

ISSN 1740-0368

# THE 23RD WESTMINSTER LECTURE ON TRANSPORT SAFETY

The 23rd Westminster Lecture is made possible by the generous support of our sponsors:



[www.pacts.org.uk](http://www.pacts.org.uk)

Clutha House  
10 Storey's Gate  
London  
SW1P 3AY

Tel: 020 7222 7732  
Fax: 020 7222 7106



# 23RD WESTMINSTER LECTURE ON ROAD SAFETY 2ND UN LECTURE IN THE DECADE OF ACTION

## MANAGING FOR AMBITIOUS ROAD SAFETY RESULTS

JEANNE BREEN OBE, FRSA, MCIHT  
j\_breen@btopenworld.com, www.jeannebreen.com

### 1 INTRODUCTION

My lecture addresses key issues for managing for the ambitious road safety results sought in the UN Decade of Action. It covers broad strategic themes pertinent to the road safety challenges in the United Kingdom as well as to national and international road safety responsibilities in international development.

The first section comprises a brief overview of the current global context for road safety management focusing on the escalating crisis of road traffic injury in low and middle-income countries, road safety performance in high-income countries, the response of international organisations to global trends and the global mandate for action.

The second section outlines the development of road safety management system frameworks, both for jurisdictions and organisations, and traces the evolution of managing for results into the current phase of ambition. It will discuss road safety management as a production process; the need for a systematic approach; the components of institutional delivery and the importance of governmental and top management leadership in orchestrating the shared responsibility for delivering road safety results. Furthermore, it will discuss what we mean by political will and safety culture; look at innovation based on well-established road safety principles and highlight the importance of measurement given that old but true adage that 'you manage what you measure'.

The final section focuses on pragmatic next steps for achieving ambitious results recommended by international organisations and, based on these, recommendations for national action.

## 2 THE GLOBAL CONTEXT FOR ROAD SAFETY MANAGEMENT

### 2.1 TRAFFIC GROWTH, ROAD TRAFFIC INJURY TRENDS AND FORECASTS

Over the first 30 years of the 21st century it is forecast that more cars will be produced globally than in the first 100 years of motorization – doubling to 1.2 billion vehicles by 2030.<sup>1</sup> The pace and volume of motorization in emerging economies is unprecedented.

#### Box 1: Forecasts for global motor vehicle production

|           |   |
|-----------|---|
| 1900      | 8 thousand motor vehicles                     |
| 2000      | 600 million motor vehicles                    |
| 2000-2030 | 1.2 billion (thousand million) motor vehicles |

Source: Bliss T, *Global Road Safety Facility (2011)* <sup>1</sup>

This traffic growth in developing countries combined with the poor safety quality of road traffic systems, the unpreparedness of road users for these new conditions and the lack of management capacity to do much about these quickly enough are all contributing to a growing humanitarian crisis of enormous proportions.<sup>2</sup>

Currently, 1.3 million people around the world lose their lives in road crashes every year, 90 percent of these in low and middle-income countries. As many as 50 million people are injured annually, many permanently.<sup>2a</sup> The estimated socio-economic cost to countries ranges from 1 percent to 7 percent of Gross Domestic Product.<sup>3,4</sup> Those involved are mainly vulnerable road users and economically active males, dying in crashes in such numbers which, apart from the sheer scale of the human tragedy involved, undermine daily, the efforts and monies being spent on achieving Millennium Development Goals and national goals for poverty reduction, public health, child education and sustainable development.

Around 50 percent of death and serious injury occurs on a small proportion (10 percent) of roads which carry the most motor vehicles often in unmanaged, dangerous mixes of large numbers of high-speed vehicles and large volumes of low-speed non-motorised traffic which, it is widely acknowledged, so-called 'road improvement' projects have done little so far to address.<sup>5,6,7</sup> A key problem is that many road standards replicated for use in developing countries do not provide for the degree of human vulnerability involved in the use of the road network. Junction design standards and the management of road use from low to high-speed environments expect vulnerable road users to compete successfully against faster, bigger vehicles, with tragic consequences.<sup>8</sup> Road assessment programmes conducted throughout the world indicate that these problems may not all be confined to the experience of developing countries.

Without urgent and effective action, road traffic death and injury is forecast by World Health Organisation experts to be the 4th largest cause of healthy life years lost for people in developing countries by 2030, ranking far higher than health loss from tuberculosis or malaria which we hear so much about. Taking into account all other known threats to life and health whether from disease or disaster, road traffic injury is forecast to be the 2nd largest cause of healthy life years lost for men by 2030. By 2015, it will top the ranking for threat to life and serious injury for school-aged children under 14.<sup>9</sup> Furthermore, World Health Organisation experts state with some certainty that, in the absence of effective action, 50 million more deaths and 500 million more serious injuries are *probable* in motor vehicle crashes in the next 40 years.<sup>10</sup> Other forecasts indicate a *1 percent chance* of the same amount of health loss from a combination of wars, flu epidemics or natural events such as earthquakes, volcanic eruptions and tsunamis.<sup>11</sup>

## 2.2 INITIATIVES OF INTERNATIONAL ORGANISATIONS

### A Decade of Advocacy

Since these grim forecasts were published, the growing mobilization of the international community is evident. Over the last ten years, a series of important developments set out in Box 2 have combined into what has been termed a Decade of Advocacy.<sup>12</sup>

The *World Report on Road Traffic Injury Prevention*, was a widely endorsed blueprint and was followed by a series of UN resolutions, the creation of the World Bank's Global Road Safety Facility which supported the creation of new road safety management guidelines and networks and the launch of the OECD's *Towards Zero* report.<sup>13</sup> The *Make Roads Safe Campaign* and reports were highly visible and caught media attention world-wide.<sup>14</sup> The launch of the important International Road Assessment Programme (iRAP) network safety assessment tool<sup>15</sup> and the engagement of other international networks such as IRTAD – the data network - and RoadPol - the new traffic policing network were all key technical assistance developments. The International Standards Organisation ISO started work on a new road safety management system standard, published last month<sup>16</sup> and based on the huge success of New Car Assessment Programs, a Global NCAP was foreseen and launched this year.<sup>17</sup> The jewel among these is Euro NCAP and crash data confirms that within 10 years of its start, the risk of serious injury in crash-involved new car models was halved.<sup>18</sup> Euro NCAP was hard won, led by the Department of Transport and TRL against much opposition from car manufacturers, who then demonstrated, soon afterwards, how much can be done for vehicle safety over and above the essential framework of regulation when assisted by activities which help to create a market for safety. Towards the end of the decade the first ever global Ministerial Conference on road safety took place in Moscow which provided formal endorsement at the highest level of the need to act. Not least, the Multilateral Development Banks promised a coordinated response for scaled-up investment in road safety management capacity and for road safety to find its place in the mainstream of infrastructure projects.<sup>19,20</sup>

#### Box 2: Key initiatives by international organisations

- WHO Strategy (2000) with Global Burden of Disease forecasts from late 1990s.
- World Report on Road Traffic Injury Prevention WHO/World Bank (2004)
- Successive UN Assembly and World Health Assembly resolutions (2004-2010)
- World Bank Global Road Safety Facility (2005), Capacity reviews; management guidelines (2009)
- OECD Towards Zero: Achieving Ambitious Road Safety Targets through a Safe System Approach Report (2008)
- Commission for Global Road Safety and Make Roads Safe Campaign and Reports (from 2006)
- Launch of iRAP (2006)
- Start of ISO PC 241 road traffic safety management systems standard work (2008 published 2012)
- Development of Global NCAP (launched 2012)
- 1st Global Ministerial Conference on Road Safety Moscow (2009)
- Multilateral Development Banks Initiatives (2008,2011)

### The Decade of Action Targets and Global Plan

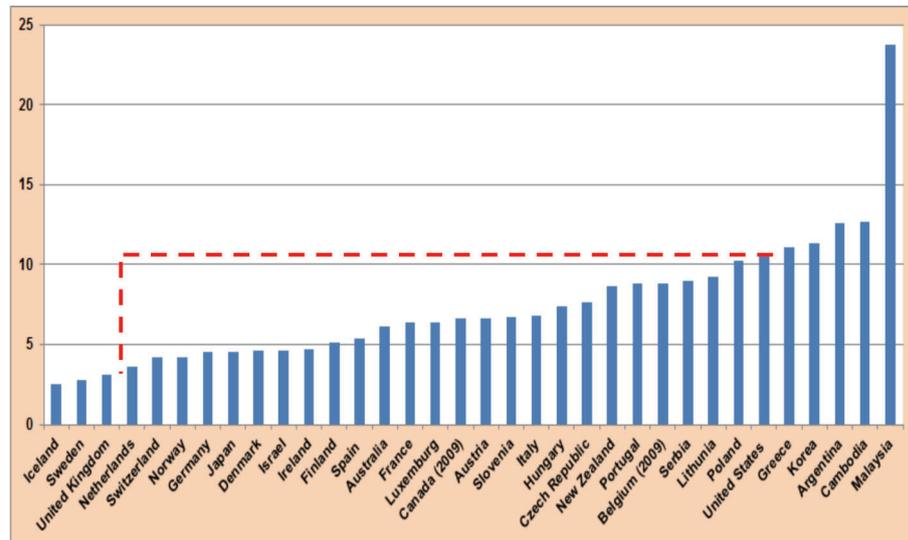
Following this series of important initiatives a UN Decade of Action was announced in 2010<sup>21</sup> followed by the production of the Global Plan by the UN Road Safety Collaboration.<sup>22</sup> The plan sets a highly ambitious goal to reduce forecast deaths by 50 percent by 2020. If achieved, this would mean a saving of 5 million lives, 50 million fewer serious injuries and more than 3 trillion US dollars.<sup>23</sup> The Global Plan suggests that countries work within these 5 pillars of action: road safety management; safer roads and mobility; safer vehicles; safer road users and post-crash response and is also addressed to high-income countries which also seek ambitious road safety results. Regional and national targets have also been set in support of this goal.

### Regional goals and targets: the European Union

In high-income countries the long-term trend for deaths is downwards and forecast to decrease further to 2020, but progress in some countries has slowed and there are large gaps in performance. In 2010, for example, the United States had a road death rate which was four times higher than that of the best in European Union (EU) countries.

**Figure 1: Deaths per 100,000 inhabitants in selected countries: 2010**

Source: International Road & Traffic Accident Database (IRTAD) 2011



The best performers in Europe have per capita death rates around 10 times lower than the worst global rates. But the average death rate for the EU as a whole at 6 is twice as high as the current best. Even a high performer such as Sweden deems its rate as unacceptable and has high ambitions for much better results as does the EU at regional level, encouraged in this by organisations such as the European Transport Safety Council and its excellent Road Safety Performance Index (PIN) monitoring programme.<sup>24</sup> Regional goals and targets have been set by the European Commission which the United Kingdom and other Member States have signed up to. These are that by 2050 the EU should move 'close to zero fatalities' in road transport and target halving road deaths for the interim by 2020.<sup>25,26</sup> While highly ambitious aspirations, these are very important statements of the priority which road safety must have if EU countries are to continue to lead in global road safety, as desired by all the EU institutions.

### The unprecedented alignment of international perspectives on road safety needs

The commencement of the Decade of Action has been marked by the remarkable, unprecedented degree of agreement of the main international organisations in their perception of the main road safety problems and the range of ambitious action needed. \* This can be summarised briefly as follows.

- *A global crisis of death and serious injury in road traffic crashes.*

International organisations are agreed that there is a global crisis of road traffic injury and that the international community and countries needs to scale up their efforts to address it.

- *Road traffic deaths and serious injuries are predictable and preventable.*

There have been important statements in WHO, World Bank and OECD publications that we can predict as well as know how to prevent most deaths and serious injuries. However, the new focus must be on these serious and fatal outcomes rather than on crash prevention in general. Furthermore, that after 50 years of knowledge building, the adverse effects of motorization can be reduced. Britain, for example, halved its per capita death rate between 1970 and 2000 despite a doubling in motorized vehicles, as did other countries who took concerted action. However, this was a costly, evolutionary path (in terms of death and serious injury) as we built knowledge. This body of knowledge now allows developing countries to avoid this path and worse, by taking key steps to move straight to effective practice - as can high-income countries who want to do better<sup>27</sup>.

- *Safe System is recommended for adoption in all countries.*

International organisations agree that all countries should adopt *Safe System* which is the generic term used by the OECD and derived from the European *Vision Zero*<sup>28</sup> and *Sustainable Safety*<sup>29</sup> approaches. The rationale for *Safe System* in developing countries is that it directly addresses the needs of vulnerable road users and others; encourages safety to be designed into developing road networks rather than being considered an afterthought or with the expense that that entails for the future, and it aligns well with a range of Millennium Development Goals.

- *Quantitative interim targets are necessary.*

There is agreement that this approach needs to be supported by quantitative targets about final and/or intermediate outcomes for projects and/or programmes and about other aspects of institutional delivery and leadership.

- *Leadership and institutional capacity are vital for results.*

The World Report highlighted the crucial importance of the governmental lead agency role although there's no preferred structural model for success. Without effective leadership, we commonly see even the best strategies and plans remaining on paper and failing to be implemented.

- *Road safety is an urgent development priority*

Finally, international organisations are agreed that urgent action is needed to address road traffic injury as a development priority though the scale of the investment needed is just beginning to be understood. A range of initiatives are underway in addition to those already mentioned. Knowledge transfer programmes have started for the MDBs, further investment guidelines are being produced, better projects are being supported and an extensive monitoring programme is in place, with the second global status report expected from WHO in December 2012.

---

e.g. WHO/WORLD BANK (2004), OECD (2008), World Bank GRSF Guidelines (2009), ISO 39001 Road traffic safety management systems standard (2012), Global Commission for Road Safety Reports (2006-2012), United Nations Road Safety Collaboration Partners (2011), MDBs (2006,2011)

### 3 THE ROAD SAFETY MANAGEMENT SYSTEM AND THE EVOLUTION OF MANAGING FOR RESULTS

This section discusses road safety management system frameworks that have been developed so far to assist countries and organisations in achieving better results and the evolution of our increasing ambition to do better.

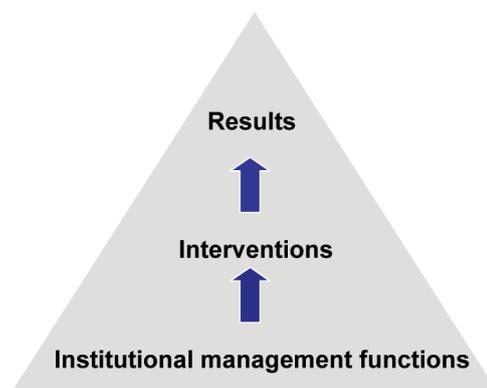
#### 3.1 ROAD SAFETY REQUIRES A SYSTEMATIC APPROACH AND NEEDS TO BE PRODUCED

It may sound obvious, but road safety has to be produced. Measures to address road safety problems do not just happen. Making them happen involves a complex, systematic process bringing together many players and disciplines and requiring solid, careful management and leadership as a foundation for success. This process has now been defined and good practice codified in working management system models which provide useful tools to help address the Decade's goals.

Both the jurisdictional and organisational frameworks outlined in this section emphasise road safety management as a production process. Here, the delivery of specific institutional arrangements produce interventions which produce road safety results for the interim and long-term. We can think of results as final outcomes and these are deaths and serious injuries - as well as intermediate outcomes which contribute to their reduction, such as increases in seat belt use, decreases in mean speed, improved safety ratings of roads and vehicles and faster emergency medical system response.

**Figure 2: Road safety management is a production process**

Source: Bliss and Breen 2009 (building on frameworks of LTSA 2000<sup>30</sup>, Wegman 2001<sup>31</sup>, Koornstra et al 2002<sup>32</sup>, Bliss, 2004)<sup>33</sup>



When we think of the success of any intervention, we rarely think about all the institutional delivery factors that went into making it a success. The effect of this is that they are not often discussed. However, as desired results become more challenging to achieve, the need to better understand the importance of the base of this pyramid and to benchmark institutional delivery against good practice becomes increasingly urgent.

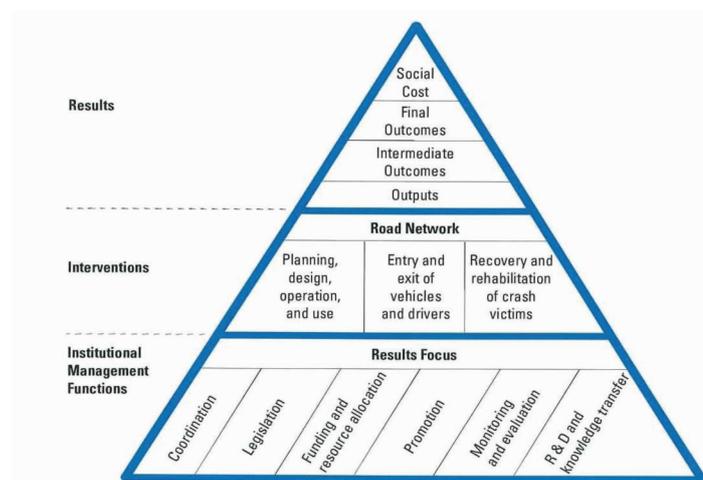
## 3.2 THE WORLD BANK JURISDICTIONAL MODEL

This jurisdictional road safety management system model has evolved over the last decade. It is used by the World Bank as the basis for road safety management capacity review which now, along with iRAP assessments, precedes many major road project investments and which the OECD recommends to all as a best practice tool when planning or revising road safety strategies, plans and projects.

The model was derived originally from New Zealand's 2010 target setting framework which linked targeted results with interventions and implementation. The framework was adopted by the European Transport Safety Council which highlighted the results management aspect and it was further elaborated by the EU-funded Sunflower Project which located the institutional implementation arrangements in the broader context of country 'structure and culture'. World Bank work further defined the bottom institutional layer – Sunflower's 'structure and culture' - into seven specific institutional management functions.

**Figure 3: The road safety management system**

Source: Bliss and Breen 2009 (building on frameworks of LTSA 2000<sup>30</sup>, Wegman 2001<sup>31</sup>, Koonstra et al 2002<sup>32</sup>, Bliss, 2004)<sup>33</sup>



The rationale for each of these institutional management functions is not empirically derived (although there is evidence for the value of targets). It resulted from looking in-depth at management systems and leadership arrangements in countries which had achieved a substantial reduction in death and serious injury over time. Britain's road safety management system, led by the DfT, was one of the main good practice case studies. The widespread absence of delivery of these functions and lack of results in a range of developing countries was also a key consideration.

The overarching management function at the bottom layer of the pyramid is the focus on results. This addresses the issue of leadership, strategy, goal and target-setting and ownership. What results are you trying to achieve? How are you going to get there? Who is accountable for these? The other six functions contribute to how you achieve these results. How do you coordinate to achieve them, legislate for them, fund for them, promote for them, monitor them etc. In the absence of a clear focus on results, all these other functions and related interventions can lack cohesion and direction. These are delivered mainly by government agencies but they are also delivered in government partnerships with civil society and business entities. Good practice for each of these functions is documented in the Annexes of the World Bank country guidelines publication.

Political will is much used term but it can mean many different things. The articulation of the focus on results which means in practice 'accountably led, funded, promoted, monitored, research-based activity towards ambitious goals and targets for the long-term and for the interim' provides a specific definition of what we might mean by political will for our field.

### 3.3 THE ISO ORGANISATIONAL MODEL

Led by Sweden, a new International Standards Organisation (ISO) 39001: Road Traffic Safety Management Systems: Requirements with guidance for use standard is aimed at organisations of all shapes and sizes, has just been produced with support from 37 countries including the UK. In Europe, 40-60% of all fatal work accidents are road crashes<sup>34</sup> so, if implemented within the right policy framework and with national encouragement, this tool could prove useful.

The standard links to other ISO management systems standards and, in the national version available from BSI, links also to the BS OHSAS 18001 the national occupational health and safety standard. ISO 39001 has also been intentionally aligned with the jurisdictional framework mentioned previously, to ensure that it lines up with good road safety practice. It sets out specific and wide-ranging top management responsibilities and key management functions.

The standard has a strong focus on results requiring adoption of the *Safe System* goal as well as decisions on targets and objectives for the interim. The standard requires consideration of specified, measurable road safety performance factors known to reduce the risk of fatal and serious injury and within the organisation's sphere of influence, as well as performance monitoring and management system review.

### 3.4 THE EVOLUTION OF THE FOCUS OF RESULTS IN ROAD SAFETY MANAGEMENT

Following this brief outline of road safety management system frameworks, this section reflects on the evolution of results focus into the ambitious new paradigm and identified best practice phase of *Safe System* and to discuss what *Safe System* management might involve.

Road safety management has become progressively more ambitious over time and in the results desired. Since the 1950s, four phases are evident.

- Phase 1: 1950s put the onus on the driver and assumed that direct educational and training approaches could more or less solve the problem. As WHO states, these measures provide general support, but there is little or no evidence to indicate casualty reduction effects for this approach. It is notable how easy it seems to be to slip back into this emphasis through political expediency, industrial demand or lack of professional challenge.
- Phase 2: 1960s-1970s focused on system-wide interventions guided by the 'Haddon Matrix'. Dr. William Haddon, an American epidemiologist, developed a systematic framework for road safety intervention based on the disease model which encompassed infrastructure, vehicles and users in the pre-crash, in-crash and post crash stages but not yet bringing in institutional management.<sup>35</sup>
- Phase 3: 1980s-1990s focused on system-wide interventions, targeted results and institutional leadership. Lead agencies in good practice countries used action plans with headline targets to be achieved with evidence-based packages of measures.
- Phase 4: mid 1990s onwards is focusing on system-wide interventions; long-term elimination of serious health loss, supported by interim targets, shared responsibility and strengthened institutional delivery. The generic concept known as *Safe System* is derived from the Swedish *Vision Zero* and the Dutch concept of Sustainable Safety. The intervention (foreseen in Phase 2 and used successfully in Phase 3) has renewed emphasis on speed management; better road and vehicle crash protection; the take up of proven new technologies; and extended scope to include post-crash care.

International organisations believe that this *Safe System* approach is the summation of knowledge of effective multi-disciplinary practice across the management system and that it is grounded in the evidence-base. It is starting to show some results. SWOV reports that *Sustainable Safety* measures contributed to around a 30% decrease in road deaths in 2007.<sup>36</sup> Sweden has seen large savings from the *Vision Zero* intervention being rolled out.

Many European Union countries have been in Phase 3 though preparing to progress into the fourth and current best practice phase identified by international organisations and experts. Of course, the

United Kingdom can recognise some of what it has been doing here. There are even seeds of *Safe System* in the following statements from Road Safety the Next Steps, the 1987 national road safety strategy.<sup>37</sup>

*“..at least for the foreseeable future many instances of human error can only be reduced indirectly through creating safer vehicles and safer road environments.”*

*“Those measures which have demonstrably proved their worth .....reduce the scope for unsafe road user conduct rather than seeking directly to persuade road users to refrain from such conduct”*

The preface by Paul Channon, the then Secretary of State, underlined that the key safety gains would come from vehicle safety and from safer roads and that more attention should be given to vulnerable road user safety. If not a comprehensive assessment of intervention strategies, a pragmatic acknowledgement at least of the importance of accommodating human error and vulnerabilities within limits and creating safer traffic system frameworks within which we can operate with greater safety.

### 3.5 SAFE SYSTEM – THE NEW PERFORMANCE FRONTIER AND SAFETY CULTURE

The OECD defines *Safe System* unequivocally as having a long-term goal of eliminating death and serious injury, backed up by interim targets working collectively and accountably to implement system-wide measures that ensure in the event of a crash, that the impact energies remain below the threshold likely to produce either death or serious injury.

The *Safe System* goal and strategy can be said to represent the new performance frontier and the new Safety Culture in road safety. The goal is certainly a long-term aspiration but a more productive as well as ethical path than continuing to associate with what Professor Richard Allsop has aptly named the ‘scandal of tolerance’<sup>38</sup> which accepts preventable death and serious injury in road crashes as the inevitable price of our mobility.

In a *Safe System* approach, mobility is a function of safety rather than vice versa. It requires a proactive approach placing road safety in the mainstream of road traffic system planning, design and operation. Here it is unacceptable to raise speed limits to save minutes on journey times without ensuring intrinsic, protective road design or to fail to install crash protective barriers due to concerns about the cost of repairing them when they have fulfilled their life-saving purpose! Policies implemented to save money but leading to predictable death and serious injury are viewed as unethical. In *Safe System*, engineers are invited to design for safety and to take better account of the physical, biomechanical and behavioural laws and principles to prevent death and serious injury. This includes the power model from which we derive that for every 1% increase in mean speed we might expect a 4% increase in deaths and vice versa.<sup>39</sup> On the basis of this science, TRL estimated in 2009 that 18 more deaths and 64 more serious injuries would probably accompany any increase in the national motorway speed limit to 80mph, as well as increased emissions and fuel consumption and all for four minutes per hour reduction in journey time.<sup>40</sup> This clearly involves a challenging shift in current policymaking and road engineering perspectives, but one that the international engineering profession is starting to embrace.

In *Safe System* the setting of speed limits is determined by the inherent protective quality of the road sections and vehicles concerned. The biomechanical tolerance of humans to crash forces is the limiting factor. Research shows that the chances of survival for an unprotected pedestrian hit by a vehicle diminish at speeds greater than 30 and rapidly taking off at over 35km/h - whereas for a properly restrained motor vehicle occupant in the best designed vehicle the critical threshold for severe and fatal injury is 50km/h in typical side impact crashes and 70km/h for head-on crashes.<sup>41</sup>

### 3.6 SAFE SYSTEM – KEY ELEMENTS OF THE MANAGEMENT SYSTEM

Working through the key elements of a jurisdictional road safety management framework outlined in Section 3.2, a brief overview of the key elements of a *Safe System* management framework are presented below. Highly summarised, a *Safe System* road safety management system would involve supporting a long-term goal to eliminate death and severe injury with time-limited quantitative measurable targets, exacting intervention strategies to address the capacities of all users and strengthened institutional management for delivery.

#### Results

The OECD concludes that high aspiration without challenging but achievable time-limited, interim targets is of little value. There are many negative reports in Britain about the general use of targets in public policymaking. However, road safety targets are an international success story and key to accountable action and use of scarce public resource whether in Britain or in developing countries. Setting challenging but achievable staged, time-limited, quantitative final and intermediate outcome and output targets towards the ultimate *Safe System* goal to eliminate death and long-term injury has been identified as international best practice. Quantitative targets can lead to better programmes, a more effective use of public resources and an improvement in road safety performance.<sup>42,43</sup> While an ambitious long-term or purely symbolic goal which is not supported by interim targets has little value, targets that are ambitious are associated with better performance than less ambitious targets. Interim quantitative targets are usually expressed in terms of final outcomes e.g. numbers of deaths and serious injuries. Targets can also be expressed in terms of intermediate outcome e.g. reductions in average mean speed or increases in seat belt use. Some countries go further and set output targets for their institutional service delivery e.g. number of breath tests required to be given annually by the police.

In *Safe System*, there is greater focus on targeting intermediate outcomes. The OECD recommends using a methodology that links interventions and institutional outputs with intermediate and final outcomes to develop achievable targets for outcomes and different intervention options and target-setting models have been devised to assist this. Countries use a variety of models in their national target-setting work.<sup>44,45</sup> A simple model was used in New Zealand's targets to 2010 strategy was used both for target-setting and resource allocation purposes.

#### Interventions

OECD provides a useful summary of *Safe System* intervention strategy and measures. Highly summarised this requires a systematic, multi-disciplinary and multi-sectoral approach which addresses the safety needs of all users; fatal and serious injury crash prevention, crash protection and mitigation and post-crash care and aligns with other policies for co-benefits such as health, occupational health and safety, sustainable development, poverty reduction. The range of well-documented intervention strategies which can be deployed are outlined in Box 3.

#### Box 3: Safe System intervention strategies

- Safety conscious planning and proactive safety engineering design
- Encouraging use of safer modes and safer routes
- Safe separation/ safe integration of mixed road use
- Managing speeds to crash protection levels
- Providing crash protective roadsides and vehicles
- Deterring dangerous behaviour and ensuring compliance with key safety rules by social marketing and increased highly visible police enforcement using camera technologies and other means, by providing proven driver assistance safety technologies in cars to help drivers keep to speed limits, wear seat belts, or avoid excess alcohol.
- Managing risk via vehicle standards/designs and driver standards e.g. graduated driver licensing.
- Fast and efficient emergency medical help, diagnosis and care.

Source: OECD (2008) *Towards Zero: Achieving Ambitious Road Safety Targets through a Safe System Approach*. OECD, Paris

**Institutional management functions**

As mentioned previously, a *focus on results* is the overarching institutional management function and provides the rationale and cohesion for all other activity. Strong leadership on a first amongst equals basis within government is a prerequisite to orchestrate the shared responsibility for achieving road safety results for the long-term and the interim on behalf of government; ensuring sufficient capacity for all delivery functions and leading by example with safe travel and procurement policies. While activity is outsourced effectively most key functions are carried out in-house in view of the sheer complexity of the road safety management task which cuts across so many areas of public policy.

For this reason effective *coordination* is needed within senior levels of government and between levels of government and with business and civil society. Experience shows that specific capacity and budget is essential for this function.

Periodic review ensures that *legislation* generally meets the safety task, that it sets out roles and accountabilities, establishes the long-term goal and targets in law and updates to scientific knowledge and technical progress.

Additional *funding* mechanisms may be necessary such as road safety funds from new levies on insurance, vehicles and hypothecated fine income. Resource allocation processes are needed to make coherent business cases which take into account longer term benefits and costs and benefits from other policy areas. Where regional and local government is expected to do more, successful practice indicates that an accountable safety performance framework and all that goes with it is provided: targets, support for coordination, ring-fenced *funding* and so on and not limited to a monitoring framework. *Safe System* programmes see increased *funding* with specific allocations for local government speed management and deterrent policing activity and much more attention to network safety management giving high benefit to cost ratios.

Strong *promotion* of *Safe System* is essential, not just by government but by independent sources, parliamentary committees, NGOs, professional and research sectors and industry.

*Monitoring and evaluation* of all elements of the management system is essential and will include regular measurement of final outcomes; intermediate outcomes such as occupant restraint use, mean speed, vehicle fleet and road network safety quality, emergency medical system response and road safety management capacity review. Countries embarking on *Safe System* look to improve data quality, serious injury definition and take account of under-reporting.

Institutional delivery is underpinned by commitment to an evidence-based approach and ensuring that the function of *research and development and knowledge transfer* is strongly supported.

Identified good practice for all these functions is set out in two international publications produced by the World Bank and the OECD.

## 4 PRAGMATIC NEXT STEPS FOR ACHIEVING AMBITIOUS ROAD SAFETY RESULTS

### 4.1 CRITICAL SUCCESS FACTORS TO MEET THE DECADE OF ACTION GOALS

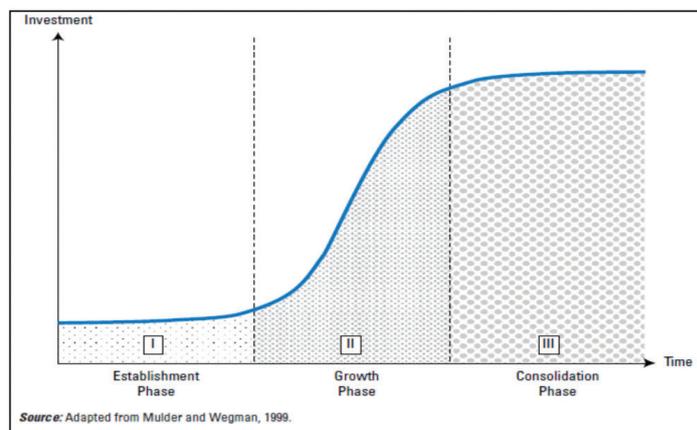
Meeting the highly ambitious expectations of global and regional goals presents considerable challenges. Without strengthened institutional delivery including accelerated knowledge transfer, scaled-up investment and increased international cooperation and development aid, it is easy to envisage ill-prepared developing countries being overwhelmed by the sheer scale and rapid spread of the crisis they are facing. As capacity reviews in high-income countries are revealing, such factors are also highly relevant to addressing ambitious goals and targets there.<sup>46, 47</sup>

### 4.2 THE NEED FOR A LONG TERM INVESTMENT STRATEGY

At home, the Transport Committee recently reviewed Britain's current road safety strategy and the government has responded.<sup>48, 49</sup> That report and the stakeholder contribution to it indicates a general perception that the government strategy has veered some way off the carefully steered and successful course of the last 25 years and which organisations wanted to strengthen further on the basis of successful international practice and to meet regional goal and targets. While the strategy has an ambitious aspiration that Britain should be the world's road safety leader, many stakeholders identified that more clearly needs to be done to make that happen into the future.

Irrespective of country road safety status - a long-term-strategy for country investment is needed when ambitious results are sought since these will not be achieved overnight whether in developing or developed countries. The World Bank and the OECD outline the dimensions of a long-term strategy in which investment is staged and adjusted to the learning and absorptive capacity of the country involved and which has different phases of investment - Establishment, Growth and Consolidation.

Figure 4: The phases of a long-term investment strategy



Source: Bliss and Breen 2009 adapted from Mulder and Wegman 1999<sup>50</sup>

Most of the countries which have adopted *Safe System* are in their establishment phase. Australia and New Zealand are taking many new steps to embed *Safe System* approaches in their road safety management systems. Sweden is now at the beginning of a rapid growth phase in its implementation of *Vision Zero* with its new programme to 2020 targeting final and intermediate outcomes and wider roll-out of measures.

### 4.3 RECOMMENDED NEXT STEPS

#### Step 1: Road safety management capacity review

The OECD and World Bank recommend that as a first step countries should carry out a road safety management capacity review to assist long-term investment strategy and to build consensus amongst key partners on strengths and weaknesses and next steps. Such a review involves one to one meetings with a range of senior management in government and the private sector who are able to influence country results and - this is carried out by senior external experts. Twelve checklists are used to help assess and benchmark all elements of the management system and their linkages against good practice. A long-term investment strategy is identified as well as programmes and projects to launch it. Such reviews have been carried out in a wide range of countries, mainly in developing countries but including Sweden and Australia in the developed world, and to acknowledged good effect.

#### Step 2: Preparation of demonstration projects and programmes

The next step recommended by the World Bank and the OECD to all countries is to prepare and implement funded multi-sectoral *Safe System* demonstration programs and projects. The aims of these are outlined in Box 4.

#### Box 4: Demonstration projects and programmes: objectives

- Target road safety results in selected high-risk, high-volume roads/ areas for long-term and interim.
- Provide dimensions for new quantitative target-setting, business cases, roll-out.
- Provide opportunity, focus and mechanisms for policy development and policy pilots
- Aid institutional strengthening, especially lead agency delivery, coordination and multi-sectoral partnership working, monitoring and evaluation and knowledge transfer.
- Enhance political, professional and public acceptability of important intervention

Source: Bliss T and Breen J (2009)

Countries embarking on *Safe System* typically use specially-created demonstration programmes and projects to launch the approach such as En Route to *Vision Zero* in Sweden, the Dutch Start-Up Sustainable Safety programme, Western Australia's Towards Zero booster package and the demonstration projects in place to launch New Zealand's Safer Journeys strategy. *Safe System* projects are also underway or being developed in Argentina, China and India and in other countries.

A range of projects are identified and illustrated in the following sections and are proposed as possible areas for activity in the next steps in British road safety work.

#### Safe Corridor projects:

Given that a large proportion of deaths occur on a relatively small part of the road network where volumes are highest and speed are high, demonstration programmes targeting key urban arterial roads and rural corridors are now being carried out in Sweden, Netherlands, and Australasia towards safe roadsides, safe junctions, safe overtaking and safe villages. The justification for these are based on assessment of longer-term benefits and costs and in co-benefits achieved for other policies (See Box 5). In developing countries packages of multi-sectoral interventions to achieve interim targets and towards long-term goals are being put together for selected corridors.

Other Safe Corridor pilot projects might include speed management other than previously mentioned such as point to point cameras, speed limit mapping and targeting high-risk sites on popular motorcyclist routes.

**Box 5: Sweden's Safe Corridor programme**

In Sweden, integrate or separate for safety is the rationale and safe mobility the goal, with the central design parameter being the biomechanical tolerance of the human. No longer is it considered professional to plan and engineer roads which fail to take into account fundamental physical laws and the power model for speed relationships.



A functional road hierarchy relates speed limits to crash protection levels in cars and roadsides. New supplementary posted speed limits and signs of 40, 60, 80, 100 and 120 km/h are being introduced. Widespread roll-out of 30km/h on residential roads. Sweden has also set a target for 80% of driving to be within the legal speed limits by 2020. The Swedish classification is justified on safe mobility grounds as well as co-benefits from other policy areas. The aim is to balance safety, environment, accessibility, navigability, favourable regional development and equality. Full compliance is estimated by the Swedish Transport Administration to save around 150 lives annually and reduce carbon dioxide emissions by around 700,000 tonnes, the equivalent of emissions from 240,000 passenger cars.

Sweden is also rolling out rapidly the results of successful innovation and intervention. The distance driven on major single carriageway roads with median crash barriers nearly doubled between 2003-2010. 2+1s have reduced deaths by 80% and KSI by 50-60%. Barriers at roadsides have been highly cost-effective and at roundabouts, there have been 80-90% fewer deaths.

This major *Safe System* safety engineering programme in Sweden targets 75% of network mileage to be treated by 2020 & the rest by 2025. If this *Safe System* strategy was pursued in Britain through routine maintenance, the benefits to 2020 would be £26 billion and the face costs £460 million annually with a BCR of 6.

Sources: Lie A: 2+1 - Roads with Cable Barrier - a Swedish Success Story, 2010<sup>51</sup>; Hill J & Starrs C, *Saving Lives, Saving Money The costs and benefits of achieving safe roads Road Safety Foundation Report (2011)*<sup>52</sup>

**Safe Town or Safe City projects:**

Safe Town or Safe City projects also provide opportunities for a wide range of multi-sectoral intervention and working on area-wide speed management, public transport policies, pedestrian and cycle facilities and routes, combined police enforcement and publicity, red-light cameras, emergency medical response and trauma care fleet safety policies for taxis, buses etc. These tend to attract good support,

**Safe Commercial and Public Transport Fleet projects:**

Pilot projects would be useful to encourage improvements in fleet safety quality through the fitment and use of alcolocks and speed compliance assistance devices. UK pilots of the new ISO standard mentioned previously would be well worth doing under the *Safe System* banner promoted by that standard.

**Safe travel and Government procurement pilot projects:**

Road safety lead agencies in Sweden and Australia carry out national fast-tracking through Government procurement and in-house travel policies with the aim of creating a market for vehicle safety and leading by example. A pilot project would be useful with key agencies requiring 5\* Euro NCAP vehicles in these policies, encouraging fast-track fitment of priority driver assistance safety technologies such as devices to assist speed compliance, seat belt reminders in all seating positions, electronic stability control, autonomous emergency braking and alcolocks. In Sweden some 78% of new vehicles are rated 5\* and the target is 100 percent by 2020.

**Post crash response projects:**

Studies shows that many people would probably have survived crashes if they had been transported more quickly to hospital and appropriate care. Pilot projects could identify the scope for more efficient post-crash response and trauma care to reduce numbers of deaths and serious injuries. Piloting professional driver first responder schemes, trauma registry establishment would be worthwhile.

**Legislative pilots for life-saving intervention:**

Legislative pilots might include fully monitored 3 year national trial to reduce and enforce the BAC limit to 50 milligrammes of alcohol to 100 millilitres of blood and a fully monitored 3 year trial of a new graduated driver licensing system with key provisions. While these two suggestions for legislative changes have been recently rejected by Government, the evidence-base is fully behind these.<sup>53</sup> As with compulsory front seat belt use, pilot projects subject to affirmative resolution for continuation would be one way forward.

Looking at Sir Peter North's Review, the main opposition to his recommendation to lower the blood alcohol limit to a lower limit of 50 milligrammes of alcohol to 100 millilitres of blood came from the drinks industry, although the review found no evidence of detriment to that sector following implementation anywhere.<sup>54</sup> Sir Peter noted clear public and professional support for the change and a large saving of life which he estimated in the range of between 43 to over 400, the prevention of hundreds of serious injuries and changes to the drink-driving behaviour of drivers at all BAC levels. These need to be accompanied by the recommendation for unfettered police discretion to breath test which is also supported by the evidence base.

The government's response to the Association of British Insurers' suggestion for a new graduated driver licensing system to help manage exposure to high risk in the initial years of driving was also negative. Many studies, including one recently from Victoria have shown high benefits – 30 percent reductions in casualties and more - and there is no reason to suppose it could not work in Great Britain.<sup>55</sup>

## 5 RECOMMENDATIONS

A summary of recommendations to Government and to PACTS and its members are outlined:

1. Firstly, the Government needs to be more ambitious in the road safety results sought for Britain and the UK. It should demonstrate, with all the components of political will that have been outlined in the previous sections, that the largely avoidable loss of 1,901 lives and over 23,000 serious injuries annually is not acceptable. In line with advice from the OECD, *Safe System* should be adopted for the UK as a whole. The world is going there and if the UK aspires to lead it into the future, it needs to go there too and quickly. Towards this goal national interim targets should be set for final and intermediate outcomes.. Abandoning national targets for the UK as a whole was wrong given the progress that was being made and given the existence of EU regional goals and targets. Road safety management nationally needs to be reviewed and benchmarked against identified good practice,
2. Government should fund, carry out and monitor a variety of multi-sectoral demonstration projects in a *Safe System* programme, as proposed previously to be prepared by capacity review.
3. Government should lead by example in procurement and safe travel policies to create a market for road safety in Britain.
4. While the Department for International Development has a respectable tradition in supporting road safety abroad it needs to play a more active role now in supporting the urgent road safety efforts of developing countries.

Recommendations to PACTS and its member organisations would be to:

1. Mount a collective vociferous campaign with a coalition of organisations with strong safety interests promoting *Safe System*.
2. Make use of international agreements, demonstration project experience and guidelines.
3. Create and fund funding for *Safe System* study tours for policymakers and practitioners and establish a campaigning website.
4. Not least, orchestrate a high-visible challenge to policy directions which undermine road safety.

## 6 REFERENCES

- <sup>1</sup> BLISST, Global Road Safety Facility (2011)
- <sup>2</sup> BLISST AND BREEN J (2012). *Meeting the management challenges of the Decade of Action for Road Safety*, IATSS Research 35 48–55
- <sup>2a</sup> WORLD HEALTH ORGANISATION (2009), *Global status report on road safety – time for action*, WHO, Geneva.
- <sup>3</sup> EDS, PEDEN M, SCURFIELD R, SLEET D, MOHAN D, HYDER A, JARAWAN E, MATHERS C (2004). *World Report on Road Traffic Injury Prevention*, World Health Organisation and World Bank (Washington), Geneva
- <sup>4</sup> MCINERNEY R (2012), *A World Free of High Risk Roads*, iRAP Presentation, Tunis, June 2012
- <sup>5</sup> INTERNATIONAL ROAD ASSESSMENT PROGRAMME (IRAP) (2012). *Vaccines for Roads 2nd edition*, Basingstoke.
- <sup>6</sup> UNITED NATIONS ROAD SAFETY COLLABORATION (UNRSC) (2011). *Safe Roads for Development: A policy framework for safe infrastructure on major road transport networks*, World Health Organisation, Geneva.
- <sup>7</sup> COMMISSION FOR GLOBAL ROAD SAFETY (2011). *Make Road Safety: Time for Action*, London.
- <sup>8</sup> GLOBAL ROAD SAFETY FACILITY, WORLD BANK (2010, 2011) Unpublished country road safety management capacity reviews.
- <sup>9</sup> MATHERS C AND LONCAR D (2005) *Updated projections of global mortality & burden of disease*, WHO, Geneva
- <sup>10</sup> BHALLA, K, SHAHRAZ, S, NAGHAVI, M, AND MURRAY, C (2008). *Estimating the potential impact of safety policies on road traffic death rates in developing countries*, poster presentation at 9th World Conference on Injury Prevention and Safety Promotion, Merida, Mexico.
- <sup>11</sup> SMIL, V (2008). *Global Catastrophes and Trends: The Next Fifty Years*, MIT Press.
- <sup>12</sup> BLISST (2011) *Global Directions in Road Safety*, Strategic Road Safety Forum, Monash University Accident Research Centre, Melbourne, June, 2011
- <sup>13</sup> OECD (2008) *Towards Zero: Achieving Ambitious Road Safety Targets through a Safe System Approach*. OECD, Paris
- <sup>14</sup> COMMISSION FOR GLOBAL ROAD SAFETY (2006, 2008, 2011): *Make Roads Safe reports A New Priority for Sustainable Development, A Decade of Action for Road Safety, Time For Action*, London
- <sup>15</sup> INTERNATIONAL ROAD ASSESSMENT PROGRAMME, iRAP [www.irap.net](http://www.irap.net)
- <sup>16</sup> ISO (2012) 39001: Road Traffic Safety (RTS) Management Systems Standards, Requirements with Guidance for Use, Geneva.
- <sup>17</sup> GLOBAL NCAP <http://www.globalncap.org>
- <sup>18</sup> LANGWIEDER K, FILDES B, CAMERON M AND ERNVALL T, (2006) *Quality criteria for the safety assessment of cars based on real life crashes*, SARAC II EU Project Summary Report, European Commission, Brussels.
- <sup>19</sup> MEDIA RELEASE (2009). *A Shared Approach to Road Safety Management. Joint Statement by the African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, European Investment Bank, Inter-American Development Bank, Islamic Development Bank and the World Bank*, World Bank, Washington DC.
- <sup>20</sup> MEDIA RELEASE (2011). *Multilateral Development Bank Road Safety Initiative*, World Bank and Inter-American Development Bank, Washington DC.
- <sup>21</sup> UN GENERAL ASSEMBLY RESOLUTION 64/255, March 2010, Geneva.
- <sup>22</sup> UNITED NATIONS ROAD SAFETY COLLABORATION (2011). *Global Plan for the Decade of Action for Road Safety 2011 – 2020*, World Health Organisation, Geneva.
- <sup>23</sup> GURIA J (2009). *Required Expenditure: Road Safety Improvement in Low and Middle-Income Countries*.

- Addendum: Revised Estimates of Fatalities and Serious Injuries and Related Costs.* Report to the World Bank Global Road Safety Facility, New Zealand Institute of Economic Research, Wellington.
- 24 EUROPEAN TRANSPORT SAFETY COUNCIL The Road Safety Performance Index (PIN), <http://www.etsc.eu/PIN.php>
- 25 EUROPEAN COMMISSION (2011) *WHITE PAPER: Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system* COM(2011) 144 final, Brussels, 28.3.2011
- 26 EUROPEAN COMMISSION (2011) *Towards a European road safety area, Policy orientations on road safety 2011-2020*, Brussels
- 27 BLISST & BREEN J (2009). *Implementing the Recommendations of the World Report on Road Traffic Injury Prevention. Country guidelines for the Conduct of Road Safety Management Capacity Reviews and the Specification of Lead Agency Reforms, Investment Strategies and Safe System Projects*, World Bank Global Road Safety Facility, Washington DC.
- 28 TINGVALL C (1995) *The Zero Vision*. In: van Holst, H., Nygren, A., Thord, R., eds *Transportation, traffic safety and health: the new mobility*. Proceedings of the 1st International Conference, Gothenburg, Sweden Berlin, Springer-Verlag, 1995:35–57
- 29 WEGMAN F, ELSENAAR P (1997) *Sustainable solutions to improve road safety in the Netherlands*. Leidschendam, Institute for Road Safety Research, 1997 (SWOV Report D–97–8)
- 30 LAND TRANSPORT SAFETY AUTHORITY (2000), *Road Safety Strategy 2010: A Consultation Document*. National Road Safety Committee, Land Transport Safety Authority, Wellington.
- 31 WEGMAN F, ed (2001). *Transport safety performance indicators*. Brussels, European Transport Safety Council.
- 32 KOORNSTRA M ET AL. (2002). *SUNflower: a comparative study of the development of road safety in Sweden, the United Kingdom, and the Netherlands*. SWOV, Dutch Institute for Road Safety Research, Leidschendam.
- 33 BLISST (2004). *Implementing the Recommendations of the World Report on Road Traffic Injury Prevention*, Transport Note No. TN-1, World Bank, Washington DC
- 34 EUROGIP(2009) *Road risks incurred by employees in Europe* Eurogip-40/F, August 2009
- 35 HADDON JR W (1968). *The changing approach to the epidemiology, prevention, and amelioration of trauma: the transition to approaches etiologically rather than descriptively*. American Journal of Public Health, 58:1431–1438. 33. Henderson M. Science and society.
- 36 SWOV (2010) *Sustainable Safety: principles, misconceptions, and relations with other visions*, Leidschendam,
- 37 DEPARTMENT OF TRANSPORT (1987) *Road Safety The Next Steps*
- 38 ALLSOP RE, (2002) *Safer Cities: Challenges and Opportunities*, Best In Europe Conference, European Transport Safety Council, Brussels
- 39 NILSSON, G. (2004) *Traffic safety dimensions and the power model to describe the effect of speed on safety*. Bulletin 221, Lund Institute of Technology, Lund
- 40 SEXTON B AND JOHNSON B (2009) *An evaluation of options for road safety beyond 2010*, TRL, Crowthorne.
- 41 TINGVALL C AND HAWORTH N (1999) *Vision Zero - An ethical approach to safety and mobility*, Paper presented to the 6th ITE International Conference Road Safety & Traffic Enforcement: Beyond 2000, Melbourne, 6-7 September 1999.

- <sup>42</sup> OECD (1994) *Targeted Road Safety Programmes*, Paris.
- <sup>43</sup> WONG S. C., Sze, N.N., Yip, H.F., Loo, Becky P.Y.; Hung, W.T., Lo, H.K. (2006) *Association between setting quantified road safety targets and road fatality reduction*. *Accident Analysis and Prevention*, 2006, 38, 997-1005
- <sup>44</sup> BROUGHTON J, R E ALLSOP, D A LYNAM AND C M MCMAHON (2000) *The Numerical Context for Setting National Casualty Reduction Targets*, Crowthorne, Transport Research Laboratory Ltd. TRL Report No. 382, 2000.
- <sup>45</sup> LAND TRANSPORT SAFETY AUTHORITY (1998), *Safety Directions: Setting road safety targets*, Working Paper 4, Wellington, 2000.
- <sup>46</sup> BREEN J, HOWARD E, AND BLISS T (2008). *Independent Review of Road Safety in Sweden*, Jeanne Breen Consulting, Eric Howard and Associates, and the World Bank, Swedish Roads Administration,
- <sup>47</sup> HOWARD E, BREEN J, AND BLISS T (2010) *Road Safety Management Capacity Review Western Australia Final Report* September 2010 Eric Howard and Associates, Jeanne Breen Consulting, and the World Bank
- <sup>48</sup> HOUSE OF COMMONS TRANSPORT COMMITTEE (2012) - *Road Safety*, Second Report of Session 2012-13 (Hc 648) July 2012
- <sup>49</sup> HOUSE OF COMMONS TRANSPORT COMMITTEE (2012) *Special Report: Road Safety: Government's Response To The Committee's Second Report Of Session 2012-13 (Hc 648)*
- <sup>50</sup> MULDER J, WEGMAN F (1999). *A trail to a safer country. Conceptual approaches to road safety policy*, SWOV, Dutch Institute for Road Safety Research, Leidschendam.
- <sup>51</sup> LIE A (2010) : *2+1 - Roads with Cable Barrier - a Swedish Success Story*, Swedish Transport Administration
- <sup>52</sup> HILL J AND STARRS C (2011) , *Saving Lives, Saving Money The costs and benefits of achieving safe roads* , Road Safety Foundation Report , Basingstoke.
- <sup>53</sup> MAYHEW D (2000) *The effectiveness of graduated driver licensing*. In *Road Safety Research, Policing & Education Conference*, 26-28 November 2000, Brisbane, Queensland.
- <sup>54</sup> NORTH P,(2010) *Report of the Review of Drink and Drug Driving Law* , Department for Transport, London.
- <sup>55</sup> HEALY D, CATCHPOLE C, HARRISON W (2012) , *Victoria's Graduated Licensing System Evaluation Interim Report*, VICROADS February 2012

# THE WESTMINSTER LECTURES

The Westminster Lecture is an annual event in which leaders in transport safety address topics of concern to practitioners, researchers and policy makers in the field.

- 22<sup>nd</sup> Dr Jillian Anable, Centre for Transport Research, University of Aberdeen  
More haste, less speed: changing behaviour for safety and sustainability
- 21<sup>st</sup> Danny Dorling, Professor of Human Geography, University of Sheffield  
Roads, casualties and public health: the open sewers of the 21st century?
- 20<sup>th</sup> Fred Wegman, Managing Director, SWOV Institute for Road Safety Research, The Netherlands  
Putting People at the Centre: How to Improve Road Safety in the 21st Century?
- 19<sup>th</sup> Professor Oliver Carsten, University of Leeds  
Technology: Curse or Cure?
- 18<sup>th</sup> Professor James Reason CBE, Emeritus Professor, University of Manchester  
Recurrent patterns in transport accidents: Conditions and causes
- 17<sup>th</sup> Professor Phil Goodwin, Professor of Transport Policy at the Centre for Transport and Society, UWE Bristol, Emeritus Professor at University College London.  
Determination and Denial: The Paradox of Safety Research and Traffic Policy
- 16<sup>th</sup> Professor Ronan Lyons, Professor of Public Health, University of Wales at Swansea.  
Connecting Public Health and Transport Safety
- 15<sup>th</sup> Professor Helen Muir, Director, Cranfield Institute for Safety, Risk and Reliability.  
In times of crisis how do passengers react?
- 14<sup>th</sup> Professor David Begg, Chairman, Commission for Integrated Transport  
Transport Safety & Integration: putting the two together
- 13<sup>th</sup> Mr. Ken Smart CBE, Chief Inspector, AAIB  
Transport Accident Investigation: a question of trust
- 12<sup>th</sup> Professor Richard Allsop, Centre for Transport Studies, UCL  
Road Safety – Britain in Europe
- 11<sup>th</sup> Dr. Rod Kimber, Director Science and Engineering, TRL  
2010: Getting there in one piece
- 10<sup>th</sup> Simon Folkard D.Sc., Department of Psychology, University of Wales at Swansea  
Transport: Rhythm and Blues
- 9<sup>th</sup> Dr. Dianne Parker, University of Manchester  
The social psychology of driver behaviour: is it time to put our foot down?
- 8<sup>th</sup> Professor Frank McKenna, Department of Psychology, Reading University  
Death by Accident: the psychology of human error
- 7<sup>th</sup> Mr. Stefan Nilsson, Director, Automotive Safety Centre, Volvo  
A Holistic view on Automotive Safety
- 6<sup>th</sup> Sir Alastair Morton, Co-Chairman, Eurotunnel  
There is no such thing as perfect safety in transport, but a life is a life, however you travel
- 5<sup>th</sup> Dr. Leonard Evans, Principal Research Scientist, GM R&D Centre  
Traffic Safety Measures, Driver Behaviours Responses and Surprising Outcomes
- 4<sup>th</sup> Mr. Brian O'Neil, President, Insurance Institute for Highway Safety  
Progress in Transport Safety: the US experience
- 3<sup>rd</sup> Mr. Robert Coleman, Director General, DG VII, European Commission  
Transport Safety and the EC
- 2<sup>nd</sup> Dr. Ian Johnston, Executive Director, Australian Road Research Board  
Effective strategies for transport safety: an Australian's perspective
- 1<sup>st</sup> Dr. Jan C. Tetlow, Secretary General, European Conference of Ministers of Transport  
Transport Safety: European cooperation for the 90s