



Safe Roads for All

An expert report to UK Government, calling for a Safe and Healthy Mobility Strategy and Action Plan for roads, 2021-30, to deliver sustainability and prosperity

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By UK road safety and mobility experts

**Safe
Roads
for All**

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Introduction

This report, by UK road safety and mobility experts, is presented to the Prime Minister, Chancellor of the Exchequer, Secretary of State for Transport, and all national and local government leaders.

It calls on UK Government to publish, with urgency, a Safe and Healthy Mobility Strategy and Action Plan for roads and civic spaces across the UK that is based on Safe System solutions; and for Government to place this strategy and action plan at the heart of its transport policy decisions to save people and the planet. This report proposes goals, work areas, and priority actions for the strategy and action plan.

Safe and healthy mobility means we get around on roads and around our civic spaces (the spaces between our buildings) in ways that: prevent death and serious injury from road crashes; prevent death and illness from air pollution and inactivity; and achieve decarbonisation to tackle the climate crisis. We enable people to move around in active ways (walking, cycling) and we enable the safe, clean, and green use of vehicles too; to move our goods, deliver services, or move people, including by public transport.

To deliver safe and healthy mobility, leadership is required. This report proposes a Government leadership structure, including the establishing of a Road Safety Board within Government, and an independent, advisory Road Collision Investigation and Safety Standards Agency.

It is the authors' evidenced view that working towards safe and healthy mobility will deliver significant safety, health, and economic benefits. It will enable a levelled-up, economically-resilient, and global-facing nation, that has built back better, protects its NHS, strives for net zero carbon and is the best place to live, work, innovate, trade and visit. Safe and healthy mobility is good for people, the economy, and the planet.

A Safe and Healthy Mobility Strategy and Action Plan supports many UK Government priorities outlined in this report; including the Government's commitment to investing in infrastructure.¹ Our roads and civic spaces are two of our nation's most important strategic assets; Government has an opportunity to transform them appropriately, through significantly increased investment in road infrastructure that enables us to get around in ways that are safe and healthy, including walking and cycling. This report has a focus on this.

This report avoids technical detail, to help accessibility for all, and enable support. However, this is not reflective of lack of credibility; it is based on academic and practitioner evidence from worldwide sources, from a Safe System perspective. This report is presented in the expectation it will be supported by a growing number of organisations, all able to contribute further expertise and perspectives. The authors' plan is to work in partnership to foster consensus, harness expertise, and advise Government more. Additional editions of this report, or supplementary reports, may therefore be published, in light of additional evidence or Government decisions.

The Safe Roads for All contributors, July 2021

Recommendations for UK Government

Vision

- UK Government should adopt the vision that people and goods move on our roads, and around our civic spaces, in ways that are **safe** and **healthy** for people and the planet.
- This vision supports UK Government strategy to level up and build back better, including through infrastructure, national connectivity, net zero and the green industrial revolution.

Rationale for action

- There is a national tragedy on our roads every week that must stop. Every week, about 200 people die or suffer the most serious injuries in road crashes (based on Government and hospital data), including 35 deaths² and catastrophic injuries that shorten or change lives forever. Many more deaths are due to diseases caused by air pollution from traffic and poor health due to inactivity.
- Safe and healthy mobility helps solve social inequities (enabling everyone to get around), helps the UK to prosper (we move goods and people effectively and our towns and cities are attractive), and contributes to solving the climate crisis (through reduced greenhouse gas emissions).
- UK Government should recognise that safe and healthy mobility contributes to solving many problems carrying significant economic and societal costs. This includes saving our NHS; deaths and injuries due to road crashes alone are estimated to cost more than £33 billion per year.
- Value calculations for investments that treat roads to enable safe and healthy mobility consistently demonstrate 'benefit to cost' savings, ranging from x3.7 to x13.

Leadership requirement

- The UK's plans for roads and civic spaces must place safety and health at their heart. To achieve this, the UK Government must publish a **Safe and Healthy Mobility Strategy and Action Plan**.
- Safe and healthy mobility necessitates a commitment from UK Government at the highest level and involve all national Government, relevant agencies and stakeholders, collectively delivering the leadership required, the interventions required, with the urgency required, and with the funds required.
- A Safe and Healthy Mobility Strategy and Action Plan should be enabled through:
 - **leadership** from the Prime Minister, establishing direction for the whole UK;
 - **governance** from a newly-established **Road Safety Board** within Government, setting measurable safety performance goals, targets and indicators for the long-term and interim to provide the framework for safety strategy and safety requirements and standards;
 - **administration** by the **Department for Transport** and all national and local governmental and non-governmental partners, working collaboratively, effectively to achieve the targets;
 - **advisory direction** from a newly-established **Road Collision Investigation and Safety Standards Agency (RCISSA)**, investigating collisions and other evidence to develop and advise on; interventions required, standards, performance management methodologies, and performance.



Goals

The Safe and Healthy Mobility Strategy and Action Plan should strive (above all other goals) to **achieve three goals that define safe and healthy mobility:**

1. We prevent harm from vehicles.

We work towards eradicating deaths and catastrophic injuries from crashes in the long-term and target incremental results towards this. We prevent air pollution, and decarbonise transport.

2. We achieve the modal shift.

People move safely in active ways as part of their normal daily activity, and have access to good public transport; within our towns and cities, and between places.

3. We care for victims.

Best practice help is given to bereaved and injured victims of road crashes, providing the medical and humanitarian care they need, for their health and wider wellbeing.

Work Areas

To achieve its goals, Government's Safe and Healthy Mobility Strategy and Action Plan requires a focus on **four work areas** identified as critical for safe and healthy mobility:

- **safe space for all people** to walk and cycle, and good **public transport**
- **safe road infrastructure**; safe **speeds**; safe, clean and green **vehicles**
- **safe standards** for drivers, and for **organisations** managing vehicles for work
- excellence in **collision investigation**, and excellence in **care for road victims**.

Priority Actions

There are many actions that need to be taken. Five priority actions recommended are:

1. **Goals, Targets and Performance Indicators.** Adopt the long-term goal for a road network free from death and catastrophic injury. Adopt the global 50 by 30 road casualty reduction target for the UK (50% reduction in deaths and serious injuries in crashes by 2030) supported by Safe System performance indicators and targets in line with international best practice that can demonstrate if we are moving people and goods on roads in ways that are safe and healthy.
2. **Functional hierarchy for roads and road investment.** Establish a functional hierarchy for roads that enables safe and healthy mobility. Ensure budgets are directed to achieve roads' identified functions by identifying and proactively treating priority road sections to reduce death and serious injury, prioritising safe space for walking and cycling and 20mph limits where people live and move.
3. **Vehicle safety standards.** Incorporate into UK law more minimum vehicle safety standards, inclusive of the substantial, life-saving vehicle safety laws recently adopted in the European Union.
4. **Improved roads policing and reviewed legal framework.** Implement the changes recommended by the Inspection of Roads Policing report³ to improve roads policing. Undertake a review of the legal framework for opportunities to improve road user safety, for example through: phased driver licensing; a lowered drink drive limit, the power to stop and test any driver for impairment, provisions to manage work-related road risk, and a review of traffic laws and sentencing guidelines.
5. **Best practice help for road victims.** Provide best-practice care for road victims who are bereaved or suffer catastrophic injury and their families, including a nationally-commissioned, standards-driven, National Road Victim Service, that is immediately accessible to victims through the police.



Key road safety facts and explanations

Deaths

In 2019, there were 1,808 deaths on roads in the UK (1,752 deaths in Great Britain, plus 56 in Northern Ireland) with numbers of deaths per year broadly similar since 2010, while prior to 2010 they had been reducing.^{4,5} (There was a 16% reduction in deaths in 2020⁶ but this is considered an anomaly attributable to the pandemic (reduced traffic on roads).

Catastrophic injuries

The worst serious injuries are those considered catastrophic because they: threaten or shorten life (life-threatening, life-shortening); or change lives forever, for example through disability, pain, multiple operations (life-changing). Catastrophic injuries often include spinal injury, head injury, other internal injuries, limb loss. Numbers of catastrophic injuries are not published. In 2019, there were 25,945 serious injuries on roads in Great Britain,⁷ a proportion of which would have been catastrophic. The Trauma Audit and Research Network, which analyses hospital data, recorded 7,779 injuries in 2019 in England and Wales with the worst Injury Severity Score (>15).⁸ Including Scotland and Northern Ireland, it can be estimated that in 2019 there were c.8,700 injuries with the worst ISS.

Crash, not accident

The word accident implies inevitability and no blame; and is consequently not used in this report, nor generally used by road safety professionals. Deaths and injuries have causes that can be prevented, and this report explains how Government has a lead role in their prevention. Crash is a preferred term. The term road accident also, understandably, causes offence to many road victims who are concerned to know the causes of crashes that have killed and maimed loved ones, and want to know that causes are being prevented to save lives.

Road victims

Road victims are people killed in crashes, bereaved by crashes, injured in crashes (particularly catastrophic injuries), and their families. More than one person, and often more than one family, is affected for every death or catastrophic injury; one estimate calculates up to nine people directly affected for every sudden death.⁹

A wider definition of road victims includes the thousands of people who become ill or die due to illnesses associated with traffic. This includes illnesses caused by air pollution from traffic. It also includes illnesses caused by inactivity (due to many people not moving in active ways as part of our normal day due to fear of traffic). A London coroner's report in April 2021 called on Government to tackle air pollution after the death of a 9-year-old girl with respiratory illness who lived near a polluted London road.¹⁰ A global study found one in 10 child asthma cases is linked to traffic pollution.¹¹

We are all victims of climate change, and traffic is a major contributor to global warming.

The societal cost

The price we pay for unsafe and unhealthy mobility is not only evident in humanitarian terms, but in the large socio-economic losses incurred to families, employers and national and local economies. As we set out in this report, the case for scaling up investment in safe and healthy mobility is strong and vital to the achievement of sustainable development objectives including tackling the climate crisis.

The value of prevention of reported road crashes in Great Britain is estimated by Government to be £33.4 billion.



What we mean by safe and healthy mobility and Safe System

Safe and healthy mobility

Safe and healthy mobility on roads means we get around on roads and around our civic spaces (the spaces between our buildings) in ways that:

- prevent death and serious injury from road crashes;
- prevent death and illness from air pollution and inactivity; and
- achieve decarbonisation, to tackle the climate crisis.

Safe and healthy mobility on roads is good for people, the economy, and the planet. It also:

- enables people to move in active ways (e.g., walking, cycling) either to get somewhere else, or to move around where we already are; and
- enables the use of vehicles too; to move our goods, deliver services, or move people, including by public transport.

Safe System

Safe System is the worldwide-accepted, best-practice approach that governments must apply when managing roads effectively to be safe and healthy with a long-term goal for a road traffic system free from death and serious injury. It accepts the principles that people will make mistakes and have a right to safe and healthy mobility. It then identifies steps to stop people's mistakes causing death or catastrophic injury. Some examples are:

- a cycle path segregated from traffic and connecting homes to places we want to go;
- a town centre that excludes and restricts vehicles;
- Intelligent Speed Assistance – a vehicle technology helping drivers stay within limits;
- lorries and buses with large cab windows, so drivers can see more of the road.

Safe System is the generic term used by the OECD (Organisation for Economic Cooperation and Development)¹² and other international organisations working for Vision Zero, Towards Zero and Sustainable Safety.

These terms all mean working towards zero road deaths and serious injuries through actions that progress to that goal. Zero harm on roads is the only ethical goal, and one which is achievable. Zero harm on roads also includes wider important goals (zero air pollution, zero contribution to global warming).

Other commonly-used words are included in a Definitions List at the back of this report.

The pandemic effect

The pandemic enabled many of us to recognise opportunities and benefits of safe and healthy mobility on roads, thanks to reduced traffic. During lockdown, deaths and injuries on roads reduced significantly (deaths reduced by half in April 2020 compared with the same month in 2019),¹³ congestion was eased,¹⁴ and people cycled in numbers not seen for more than half a century. (The main barrier to people cycling is the perception of road danger).¹⁵ There is increasing support for reducing traffic, working from home for those who can, and prioritisation of space for active travel¹⁶ and a growing number of schemes to reduce through-traffic in residential streets, creating low-traffic neighbourhoods (LTNs). Changes to where we live requires planning and community consultation and education; the more change there is, the easier it is to help people understand safe and healthy mobility benefits through examples,¹⁷ and the closer we get to a future of equity and reduced vehicle dependence.¹⁸

Benefits of safe and healthy mobility

Safe and healthy mobility brings prosperity to people, communities, businesses, the nation, and the planet. It supports Government commitment to level up and build back better and Government strategies for infrastructure investment, green industry, net zero carbon, innovation and skills development, public health and global reputation and reach.

“ We will level up our country...with competitive cities and vibrant towns that are centres of life – places people are proud to call home, with access to services and jobs they need to thrive. ”¹⁹

Boris Johnson, Build Back Better



Figure 1: Outcomes of safe and healthy mobility

Prevention of deaths and catastrophic injuries on roads

Safe and healthy mobility means people are able to move, in vehicles and in active ways, without risk of death or catastrophic injury.

The scale of death and serious injury on UK roads is a national disaster. Ignoring the atypical pandemic period, there has not been a downward trend in deaths and serious injuries during the past decade. During the previous 40 years they consistently reduced. A decade of stagnation in numbers of UK road deaths and serious injuries has threatened the UK’s status as a leading road safety performer globally, but British expertise and research in road safety continues to be highly respected in the global marketplace and academia. We have an opportunity to renew our reputation.

Globally, roads are the leading cause of premature death for those aged 5-29 and the 8th leading cause of death for all age groups.²⁰ UKAid is investing significantly through the Global Road Safety Facility at the World Bank.²¹ There are many opportunities for the UK to shine anew, as a provider of Safe System and pass on its learnings to other nations. The value of prevention of road crashes in Great Britain is estimated to be £33.4 billion.²²

Government acknowledgement of Safe System

The Department for Transport Road Safety Statement, refreshed in 2019,²³ acknowledged the need for Safe System. The DfT-commissioned Road Safety Management Capacity Review, published in 2018,²⁴ recommends implementation of Safe System and a best practice road safety performance framework. Scotland’s ‘Road Safety Framework to 2030’ sets out a long-term Vision Zero, of zero fatalities and injuries on Scotland’s roads by 2050. Safe System for roads supports many of the United Nations’ Sustainable Development Goals.²⁵ Safe System also supports the worldwide Decade of Action for Road Safety 2020-2030²⁶, embarked upon following the third Global Ministerial Conference on Road Safety in Stockholm, 2020.²⁷



Net zero carbon

Safe and healthy mobility contributes to tackling the climate crisis, by reducing car use, enabling active travel and enabling travel by clean public transport. Transport is the single biggest contributor to UK CO₂ emissions, accounting for 34% in 2019.²⁸

The UK was the first major economy to set a legally-binding target of net zero emissions by 2050.^{29,30} Green public transport and cycling and walking feature in the Government's Ten Point Plan for a Green Industrial Revolution.³¹

Air that is safe to breathe

Safe and healthy mobility contributes to healthy air. A shift to electric vehicles³² and fewer vehicles (due to increased walking and cycling and public transport) cleans up our air. Emissions from vehicles are a significant contributor to air pollution³³ and cause severe detrimental effects to health, particularly for the most vulnerable in society, including an increased risk of cardiovascular, respiratory, or neurodegenerative diseases.³⁴

Physical and mental health

Safe and healthy mobility means we can get around in active ways, as part of our normal day.

Public Health England's 5-year strategy³⁵ aims to protect us and help us to live longer in good health. Building physical activity into everyday lives is achieved by walking and cycling to get around. Safe and healthy mobility helps everyone - children, young people, families, people with disabilities and an ageing society - it improves quality of life by increasing physical activity, improving opportunities for socialising, work and volunteering, and reducing isolation.

Physical inactivity is responsible for one in six UK deaths (equal to smoking) and is estimated to cost the UK £7.4 billion annually, including £0.9 billion to the NHS alone (Public Health England, 2019).³⁶ One in three men and 42% of women are not active enough for good health. Physical activity reduces dramatically the risks of dementia, depression, heart disease, diabetes, colon cancer, breast cancer and hip fractures.

“If a medication existed which had a similar effect to physical activity, it would be regarded as a wonder drug or miracle cure.”

Sir Liam Donaldson,
former Chief Medical Officer
of England

- Physically-active workers take 27% fewer sick days than their colleagues;³⁷
- Physically-active people have 40% lower chance of cognitive decline, 25% reduction in coronary heart disease and are 48% less likely to exhibit depression.³⁸

Saving our NHS and emergency services

Safe and healthy mobility contributes to saving our NHS, emergency services and other community services.

NHS resources are expended caring for road crash victims, including emergency and intensive care in hospitals, and care in the community helping victims with permanent disability or mental health disorders. Emergency service time (fire, police, and ambulance) is spent responding to road crashes. Charity services are an often-forgotten emergency response, and are needed to help road victims with a raft of emotional, practical and procedural challenges that threaten their welfare and wellbeing. Support for road victims reduces the risks of poor mental health and other poor outcomes, such as unemployment and suicide.³⁹ More, and very significant, NHS resources are expended caring for people with respiratory and other diseases caused by air pollution due to traffic.

Infrastructure investment

“High quality infrastructure is crucial for economic growth, boosting productivity and competitiveness.”

Rishi Sunak

Safe and healthy mobility contributes to opportunities for investment.

Roads of all kinds, and our civic spaces, are key strategic infrastructure, providing an opportunity for 'quick to shovel' cost-effective, high-employment density schemes as part of the post-covid recovery. Roads need to be assessed for risk and opportunities for active travel, and funding provided for measures required. Safe and healthy mobility approaches should also be embedded into urban planning.

The Department for Transport's benefit cost ratio for walking and cycling schemes is 13:1.⁴⁰

Fairness and independence

Safe and healthy mobility contributes to everyone moving around fairly and more independently. People are not prevented from moving by things such as cost, disability, or age.

Deprivation^{41,42} and ethnicity⁴³ adversely affect the level of risk experienced by road users and geographic disparities can be significant.⁴⁴ The death rates of children while walking is 20 times greater for children in the lowest social class compared with the highest social class. Deprived areas often face poorer air quality from busy through roads.⁴⁵ Investment in roads and civic spaces outside the south-east can give safe and healthy mobility wins.

By creating a safe, healthy mobility system that everyone can use, including being able to walk, cycle and use public transport, we can reduce risk in ways that give equity and provide inclusion across the population.

Good business, innovation, skills

Safe and healthy mobility contributes to reducing congestion. It also means operation of vehicles for work reasons are risk managed, to prioritise safety and reduce journeys. We efficiently connect regions to global markets, suppliers to manufacturers, imports to customers, and services to towns.

Delays caused by congestion costs the UK economy billions per year⁴⁶ and is known to increase the exposure of drivers, passengers and residents to harmful vehicle emissions, increasing mortality and placing pressure on our health services.⁴⁷

Safe and healthy mobility contributes to retaining skilled mobility professionals, working in developmental areas of global significance such as CAVs and other aspects of safe and healthy mobility at the forefront of delivery of a Safe System.

Safe and healthy mobility means our civic spaces are attractive and stimulate investment and businesses.

Walking and cycling improvements can increase retail spend by up to 30%⁴⁸ People who walk to the high street spend 40% more than those who drive.⁴⁹

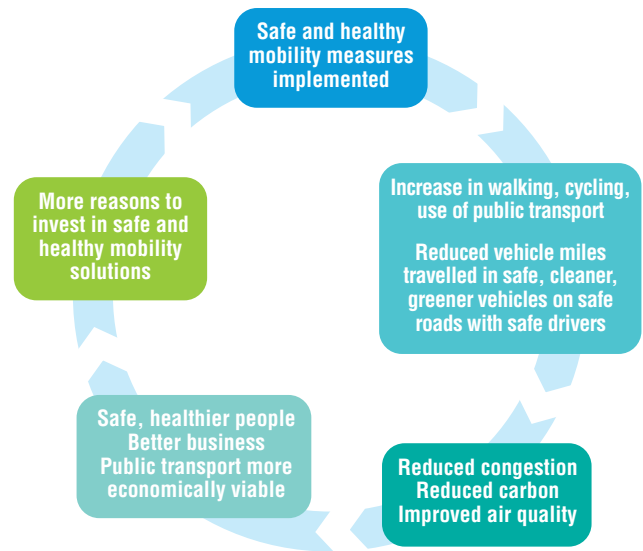


Figure 2: The virtuous circle of safe and healthy mobility

Resilient, vibrant communities

Safe and healthy mobility means our civic spaces and streets enable us to connect, work, learn and build communities.

Our towns, cities, and ways we get around are pleasant, meaning we enjoy where we live, work and move in active ways.⁵⁰ Routes for cycling, low-traffic, slow-traffic streets, and public transport, delivers attractive places people want to be and visit, and helps us make safe and healthy mobility choices rather than use private vehicles.⁵¹ Around the world cities, as well as regions, are recognising the need for safe and healthy mobility to

deliver globally-competitive and equitable places that attract talent, investment and create opportunity.

London has adopted Vision Zero⁵² alongside other powerhouses like New York, Berlin, Sydney, and Tokyo,⁵³ recognising the need for active, multi-modal, safe and healthy mobility.



Figure 3: Safe and healthy mobility as an enabler of prosperity, people's rights and Government priorities

Leadership requirement

Government’s commitment to achieving safe and healthy mobility requires a nationally-led approach. It should be directed by the Prime Minister and the Cabinet and embedded within wider Government strategies.

There must be a national strategic framework established, that delivers: strong leadership for safe and healthy mobility (governance and direction); coordination of its delivery (administration); informed by evidence-based, independent, advisory direction. This framework must encompass all responsible agencies and contributors, and consider all roads, vehicles, emergency response and road trauma care and use of roads. This requires many agencies collaborating.

A cycle of evidence-based delivery, using such an approach, is shown in Figure 4.

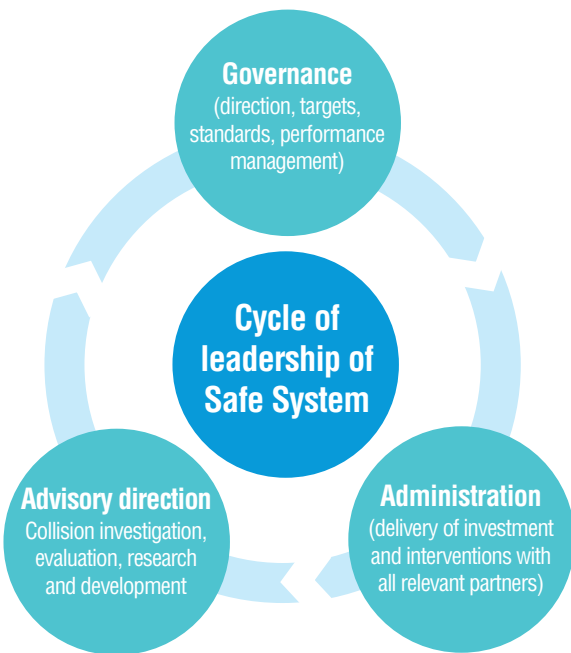


Figure 4: The cycle of delivery of Safe System for roads

To deliver the required leadership through strong governance, a new Road Safety Board (within Government) should be established as lead agency to govern and direct road safety across the UK. This Road Safety Board would direct the road safety work of the Department for Transport, which in turn should lead and coordinate the work of its many partners.

In addition, a new Road Collision Investigation and Safety Standards Agency (RCISSA) (independent of Government but reporting to Government) should be established to advise the Road Safety Board on direction. This proposed strategic leadership framework is shown in Figure 5.



Figure 5: A proposed leadership framework to achieve safe and healthy mobility



1 Governance

A **Road Safety Board** should be established to govern and direct the administration of work by the DfT and its many partners to deliver the Safe System goal and strategy and safe and healthy mobility. The Road Safety Board's work would include leading the development of the Safe and Healthy Mobility Strategy and Action Plan for Prime Minister approval. The work of the Road Safety Board will in time be informed by the directional advice of a newly-established Road Collision Investigation and Safety Standards Agency (RCISSA) (see below).

The Road Safety Board must:

1.a) Set long-term goals and interim targets based on the long-term prevention and reduction of death and serious injury and key Safe System performance indicators

The long-term goal is zero harm to people and the planet.

Targets should be set, that directly relate to the three Safe and Healthy Mobility Goals. *Example target: to reduce the number of UK road deaths and serious injuries by 50% between 2020 and 2030 (the goal of the international Decade of Action for road safety).*

Key safety performance indicators (KPIs) and related targets should be set, across all aspects of the four Safe and Healthy Mobility work areas, and of demonstrable relevance to achievement of the goals. *Example KPI: the percentage of traffic complying with safe speed limits*

The importance of performance indicators and targets is emphasised in a report from the Parliamentary Advisory Council for Transport⁵⁴ and in the Road Safety Management Capacity Review commissioned by the DfT.⁵⁵

1.b) Determine interventions and ensure requisite investment

Interventions must be determined through the Road Safety Board. This includes revising / establishing:

- **Standards, and guidance** to reach those standards. For example:
 - speed limits which address Safe System principles;
 - design standards for cycle paths connecting places;
 - standards for medical care for road crash victims at the roadside;
 - world-leading vehicle safety standards.
- **Laws or rules**, and their **policing**. For example:
 - laws stipulating active and passive safety features on new vehicles;
 - phased driver licensing;
 - an independent review of definitions of criminal traffic offences and sentencing guidelines;
 - more road policing, with more powers and resources.
- **Educational messaging** to upskill people in Safe System, and how to achieve it. For example:
 - development of school curriculum to teach Safe System;
 - development of guidance on managing work-related road risk within an organisation.

Investment required is significant, particularly in road infrastructure, but in other things too.

- Road infrastructure investment required includes, for example:
 - segregated and improved cycle paths, footpaths;
 - civic spaces redesigned to prioritise people, while still enabling access for motorised vehicles we need, such as service vehicles and public and hired transport;
 - safe road infrastructure on local minor and local major roads, which carry more than two thirds of the UK's vehicle miles;⁵⁶
 - safe road infrastructure on the Strategic Road Network and Major Road Network.

Other investments are required including, for example:

- a nationally-commissioned, standards-driven, National Road Victim Service, for bereaved and catastrophically-injured crash victims.



2 Administration

The Department for Transport is the obvious choice to coordinate the leadership of administration of work as national lead agency for the delivery of best practice road safety management. The DfT, working collaboratively with Government departments with roads responsibilities in Scotland, Wales, and Northern Ireland, should have clear delivery responsibilities and appropriate staff capacity and be fully informed of their delivery requirements by the Road Safety Board, including the targets and performance indicators against which results will be assessed. These departments must:

- **work with all relevant statutory agencies** to administer the Strategy and Action Plan, including working with all agencies with roles relating to transport, health and civic spaces (such as the Home Office, Ministry of Housing, Communities and Local Government, and the Department for Health and Social Care) and local government; assigning distinct responsibilities as required;
- **additionally engage expert, independent organisations** in roles appropriate to their expertise, including provision of funding to enable this. This includes engaging organisations working for road safety, active travel, health, emergency response, and delivery of care for road victims, including road victim support. This includes the private sector, examples being fleet operators, property developers, and corporations working in the infrastructure and vehicle technology sectors.

3 Advisory direction

Research and development is critical to the success of Safe System and has been a critical success factor in UK delivery of better results over the years. It is imperative that the Road Safety Board's governance is given continual, advisory direction based on evidence. This is best achieved through the establishment of an independent, Government funded, **Road Collision Investigation and Safety Standards Agency (RCISSA)** that informs the decision making of the Road Safety Board. Without such an agency, the Road Safety Board and the administration of Safe System by the DfT and its partners cannot function. This requires evidence-led performance management which, it is recommended, should include these 5 elements:

- collecting and collating evidence, including collision investigation but also other aspects of research, to identify causes of deaths and injuries and Safe System solutions, working alongside partners such as police;
- using evidence to advise on Safe System interventions, targets and performance indicators to the Road Safety Board;
- evaluating performance of interventions against targets and performance indicators and recommending further developments to the Road Safety Board;
- overseeing leading-edge R&D to achieve more; this includes design solutions for roads and vehicles, including Connected and Autonomous Vehicles (CAV) and their use
- undertaking public, transparent communication regarding progress, challenges, and successes regarding Safe System.



Vision, goals and work areas

Below is the proposed vision, three goals and four work areas for the Safe and Healthy Mobility Strategy and Action Plan, including further examples of interventions required.

Vision

People and goods move on our roads, and around our civic spaces, in ways that are safe and **healthy** for people and the planet.

Goals

We strive (above all other goals) to achieve three goals that define safe and healthy mobility:

1 We prevent harm from vehicles.

We work towards eradicating deaths and catastrophic injuries from crashes in the long-term and target incremental results towards this. We prevent air pollution, and decarbonise transport.

2 We achieve the modal shift.

People move safely in active ways as part of their normal daily activity, and have access to good public transport; within our towns and cities, and between places.

3 We care for victims.

Best practice help is given to bereaved and injured victims of road crashes, providing the medical and humanitarian care they need, for their health and wider wellbeing.

Work areas

The interventions Government undertakes must then be driven by evidence of what works, particularly within four work areas critical for safe and healthy mobility:



Figure 6: The four work areas for safe and healthy mobility

Below, interventions that are appropriate to focus on within these work areas are listed. Priority actions from this list are included in the Recommendations section of this report. However, neither the chosen priority actions, nor the interventions listed below, should be taken as a complete list for Government of all necessary interventions; interventions described are important, but also aim to provide direction, rather than be comprehensive or provide detail. As examples only, good public transport and best practice emergency roadside and hospital care are not covered significantly in this report, but are important interventions.

1 Safe space for all people to walk and cycle, and good public transport

In many parts of the UK, people are not yet making a modal shift because we still need **safe routes for active travel**, connecting us to where we need and want to go (whether we are going to school, work, to shop, to meet up with others, or for leisure) and to get us to public transport to take us further.

In many parts of the UK, people do not feel they live, learn or work in civic spaces that are safe to move about in, by walking or cycling or other active ways. Children are not able to play in their communities. Neighbours are not able to meet outside their homes without the noise and smell of traffic.

This means we must:

- **Review roads and how effectively they enable people to walk or cycle safely.** On many routes, people do not walk or cycle at all, or only in low numbers, because of fear of traffic, but people would choose to walk or cycle on these routes if they were designed for walking and cycling; for example, if traffic speeds were low or traffic was segregated.
- **Reallocate road space** for footpaths and cycle paths, safely segregated from traffic, taking people where they need and want to go, including to public transport.
- **Design civic spaces** to enable people to move and mingle in safe and active ways in their neighbourhoods and places of education, work, shopping, and leisure. This includes restricting traffic access in ways that still enable services. It means designing towns and cities, so we consider people principles first (see Figure 7).

- **Set design standards** for cycle paths, footpaths, crossings, and people-first civic spaces that are inclusive of everyone's needs. For example:
 - standards for cycle paths that enable fast bicycle commuting over longer distances, fully segregated from motorised vehicle space and space for people walking;
 - standards for footpaths and crossing places that enable people with disabilities and mental health problems⁵⁷ to move around safely, and that meet the needs of children and the elderly.
- **Make public transport emission-free and accessible**, including connecting it to high-quality footpaths and cycle paths, and connecting people digitally to up-to-the-minute departure and arrival information;
- **Help us all to learn.** Get safe and healthy mobility prioritised in the school curriculum and in publicity campaigns, so we all understand why these changes are so important.

PEOPLE PRINCIPLES. We...

Make errors

All humans make mistakes, sometimes.

Are vulnerable

Our bodies can be hurt by hard things, fast things, and polluted air.

Benefit from moving

When we can move our bodies, we increase health.

Have human needs

E.g., We need clean air, to move at our own speed, have places to sit.

Like a rich life

E.g., We like to stop and chat, use devices, look at interesting things.

Like an easy option

E.g., We like cycle paths from our doorsteps, and buses when we need them.

Need equity

Transport should be fair, regardless of wealth, age, gender, ethnicity, disability.

Care about things

We care about our places and each other.

Want change

People want safe and healthy communities, and are worried about traffic danger.

Figure 7: People principles, by Brake, the road safety charity, to help understanding of safe and healthy mobility needs

Designing for communities

In recent years, the approach to planning where people live has shifted from movement of cars and other private vehicles (and the inevitable creation of car-dominated streets), towards the safe and healthy movement of people and places for people.⁵⁸ Although this shift in approach was established as long ago as 2007, there is still a high degree of variability in the planning and design of neighbourhoods. As part of Government's Build Back Better strategy, more change is now happening, with direction from central Government. A National 'Model Design Code' from the Ministry of Housing, Communities and Local Government aims to help local planning authorities to ensure 'healthy, greener... sustainable and distinctive places'⁵⁹ that put local communities' needs centre-stage and that promote walking, cycling and public transport.⁶⁰ This direction creates an opportunity to accelerate positive design changes across cities, towns, and villages and enable modal shift. If we feel that we are safe, then we are more likely to walk or cycle,⁶¹ creating a virtuous circle. This is important for everyone in a community, including commuters, children and young people, disabled people, and the elderly. At the same time we must work to ensure that safety is actual; safe environments are created and not just perceived

2 Safe road infrastructure, safe speeds, and safe and clean vehicles

Safe road infrastructure and speeds

A critical and major component of safe and healthy mobility is safe road infrastructure and speeds that ensure everyone's safety (drivers, riders and those walking and cycling). This requires investment in footpaths and cycle paths and also many other road safety measures that are known to be highly effective and cost beneficial, ranging from crash barriers to lower speed limits.

To achieve safe and healthy roads, we must:

- **Review the multiple functions of roads** against Safe System principles, ensuring we are considering the needs of people to walk and cycle safely, as well as the safe movement of people and goods by vehicles
- **Fund and deliver life-saving, proactive, road treatments** (measures to lower risks of death and serious injury and enable people to move in safe and healthy ways). This could mean one or more of many different treatments.

The urgent need at this time to review roads and invest in road treatments to improve their safety and enable walking and cycling, is addressed in a separate section of this report.

Safe vehicles

Achieving safe vehicles of all kinds, from cycles, e-scooters, cars, vans to large goods vehicles and buses is pivotal to Safe System. The evidence is unequivocal regarding the effectiveness of vehicle safety standards and regulations over the past two decades; they have been the largest single contributory factor to preventing deaths and injuries on UK roads.

There is significant potential to improve further. During the next decade, technology can transform the UK's vehicle fleet and how people and goods are moved. Harnessing new vehicles and services, such as zero-emission automated buses, to give us safe and healthy mobility benefits, requires a proactive Government strategy and significant planning. New forms of "micro-mobility" (such as e-scooters and hoverboards) offer new options and pose new challenges.

The regulation of vehicles has an important role to play alongside consumer information and industry innovation. Regulation enables industry to establish cost-effective and world-leading solutions. Government can also help improve vehicle safety and emissions on a global scale; it is an international challenge that requires a harmonised policy approach.

This means we must:

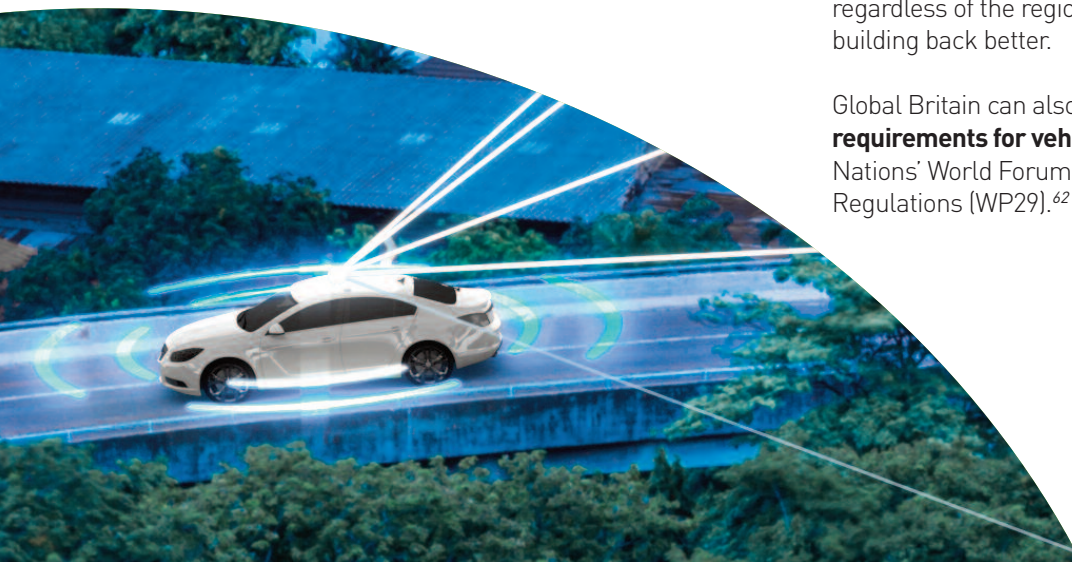
- Be a world leader in **progressing safe, clean vehicles and decarbonisation**, through targeted investment in research and development of innovation and technology, including CAVs.
- Be a world leader in the safety and environmental **regulation and standards of the UK vehicle fleet**, including CAVs. Regulation and standards must match or exceed those adopted in the European Union.
- Help the UK economy by **creating high-value scientific and engineering jobs** to deliver tomorrow's safe and healthy mobility services and help export these services to the world.

Proactive initiatives today will help UK industry to remain competitive with respect to the challenges of simultaneously developing zero carbon and safe vehicles, supporting the transition to CAVs. The vehicle safety regulations that must be adopted in 2022 in the UK to save lives and provide international leadership are:

- **Advanced Emergency Braking** protecting vehicle occupants and pedestrians/cyclists
- **Emergency Lane Keeping** helping drivers to avoid inadvertently leaving their carriageway
- **Intelligent Speed Assistance** supporting lawful driving
- **Helping drivers to keep focussed:** Driver Drowsiness and Attention Monitoring, Advanced Distraction Recognition, and Driver Readiness Monitoring for Automated Driving
- **Event Data Recorders (EDR)** for all vehicles so crucial lessons can be learned and future collisions and injuries prevented
- **Reversing Safety** – cameras or detection systems for all vehicles
- **Tyre pressure monitoring**
- **Direct Vision and Pedestrian and Cyclist detection** and warning systems for trucks and buses
- **Improved car and light van protection** for pedestrians and cyclists in the event of a collision
- **Improved car and light van front and side impact occupant protection**, which does not disadvantage women and older people

There is also a need to **level-up the provision of vehicle standards** across the UK. This includes harmonising policy decisions surrounding low emission zones and zero emission public transport: and introducing bus safety standards and direct vision requirements for HGVs. Providing equitable, safe, and healthy mobility for all, regardless of the region's economic prosperity is key to building back better.

Global Britain can also help **advance minimum requirements for vehicles globally** through the United Nations' World Forum for Harmonisation of Vehicle Regulations (WP29).⁶²



3 Safe standards for drivers and for organisations managing vehicles for work

The required emphasis in a Safe System on infrastructure and technology (roads, vehicles, speeds, and safe paths and places for people to walk and cycle) does not negate the need for a focus on people's compliance with Safe System, including, particularly:

- people who drive vehicles of any type, either for work or personal reasons; and
- people involved in the movement of goods, or people, for occupational reasons. This could be for all kinds of reasons, from school trips by bus, to long-distance movement of freight by lorries.

Drivers

For many adults, driving is still a part of our daily lives, and the most high-risk activity that most of us do. Driving is still an understandable aspiration for many young people (although not all). Driverless vehicles are not (yet) here. There is much that can still be done to help drivers contribute to Safe System through understanding what it means, being aware of risks and hazards, and complying with rules. To help drivers, we must:

- **Enable drivers to make the modal shift**, through building safe routes for them to walk and cycle and providing accessible public transport;
- Develop **vehicle standards that help drivers be compliant and identify hazards**. For example, electronic vehicle systems that assist drivers to belt up, stay below speed limits, and switch off their phones. For example, improving commercial vehicle drivers' direct field of vision through bigger cab windows;
- **Implement regulation, enforcement, and education** that is evidenced to help driver compliance and risk awareness. This could mean, for example, lowering the alcohol limit for drivers in England and Wales, increasing traffic policing including giving police the power to randomly test for impairment, and educating drivers that even low amounts of alcohol impairs;
- **Prioritise the need to protect young drivers**, who have least experience and higher risk of crashing and killing themselves and others. There are opportunities for a more phased approach to licensing (often referred to as Graduated Driver Licensing). It is estimated this would save more than 400 deaths and serious injuries a year;⁶³

- **Educate**, through the school curriculum, about Safe System, road casualties, air pollution, driver responsibilities, modal shift, and the contribution of traffic to climate change. Educate young people in ways that help them consider options, including delaying learning to drive or not driving;
- The Government **Think! Campaign**, and other road safety campaigns by Government and Local Authority Road Safety Partnerships, should promote Safe System and working 'towards zero'. Driver offender education schemes should promote understanding of Safe System as well as driver safety. Other community-based educational initiatives that benefit from Government support, including those led by NGOs, such as **Road Safety Week** organised by Brake,⁶⁴ should promote Safe System and the role we can all play, including the work of professionals towards Safe System.

Work-related road risk

Businesses can be crippled by the cost of crashes involving their vehicles, resulting in killed or injured employees, lost hours' work, hikes in insurance premiums, damaged vehicles, prosecution and civil claims, and many other costs. Work-related Road Risk (WRR) management can save significant lives, and save businesses money. To help organisations, there is a requirement for:

- **Standards and Codes of Practice** for WRR management in organisations and businesses of all sizes, utilising existing guidance such as Driving at Work⁶⁵ by the Health and Safety Executive and by initiatives such as Global Fleet Champions, and as recommended by members of the United Nations' Road Safety Collaboration;⁶⁶
- **Standards for local Government**, to help management of WRR in cities and towns, such as Transport for London's Bus Safety Standard,⁶⁷ the Direct Vision Standard and HGV Safety Permit⁶⁸ and standards relating to fleets used by Government agencies;
- **Regulation** relating to commercial vehicle operation within an WRR framework, as well as the opportunity to update the Health & Safety at Work Act to include work-related road journeys;
- **Enforcement agencies, appropriately resourced**, with the expertise and equipment they need to identify, investigate and prosecute organisations operating vehicles in ways that endanger;
- **Organisations to be required to monitor and report on incidents** involving vehicles operated on their behalf, and to do so within the existing RIDDOR⁶⁹ reporting system (which requires organisations to report injuries and dangerous incidents);

- **Greater accuracy in police reporting of numbers and types of crashes that involve vehicles at work** and using this information, and findings from the RCISSA, to inform WRR actions;
- **Education and training** about WRR management for businesses, funded by Government and delivered by the HSE and leading partners such as Global Fleet Champions by the charity Brake⁷⁰ and Driving for Better Business by Highways England;⁷¹
- Utilisation of the UK's knowledge to provide expertise regarding WRR and commercial vehicle regulation abroad, particularly to **assist the poorest nations** to prevent crashes involving buses and lorries.

As road transport continues to evolve, emerging risks such as CAVs for hire or public transport, last mile deliveries, vehicles used in the Gig Economy, e-bikes and (potentially) e-scooters used for work-related journeys, should all be included in WRR management obligations.

4 Excellence in collision investigation, and excellence in care for road victims

The post-crash response requires excellence; excellence in how we investigate collisions and identify means to prevent them, and excellence in care for road victims. This is the appropriate, evidence-finding, and humanitarian response to failure of a system to be safe.

Collision investigation must be a core activity within the RCISSA. It must:

- **Establish standards for collision investigation**, to identify causes of death and serious injury in road crashes, not just crimes, to inform Safe System solutions needed, building upon existing crash investigation expertise held already in the UK;
- **Utilise skilled collision investigators** to lead collision investigation and causation identification;
- **Further develop evidence collection regarding the types and severity of injuries** and their long-term impact on people, including partnering with the Trauma Audit and Research Network, which records injuries from hospital data.⁷²

RAIDS (which stands for Road Accident In-depth Study programme)⁷³ is an example of an important, existing and acclaimed research programme carried out for the Department for Transport, by transport research agency TRL, investigating evidence from crashes specifically to identify their causes.



Road victims must be cared for. We must:

- **Ensure we have excellence in the emergency response, hospital care, and rehabilitation care** for road victims, including continued funding of Major Trauma Centres and development of rehabilitation, through work such as that undertaken by the National Rehabilitation Centre.⁷⁴
- **Deliver standards-driven, levelled-up, victim support for bereaved and catastrophically-injured road victims** by commissioning of a National Road Victim Service. (See opposite.)
- **Provide additional funding** for other services that road victims often need as part of their care, particularly: social support services such as peer support; mental health assessments and treatments; bereavement counselling; services for families with children and young people; services for disabled people.
- **Ensure police are funded to deploy a Family Liaison Officer** in all cases of bereavement or catastrophic injury, who is trained to undertake their police duties with particular concern for a family's situation.
- **Ensure victims of road crashes are given the status and rights they deserve** within the Victims' Code and across the Criminal Justice System, equivalent to the status given to victims of homicide, and regardless of whether a crime is proven or not.

National Road Victim Service

The National Road Victim Service (NRVS)⁷⁵ is a UK-wide service operated by the charity Brake⁷⁶ helping bereaved and catastrophically-injured road victims and their families. It is funded by the Department for Transport, Scottish Government, Police Service Northern Ireland and Foreign, Commonwealth and Development Office for 21/22. Help is provided via a dedicated, specialist, professional NRVS caseworker from day one onwards, who delivers and coordinates emotional, practical and procedural care, for as long as necessary, to support welfare and wellbeing.

The NRVS caseworker assesses a victim's needs, safeguards them, delivers care directly, and also helps a victim to access additional community services they require, while retaining the victim in the care of the caseworker until safe exit, often after many months or more than a year.

The NRVS is standards-driven, utilising a psychological trauma-informed best practice approach used to help families bereaved by disasters.⁷⁷ All police forces are recommended by official police guidance to distribute Brake's NRVS information packs to bereaved victims at the time of the crash.⁷⁸

Funding of the NRVS by Government (£0.45m in 2021/22) enables administration and standards setting by the NRVS and employment of 4.2 caseworkers who help in about 700 cases a year. Roll out of at least 50 caseworkers is required, spread across police force areas to deliver care, including face-to-face care, to many more victims of bereavement and catastrophic injuries; excepting in a few areas where NRVS caseworkers are already Police and Crime Commissioner funded, or alternate local services exist.

As a comparison, Government funding given to the England and Wales Homicide Service is £3.4m per year to help homicide victims. Both services work similarly.



Scaling up investment

There is a significant opportunity for Government to prioritise investment in safe and healthy mobility as part of its commitment to investing in infrastructure and many other goals that work to bring prosperity; such as innovation and net zero carbon. When considering investment levels, Government should consider:

- its safe and healthy mobility vision, goals and targets;
- the urgency of tackling the climate crisis;
- the large costs of: road crashes and casualties (more than £33.4 billion, see Table 1); deaths and illness from respiratory disease; poor health from inactivity; congestion; and other poor economic outcomes that result from lack of safe and healthy mobility;
- benefit to cost outcomes for safe and healthy mobility investments, including the value of all benefits, ranging from prevention of crashes and casualties, to increases in the amount people spend in shops when travelling in active ways.⁷⁹ The Department for Transport's benefit to cost ratio for walking and cycling schemes is 13:1.⁸⁰ Modelling by the Road Safety Foundation calculates a benefit to cost ratio in casualty reduction alone of more than 3:1 for road safety treatments on roads;
- income currently available for expenditure, including (but not necessarily confined to) income received by Government from road transport (which includes c.£28 billion in fuel duty and £6.5 billion in vehicle excise duty in 2019/20^{81, 82} and additional income streams, one example being driver offender training courses);
- how budgets are currently being allocated, and whether this best meets safe and healthy mobility goals. At present, Government spending includes £27 billion plans for England's Strategic Road Network;⁸³
- future income streams, and how these will change if safe and healthy mobility is achieved.

Government should then make top-line strategic, investment decisions that prioritise a Safe System and achieve safe and healthy mobility, based on best practice and evidenced need.

It is recommended that consideration is given to levelling-up; with funding levels highest for poorer regions of the country.

Crash severity	Cost Elements (£000,000)						Total
	Casualty related costs			Crash related costs			
	Lost output	Medical and Ambulance	Human costs	Police costs	Insurance and admin	Damage to property	
Fatal	1,238	12	2,439	37	1	22	3,748
Serious	702	422	4,790	60	5	144	6,124
Slight	335	142	1,595	61	13	334	2,480
All injury crashes	2,275	576	8,823	158	19	500	12,351
Damage only crashes	0	0	0	79	121	4,203	4,403
Non-fatal crashes not reported	2,077	1,096	12,401	0	42	1,081	16,698
All Crashes	4,353	1,672	21,225	237	182	5,783	33,452

Table 1: Estimated total value of prevention of crashes, Department for Transport⁸⁵

The value of prevention of road crashes in Great Britain is estimated by Government to be £33.4 billion.⁸⁴

Without doubt, a significant investment opportunity is road infrastructure. This is addressed in the next chapter. However, there are many other safe and healthy mobility investment opportunities that can deliver savings. To give three examples:

- the establishment of the RCISSA (delivering vital learnings to the Road Safety Board to inform strategy development);
- the commissioning of a rolled-out National Road Victim Service⁸⁶ (delivering benefit to cost savings in police time, mental health care, and other community service use.);
- phased driver licensing, which, it is estimated by TRL, would save £200m a year in saved lives.⁸⁷

Road reviews and safety investment

Designing Safe System roads means risk is addressed proactively through good design before life is lost and catastrophic injuries sustained, and people can move in safe and healthy ways, including walking and cycling. New roads can be planned and designed for safe and healthy mobility and be self-explaining and forgiving. However, for the most part, our road system has evolved over time, during which safety has not received equal consideration as other objectives. Implementing Safe System gives us a new challenge; to make existing roads 'Safe System compliant', meaning any crash on these roads will not lead to death or serious injury and people can move in active ways.

Making existing roads Safe System compliant is a significant task, requires road treatments and will take time. Consequently, the approach must be strategic and prioritise work to deliver maximum outcomes for safe and healthy mobility.

There are evidenced, Safe System methodologies for reviewing the safety quality of roads (such as the methodology used by the charity iRAP⁸⁸ and other additional measurement tools such as Healthy Streets Indicators)⁸⁹ to determine required treatments.

As well as treating roads, performance indicators must be set to measure risks still faced and whether people and goods are moving in safe and healthy ways; for example, performance indicators relating to vehicle speeds, levels of walking and cycling, and air quality.

Designing a Safe System road network includes:

1. Reviewing Road 'functional hierarchies'

(see definitions) against Safe System principles to achieve safe and healthy mobility. The aim is to ensure that national road hierarchy matches road function with speed limits and self-explaining and forgiving road design and layouts to enable the setting of standards for consistent and effective road treatments (see definitions) for safe and healthy mobility.

2. Reviewing speed limits and speed management approaches

to take account of human vulnerability. Decisions about speed limits are dependent on a review of a road, its identified functions, and the treatments that are possible on a road. For example, if it is not possible to engineer a single carriageway rural road to make it safe for cycling (e.g., by building a segregated cycle path), but cycling is an identified function on a road, then a lowered speed limit is likely to be appropriate.

3. Providing facilities to enable safe, active travel.

Survivability of pedestrians and cyclists reduces sharply at impacts above 20mph. Where speeds are higher than this, and the functions of the road include walking and cycling, we must provide quality facilities (for example, segregated paths) to ensure people walking and cycling are safe, and feel safe.

4. Delivering Safe System for the safe use of vehicles, for example through:

- improving 'median treatments' on undivided roads to reduce the likelihood of head-on collisions, for example, introducing median cross hatching to provide increased separation between vehicles moving in opposing directions;
- providing better run-off road protection, for example, putting in raised rib edgeline (rumble strips at the side of the road), clearing roadside hazards or putting up crash barriers;
- providing safe junction design and layouts, for example, putting in turning pockets to give safer places to wait to turn across traffic and putting in well-designed roundabouts that slow people down as they approach and help reduce severity because conflicts are not at right angles.



Strategic actions recommended:

- The proposed independent Road Collision Investigation and Safety Standards Agency (RCISSA) should have responsibility for advising the Road Safety Board on standards for Safe System road reviews, road treatments and road performance management, including key safe and healthy mobility performance indicators.
- **For the Strategic Road Network (SRN)**, there should be continuation of stretching road infrastructure safety performance metrics and a substantially-increased allocation of funds for road safety engineering within Highways England's budget.
- **For the Major Road Network**, there should be road infrastructure safety performance metrics (as per the SRN), and funding for best practice road safety improvements to reduce the risk of death and serious injury.
- **For Local Authorities**, there should be:
 - a road safety strategy included in the Local Transport Plan (or its interim review), with local targets linked to national objectives such as 50 by 30, and reflecting local strategic priorities and community concerns. This strategy must address safety on classified roads, high use unclassified roads (such as Quiet Lanes), and in neighbourhoods and civic centres.
- **For Local Authority A roads**, there should be
 - a perennial Safe Roads Fund to upgrade safety, support levelling up and aid post Covid recovery through high employment density schemes;
 - national standards and requirements to inform local planning and performance management of road safety treatments;
 - inclusion of road safety within the Local Authority Incentive Fund process. For example, asset management policies and strategies should link with and support Authorities' strategic objectives on safety, or lifecycle planning should relate asset deterioration profiles with road safety consequences to enable prioritisation.

- **For local streets**, there should be:
 - re-designed neighbourhoods and civic spaces that enable active travel (e.g., restricting vehicle access appropriately, including low-traffic neighbourhoods; e.g. 20-minute neighbourhoods, where people can live locally, with everything they need close to them);
 - national standards and requirements to inform local planning and performance management of road safety treatments.

The more funded schemes there are, the more the benefits can be evidenced, encouraging, and enabling, local Government to undertake Safe System.

Road improvements should not require people's lives to be sacrificed first

Investment in road infrastructure should be proactive. This means we invest to prevent harm and enable active travel, rather than waiting until someone has already been killed or hurt. Delaying action to improve roads until people have been killed or hurt is not a risk management approach. It is not the approach taken in any other transport sector, including aviation and rail. It is not the approach taken by reputable corporations operating fleets of vehicles on roads and appropriately risk managing their operations.

The 'business case' for investment on any stretch of road should take account of all the safety benefits as well as opportunities to enable people to move in active ways.



Modelling the savings of road investment

The Road Safety Foundation has identified the cost of start-up road safety investment packages suitable for each type of road network in Great Britain, based on average costs of treatments; and estimates of casualty reduction potential if these treatments are undertaken, demonstrating an overall x3.7 benefit to cost ratio.⁹⁰ See Table 2 below.

These investment packages, and their casualty reduction potential, can be used at the portfolio level for budgeting and planning.

RSF has presented indicative packages to improve 10% of the road network, however the timing of implementation may be flexed. For the Strategic Road Network there may also be a good case for investing in more than 10% of the network during a five-year Road Investment Strategy for example, particularly when the contribution towards Highways England's zero-harm casualty reduction goal (which aims for as close as possible to zero killed or injured by 2040)⁹¹ can be demonstrated. Road reviews, for example using the iRAP methodology, can also help inform such investments to allow further refinement. Investment packages can also be designed to facilitate levelling up, ensuring poorer regions receive additional resources.

Network	Length (km)	Number of routes	Investment	Estimated 20-year values of prevention	Estimated 20-year fatal and serious injury savings	Estimated benefit-cost ratio
England						
Strategic	894	46	£254m	£674m	1,638	2.7
Local	2,863	447	£733m	£3,358m	7,356	4.6
Scotland						
Strategic	356	10	£88m	£180m	491	2.0
Local	746	90	£188m	£551m	1,332	2.9
Wales						
Strategic	168	11	£35m	£84m	219	2.4
Local	283	35	£64m	£155m	351	2.4
Total	5,310	639	£1,362m	£5,002m	11,387	3.7

Table 2: Portfolio investment packages by network

An example of safe road investment by Government

An example of a proactive approach by the Department for Transport is 49 road improvement schemes, treating A roads and funded through the Safer Roads Fund.⁹² These schemes use the iRAP methodology to assess risk, inspire the undertaking of proactive route-based treatments by Local Authorities costing £100 million in total, and estimate the road safety impact of the schemes. It is calculated that this investment should prevent 1,450 deaths and serious injuries over 20 years, at a 'value of prevention' of £550 million, giving a benefit to cost ratio of 4.4 (for every £1 invested, there is £4.4 returned in benefits to society).⁹³

The same iRAP approach has been used across the Strategic Road Network by Highways England.⁹⁴

Local Authorities require direction from Government to expend funds on road treatments

Expenditure on roads may require additional central Government direction and support for investment, such as through a perennial Safe Roads Fund. Local Authority capacity, governance and funding for road safety have dwindled over recent decades,⁹⁵ with many road authorities without even a budget line for capital road safety remedial schemes. Although Local Authorities have statutory duties relating to road safety (taking steps to reduce and prevent crashes, promoting road safety, and securing the safe movement of traffic and pedestrians), they do not ordinarily have road safety targets. They lack personnel and capital resource to make the impact necessary.

Example of investment in safe road infrastructure in Victoria, Australia

The Road Safety Strategy and Action Plan 2016-2020 for Victoria, Australia was based on implementation of Safe System and analysis of where the largest safety improvements could be achieved. It allocated \$1.1 billion (£600 million) to a road safety investment plan, with more than 80% of the funding allocated to road safety infrastructure improvements. This included:

- \$340 million for safety infrastructure improvements on rural and regional roads;
- \$380 million across metropolitan and regional Victoria (under a 'Safe System Road Infrastructure Programme');
- \$60 million for locations in the local street network to support safer intersections and traffic calming measures;
- \$100 million on improved infrastructure for pedestrians and cyclists including segregated cycle paths.⁹⁶

The State's subsequent Road Safety Strategy, 2021-2030, aims to halve road deaths and 'put us on the path to eliminating road deaths by 2050'. This strategy continues investment in road infrastructure, stating: 'Ongoing investment in physical treatments has the ability to achieve immediate and sustainable road safety results.... installation of road-edge barriers, lane departure audible warning systems, through to red-light cameras at intersections ... are proven to work, and result in immediate impacts on road safety outcomes.'⁹⁷



Definitions List

Active travel Moving around places, and going to places, at least partially ‘under our own steam’, e.g., walking, cycling, horse riding and in ways that combine using our bodies and electricity, such as electrically-assisted bicycles.

Active safety measures and passive safety measures

An active safety measure is an intervention that aims to stop crashes happening (e.g., Advanced Emergency Braking (see below)). A passive safety measure is an intervention that aims to reduce harm in a crash (e.g., a seat belt, or a roadside barrier).

CAV (Connected and Automated Vehicles) Connected means a digital, wireless connection between the vehicle and information about things outside the vehicle, for example other vehicles, the road, the speed limit. It also can mean connection to people (for example, a vehicle’s ability to know where people are, or people’s ability to hire a vehicle using their phone). The term **V2X** is used as an abbreviation for vehicle connectivity. V2X means ‘vehicle to everything’, meaning all potential connections to and from a vehicle; from other vehicles, infrastructure, mobile devices, charging grids and so on. **Automated** means a motorised vehicle has systems that take responsibility for some (or all) driving tasks. For example, Advanced Emergency Braking that identifies there is a hazard ahead and automatically brakes to prevent or reduce the severity of a collision.

Civic spaces The ‘space between our buildings’, in urban centres and neighbourhoods.

Functional hierarchy This term is used by planners to describe roads by their purpose(s) within the road hierarchy. From a safe and healthy mobility perspective, the function of roads (their purpose) includes what traffic they need to support (both motorised and non-motorised) and how that traffic needs to be able to move safely. The functions can be about movement of people and goods from place to place but can also relate to societal functions (e.g. children can move around neighbourhoods, neighbours can chat, people can exercise, people can shop).

The function of a motorway is therefore different to the function of a road that connects towns, or a rural feeder road that runs from a village to a connective road, or a street on a housing estate, or a town’s shopping district. Understanding the function of roads means roads can then be managed and treated to enable those functions to happen safely.

For example, if a function of a road is to provide safe access for cyclists to a train station as part of their commute, then the road must either provide separate facilities, or vehicle speeds must be lower than 20mph. The overarching aim is to ensure that national road hierarchies successfully match road function with speed limits and self-explaining and forgiving road design and layouts to enable the setting of standards for consistent and effective road treatments (see next page) for safe and healthy mobility.

Establishing roads’ functional hierarchies does not mean just surveying who is using roads (although this can be important information). For example, an important function of a road may be **to support** cycling, but if the road is currently not safe for cycling there may be no or few cyclists on it (due to fear of traffic).

Good public transport This means public transport of all kinds (buses, trams, trains) that ‘works for people’. It provides frequent services to many destinations. It is efficient (on time, when we want it), affordable, clean, and can be used by everyone, including people with disabilities. Good public transport is integrated with active travel; we can walk or cycle safely to a bus stop or train station and there are places to park our bicycles. A definition of public transport may also include transport for hire (taxis).



Local Authority roads The roads that most vehicle miles are travelled on (about two thirds).⁹⁸ They are the responsibility of Local Authorities. This includes roads we regularly use, often called:

- Local minor roads – the smaller roads between our homes and town centres
- Local major roads – the bigger roads that connect us further, from place to place (but only the ones that are not in the Strategic Road Network (see right))

Modal shift Getting people out of cars, and some of our goods out of vans and lorries, and using active travel and public transport or other less-polluting ways of getting around, such as e-scooters or hoverboards.

Road treatment Something, or more than one thing, that is done to a road to enable safe and healthy mobility, after a review of the road against Safe System principles, including establishing the functional hierarchy (see above). Treatments depend on the road. Examples of treatments: a signal controlled pedestrian crossing that lets people cross more frequently and gives people more time to cross; a segregated cycle path on a road from a village to a nearby town; cross hatching in the median to provide greater separation between opposing traffic flows, a 20mph limit on an urban road; clearing roadsides on a rural road.

Strategic Road Network Our motorways and also some other roads with the highest motorised traffic flow (some of our 'A' roads). About a third of vehicle miles are travelled on these roads. They are managed by Highways England, The Welsh Government, Transport Scotland, and the Department of Infrastructure Northern Ireland.

Work-related Road Risk (WRR) management

The responsibility of organisations (in the private and public sectors) to manage the movement of people and goods in ways that prevent harm. This requires risks to be assessed, and actions taken, for example buying or leasing the safest and electric vehicles, reducing vehicle miles travelled, requiring drivers to switch off mobile phones, and ensuring vehicles are maintained to the highest standards.



Appendices

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Contributors

This report is contributed to by specialists in safety and mobility as listed below.

Mary Williams OBE

Mary is chief executive and founder of Brake, the road safety charity, established in 1995 and committed to zero harm on roads. Brake is known for coordinating national Road Safety Week, researching public perspectives on road safety, speaking out for road safety and engaging civil society to make a difference within people's spheres of influence, for example through its Global Fleet Champions campaign which works with thousands of employers to promote work-related road risk management, and for example through its projects in schools.

Brake also founded and delivers the UK's National Road Victim Service, providing emotional, practical and procedural help to victims affected by bereavement and injury in road crashes through provision of professional caseworkers, supporting victims' welfare and wellbeing using best practice, trauma-informed methodologies and joined-up care delivered in partnership with the police and other community agencies. Brake has also delivered caseworker-led care to families bereaved by COVID-19 and other sudden causes as a pandemic response. In 21/22, Brake received funding from four central government departments; Department for Transport, Scottish Government, Department of Health and Social Care and the Scottish Government.

Mary is a seasoned contributor within the road safety field, presenting evidence to parliamentary committees, ministerial meetings, speaking at national and international events and in the media. She is an experienced researcher and writer on topics relating to road safety and victim support, and the lead writer of road victim support literature for the UK for both adults and children.

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Jeanne Breen OBE

Jeanne has worked in road safety for more than 40 years, concerned throughout with the identification and promotion of research-based approaches to achieve better road safety results. Prior to working as an independent safety specialist and with a research background at the Birmingham University's Accident Research Unit, she helped formally establish and was the first Executive Director of both PACTS (1982-1993) and the European Transport Safety Council (ETSC) (1993-2003). She advises governments in low, middle and high-income countries on good practice road safety management and investment, Safe System strategy and project design. She has assisted with EU road safety strategy review and development, research evaluation and has developed Safe System training courses. She has worked extensively with the World Bank, European Commission, International Transport Forum/OECD, World Health Organisation and the World Road Association (PIARC) and has co-authored numerous capacity and performance review and global road safety management guidance. She is currently a member of the PACTS Board of Trustees and recent UK work includes road safety management capacity review for the DfT and review of Highways England's safety investments for the Office of Rail and Road.

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Dan Campsall FCIHT MCIM

Working in the road safety sector since 2003, Dan has led a wide range of multi-award-winning projects and programmes, commissioning and participating in research led intervention design, developing capacity building programmes and building effective multi-sectoral partnerships. Internationally, Dan has developed a professional network that includes working with global institutions such as the World Health Organisation and has had considerable involvement with the NGO sector. His work involves leading consortia of consultants and researchers to map institutional capabilities, national strategy and to build capacity in the non-governmental sector.

Dan serves as company chairman of Agilysis, founding director of Road Safety Analysis, and is a trustee of the Parliamentary Advisory Council for Transport Safety (PACTS); he also serves on the judging panel for the Prince Michael International Road Safety Awards. He is a fellow of the Chartered Institution of Highways and Transportation and a member of the Chartered Institute of Marketing.

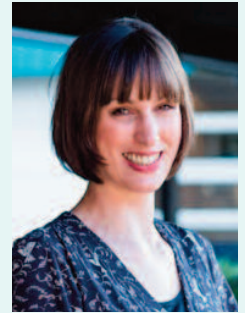
www.agilysis.co.uk



Dr Suzy Charman

Suzy is Executive Director of the Road Safety Foundation, a road safety charity established in 1986, that aims to help reduce road trauma through employing the Safe System philosophy by:

- identifying investment packages likely to give high returns and analysing the safety performance of roads over time;
- providing the approach, tools and training necessary to support road authorities in taking a proactive approach to road risk reduction;
- Undertaking research to progress knowledge and policy.



Over the past 20 years, the charity has maintained a particular focus on safer road infrastructure through the establishment of the European Road Assessment Programme and the development of the International Road Assessment Programme (iRAP) and its protocols for measuring infrastructure safety. The RSF is responsible for supporting the Road Assessment Programme in the United Kingdom, and its work serves as a model of what can be achieved, with key research and innovation being replicated in RAP programmes across the world.

Recently, the charity has:

- supported DfT's Safer Roads Fund carrying out surveys of the 50 highest risk local 'A' roads in England, training local authorities, and modelling the impact of schemes that together made the £100 million investment portfolio;
- provided support and technical insight to Highways England in their SRN-wide iRAP initiative;
- undertaken an independent review for the Office of Rail and Road into how Highways England prioritises investments to improve safety outcomes on the strategic road network.

www.roadsafetyfoundation.org

Richard Cuerden

Richard is Academy Director for TRL (the UK's Transport Research Laboratory) and responsible for the company's science and engineering strategy, which underpins the mission to create clean and efficient transport that is safe, reliable and accessible for everyone. TRL is owned by the Transport Research Foundation (TRF), a non-profit distributing organisation, which funds the Academy's investment activities for the impartial furtherance of transport and related research, consultancy, and expert advice, including funding PhDs and promoting independent thought leadership. Richard manages engagement with stakeholders on programmes of collaborative research, ensures the technical quality of TRL's research outputs and supports the academic development of staff.



Richard is an engineer and has worked in the field of road transport and vehicle engineering for 30 years. He has experience leading diverse portfolios of research and consultancy projects. These range from establishing world-leading European Union vehicle regulations that have transformed safety type approval requirements preventing thousands of deaths and injuries, to trialling and testing the potential of new and revolutionary road transport solutions for goods and people, for example leading the UK's HGV platooning trials (www.helmuk.co.uk).

Richard writes and presents scientific papers at international conferences, has experience presenting evidence to UK and European Parliament Transport Committees, and regularly contributes to various media channels.

www.trl.co.uk

David G Davies PhD FCIHT

David Davies has a background in sustainable transport, road safety and public sector scrutiny. His PhD in transport planning led to his appointment as transport policy officer at Birmingham City Council. He then worked as a consultant in UK and Hong Kong before forming David Davies Associates, which specialised in sustainable transport, including five years at the Transport Research Lab and the DfT.

In 2003 he moved to the Audit Commission, undertaking transport and environment inspections and performance assessments of local authorities.

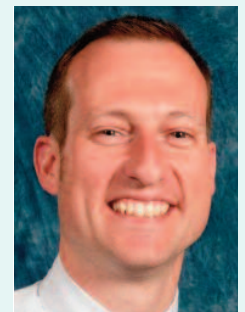
In 2007 he moved to the House of Commons Transport Committee, managing inquiries into aviation, high-speed rail, ports and bus competition. He has been the Executive Director of PACTS since January 2013 where he promotes effective casualty reduction measures and integration of safety with wider environmental and sustainability policies.



www.pacts.org.uk

Professor Nick Reed

Nick has worked at the cutting edge of transportation research for more than fifteen years. From early studies using driving simulators to examine driver behaviour, he has since been instrumental in connected and automated vehicle projects in the UK to the value of more than £50m, including leadership of the GATEway project in Greenwich and the creation of London's Smart Mobility Living Lab. Nick was Academy Director at TRL (the UK's Transport Research Laboratory) before becoming Head of Mobility R&D at Bosch, the world's largest automotive supplier. He has since founded Reed Mobility – an independent expert consultancy on future mobility topics working across the public, private and academic sectors to deliver transport systems that are safe, clean, efficient, ethical and equitable and including projects for the European Commission, DfT, TfL, BSI and RSSB. Nick is also a trustee of the road safety charities Brake and Roadsafe and a non-executive director of FISITA, the international association for mobility engineers.



www.reed-mobility.co.uk

Sarah Simpson

Sarah Simpson's 20 years in transport planning spans development planning, master planning, and infrastructure projects in the UK and overseas. From starting her career in highways design for local highway authorities, she has a reputation for collaborative consideration of road safety in planning, and people-centred inclusive design. She regularly provides advice to local authorities relating to active and sustainable transport in community and neighbourhood planning, and has overseen road safety and investigation in projects across the UK. Her opinion relating to safety in design is acknowledged in Inspectors' decisions, her work as Technical Advisor for clients progressing DCO applications, and Sarah's expert reports to legal counsel. Sarah is Transport Planning lead for Royal HaskoningDHV in the UK, and is a Fellow of the Chartered Institution of Highways and Transportation.



www.royalhaskoningdhv.com/en/united-kingdom