A Safe Systems Approach to
Road Safety in Bristol

A 21st Century Approach: A Ten Year Plan 2015-2024

BRISTOL CITY COUNCIL

Reallocation of road space to people on foot and bike

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Data from the British Crime Survey show that speeding traffic is the top rated anti-social behaviour in local communities.

Various measures have been introduced in local communities, designed to encourage car users to reduce their speed.

FOREWORD

We can all make an impact on what seems to be a set of persistent challenges around traffic and travel. How and when we travel is highly personalised, as are attitudes to risk and safety. For urban places, ease of mobility and connectivity are vital for a socially and economically vibrant place such as Bristol.

Congestion and other negative impacts such as noise, pollution, stress, decline in physical activity and collision danger are all too evident, with a cost for individuals, their friends, families, employers and the wider community. Managing these factors is not just down to local authorities, the police and other agencies, but it is also our responsibility as road users; whether pedestrians, cyclists, drivers, public transport users or, as is for most people; a combination of these options. Subtle and seemingly minor changes to travel choice and behaviour can make a real difference to our neighbourhoods and the wider city. One example is trying to reverse the long term decline in the number of primary school children walking and cycling to school. Levels of independent mobility for this age group have declined by 90% since the 1950s.

Much of this is about perceived risk, poor local connectivity and other factors such as secure bike storage, training or just breaking the habit of driving everywhere. For shorter journeys in particular, we need to see a big change in how we travel.

Safer streets is the objective of this new emphasis – making neighbourhoods safer for people of all ages. We are determined to ensure that we take all necessary measures to improve the health and safety of all who live, work and play in Bristol.

Mayor George Ferguson

Cllr Mark Bradshaw
Labour Co-op Cllr for Bedminster
Assistant Mayor for Place

1. INTRODUCTION

Safe mobility around our city is central to the quality of life of all who live and work in Bristol. This 10 year Plan sets out our vision for road safety and the policies we will pursue to achieve our goal. The citizens of Bristol should be able to go about their daily lives without being placed under undue risk of injury from traffic. A Safe Systems approach to road safety is based on the principle that life and health should not be compromised to meet the demands of mobility. Bristol should be a city where it is safe for a 10 year old child to walk independently to school.

Delivering this Plan requires integration with wider areas of transport and other public policies. In transport research, the volume and speed of motor vehicle traffic can be considered two of the fundamental causes of collisions, for all road users. Exposure to moving vehicles is a fundamental cause of road traffic deaths and injuries. As such, a reduction in the amount of motor vehicle kilometres driven would result in a reduction in the likelihood of collisions for all road users. Such a change would support Bristol's status as the European Green Capital for 2015 and the wider ambitions set out by the Elected Mayor. As part of a Vision for Bristol the Mayor has stated that Bristol should be a city where public transport provides an affordable quality alternative to the car, where streets are no longer clogged with traffic, our air is cleaner, and it is increasingly attractive to walk and cycle[1].

Bristol needs to be a place where the cared for and the caring, young and old, are respected and valued members of our society; and where living healthy, happy and safe lives is the shared reality for every citizen.

We can achieve this by:

Working with partners and operators to improve the cost and quality of our public transport.

Continuing to improve our cycle network towards best European standards.

Reducing emissions across the city to help protect people from the harm caused by poor air quality.

Removing the blight of commuter congestion and improve flows for public transport and those who need to drive.

Promoting walking and cycling as safe, pleasant and convenient alternatives to the car.

Continuing improvements to layouts to create civilised spaces and people friendly streets with an emphasis on safety for children.

[1]http://www.bristol.gov.uk/page/mayor/vision-bristol-glance#jump-link-4

Improving the attractiveness of streets to pedestrians and cycle users can increase use of these modes.

Reducing danger to the most vulnerable road users also reduces road dangers to all road users.

Reducing road danger can help more people to choose to be active as part of their routine journeys as well as for leisure trips.

Separating walking and cycle routes from motor vehicles reduces risk.

2. THE EXISTING BURDEN FROM ROAD TRAFFIC CASUALTIES

In 2013, 12 people were killed in road collisions in Bristol. 94 others were seriously injured. Apart from the obvious personal impact of these incidents, based on Department for Transport figures, the economic cost of these collisions for Bristol is over £40 million.

The risk of death or serious injury on our roads is not equally distributed. Those inside vehicles are significantly protected by the many safety features to ensure occupant protection. Yet year on year those who pose little risk to other road users disproportionately bear the brunt of the casualty burden. For example, in 2013 55% of all killed and seriously injured casualties in Bristol were pedestrians and cyclists.

Killed and seriously injured casualties for 2013 comprised 40 pedestrians, 19 cyclists, 31 motorcyclists and 16 motor vehicle occupants.

If we are to create a safer, healthier, more economically resilient city the lessons from around the world are that we have to create a city in which people actively choose to walk, cycle and use public transport. Fear of injury currently deters many people from making healthy and sustainable travel choices. Reducing the fear of being injured by reducing both the perception of risk and the incidence of injury, will help reduce pollution, improve reliability of journeys; reduce delay, and support increasing levels of active travel.

Levels of deprivation are also strongly correlated with the likelihood of being injured on our roads. People in poorer communities suffer a greater burden of road traffic injuries than those in more affluent areas.

Killed and Seriously Injured in Bristol: Casualties by Road User Group 2011 to 2013 Totals (3-year average)
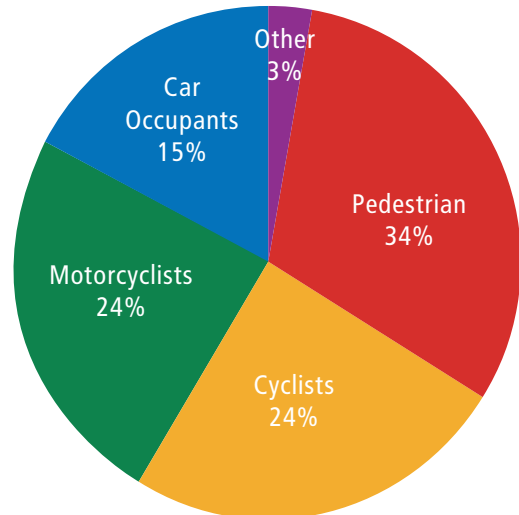
In the period 2011 to 2013, the 25 most deprived Super Output Areas in Bristol had:

16% of casualties

15% of Killed or Seriously Injured casualties

19% of pedestrian casualties

18% of child casualties and

14% of elderly casualties

Whereas the 25 least deprived Super Output Areas had:

5% of casualties

6% of Killed and Seriously Injured casualties

4% of pedestrian casualties

3% of child casualties and

7% of elderly casualties.

A further challenge lies in the changing demography of the city. Between now and 2020, the largest population increases will occur in the 0-15 age group (up by 17.6%) and the 65-74 age group (up by 13.7%). These are the two groups most at risk of pedestrian injuries. For this reason, we need to give top priority to improving the safety of walking around the city. Improvements to the environment for walking and measures to reduce speeds where people are walking will be central to the Plan.

There are other areas of concern in relation to road casualty groups. Motorcyclists, for example comprise 1% of traffic but receive 22% of all fatal and serious injuries (KSIs). Similarly, young drivers (17-24 years) comprise 12% of driver licence holders, but a disproportionate 26% of all collisions.

The data used to identify road casualties is based on police (Stats 19) data. However, a large number of injuries are unrecorded, particularly when they are less serious. Hospital Episode Statistics (HES) data are compiled by NHS records admissions as a result of road traffic injuries. To give a fuller picture, hospital data will be used alongside STATS19 to record progress in reducing the overall burden of road casualties.

Collisions, not accidents

The 1988 Road Traffic Act uses the word "accidents" to describe unplanned events on the highway resulting in death or injury. In recent years, this word has become increasingly unacceptable. "Accident" conveys a sense that the losses or injuries incurred were due to fate or chance and that they were devoid of rational explanation or predictability. "Collisions", which is the preferred term, conveys the motivation to study traffic safety and discover factors that influence the likelihood of occurrence of, and the harm arising from them

According to the British Medical Journal "injuries do not occur by chance. They are largely preventable, non-random events, and not "accidents".

There are very few traffic related deaths for which the word "collision" is inappropriate. Most collisions with the potential for harm in road transport are not accidents as such but incidents which will almost certainly have a number of causes – most often involving human error – and are therefore preventable. The most obvious contributions come from what are called the fatal four:

- *Speed*
- *Impairment through drink, drugs or fatigue*
- *Failure to wear a seatbelt or protective clothing or a helmet when on a motorcycle*
- *Distraction*

In 2013 106 people were killed or seriously injured on Bristol's roads.

People in poorer communities suffer a greater burden of road traffic injuries than those in more affluent areas of Bristol.

3. THE STATUTORY RESPONSIBILITIES OF THE HIGHWAY AUTHORITY

Under the 1988 Road Traffic Act, local authorities have a statutory responsibility for road safety. Section 39 of the Act requires local authorities to:

"prepare and carry out a programme of measures designed to promote road safety; conduct studies into accidents on roads, other than trunk roads within their area; take appropriate measures to prevent such accidents including the dissemination of information and advice relating to the use of the roads; the giving of practical training to road users; the construction, improvement, maintenance or repair of roads for which they are the highway authority."

This gives a very broad remit to local authorities since it allows approaches to casualty and road danger reduction that include education, training and engineering responses. Section(c) also requires the local highway authority to undertake preventative work in order to minimise the likelihood of a collision occurring on a new road. In other words, it is not necessary to wait for a collision to happen before action is taken. In Bristol, we have also interpreted this responsibility as applying to all existing roads as well as to the new highway network.

In addition, the authority has duties to ensure the efficient movement of traffic under the 2004 Traffic Management Act. Section 16 (1) of the Act refers to the duty placed on a highway authority to manage the road network with a view to achieving efficient movement of traffic on the network, having regard to other policy objectives. Section 16 (2) also refers to the management of disruption on the network. Section 31 also makes clear that "traffic" includes people on foot, a point endorsed by later DfT guidance which emphasised that a focus on expeditious movement should not be at the expense of a local authority's road safety objectives.

From this, it is clear that improvements in road safety complement a policy of traffic management. Collisions and injuries are a major source of unplanned disruption on the network. Effective traffic management will therefore seek to minimise the number of collisions and design roads accordingly.

The movement of traffic should not be at the expense of a local authority's road safety objectives.
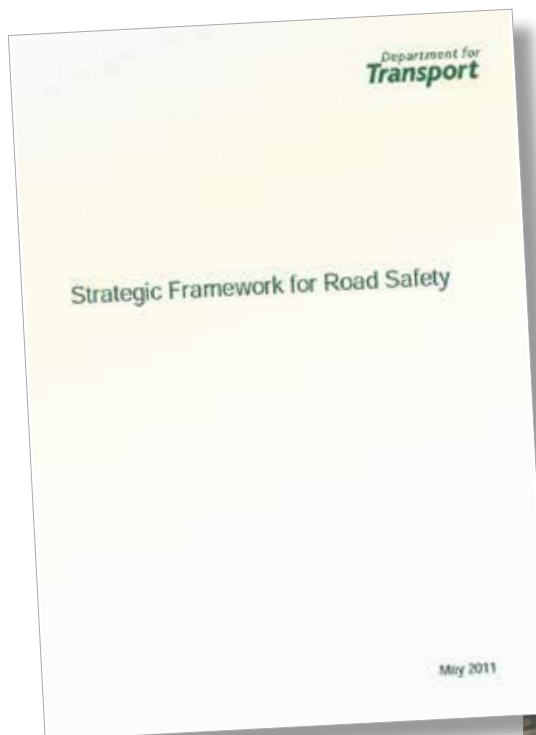
" ...the authority has duties to ensure the efficient movement of traffic under the 2004 Traffic Management Act."

Improving safety can be best achieved by considering all modes of traffic as an interactive system.

4. THE NATIONAL CONTEXT FOR ROAD SAFETY

The key government document setting out the priorities for road safety at a national level is The Strategic Framework for Road Safety published by the Department for Transport in May 2011.

This confirmed the commitment of the current government to continuing to improve road safety, setting as a goal the aim of "remaining a world leader in road safety". At the same time, it did not set a specific target for casualty reduction, unlike the previous targets set in 1987 and 2000. The document also set out a series of actions that the government intends to take by 2015, especially in the context of drink and drug driving and careless driving.

"Improving road safety, setting as a goal the aim of remaining a world leader in road safety."
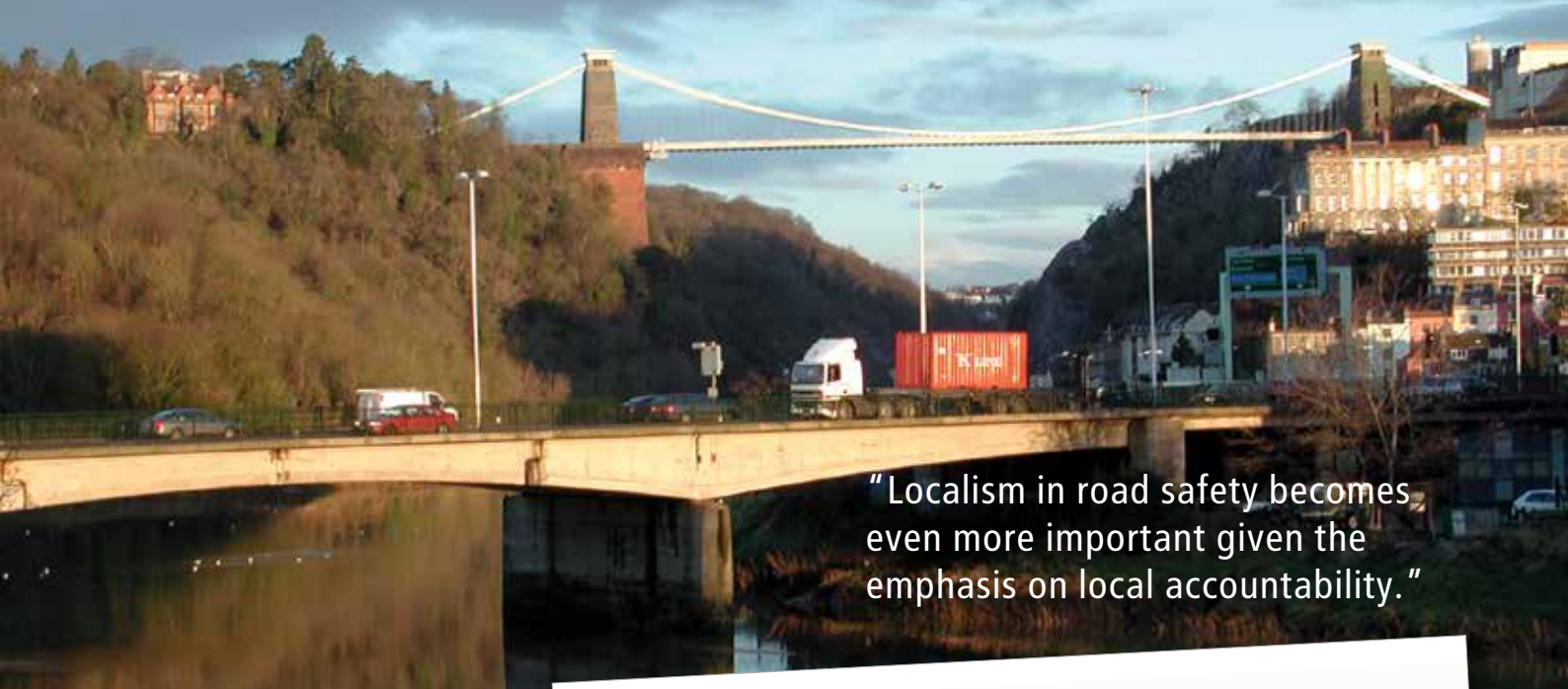
"Localism in road safety becomes even more important given the emphasis on local accountability."

The failure to set a target for casualty reduction but to suggest forecasts for casualty numbers ignored international research evidence that both a vision for safety and targets to measure performance achieve a significantly higher level of overall reduction. At the same time, the emphasis of the government on a localism agenda allows individual authorities to develop their own approaches to road safety.

Localism in road safety becomes even more important given the emphasis on local accountability. For local authorities, a key proposal in the Framework was the establishment of a comparison website containing data about road collisions within a highway authority and intended to help local residents to hold councils to account for their actions. The site was launched in March 2013:

http://road-collisions.dft.gov.uk/lha

Comparative data on injuries is available from www.hsic.gov.uk
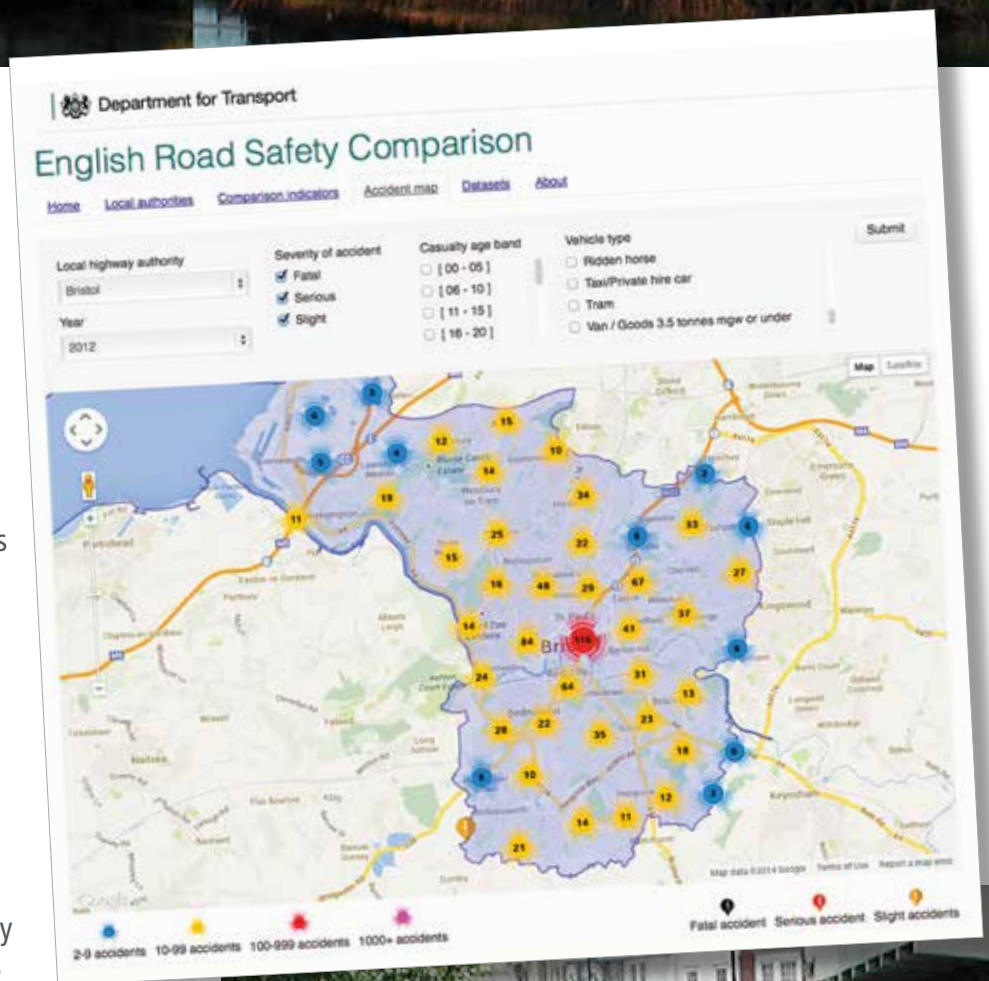
5. WHAT IS A SAFE SYSTEM APPROACH?

"This conference notes the progress towards the elimination of deaths that has been achieved through the adoption of a safe systems approach in the Swedish Vision Zero and the Dutch Sustainable Safety. It believes that Great Britain's approach to road safety over the next decade needs to be informed by a similar ethical approach. Where road deaths are preventable and where the means to prevent them is identified and cost-effective where this is measurable, society has a moral and economic responsibility to act for the public benefit. Good safety management places an obligation on those in authority to manage risks and prevent needless incidents and casualties. It also places a responsibility on those using a network to comply with the law and not to import risk into the system."

Parliamentary Advisory Council for Transport Safety

*Source: Tackling the Deficit; Checking the health of road safety, PACTS 2011 p.16*

Almost all road deaths and injuries are preventable events. What is required on our roads is a system that minimises both the likelihood of collisions occurring and the consequences of such events when they happen. To achieve a safe system, we need to design a safe environment in which people can move around. Roads must be tailored to human limitations and to help the road user to behave with due care and respect towards both him/herself and others.

This has been recognised for many years in the work environment where we have sought to reduce risk to levels as low as reasonably practical, seeking to identify both the likelihood of an occurrence and the consequences of such an event and taking steps to reduce both.

In road safety that should lead us to adopt four key principles:

- People are the measure of all things – human capacities and their limitations must be central to our understanding of the road network. Human beings will always make unintentional errors, however well informed they may be. It is important to design an environment in which such behaviour cannot lead to collisions or, if this is not possible, that any collisions do not cause serious injury. The transport system should give priority to the vulnerability of human beings and should not focus on the encouragement of vehicle mobility at any price.

- It is essential to reduce the latent errors in the system – errors can be designed out of the system if we understand more about human behaviour.

- Physical vulnerability must be considered at all stages of the design process – human beings can only sustain limited amounts of impact and vehicle speeds will need to be limited in those parts of the road transport system where vulnerable road users are present.

- Every road user needs to be helped to behave with due care and not to indulge in unsafe or high risk behaviours – roads policing and the encouragement of compliance cannot be ignored.
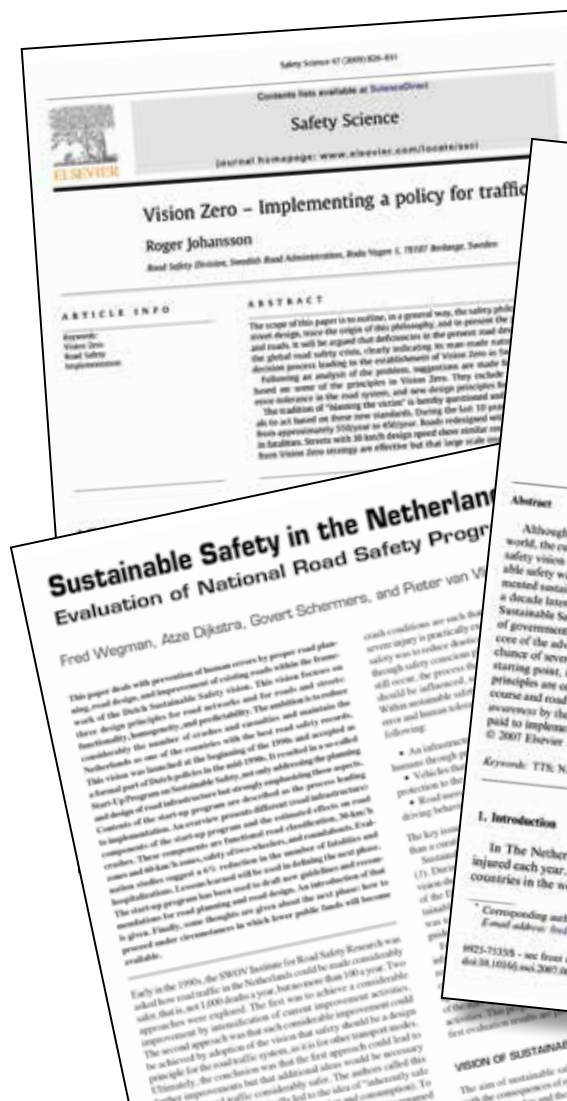
> "Where road deaths are preventable society has a moral and economic responsibility to act for the public benefit."

In summary, the safe systems approach contains a long-term aspiration for the elimination of death and serious injury from the road network. It acknowledges that human error will always be a feature of road user behaviour but that such errors on the road network should not have catastrophic consequences.

The safe systems approach also acknowledges that safety management should be aligned with broader social, economic and environmental goals. Such an approach has been applied across the world, originating in Sweden and The Netherlands, and now implemented in countries such as Northern Ireland, Finland, Norway, South Africa and New Zealand and in a number of states in Australia. It is the approach to road safety management advocated by the World Health Organisation and OECD.

In a safe systems approach, consideration should be given to the road safety benefits that can result from the following:

- Reducing the speed and volume of motor vehicle traffic

- Encouraging greater use of safer modes of travel such as public transport

- Minimising exposure to high-risk scenarios

- Designing the road for injury prevention

- Incorporating safety features into road design from the outset

- Developing and enhancing safer routes for vulnerable road users

- Education and training of road users

- Managing speeds to prevent conflicts

- Adopting safer vehicle standards

- Securing compliance with key road safety rules. In particular, focusing on the "Fatal Four" types of violation most associated with fatal and serious injury (speed, drink driving, mobile phones and seat belts)

As the Swedish Roads Administration succinctly summarised their Vision Zero policy aim:

> "we should be seeking to achieve five star roads with five star vehicles used by five star drivers with the resulting protection for all classes of road users, especially those who pose the least risk to others."

A systems-based approach further allows the opportunity to link with other sectors of activity such as health, employment and land-use planning. If we see road safety in this context, we can also tackle other problems associated with road traffic such as congestion, noise emission, air pollution and lack of physical exercise.

6. THE ELEMENTS OF A SAFE SYSTEM FOR BRISTOL

Bristol's Plan identifies four key elements to underpin its work and its intention to achieve a city fit for everyone's access needs. The specific actions to be taken in relation to each of these elements is outlined in the Action Plan (Appendix 1). The elements of a safe system comprise a different way of framing the traditional "4 E's" (education, engineering, enforcement and encouragement) from traditional casualty reduction approaches.

Safer Road Use

We will seek to influence road user behaviour by:

- Educating, training and encouraging road users to use roads safely.

- Promoting the philosophy of shared and proportionate responsibility.

- Encouraging road users to travel unimpaired and alert.

- Making new drivers aware of the risks they face.

- Encouraging greater compliance with road traffic law through a strong partnership with Avon and Somerset Constabulary.

Greater segregation of routes for people wishing to cycle can help encourage more people to cycle some trips.

Safer Roads

We will seek to improve our network by:

- Designing and maintaining our roads and roadsides to reduce both the risk of crashes occurring and the severity of injuries if a crash does occur.

- Completing the roll out of 20mph speed limits across Bristol to protect the most vulnerable.

- Promoting the use of active modes of transport and maintaining and enhancing the safety of these groups both through physical changes to the environment and behaviour change measures.

- Identifying those roads with highest risk, particularly for walking and cycling and prioritising evidence based engineering measures to ameliorate those risks.

Encouraging more walking to school can help replace some short car trips and reduce road danger.

Safer vehicles

We will seek to improve the safety of the vehicle fleet (including bicycles) by:

- Encouraging consumers and businesses to purchase safer vehicles, especially as part of Travel to Work policies.

- Maintaining Bristol City Council's commitment to vehicle fleet safety and employee practice demonstrated through its adoption of a work-related road risk policy, including the focus on reducing overall travel and transfer to more active modes where possible.

- Bristol City Council's Fleet Services are piloting the use of telematics in council vehicles, the data provided by this pilot will be used to formulate future policy.

- Seeking to persuade other local employers to adopt similar policies through either the Council's supply chain policies or through advocacy approaches.

In-vehicle technology can help improve driving standards including through the use of speed limiters.

Safer Speeds

We will aim to create a road network that protects vulnerable road users and separates fast-moving traffic where appropriate by:

- Establishing speed limits according to road features and function and the known physical tolerances of road users.

- Undertaking speed enforcement and education campaigns.

20 mph speed limits are being implemented across most of Bristol's road network.

7. LOCAL TARGETS

The Council is already committed to the following targets which are endorsed by this Plan:

30% reduction in Killed and Seriously Injured casualties

(based on 2005-9 average) by 2020.
(Joint Local Transport Plan 3)

20% of journeys to work by bike in Bristol by 2020.

(draft Cycling Strategy)

30% of journeys to work on foot
by 2021.

(next Census date)

"...The ultimate long term target, of course, is to eliminate fatal and life changing injuries altogether."

It is proposed that the target for this Plan should be stretched to a 50% reduction in killed and seriously injured casualties by 2020, compared with the average for 2005-9. Measures such as the roll out of 20 mph speed limits and parking strategies to reduce car travel can help make this target more realistic.

The target therefore is to reduce killed and seriously injured road casualties to 78 by 2020, representing a financial saving of over £15 million compared with 2012. The ultimate long term target, of course, is to eliminate fatal and life changing injuries altogether.

8. LINKS TO OTHER POLICIES

In its report "Ending the Scandal of Complacency" published in October 2008, the House of Commons Transport Select Committee identified the need for a new vision for road safety beyond 2010. It called for:

"A strategy that explains how casualty reduction, danger reduction and the various other important policy objectives such as a sustainable transport system, economic efficiency, climate change, social inclusion and physical health are integrated."

The adoption of a safe systems approach helps to link road safety to other local and national policy objectives. Bristol City Council has already begun to make these connections in its Walking Strategy and the Joint Local Transport Plan 2011 to 2026 (JLTP3). Chapter 8 of the JLTP3 emphasises the importance of improving road safety for the most vulnerable users and sections of society and places road safety alongside neighbourhood renewal, air quality and health and physical activity as a key objective.

"Increased levels of physical activity lead to improvements in health and a sense of well-being."

New public health duties require an integration of approaches to injury prevention with promotion of active travel, reduction in social isolation, weight management and carbon reduction. Such an emphasis is reflected in the Public Health Outcomes Framework[2], the Health and Wellbeing Strategy and the Joint Strategic Needs Assessment.[3]

Increased levels of physical activity lead to improvements in health and a sense of well-being. However, transport choice is likely to be affected by perceptions of safety. Improving both the actual and perceived risks is vital if Bristol is to achieve its intention to increase levels of walking and cycling.

Measures that reduce both the number and speeds of motorised traffic should help to reduce perceptions of risk. At the same time, increases in walking and cycling can also be encouraged by improvements to the public realm.

"The adoption of a safe systems approach helps to link road safety to other local and national policy objectives."

[1]https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216159/dh_132362.pdf accessed 14th February 2014.

[2]https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/215261/dh_131733.pdf accessed 14th February 2014.

9. WORKING IN PARTNERSHIP

As a member of the West of England Road Safety Partnership (WoERSP), Bristol City Council will work closely and collaboratively with other local authorities, Avon & Somerset Police, Avon Fire & Rescue Service, Bristol's Clinical Commissioning Groups, Bristol Health Partners and others to devise and deliver evidence based interventions to improve road safety awareness and compliance.

These interventions will include information and awareness campaigns relating to drink driving, speed reduction, seat belt wearing and mobile phone use –the "fatal four" causation factors in road collisions.

Partnerships with other agencies will focus on interventions with a solid body of evidence, or a sound theoretical basis and will be thoroughly evaluated as to their impact.

Road safety is everyone's responsibility and advocacy groups, employers, road user groups and community organisations have a key role in achieving improvements. In its Strategic Framework for Road Safety, the DfT identifies that road safety is an example of what has been called the "Big Society". A key part of the safe systems approach is therefore that community engagement is critical to success.

Traffic Choices Project

Aiding community decision making through Bristol's Neighbourhood Partnerships

The aim of the Traffic Choices project is to aid Bristol's communities, working through Bristol's Neighbourhood Partnerships, with their decision-making on the minor traffic schemes they want in their local area. It does this by providing evidence about how effective (e.g. at making streets safer) different types of traffic schemes are, together with an estimate of cost. A website, initially developed by the University of the West of England (UWE), displays examples of different small scale traffic schemes together including information as to the effectiveness and likely costs, so that ideas for new schemes can be compared. The website is used in two different ways, and offers information about:

- *A range of solutions to current traffic problems, with evidence of effectiveness and cost effectiveness*

- *Evidence of how effective traffic schemes the Neighbourhood Partnership want to put forward to Councillors would be, and offer possible alternative schemes with supporting evidence*

- *www.trafficchoices.co.uk (see also Appendix 2)*

"Road safety is everyone's responsibility and advocacy groups, employers, road user groups and community organisations have a key role in achieving improvements."

There is also a link between road safety and health and social care. The Chief Executives of Bristol City Council and the Bristol Clinical Commissioning Group, and the Chair of the Health and Wellbeing Board, signed up to a target to reduce the increase in the numbers of people admitted following a fall (the target remains to be agreed by NHS England). As noted in the main document, many falls occur on and around the highway. The target agreed was numerical, but can be expressed as –

"Up to 2016, reduce by 50% (from a 2012/13 baseline), the projected increase in proportion of the population admitted to hospital in an emergency following a fall."

10. THE IMPORTANCE OF EVIDENCE

Historically, road safety interventions have a reputation for being based on evidence and research...

Engineering interventions, for example, have always been monitored for their impact and assessed in cost-benefit terms on a before and after basis. Although it has been far harder to assess the impact of educational interventions, the development of the evaluation tool "E-Valuit" has enabled local authorities to undertake analysis of the impact of educational work.

http://www.roadsafetyevaluation.com/index.html

In addition, the establishment of a Road Safety Observatory by the Department of Transport and a number of professional groups is intended to improve the knowledge base of those working in the sector. Syntheses on the site identify not just the research underpinning interventions but also their effectiveness, allowing professionals to choose relevant solutions to road safety issues. We will ensure that all our policy interventions are supported by appropriate research evidence.

http://www.roadsafetyobservatory.com
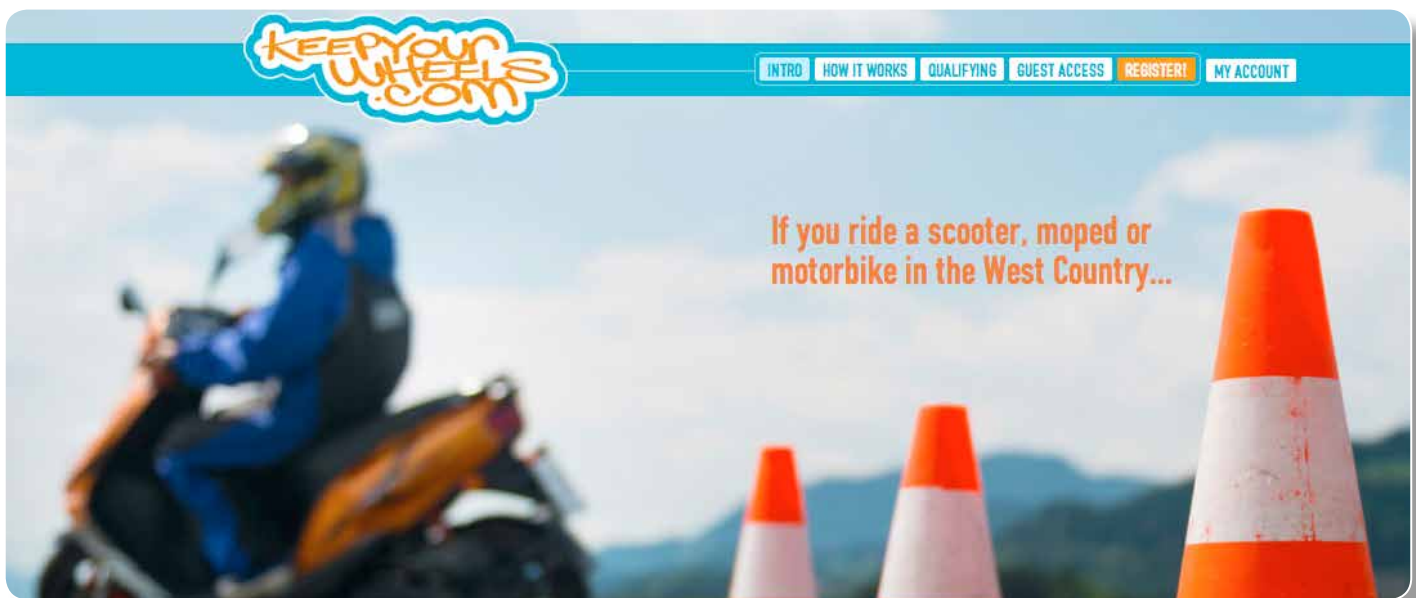
We will ensure that all our policy interventions are supported by appropriate research evidence.

Work in Bristol and the West of England has identified an under researched cause of injuries to cyclists. The majority of injuries, based on NHS data, are not the result of collision with motor vehicles. These non-collision injuries are recognised as causing around 20% of all hospitalised traffic casualties and over 60% of all cycling casualties.. The causes of most cycling injuries are not well understood because of the historical focus on collisions. Bristol City Council and its partners have recognised this, and have led efforts to fill the knowledge gap. The results of our studies have been acted upon and have helped us make cycling easier, more enjoyable and safer. We will support further research into ways to remove hazards from the cycling environment and to enable cyclists to deal with any that remain.

Similarly, many pedestrians are injured through falls and trips on the footway (and are mostly not recorded through the Police STATS 19 form for road traffic collisions) but rather are captured if and when those injured attend Accident and Emergency departments of hospitals - Hospital Episode Statistics (HES)[4]. So, given that most highway authorities do not use HES there is an absence of evidence to inform highway authority policies. Older pedestrians in particular are vulnerable to injury from footway falls, but these events are not normally recorded in Stats 19 data and can therefore lack due priority.
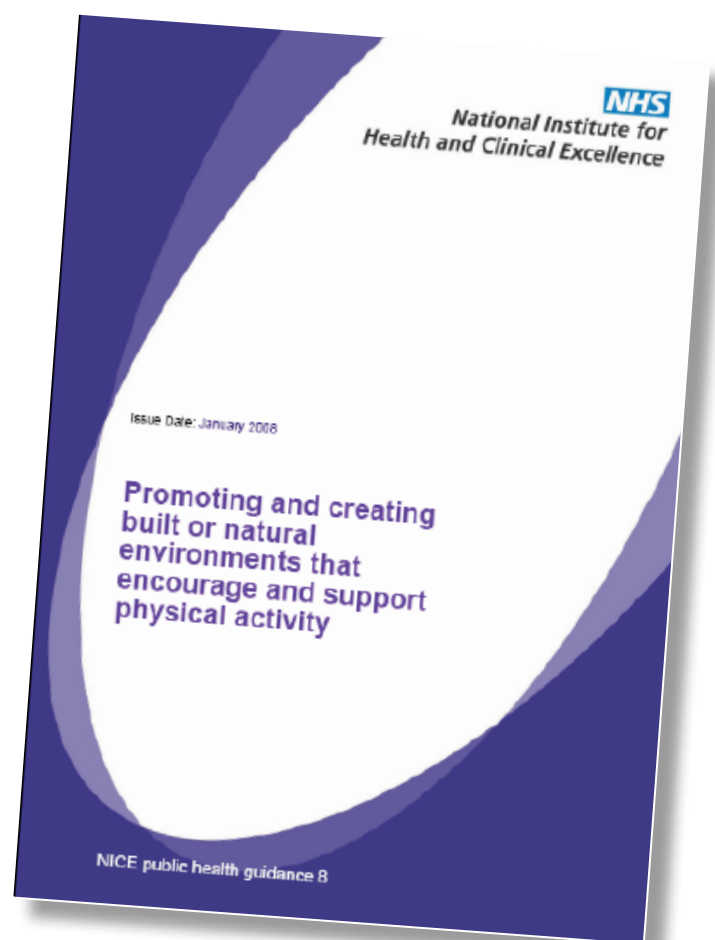
[4]This data is collected during a patient's time at hospital and is submitted to allow hospitals to be paid for the care they deliver. HES data is designed to enable secondary use, that is use for non-clinical purposes, of this administrative data.

APPENDIX 1: ACTION PLAN 2015-2020

What Policies are we implementing to support the vision?

Safer Road Users

Target	Activity	Partnerships
Drivers	• Promote post-test driver training • Publicise further training offered by IAM and RoSPA	• Advanced Driving groups (IAM/RoSPA), Police
Drivers at Work	• Promote fleet management policies • Provide/promote at work driver training • Monitor driver performance • Promote fleet risk management policies to other organisations	• Fleet Services • Large and public sector employers • Licensing Department re taxi drivers • Bus operators (and partnerships with them)
Young Drivers	• Pre Driver Choices • Extension of Wheels, Skills &Thrills project • Promotion of post-test training, including courses offered by police	• Advanced driver groups • UWE • Driving instructors • Police
Motorcyclists	• Promotion of post-test rider training • Keep Your Wheels Project for moped/scooter riders	• WoERSP • Motorcycle Test Centres
Child Pedestrians	• Extension of Pavement Professors practical training, focusing in particular on areas of social deprivation where levels of child pedestrian injury are particularly high.	• Schools • Sustrans • Avon Fire & Rescue • Youth and play service including arm's length contractors
Cyclists	• Promotion and expansion of Bikeability training to children and adults of all abilities • Improved cycle maintenance and other cycling initiatives	• Cycle training providers, Schools, Day Centres
Traffic Law compliance	• Promotional and educational campaigns on drink driving, mobile phones, seat belt use and speed limit compliance in conjunction with WoERSP and Police • Promote enforcement of traffic law to protect pedestrian and cycling facilities from encroachment by motor vehicles • Promote good driving /riding & considerate road use	• WoERSP, Police • Neighbourhood Forums

Safer Roads

Target	Activity	Partnerships
Speed Reduction	• Roll out of 20mph speed limits across residential streets in Bristol. Other local roads may be included, subject to assessment	• Neighbourhood Partnerships • Police
	• Work with police on fixed and mobile camera enforcement • Develop and evaluate referral and conditional cautioning approaches to speed enforcement in collaboration with police	
	• Promote and coordinate Community Speedwatch (CWS) campaigns across Bristol backed up by an effective database for CSW and public reporting • Use of database to identify hotspots and "threats" to be "targeted"	• Police, Neighbourhood Forums • Residents
	• Ensure compliance with speed limits by fleet drivers, licenced taxis and contractor vehicles	• Fleet services • Licencing
Road Safety Engineering and maintenance	• Identification of collision hot spots and prioritising for treatment, especially those posing greatest risk to vulnerable road users • Areas of social deprivation which suffer disproportionately from road injuries will receive particular attention • Respond effectively to pothole reporting • Footway construction and maintenance will be of the required standard to address pedestrian trips and falls. • Strategic footways and cycleways will be given due priority in bad weather conditions • Use engineering measures to reduce conflict and danger where appropriate Develop corridor and area-based solutions • Respond effectively to pothole reporting, maintain roads and cycleway • Use maintenance programme to deliver safety design improvements	• Area Engineering teams • Fillthat hole.org
Designing for slower speeds	• Develop design& maintenance principles for roads with 20 mph speed limits • Apply to DfT for permission to install innovative engineering solutions	

Safer Routes to school	• *Complete programme of enforceable School Keep Clears* • *Work with schools and parents to identify low cost measures to support walking and cycling to school* • *Develop safer routes to schools*	• *Schools, Neighbourhood Partnerships*
Cycle Safety Schemes	• *Implement primary and secondary cycle route network* • *Identify collision hot spots and devise and fund remedial measures*	• *Cycling Organisations* • *Transport Dept*
Cycling infrastructure	• *Provide places to learn to cycle and develop cycle skills - e.g. off road cycling, facilities in parks, as appropriate, and cycle centres*	
School Crossing Patrols (SCPS)	• *Will seek to expand the number of SCPS*	
Playing Out	• *Promote use of streets for a range of community purposes such as street parties and playing out activities* • *Make Sunday Special road closures/openings*	• *Playing Out* • *Living Streets* • *Network Management* • *Play Services*
Dealing with obstructions Schemes	• *Deal with pavement parking, anti-social parking and obstructions* • *Deal with visibility obstructers (eg 'A' frames etc)* • *Requests to Government for additional byelaws and enforcement powers where applicable* • *Clear approach to byelaws and their enforcement in parks*	• *Transport and Parking services* • *Police* • *Parks*
Improve intelligence and understanding of safety issues	• *Strengthen evidence base and intelligence to develop a better understanding of casualty problems in Bristol* • *Examine new ways of measuring safety - conflict analysis, road danger perceptions, in addition to casualty statistics*	

Safer Vehicles

Target	Activity	Partnerships
Vehicle Purchase and maintenance	• *Purchase and maintain vehicle fleet to highest safety ratings.* • *Define minimum standards for contractor vehicles* • *Consider trialling speed limiters on some fleet vehicles*	• *Fleet Services*

APPENDIX 2

Examples of good practice

The following examples illustrate some of the most successful and innovative work that has been carried out by Bristol City Council in the recent past. It also demonstrates the standard that we wish to maintain and build upon in the future. All of these interventions were based on a sound theoretical basis and analysis of the relevant issues and have been evaluated to understand their impact.

Signs-only 20mph speed limits

The roll out of 20mph signs-only speed limits across all residential streets and many local high streets is a significant intervention to help enhance the perception and reality of increased road safety. During and beyond the Council will seek to develop a low cost repertoire of measures to encourage slower speeds and to improve safety for pedestrians and cyclists, including at junctions. Opportunities which arise through routine maintenance will be used to create a more benign road environment where streets are shared between motor vehicles, pedestrians and cyclists.

Behaviour change programmes through LSTF

The Local Sustainable Transport Fund (LSTF) has created an opportunity to enhance on-going programmes of education and promotion of sustainable modes of travel. For example, the Transition to Secondary School element of LSTF targets children at the age where they become more vulnerable to injury on the roads as they become more independent. A combination of road safety education, including practical exercises such as "Trailblazers" and "Speed Guns", together with Bikeability cycle training and promotion of sustainable modes of travel to school, helps to equip young people for active independence.

Safety Improvements fund for cyclists

This fund will provide capital support to improve safety at junctions identified as having a record of road collisions that have resulted in cyclists being killed or seriously injured. In Bristol, funds successfully bid for will help to improve junction safety at a number of locations such Easton Way – a major cycle commuting corridor, and Baldwin Street in the city centre.

Public Realm

Underlying the public realm vision is a recognition of the value of place as well as movement, and a user hierarchy that considers the needs of people on foot first, cycle users second and car users last. This means making people-friendly streets and spaces which support a prosperous, cohesive and sustainable city which is therefore safe and healthy, made up of thriving Neighbourhoods with a high quality of life.

Pre-Driver Choices

An interactive classroom activity to explore alternatives to driving for students approaching the age at which they are eligible to learn to drive. Students examine the costs and benefits of car ownership compared to more active modes of travel.

The intervention is based on positive evaluation of a similar project in Japan. It is being thoroughly evaluated to determine its impact on student travel choices. Delaying licence acquisition is likely to reduce the disproportionately high involvement of young novice drivers in road collisions.

Pavement Professors

This project is a development of the original "Kerbcraft" concept which has been shown to be effective in helping children acquire basic pedestrian skills. Young children learn skills including how to cross between parked cars, crossing at junctions and judging when there is a safe gap in traffic. Training takes place at the roadside so children are able to learn a practical skill which gives a foundation for further development.

The project can be delivered by specially trained school staff and learning outcomes are evaluated to ensure the skills have been acquired and retained.

Keep Your Wheels

This is a website aimed at young moped riders who are frequently involved in collisions due to inexperience or badly maintained, sometimes illegal, mopeds and scooters. The site aims to entertain and inform young riders who may otherwise have collisions or receive points on their licence due to a lack of knowledge and awareness.

Riders can receive a cash reward for carrying out the tasks laid out on the site, as well as being encouraged to take further training and having their bikes assessed to check they are roadworthy and legal.

All Abilities Cycling

This project grew out of Cycling City and aims to provide opportunities for people with physical and other disabilities to discover the pleasures of cycling. Currently based at St Pauls Adventure Playground, but looking to expand, the project provides a range of adapted cycles for children and adults to try out in a secure environment.

DIY Streets (Ashton Gate, Whitehall)

In partnership with Sustrans, streets outside two schools have been transformed using designs generated by the schools and pupils themselves. The schools previously had problems from parent parking or the speed of passing traffic. These unique designs create the sense of a shared space where the presence of children is acknowledged and respected.

Wheels, Skills and Thrills

Young male, drivers are the most likely to be involved in a road collision. This is particularly true in the most socially deprived areas. "Wheels, Skills and Thrills" is a project designed to improve driver behaviour among this group, who have historically proved most resistant to behaviour change.

A collaboration between Bristol City Council, University of West of England and Bristol Advanced Motorists (IAM), the project recruited young male drivers with a history of collisions, police involvement, etc. The project focused on "skill" rather than "safety" and worked together with the young people and IAM observers to develop a training programme to enhance those skills, such as observation and anticipation, which tend to be less developed in young drivers.

In-vehicle data recording, or "black boxes", were used to measure behaviour change. Nearly all the 24 drivers who completed the programme made significant improvements in their driving. These improvements were maintained for at least 6 months after the project was complete and several of the participants went on to complete the full IAM "Skill for Life" course and qualify as advanced drivers.

Traffic Choices

The aim of the project (www.trafficchoices.co.uk) is to develop an evidence-based resource to aid community decision making on road safety in Bristol. Every year, each of the fourteen neighbourhood partnerships in Bristol is allocated money for traffic schemes. Residents in the community can attend partnership meetings and decide how the money is spent. Concern arose over the lack of evidence used in making decisions to solve issues such as crossing the road, or speeding. Furthermore, some residents became frustrated about the lack of information available on traffic schemes, and as a result, highways engineers within Bristol City Council were becoming over-burdened with individual queries from members of the public.

In order to aid the decision-making process an evidence based reference website for traffic schemes was developed. For common traffic issues (e.g. speeding, crossing the road) the website suggests traffic schemes to solve these problems. Each scheme is accompanied by a description, advantages, disadvantages, cost and how effective it is at preventing traffic injuries. To provide injury reduction information, the project undertook a literature review of safety effects of traffic schemes using peer reviewed evidence and grey literature (e.g. TRL). The website uses plain de-jargonised language to be accessible to all those who may attend neighbourhood partnership meetings whilst also including 'advanced' information with justification and references for those pursuing extra information. To increase engagement with members of the public and help communicate common themes, three videos are used to summarise important information.

The website has been live since 2014 and is very well received by neighbourhood partnership co-ordinators and the public. Feedback has commended the clear layout, and high quality of photos and videos. The website is proving to be a very useful resource in the decision making process for traffic schemes in Bristol's neighbourhood partnerships.

GLOSSARY

Accident: An event which is not foreseeable whereas most road traffic injuries and their precipitating events are predictable and preventable.

Crash: The word crash indicates in a simple factual way what is observed.

Health and Wellbeing Strategy: A key plank of the government's Health & Social Care Act 2012 is the creation of statutory Health and Well-being Boards in every top tier local authority. HWBs bring together local elected councillors with the key commissioners, (including representatives of clinical commissioning groups, directors of public health, children's services and adult social services, and a representative of the local Health Watch - the new patients' representative body). The intention is to improve health services, care services, and the health and wellbeing of local people. The Boards are also responsible locally for leading on reducing health inequalities.

IaM: Institute of Advanced Motorists.

Injury collision: Any collision involving at least one road vehicle in motion on a public road or private road to which the public has right of access, resulting in at least one injured or killed person. Included are: collisions between road vehicles; between road vehicles and pedestrians; between road vehicles and animals or fixed obstacles and with one road vehicle alone. Included are collisions between road and rail vehicles. Multi-vehicle collisions are counted as only one event provided that any successive collisions happen within a very short time period. Injury crashes exclude collisions incurring only material damage.

Joint Strategic Needs Assessment (JSNA): Since 1 April 2008, local authorities and Primary Care Trusts (PCTs) have been under a statutory duty to produce a JSNA - an assessment of the current and future health and social care needs and assets of the local community. Under the Health and Social Care Act (2012) local authorities and Clinical Commissioning Groups (CCGs) have an equal and joint duty to prepare JSNAs and JHWS for their HWBs[5]. In drawing up their priorities, as members of HWBs, they will both have a duty to work with other partners such as the police and community safety partnerships to undertake a JSNA. Based on these they will have to develop JHWSs – a strategy for meeting the identified needs in the local area based on evidence in JSNAs.

Living Streets: National charity working for the rights of pedestrians.

OECD: The mission of the Organisation for Economic Co-operation and Development (OECD) is to promote policies that will improve the economic and social well-being of people around the world. http://www.oecd.org/about/

Playing Out: A Bristol-based Community Interest Company supporting children's street play.

Public Health Outcomes Framework: The Public Health Outcomes Framework (PHOF) for England sets out objectives for the public health system in the 3 years from April 2013. This framework focuses on the respective role of local government, the NHS and Public Health England, and their delivery of improved health and wellbeing outcomes for the people and communities they serve.

RoSPA: Royal Society for the Prevention of Accidents.

Sustrans: A Bristol-based national sustainable transport charity.

Traffic: All road users of the highway (includes pedestrians and cycle users).

UWE: University of the West of England.

WoERSP: West of England Road Safety Partnership.

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[5] http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_131733.pdf

A Safe Systems Approach to
Road Safety in Bristol

A 21st Century Approach: *A Ten Year Plan 2015-2024*