South Yorkshire **Strategy to 2030** and beyond...

MAKING SOUTH YORKSHIRE ROADS SAFER

www.sysrp.co.uk

Agilysis and Traject

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Contents

Abbreviations

BMBC	Barnsley Metropolitan Borough Council
COM-B	Capability, Opportunity, Motivation and Behaviour Model
COPA	Case Overview and Prosecutions Application (Metropolitan Police)
CRASH	Collision Reporting and Sharing system
DfT	Department for Transport
DMBC	Doncaster Metropolitan Borough Council
DVSA	Driver and Vehicle Standards Agency
iRAP	International Road Assessment Programme
KSI	Killed or Seriously Injured (casualties)
MCA TEB	Mayoral Combined Authority Transport and the Environment Board
NCAP	New Car Assessment Programme
NDORS	National Driver Offender Retraining Scheme
NPCC	National Police Chiefs Council
ONS	Office for National Statistics
OPCC	Office of the Police and Crime Commissioner
PACTS	Parliamentary Advisory Council for Transport Safety
P2W	Powered two wheelers
RMBC	Rotherham Metropolitan Borough Council
SCC	Sheffield City Council
SCR	Sheffield City Region
SDG	Strategic Development Goal
SID	Speed Indicator Device
SPI	Safety Performance Indicator
SRN	Strategic Road Network
SRP	Safer Roads Partnership
STOB	Senior Transport Officers Board
SYFRS	South Yorkshire Fire and Rescue Service
SYMCA	South Yorkshire Mayoral Combined Authority
SYP	South Yorkshire Police
SYSC	South Yorkshire Safety Cameras
UN	United Nations
VAS	Vehicle Activated Sign
VRU	Vulnerable road user

History of South Yorkshire Safer Roads Partnership

The South Yorkshire Safer Roads Partnership (SYSRP) was formed in October 2009 with a primary objective to reduce the number of people killed or injured as a result of road traffic collisions and to make South Yorkshire roads safer.

The partnership now comprises of the following organisations:

- South Yorkshire Police (SYP) (including South Yorkshire Safety Cameras (SYSC)
- South Yorkshire Fire and Rescue Service (SYFRS)
- Barnsley Metropolitan Borough Council (BMBC) (including public health)
- Doncaster Metropolitan Borough Council (DMBC) (including public health)
- Rotherham Metropolitan Borough Council (RMBC) (including public health)
- Sheffield City Council (SCC) (including public health)
- South Yorkshire Mayoral Combined Authority
- National Highways

New members, such as Yorkshire Ambulance Service and victim support groups, are also being recruited to help deliver the various elements of the strategy.

Building on the existing 2017-2026 strategy (South Yorkshire Safer Roads Partnership, 2017), in this ambitious new strategy, SYSRP is adopting a 'Vision Zero' approach, working towards no deaths or serious injuries on the roads of South Yorkshire because of road traffic collisions. This vision will not be achieved overnight and so SYSRP is adopting targets and using indicators to measure progress. Furthermore, road safety is not improved in isolation, with road risk, and the perception of road risk, influencing other agenda like sustainable travel, health and environmental issues.

Working under a new Safe System approach, SYSRP recognises the need to adapt and operate using international best practice. To this end, the Partnership has reviewed its structure and operations, strengthening governance, accountability and day-to-day working practices to come together to work collectively on achieving Vision Zero.

Context

South Yorkshire Safer Roads Partnership is just over halfway through delivery of its 2017-2026 Strategy (South Yorkshire Safer Roads Partnership, 2017). A great deal has happened since its publication, including national and international changes in travel behaviour, amendments to design requirements, legislative changes, and the introduction of new vehicle technologies with more to come. The Partnership felt that this was an ideal time for a review, taking stock of where it was and where it is headed. This new Strategy replaces the existing one, taking a new view, using the latest evidence and thinking to provide a renewed vigour and focus for the Partnership. It details the activities, structure, and objectives for the coming years.

The Covid-19 global pandemic occurred since the publication of the 2017-2026 Strategy. The international response and UK lockdowns have restricted and changed transport and travel choices. Cycling and walking rates increased in 2020, with a strong focus on active travel and sustainability, supported by national funding. There are clear benefits of harnessing this behaviour change and incorporating the promotion of active travel within the Partnership's road safety strategy. Increasing active travel is one of the principle means of increasing regular physical activity. With a healthier, more active population, it will lead to considerable improvements in the instances of 20 conditions and diseases, including coronary heart disease, stroke, Type 2 diabetes, cancer, obesity and mental health problems. To encourage more people to walk and cycle, these activities need to be safe and be *perceived* to be safe.

There are other post-Covid-19 factors which may influence the delivery of road safety activities. It is not possible to know how people will feel about different types of risk, as life starts to return to something akin to as it was in 2019. It could be that the public are more aware of the importance of issues like road safety and that two years of hearing statistics related to deaths and life-changing illness will focus the wider population on reducing all types of risk. Conversely, the end of lockdowns and a return to normality could lead

to greater risk-taking amongst the wider population, triggered by a sense of freedom and a desire to forget the negative experiences of 2020 and 2021. The Partnership will need to be aware that different reactions could exist and plan accordingly.

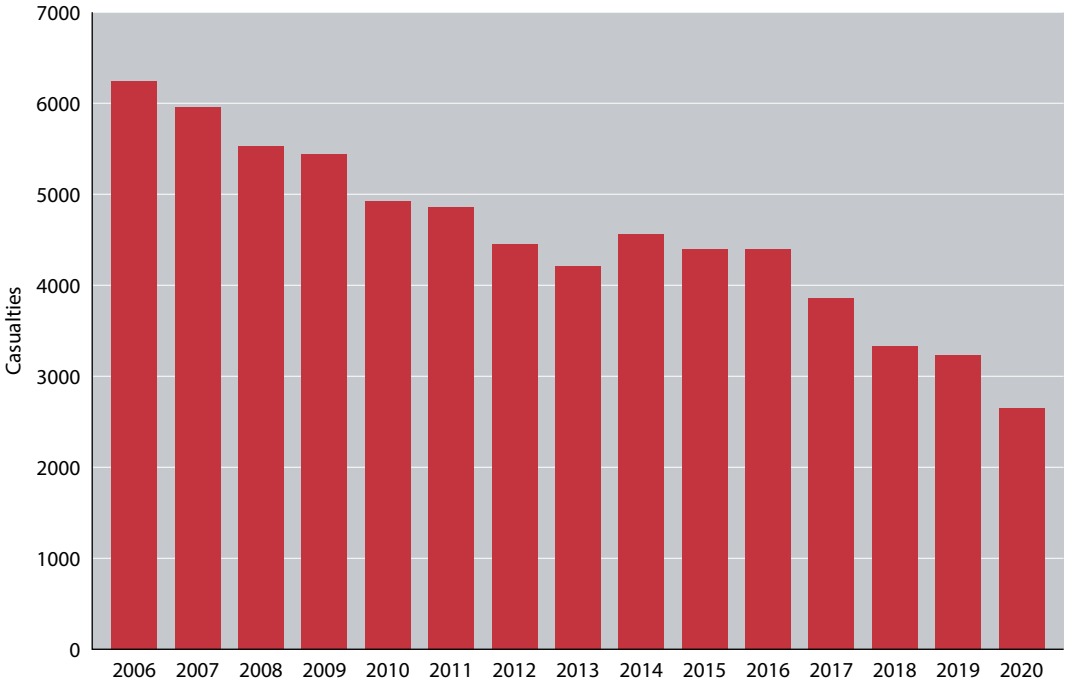
The final post-Covid-19 factor which is likely to influence the delivery of road safety activities nationally is funding. The pandemic has adversely affected the economy and the Government has dedicated large budgets to supporting businesses and individuals. At the time of writing, the impact on public sector funding to cover this support is unknown but it is possible that the Partnership may face delivering road safety activities in a constrained financial environment.

Nationally in road safety, there is a growing focus on adopting a Safe System approach. As explained later in this Strategy, Safe System thinking is a philosophical concept which moves away from reactive interventions targeting specific locations or road users to thinking more systematically about reducing the chances of death or serious injury across the network. Many UK partnerships, highways authorities and regional governments are launching Safe System strategies and action plans, so SYSRP is joining a growing movement.

Looking more locally, to understand what the future might look like for SYSRP, an independent review was conducted. Representatives of partner organisations, both at officer and manager levels, were interviewed individually to understand their future visions for the Partnership, identifying strengths and weaknesses, opportunities, and barriers of current working practices. The outputs from these interviews were thematically analysed to build a picture of where the Partnership was and where it should be headed. These findings were presented at the Strategic Board for discussion. A survey was disseminated to local residents in July 2021 to understand their priorities in road safety and who they feel should be involved in road safety. Nearly 2,000 responses were received.

Looking at recent casualty reduction, Figure 1 shows the number of casualties injured on local roads each year for the last 15 years. Progress has been made,

Figure 1 *All casualties by year on South Yorkshire's roads*

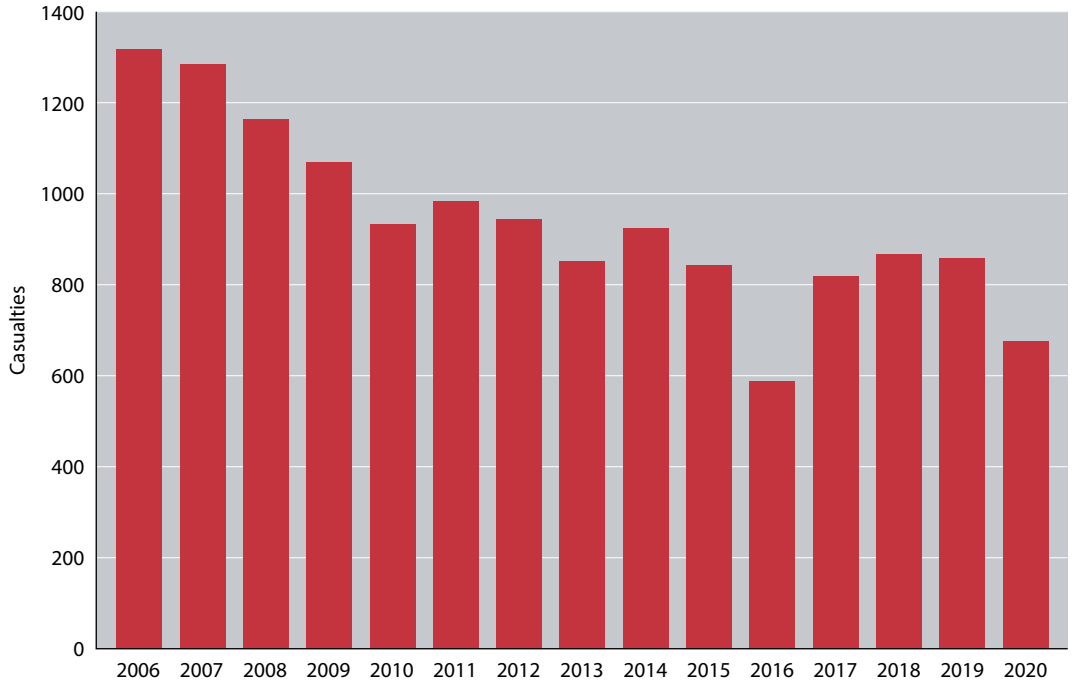


with the number of casualties decreasing from over 6,000 people injured on local roads in 2006 to 2,644 in 2020[1].

Figure 2 shows the adjusted numbers of people killed or seriously injured (KSI) on the roads of South Yorkshire. There were strong reductions from 2006 to 2010, since when there have been slower but continual decreases (with smaller numbers of casualties in 2016 and 2020). An explanation of what 'adjusted' means is provided in the section on Changes in casualty reporting on page 11.

Every death and life changing injury which has occurred on local roads, or amongst local residents because of a road collision, is one too many, with devastating impacts to those involved or close to those involved, and the social and economic burdens felt by the wider community. This new Strategy provides an opportunity for the Partnership to take new approaches and strengthen existing ones, to reduce the likelihood of these most severe injuries being sustained.

Figure 2 *Adjusted KSI casualties by year on South Yorkshire's roads*[2]



[1] 2020 collision figures are the most recently published data at the time of writing (February 2022). However, Covid-19 lockdowns changed transport and travel, influencing road safety risk. It is therefore not appropriate to include 2020 figures in much of the analysis informing this Strategy, as the Partnership needs to plan future activities based on 'normal' behaviour and casualty rates.

[2] The CRASH reporting system was introduced in South Yorkshire in 2016. Before this date, the reported KSI casualties were lower than the adjusted ones shown in Figure 2. From 2016, no adjustments are made as the Department for Transport accepts injury-based figures as reported. It is not possible to definitively say why the adjusted figure was lower in 2016 but it could be due to the change to the new system and new reporting practices.

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Vision

South Yorkshire Safer Roads Partnership believes in working to a Safe System approach, accepting that

No human being should be killed or seriously injured as the result of a road collision in South Yorkshire

This is an ambitious goal and will require hard work and time to be achievable. This Strategy sets out how SYSRP partners will work together, through its planned activities, to build a safe road network in the region, using targets and safety performance indicators to measure and report progress.

This Strategy explains how this vision will be achieved, explaining how the Safe System sits at the heart of the Partnership's approach.

Safe System

Originating in Sweden and the Netherlands in the 1980s and 1990s, the Safe System is a concept which challenges the traditional approach to road safety.

> At the time, scientists and policy makers began to question the prevailing view that the safety of road users was, in the last instance, their own responsibility and that the task of road safety policy was thus primarily to influence road users' behaviour so they would act safely at all times. As the decades-long decreases in the number of road fatalities and severe injuries were levelling out, it became clear a predominant focus on education, information, regulation and enforcement was no longer delivering progress. A rethink was needed.
>
> Adopting a Safe System starts with accepting the validity of a simple ethical imperative: **No human being should be killed or seriously injured as the result of a road crash.** (ITF, 2016, p. 5)

Once this imperative is accepted, it leads to a philosophy where the whole traffic system is designed to prevent people being killed or seriously injured, often through policy frameworks such as 'Vision Zero' or 'Towards Zero'.

There are four principles which are central to a Safe System:

- First, people make mistakes that can lead to road collisions.
- Second, the human body has a known, limited physical ability to tolerate collision forces before harm occurs.
- Third, while individuals have a responsibility to act with care and within traffic laws, a shared responsibility exists with those who design, build, manage and use roads and vehicles to prevent collisions resulting in serious injury or death and to provide post-collision care.

- Fourth, all parts of the system must be strengthened in combination to multiply their effects, and road users are still protected if one part fails. (RoadSafe, 2020)

The Safe System requires a new approach to road safety. Table 1 compares the traditional approach to road safety with the Safe System approach. It shows how there is a shared responsibility for road safety in the Safe System, moving away from a focus on making road users compliant. It continues to be important that road users comply with the rules of the system, but also that the system is forgiving when people make mistakes. Information giving and enforcement are still important, but they need to be coordinated with safe vehicle and road design, speed choice, and post collision response.

The Safe System is therefore:

- the vision or aspiration that zero fatalities and serious injuries from collisions are ultimately possible
- the principles to guide the design, operation and use of a road system with a view to reducing fatalities and serious injuries to zero
- the implementation of practices, tools and their interactions that will deliver on the principles. (ITF, 2016, p. 30)

The Safe System requires a systematic, multi-disciplinary and multi-sectoral approach to address the safety needs of all users. It requires a proactive strategy which places road safety in the centre of road traffic system planning, design, operation, and use. There are five components for action:

- Safe People
- Safe Vehicles
- Safe Speeds
- Safe Roads and Roadsides
- Post collision response PACTS, 2016)

Table 1 *Traditional approach to road safety vs Safe System approach to road safety (Adapted from (Towards Zero Foundation, 2022)*

	Traditional	Safe System
What is the problem?	Collisions	Fatalities and serious injuries
What causes the problem?	Human factors	People make mistakes, people are fragile
Who is ultimately responsible?	Individual road users	Users, designers, operators, enforcers, and maintainers of the road and vehicle system
What is the major planning approach?	Incremental approach to reduce the problem	Systematic approach to build a safe road system
What is the appropriate goal?	Optimum number of fatalities and serious injuries	Zero fatalities and serious injuries

The system needs to provide layers of protection through these components in order to prevent deaths and serious injuries.

> To help build a safe road system that is forgiving of mistakes, investment needs to be made in the creation of Safe Roads, Safe Speeds, Safe Vehicles, Safe People and Post Collision Care to put layers of protection around people to keep them safe from death and serious injuries on the road. All parts of the road system must be strengthened in combination to multiply the protective effects and if one part of the system fails, the other parts will still protect people. (Towards Zero Foundation, 2020)

The Safe System approach suits a multi-agency partnership well. It allows different organisations to lead on different components, playing to their strengths, core business and statutory duties. In the Taking a Safe System approach section of this Strategy, there are details of how the Safe System components will be addressed, explaining the roles and responsibilities of Partnership members.

Targets

The adoption of targets can be useful to those involved in road safety, helping them to prioritise actions and focus activities. Whilst the United Kingdom does not currently have a national road safety target, many other partnerships, local authorities, and National Highways have adopted their own target to aspire to achieve in the coming years.

There are good reasons for setting road safety targets, providing a goal to aim for and a means of checking progress.

> The House of Commons Transport Select Committee has reviewed the Government's road safety strategy twice since 2010. In its 2012 report the Committee confirmed that *"Road safety targets have played an important role in driving the UK's positive road safety record"* (Transport Select Committee, 2012: 13). (Amos, Davies, & Fosdick, 2015)

Countries which have road safety targets have been shown to generally perform better than those who do not have them. The UN identified several reasons why adopting targets can be beneficial:

- Setting targets communicates the importance of road safety.
- Targets motivate stakeholders and increases accountability for achieving results.
- Targets convey the message that the Government is serious about reducing road casualties.
- Sub-national targets widen the sense of ownership by creating greater accountability, establishing more partnerships and generating more action.
- Targets raise media and public awareness and motivate politicians to support policy changes and to provide resources. (Towards Zero Foundation, 2020, p. 3)

There are 17 Sustainable Development Goals (SDGs), adopted by all UN Member States in 2015, which are a call to action to end poverty, protect the planet and improve the lives and prospects of everyone. Goal 3 is 'Good Health and Well-Being'. Specifically, Target 3.6 was:

> By 2020, halve the number of global deaths and injuries from road traffic accidents. (United Nations, 2020)

To follow the SDG Target (which ended in 2020), The Stockholm Declaration, made at the Third Global Ministerial Conference on Road Safety in Stockholm on the 19th and 20th February 2020, stated:

> Reiterating our strong commitment to achieving global goals by 2030 and emphasizing our shared responsibility, we hereby resolve to;
>
> *Call* upon Member States to contribute to reducing road traffic deaths by at least 50% from 2020 to 2030 in line with the United Nations High-Level Political Forum on Sustainable Development's pledge to continue action on the road safety related SDG targets, including 3.6 after 2020, and to set targets to reduce fatalities and serious injuries, in line with this commitment, for all groups of road users and especially vulnerable road users such as pedestrians, cyclists and motorcyclists and users of public transport. (Third Global Ministerial Conference on Road Safety: Achieving Global Goals 2030, 2020, p. 3)

The '50 by 30' campaign (Towards Zero Foundation, 2020) to halve global road deaths and serious injuries by 2030 encapsulates this SDG, with the European Union adopting this target in order to meet its long-term strategic goal of achieving Vision Zero by 2050. (European Commission, 2019)

Changes in casualty reporting

There have been changes in recent years to the systems used by police forces to report road casualties. New systems (such as COPA and CRASH) have changed the way that injuries are classified, moving away from reporting police officer judgement as to the severity of the injury to using a system where severity is automatically determined by the most severe type of injury suffered. This does mean that some casualties would have been categorised as 'slight' in the old system, which would be classed as 'serious' in the new systems. Initial analysis of high-level data suggested that switching to CRASH and COPA added between 5 and 15% to the total number of serious injuries in Britain in 2017. (Office for National Statistics, 2019)

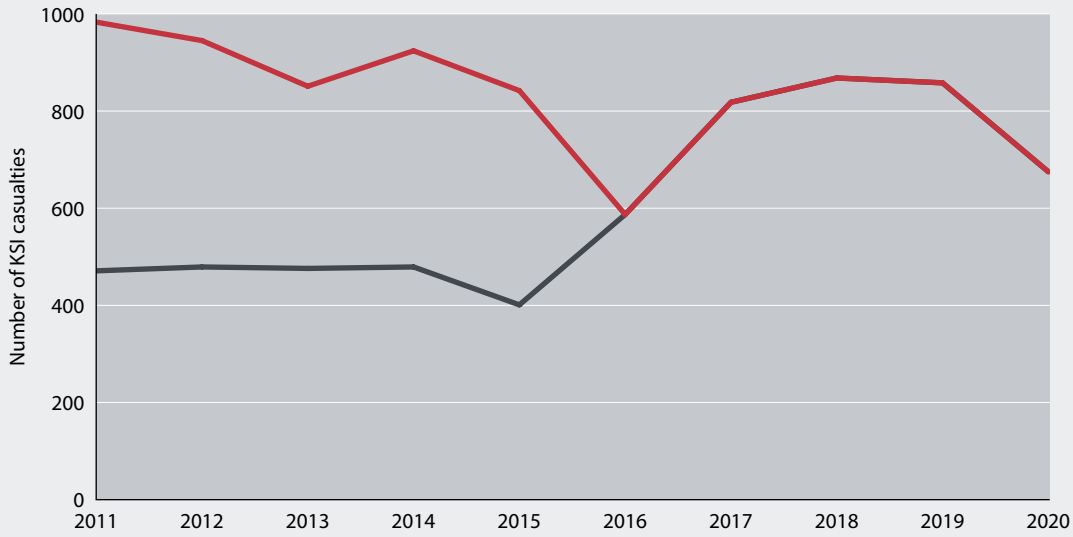
Whilst the new systems are established across police forces, annual adjustments are made by the Department for Transport (DfT), using methodology established with the Office for National Statistics (ONS) Methodology Advisory Service. It quantifies the effect of the introduction of new injury-based report systems

on the number of slight and serious injuries reported to the police and estimates the level of slight and serious injuries as if all police forces were using injury-based reporting systems.

What this means is that, in order to make comparisons with casualty figures before the introduction of these new systems, adjusted figures (as calculated by ONS) should be used. It means that there will be differences between these adjusted figures and those previously published for South Yorkshire, but it will allow consistent future analysis[3].

Figure 3 shows the number of people who were reported as killed or seriously injured on South Yorkshire's roads since 2011, and the figures after the adjustment calculations have been performed. The CRASH system was introduced by South Yorkshire Police in 2016, shown by the converging figures. In 2011, there were 471 reported KSI casualties, compared to 983 when the figures were adjusted.

Figure 3 *Reported and Adjusted KSI Casualties in South Yorkshire*



[3] It should be noted that the DfT and ONS are annually readjusting severity levels for casualty numbers in previous years, meaning the figures published here could change slightly in the future.

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Monitoring Performance

Targets for South Yorkshire

As stated earlier, many nations and organisations have adopted a **2030 target of a 50% reduction in road deaths and serious injuries**. South Yorkshire Safer Roads Partnership has also signed up to this target.

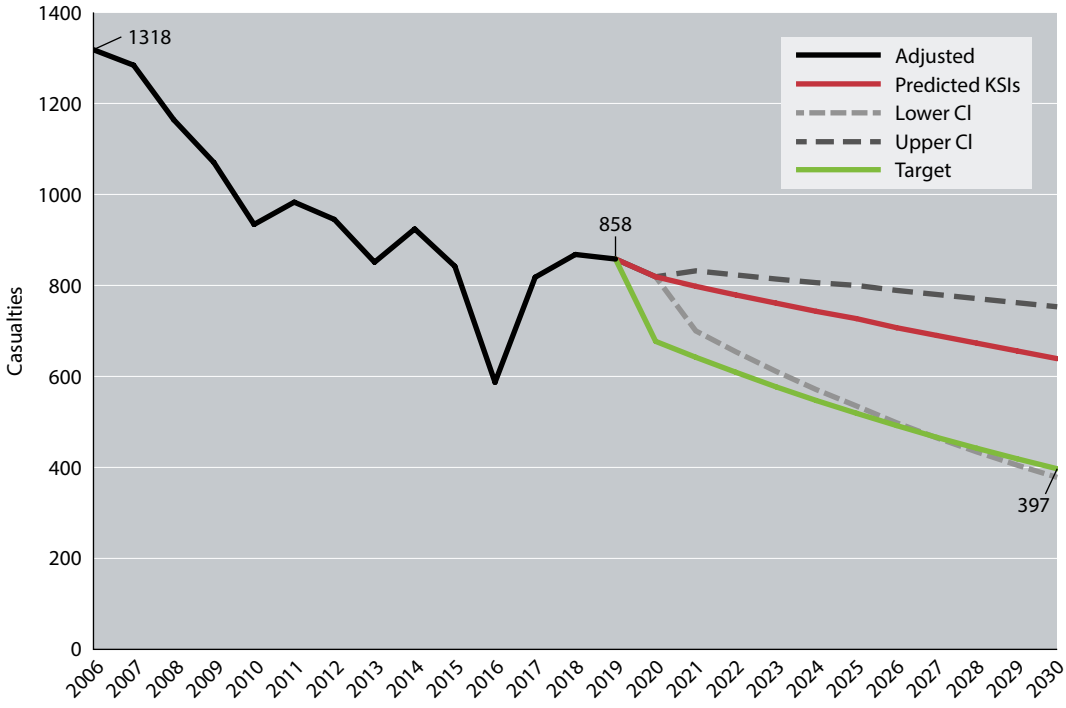
Adopting a 50% reduction in KSI casualties (using a baseline period of 2015 to 2019) produces a 2030 **target of 397.** As stated earlier, any death or serious injury is one too many and the long-term goal of SYSRP is to have zero people killed or seriously injured. However, recording fewer than 397 casualties in 2030 will mean that significant improvements in road safety have been made.

This target is based on a variety of data sources, shown in Figure 4. The adjusted KSI figures are shown as a black line from 2006 to 2019. The period of 2015 to 2019 will be the baseline period for this Strategy. In this period, there was an annual average of 795 people killed or seriously injured on South Yorkshire's roads (after the adjustment calculations have been made).

The dashed red line is a prediction of future KSI casualties. It predicts there will be 639 KSI casualties in South Yorkshire in 2030 if current trends continue[4]. Historic casualty data and local authority traffic data were used to create trends. The two dashed grey lines are the confidence intervals for the projections.

The green line is the trajectory to a 50% reduction in adjusted KSI casualties by 2030. It shows that this is an ambitious but achievable target for SYSRP. Achieving reductions in casualty figures can become harder, the lower the numbers become, as the schemes and interventions which can produce the greatest effects are introduced first. It means that going forward, the Partnership needs to be proactive, evidence-led and targeted in order to continue to make a difference.

Figure 4 *SYSRP 2030 target, compared to predicted KSI casualties*



[4] An explanation of the methodology used to predict KSI casualties can be found in Appendix G – Predicting Casualties

Safety Performance Indicators

Sitting alongside long-term commitments to vision zero and interim casualty reduction targets are 'safety performance indicators' (SPIs). These are measurements of the level of safety under specific Safe System elements, e.g., Safe Roads and Roadsides. Many countries and organisations, including Scotland, Sweden, Norway, Ireland, and the EU, have been defining SPIs and have been determining how to measure them.

In the UK, there is not currently an agreed list of SPIs being monitored at a national level or adopted at a local level but organisations such as Road Safety GB are working to co-ordinate efforts, so monitoring is comparable and consistent.

There are clear benefits to adopting SPIs at a local level. SPIs should be set to monitor actions which have a direct relationship to reducing the likelihood of deaths or serious injuries occurring. By understanding the relative safety of the Safe System elements, it allows Partnerships to adopt the most effective casualty reduction interventions to direct limited resources and achieve the ambitious targets being adopted.

Outcome measures can sit below SPIs and record activities which can improve SPIs. For example, an indicator to support Safe Road Use is to increase the percentage of traffic complying with speed limits on local roads. There are lots of activities which can improve speed limit compliance, including enforcement, engineering, and education. Recording the number of speeding offences detected, the publicity campaigns delivered, or the speed limits reduced won't provide an insight into the levels of compliance but alongside the SPI, monitoring these outcome measures will shows the levels of activities which can contribute to improving the SPI.

Table 2 overleaf shows the Safety Performance Indicators recommended by PACTS and the sorts of Outcome Measures which can also be collected under each element of the Safe System. SYSRP will be following national developments on the adoption and measurement of SPIs, working with other partnerships on the development of consistent and reliable methodologies for reporting progress.

Evaluation

Evaluation is a key component of this Strategy. The Partnership must determine what it is seeking to achieve when embarking on activities and it must also set out how effectiveness will be measured. At the beginning of each project, partners should think about how data could be collected to monitor SPIs and also how evaluations could inform the Partnership (and others) as to what is most effective. Evaluations should be embedded into the thought process of starting a new project.

The Partnership is reporting progress on a number of metrics:

- Casualty reduction targets
- Safety performance indicators
- Outcome measures

Table 2 *Safety Performance Indicators and Outcome Measures across the Safe System (SPIs taken from PACTS (Anderson, 2018))*

Safe Road Use	Safe Roads & Roadsides	Safe Vehicles	Safe Speeds	Post Collision Response
Safety Performance Indicators				
% of drivers who do not drive after consuming alcohol or drugs	% of roads with appropriate iRAP safety ratings	% of new passenger cars with highest Euro NCAP safety rating	% of traffic complying with speed limits on national roads	% of emergency medical services arriving a collision within 18 minutes of notification
% of car occupants using a seatbelt/child seat			% of traffic complying with speed limits on local roads	
% of drivers not using an in-car phone (handheld or hands free)				
Outcome Measures				
No. of road users receiving interventions	Monitoring impact of schemes on casualty reduction	No. of car occupants using a seatbelt	No. of speed offences recorded (through cameras & police enforcement)	Paramedic and/or ambulance response times
No. of road traffic offences recorded	Maintenance regimes	No. of children using safe child restraints	No. of National Driver Offender Retraining Scheme (NDORS) courses attended	Police response times
No. of people reached through campaigns	No. of design and construction schemes delivered	No. of extended rear facing child seats purchased	No. of vehicles checked by Community Speed Watch (CSW)	Fire and Rescue Service response times
No. of people trained		% of partner fleets which are NCAP5* rated vehicles	% of vehicles checked by CSW exceeding enforcement threshold	No. of collisions attended by air ambulance
Brand awareness of publicity campaigns			No. of CSW communities	No. of extractions from collisions (and methods used)
No. of people agreeing with questions in annual survey			No. of Vehicle Activated Signs (VAS) or Speed Indicator Devices (SID) deployed	Waiting times at Accident and Emergency (A&E)
				Network reinstatement rates
				Length of time for legal processes
				No. of road victim referral uptakes
				No. of people training in first aid through Biker Down
				No. of students receiving first aid in schools

Understanding how effective specific interventions are is also important for improving delivery. There is a need to show that activities are providing value of money and are being delivered in the most effective way. This involves evaluating engineering, enforcement, and educational interventions. For engineering, there are many road safety investment appraisal models which can be used to monitor the costs and direct and indirect safety-related benefits of projects. With behaviour change interventions, it is important to evaluate the delivery (identifying whether it can be improved) and outcomes (identifying whether it achieves its aims and objectives).

The Appendix A – Evaluation section on page 33 discusses the steps which the SYSRP considers when evaluating interventions, with Appendix B – Logic Model on page 35 providing an example logic model, which sets out how to visualise aims and objectives of interventions.

Public survey

In addition to the specific SPIs being monitored by SYSRP, it is proposed that standard questions are asked of the local population and local road users annually to understand the overall impact of the Partnership on road users' attitudes, knowledge and behaviour. These can be used to track changes over time.

Using established questions will enable the SYSRP to benchmark against national results and those from other areas and be confident in the wording of the questions used. The Transport Survey Question Bank is a tool to search questions asked in main transport surveys conducted since 2000 (Department for Transport, 2017). The tool incorporates questions from a large number of existing surveys, including: Active People Survey, British Social Attitudes, THINK!, Transport Choices Segmentation Study, and young driver safety amongst others. Appendix C – Public Survey Questions lists some example questions from the British Social Attitudes Survey, which could be used annually, although the Partnership is encouraged to use the Question Bank tool to design its own annual survey.

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Structure

The Partnership review that was undertaken in the summer of 2021 identified ways in which SYSRP could be strengthened to start to operate using a Safe System approach. Whilst there was a strong central team, co-ordinating road safety interventions across the Partnership area, there was scope to improve governance and accountability and to embed communities into road safety practice. As will be explained later in this Strategy, road users themselves have a key role to play via the shared responsibility implicit in the Safe System. Direct community involvement and delivering road safety *with*, rather than to, local road users and residents will embed the concept of shared responsibility and increase ownership and participation.

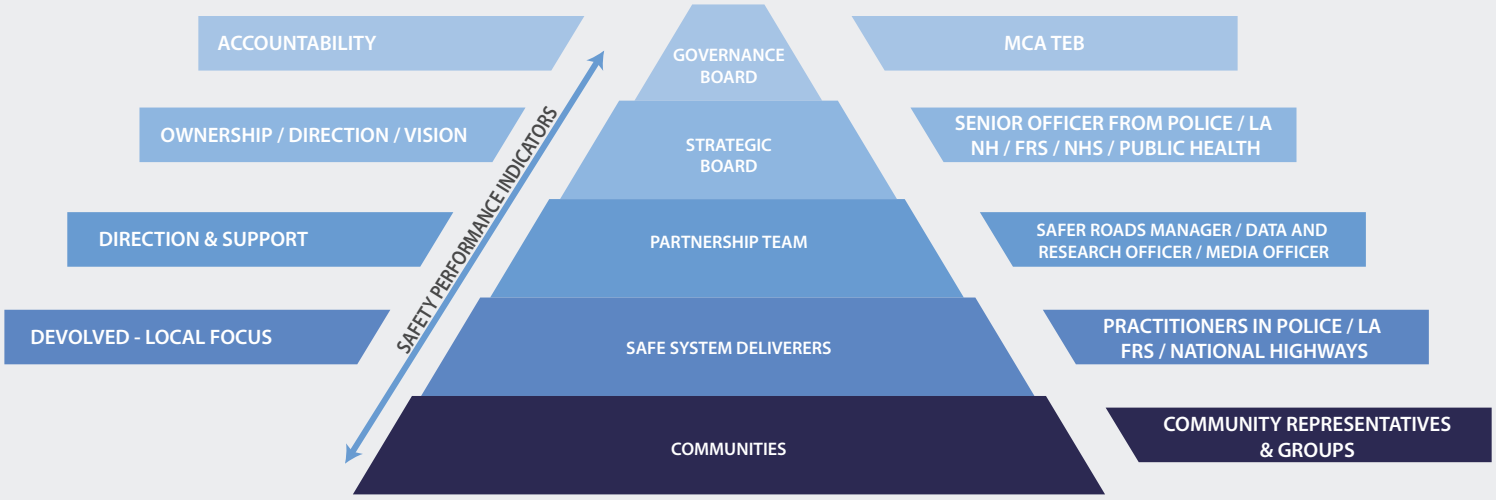
To strengthen these elements of the Partnership, structural improvements were proposed, as shown in Figure 5.

Governance Board

Under the previous format, annual reports of SYSRP activities were presented to Chief Executives and South Yorkshire Leaders meetings, with the SRP Board meeting every three months to set the visions of the Partnership and direct activities.

To increase accountability, it is proposed that the existing Mayoral Combined Authority Transport and Environment Board (MCA TEB) is the appropriate forum to improve governance. It is planned that TEB will receive an annual report for approval, presenting the annual casualty statistics as approved by DfT and demonstrating what the Partnership has achieved/plans to achieve against agreed milestones and objectives set. As three of the four SYSRP Cabinet Members attend TEB, it is a suitable forum for scrutinising the Partnership's activities.

Figure 5 *New Partnership Structure and Roles*

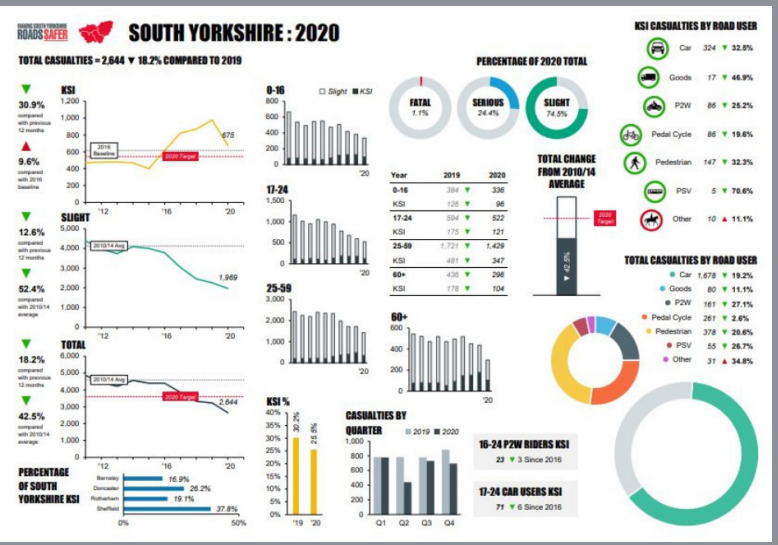


Strategic Board

The ownership of the direction and vision of SYSRP's Strategy will continue to sit with the SRP Board (renamed Strategic Board). This Board comprises of senior officers from key partner organisations. The Strategic Board's role is to review the activities undertaken by the Partnership, ensuring that Safe System principles are adhered to by the partners; scrutinising monitoring reports; and overseeing the activities of the Partnership.

The Board will look through at the Partnership's activities through a Safe System lens, ensuring that it pushes back to the Partnership Team and local practitioners if priorities appear to shift away from the key principles.

It will report to Members of the TEB on an annual basis and will also provide updates to the Senior Transport Officers Board (STOB) before submitting any reports to MCA TEB. In addition, twice yearly there will be discussions with the relevant Cabinet and Committee members and senior officers from South Yorkshire Police, South Yorkshire Fire and Rescue and the Office of the Police and Crime Commissioner, who will scrutinise the SRP proposals and act as the gateway to the discussions with SYMCA TEB.



The membership of the Board will be mainly comprised of senior officers from the four local authorities, South Yorkshire Police, South Yorkshire Fire and Rescue Service, National Highways, Public Health, and other stakeholders the Partnership believes should be represented.

Partnership Team

SYSRP has had a strong central partnership team which has led on the co-ordination and delivery of interventions and the provision of data and analysis. The strength of the partnership team is that it has driven forward activities but, in some respects, this has led to a reliance on this central function. To strengthen participation by, and ownership amongst, partners in the delivery of Safe System activities, the Partnership Team has been streamlined. Devolving responsibility will increase local focus and encourage engagement with local communities.

There will be three roles within the Partnership Team:

- **Safer Roads Manager:** This role is about co-ordinating the activities of the Partnership, reporting to the Strategic Board, and supporting local deliverers in adopting a Safe System approach. The Strategic Programme Lead Officer will advise the Strategic Board on priorities, based on the analysis undertaken by the Data Lead. Whilst local deliverers will be working 'on the ground', this role will support practitioners to ensure consistent approaches are adopted. A key responsibility will be to ensure that the theme groups deliver in an evidence-led manner and that collaboration occurs across theme groups.
- **Data and Research Officer:** Data analysis is an integral function of the Partnership. Activities must be data-led and therefore it is essential that accurate, timely data is used to understand casualty and collision priorities in the region.

Furthermore, as already explained, evaluation is required to understand how effective interventions are. Safety Performance Indicators will be monitored to identify progress in Safe System delivery. The Data Lead will undertake analysis on collision and SPI data, as well as leading on the design, commissioning and/or delivery of evaluation projects. As South Yorkshire Police collect casualty data via the STATS19 system, the organisation has an integral role in this function.

- **Media Officer:** Communications is cross-cutting. The Partnership speaks with one voice and messaging to the public must be consistent. The Communications Lead will ensure that a strong brand is established and maintained, ensuring that the local communities understand what SYSRP do and how they can work with the Partnership. Communications can be used to support a range of Safe System interventions, including explaining what the philosophy means in practice. Public awareness of new initiatives in road and vehicle design, as well as changes to traffic rules or increases in police enforcement will be increased through clear communications.

The Central Team will be hosted by Sheffield City Council.

Safe System Deliverers

Delivery of road safety activities will be based within each of the SYSRP partners and aligned to the Safe Systems approach. A key approach is delivery with and through communities. In the next section on Taking a Safe System approach, the roles and statutory duties of partner organisations are set out, which demonstrates that no single organisation can achieve a Safe System on their own but that there are obvious lead authorities for various actions. There are certain tasks which can only be performed by particular partners. For example, speed enforcement primarily belongs to the police as other partners cannot process offence detections for prosecution. However, other partners have supporting roles. Whilst the police undertake speed enforcement; the local highways authorities and National Highways have responsibility for setting appropriate speed limits; local communities can support enforcement through Community Speed Watch activities; and all partners can communicate with road users to ensure compliance with those posted limits.

A Safe System 'theme group' will be formed, based on the five pillars, and consisting of the partners with responsibilities in those themes. No partner can work in isolation on a Safe System element and multiple partners will be involved in each Safe System theme. Furthermore, to create a Safe System, each theme

group must work with the other theme groups to complement and reinforce activities. The theme group will also work upwards and outwards from the Partnership with other partners and stakeholders to benefit the Safe System.

Communities

In late June/early July 2021, a survey was disseminated to members of the public via partner social media channels. Its purpose was to understand what residents and road users in South Yorkshire think the priorities are for road safety actions in their community. Almost all (98.5%) of the respondents were from South Yorkshire. When asked to rate priority issues for action in their community, road safety was second, after crime, and above anti-social behaviour. Looking at road safety specifically, their priorities for action were speeding, more police enforcement, drink/drug driving, road maintenance and mobile phone use.

Around a third of respondents had personally been involved in road safety activities, including campaigning, Community Speed Watch, publicity work, and attending or organising road safety events.

Respondents felt that road safety should involve multiple partners, with over three-quarters saying it should involve the police, local authorities, and road users. Over half thought it should also involve schools, the local community, the Office of the Police and Crime Commissioner (OPCC), and National Highways.

The survey showed that the residents of South Yorkshire recognise the importance of road safety as a local issue. They also see that there are multiple issues to address and that it involves many different parties.

There is obviously a need to work with residents, with a recognition that the local community and road users have a key role to play in road safety. Many of the respondents were already engaged in road safety activities. For the SYSRP, this is importance in the adoption of a Safe System approach. There is a shared responsibility to create a Safe System, between those who design roads and vehicles, those who build roads and vehicles, those who maintain roads and vehicles, and those who use roads and vehicles. To this end, it is crucial that the Partnership works with the local community and road users to improve road safety.

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Taking a Safe System approach

The role of SYSRP in the Safe System

The SYSRP is now working under a Safe System approach:

- Accepting the principles behind the Safe System, including the shared responsibility of those throughout the system to bring the elements together to reduce the likelihood of death or serious injury.
- Accepting that no-one organisation can create and maintain a Safe System on its own and therefore the Partnership needs to work with partners and stakeholders to strengthen all parts
- Accepting that those who use the roads share the responsibility and therefore it is essential to work with communities to improve that ownership.

Those within the Partnership hold key responsibilities for designing, building, and maintaining the local road network and supporting its safe use. Without the Partnership collaborating, vital actions required to create a Safe System would not be possible.

The four local highways authorities in Barnsley, Doncaster, Rotherham, and Sheffield are responsible for maintaining local roads, undertaking road safety audits on infrastructure projects, constructing new roads and changing the infrastructure on existing roads to reduce the likelihood of collisions occurring, and carry out studies into collisions which do occur (taking appropriate measures to prevent other incidents occurring). National Highways has similar responsibilities for the Strategic Road Network (SRN), which covers motorways and major (trunk) roads in England. These key responsibilities under Safe Roads cannot be undertaken by other organisations.

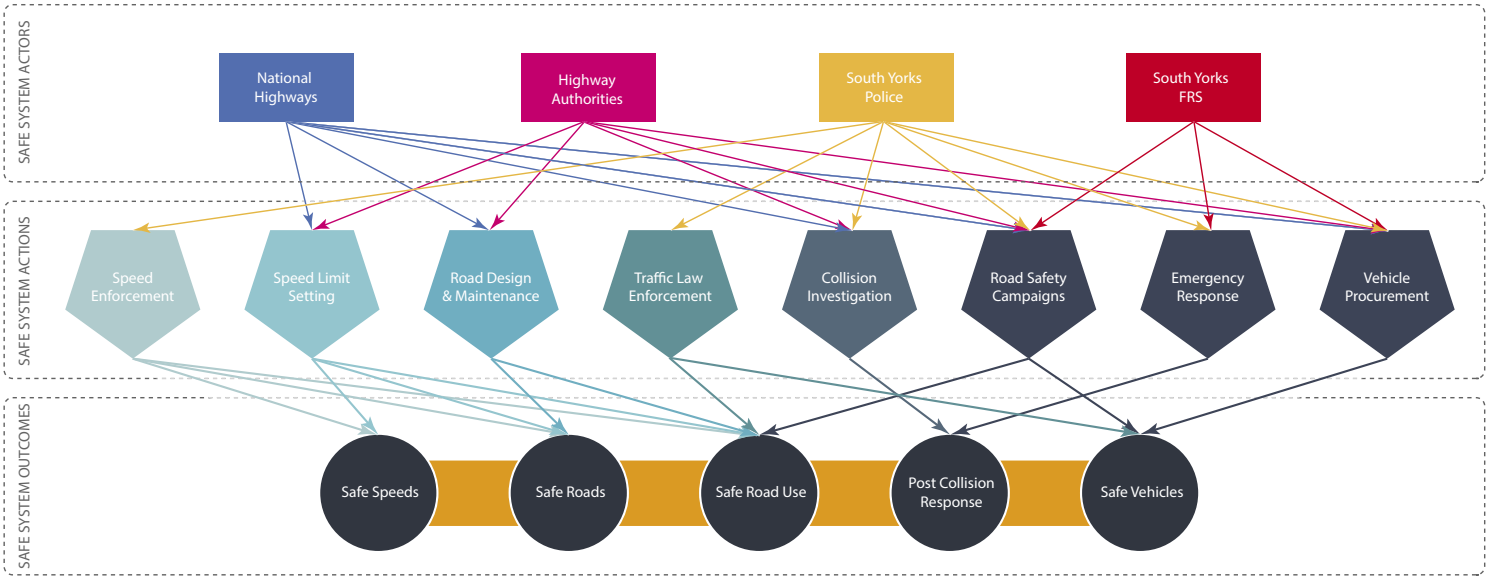
Whilst Safe Speeds requires a multi-disciplinary approach, with local residents playing a part through Community Speed Watch (CSW) and the use of speed indicator devices (SID) and vehicle activated signs (VAS), there are defined roles for partner organisations. Speed limits are set by highways authorities and are enforced by the police. The back-office function (processing fixed penalty notices for speeding offences) is provided by South Yorkshire Safety Cameras. Compliance achieved through enforcement and speed limit setting is therefore a key responsibility of SYSRP partners.

Post Collision Response involves the partners in multiple ways. There is, of course, the immediate

emergency care provided by the Police, Fire and Rescue Service, Ambulance Service, trauma centres, Accident and Emergency departments, and local hospitals. Immediate remedial action may be required to repair any road damaged in a collision, involving the highways authorities and National Highways. Collision Investigation is undertaking collaboratively, with South Yorkshire Police's Serious Collisions Unit and Forensic Collision Investigation collecting and analysing data in the aftermath of fatal and severe incidents, working with local highways authorities on lessons to be learnt and compiling evidence for prosecutions. Long-term physiological and psychological support is provided by local health care providers.

Safe Road Use also requires input from those across the Partnership. Safe Road Use means acknowledging that people can make mistakes but there is a need to reduce the likelihood of these mistakes occurring. Road users need to be compliant with traffic rules and laws, meaning there is a clear enforcement role for the Police. Enforcement measures which discourage road users from speeding, driving whilst under the influence of drink or drugs, using a mobile phone whilst driving, and increasing seat belt use positively, impact on the likelihood of collisions occurring. Enforcement is effective if offending drivers are punished and/or it acts as a deterrent to offending. Deterrence "requires an awareness of illegal behaviours; a belief that there is a probability of detection; and a belief that the consequences of detection will be negative. It means that enforcement is most effective when combined with campaigns highlighting risks and consequences of being caught." (Turner, Job, & Mitra, 2021, p. 42) As promoting road safety is a statutory duty of highways authorities, and the National Fire Chiefs Council see road safety as high strategic priority for Fire and Rescue Services (National Fire Chiefs Council, 2022),

Figure 6 *The Safe System responsibilities and inter-relationships of SYSRP partners*



the Partnership works together to communicate to road users as to how to comply with road rules and use the network safely.

The training of road users is also an important part of creating Safe Road Use. Starting with teaching children how to cross the road as a pedestrian or ride on the road as a cyclist, training helps to ensure that road users understand how to use the network, are familiar with the rules of the road, and know the consequences of not applying the training correctly. Whilst driver training and testing sits outside of the roles of partner organisations, the Partnership can work with the DVSA and driving schools to ensure that novice drivers undertake sufficient on-road professional instruction and complete hazard perception training (both have been shown to positively impact crash risk).

Safe Vehicles is a trickier element of the Safe System for road safety partnerships. Partnerships don't design or manufacture vehicles and don't create the legislation that governs the safety features required for new vehicles. However, South Yorkshire Police will enforce legislation related to vehicle defects and modifications to ensure that vehicles are roadworthy and safe. Many child car seats are fitted incorrectly and therefore partners can provide training for parents and carers on safe fitment. Whilst the Partnership cannot influence the design of vehicles being used on local roads, it can encourage the purchase of the safest vehicles by promoting the benefits. Furthermore, partners can look to their own fleet purchasing policies, advocating (where possible) for safety features. As large local employers, these policies could positively improve the local fleet, especially if contractors, suppliers, and local businesses were all encouraged to purchase safe vehicles.

Priority groups

SYSRP has a strong history of using data analysis to understand priorities for road safety action. In September 2017, extensive analysis of reported casualties in and from South Yorkshire was undertaken to assist the Partnership with tailoring interventions. The 2017-2026 SYSRP Strategy (South Yorkshire Safer Roads Partnership, 2017) sets out a number of casualty reduction indicators, based on the collision analysis. These indicators are:

- A reduction in the number of KSI casualties aged 0-16 years
- A reduction in the number of KSI 17–24-year-old car users
- A reduction in the number of KSI casualties aged 25-59 years
- A reduction in the number of KSI casualties aged 60+ years
- A reduction in the number of KSI 16–24-year-old powered two-wheeler (P2W) riders
- A reduction in the number of pedal cycle riders who are injured
- A reduction in the number of pedestrians who are injured

Updated top-level analysis has been undertaken to check whether these groups should still be a priority for the Partnership. More recent trends (shown in this section) are based on collisions which occurred between 2015 and 2019[5] in South Yorkshire.

Children and young people

Approximately 11% of all people injured on the roads of South Yorkshire are under the age of sixteen, with children accounting for around 13% of those killed or seriously injured. These proportions have not changed significantly over the last 15 years.

From the previous detailed analysis, it shows that the numbers of child casualties increase with age, with the highest numbers for 16-year-old motorcyclists, 13- to 15-year-old pedal cyclists, 11- to 13-year-old pedestrians and 15- to 16-year-old car passengers. This shows that children and young people are vulnerable as road users, using a variety of modes.

The detailed analysis provides guidance to the Partnership as to when and where these collisions occur as well as where casualties tend to come from. In terms of sociodemographic background, there is an over-representation of child casualties from deprived communities.

Turning to young people (aged 16 to 24 years), they account for approximately 24% of all casualties and 25% of those killed or seriously injured. There have been reductions in the numbers who were injured, although little difference in the trend of those killed or seriously injured. The detailed analysis reveals that, unlike children, casualty numbers decrease with age for young people, with a peak at 18 years old across

[5] Whilst 2020 collision data are available at the time of writing this strategy, the Covid-19 pandemic impacted on the way people travelled in 2020 and therefore, the road collisions which occurred. There are lessons which can be learnt from the reductions in traffic and increases in cycling, but the data have been excluded from this general trend analysis, as it doesn't reflect the 'normal' risks for different road user groups.

casualty types. For young car drivers, there are peaks between 18 and 21 years old whilst motorcycle riders are highest at 17 years old. There is a peak for car passengers aged between 17 and 19 years old.

Again, the detailed analysis undertaken previously shows the locations and types of roads where young people are injured, the times of day and months when these collisions occur, and the home locations of the casualties. For young people who are injured on the roads as car drivers, car passengers and motorcyclists, they tend to come from more deprived communities. Young pedestrian casualties tend to live in areas prevalent amongst students.

Adult casualties

Those aged between 25- and 59-years old account for half of road users injured on the roads of South Yorkshire. The severity ratio for this age group is lower than for others, however, with adults accounting for about 46% of those killed or seriously injured.

The detailed analysis previously undertaken for this age group found that risk decreased with age, with most adult casualties in the 25 to 34 age group. The vast majority of adult casualties were car occupants, with over half of all adult casualties being car drivers (54.2%) and 15.6% were car passengers.

Looking at other road user types, 9.3% of the adult casualties were pedestrians, 6.8% were motorcycle users, and 8.1% were cyclists. With this latter group, the proportion of adults injured as cyclists has increased in recent years, going from 5% of all adults injured between 2006 and 2010, compared to 8% of all casualties between 2016 and 2020. Furthermore, whilst motorcyclists and cyclists represent less than 10% of adult casualties, they are overrepresented compared to the traffic they account for on the roads. According to traffic count data, cyclists account for around 1% of miles travelled in Yorkshire and the Humber whilst motorcyclists around 0.7% of traffic[6].

Fewer women than men are injured as road users, and the gender disparity increases with severity, with males making up three-quarters of KSI casualties between the age of 25 and 59 years old.

Once again, there is a clear link between deprivation and the likelihood of being a casualty.

Older casualties

Older people (those over 60 years) account for around 11% of all casualties injured in South Yorkshire. With older residents, there is a slightly lower percentage who were injured as car drivers than 25- to 59-year-old adults (47%) but a higher percentage who were car

[6] https://roadtraffic.dft.gov.uk/regions/8

passengers (19.2%). Older pedestrians accounted for a much higher percentage of casualties than for other adults (17.4%).

Older people are much more likely to suffer fatal or serious injuries if involved in a road collision. Around a quarter of those aged over 60 die or are seriously injured, compared with 19% of all adults. Frailty and fragility amongst old people lead to a lower threshold to sustaining injury, where incidents which would have resulted in no or minor injuries for young people can be more severe in the elderly. Additionally, injuries which might be considered moderate (like a rib fracture) can result in death amongst older casualties because of medical complications, such as pneumonia. (Older Drivers Task Force, 2021)

In addition to the frailty of older people, the UK population is ageing. It is estimated that by 2040, one in seven people will be aged over 75. Supporting older people with safe mobility will become an increasing priority for SYSRP over time. Helping older people to continue to drive, walk, cycle, and use public transport has psychological and health benefits for them and wider economic benefits to society. (Fosdick & Campsall, 2020)

Motorcyclists

Whilst motorcyclists only account for around 7% of all casualties in South Yorkshire, they do account for 16% of those killed or seriously injured (and as mentioned earlier, they account for about 0.7% of traffic in Yorkshire and the Humber).

Looking at engine sizes, casualties are fairly evenly distributed between those who were on motorcycles with engines up to 125cc (smaller) or over 125cc (larger) (56% of all casualties were on smaller motorcycles as were 49% of all KSI casualties).

As stated earlier, young motorcyclists are of concern. Just over a third of injured motorcyclists were aged between 16 and 24 years and 79% of these were on smaller motorcycles.

Pedal cyclists

Cyclists are over-represented in the casualty figures when compared to miles travelled, making them a vulnerable group.

There are multiple benefits to encouraging more cycling. There are strategic economic benefits of compact, less car-dependent urban design, whilst local economic benefits come from higher retail spend in local businesses from cyclists visiting shops. There are employment benefits, with cycling reducing absenteeism and boosting productivity, whilst cycling to work facilitation leads to lower staff turnover and can assist with accessing employment opportunities. Research also identifies public expenditure, tourism,



and transport and logistic benefits from cycling (Rajé & Saffrey, 2016). Personal benefits include making the local neighbourhood more attractive (potentially leading to higher property values) and children who walk or cycle to school tend to be more attentive. Lastly, there are tangible health benefits from cycling. Cycling can improve both physical and mental health and can reduce the chances of experiencing many health problems, including obesity, cardiovascular disease, cancer, diabetes, bone injuries, arthritis and mental illness (Victoria State Government, 2021) (Cycling UK, 2017) (Sheffield City Region, 2021).

Given the benefits of cycling, there are strong reasons for the partner organisations to encourage more people to choose to ride for work, utility purposes and leisure. Safety is a key component, however. Whilst cycle casualties are fewer in number than other modes, risk is disproportionate to miles travelled and cyclists are vulnerable to serious injury, given the low levels of protection they have in the event of a collision. Safety, or perceived safety, is a key barrier that prevents people from taking up cycling. The speed and volume of traffic is often a concern, as is the risk of being personally injured whilst riding a bike (Department for Transport, 2020).

There is a balance, therefore, to be found between working to promote cycling whilst improving actual and perceived safety.

Pedestrians

A quarter of those killed or seriously injured on the roads of South Yorkshire were pedestrians (and account for 14% of all casualties). Nearly a third of South Yorkshire residents walk for more than 10 minutes five times a week and 74.6% walk once a month (average of 2015/16 to 2019/20) (Department for Transport, 2021).

Like cycling, there are clear health and environmental benefits from encouraging local residents to walk more frequently but again, there are barriers related to safety and perceived safety.

Deprivation

In addition to the priority groups set out above, the Partnership undertakes geographical analysis both of where collisions occur and where those involved reside. This highlights that people living in deprived areas of the county are more likely to be injured on our roads. Analysis of all South Yorkshire casualty data would suggest that 25.4% of casualties reside in the top 10% most deprived areas, with only 3.3% of casualties living in the top 10% least deprived areas. People in poorer communities suffer a greater burden of road traffic injuries than those in more affluent areas. Those in deprived areas are less likely to own a car or to have purchased one with newer safety features. They are more likely to travel by active modes (such as walking and cycling), which increase vulnerability.

By prioritising delivery in the areas with the highest casualty rates, the Partnership's work also contributes towards reducing these health inequalities. Road safety has a much wider impact on health than just preventing injuries from traffic collisions. By facilitating

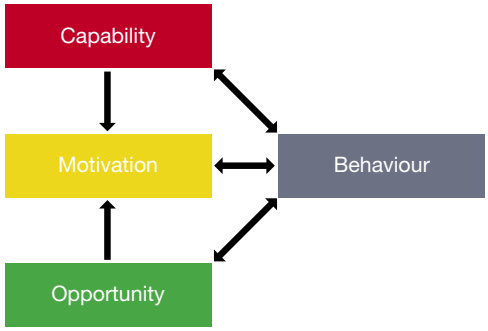
more active travel (making it safer and easier to walk and cycle), there are health benefits for individuals and society. Travel can be influenced by concerns about actual or perceived safety and effective interventions to reduce road danger can encourage more people to travel by these active, health-promoting modes.

Understanding mistakes and non-compliance

The imperative at the heart of the Safe System is that people are vulnerable, and people make mistakes. The vulnerability of human beings cannot be changed, although vehicles and road environments can be improved to protect human beings and reduce exposure to vulnerability. It is impossible to completely prevent people from making mistakes, but it is necessary to encourage the correct use of the road network. It is also essential to highlight the shared responsibility for the creation of a Safe System – road designers and vehicle manufacturers will strive to create the safest roads and vehicles, but people need to ensure that they use them safely, and within the traffic laws.

There are two approaches to the delivery and development of interventions to encourage road users to be safe: ensuring that people know how to use the system correctly; and ensuring that people are compliant with the rules of the system. The first approach is about using training and skills-based education to assist road users to know the rules of the road and how to physically use the facilities or vehicles provided. The second approach is about understanding why road users might not be complying with the rules of the road and identifying the correct mechanism for encouraging them to do so.

Figure 7 *COM-B Model (Michie, Atkins, & West, 2014)*



A useful tool for tailoring both types of approach is the COM-B model[7], which states that capability, opportunity and motivation can all influence behaviour. (Michie, Atkins, & West, 2014) More information on how the model can be used to understand how to assist road users to comply with the rules and correctly use the system can be found in Appendix D – COM-B Model.

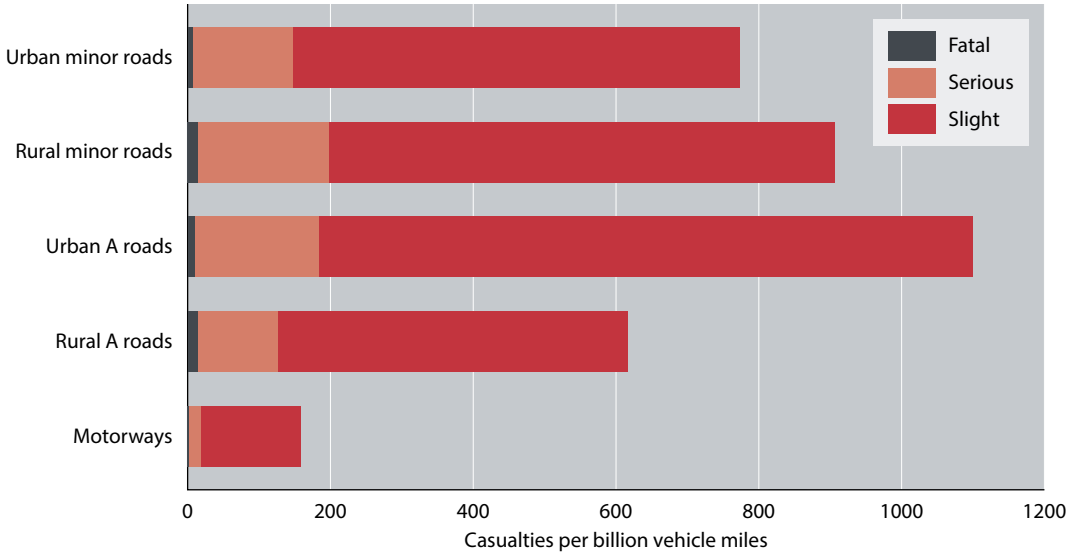
Road types

With road types, different classifications pose different levels of risk. Under a Safe System approach, there is a need to take a proactive view of preventing death and serious injuries, targeting routes and locations where risk is highest. Figure 8 shows the rate of casualties, by severity, by billion vehicle miles travelled on each road type.

Motorways in South Yorkshire account for 1.9% of the road length in the area, with 7% of casualties occurring on these roads. However, when traffic is taken into account, motorways have the lowest level of risk across all severity levels. Urban minor roads have the highest traffic levels, and this does lead to a relatively

[7] There are lots of different models to help road safety practitioners understand behaviour, and SYSRP will select the most appropriate for the problem behaviour in question. COM-B is provided here as an example to show there are lots of different influences on behaviour, and these need to be recognised before effective interventions can be designed and delivered.

Figure 8 *Annual number of casualties per billion vehicle miles in South Yorkshire*



high rate of slight casualties per billion vehicle miles travelled. However, urban A roads and rural minor roads have the highest serious and slight casualties per billion vehicle miles travelled (with rural A roads also having a high fatality rate).

Investment in road schemes and remedial measures is based on cluster analysis (the identification of specific locations on the road network where safety can be improved) and route analysis (the identification of specific lengths of roads where safety can be improved).

Clusters could occur at specific junctions, bends, or outside particular places, such as schools, libraries or shops. The purpose of the analysis is to understand what remedial actions would help to improve the safety of that location, which could range from improved signage and lining to a re-design of the road.

Route analysis uses a similar approach but takes in a much longer stretch of road, which might require a combination of treatments to improve safety. Often, there is a reliance on engineering measures to improve safety on a route, but partnerships can also adopt a holistic approach whereby engineering measures are combined with education, publicity, and enforcement.

Serious consideration needs to be given to assessing the relative and comparative risk of clusters and routes. Density analysis (treatable collisions per cluster, or collisions per mile) is a basic approach and is best used in conjunction with a risk analysis taking into account traffic levels. Traffic count data is a useful data source when considering prioritisation and aligns with other studies of risk published annually by the Road Safety Foundation.

There are a number of guidance and design manuals which set out how roads should be designed, assessed, maintained and operated. These provide clear standards on how changes to the road network are currently implemented in the UK.

Safe Systems guidance on road design also exists to support infrastructure that accounts for people making mistakes and aims to reduces their vulnerability.

> Street design has a crucial effect on how people use and experience roads. When streets are designed and implemented for safety, they limit driving to appropriate speeds.
>
> Street design has a strong interrelationship with speed management and enforcement. It can reduce or eliminate conflicts between modes of transport and make it easier for people to understand how the space is divided or shared by different modes, which makes walking, cycling, and accessing public transport much safer and more appealing. Street design has a strong interrelationship with mobility and transport choice. By being more "forgiving" – that is, by reducing the opportunity for errors to occur and the impacts of those errors when they do occur – it can reduce the likelihood that a collision is fatal. (World Resources Institute and Global Road Safety Facility, 2018, p. 41)

The guidance provides suggestions on how to use proven distinct design techniques for the different needs of rural roads, urban streets and highways, thinking about speed control, segregation of vulnerable road users and types of junctions appropriate for the type of use and type of conflict. Taken alongside existing guidance on design, these suggestions provide an opportunity to re-engineer roads using a Safe System approach.

Street design also influences active travel. Street design can encourage the use of public transport and allow it to be accessed by those with restricted mobility and wheelchair and pushchair users. As well as encouraging physical activity, creating well defined streets and spaces can reduce crime and anti-social behaviour. "Enabling active travel can provide an affordable means of connecting people to employment and economic opportunity, to shops and leisure amenities and healthcare facilities" (Sheffield City Region, 2021, p. 22).

Current and future activities

SYSRP already undertakes a wide range of interventions that align with Safe System thinking. These activities will be described in this section, although the list is not exhaustive and is a set of examples. These examples outline the types of activities and interventions which can be undertaken, but partners must always think about the evidence based and how the activities sit within the wider Safe System. Annual reviews of activities will be undertaken to reflect changes in collision data, SPIs, survey data and research into the effectiveness of interventions. This allows the Partnership to respond dynamically to local needs and international best practice.

The types of intervention which have been proven to be effective include which are shown in Table 3.

Not all of the interventions in Table 3 are within the control of SYSRP and some require Government leadership to change existing or introduce new legislation.

The Partnership has limited resources and to move to a Safe System approach, it must prioritise those locations, behaviours, and road user types where the data shows the greatest need. In-depth data analysis provides insight into where and for whom interventions should be targeted and international best practice is used to ensure that the right solutions are identified.

Innovation is also encouraged within the Partnership and with partners, allowing new interventions to be tried and tested, thinking about the current evidence base and how an understanding of the issue or the intervention's effectiveness could improve what is known about best practice. There could be instances where data reveals a casualty problem for which the Partnership is not currently delivering an intervention and where no best practice interventions have been identified elsewhere. This provides an opportunity for the Partnership to undertake some research and pilot something new. In this situation, it may be possible to obtain research grants and working with expert organisations. When designing a new intervention, it is key to think about:

- What is the evidence base for the problem we are trying to solve? What do we know about what works in other sectors or for other problems?
- How can Safe System thinking help us to address the problem? How can we strengthen the whole system through a new intervention?

Table 3 *Effective interventions within the Safe System (Summarised from (Turner, Job, & Mitra, 2020))*

Safe Roads	Safe Speeds
Road design which includes segregation through roadside and central barrier systems, separate bicycle and motorcycle facilities, pedestrian footpaths and crossings and traffic signs and line markings.	Road designs which reduce vehicle speeds through the appropriate use and design of traffic calming, roundabouts, gateway treatments, designed lower speed limits and speed cameras.
Safe Road Use	**Safe Vehicles**
Improving the training regime through extensive on-road practice, graduated driving licence systems, hazard perception training, public education and campaigns (as part of an integrated strategy), enforcement, penalties, alcohol interlocks, speed monitoring and increased helmet wearing rates.	The application of minimum vehicle safety standards and vehicle ratings (through the Global New Car Assessment Program [NCAP]), seat belts, vehicle maintenance, daytime running lights, under-run guards on trucks, Electronic Stability Control and other advanced vehicle technologies.
Post Collision Response	
Systems to improve emergency response time, better emergency care, improved first aid skills for the public, and improved hospital care.	

- What are the aims and objectives of the intervention? What will it specifically seek to achieve?
- How will we test effectiveness in a pilot? What will our measures be? In a pilot, this will also consider costs of implementation, ease of implementation and acceptability, as well as how much it contributes to reducing the casualty problem.

SAFE ROADS

Lead agencies for Safe Roads are the local highway authorities and National Highways who deliver a wide range of activities:

- iRAP ratings
- Road design
- Road safety audits
- Local safety schemes
- Highway improvements
- Highway maintenance
- Facilities for and segregation of vulnerable road users (VRUs)

Representatives from these organisations who design, build, and maintain safe roads will work closely with those delivering the Sheffield City Region Active Travel Implementation Plan to provide safe facilities for pedestrians and cyclists (Sheffield City Region, 2021). In addition, we shall liaise with South Yorkshire Police on schemes that are suitable for enforcement and compliance, bus companies on public transport corridors to ensure that stops and crossings are in the right places and Supertram and Network Rail on the siting of new infrastructure related to theiroperation.

SAFE ROAD USE

All SYSRP partners deliver activities to improve Safe Road Use. The SYSRP Communications function co-ordinates a lot of this activity, which includes:

- Road safety campaigns
- Media and publicity
- Promotional events
- Skills based training for motorcyclists, cyclists, and child pedestrians
- Schools programme
- Young driver safety
- Safer Driving at Work

Compliance is important within the Safe System, with South Yorkshire Police undertaking:

- Operation Illuminate (roads policing and casualty reduction operation for road safety)
- NPCC campaigns
- Traffic enforcement as part of daily business
- Safety camera enforcecement of red light and Red X traffic offences

Local authorities also have a role in enforcement through:

- Parking enforcement
- The provision available from new powers to conduct civil enforcement of some moving traffic offences

SAFE SPEEDS

Setting and achieving Safe Speeds also involves organisations across the Partnership.

National Highways and the local authorities are responsible for:

- Setting speed limits
- Road design which includes speed control measures
- The use of VAS and SID
- Working with local area and neighbourhood committees

South Yorkshire Police seek to achieve compliance with these limits through:

- Fixed and mobile safety camera enforcement
- Ad hoc speed enforcement/Operation Illuminate
- Referring offenders to National Driver Offender Retraining Scheme (NDORS) courses
- Community Speed Watch

All partners also encourage compliance with speed limits through:

- Campaigns activity
- Schools/college education
- Business events

SAFE VEHICLES

The use of Safe Vehicles is also a cross-organisational priority, involving South Yorkshire Police, South Yorkshire Fire and Rescue Service, National Highways, and local authorities. Communication is important with:

- Tyre safety campaigns
- Vehicle checks, including 'How to' maintenance videos
- Advice on what to do in the event of a breakdown
- Eco driving advice
- Seat belt use
- Child car seat use

The Police also undertake:

- Construction and use vehicle checks

For all partners, there is an opportunity to adopt procurement policies for:

- Fleet vehicles with NCAP ratings

POST COLLISION RESPONSE

Post Collision Response involves a wider range of partners. In the event of a collision, there can be:

- Police attendance
- Fire and Rescue attendance
- National Highways Traffic Officer attendance
- Ambulance/paramedic attendance
- Air ambulance attendance
- Hospital treatment

After a collision occurs, actions are taken by multiple organisations:

- SYP collision investigation
- Local authority/National Highways collision investigation
- Support for victims provided by support groups
- Remedial actions to repair and/or improve roads

Education also plays a part with:

- Biker Down sessions (first aid training for motorcyclists)
- General first aid/first on scene training

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Conclusion

Implementation of Safe Systems is still a relatively new approach in the UK, although more organisations and safer road partnerships are now embarking on that journey. Given this new way of working, it could take time to embed the philosophies, establish methodologies for data collection and gather baseline data. However, the partners are committed to working together to create a safer system providing a more forgiving road system designed to protect people from death and serious injury.

SAFE SYSTEMS IS STILL A RELATIVELY NEW APPROACH IN THE UK

We will also need to draw on the involvement of communities in all working together to achieve safer roads in South Yorkshire. By adopting positive attitudes and behaviours and sharing the responsibility for road safety outcomes we can make a big difference ad prevent the needless pain, grief and suffering associated with each and every road traffic collision.

We call on everyone to play their part in helping to make South Yorkshire roads safer.

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Appendix A – Evaluation

Evaluations are an integral part of measuring effectiveness and understanding if road safety interventions are achieving what they set out to. In road safety, many interventions are not evaluated and the results of those that have been are not always publicly available.

The design of an evaluation will differ, depending on a number of factors, including the intervention type, budget, stage of delivery and type of data that can be collected to measure effectiveness. For example, a high-cost re-engineering of a major stretch of road will use different evaluation methodologies to a small-scale trial of a schools-based educational intervention. It means that there should be flexibility when thinking about evaluations.

However, there are some standardised steps that should be followed when designing a new intervention.

1. Firstly, think about the purpose of the evaluation. Is it to:
    a. Demonstrate success?
    b. Inform policy decisions?
    c. Improve delivery of an intervention?
    d. Share best practice?
    e. Show value for money?
    f. Ensure the intervention does no harm?
2. It is likely that the evaluation will measure many (perhaps all) of these, but it is useful to think about *why* the evaluation is taking place, in order to think about how to design it. A process evaluation is examining how to improve the delivery process whereas an outcome evaluation is looking to show the effectiveness of an intervention, and these will use different approaches.
3. All interventions should start with the data, identifying what the problem is and what the solution might entail. Data analysis will influence the shape of the evaluation – if it transpires that the problem is a behavioural one (like speeding) and the evidence suggests that it is related to attitudes, then the evaluation will need to measure how attitudes might change as a result of the intervention.
4. This leads on to setting aims and objectives. Aims are the overall goal of the intervention and objectives are the measurable outcomes. These should be SMART[8] and directly related to what the intervention is seeking to achieve (e.g. a 20% improvement in attitudes towards driving at safe speeds after the intervention, compared to before).
5. It can be useful to work through creating a logic model, to set out the aims and objectives, inputs and outputs and what might affect the results. An example logic model is in Appendix B – Logic Model.
6. Designing an evaluation is dependent on many different factors, including:
    a. Where in the delivery cycle the intervention is at? If it is at the design stage, there will be an opportunity to collect baseline data, to compare with after delivery. This could be offending rates/attitudes/knowledge levels, for example.
    b. What level of detail you want to learn from the evaluation? Qualitative data is rich, in-depth information collected from a small sample of people to get a deep understanding of the problem and/or the intervention. This could be used in trials to gain insight into how the

[8] Specific, Measurable, Achievable, Realistic and Time-bound

delivery worked and what could be improved, including barriers to participation. Conversely, quantitative data is about collecting large amounts of data to analyse differences between conditions, for example, the number of vehicles travelling over the speed limit before a vehicle activated sign is installed, compared to after the sign was in place.

c. Can you compare to other conditions/ groups of people? Control and comparison sites or groups can be used to compare the intervention with what might have happened without the intervention. Control groups are randomly assigned, whereas comparisons are where characteristics are similarly matched (for example, re-designing a junction and monitoring red-light running in comparison to a similar site where no changes were made).

7. There are many different types of evaluation design, depending on the answers to the questions above. These include:
   a. Pre and post intervention (with or without a control or comparison group)
   b. Post intervention only (with or without a control or comparison group)
   c. Post then pre intervention
   d. Randomised controlled trial
   e. Case study

8. There are also a number of research methods which can be used, including:
   a. Questionnaires
   b. Interviews
   c. Focus groups
   d. Observations
   e. Automatic data collection of speeds and volumes
   f. Roadside tests

9. Other things to consider when designing include:
   a. Calculating sample sizes
   b. Recruiting and retaining participants
   c. Using different sampling techniques
   d. Timing of measurements
   e. Creating questions (including using established question banks)
   f. Ethical considerations
   g. Incentives
   h. Analytical techniques, including statistical testing

This website is a useful resource for assistance in planning evaluations in road safety: www.roadsafetyevaluation.com

Appendix B

AIM:	In this box, you would specify what you want to achieve. It should be measurable and so rather than reducing casualties amongst a specific road user, it is better to aim to change elements known to reduce the risk of death and serious injury (such as increased seatbelt wearing or lower vehicle speeds). The aim or aims should be linked to or the same as the long-term outcomes
OBJECTIVES:	In this box, you would specify your objectives. These should be SMART: **Specific** – detailing what you are doing to whom or what. **Measurable** – ensuring it is quantifiable and measurable. **Achievable** – ensuring it is possible to achieve, within the resources, time and influence available. **Realistic** – ensuring the activity will have an effect on the desired goal. **Time-bound** – detailing when the objective will be accomplished by.

INPUTS	OUTPUTS	OUTCOMES			ASSUMPTIONS:
		Short	**Medium**	**Long**	It is useful to list the assumptions you are making about how you think the inputs and outputs will lead to the expected outcomes and objectives. If outcomes are not achieved, these assumptions can help you understand why.
In this box, you will list all of the resources needed to deliver the intervention. These could be staff, funding, equipment, partners, time, research.	In this box, you will list what will be delivered. It could be a number of products (training courses) or activities (enforcement checks) or schemes (junction improvements).	In this box, you will list all of the immediate, measurable effects that will happen because of the delivered inputs.	In this box, you will list all of the medium-term, measurable effects that will happen because of the delivered inputs.	In this box, you will list all of the long-term, measurable effects that will happen because of the delivered inputs.	**EXTERNAL FACTORS:** It is also useful to identify external factors which might affect the inputs and outputs having the desired effects. Identifying these in advance could help with mitigation strategies.

Appendix C – Public Survey Questions

Self-Report Questions

Drink Driving Questions

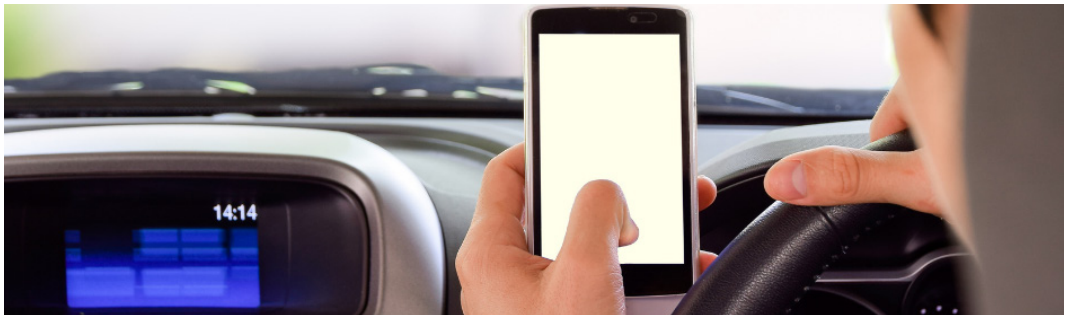
Question Wording	Answer options	Source
Thinking about the last 12 months. How often, if at all, have you driven after drinking an alcoholic drink, even a very small amount?	Almost every day	ONS Omnibus: Drink Driving
	5 or 6 days a week	
	3 or 4 days a week	
	once or twice a week	
	once or twice a month	
	once every couple of months	
	once or twice in the last 12 months	
	Not at all in the last 12 month/never	
(Again, thinking about the last 12 months.) How often, if at all, have you driven when you think you may have been over the legal alcohol limit, even if only by a small amount?	Almost every day	ONS Omnibus: Drink Driving
	5 or 6 days a week	
	3 or 4 days a week	
	once or twice a week	
	once or twice a month	
	once every couple of months	
	once or twice in the last 12 months	
	Not at all in the last 12 month/never	
Thinking about the last time you drove when you thought you were over the legal alcohol limit <after drinking alcohol>. Where had you been drinking before you drove? Select all that apply	At home	ONS Omnibus: Drink Driving
	At someone else's home	
	In a pub/pubs	
	In a restaurant	
	In a nightclub/club	
	Outside in a public place (eg park, street)	
	Other - please specify	
(Still thinking of the last time you drove when you thought you could be over the legal alcohol limit) Do you think you were just a little over the legal limit, quite a bit over the legal limit or a lot over the legal limit?	A little over	ONS Omnibus: Drink Driving
	Quite a bit over	
	A lot over	
Which statement do you think most represents you?	No, I don't think I've driven while over the limit	RAC
	I think I've driven when over the limit the following morning after a night out	
	I know I've driven when over the limit the following morning after a night out	
	I know I've driven when over the limit shortly after having a drink(s)	
	I think I've driven when over the limit shortly after having a drink(s)	

Drug Driving Questions

Question Wording	Answer options	Source
Thinking about the last 12 months How often, if at all, have you driven after taking illegal drugs?	Almost every day	ONS Omnibus: Drink Driving
	5 or 6 days a week	
	3 or 4 days a week	
	Once or twice a week	
	Once or twice a month	
	Once every couple of months	
	Once or twice in the last 12 months	
	Not at all in the last 12 months/ Never take illegal drugs	
In the last 12 months how often, if at all, have you driven when you think you may have been affected by or under the influence of illegal drugs?	Every day/almost every day	Crime Survey for England and Wales
	A few times a week	
	Once or twice a week	
	Once or twice a month	
	Once every couple of months	
	Once or twice in the last 12 months	
	Not at all	
	Don't know	
	Don't want to answer	
How frequently, if at all, do you do each of the following? Drive after taking class A drugs	1 or more times a week	THINK!
	Once a fortnight	
	Once a month	
	Once every 2-3 months	
	Less often	
	Never	
	Don't Know	
	Refused	

Mobile Phone Questions

Question Wording	Answer options	Source
How frequently, if at all, do you do each of the following? Use a mobile phone to text whilst driving	1 or more times a week	THINK!
	Once a fortnight	
	Once a month	
	Once every 2-3 months	
	Less often	
	Never	
	Don't Know	
	Refused	
How frequently, if at all, do you do each of the following? Use mobile phones while driving without hands-free kit	1 or more times a week	THINK!
	Once a fortnight	
	Once a month	
	Once every 2-3 months	
	Less often	
	Never	
	Don't Know	
	Refused	
How frequently, if at all, do you do each of the following? Use mobile phones while driving with hands-free kit	1 or more times a week	THINK!
	Once a fortnight	
	Once a month	
	Once every 2-3 months	
	Less often	
	Never	
	Don't Know	
	Refused	
I make and receive calls while driving	Never	RAC
	Rarely	
	Sometimes	
	Most of the time	
	All of the time	
	Not sure	
I text, email, use social media or the internet while driving	Never	RAC
	Rarely	
	Sometimes	
	Most of the time	
	All of the time	
	Not sure	



Seatbelt Wearing Questions

Question Wording	Answer options	Source
How frequently, if at all, do you do each of the following? Don't use seatbelts while sitting in the front of the car	1 or more times a week	THINK!
	Once a fortnight	
	Once a month	
	Once every 2-3 months	
	Less often	
	Never	
	Don't Know	
	Refused	
How frequently, if at all, do you do each of the following? Don't use seatbelts when sitting in the back of the car	1 or more times a week	THINK!
	Once a fortnight	
	Once a month	
	Once every 2-3 months	
	Less often	
	Never	
	Don't Know	
	Refused	

Attitudinal Questions

Question Wording	Answer options
Please tell me how much you agree or disagree with the following statement: It is too dangerous for me to cycle on the roads	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
Please tick one box for each of these statements to show how much you agree or disagree: Speed cameras save lives	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
Speed cameras are mostly there to make money	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
There are too many speed cameras	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
People should drive within the speed limit	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
The number of speed cameras should be increased	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
It is perfectly safe to talk on a hand-held mobile phone while driving	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly

Attitudinal Questions continued

Question Wording	Answer options
All use of mobile phones while driving, including hands-free kits is dangerous	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
All use of mobile phones while driving, including hands-free kits should be banned	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
The law on using mobile phones whilst driving is not properly enforced	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
If someone has drunk any alcohol, they should not drive	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
Anyone caught drink-driving should be banned for at least five years	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
Most people don't know how much alcohol they can drink before being over the legal drink-drive limit	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly
If someone has taken any illegal drugs, they should not drive	Agree strongly
	Agree
	Neither agree nor disagree
	Disagree
	Disagree strongly

Attitudinal Questions continued

Question Wording	Answer options
Average speed cameras measure speed based on the time taken to travel a distance between two camera sites. Fixed speed cameras measure speed at a single site. Please tick one box to show how much you agree or disagree. Average speed cameras are preferable to fixed speed cameras?	Agree strongly Agree Neither agree nor disagree Disagree Disagree strongly
How often do you cycle nowadays?	Every day More than twice a week but not every day Once or twice a week Once or twice a month Once or twice a year Less than once a year Never
How confident would you say you feel about cycling on the roads?	Very confident Fairly confident Not very confident Not at all confident Don't know
I would travel less by car if there more cycle lanes on roads	Strongly agree Tend to agree Neither agree nor disagree Tend to disagree Strongly agree
I would travel less by car if there more and better sited secure cycle parking facilities	Strongly agree Tend to agree Neither agree nor disagree Tend to disagree Strongly agree
I would cycle (more) if it was difficult to find somewhere to park the car	Strongly agree Tend to agree Neither agree nor disagree Tend to disagree Strongly agree
On a scale of 0 to 10, where 0 is very dissatisfied and 10 is very satisfied, how would you score the overall quality of the cycling conditions in your area	0-10

Attitudinal Questions continued

Question Wording	Answer options
What, if anything, would encourage you to walk or cycle for some of your journeys? (select up to 3 answers)	Better street lighting
	Better maintained pavements
	More road crossings
	More CCTV cameras
	More cycle lanes on roads
	More cycle tracks away from roads
	Less traffic on the roads
	Lower speed limits
	Having more time available
	No car available
	Higher costs of motoring
	Higher public transport fares
	More traffic congestion
	More direct walking routes
	Adult cycle training
	More secure and convenient cycle parking facilities
	A cycle mileage allowance for journeys to work or for business
	Better driver attitudes towards cyclists
	More local shops and other facilities
	More publicity about the benefits walking and cycling has on health, the environment and congestion
	Nothing would encourage me to walk or cycle for some of these journeys

Appendix D – COM-B Model

Understanding the influencers of behaviour (whether it is incorrect or non-compliant use of the system), is important. The following is a high level summary of the COM-B model and identifies what might need to change (there are many other models of behaviour which could be used and the Partnership is encouraged to use the most appropriate for the target audience and/or problem):

Capability

- **Physical Capability** – this is having the skills to do the correct behaviour. This might be the skills to cross the road correctly, ride a bicycle safely, or learn to drive a car. Improving or developing skills can be achieved through providing training or through enablement.
- **Psychological Capability** – this is having the knowledge, skills, memory or behavioural regulation to do the correct behaviour; it means knowing how to perform the behaviour, understanding the consequences of doing/not doing it, and how to recognise and overcome the mental barriers that prevent the road user doing the right thing. It might be that road users don't know the consequences of using their mobile phone at the wheel – that it could result in a collision, but it could also result in penalty points and a fine, and for new drivers, the revocation of their driving licence if they receive 6 or more penalty points in the first two years of driving. Training, education and enablement interventions can all be used to support psychological capability.

Opportunity

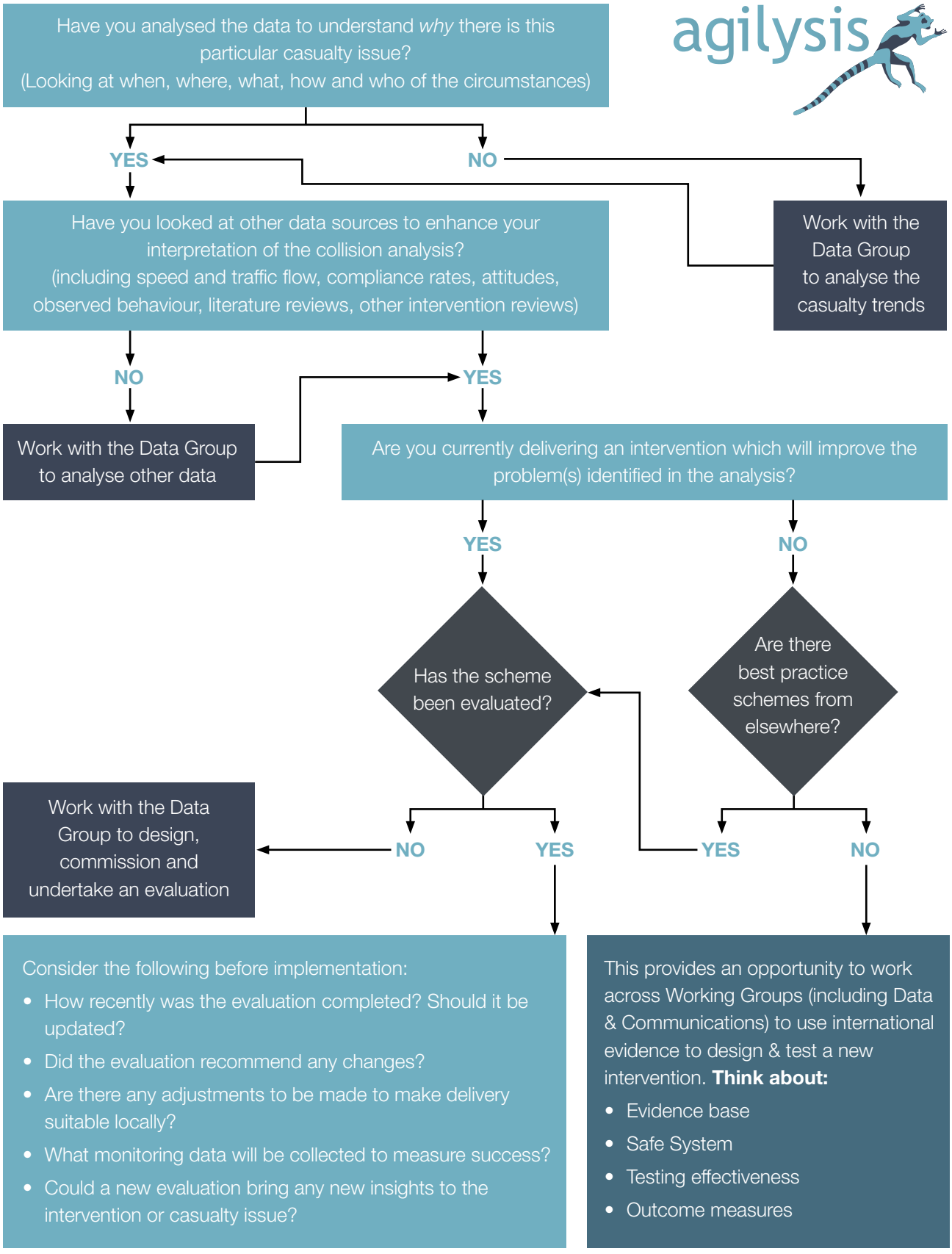
- **Physical Opportunity** – this is having the correct environmental context and resources to perform the right behaviour. Environmentally, it might be that there are not appropriate crossing facilities for a pedestrian to get across a busy road, or that a cyclist does not have access to a helmet. Training could be used to help the pedestrian in this situation by teaching them the skills to cross a busy road where the facilities are not available, or the road design could be changed to support that crossing. Restrictions can also be put in place to stop someone from misusing the system; for the pedestrian, high fences could be installed that prevent them crossing at that location. The cyclist could be encouraged to use a helmet, by helmets being provided or the benefits of them are explained and it made easier for them to store and use one.
- **Social Opportunity** – this is about understanding the social influences on the way people act in the road network. If road users think that people they respect are not complying with road rules, they may think it is acceptable for them to do the same. The influences of peers and role models are important here, as is the language used when talking about the behaviour. If organisations talk about high levels of non-compliance, it can normalise the behaviour and people could make excuses for them doing the same, because "everyone else is doing it." To change social opportunity, restrictions could include enforcement and the application of penalty points; it could mean changing the environment to limit the opportunities to engage in the behaviour; or it could entail using positive role models or encouraging social support and peer-led approaches to doing the right thing.

Motivation

- **Reflective Motivation** – this is about understanding what people believe they are capable of and what the consequences are of doing the right or wrong thing. It is wrapped up with goals and intentions and how the behaviour is related to their identity. There could be a number of reasons why a driver does not comply with the speed limit. For some, it could be related to psychological capability, in that they don't know how to recognise the speed limits. For others, it could be that they believe that they are good drivers and are perfectly capable of driving at excessive speeds. It could be that they are unaware of the consequences of speeding behaviour; this is not only about the likelihood of a collision occurring, but also the impact of penalty points and a fine, damage to their vehicle and the related loss of freedom. It could be that they are goal-driven and believe that speeding will enable them to get to their destination significantly quicker. There are a variety of ways to address these, including using education, persuasion, incentivisation and coercion to increase knowledge about the behaviour and its consequences; help people plan ahead; encourage them to comply with the speed limit; and support their belief that they are capable of driving within the limit.
- **Automatic Motivation** – this is about understanding the role of optimism, reinforcement, identity and emotion in influencing behaviours, specifically through habits, routines and previous experience. There are lots of different ways to change habits and routines, including using role models and peer groups, encouraging the creation of better habits and providing rewards or incentives for doing the right thing.

As can be seen from this summary of the influencers on behaviour, there are times when education is appropriate because there is an information or skills deficit, or education could be used to influence social norms. Road users who are not complying with the rules of the road may benefit from education if it tells them the consequences of their behaviour or helps them form new habits. However, there are other times when other tools, such as restricting behaviour through enforcement or changing the road environment would be more suitable.

Appendix E – Data Processes



Appendix F – Predicting Casualties

To project casualty numbers to 2030 (in Figure 4 on page 12 chart shown in the section on Targets for South Yorkshire), historic casualty data and traffic data at the local authority level was taken into account. For each local authority, a best-fit exponential trend was fit to the past decade (2010 to 2019) of casualty rates per vehicle kilometre travelled. This assumes that the number of casualties, relative to the total traffic levels, decays by a fixed percentage each year, give or take some minimised amount of error. Once the trend was fit, it was used to project casualty rates into the future from the annualised average of the baseline period (2015 to 2019). These projected casualty rates were then adjusted to account for exposure, using published traffic forecasts, to provide projected casualty numbers for each year up to 2030.

Each time an exponential trend was fit, bootstrap methods were used to provide confidence intervals for the trend. This makes it possible to assess the variability that might be expected to be observed in the projections, based on historic levels of fluctuation. Note that this does not take into account uncertainty around forecasted traffic data. This projection does not account for modal shift. Modelled traffic projections are unfortunately not granular enough to pick up increases in cycling and there is insufficient data to identify increases in walking. What this is doing is accounting for different motorised traffic levels, based on historical data (and therefore it is not possible to identify modal shift). It is also not possible to identify the influence that the pandemic will have on long term travel patterns. The traffic projections are based on a combination of historical population and economic factors and can be used as a guide as to where it is believed that KSI casualties are heading.

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