

**PACTS Response to  
*Action for Roads: A network for the 21<sup>st</sup> century*  
November 2013**

PACTS is the Parliamentary Advisory Council for Transport Safety – an all-party Parliamentary group which brings together Parliamentarians, organisations and experts to identify and promote evidence-based approaches to transport safety.

This response by PACTS to the Government’s command paper *Action for Roads: A network for the 21<sup>st</sup> century* (Cm 8679, July 2013) sets out key issues and some suggested strategic lines for the road safety management of the core road network which is seen as an immediate investment priority.

PACTS will be respond in due course to the questions in *Consultation on transforming the Highways Agency into a government-owned company*, published on 29 October.

**Road traffic injury represents a large burden on the economy.**

PACTS believes that Britain is currently paying too high a price for its mobility in terms of the valuation of the prevention of road traffic crashes and injuries, estimated at equivalent to 2 per cent of Gross Domestic Product.<sup>1 2</sup> The DfT estimates that the total value of prevention of reported road crashes in 2012 was £15.1 billion. When unreported injury crashes are taken into account, the DfT estimates than this total more than doubles to £34.3 billion.<sup>3</sup> Large costs from road traffic crashes are sustained by a range of sectors including health, employers and insurance, road and vehicle industries and undermine government policies and returns from related public resource addressing public health, child welfare, sustainable transport and social equity.

While substantial reductions in deaths and serious injuries have been achieved, the current level remains unacceptably high. In 2012, around 25,000 people died or were seriously injured in road traffic crashes. Many died prematurely involving the young and vulnerable with those under 24 years comprising around 20% of death and serious injury according to police-reported data.<sup>4</sup> Health data indicates that road traffic injury is the leading single cause of death (all causes) for those aged between 5 and 24 years.<sup>5</sup>

Against this background, the level of attention to and investment in road injury prevention is not commensurate with its importance as a problem for public health, sustainable transport and work-related road safety. Desired, measurable safety outcomes for the long-term and the interim need to be targeted in government transport, health and work-related road safety policies, for the main road network and for the Highways Agency. Road safety

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<sup>1</sup> Road Safety Foundation (2013), *Measuring to Manage: Tracking the safety of Britain’s major road network*, Basingstoke

<sup>2</sup> Department for Transport (2013) *A valuation of road accidents and casualties in Great Britain in 2012*, London.

<sup>3</sup> Department for Transport (2013) *A valuation of road accidents and casualties in Great Britain in 2012*, London.

<sup>4</sup> Department for Transport (2013) *Reported Road Casualties in Great Britain: Main Results 2012, 27 June 2013*, London.

<sup>5</sup> Institute for Health Metrics and Evaluation (2013), *Global Burden of Disease, Injuries and Risk Factors Study 2010*, [www.healthmetricsandevaluation.org/gbd/2013](http://www.healthmetricsandevaluation.org/gbd/2013)

needs to be headlined in road transport policy and strategy as at least an equal consideration alongside access and environmental issues.

Investment in road safety is a key element in improving the general quality of Britain's core road network which, as acknowledged in *Action for Roads*, has fallen behind that of other nations.

### **Targeting investment in the core network as a priority**

Most of the cost of serious health loss in road traffic crashes in Britain occurs in the major road network - motorways and A roads outside major urban areas (the latter presenting by far the highest risks). While comprising only 11% of the total network, these roads carry 56% of traffic and produce around 51% of road traffic deaths.<sup>6</sup>

Road safety investments on these busiest of roads present the best opportunities for intervention and the achievement of road safety results. They have high strategic priority, as outlined in *Action for Roads*, attract large investment and are particularly amenable to targeted treatment with effective, affordable intervention. However, this requires sustained governmental leadership and political will to achieve road safety results translated into the provision of clear results-focused frameworks for action and a commitment to sustained investment in the road safety engineering of corridors and surrounding areas.

The benefits to cost ratio of investment in road safety engineering treatments is high, commonly around 5 on major schemes and even 2 to 3 on good networks. The Road Safety Foundation estimates that targeting a minimum 3 star safety standard for motorways and A roads in Britain via a capital investment of £8.2 billion over 20 years, could save 600 lives annually, equivalent to £34 billion over a 20 year life of measures implemented.<sup>7</sup>

### **Adopting a clear, ambitious, measurable results focus**

Of key importance to road safety management is the adoption of a measurable road safety performance framework for the accountable achievement of road safety results. Setting clear targets for national road safety results is an international success story in improving road safety and making better use of public resource.<sup>8</sup> At network level, the Netherlands and New Zealand have set minimum Euro RAP 3-star or 4-star safety ratings for the national network by 2020 following an assessment of costs, benefits and practicality. Sweden has also set a range of targets to 2020 and beyond for network safety performance, as outlined in Box 2. The rationale for setting intermediate outcome targets in this way is to give those with responsibilities for the planning, design and operation of the road network control over the outcomes they can affect directly.

In line with international good practice, national road safety strategy and the new performance specification for the Highways Agency should provide for the targeting and

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<sup>6</sup> Road Safety Foundation (2013), *Measuring to Manage: Tracking the safety of Britain's major road network*, Basingstoke

<sup>7</sup> Hill, J and Starrs, C (2011), *Saving lives, saving money. The costs and benefits of achieving safe roads*, Road Safety Foundation and RAC Foundation, <http://www.roadsafetyfoundation.org/media/1107>

<sup>8</sup> OECD (2008), *Towards Zero: Ambitious Road Safety Targets and the Safe System Approach*, Paris

monitoring of both final outcomes (e.g. deaths, serious injuries, social costs) and intermediate outcomes (e.g. mean speeds, safety rating level of road infrastructure (using iRAP, Euro RAP star safety ratings) ) for the foreseeable future and within a long-term vision for a safe, sustainable road transport network.

### **Embedding *Safe System* into the planning, design, operation and use of the network**

The *Safe System* intervention strategy has been adopted increasingly by national governments and highway authorities. It is promoted by the OECD, World Bank, World Health Organisation, the International Road Federation and the International Standards Organisation as international best practice (See Box 1).

#### **Box 1: The four evolutionary phases of managing for results<sup>9</sup>**

Progressive shifts in road safety management thinking and practices in high-income countries have been evident. Since the 1950s there have been four significant and progressively ambitious phases of development:

- Phase 1: focused on driver intervention, with safety management characterized by dispersed, uncoordinated, and insufficiently resourced units performing isolated single functions.
- Phase 2: focused on system-wide interventions guided by the 'Haddon matrix'.
- Phase 3: focused on system-wide interventions, targeted results and institutional leadership. Good practice countries used action plans with numerical outcome targets to be achieved with evidence-based packages of system-wide measures based and new institutional leadership.
- Phase 4: is focusing on system-wide interventions; long-term elimination of death and serious injury; shared responsibility – *Safe System*. This comprises stepwise targets towards a long-term goal to eliminate death and serious injury which are seen as an unacceptable price for mobility; system-wide intervention (foreseen in Phase 2 and used successfully in Phase 3), but with renewed emphasis on better road and vehicle crash protection, post-crash care; new emphasis on speed management aimed at more effective injury prevention; and strengthened, accountable institutional leadership and meaningful shared responsibility to achieve results.

*Safe System* builds on the best of previous approaches and promotes innovation and the adoption of technologies based on scientific safety principles which underpin the effective planning, design, operation and use of the road network.<sup>10</sup> *Safe System* involves better attention to human characteristics – common, unintentional errors and known physical tolerances to injury. For example, the chances of survival for an unprotected pedestrian hit by a vehicle diminish rapidly at speeds greater than 30 km/h, whereas for a properly restrained motor vehicle occupant in the best designed car the critical impact speed is 50 km/h (for side impact crashes) and 70 km/h (for head-on crashes).<sup>11</sup> Small differences in speed can have a profound effect on the occurrence and severity of road crashes and injuries. A 1% decrease in average speed corresponds with a 2% decrease in injury crashes, a 3% decrease in serious injury crashes and a 4% decrease in fatal crashes and vice versa.<sup>12</sup>

<sup>9</sup> Global Road Safety Facility, Bliss T and J Breen (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.

<sup>10</sup> OECD (2008), *Towards Zero: Ambitious Road Safety Targets and the Safe System Approach*, Paris

<sup>11</sup> Tingvall C and N Haworth (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>12</sup> Nilsson, G. (2004) *Traffic safety dimensions and the power model to describe the effect of speed on safety*. Bulletin 221,

*Safe System* engineering treatments target the key crash types resulting in death and serious injury – head on impacts, run-off road collisions, side impacts and vulnerable road user collisions. The Road Safety Foundation has recently highlighted the dominance of crashes at junctions leading to serious trauma and of death from running off the road on Britain’s main road network and has outlined successful treatments and evidence-based recommendations for investment strategy.<sup>13</sup>

*Safe System* urban and rural road hierarchies generally aim to find a better match between road function, speed limit and road layout and design. Safety engineering strategies aim to separate oncoming traffic on high-volume, high-speed roads to prevent head-on collisions; provide crash protective roadsides where possible to address run-off road collisions; ensure safe speeds at junctions to reduce fatal and serious side collisions; and ensure safe speeds on roads and streets with dangerous mixed use where effective grade separation of motor vehicles and vulnerable road users may be difficult or unaffordable. Integrating *Safe System* principles through proactive safety planning and design can address intrinsic dangers in the road network, improve protection for non-motorised as well as motorised road users and reduce costs.<sup>14 15</sup>

**Box 2: Sweden’s Safe Corridor programme** Source:<sup>16</sup>

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. 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 limits on residential roads has taken place. 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+1 barrier systems 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 *Safe System* safety engineering programme in Sweden targets 75% of network mileage to be travelled on roads upgraded to the equivalent of a Euro RAP 3-star standard for roadside and overtaking protection by 2020, rising to 100% by 2025.



While Britain has successfully adopted aspects of the *Safe System* approach, PACTS believes that it now needs to be fully explored and embedded in government and highway agency policies to improve road injury prevention and asset management.

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<sup>13</sup> Road Safety Foundation (2013), *Measuring to Manage: Tracking the safety of Britain’s major road network*

<sup>14</sup> OECD (2008) *Towards Zero: Ambitious road safety targets and the Safe System approach*, OECD, Paris, 2008

<sup>15</sup> Tingvall C, Johansson R, Belin MA, Lie A, *Safe, clean and affordable mobility*, Presentation to World Bank, 2007

<sup>16</sup> Lie A: *2+1 - Roads with Cable Barrier -a Swedish Success Story*, 2010

## **Building management capacity and knowledge transfer**

Britain's road engineering profession has high respect internationally. There is a long tradition in its institutions of building and transferring knowledge through demonstration projects in road safety engineering and in efficiently transferring it through guidelines and other means. However, the impetus and funding necessary to build and maintain roads in line with innovative approaches used elsewhere will require new emphasis, clear strategic direction and sustained investment from government if engineers are to meet the challenges of *Safe System* nationwide.

Initially, targeted treatments and demonstration projects in high-volume/high-risk corridor sections and areas are recommended by international organisations to build management capacity for leading edge *Safe System* approaches.<sup>17</sup> As part of a suite of tools, road assessment programmes e.g. EuroRAP are being used increasingly in countries to map network injury risks and affordable *Safe System* engineering priorities and investment packages.

## **Local Roads**

The Command Paper *Action for Roads* is concerned with the strategic road network – motorways and trunk roads. PACTS is well aware that around half of all road deaths, particularly those involving vulnerable road users, occur on local roads. PACTS is equally concerned about these deaths and our support for investment in the strategic road network does not imply any less emphasis on the need for investment in improving safety on local roads. *Safe System* principles should also apply to the design and management of local roads, although engineering techniques will differ.

## **Summary**

PACTS welcomes this major Government review into the action needed for roads in the interim and long-term and recommends the following for the developing strategy:

- Road traffic injury imposes a substantial and unacceptably high burden on the economy and the benefits to cost ratio of identified preventative measures to address avoidable trauma remains high. The level of attention to and investment in road traffic injury prevention in Britain is not commensurate with its importance as a problem for public health, sustainable transport and work-related road safety. Road safety needs to be headlined in roads policy and strategy as at least an equal consideration alongside access and environmental issues.
- The Government needs to set a clear, ambitious and measurable results framework for final and intermediate outcomes to provide for targeted, accountable action.
- New investment in the planning, design, operation and use of Britain's road network is needed. PACTS notes the recommendation of international organisations that 10% of annual road project funding should be allocated to road safety treatments.

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<sup>17</sup> Global Road Safety Facility, Bliss T and J Breen (2013). *Capacity Reviews and Safe Systems Projects. Guidelines Supplement*, World Bank, Washington DC

- While comprising only 11% of the total network, motorways and A roads outside major urban areas carry 56% of traffic and produce around 51% of road traffic deaths. This part of the network comprises the busiest of roads, has high strategic priority, attracts large investment and is particularly amenable to targeted treatments with effective, affordable road safety engineering intervention. The higher fatal and serious injury risk on rural A roads, in particular, deserves priority attention.
- Leading edge *Safe System* assessment and treatment programmes recommended to all countries by international organisations now need to be fully explored and embedded in British road policies. This would improve the focus on the prevention of avoidable death and serious injury within the road network while also assisting asset management.
- *Safe System* demonstration programmes and projects provide a starting point for the building and transfer of knowledge in the highway engineering profession.
- PACTS looks forward to being part of the ongoing discussion on *Action for Roads*.

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