

# Perspective on Road Safety

## Safe Speeds Part 1: Political Decisions and the Limited Adoption of Speed Management for Road Safety

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### Key Findings

- The global road safety crisis is deepening, and global targets for 2020 will not be met.
- Speed management is a critical lower cost solution with less delay to realisation of benefits than other elements of safe system management.
- Effective speed management is often resisted in make-or-break political decision making.

### Keywords

Speed management, speed cameras, speed limits, communication, political decision making.

### Introduction

The United Nations (UN) Global Plan for the Decade of Action (UNRSC, 2011) set a target of a 50% reduction in deaths by 2020 compared with the projected increase, and the UN Sustainable Development Goal (SDG) 3.6 is a 50% absolute reduction in both deaths and injuries by 2020. Based on performance to the end of 2016, neither target will be met. It is critical for global road safety that an SDG for road safety with a target date of 2030 be set, so that the now somewhat increased focus on the problem at the highest global levels (including the creation of the UN Fund for Road Safety in April 2018) is not lost.

Rather than decreases in deaths during the current decade, the global road safety crisis is deepening. The World Health Organization (WHO) recently released the estimate of global deaths (based on analysis which will be fully published late in 2018) at 1.34 million deaths in 2016, an increase on the 1.25 million in 2013 (WHO, 2015). Extrapolating this increase and cumulating the numbers reveal the alarming outcome that from 2018 to 2030 (when the anticipated next road safety decade will end) humanity will suffer 21.7 million deaths and 875 million injuries on the world's roads: the level of trauma of another world war. There have been many successes in road safety, yet effective road safety programs and policies have not been sufficient to mitigate the increases in motorization of most Low- and Middle-Income Countries (LMICs), which already suffer 90% of road crash deaths (WHO, 2015). In addition, many High-Income Countries (HICs) have retreated from sound road safety policies and programs, especially on speed management. These backward steps by HICs have the potential flow-on risk of delaying effective actions in LMICs which often adopt actions in HICs as models for success,

based on better road safety performance, more research to demonstrate effects, and HIC consultants' promotion of HIC policies.

This paper describes the limited extent to which effective evidence based speed management infrastructure, policies, and actions are adopted, and considers the central role of political decision making in this limited support for speed management to deliver road safety. This paper will be followed by a second paper addressing the question: Why has the road safety community met with such limited success in advancing automated speed enforcement, safe speed limits, and other speed management measures for road safety? The paper also offers suggestions to improve on this limited success.

### Speed Management is Critical and Feasible

Speed is correctly recognised as a key factor in both crash occurrence and severity (Elvik, 2005; Job & Sakashita, 2016; Nilsson 2004), and thus the management of speed is central to the achievement of strong road safety improvements (GRSP, 2008; Job & Sakashita, 2016), as well as other benefits such as reducing climate change effects and harmful effects of noise from transport (Cameron, 2003; Sakashita & Job, 2016; Gomez et al., 2017). An extensive and irrefutable body of evidence exists showing that various means of reducing speeds have led to reductions in deaths and injuries and that allowing speeds to increase causes more deaths and injuries. Examples include speed management across the pillars of road safety, including reducing speed

limits (de Roos & Marsh, 2017; Graham & Sparkes, 2010; Sliogeris, 1992). The study by Sliogeris (1992) is especially compelling because it shows a marked increase in serious casualty crashes when a speed limit was increased by a political decision, and a marked reduction in these crashes when the speed limit was returned to its original lower level following the evidence for the clear harm resulting from the increase. Other effective examples include behaviour change through speed cameras and the promotion of enforcement (Li, El-Basyouny, Kim and Gargoum, 2017; for reviews, see: GRSP, 2008; Wilson, Willis, Hendrikz, Le Brocque, & Bellamy, 2010), vehicle based management of speed (Carsten, Fowkes, Lai, Chorlton, Jamson, Tate & Simpkin, 2008; Varhelyi, 2002), and road engineering to reduce speeds (Huang, Liu, Zhang, Wan, & Li, 2011; Makwasha and Turner, 2017; Mountain, Hirst, and Maher, 2005; Turner, Makwasha and Hiller, 2017).

Of these interventions, road infrastructure is the most directly sustainable, and strong speed enforcement is one of the most effective (GRSP, 2008; Wilson et al., 2010; including point-to-point or average speed cameras: Soole, Watson, Fleiter 2013; Montella, Imbriani, Marzano, & Mauriello, 2015) and least costly, in that cameras cost little, and generate income. This income can provide somewhat sustainable funding of road safety, though the income per camera hour reduces as drivers increase compliance with speed limits. The income generation as a side effect does create its own challenges such as raising accusations of revenue raising. These concerns have been toned down in some jurisdictions (including New South Wales and Western Australia) by hypothecating the camera revenue to road safety. In addition, support for speed management in the public arena from road safety experts can be helpful (e.g., Mooren & Grzebieta, 2010, 2011).

The World Bank and the Global Road Safety Facility (GRSF) aim to employ speed management opportunities through infrastructure or speed enforcement in projects. The GRSF is engaged in a Bloomberg Philanthropies funded program to improve road safety in 10 major cities around the globe, and this involves plans for speed management programs in many cities (reduced speed limits in Fortaleza and Addis Ababa, speed calming infrastructure in Bangkok; and raised platform crossings in Ho Chi Minh City as part of a Bus Rapid Transit project); a World Bank project planned for Rajasthan (India) includes speed humps to manage speeds on entry to villages and built up areas, and a project in Nicaragua includes plans for speed feedback and speed enforcement, as well as evaluation of the outcomes.

## Political decisions and limited adoption of Speed Management

Decisions on speed management, especially on the adoption of and extent of automated enforcement, penalties for speeding, and other policies critical to efficacy (including the use of covert versus signposted enforcement) are political decisions. They are made by governments or ministers, and implemented through acts of parliament, regulations, and policy decisions by ministers and ministerial offices.

These decisions commonly are taken in the context of high-profile media and community commentary, and often are inconsistent with well-established evidence and expert advice (see Job, Sakashita, Mooren, Grzebieta, 2013; Mooren, Grzebieta & Job, 2013).

Despite their established efficacy and cost-effectiveness, speed cameras are generally not deployed or deployed to only a limited, sub-optimal extent in all countries and states. Speed cameras have even been abandoned or reduced in numbers in various countries and states (GRSP, 2008, p95). Limitations of use include: most countries have no point-to-point or average speed cameras despite their established efficacy; in various states of Australia, point-to-point cameras can be counted in single digits and some states do not have point-to-point cameras; and, in New South Wales (NSW) Australia, point-to-point cameras are only employed to enforce heavy vehicles not cars.

While New Zealand expanded its speed enforcement some years ago, point-to-point cameras were still under consideration by the Government in April 2018 (News Now, 2018). This indecision continues despite a 2011 report from the NZ Transport Agency showing their feasibility, reporting the evidence for their life saving results, and even identifying appropriate locations in New Zealand (Lynch, White and Napier, 2011). From 2014 to 2017 deaths in New Zealand rose 29.7% with Auckland suffering a 77.8% increase in deaths over the same period. Analysis has highlighted speed management as a core area of failure, with considered recommendations for increased penalties, more enforcement, and safer speed limits (Howard, 2018). The failure to address the speed issue reflects an over-focus on journey times (Wilson, 2018).

In Poland many speed cameras were switched off in recent years, and deaths increased; most states of the United States have no speed cameras, and they are explicitly prohibited in many states (e.g., Mississippi, Montana, New Jersey, Texas, and West Virginia). Despite the overwhelming evidence for savings of lives, injuries, environmental damage, economic costs, and fuel use at lower speeds (Cameron, 2003, 2012; Elvik, 2009; Hosseinlou, Kheyabadi, Zolfaghari, 2015), highway and motorway speed limits in HICs are still well above ideal speeds for all these benefits. In addition, in many places speed limits have steadily risen despite being beyond the economically ideal speed. In Texas the maximum limit is now a whopping 85mph (137km/h) and six other states have maximum limits of 80mph, whereas all had a maximum limit of 55mph under earlier federal regulation (the Economist, 2018). European motorway speed limits are typically over 110km/h or in Germany some motorways have no limits, and in Australia's Northern Territory one road well below motorway standard had the speed limit removed. Increased speed limits led to a 15% increase in deaths in Israel (Richter, Barach, Friedman, Krikler, & Israeli, 2004), and in the USA have cost many thousands of deaths (Friedman, Hedeker, & Richter, 2009; Stuster et al., 1998). Most recently, in April 2018 India announced increases in speed limits on national roads.

With the important successful exception of the Australian state of Victoria, high enforcement tolerances on speeding, weak penalties for speeding, the absence of covert operation of speed cameras are still common in many countries and states despite their demonstrated value (Keall, Povey & Frith, 2001). These limited, delayed, and backward steps, along with slow or absent policy advance reveal broad, deep, deadly failures in public policy. Based on the key role of speed in crash causality and severity, the non-management of speed is a fundamental reason for the failure to deliver major improvements in global road safety.

No country on earth has even close to ideal speed management policy settings for evidence based best practice. Sweden, Netherlands, UK, and Switzerland are deservedly recognized as the best performing countries in road safety, and all have strong speed management as a core mechanism of success. However, even these countries have actively sub-optimal speed management policies. Every country could use many more engineering features to manage speed (raised platform crossings, speed humps, well-designed roundabouts), and many more speed cameras and point-to-point systems than are in use. Toll booth entry and exit records include (or are readily able to include) time, and can thus be employed as point-to-point enforcement,



Figure 1. 20km/h speed limits in Switzerland are accompanied by appropriate engineering of the road.

yet this opportunity is ubiquitously ignored. Sweden places limits on the total fine revenue of cameras and so does not proceed with many detected offences, and could effectively deploy many more cameras. Switzerland has introduced low residential speed limits (20km/h) with effective speed managing road infrastructure in some locations (Figure 1), but has high speed limits on expressways, and sub-optimal automated and police enforcement of speeding. The Netherlands has been a leader on speed enforcement, yet motorway speed limits were raised from an already sub-optimal 120km/h to 130km/h (Dutch News, 2013).

Finally, no country has developed and effectively implemented available technological advances (such as strong speed enforcement via GPS tracking of all vehicles) or even technologies available for many years to manage

speeds through vehicles (such as simple speed limiting to the maximum open road speed for all vehicles). The further technological step of GPS based speed limiting (the speed limiting version of Intelligent Speed Adaptation: ISA) is also available, but not adopted. One argument against speed limiting of vehicles is that speed limiters could sometimes cause crashes, in cases where speed is required to avoid the crash. The scenarios in which this could occur are hypothetical and rare (though possible) compared with the huge numbers of deaths from speed which would be avoided if speeding were to be prevented by the vehicle. On balance the safety benefits will be profound.

The alternative to speed limiting sometimes proposed is to allow an over-ride on ISA, or to require Speed Assistance Systems (SAS) which warn the driver regarding speeding. Speed limiting systems generate much greater safety benefits than speed warning systems (Carsten et al., 2002), though SAS may be the first step in the process of full development. The Australian New Car Assessment Program will award extra safety ratings for cars with SAS, and in May 2018 the European Parliament proposed making SAS mandatory (ETSC, 2018). Thus, there are important steps being taken in relation to the role of the vehicle in speed management.

## Conclusions

The UN targets for the Decade of Action and the road safety goals in the SDGs will not be met. This should spur more, and more effective actions rather than apathy and retreat. In addition to increased action in the remaining years of the current decade, another target for road safety is critical for the next decade at global, regional, national, and sub-national levels. An extensive body of evidence exists on how to achieve the goals, and one of, if not the, most cost-effective mechanisms for improving road safety is effective speed management. It should have a fundamental role in planning for the future of road safety, including in the strategic plans for another decade.

The limited actions and backward steps reviewed above are the result of political decisions which determine relevant laws, regulations, policies, and practices. Minimal steps forward, backward decisions and deliberate inaction on speed management are often made in opposition to the evidence and expert road safety advice. These decisions by many high income jurisdictions not only reduce road safety within the jurisdictions but also risk slowing road safety actions in the LMICs, which already suffer 90% of global road crash deaths (WHO, 2015). Reasons for these political decisions, and recommendations for addressing them, are offered in a follow-up paper.

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