.

Recommendation 26:

That TfNSW recognises Rural and Regional risk in its auditing of bus operators under the BOAS scheme.

8.2.3 Driver Training and Driver Authorities

Training of the people involved in providing safe bus transport services represents a key element of risk management. The Committee's consultation indicates that the majority of bus drivers are commended for their caring attitude and strong sense of duty to the sometimes difficult job they undertake. Bus drivers may remain at bus stops waiting for parents or carers to arrive, and are highly aware of the possible consequences of their actions affecting students on and off the bus.

8.2.3.1 Driver Authority

To become an accredited bus driver in NSW a person must hold:

- A Driver's License for the type of vehicle to be driven – generally, Light Rigid (LR), Medium Rigid (MR) or Heavy Rigid (HR) license. (Some operator companies will provide training in the required license as part of their recruitment process); and
- A Driver's Authority issued by TfNSW.

In addition, all accredited bus drivers must be screened in line with Working with Children Check requirements before starting employment.

To obtain a Driver Authority for a bus or coach, an applicant must undergo a comprehensive application process. This involves lodgement of a completed Driver Authority Application form with TfNSW, together with two passport photos, a copy of the relevant driver's license, a completed Health Assessment form (which involves attending a medical examination to determine whether the applicant is medically fit to drive a public passenger vehicle) and a \$70 fee. Evidence of completion of Driver Authority Training (via a competency assessment) must also accompany the application.

On receipt of the above TfNSW will obtain the applicant's criminal history check from the police, and a driving history from the RMS. This information, as well as the health assessment, will be used to assess whether the applicant meets the appropriate requirements to obtain a Driver's Authority.

8.2.3.2 Driver Authority Training

To obtain a Driver's Authority, a person must undergo a training course provided by a TfNSW-authorized trainer. The approved Driver Authority course was developed in consultation with BusNSW and its training provider, INTO Training. The course covers five areas, together with a competency assessment for each section:

1. Legislation and Driver Authority
2. Customer service
3. Vehicle operations
4. Managing breakdowns and emergencies
5. Driver welfare and safety

Driver Authorities are valid for three years, renewable on completion of the appropriate documentation and submission of this to TfNSW with a \$70 fee. TfNSW also advises Authority holders when a new medical assessment form is required (usually every three years). Drivers over the age of 60, or those with specific medical conditions (eg. diabetes, cardiac or neurological conditions) must complete annual health assessments.

It is the Committee's view that all drivers transporting school students, whether these are parents, carers, teachers hiring a bus for charter, or people operating private school bus services be required to hold a

current NSW Drivers Authority as well as the relevant RMS heavy vehicle license (where applicable). The difficulty of achieving this requirement in some rural and regional areas is acknowledged; the Committee strongly suggests that schools consider having additional drivers trained and authorised to provide a 'back-up' resource in the event that the designated driver is absent for any reason.

Recommendation 27:

That all bus operators providing services to schools be required to meet the same minimum standards for operator and driver requirements as those required under TfNSW Rural and Regional Bus Contracts, such as the Bus Operator Accreditation Scheme (BOAS) requirements, and Driver Authorities. This would apply to 'commercial' bus services procured by schools, but not (for example) where single buses are purchased and used by schools for student transport purposes.

27.1 That this requirement be mandated through regulation; and

27.2 That, in the interim, the Department of Education and Communities, the Catholic Education Commission and the Association of Independent Schools of NSW examine mechanisms to encourage schools within their sectors to ensure such minimum standards are reflected in their bus hiring or procurement policies.

8.2.3.3 Driver Competency - Key Risk Areas

Smaller operators stress the importance of using channels other than formal training to increase driver safety awareness, and maintain that constant engagement of bus drivers, eg. via daily face-to-face feedback, is crucial to ensure proactive communication and management of rural route hazards such as overhanging trees, weather conditions and road deterioration, also handling of emergency situations should they arise.

Consultation indicates that a high level of competence in handling rural hazards coupled with vehicle-specific proficiency is essential for bus drivers, with 'on-road' training using professional instructors seen as beneficial. Smaller firms may provide this training via a 'buddy driver' system. This recognises the difficulty faced by many operators in recruiting suitably experienced bus drivers in rural and regional areas, where, it can be difficult to fill skills gaps created when a bus driver leaves an operator. Anecdotally, there may be a temptation to 'put anyone' on a high-risk route, with operators aiming to manage this by maintaining a 'same driver/same route/same bus' scenario wherever possible. It is also seen as critical to train a back-up driver for each high-risk route.

Recommendation 25 above includes provision of funding for driver training for smaller bus operators. There may be potential to explore this in conjunction with TfNSW and BusNSW. On a broader note, the nationally-recognised qualification Certificate III in Transport & Logistics (Road Transport) is actively promoted to bus drivers within the industry, particularly within larger firms.

There is also a strong consensus that drivers must be competent in appropriate handling of student passengers. Operators consider this a high-risk area of employment, and believe it is critical to provide their drivers with a strong support network. This issue will only become more significant in light of any decision to implement seat belts on school buses, as this will increase the demand for new drivers as the fleet expands.

Experienced operators caution that 'early intervention' is vital to reduce the escalation of poor behaviour, also that all incidents (even minor ones) must be documented on a day to day basis to avoid claims of victimisation/bullying by students and/or parents and carers. Many emphasise that operators and drivers must be fully aware of, and follow, the TfNSW School Student Transport Scheme (TfNSW, 2006) protocols 'to the letter' for managing and reporting behavioural incidents. Advice includes:

- Not 'verbalising' one's frustration/anger;
- Using the 'proper' [TfNSW] channels rather than telephoning parents or carers; and
- Sending a copy of the Code of Conduct to parents and carers with the [TfNSW pro-forma] performance letter.

An area of key concern to operators/drivers is the point at which students alight from, or board, a bus. The risk of being struck by passing vehicles is exacerbated by parents and carers who may call to a child from the other side of a road, causing the child to 'tune out' and disregard approaching traffic. Many drivers insist that children remain on the verge until after the bus has pulled away. Others believe that the bus should remain stationary until students are seen safely across the road. Some drivers try to warn children of oncoming traffic, although in more built-up areas it may be difficult to see clearly up/down a road.

Identification of safe protocols and guidance for drivers, parents, carers and students in this area is identified as a significant risk control/awareness need.

Recommendation 28:

That TfNSW consults with BusNSW and other key stakeholders to develop and provide guidance material for bus drivers in key risk aspects including around-bus protocols; management of students and handling of emergency situations in rural areas.

Guidelines for dealing with student behaviour should address:

- Appropriate approaches to student groups in various age bands;
- How to recognise problem behaviours;
- Recording instances, and patterns, of 'poor' behaviour;
- Appropriate 'early intervention' techniques;
- Appropriate responses regarding wearing of seat belts;
- Preventing or managing escalation of conflict;
- Debriefing for affected drivers; and
- Awareness around mandatory management and reporting protocols under the SSTS.

Guidelines for Around-bus safety protocols should consider, for example:

- Position of a bus stop;
- Road/traffic Visibility;
- Child age groups; and
- Ability of parents and carers to park on the same side of the road as the bus.

8.2.4 Incident Management and Reporting

To enable root causes from bus incidents to be properly identified and analysed to prevent recurrence, an effective means of data capture is required.

Accredited bus operators are required to ensure that all incidents are captured in the web based Incident database. This is used by TfNSW to assess what actions are needed to reduce incidents. Previous studies (eg. Austroads, 2001 and NTC, 2008) have recommended improvements to the bus incident data capture process. The IRMRC study found that 'data that addresses the effectiveness of seat belts are relatively poor' and that 'information regarding seat belts is typically not reliably recorded'. (Hatfield, J., 2010)

The current online bus transport incident database administered by TfNSW was implemented in August 2009 for the use of bus operators reporting an incident. The database currently captures reports for:

- Injury to a person;
- Incident preventing the bus from continuing; and
- Incident causing serious public concern.

The system is reliant on users to provide data to an appropriate level of detail to enable analysis of all factors involved in an incident. Some operators have suggested that the current reporting processes could provide more opportunities for them to learn from incidents, in particular in helping to uncover 'root causes' to drive continuous improvement. This should occur in partnership between TfNSW and BusNSW.

From 2010, TfNSW, as part of an annual survey, commenced collection of details of buses used and whether seat belts are fitted.

Recommendation 29:

That RMS works in consultation with key stakeholders to improve bus incident information capture mechanisms to enable effective root cause analysis and evaluation of risk control strategies.

The TfNSW Incident database should be reviewed and expanded to support capture of all relevant incident factors, eg. factors relating to seat belts, student behaviour, route aspects etc. This should be supported by information for bus operators in use of the amended system. Database development should include consultation with the Office of Transport Safety Investigations and/or the Independent Transport Safety Regulator.

9. Stakeholder Education and Awareness

This Chapter considers the key roles of parents, carers and schools in respect of the provision of a safe school student transport service.

The section explores opportunities for improvement around consultation, co-operation and co-ordination between parties on safety-related issues, which can be achieved through modification to existing processes where necessary, and educative strategies.

Aspects considered include parent or carer support for the bus operators' role, also compliance with around-bus safety provisions; and liaison with schools to improve safety outcomes.

The issue of police enforcement of 40km/h school bus zone speed limits, and avenues for improving the effectiveness of the enforcement process, are also discussed.

9.1 Parents and Carers

It is seen by bus operators, BusNSW and TfNSW as critical to all aspects of school bus safety that parents and carers understand, and take seriously, the implications of signing their School Student Transport Scheme agreement.

Operators generally report a mixed response from parents and carers in relation to management of student behaviour, with the level of co-operation often depending on personal relationships with bus operators in a particular town/area.

Studies have pointed to the need to specifically target parent and carer education/awareness around school bus safety factors, due to the unique influence of this group in preventing bus-related incidents. In addition to key issues including managing student behaviour, also 'around bus' distractions for children getting on/off buses, critical aspects in this area include:

- The need to prevent parents or carers from parking in school bus zones at, or away from, schools (for example, at bus stops along routes that may prevent buses fully exiting the road);
- Lack of compliance by parents, carers and motorists in general with school zone 40km/h speed limits, also with bus warning lights and signage;
- Implications of bus operators not receiving timely information around changes in individual circumstances such as new children joining a route; leaving a route; or moving house. Route changes can easily alter hazard profiles; new students initially need careful supervision. Failure by parents or carers to pass on key information to schools (then to operators) creates frustrations for operators and drivers and increases the risk of a child being left unattended.

Bus operators often have to compensate for inadequate parental or carer support by ensuring the safety of an unaccompanied child, although this is difficult if a 'relief' driver has to be put on at short notice.

The Committee considers that development and communication of a standard or model for effective school bus safety liaison defining the roles of all stakeholders (including parents and carers) would be of great benefit, although subject to local acceptance.

Recommendation 30:

That TfNSW develops standard Guidelines for School Bus Safety Stakeholder Liaison at the local level defining roles and responsibilities of key parties in regard to creating and maintaining a safe school bus travel environment.

Guidelines should address the roles of the following parties in relation to school bus travel safety:

- Schools – including student education, supervision, TfNSW Code of Conduct support;
- Parent and carer associations – including Code of Conduct support;
- Communication and liaison with operators and schools;
- Students, with reference to the (revised) Code of Conduct;
- Bus Drivers and Operators, with reference to TfNSW guidance material;
- TfNSW;
- Local Councils;
- National Road and Motorist Association (NRMA) – educative role;
- Local police command – enforcement aspects, also educative support and enforcement role; and
- RMS – state road maintenance responsibilities and school safety education programs.

Defining the roles of stakeholders will help to identify potential risk areas and promote co-operation around solutions to improve safety for students. This will also help to demonstrate that each party has used 'all due diligence' to meet their duty of care obligations in relation to school student transport.

Guidelines should highlight the benefit of obtaining leverage through local channels to address local issues such as parking in school bus zones.

9.2 Police Enforcement

The Committee's research included consultation with the NSW Police Force on enforcement matters relating to 'around bus' safety.

Issues around the need to review the legislation relating to the 40km/h speed limit around buses with flashing wig wag lights are discussed in Chapter 7 of this report.

The Committee considers that there is also a clear need for education of motorists to raise awareness of their compliance obligations in this area. The recommended upgrade of bus warning lights and signage (refer Section 6.5) must be supported with a revision and re-launch of driver education programs for requirements around school buses.

Programs should also support the enforcement initiatives currently being undertaken by the NSW Police.

It is likely that local solutions may ultimately be most effective in this area, emphasising the importance of bus operators reporting speeding of other motorists to Police.

Recommendation 31:

That TfNSW, in collaboration with RMS and other key stakeholders, develops and implements a Stakeholder Education and Awareness Program in relation to the upgrading of bus warning lights and signage, focusing on 'other driver' behaviour in school bus zones.

This should include a targeted media campaign in relation to speeding around school buses and rural bus stops.

Requirements may also be incorporated in learner driver education programs, for example, 'Behind the Wheel' programs in schools as supported by the NSW Department of Education and Communities; or through partnering with organisations such as the NRMA.

9.3 Seat Belts

To complement and support the revised TfNSW SSTS Code of Conduct, a comprehensive education program for students, parents and carers is required that outlines individual responsibilities and obligations around the need for students to correctly wear seat belts on Rural and Regional school buses.

The program should also provide specific guidelines where necessary, such as in correct fastening of lap/sash seat belts when used with child restraints, or in conjunction with booster seats.

Recommendation 32:

That TfNSW and RMS, develop and implement, in conjunction with the Department of Education and Communities, the Catholic Education Commission of NSW and Association of Independent Schools of NSW, a targeted education program for students, parents and carers, focusing on the need to wear seat belts on Rural and Regional routes.

This could occur at annual RMS 'Back to School' bus safety training at schools, and/or via a video on the RMS website.

9.4 Schools

Bus Operators indicate that the level of school co-operation in managing student behaviour varies, although in the main, local schools tend to provide reasonable to excellent levels of support.

Equally, school principals may experience difficulty in obtaining assistance from parents and carers to address 'problem' students; or encounter bus operators and drivers lacking the necessary skills to solve student behavioural issues.

The Committee sees a number of opportunities for improving operator/school/parent and carer liaison in bus safety education for students, from kindergarten onwards. Real-life 'best practice' examples include:

- School bus 'Orientation' days at the beginning of each school year, where operators take new students out on a bus to explain safety protocols;
- Some local schools holding annual School bus 'morning teas' with all operators and drivers attending, to discuss issues and communication channels;
- Teachers boarding buses to give pre-journey briefings to younger student groups;
- Personal follow-up with 'problem' students - one principal operates a demerit system for behavioural offenders; and
- Delivery of in-school road safety programs as part of schools' Personal Development, Health and Physical Education curriculum.

The best outcomes are reported where school principals are personally involved in the management and education processes.

In April 2012, BusNSW issued a comprehensive Information Alert in regard to school bus safety education resources. The alert lists a range of resources that parents, carers and schools can employ to promote safe school bus travel outcomes, through specific packages available from NSW schools, the RMS and BusNSW.

Recommendation 33:

That TfNSW designs and implements a communication strategy to identify, share and promote good school bus safety practice.

The strategy should identify, promote and enable sharing of examples of good practice that have been captured through school bus safety stakeholder consultation.

10. Implementation

The recommendations set out in this report are designed both to improve existing measures, and introduce new strategies where necessary, to ensure the safety of school bus passengers on rural and regional routes.

The Committee acknowledges the challenges associated with implementing some of these proposals and recognises the magnitude of change required for successful adoption, particularly for bus operators. We must also acknowledge, however, that bus safety reforms are necessary and overdue.

Aspects of change involving student behaviour and long-term commitment will be supported by provision of well-designed education and awareness programs, in areas such as introduction of a mandatory student seat belt program; helping bus operators to improve their risk management capability; enforcing speed limits around schools and bus stops; and other critical strategies.

A key factor in this undertaking is a recognition by the Committee of the numerous examples of 'best practice' shown by operators, bus drivers, local traffic committees, schools and other stakeholders in creating and maintaining a safe bus travel service for our school students. It is essential that mechanisms are adopted to enable ongoing sharing of these examples to support continuous improvement across the school bus network.

For the implementation of our recommendations to be effective, they must be managed in close consultation with all these stakeholders.

Recommendation 34:

That all recommendations, if accepted by Government, be implemented in close consultation with the bus industry, parent and carer associations, Local Government, education bodies, and other key stakeholders where applicable.

As a Community Advisory Committee, we have been afforded the opportunity to input community concerns about school bus safety in rural and regional NSW into the deliberations of Government. We commend the Government for affording us this opportunity.

The community will clearly maintain a strong interest in the outcomes of this Inquiry and the implementation of the Government's response to it.

To facilitate transparency and rigour in the implementation of our recommendations, the Committee would welcome mechanisms for progress to be reported publicly.

Recommendation 35:

That TfNSW monitors progress towards implementation of the Committee's Recommendations and reports on a regular basis via the Department's website, and through a publicly available annual report to the Ministers for Transport and for Roads and Ports.

11. Appendices

- Appendix 11.1: List of Submissions
- Appendix 11.2: Applicable Safety-related Legislation
- Appendix 11.3: National Guidelines for Risk Assessment of School Bus Routes
- Appendix 11.4: Hierarchy of Hazard Controls
- Appendix 11.5: References

11.1 Appendix – List of Submissions

The full content of public submissions is available on the TfNSW website via the following link:

<http://www.transport.nsw.gov.au/content/school-bus-safety-community-advisory-committee-submissions>

- 1 - Individual - 02.09.11 - Wendy Wildie
- 2 - Individual - 05.09.11 - Catherine Grey
- 3 - View National Councillor - 05.09.11- Lorraine Montgomery
- 4 - Individual - 05.09.11 - Mary Salter
- 5 - Individual - 05.09.11 - Doug Oldfield
- 6 - Individual - 06.09.11 - My Holland
- 7 - Individual - 08.09.11 - Lisa Turner
- 8 - Individual - 08.09.11 - Sandra Robinson
- 9 - Individual - 08.09.11 - Ainslie Morris
- 10 - Individual - 09.09.11 - Robyn Collett
- 11 - Individual - 09.09.11 - Geoffrey Hallmann
- 12 - Individual - 12.09.11 - Joanne Cameron
- 13 - Individual - 12.09.11 - Karen Selbie
- 14 - Individual - 13.09.11 - Mark Borsuk
- 15 - Individual - 13.09.11 - Jenny Allan
- 17 - Individual - 15.09.11 - Jadranka
- 18 - Individual - 15.09.11 - Daisy Oayda
- 19 - Individual - 13.09.11 - Sharon Letchford
- 20 - Individual - 16.09.11 - Michelle Gruber
- 21 - Individual - 17.09.11 - Leon Hain
- 22 - Individual - 19.09.11- Alan Ball
- 23 - Individual - 17.09.11 - Win Howard
- 24 - Individual - 17.09.11 - Michael & Joanne Burke
- 25 - Individual - 18.09.11 - Rainee Herron
- 26 - Individual - 18.09.11 - Nerida Black
- 27 - Individual - 18.09.11 - Robyn Russell
- 28 - Individual - 18.09.11 - Jane Lynch

29 - Individual - 18.09.11 - Helen Trist
30 - Individual - 19.09.11 - Allan Ball
31 - Individual - 19.09.11 - B.Coyne
32 - Individual - 19.09.11 - Simon Correy
33 - John Paul College Coffs Harbour - 19.09.11 - Michael Carniato
34 - Individual - 19.09.11 - Robyn Hudson
35 - Individual - 19.09.11 - Mark Falzon
36 - Individual - 19.09.11 - Cathy Korn
37 - Individual - 19.09.11 - Jim Walsh
38 - Individual - 19.09.11 - Ann Nojin
39 - Individual - 19.09.11 - Jenny Clark
40 - Individual - 19.09.11 - Melissa Sweetland
41 - Individual - 19.09.11 - Natalie Mealing
42 - Individual - 19.09.11 - Monica Ortiger
43 - Individual - 19.09.11 - Melissa Hilson
44 - Individual - 19.09.11 - Janice Shalhoub
45 - Individual - 19.09.11 - Dorothy and Steward Ison
46 - Individual - 19.09.11 - Asha Ovenden
46 - Individual - 19.09.11 - Leonie White
48 - Individual - 19.09.11 - Maureen Bird
49 - Kyogle Council - 20.09.11 - Frank Winter
50 - Trinity College Albury Wodonga - 20.09.11 - Steven O'Connor
51 - Individual - 20.09.11 - Jock & Margaret Cumming
53 - Individual - 20.09.11 - Warren Brisley
54 - Sawtell Coaches - 20.09.11 - Darren Williams
55 - Trans Consult USA - 21.09.11 - Richard Fischer
56 - Individual - 21.09.11 - Tracie Penhall
57 - The Scotts School Albury - 21.09.11 - Scott Young
58 - Individual - 21.09.11 - Robyn Vignes
59 - Individual - 21.09.11 - Holly Staniford
60 - Elands Public School P&C - 21.09.11 - Sandra Kwa
61 - Individual - 21.09.11 - Lyndee Thomas
62 - Individual - 21.09.11 - Melissa Brander
63 - Individual - 21.09.11 - Maria Cameron
64 - Urunga Public School P&C - 22.09.11 - Lorraine Goolmeeze
65 - Individual - 22.09.11 - Elizabeth Akerman
66 - Individual - 22.09.11 - Jane Kevan
67 - Individual - 22.09.11 - Monica Robinson

- 68 - Individual - 22.09.11 - Yvonne Nolan
- 69 - Individual - 22.09.11 - Jen Tredinnick
- 70 - Individual - 22.09.11 - Bev Atkinson
- 71 - Individual - 22.09.11 - Cath Walsh
- 72 - Individual - 22.09.11 - Jannell Dudek
- 73 - View Clubs of Australia- 22.09.11 - Susan Groenhout
- 74 - BusNSW- 22.09.11 - Darryl Mellish
- 76 - Individual- 22.09.11 - Simone Hayes
- 77 - Individual- 22.09.11 - Val and Jacqui Kononow
- 78 - Individual- 22.09.11 - Theo Chang
- 79 - Individual- 22.09.11 - Jan Gill
- 79 - Part 2 -Individual - 23.09.11 - Jan Gill
- 80 - Individual- 22.09.11 - Trevor Daly & Moira Christie
- 81 - Individual- 22.09.11 - Christabel Wright
- 82 - Individual- 22.09.11 - Max Staniford
- 83 - Bowraville Central School P&C Association - 22.09.11 - Hal Usher
- 84 - Individual- 23.09.11 - Jenny Caughey
- 85 - St Joseph's Regional College - 23.09.11 - Cath Eichmann
- 86 - North Coast Parents Bus Safety Action Group - 23.09.11 - Diana McCarthy
- 87 - Individual- 23.09.11 - Di Cartmill
- 88 - Individual- 23.09.11 - Pip Daley
- 89 - Federation of Parents and Citizen's Associations of NSW - 23.09.11 - Kelly MacDonald
- 90 - Individual - 23.09.11 - David Metz
- 91 - Individual - 23.09.11 - Jennifer Barthe
- 92 - Individual - 23.09.11 - Nina Rogan
- 94 - Eungai Public School Parents and Citizens - 23.09.11 - Karina Daniels
- 95 - Individual - 23.09.11 - Bec Graham
- 96 - Greater Hume Shire Council - 23.09.11 - Shelagh Merlin
- 97 - NSW Parents' Council - 23.09.11 - Dorothy Creek
- 98 - Individual 23.09.11 - Belinda & Mathew Gilbert
- 99 - Individual - 23.09.11 - Graeme Feeney
- 100 - Collarenebri - Mungindi Branch of the Isolated Childrens Parents Association Inc - 23.09.11 - Libby McPhee
- 101 - Wollondilly Local Traffic Committee - 23.09.11 - Ian Berthon
- 102 - Council of Catholic School Parents - 23.09.11 - Danielle Cronin
- 103 - Belt up for Safety Action Group - 23.09.11 - Glenda Staniford
- 104 - Isolated Childrens' Parents' Association - 24.09.11 - Michael Davis
- 105 - Individual - 23.09.11 - Jean-Marc Barthe

- 106 - Individual - 23.09.11 - Atalanta Lloyd-Haynes
- 107 - Individual - 23.09.11 - Rachel Borthwick
- 108 - Individual - 23.09.11 - Phoebe
- 109 - Individual - 24.09.11 - David and Linda Lang
- 110 - Individual - 24.09.11 - Lucinda Lum
- 111 - Individual - 24.09.11 - Deborah Gorman
- 112 - Individual - 24.09.11 - Rose-Marie Johnson
- 113 - Individual - 27.9.11 - Kate Washington
- 114 - Individual - 27.09.11 - Sharon Adlam

11.2 Appendix - Safety Regulation

Passenger Transport Act 1990 (NSW)

This legislation sets out:

- High-level requirements for accreditation of transport operators, including the requirement to demonstrate the capacity to meet the required financial, safety and vehicle standards, including implementation of a safety management system;
- Conditions for the authorisation of drivers to ensure their competence and fitness to undertake the services in question; and
- Appropriate structuring and assignment of transport service contracts.

Passenger Transport Regulation 2007 (NSW)

The Regulation provides for:

- Detailed requirements of operator accreditation and driver authorisation, including operator and driver competence and training; vehicle maintenance and insurance; driver fitness; security surveillance features and other aspects;
- Condition of buses, incident notification, bus signage and other requirements, including obligations on operators to take 'reasonable steps' to ensure that seat belts (where fitted) are worn;
- Requirements to ensure no overloading of buses; and
- Passenger obligations for proper and reasonable conduct, including requirements for the behaviour of students on school buses and other travel limitations.

Road Transport (General) Regulation 2005 (NSW) – Part 6 Heavy Vehicle Driver Fatigue

This section of the Regulation deals with fatigue management requirements applicable to bus drivers.

Road Transport (Safety and Traffic Management) Act 1999 (NSW)

This Act deals with the use of alcohol and other drugs, speeding, and monitoring devices, as well as other aspects of safety and traffic management.

Road Transport (Safety and Traffic Management) Regulation 1999 (NSW)

This Regulation addresses school bus warning signage and warning lights, bus door safety systems, safety padding, field of view system, speed limiters and monitoring devices.

Road Transport (Vehicle Registration) Act 1997 (NSW)

This Act incorporates duties relating to the registration of public passenger vehicles.

Work, Health & Safety Act 2011 (NSW)

The Bus Operator Accreditation Scheme obligations are underpinned by the legal duties placed upon 'Persons Conducting a Business or Undertaking' (such as bus operators) under the Work Health & Safety Act 2011 (which commenced in NSW on 1 January 2012). The primary duty imposed by the WHS Act requires 'Persons Conducting a Business or Undertaking' to identify and manage workplace hazards and risks. This duty is owed to workers and to others, including customers and the general public. The legislation also introduces an obligation to consult with 'other duty-holders' in ensuring effective risk management.

These duties underpin the responsibilities of school bus operators to provide safe and reliable bus services, under the conditions of the Bus Operator Accreditation Scheme.

Applicable legislation may be accessed via the following weblink:

http://www.austlii.edu.au/au/legis/nsw/consol_act/

Bus Operator Accreditation Scheme (BOAS)

The Bus Operator Accreditation Scheme in NSW regulates the provision of school bus services through a comprehensive framework of operator and driver obligations, with the aim of ensuring 'safe and reliable passenger bus services'. (TfNSW, 2010) The Scheme is administered by TfNSW.

The accreditation process is used to assess whether a person is of suitable character and fitness, and has the required competency, to operate public passenger services in accordance with prescribed regulations and TfNSW requirements.

The Scheme sets out the conditions that a transport operator must satisfy in order to achieve accreditation, and provides mechanisms for verifying that applicants and incumbents have achieved, and continue to maintain, the required standards.

The BOAS incorporates requirements for bus operators relating to:

- Management Information Systems;
- Vehicle Maintenance Systems (including Heavy Vehicle Inspection Scheme requirements);
- Bus Operator Management & Records (including driver and passenger records, timetables, procedures for managing students and standee passengers); and
- Operator Safety Management Systems.

Operator accreditation may be renewed on a three-yearly basis through the successful completion of an external audit conducted by an independent auditor approved by TfNSW.

National Guidelines for the Risk Assessment of School Bus Routes

Australia is diverse in its geography and climate. School buses traverse mountains, deserts and everything in between, on roads that include dirt tracks, highways and freeways. School buses may face traffic conditions in which small and large vehicles interact at anything from 40kph to unlimited speeds. Australia's climate creates everything from sandy desert environments to torrential rain, fog, snow and ice. For these reasons it is important that any framework for school bus risk assessment remains flexible in its definitions and implementation options.

What the working group has developed is a simple tool which will enable all jurisdictions to classify their school bus routes according to the conditions which are experienced. Three environments have been identified and for each the conditions which might be encountered are described.

The approach to risk assessment needs to accommodate the full range of conditions affecting school bus transport in States and Territories. Risk can be affected by:

- geography (road and road environment conditions);
- traffic; and
- climate.

Each of these conditions may be experienced as **consistent**, **variable** or **extreme**. This framework allows safety improvements in any State or Territory to first address school bus routes facing extreme conditions (Environment 3).

National Framework for Risk Assessment of School Bus Routes

Recognising the diversity of Australia's school bus transport environments, following are descriptions of three environments in which buses can operate, incorporating **consistent**, **variable** and **extreme** geographic, traffic and climate conditions.

Environment 1	Environment 2
Urban	Non-urban
High population density	Lower population density
Generally lower speed limits and vehicle speeds	Higher speed limits (>70kph) and vehicle speeds
Shorter journeys	Longer journeys
Consistent road and road environment conditions (predominantly sealed roads)	Variable road and road environment conditions (for example, narrow, undivided unsealed roads; winding roads; roads with hazards such as livestock, wildlife, irrigation spraying or causeways; roadside hazards like trees close to the road; sandy desert roads)
Consistent traffic conditions (traffic is generally highly regulated and there are identifiable peak periods of slow, dense traffic)	Variable traffic conditions (for example, school bus routes are shared with heavy vehicles at higher speeds; freight routes; roads with heavy tourist traffic)
Environment 3	
Extreme road or road environment conditions (for example, long steep or very steep roads, roads with precipitous drop offs).	
Extreme traffic conditions (for example, non urban roads school buses share with a high volume of heavy vehicle traffic on narrow, undivided roads; open speed limited roads).	
Extreme climate conditions (for example, fog, snow or ice for extended periods of the year).	
Other identifiable high risk locations determined on a jurisdictional basis, for example blackspots.	

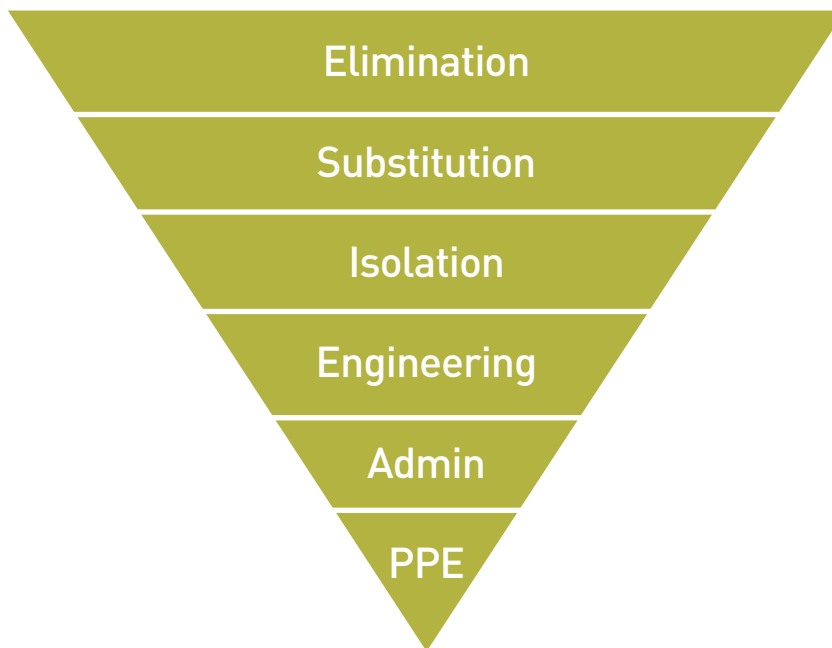
Policy Responses To Risk Assessment

The framework recommended here does not prescribe specific policy solutions which are the responsibility of individual States and Territories. It is important that policy responses remain flexible and relate to risk. Relevant existing Australian Design Rules may be applied subject to each jurisdiction's policy approach. Policy responses may range from accreditation and authorisation practices, through to engineering solutions. For example:

Accreditation/ Authorisation	Policy/ Procedures	Initiatives	Engineering Solutions
<ul style="list-style-type: none"> - background checks - financial & criminal standards – driver competence, vehicle, etc 	<ul style="list-style-type: none"> - standee carriage - speed limits - school student behaviour 	<ul style="list-style-type: none"> - community involvement - drug and alcohol interventions - fleet procurement 	<ul style="list-style-type: none"> - rollover strength - additional brakes - seatbelts - bus stops - interchanges

(ATC, 2005)

11.4 Appendix - Hierarchy of Hazard Controls



Elimination:

Remove the hazard from the environment - eg. 'Home school' students to avoid the need for bus travel.

Substitution:

Replace the hazardous item/aspect with one having less harmful potential – eg. substituting 'older' bus seats with a design incorporating appropriate occupant protection.

Isolation:

Contain the source of harm by design, eg. a 'standard' compartment on a bus to contain loose school bags; or, separate people and hazards by distance or time, e.g. having students alighting from a bus stand back from the kerb and wait until the bus has moved away, before attempting to cross the road.

Engineering:

Minimise or control the hazard by re-design – eg. install an automatic closing mechanism on bus doors to avoid the bus driving away with doors open.

Administration:

Protocols such as safety procedures, supervision, training, briefings, rules and signage which aim to change peoples' behaviour to achieve 'safe' outcomes.

Personal Protective Equipment (PPE):

Equipment worn or used by an individual, designed to protect them from a source of harm – eg. sunglasses, steel-cap footwear, hi-visibility vests etc. Importantly, the effectiveness of this type of control relies on the person to wear or use the PPE – such as with seat belts. Effectiveness also relies heavily on administrative measures such as education, promotion, enforcement, maintenance etc.

11.5 Appendix - References

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