VISION ZERO STRATEGY

THIS DOCUMENT SUPPORTS THE DELIVERY OF A ROAD SAFETY SERVICE IN ESSEX, SOUTHEND & THURROCK

2022

SAFERESSEX roads partnership

FOREWORD

As chair of the Safer Essex Roads Partnership Governance Board representing eleven partner organisations, I am immensely proud to present our Vision Zero Strategy which documents how the partnership intends to achieve the aspiration for zero road deaths and serious injuries on Essex roads by 2040.

The partnership has already made great progress in reducing deaths and serious injuries on its roads; in 2021 some 793 deaths and serious injuries were recorded by Essex Police and whilst this figure represents a 43% reduction from the average value for the period between 2005 and 2009, it demonstrates how much work there is still to do.

I am under no illusion that achieving Vision Zero will be an easy task; it will require continued commitment, additional input and a more co-ordinated approach from all authorities, residents, businesses and mobility providers and users in Essex to initiate the step change that is required, but I genuinely believe Vision Zero is achievable.

This strategy promotes the "Safe System" approach to road safety which starts from the basic premise that human error is inevitable, but that deaths and serious injuries are not.

You and I are at the heart of this strategy. The Safe System surrounds us with five layers of protection. Our choice of vehicle, the safety of the road we travel on, our choice of speed, our willingness to comply with traffic laws and the effectiveness of emergency help we receive when a collision does occur all affect the outcome of our journey. These layers of protection are a matter of life and death.

I commend the strategy to you and ask that we all take the time to read it and make a conscious decision about our contribution to achieving Vision Zero for Essex.

Councillor Lesley Wagland OBE

Chair of the Safer Essex Roads Partnership Governance Board
Cabinet Member for Economic Renewal, Infrastructure and Planning at Essex County Council
Councillor for Brentwood Rural Division

CONTENTS

Foreword	2
Contents	3
Introduction	4
Background to the Safer Essex Roads Partnership	6
What are the Partnership's aims and objectives and how does the Partnership work?	8
What does Vision Zero mean and how can it be achieved?	14
What is the Safe System Approach to Road Safety?	16
The Partnership's Vision Zero Strategy / approach	29
Performance management (how do we know we are progressing?)	37
References	41
Appendix	43
Please get involved	46

INTRODUCTION

This document details the Safer Essex Roads Partnership's Vision Zero Strategy which has been developed to support the Partnership's aspiration that no one will die or be seriously injured on Essex[1] roads by 2040 (referred to as "Vision Zero").

This document gives some background to the Safer Essex Roads Partnership (the Partnership) and summarises the strategic actions and road safety performance indicators that the Partnership will adopt in pursuit of the aspiration, supported by an interim casualty reduction target for 2030[2].

This document also summarises the 'Safe System' approach to road safety which the Partnership has adopted as the widely accepted method which sits at the heart of achieving Vision Zero.

An engagement activity took place over the ten-week period, between 14th September and 30th November 2021, which included four 2-hour virtual workshops held in October. Attendance at these workshops was open to all residents of Essex but the majority of the 100 or so attendees was confined mainly to locally elected representatives of county, district, or parish councils together with representatives of Community Speed Watch groups. Comments to the draft strategy were also received from organisations and individuals via the Partnership's email address; saferessexroads@essexhighways.org. All comments received from the engagement activity were recorded and considered for incorporation in this, the final version of the VZ Strategy document. There was unanimous support for the Partnership's aspiration with some realism about the enormity of the challenge.

This Vision Zero Strategy came into effect on 1st April 2022 and will be reviewed by 31st March 2025 in recognition of the ongoing developments and changes that are likely to occur

- in the transport sector.
- to road collision statistics; and
- in other policy areas across Essex that will be affected by the adoption of the Safe System approach to road safety.

This Vision Zero Strategy is based on an internationally recognised and proven approach, it has been adapted to provide a realistic model that can be delivered across Essex.

Although the Partnership includes the three local authority areas responsible for maintaining the highway network, together with National Highways which is responsible for maintaining the Strategic Road Network, the Partnership itself is currently only funded and set-up to deliver non-engineering elements of road safety; that is education, enforcement, and engagement.

This document details the Partnership's success in reducing casualty numbers and severity over the past 20 years but recognises that a major step-change is required, by partner organisations, businesses, residents, and road users of Essex if we are all to benefit from a road network that is free from death and serious injury by 2040.

[1] For the purposes of this document Essex is the collective term for the area covered by the local authorities of Essex County Council, Southend-on-Sea City Council and Thurrock Council.

[2] Refer to the Partnership's objectives on page 8 for details

This Strategy recognises that the step-change required will only happen if improvements to all the 'layers of prevention and protection'[3] are made and if the Partnership coordinates the reduction in danger or risk on the roads and acknowledges the influence the improvements can have in addressing climate change and economic recovery, for example. This document recognises that we all can, and do, influence the safety of ourselves and others on the road.

The Partnership recognises that in the initial three-year period covered by this Strategy document, people and businesses may still be recovering from the impacts of the Covid-19 pandemic restrictions but perhaps it is because of some of these restrictions that we should all desire to return to a transport system that does not accept death and serious injury as an inevitable price to pay for mobility.

Recognising the enormity of the challenge, this Strategy urges all partner organisations, businesses, residents, and users of the roads in Essex to support and play their part in assisting the Partnership to meet the 2030 target and ultimately Vision Zero by 2040 at the latest. The Partnership cannot meet this challenge alone.

[3] A term used within the Safe System approach to road safety and detailed later in this document

BACKGROUND TO THE SAFER ESSEX ROADS PARTNERSHIP

The Partnership was formed in April 2014 with the sole aim of delivering a coordinated road safety service across the area covered by the local authorities comprising Essex County Council, Southend on Sea Borough Council and Thurrock Council.

By April 2015, the Partnership comprised ten formal partner organisations who had all signed-up to a Memorandum of Understanding that covered the seven-year period between April 2014 and March 2021. The Memorandum of Understanding details the aims and objectives of the Partnership, how the partner organisations work together and the roles and responsibilities that each partner organisation has accepted. Organisations were invited to become formal partner organisations based on the contribution they could make to delivering the Partnership's aims and objectives.

The Partnership was formally launched in September 2015.

During 2014/15, the Partnership's Governance Board approved casualty reduction targets that stated by the end of December 2020, the Partnership should achieve, as a minimum:

A 40% reduction in deaths and serious injuries

(formerly referred to as killed and seriously injured casualties); and

A 25% reduction in slightly injured casualties.

Owing to the progress that was made between 2014 and 2018, the slightly injured casualty reduction target was subsequently increased, by the Governance Board, to 40% in January 2019.

The percentage reductions quoted relate to the average figure determined, for the five-year period between 2005 and 2009, from personal injury collisions, recorded by Essex Police.

For 2020, some 722 deaths and serious injuries were recorded which represented a 48% reduction from the average figure. The number of slight injuries recorded in 2020 was 2,632 and this represented a 49% reduction from the average figure.

These figures represented a successful period for the Partnership during which it had met its targets. However, there is still much work for the Partnership to do as these figures represent an interim position.

A new Memorandum of Understanding was introduced in April 2021, and this agreement covers the five-year period between 1st April 2021 and 31st March 2026. The Memorandum of Understanding contains a clause which allows the agreement to be extended for a further period of up to 5 years to 31st March 2031 (which allows consistency to be maintained until just after the period given for the 2030 interim casualty reduction target).

The Memorandum of Understanding sets the challenge of recording zero deaths and serious injuries by 2040 supported by an interim target of a 50% reduction in deaths and serious injuries by 2030. The vision and interim target are discussed in more detail from page 8 onwards.

On 1st April 2021, the Partnership comprised the eleven partner organisations (nine public service organisations and 2 charitable organisations, the latter indicated by ***) listed below:

- Essex County Council,
- Essex Police,
- Office of the Police, Fire and Crime Commissioner for Essex,
- Essex Fire & Rescue Service,
- Southend-on-Sea City Council,
- Thurrock Council,
- National Highways (formerly Highways England) - Bedford & Guildford offices,
- East of England Ambulance Service NHS Trust,
- *** Essex & Herts Air Ambulance Trust, and
- *** Safer Roads Foundation.

The Partnership is not a legal entity. The Memorandum of Understanding enables additional organisations, who can positively contribute to the Partnership's aims and objectives, to be invited to become a formal partner organisation or an advisory organisation, at any stage.

This Strategy is one of the key documents that supports the Partnership's Memorandum of Understanding.

WHAT ARE THE PARTNERSHIP'S AIMS AND OBJECTIVES AND HOW DOES THE PARTNERSHIP WORK?

As part of the Memorandum of Understanding, the Partnership has formally adopted the following aims and objectives:

The **aims** of the Partnership are to:

- Achieve zero road deaths and serious injuries by 2040[4]; this aim will be referred to as **"Vision Zero"** which is to be realised through the adoption of the **"Safe System"** approach to road safety.
- Deliver a data-led, sustainable, and cost-effective road safety service via an annual Partnership Plan.
- Place quality of service at the heart of everything the Partnership does to retain and build public confidence in the Partnership and road safety delivery.

The **objectives** of the Partnership are to:

- Achieve an **interim casualty reduction target** of recording no more than 415 deaths and serious injuries (DSI) in the twelve-month period to 31st December 2030[5].
- Develop a range of Road Safety Performance Indicators[6] (RSPIs) that will provide a measure of progress towards the Vision Zero aspiration and the interim casualty reduction target for 2030.
- Promote, support, and encourage the adoption and delivery of the Safe System approach to road safety within all eleven partner organisations and other stakeholder organisations.
- Continue to deliver elements of the Vision Zero Strategy, detailed in this document, for which the Partnership has responsibility.
- Deliver external communication about the Safe System approach to road safety and the aspiration of zero deaths and serious injuries by 2040 to attract support from every road user in the Partnership's area.
- Work locally, regionally, and nationally engaging with individuals, groups, and formal organisations, as required, to attract additional funding, resources, or intelligence in pursuit of the Partnership's aims and objectives.

The Partnership makes appropriate use of any funding that it can generate from the range of activities it undertakes although, at present, most of this funding is obtained via the Partnership's participation in the National Driver Offender Re-Training Scheme (NDORS), used as a disposal option for certain low-level traffic offences detected by police force areas across the UK.

4 This **aspiration** relates to the number of deaths & serious injuries that are recorded by Essex Police in a 12-month period to the 31st of December 2040.

5 This **target** relates to the number of deaths & serious injuries that are recorded by Essex Police in the 12-month period to 31st December 2030.

6 Refer to page 37 onwards for the RSPIs.

In accordance with the Memorandum of Understanding, the partner organisations are also able to use their own funding in the pursuit of safer roads, but they are required to ensure that any activities delivered, or expenditure incurred is aligned with the Partnership's aims and objectives.

It is a fundamental principle of the Partnership's Memorandum of Understanding that all funding generated shall be invested in trying to meet the Partnership's aims and objectives for the benefit of all road users in the Partnership's area.

To achieve the stated aims and objectives an annual **Partnership Plan**, commencing on the 1st of April each year, is approved by the Partnership's Governance Board. The Partnership Plan is the mechanism used to approve the prioritisation and allocation of funding to data-led / evidence-based interventions and actions developed in compliance with this Vision Zero Strategy document.

The annual Partnership Plan comprises three documents which are summarised below:

- A **Finance Plan** detailing a value-for-money approach towards the collection of receipts from services provided, operational day-to-day expenditure for the Partnership's core activities (i.e., operating the safety camera systems, processing the resulting offences and offence disposal options which includes the administration and delivery of NDORS courses).
- An **Activity Delivery Schedule** detailing all activities that will be delivered in pursuit of the Partnership's aims and objectives. The Schedule comprises two types of interventions: **Activity A**, which relates to all enforcement-based interventions, and **Activity B**, which relates to all education, communication and engagement interventions, and
- A **Communications Plan** which details all the education, communication, and engagement activities to be undertaken. The Communications Plan is a supporting document to the five-year Communications Strategy that supports the Partnership's Memorandum of Understanding.

The Partnership has a governance and management structure in place which is summarised below:

Governance is provided by a Governance Board; the Governance Board is currently chaired by an Elected Member from Essex CC. The Governance Board comprises Elected Members and senior officers / senior representatives from each of the eleven partner organisations. The Governance Board meets quarterly and challenges and directs the plans developed for casualty reduction work and seeks to remove any barriers which may inhibit the delivery of those plans.

The Governance Board approves all formal documents prepared by the Partnership together with all planned investment. The Governance Board's role is to ensure all delivery targets are met and importantly provides a platform from which the eleven partner organisations can work together more effectively and efficiently to achieve the Partnership's aims and objectives.

Management and Delivery is provided by a Strategic Group which is supported by two Sub-Groups (one supporting Activity A and the other supporting Activity B) and any number of Task & Finish Groups that are created to progress specific projects that are requested by the Strategic Group.

The Strategic Group is responsible for the preparation of all formal documents produced by the Partnership (such as this Vision Zero Strategy document and the annual Partnership Plan) and seeking the necessary approval to those documents from the Governance Board. The Strategic Group and Sub-Groups are responsible

for operational delivery and ensuring best practice is achieved and that compliance with the Partnership's aims and objectives is maintained.

There are four dedicated job roles that are funded by the Partnership; the role of these members of staff is primarily to pursue and coordinate the aims and objectives of the Partnership and to provide the necessary support and links to the eleven partner organisations.

The four dedicated job roles are:

- **Partnership Manager** – responsible for co-ordinating the day-to-day activities of the Partnership and ensuring a robust monitoring regime is in place so regular reports can be given to the Governance Board, the Strategic Group, and its Sub-Groups regarding the implementation of each annual Partnership Plan.
- **Communications Manager** – responsible for the delivery and coordination of all communications matters for the Partnership, in compliance with the five-year Communications Strategy accompanying the Memorandum of Understanding and the Education, Communications and Engagement elements of this Vision Zero Strategy document. The Communications Manager is also responsible for maintaining the Partnership's social media platforms.
- **Communications Assistant** – (from early 2022/23) responsible for providing support to the Communications Manager in delivering the role described above; with particular focus on website content and social messaging to support Vision Zero, and
- **Road Safety Data & Strategy Analyst** – responsible for providing all forms of data interrogation and analysis to support delivery of the Partnership's aims and objectives and to ensure all activities undertaken are data-led or have a strong evidence base. This role is also responsible for advising and guiding the Governance Board and Strategic Group on strategy matters and maximising the potential that can be gained from all data sources available to the Partnership.

In addition to the roles summarised above, the Partnership also currently funds the two groups of staff detailed below:

- approximately 60 full-time members of Essex Police support staff responsible for processing approximately 100,000 traffic offences each year. The offences are captured by the range of safety camera systems installed by the highway authorities over the past 30 years or so in approximately 135 different locations together with other targeted enforcement activities carried out in pursuit of the Partnership's aims and objectives: and
- 17 full-time members of Essex CC staff engaged in delivering the National Driver Offender Retraining Scheme (NDORS) courses to approximately 55,000 clients each year.

Lastly, there are also approximately 20 full-time equivalent members of staff employed across the other partner organisations that support the delivery of activities undertaken by the Partnership. All these members of staff are funded by their employing organisation.

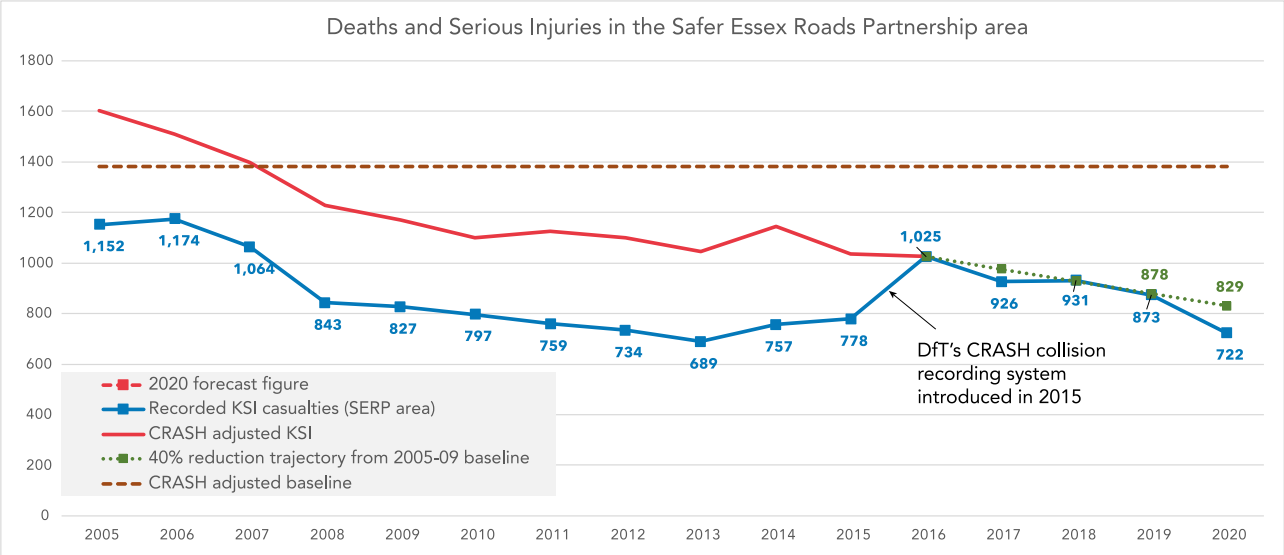
Background to the Partnership Adopting Vision Zero

The Vision Zero[7] aspiration was first adopted by the Partnership in April 2016 although, at that time, the Partnership did not set a date for achieving the aspiration.

As stated earlier, a 49% reduction in deaths and serious injuries was achieved by the end of 2020, compared with the target of 40%. Whilst the 49% reduction is hugely encouraging and represents the results of much successful activity, it is likely that it was greater than anticipated due to the influence of restrictions, introduced by the UK Government because of the Covid-19 pandemic, on traffic flow and composition.

The Partnership does not claim that all the reduction was due to the activities it delivered but it is confident that it will have had a significant influence on the reduction. The Partnership also fully recognises that there will have been other external factors over which it had little or no control that will also have influenced the reduction.

It can be determined from Graph 1 below, if that, even with the current high level of activity and investment by the Partnership and its member partner organisations, the evident downward trend in the number of deaths and serious injuries[8] does not give a realistic proposition of achieving Vision Zero in any meaningful timescale.



Graph 1 – Deaths and serious injuries in Essex, on all roads, between 2005 and 2020

7 'Towards Zero', 'Sustainable Safety' and 'Safe System' are alternative names for 'Vision Zero' that all fundamentally do not accept death and serious injury as an acceptable product of mobility.

8 Essex Police adopted the Department for Transport's CRASH system in 2015. This improved the accuracy for recording the severity of collisions, which had been underestimated prior to this. A correction to the pre-2015 figures has been applied to allow a meaningful trend over time to be identified.

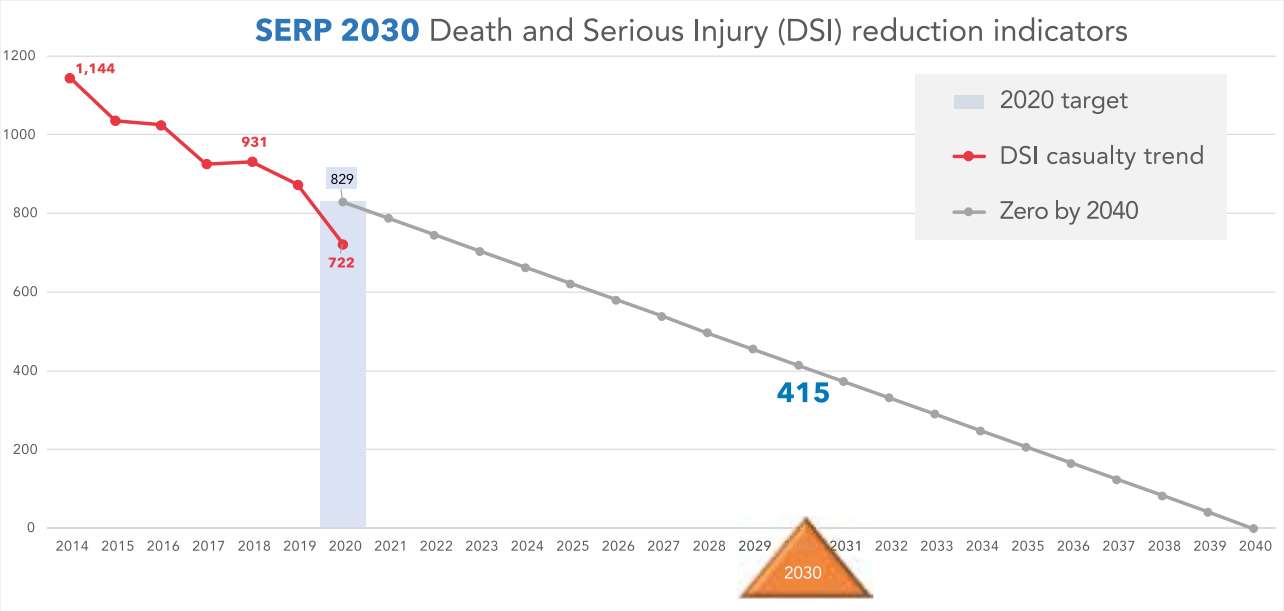
Following three years of research and discussions, the Partnership's Governance Board agreed that the global evidence and experience from countries that had implemented Vision Zero, using a Safe System approach to road safety, could be adapted to deliver Vision Zero in Essex and that it should set a challenging timescale to drive action.

The Partnership recognises that road users have a major role within the Safe System approach and must use the transport system safely, by complying with traffic laws for instance, so public support for a mobility system that prevents death and serious injury is essential. The implementation of processes to identify and reduce risk for all road users will be an essential component for delivering Vision Zero.

The Partnership also recognises that it must engage and support its partner organisations; particularly those that have responsibility for the delivery of improvements within the Safe System approach to road safety, such as for roads and roadsides. The Partnership must also engage with other elected bodies, businesses and organisations who will be encouraged to ensure that actions and services they provide are not unintentionally detrimental to the desired outcome of zero deaths and serious injuries by 2040 (and that Vision Zero is not unintentionally detrimental to their aims).

The Partnership released the Vision Zero concept to the media in November 2020.

Graph 2, below, demonstrates how the interim casualty reduction target for 2030 and the Vision Zero aspiration were determined from the actual death and serious injury figures recorded by Essex Police between 2010 and 2019.



Graph 2 – 2030 Interim Casualty Reduction Target & 2040 Vision Zero Aspiration

There is a firm belief that the time is now right for Essex residents, businesses, and road users to want Essex roads to be free from death and serious injury by 2040. Based on current knowledge, deaths and serious injuries on the roads are largely preventable. Hence, how can adopting any figure other than zero be justified as the Partnership's long-term aspiration for deaths and serious injuries on its roads?

The Partnership will adopt a leading role in encouraging all Essex residents, businesses, and road users to support and actively participate in realising the Vision Zero aspiration.

The Partnership's Vision Zero aspiration has also been adopted with the knowledge of the following international commitments:

- The United Nations / European Union (UN/EU) context; the Partnership's interim casualty reduction target for 2030 is consistent with the UN resolution for "improving global road safety" adopted in August 2020 and the Stockholm Declaration agreed by UN Member States in February 2020 which called for a reduction in road traffic deaths and serious injuries by at least 50% between 2020 and 2030.
- In June 2019, the European Commission published its EU Road Safety Policy Framework 2021-2030 which contains the EU's long-term strategic goal of Vision Zero – no deaths or serious injuries on European roads by 2050.

The Partnership does not underestimate the complexity of the task to achieve Vision Zero, but is totally committed to providing the leadership, encouragement, energy, drive, coordination, monitoring, evaluation and the sharing of its knowledge for the challenge ahead; it is hoped that all Essex residents, businesses and road users will accept this challenge and contribute to the delivery of the interim target for 2030 and the aspiration of zero deaths and serious injuries on Essex roads by 2040.

WHAT DOES VISION ZERO MEAN AND HOW CAN IT BE ACHIEVED?

Vision Zero is an ethical stance stating that it is not acceptable for human mistakes on the road network to lead to death or serious injury.

Vision Zero can be viewed as a paradigm shift, where the responsibility for road safety is shifted from the traditional approach, centred on individual road-users, to a more collective approach involving all people who are responsible for designing, building, operating, maintaining, and using the road network. Whilst the current relatively narrow approach to road safety has proven to be successful over the years, a new broader path must be taken, that prioritises and implements an integrated Safe System approach to road safety, to achieve the step-change required.

This group of responsible people includes policy makers, politicians, local government officials, planners, engineers, road designers, vehicle manufacturers, emergency and hospital care providers and the police service, who not only respond and deal with incidents on the road network, but who are also responsible for the enforcement of road traffic laws and regulations. Each person within this diverse group contributes important knowledge and expertise to the delivery of a safe road network.

Considerable effort will need to be made to achieve Vision Zero so that collisions that will inevitably continue to occur on the road network do not lead to either deaths or serious injuries. The focus for achieving Vision Zero will be on the roads, the vehicles and the people who use the road network.

Despite the adoption of a more collective and shared approach to road safety, it is ultimately every road user's responsibility to comply with road traffic laws and regulations and failure to do so may result in road users being prosecuted.

Vision Zero is underpinned by the Safe System approach to road safety. The Safe System approach is generally accepted as best practice in road safety; the approach is endorsed as best practice by the World Health Organisation (WHO) and the Organisation of Economic Cooperation and Development (OECD). The OECD has produced one of the most comprehensive documents that discusses the Safe System approach to road safety.

The WHO acknowledges that whilst trying to prevent all road collisions is commendable, it is unrealistic, but deaths and serious injuries are preventable. International organisations and road safety experts recommend the Safe System approach to road safety to all countries as the mechanism towards the elimination of death and serious injury as a long-term aspiration.

The aim of the Safe System approach is to work systematically, affordably, acceptably and for however long it takes on a strategy leading towards the road network being eventually free from death and serious injury. It is important to develop the strategy so that it is specific to the local context, informed by local knowledge and evidence. It is also important to acknowledge that the strategy will evolve as progress is made towards the long-term aspiration of zero deaths and serious injuries by 2040.

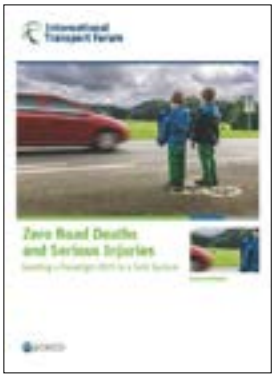
Following extensive national and international research, this document represents the Partnership's current understanding of the Safe System approach to road safety and how it can be applied across Essex. The Partnership also acknowledges that the Safe System concept will continue to evolve as more experience

is gained with its application, both in this country and internationally, and this may lead to changes in thinking and strategy in the future.

The Safe System approach has evolved over many years and derives most notably from the Swedish Vision Zero policy, adopted by the Swedish parliament in 1997 and the Dutch Sustainable Safety strategies, adopted in the mid-1990s.

Nationally, the UK Government first endorsed the Safe System approach in its British Road Safety Statement, published in 2015 and this was an important factor behind the Partnership adopting a similar approach in April 2016. The British Road Safety Statement was subsequently withdrawn in July 2019 and replaced by the British Road Safety Statement 2019 "A Lifetime of Road Safety".

The Safe System approach is being taken up increasingly in Europe, Australasia, and North America at regional, national and city levels. Many organisations within the UK have adopted Vision Zero / Safe System approach including Transport for London, Transport Scotland, National Highways (formerly Highway England) for the Strategic Road Network together with many other road safety partnerships.



www.oecd.org/publications/zero-road-deaths-and-serious-injuries-9789282108055-en.htm

https://op.europa.eu/en/publication-detail/-/publication/d7ee4b58-4bc5-11ea-8aa5-01aa75ed71a1

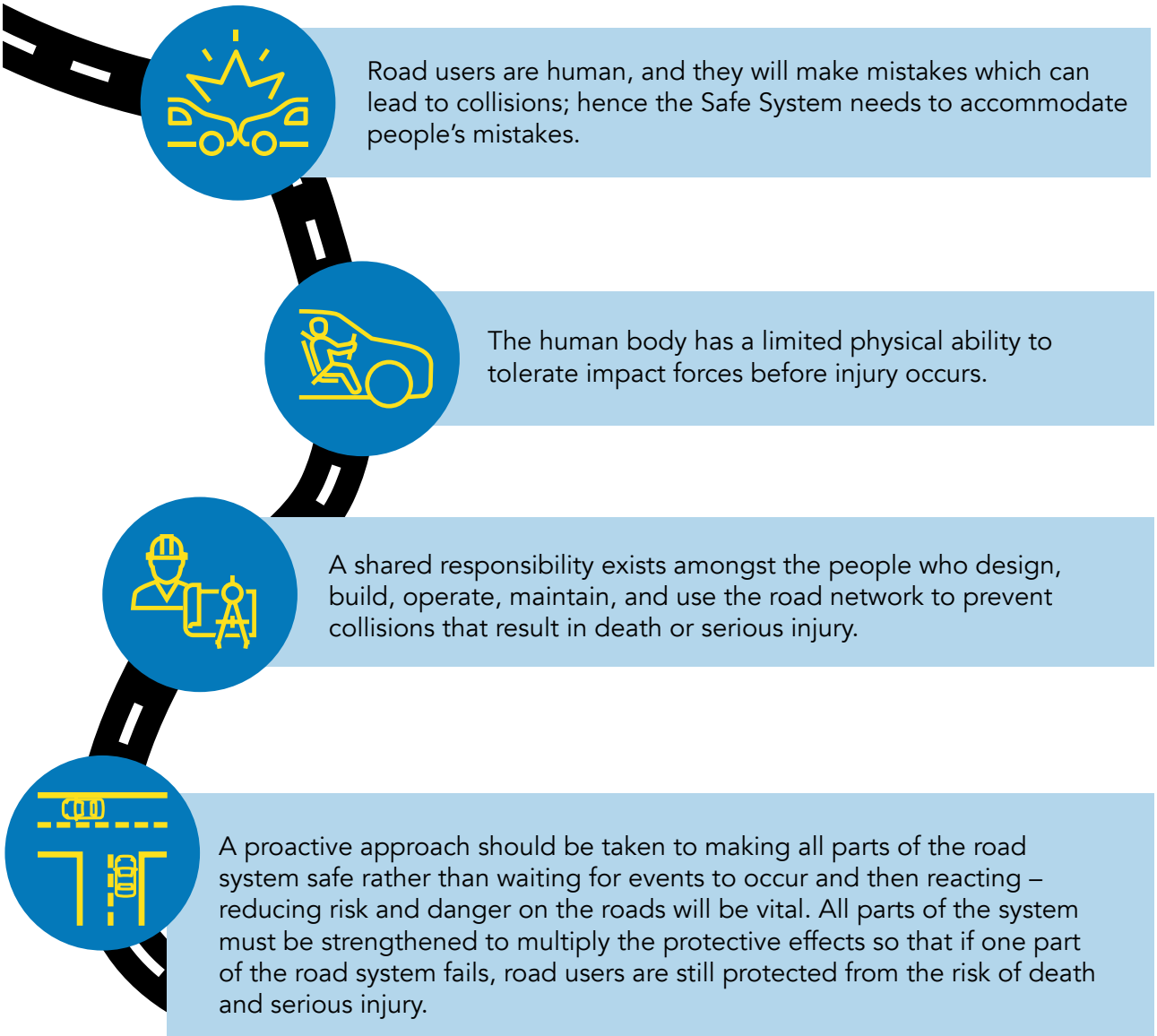
WHAT IS THE SAFE SYSTEM APPROACH TO ROAD SAFETY?

According to the Safe System approach, death and serious injury from road traffic collisions is preventable and not an inevitable price to be paid for mobility.

The Safe System approach views human life and health as paramount and should be the first and foremost consideration when designing, building, operating, and maintaining a road network.

Each person involved in these four disciplines will need to be educated on what the Safe System is and why it is important that everyone accepts the shared responsibility and plays their part to ensure it is fully implemented within every aspect of road safety. Ultimately though, everyone is expected to use the roads safely and comply with the rules.

The fundamental principles of a Safe System are that:



Road users are human, and they will make mistakes which can lead to collisions; hence the Safe System needs to accommodate people's mistakes.

The human body has a limited physical ability to tolerate impact forces before injury occurs.

A shared responsibility exists amongst the people who design, build, operate, maintain, and use the road network to prevent collisions that result in death or serious injury.

A proactive approach should be taken to making all parts of the road system safe rather than waiting for events to occur and then reacting – reducing risk and danger on the roads will be vital. All parts of the system must be strengthened to multiply the protective effects so that if one part of the road system fails, road users are still protected from the risk of death and serious injury.

The Safe System approach to road safety aims for a more forgiving road system that considers the safety needs of all road users.

The Safe System promotes a combination of measures that will reduce the risk (can also be referred to as danger reduction) of road users dying or being seriously injured from their mistakes by taking the physics of human vulnerability into account; hence, in the event of a collision within a Safe System, the impact forces remain below the threshold likely to cause death or serious injury.

In adopting the Safe System approach to road safety in the Partnership's area, the following five 'layers of prevention and protection' have been adopted:

- **Safe Speeds**
- **Safe Vehicles**
- **Safe Road Use**
- **Safe Roads & Roadsides**
- **Post Collision Response & Care**

Each of these 'layers of prevention and protection' will be a factor in almost every death or serious injury that occurs on the road network. Therefore, it is important to recognise this fact during the development of strategies and action plans together with the overlap that will inevitably occur between each of the 'layers of prevention and protection'.

The definition of a collision under the Safe System approach to road safety is the 'result of a system failure' rather than the currently used definition of the 'failure of a road user to cope with their environment'. However, this definition in no way removes or alleviates the responsibility of any road user to comply with the rules (i.e., road traffic laws and legislation) of the road.

Figure 1 below illustrates diagrammatically the 'layers of prevention and protection' concept for the Safe System approach to road safety; note, the road user is at the heart or centre of the diagram.

Figure 1 – The layers of prevention and protection

As an example, the following 'layers of prevention and protection' all have the capacity to reduce the impact of collisions in the Partnership's area:

- **Safe Roads & Roadsides** - improving the road infrastructure so that it minimises the risk of collisions occurring and reduces the risk of death or serious injury when a collision does occur.
- **Safe Vehicles** - using vehicles that are designed to incorporate features that reduce the risk of collision involvement and/or offer greater levels of protection for the drivers / riders / passengers in the event of a collision.
- **Safe Speeds** - reducing the speed of traffic to levels that reduce the chances of death or serious injury if an impact does occur.

Collectively, the three examples given above form 'layers of prevention and protection' around a road user that ensures that if one element of the Safe System fails another one will compensate to reduce the likelihood of death or serious injury.

All five 'layers of prevention and protection' are discussed in more detail later in this section.

The Safe System approach will create conditions within the Partnership whereby the focus of the efforts made is not only on casualty reduction (the vulnerability of the casualties) but also on road danger reduction (danger targeted at source). The latter condition requires the adoption of a proactive approach to road safety rather than a reactive approach.

The Partnership already delivers activities to support other local authority policy areas, such as active and sustainable travel, and will continue to engage with these and other policy areas to highlight the Safe System approach to road safety and determine whether any new collaborations will be of mutual benefit.

As an example, the highway authorities have policies to encourage the take-up of walking and cycling that will help to mitigate climate change and improve air quality by reducing carbon dioxide emissions from transport. Motorcycling is also acknowledged as part of the solution to improving air quality and reducing carbon dioxide emissions.

The Partnership provides training to support walking, pedal cycling (e.g., cycling training is provided mostly via the Department for Transport's Bikeability scheme) and motorcycling and will look at ways of increasing the number of people that participate in these various types of training.

The main policy areas that are supported by the Safe System approach to road safety include:

a) **Environment / Climate Change** – changes in weather conditions (e.g., higher temperatures and greater levels of rainfall) will require drivers and riders to learn how to adapt their behaviour on the roads to minimise the effect of these climate changes.

   Reducing traffic speeds has the potential to reduce vehicle emissions, that contribute to air pollution, by smoothing traffic flow and creating a safer environment that encourages walking and cycling. For the first time in the UK, air pollution has been recognised as a cause of a person's death; in December 2020, Southwark Coroner's Court in London found that air pollution 'made a material contribution' to the death of a 9-year-old child.

   Consideration will be given to whether staff representing the Partnership would benefit from receiving some carbon literacy training (an awareness of the carbon dioxide costs and impacts of everyday activities, and the ability and motivation to reduce emissions, on an individual, community and organisational basis).

b) **Sustainable Travel & Active Travel**[9] – includes strategies that encourage walking and cycling and the use of motorcycles, electric vehicles, and e-bikes / e-scooters so that they become the more popular choice for shorter, everyday journeys (up to 3 miles).

[9] **Sustainable Travel** - supports the mobility needs of society in a manner that is least damaging to the environment and does not impair the mobility needs of future generations. **Active Travel** - a mode of transport which involves physical activity such as walking and cycling to get from one destination to another.

However, a significant increase in walking, pedal cycling and motorcycling or in the use of unprotected electric vehicles, such as scooters (either by the numbers participating and / or the distances travelled) may lead to an increase in the number of deaths and serious injuries involving pedestrians, cyclists, or riders / passengers.

If there was an increase in the number of deaths and serious injuries it may still represent a reduction in risk (the number of deaths or serious injuries for each measure of distance - i.e., mile or kilometre that each user type travels) so careful interpretation of the data will be required.

There is a 'safety in numbers' effect which demonstrates that increasing the proportion of journeys undertaken by pedal cycles (to at least 10%) eventually creates a safer environment in which to cycle as drivers become more accustomed to their presence and this may be a valid road safety reason for encouraging more people to use pedal cycles. The 'safety in numbers' effect may also be applicable to motorcycles.

c) **Public Health & Wellbeing** – achieving a reduction in road casualties prevents premature death and injury, particularly amongst motorcyclists, young people, pedal cyclists, and pedestrians. Worldwide, road death is the biggest killer for people aged between 5 and 29. In the UK, 41% of accidental deaths and 11% of all deaths among 15 to 24-year-olds were from road traffic collisions (Department for Transport, 2018). In England, transport accidents are the second most common cause of death among 5 to 19-year-olds, behind suicide and the third most common cause of death among 20 to 34-year-olds behind suicide and accidental poisoning (Public Health England, 2017).

Public Health & Wellbeing and road safety are linked by several factors, such as, the speed and volume of traffic that can cause injuries and which may discourage people from taking-up healthy activity outside the home. Increases in the levels of cycling and walking can improve health and increase the proportion of people living in healthy and safe communities.

Leading an active lifestyle goes a long way to reducing the risk of developing vascular disease and helps reduce the risks of heart attack and stroke. Keeping active helps control weight, lowers blood pressure and cholesterol as well as improving mental health and generally improving well-being.

The financial costs of death and injury on the road are considerable. These costs are incurred through property damage and insurance premiums, emergency services responses, transportation delays from resulting traffic jams, health care costs and ongoing social care for life changing injures and time taken off work.

These costs have been measured on a per casualty and per collision basis by the Department for Transport. For 2019 in Essex alone, these costs amounted to a total of £205 million, of which £127 million was incurred by the Essex taxpayer, including £104 million in social care costs.

Elimination of deaths, and serious injuries requiring high levels of medical and social care, therefore presents significant budget saving opportunities for local authorities, although it is recognised that investment may be required to achieve the savings.

Department for Transport research highlights that hospital admissions are consistently at least three times the number of casualties reported via STATS19[10]. The Partnership is aware of this disparity and will work with local NHS Trusts to gain a greater understanding of the situation in the Partnership's area and see whether improved data sharing may be necessary in pursuit of the Vision Zero aspiration.

The disparity between hospital admissions and casualties reported via STATS19 may become a greater influence in the future if people walk and cycle more and continue to report injuries through hospitals rather than the police service.

The health of road users also needs to be taken in to account. Physical health can deteriorate with age; with eyesight, mobility, and flexibility all likely to be affected at some point. Fatigue, stress, poor mental health and the use of prescription and over-the-counter drugs / medicines can also adversely affect a person's behaviour when travelling on the road, which can adversely affect road safety.

d) **Travelling for Work & Workplace Culture** – it is estimated around one-third of all collisions on the road network involve at least one person travelling as part of their occupation.

Health and Safety law applies to work activities on the road in the same way it does to all work activities; it applies to employers as well as the self-employed. The law requires the assessment of risks for the various types of driving tasks undertaken. In addition, the safety critical features of the journey purpose, the vehicle to be used and the driver / rider must be considered as these are equally important factors in the risk of collision involvement and the severity of any injury.

The Partnership provides free support with 'driving for work' policies and may, in the future, make an appropriate charge for any training or other support required by Essex businesses.

Implementing the Safe System approach to road safety can produce economic savings for society, as the costs of preventing casualties are usually substantially less than the actual costs of treating these casualties.

As stated earlier, for implementing the Safe System approach to road safety, the Partnership has adopted five 'layers of prevention and protection'. Each layer is discussed in general terms in this section and demonstrates the type of activities that may be included.

However, it should be acknowledged that there will likely be a significant overlap between activities undertaken against each of the 'layers of prevention and protection'; coordination will be a key responsibility of the Partnership.

10. The **STATS19** database is a collection of all road traffic collisions that resulted in a personal injury and were reported to the police within 30 days of the collision.

LAYERS OF PREVENTION AND PROTECTION:

SAFE SPEEDS

Managing speed is critical to reducing road danger / road risk and is a vital element to delivering Vision Zero.

The speed at which vehicles are travelling is the single most important factor in determining both the likelihood and severity of a collision. The faster a vehicle is travelling, the less reaction time the driver or rider has for collision avoidance, but it also makes it more difficult for other road users to judge and react to the speed and distance of an approaching vehicle.

Inappropriate speed[11] is the single biggest factor in collisions that result in death or serious injury; this is estimated to be a causal factor in about one-third of collisions in which the death of at least one road user is recorded.

The impact forces in a collision increase exponentially as the speed increases. If a pedestrian is struck by a vehicle travelling at 30mph, the pedestrian is five times more likely to die than if they were hit at 20mph.

Under the Safe Speeds 'layer of prevention and protection', reducing the speed of vehicles tries to ensure that the human body's limit for physical trauma is not reached or exceeded. Hence, for all roads, speed needs to be managed to levels that favour the probability of survival (or limits the risk of death or serious injury) when a collision does occur.

The Safe System approach promotes the need for highway authorities to establish speed limits that are appropriate to the features and characteristics of the road, the function the road serves, and the physical tolerance of those who use the road. Lowering traffic speeds where vehicles and people are likely to mix reduces the likelihood and severity of collisions. Lowering speeds also makes the roads less dominated by motor vehicles, so potentially more attractive for walking and cycling and reduces noise, pollution, and carbon dioxide emissions.

A Safe System speed is currently defined as the impact speed where the probability of death is less than 10%; these speeds are commonly referred to as survivable impact speeds. The probability level stated will also have a significant influence on reducing the likelihood of serious injuries as interventions that address road deaths will also address serious injuries. These survivable impact speeds are based on an average determined over a sizeable number of cases in which there is considerable variability caused by the type and size of vehicle, the age and health status of the road user, the point of impact etc.

The Partnership acknowledges that by referring to the 10% probability value figure, it is accepting the incidence of some deaths and serious injuries, which is contrary to the Partnership's long-term Vision Zero aspiration. However, it is anticipated that the quantifiable definition of a tolerable impact speed, and hence an acceptable level of risk, will change over time with greater understanding, experience, and new evidence.

[11] Often referred to as 'speeding' which is defined as a vehicle travelling at a speed above the posted speed limit. The term 'inappropriate speed' is also often used when describing vehicle speeds and is defined as a vehicle travelling within the posted speed limit but at a speed deemed too high for the prevailing conditions.

Table 1 below shows the current internationally recognised target Safe System speeds for a range of road types – these are provided for guidance / illustration purposes only.

Road and section types combined with road users	Target Safe System speed
Roads used by cars and vulnerable road users	30 km/h (18mph)
Junctions with possible right-angle conflicts between cars	50 km/h (30mph)
Roads where head-on collisions are possible (with either cars or fixed objects)	70 km/h (43mph)
Roads with no possible head-on or right-angle conflicts and no vulnerable road users	>100 km/h (60mph)

Table 1 - Survivable impact speeds under the safe system (source: Table 5.1 "Zero Road Deaths and Serious Injuries" International Transport Forum, 2016)

Openness and flexibility are needed on what constitutes a Safe System and on the speeds that a system can accommodate to provide protection to road users. The anticipated greater use of inherently safer vehicles, incorporating technological advances in collision avoidance and occupant protection, will mean that over time, a greater proportion of collisions will occur within Safe System limits. This is an area of the Safe System approach to road safety that will continue to evolve.

Research shows that lowering speed limits does reduce deaths and serious injuries, even though not all drivers / riders obey speed limit reductions, but when limits are reduced, consideration needs to be given to any supporting enforcement requirements.

An effective speed management strategy for each highway authority within the Partnership's area will be essential to support the Safe Speed 'layer of prevention and protection', but it should be recognised that a speed management strategy will also support the Safe Roads & Roadsides 'layer of prevention and protection', discussed later in this section.

An effective speed management strategy, supported by robust speed enforcement protocols, which are part of a wider police enforcement strategy, is recognised nationally and internationally as a key component of the Safe System approach to road safety.

The justification for lowering speed limits is well proven:

- Research indicates that a 1km/h (0.6mph) decrease in average speed corresponds with a 2% decrease in all collisions, a 3% decrease in serious[12] collisions and a 4% to 5% decrease in fatal[13] collisions. Correspondingly, an increase in average speed by the same amount leads to the same percentage increases in collision types.
- The World Health Organisation estimates that a 5km/h (3.1mph) decrease in average speeds could lead to a 30% reduction in collisions that result in at least one person's death.

[12] A collision on the road network in which one or more road users are seriously injured

[13] A collision on the road network in which one of more road users dies within 30 days because of the injuries sustained in the collision

SAFE ROAD USE

For this 'layer of prevention and protection', all road users are required to be competent at all levels which includes:

- Paying full attention to the road ahead and the task in hand.
- Adapting their behaviour, particularly the speed at which they travel, to the prevailing conditions (for example, weather, lighting, presence, and vulnerability of other road users etc.).
- Travelling within posted speed limits or at a lower speed that is appropriate for the conditions.
- Not driving while impaired through drink, drugs, (including over the counter and prescription medicines) or fatigue.
- Not being distracted by in-vehicle technology (mobile phones, entertainment systems, satellite navigation devices etc.).
- Giving sufficient room and consideration to all other road users, no matter what their mode of travel or vulnerability.

Safe Road Use includes being mindful of the hierarchy of road users, which ensures that those road users who can do the greatest harm (e.g., goods vehicles, cars etc.) have the greatest responsibility to reduce the danger or threat they may pose to other more vulnerable road users, such as, motorcyclists, pedal cyclists, pedestrians, and horse riders). Safe Road Use also requires road users to always be considerate to other road users and assume responsibility for other people's safety as well as their own.

The Partnership will adopt measures, strategies and interventions that will encourage Safe Road Use. Where appropriate, the Partnership will positively engage with active and sustainable travel groups. Education interventions are particularly important to ensure road users are risk aware, can develop coping strategies for high-risk situations and act appropriately to keep themselves and others safe on the road.

An increase in combined publicity and enforcement of key road safety rules - speed in particular - is the main mechanism by which improved road safety results can be achieved in the short term. Increasing the use of seat belts and discouraging driving whilst under the influence of drink and/or drugs are also highly important and will continue to be positively pursued by the Partnership.

SAFE ROADS & ROADSIDES

For this 'layer of prevention and protection', the road infrastructure must be designed, constructed, and maintained to reduce the likelihood and severity of collisions; it must eliminate or minimise the risk or danger for all road users, not just drivers and riders, starting with the most vulnerable.

A combination of the design and maintenance supported by the implementation of a range of strategies, to ensure that roads and roadsides can be

as safe as possible, can reduce casualties, particularly those involving death and serious injury.

One way in which the number of casualties can be reduced is to segregate or physically separate road users travelling in opposing directions (e.g., by the provision of a central reservation / traffic island) or at significantly different speeds (e.g., pedal cyclists and motor vehicles). The effects of such an approach needs to consider possible adverse effects on, for example, motorcyclists.

If this approach is not viable then promoting positive behaviours and safer sharing of spaces, as well as the appropriate use of speed limits and signage, together with sufficient levels of publicity and enforcement to obtain high levels of compliance, can provide an affordable and sustainable way to protect the most vulnerable road users.

It is estimated that road infrastructure and road surroundings are a contributory factor in about 30% of collisions and that the Safe Roads & Roadsides 'layer of prevention and protection' is most likely, to deliver reductions in the number of road deaths.

In the Partnership's area, about 60% of road deaths occur on non-built-up roads (i.e., where the posted speed limit is 50mph or greater). Research shows that the main collision types which need to be addressed to reduce road deaths are single vehicles losing control and striking an object on or off the carriageway and head-on collisions between opposing vehicles.

The Partnership is aware that affordability is going to be one of the key challenges the highway authorities will have in adopting the Safe Roads & Roadsides 'layer of prevention and protection'. However, well designed and maintained roads, particularly considering the needs of pedestrians, pedal cyclists, and motorcyclists, can reduce the probability of collisions occurring and 'forgiving' roads and roadsides can reduce the severity of collisions that do happen.

Investment in the reduction of road deaths and serious injuries should provide significant savings and reduce long term budget pressures for partner authorities in addition to the reduction in harm to our residents. In the context of "invest to save", it may be that those local authorities might wish to consider funding from those budget areas which would realise these benefits.

Other strategies that will assist the highway authorities in assessing the safety quality of their road network and to target priorities for delivering the Safe Roads & Roadsides 'layer of prevention and protection' is to invest in a systematic **Star Rating** and **Risk Mapping** exercise for their road network. These are proactive assessments that complement the more traditional reactive analysis of high-risk collision sites and are described in more detail below.

The **Star Rating** exercise is based on road inspection data and provides an objective measure of the level of safety which is 'built-in' to the road for vehicle occupants, motorcyclists, pedal cyclists, and pedestrians. A **Star Rating** between 1 (lowest rating) and 5 (highest and safest rating) is awarded. Broadly speaking, research shows that when using the proven International Road Assessment Programme (iRAP) method[14] for determining the Star Rating, a road user's risk of death or serious injury is approximately halved for each incremental improvement in Star Rating.

The International Road Assessment Programme believes that improving all the world's roads to a 3-star rating or higher standard is an important strategy to achieve the United Nation's Sustainable Development Goals target of halving road deaths and injuries by 2030.

[14] The iRAP method is the gold-standard for such assessments but locally derived methods can be used if they can be undertaken more cost effectively, but the potential benefits may be more difficult to quantify.

The **Risk Mapping** exercise uses personal injury collision data arising out of the interaction of road users, vehicles, and the road environment; the metrics used are usually collisions per km (or mile) or collisions per km (or mile) travelled per vehicle type (e.g., car, motorcycle, pedal cycle etc.). The results of the Risk Mapping exercise are designed to assist the highway authorities prioritise interventions introduced under this 'layer of prevention and protection'.

Further details about the assessments can be found on the International Road Assessment Programme website.

SAFE VEHICLES

For this 'layer of prevention and protection', it is acknowledged that vehicles are designed and regulated to minimise the likelihood and severity of collisions; this applies not only to vehicle occupants, but also to pedestrians, pedal cyclists, motorcyclists, and horse riders.

Making vehicles safer involves the use of '**active**' safety measures, which can all prevent collisions from occurring, such as Autonomous Emergency Braking (AEB), Intelligent Speed Assistance (ISA), Lane Departure Warning, anti-lock braking systems (ABS), traction control and '**passive**' safety measures, which protect occupants and other road users if a collision does occur, such as seat belts, airbags, and general crash worthiness.

Technology within vehicles, such as feedback from the speedometer and seat belt reminders can also educate road users about safe road use; these are further examples of 'passive' safety features.

It is vital to ensure that vehicles using the roads meet road safety and environmental standards; one way of meeting this requirement is via the annual MOT[15] test which is required for all vehicles from the third anniversary of its registration. Tyres braking and suspension are the most important elements of vehicle safety, and this is an area that the Partnership may be able to develop for future education and awareness activities.

The Safe Vehicles 'layer of prevention and protection' is a relatively new intervention for the Partnership to embrace that was not really considered under the previous approach to road safety. However, under the Safe System approach to road safety, it has been established that the Safe Vehicles 'layer of prevention and protection' is most likely to deliver sustainable and cost-effective reductions in the number of seriously injured casualties.

The Partnership acknowledges that the amount of involvement in this 'layer of prevention and protection' will be largely confined to:

- Promoting knowledge about the safety features incorporated within motor vehicles and motorcycles and encourage the owners of these vehicles to use and activate the safety features provided.
- Increasing awareness about the European New Car Assessment Programme (Euro NCAP) safety rating system for cars.
- Encouraging road users, including fleet operators, to purchase the safest vehicles they can afford.

[15] MOT stands for Ministry of Transport which is an annual test of vehicle safety, roadworthiness aspects and exhaust emissions required in the United Kingdom for most vehicles over three years old.

The development of new safety features ('active' or 'passive') will rest with vehicle manufacturers and the Government who can mandate that safety features are introduced within a specific timeframe for vehicles sold in the UK.

The Euro NCAP provides the information to support the Safe Vehicles 'layer of prevention and protection' and provides a valuable means of assessing whole car safety quality (it should be noted that, at present, no such assessment programme exists for motorcycles). Each new vehicle assessed under the Euro NCAP scheme will be awarded between 0 and 5 stars (five stars being the safest). A good correlation exists between Euro NCAP test results and collision outcomes; research has found that five-star rated cars have a 68% lower risk of a fatal injury and a 23% lower risk of serious injury compared to two-star rated cars.

The Euro NCAP safety ratings are based on the assessment of the four following areas:

- Adult Occupant Protection (for the driver and passenger).
- Child Occupant Protection.
- Pedestrian Protection.
- Safety Assist which evaluates driver-assistance and collision-avoidance technologies.

The design and development of new vehicles and in particular the inclusion of new safety features is evolving all the time. As an example, by mid-2022, all new cars, trucks, buses, vans, and sport utility vehicles sold in the UK, will have to be equipped with advanced safety systems which include:

- Intelligent speed assistance.
- Alcohol interlock installation facilitation (means a standardised interface that facilitates the fitting of aftermarket alcohol interlock devices in motor vehicles).
- Driver drowsiness and attention warning systems.
- Advanced driver distraction warning systems.
- Emergency stop signals.
- Reversing detection systems.
- Event data recorders, and
- Accurate tyre pressure monitoring.

Cars and vans must also include:

- Advanced emergency braking systems.
- Emergency lane-keeping systems, and
- Enlarged head impact protection zones capable of mitigating injuries in collisions with vulnerable road users, such as pedestrians and pedal cyclists.

In addition, trucks and buses will have to be designed and manufactured in such a way that the blind spots around the vehicles are significantly reduced. These vehicles will also have to be equipped with advanced systems capable of detecting pedestrians and cyclists located near the vehicle.

Further details about the assessment process and the rating of most vehicles can be found on the Euro NCAP website.

POST-COLLISION RESPONSE & CARE

Post-Collision Response & Care is a key Safe System strategy aimed at reducing the severity of injury once a collision has occurred. For major injuries, clinical experts define the post-impact care needed as a 'chain of help' comprising:

- The action taken by the injured themselves, or more commonly by lay bystanders at the scene of the collision.
- Access to the pre-hospital medical care system.
- Emergency rescue.
- Pre-hospital medical care.
- Trauma care, and
- Helping the injured, who have suffered debilitating injury, to re-integrate into work and family life.

The effectiveness of this 'chain of help' depends upon the strength of each of its links.

Research covering several countries within the OECD[16] for the 26-year period between 1970 and 1996, concluded that between 5% and 25% of the reduction in road deaths may have been due to improvements in medical care and technology.

For the Post-Collision Response & Care 'layer of prevention and protection', the Partnership is fortunate to have the three main emergency services (Police, Fire & Ambulance) together with the Essex & Herts Air Ambulance Trust amongst its formal partner organisations; these organisations will inevitably play an important role in supporting and delivering against this 'layer of prevention and protection'.

The Partnership recognises it is vital to work with the National Health Service to enable the best possible response to collisions that occur on its road network to ensure the best care is given to those road users injured in a collision.

Health outcomes for casualties rely on the speed at which the incident can be detected, located and emergency medical care provided, either at the scene, or in hospital.

The support of the emergency services will also be vital to facilitate investigations into the causes of deaths and serious injuries so lessons can be learned, and patterns can be identified so they can be integrated into future remedial actions.

This 'layer of prevention and protection' can have an impact on reducing the severity of injuries once a collision has occurred. Improving post incident responsiveness (by those first-on-the-scene and emergency services personnel) to minimise the impact on casualties is one area on which the Partnership can focus.

One such method of improving post incident responsiveness, particularly where casualties are involved, is by promoting the use of the eCall crash notification scheme.

This eCall facility became mandatory on all new cars sold in Europe after April 2018 and in the event of a collision, an eCall equipped car automatically establishes a connection to the nearest emergency service centre. Even if no passenger can communicate a 'minimum set of data' is transmitted to the emergency services including the location of the collision. The eCall system can also be activated by pushing a button within the vehicle so that if a driver witnesses a collision or comes across the scene of a collision, they can immediately summon the emergency services even if they don't know exactly where they are. It is estimated the use of eCall reduces response times by 50% in rural areas and 60% in built-up areas.

Trauma experts consider the response time critical in reducing the severity of injury consequences once a collision has occurred. Delays during the first hour can influence the chances of survival and the completeness of recovery and the first 20 to 25 minutes after a collision are critical to lowering the probability of death.

In Europe, it is estimated that for every death there are four permanently disabling

[16] The Organisation for Economic Co-operation and Development (OECD) – an international organisation currently comprising 36 countries

injuries, such as to the brain or spinal cord, ten serious injuries and forty minor injuries. Disability is usually defined as an individual's inability to carry out a normal range of daily activities due to physical and or psychological impairments.

Research has found that about 50% of deaths from road traffic collisions occur within minutes, either at the scene or while in transit to hospital; these are referred to as 'immediate' deaths. For those patients taken to hospital around 15% of deaths occurred between one and four hours after the collision; these are referred to as 'early' deaths but around 35% of deaths occurred after four hours and these can be referred to as 'late' deaths.

Research has concluded that 35% to 50% of deaths could be considered as treatable, i.e., those occurring during the 'early' and 'late' phases, by prompt medical management / intervention. It has been concluded that 5% to 10% of deaths are 'definitely preventable' and a higher share of the deaths as 'possibly preventable' due to improved trauma management.

Hence, the above information illustrates that treatment within the first hour can largely determine a critically injured person's chances of survival and can turn a fatal collision into a serious one. Research from America also confirms that survival rates during the 'early' to 'late' phases mainly depends on the quality of hospital treatment; it concluded that the risk of death in trauma centres is significantly lower than in non-trauma centres.

Safe System Leadership

Figure 2 below has been taken from the Parliamentary Advisory Council for Transport Safety (PACTS) website to illustrate the range of leadership functions that the Partnership needs to adopt so it works in a structured manner to encourage delivery of the Safe System approach to road safety.

The Partnership recognises it may have limited influence in the legislation function but accepts that it can play a significant role in showing leadership, developing, and funding annual plans (via the annual Activity Delivery Schedule), co-ordinating and promoting activities across the Partnership and monitoring and evaluating progress towards the interim casualty reduction target for 2030 and the long-term Vision Zero aspiration. Carrying out research and development, including knowledge transfer, will be a vital activity across all the functions shown.

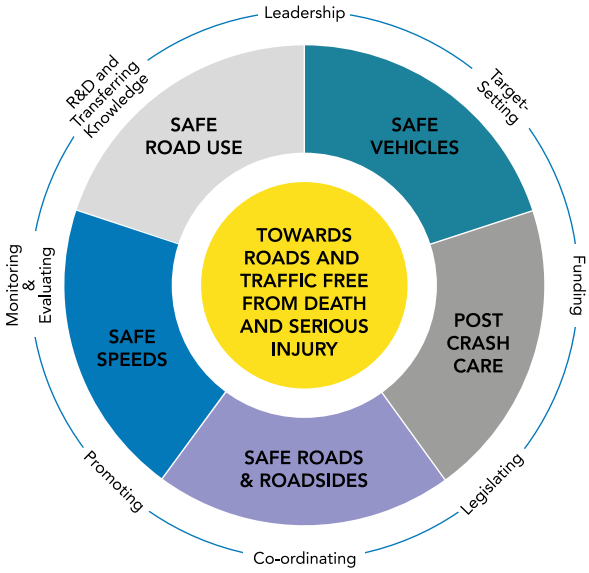


Figure 2 – Showing the five Safe System 'layers of prevention and protection' and associated management functions

It is essential that the five 'layers of prevention and protection' adopted by the Partnership are supported by a comprehensive data interrogation, analysis, and evaluation process; The section starting on page 37 of this document deals with this aspect.

THE PARTNERSHIP'S VISION ZERO STRATEGY / APPROACH

To achieve the Vision Zero aspiration by 2040 and the interim casualty reduction target for 2030, the Partnership has developed a high-level strategic objective for each Safe System 'layer of prevention and protection'. Within each 'layer of prevention and protection' there is a range of strategic actions that the Partnership will undertake.

All strategic objectives and strategic actions have been aligned with the principles of a Safe System approach to road safety. The strategic objectives and strategic actions will be reviewed, as necessary, but certainly within the first review of this document to be undertaken by 31st March 2025. In developing the high-level strategic objectives and the accompanying strategic actions, the following approach has been adopted:

- Vision Zero is the aspiration.
- The Safe System approach to road safety is how the aspiration is to be achieved.
- Education and Encouragement will reduce the number of road users unintentionally operating outside the Safe System parameters.
- Enforcement will reduce the number of road user deliberately operating outside the Safe System parameters.

The high-level outcome against each 'layer of prevention and protection' is given in Table 2.

Safe System 'Layer of Prevention & Protection'	High-Level Outcome for each 'Layer of Prevention & Protection'
Safe Speeds	Road users understand the risks and implications of exceeding the speed limit and therefore, travel at appropriate speeds to the conditions and within posted speed limits.
Safe Road Use	Road users who know and comply with the rules of the road and take responsibility for the safety of themselves and others, especially vulnerable road users.
Safe Roads & Roadsides	They are self-explaining in that their design encourages safe travel so that they are predictable and forgiving of mistakes.
Safe Vehicles	That vehicle fleets comprise well maintained vehicles that reduce the risk of collisions and, in the event of a collision, reduce the harm to road users, including pedestrians, pedal cyclists, motorcyclists and vehicle occupants.
Post Collision Response & Care	The most effective and efficient response to collisions is provided and that road victims receive appropriate medical care and rehabilitation to minimise the severity and long-term impact of their injuries. Learnings from collisions are captured and acted upon. Families of those killed or seriously injured are appropriately supported.

Table 2 – High Level Outcome for each Safe System 'Layer of Prevention and Protection'

The Road Safety Performance Indicators (RSPI) that will be used to monitor progress towards the high-level outcome for each 'layer of prevention and protection' are detailed from page 37 onwards.

To deliver the high-level strategic objectives, a comprehensive range of strategic actions will be coordinated / undertaken by the Partnership during the three-year period between April 2022 and March 2025. These strategic actions are outlined below; some will require further development to become a deliverable action.

To support the implementation of the Strategic Actions[17], a sub-group will be set-up for each 'layer of prevention and protection' (see Strategic Action 2). It is expected that many organisations will be involved in delivering actions within each 'layer of prevention and detection'. Progress on the delivery of each Strategic Action will be overseen by the Strategic Group / Governance Board, as appropriate.

STRATEGIC ACTIONS

General

1) Review the governance structure of the Partnership, including the roles and responsibilities, to ensure it is better aligned with the Vision Zero strategy and develop a culture of regular collaboration with other local authority policy areas (see from page 18) to seek alignment of policies at a strategic level[18].

2) Create a sub-group for each 'layer of prevention and protection' that will report to the Strategic Group through a nominated lead. The sub-groups will be responsible for activities, such as, research, data gathering and developing Action Plans for the Strategic Group / Governance Board's approval, as appropriate, and will also facilitate delivery and monitoring of interventions, as necessary. To assist in the development of interventions, the sub-groups will engage with a wide range of subject-matter specialists / experts and interested parties.

3) A Community Engagement Fund could be created to encourage engagement and participation by organisations, such as parish councils, district councils, and community speed watch groups etc. to promote the Vision Zero aspiration and the Safe System approach to road safety within their area of responsibility.

   Such a fund could be used to support low-level financial investment for approved local initiatives, but it would be important to ensure that such a fund is supportive and not in conflict with other partner organisation budgets.

   The Partnership will undertake preliminary investigations to determine how, in practice, the Fund could be created, who can bid, what guidance should be provided to support the submission of bids, how bids will be made, the criteria bids will need to meet, the approval / decision process for bids and how funding can be transferred to the successful organisations. The results of this investigation will be reported to the Governance Board prior to the end of 2022.

4) The Partnership will review progress towards the Road Safety Performance

[17] It is likely that for many of the Strategic Actions, an Action Plan will be developed that will define items such as the evidence-base, make-up of the delivery team, links to other policy areas, anticipated outcome, timescale etc. Figure 3 on page 38 illustrates how the Partnership develops interventions.

[18] The outcome of this action may require an amendment to be made to the Partnership's Memorandum of Understanding (MoU), the process for which is contained in the MoU document.

Indicators (RSPI) whilst developing each annual Partnership Plan to ensure that interventions continue to meet the Partnership's aims and objectives (see from page 8).

5) All actions delivered or facilitated by the Partnership, in pursuit of the 2030 casualty reduction target and the 2040 Vision Zero aspiration, will be documented in the Partnership's annual Activity Delivery Schedule.

6) We will work nationally and regionally to understand more about appropriate Performance Indicators that will inform the Partnership as to progress towards Vision Zero and as to which type of interventions are most successful at delivering positive outcomes and associated reductions in deaths and serious injuries.

7) The Governance Board will task each formal partner organisation, via their most senior representative, to document how their organisation can contribute to the Partnership's Vision Zero Strategy, and how Vision Zero can be aligned with their organisation's existing strategies, policy areas and activities etc. Although not an exhaustive list such items that could be considered include vehicle fleet, staff mobility, development and planning matters, educational establishments (including travel to and from) and how those at a greater risk can be protected whilst using the road network.

   The Governance Board will seek regular feedback from all partner organisations about progress being made and the actions that are being taken to contribute to the Partnership's Vision Zero aspiration.

SAFE SPEEDS

High-Level Outcome - Road users understand the risks and implications of exceeding the speed limit and therefore, travel at appropriate speeds to the conditions and within posted speed limits.

The Partnership will pursue the following Strategic Actions:

8) Prepare a comprehensive speed enforcement strategy which is aimed at increasing compliance with the speed limits posted across each highway authority's road network.

9) Provide speed enforcement in accordance with the strategy to increase compliance with posted speed limits thereby aiding collision-avoidance and reducing the speed at which impacts occur.

10) Encourage and support each highway authority partner to review its speed management strategy with the aim of setting appropriate and consistent speed limits that consider the mobility need, the road environment, the quality of the road infrastructure, the type and safety features of the vehicles that use the road and the human body's tolerance to impact forces before deaths or serious injuries are sustained. Guidance on what constitutes a Safe System or survivable impact speed is given in Table 1 on page 22.

11) Prioritise Safe Speeds in educational interventions and awareness campaigns, including its dealings with Essex businesses, with the aim of increasing road users' desire for safe speeds, their knowledge of the law, awareness of risks and understanding of technology aids and techniques that could help them keep within the speed limit.

12) Recognise the anticipated growth in the Community Speed Watch scheme by providing enhanced support and investing in the community groups and volunteers to maximise the 'wider' contribution it is considered they can make towards the 2030 casualty reduction target and Vision Zero.

SAFE ROAD USE

High-Level Outcome - Road users know and comply with the rules of the road and take responsibility for the safety of themselves and others, especially vulnerable road users.

The Partnership will pursue Strategic Actions within the following categories of Enforcement, Education and Communication.

Enforcement:

13) Document the Partnership's strategy for enforcement (of which the speed enforcement strategy will form a significant part) to encourage greater compliance with traffic laws aimed at reducing deaths and serious injuries; namely those concerning seatbelt wearing, driving under the influence of drink or drugs, and driving whilst distracted, particularly if using a handheld mobile phone. The strategy should allow for an increase in the level of enforcement undertaken, when using 2021/22 as a baseline.

14) Undertake robust trials to determine the most cost-effective enforcement methods and tactics to deter high-risk road users and reduce deaths and serious injuries.

15) Where appropriate, the Chief Constable will consider delegating powers to people who are not warranted police officers (for example local authority staff), who have met the stringent training and approval process, to enable the use of Home Office Type Approved hand-held speed enforcement devices. These delegated powers will increase the coverage of speed enforcement across Essex.

16) Continue to provide speed enforcement outside schools (referred to as School Speed Watch) during 'Surround-A-Town' days, or other similar activities, to complement the educational activities delivered in schools and, as an alternative to prosecution, to offer speeding drivers / riders the opportunity to explain to students why they were speeding outside their school. School Speed Watch will form part of the Partnership's enforcement strategy.

17) Promote the Partnership's 'Extra Eyes' campaign to encourage more road users to submit video evidence of poor and dangerous driving behaviour which, so long as certain conditions are met, can be used for prosecution purposes.

Education:

The Partnership recognises the important role that education plays in ensuring that all road users are aware of risks, and in providing the skills, knowledge and encouragement required for them to develop appropriate strategies to keep themselves and others safe on the road. The annual Activity Delivery Schedule sets out the range of activities that the Partnership will carry out to provide a programme of data-led / evidence-based education for road users.

The key areas of the education programme include:

18) Promoting compliance with road traffic laws as the most influential action that any road user can take to reduce deaths and serious injuries on the road acknowledging that compliance with speed limits will have the greatest benefit.

19) Encouraging employers to support the safety of their employees through the provision of the highest possible Euro NCAP rated vehicle (that may also have to meet climate change requirements) and the inclusion of robust road safety / driving for work policies and a positive road safety culture within their organisation and workplace practices.

20) Continuing to deliver road safety education and training for children, parents, and carers in primary schools to provide a foundation of good practice for crossing and using roads as well as an opportunity to influence the speed of drivers around schools through School Speed Watch activities.

21) Increasing the number of participants for all existing pedal cycle training courses and the type and availability of courses offered. The existing training courses include Bikeability Level 1 and Level 2, offered to all primary schools, and a wider range of courses for older children, adults, and families.

22) Increasing the number of educational establishments that accept interventions and the number of students that attend pre/young driver education through Theatre in Education plays and workshops, teacher-led behavioural change programmes ('Roadster'), and campaigns that utilise social media as well as face-to-face opportunities ('My Small Change' for Young Drivers and 'Street Spirit' for young riders).

23) Increasing the number of road users that attend 'Driving with Confidence' sessions; this will include working with Essex Police to see if they can increase the number of drivers, they refer to sessions. The 'Driving with Confidence' sessions are for older drivers and those that have lost confidence due to experiencing some form of trauma whilst driving. These sessions are tailored to meet the individual's needs and are currently offered free of charge to drivers over the age of 70 or anyone referred to a session by Essex Police.

24) Ensuring interventions, aimed at powered two-wheeler riders, are reviewed considering the Safe System approach to road safety. The review will understand how the Partnership can gain greater reductions in deaths and serious injuries under the Safe System approach, what riders are targeted, what training is delivered and will consider the introduction of a user forum to appreciate what riders want and require.

Engagement / Communications:

The Partnership found from initial social media engagement / communications that many people do not recognise that they have a personal responsibility to ensure their safety and the safety of others when using the roads and do not actively seek safety information about vehicles, equipment or routes for their journey and do not keep up to date with changes to the Highway Code or legislation. It is likely that some people will perceive Vision Zero as unrealistic, as they believe that road death may be an inevitable consequence of road use for others (but not for themselves).

The Partnership's communications around Vision Zero and the Safe System approach to road safety will increase public awareness of the importance of road safety in saving lives and preventing life changing injuries by increasing the societal visibility of road collisions and their impact; particularly to young people (road collisions are the biggest single cause of death to young people). The Partnership will also encourage road users to take greater personal responsibility for their actions on the road, not only for their own safety but for the safety of other road users.

The Partnership will use the thematic messaging from the Partnership's

Communication Strategy to support the strategic actions identified in this strategy. The themes are:

- **Shared Vision (Vision Zero)** The Partnership will inform, listen to, and enthuse the people of Essex to desire the outcome of no road deaths or serious injuries for road users in Essex.
- **Unified Approach (Safe System)** Demonstrate that to achieve the vision both personal and collective responsibility are required, with road users who know and comply with rules of the road and take responsibility for themselves and others, especially those more vulnerable than themselves.
- **Evidence Led**

The key areas of the Engagement / Communication activities include:

25) Use data and evidence to its greatest extent to provide the people of Essex with the best possible accurate and timely information to support and encourage them to make choices that optimise safety on the roads for themselves and other road users, particularly the more vulnerable.

26) Share the Partnership's Vision and use all appropriate media channels to inform, listen to and enthuse the people of Essex to desire the outcome of no road deaths or serious injuries for road users in Essex.

27) Promote a unified approach (the Safe System approach to road safety), which demonstrates that to achieve Vision Zero, organisational, collective, and personal responsibility will be required, with road users who know and seek to comply with the law and are prepared to take responsibility for themselves and others; especially those more vulnerable than themselves.

SAFE ROADS & ROADSIDES

High Level Outcome – Roads are self-explaining in that their design encourages safe travel so that they are predictable and forgiving of mistakes.

The Partnership will pursue the following Strategic Actions:

28) Provide advice and encouragement and training, if needed, to the highway authorities to create a safe and 'forgiving' road network that reduces the risk of collisions resulting in death or serious injury.

29) Provide support and encouragement to Essex CC, Southend City Council, and Thurrock Council to explore, within the 3-year term of this document, the possible adoption of a systematic **Star Rating** or **Risk Mapping** tool/system? for their road network. Such proactive assessments will complement the more traditional reactive analysis of high-risk collision sites and are described in more detail on page 21.

    This Strategic Action could support the work National Highways (formerly Highways England) has already undertaken in respect of determining a risk rating for the Strategic Route Network affecting the Partnership's area (see reference 16).

30) Provide support and encouragement to each of the three highway authorities to review, within the next 5 years, the strategies that are used to develop future programmes of road maintenance and road improvements (acknowledging that highway authorities already promote casualty reduction-based road improvement schemes). Placing greater emphasis on the Safe System approach when developing future maintenance and improvement programmes, could lead to more route and corridor-based treatments, particularly if they relate to

the possible adoption of Star Ratings (see previous action), which could reduce the number of collisions and the likelihood of further collisions, leading to deaths and serious injuries, on their roads with the lower Star Ratings.

31) Within the next 5 years, support each of the three highway authorities and/or their delivery partners, to:

- Incorporate the Safe System approach to road safety into its strategies, policies and plans including transportation, development, planning, sustainability, traffic management, hierarchy, and speed.
- This will enhance / improve safe and consistent design, particularly in areas where the highway authority wishes to encourage non-car travel. This work will include new developments, major and minor road improvements, and routine maintenance functions.
- Provide Safe System training for all those involved in the approval, design, delivery, and maintenance of schemes involving the highway.
- Investigate the possible benefits of working towards ISO 39001 (Road Traffic Safety Management System).

32) The Partnership's Road Safety Data & Strategy Analyst will carry out detailed analysis of the factors surrounding collisions in which at least one death was recorded and a proportion of collisions in which at least one serious injury was sustained. The Data & Strategy Analyst will then work with national and regional bodies to share knowledge that can be used to develop targeted remedial actions within the Safe System approach to road safety.

SAFE VEHICLES

High Level Outcome - The vehicle fleet (i.e., all vehicles on the roads) comprises well maintained vehicles that reduce the risk of collisions and, in the event of a collision, reduce the harm to road users, including pedestrians, pedal cyclists, motorcyclists and vehicle occupants.

The Partnership will pursue the following Strategic Actions:

33) Encourage the purchase of vehicles with the highest Euro NCAP safety ratings by fleet managers and members of the public.

34) Continue to enforce the removal of unsafe / illegal vehicles from its roads.

35) Engage and work with vehicle manufacturers to gain a better understanding of existing active and passive safety features and how future developments will improve vehicle safety and how the Partnership can capitalise on this area of knowledge.

POST COLLISION RESPONSE AND CARE

High Level Outcome – The most effective and efficient response to collisions is provided and that road victims receive appropriate medical care and rehabilitation to minimise the severity and long-term impact of their injuries. Learnings from collisions are captured and acted upon. Families of those killed or seriously injured are appropriately supported.

The Partnership will pursue the following Strategic Actions:

36) Instigate discussions with the emergency services to determine whether there are opportunities to reduce their response time to road traffic collisions or improve further, from experience and learning, how casualties are treated and / or extricated from vehicles and whether this could reduce the severity or consequences of any injuries sustained.

37) Support the development of educational campaigns to encourage prompt and accurate reporting of collision locations by members of the public where injuries have been sustained and there is a need to summon the emergency services, using technological aids, such as 'what-3-words' and the eCall system.

38) Evaluate whether the promotion of first-aid training to professional drivers and other groups of road users, such as motorcyclists, and the availability of certain first-aid equipment (e.g., defibrillators) would be effective in supporting this 'layer of prevention and protection'.

PERFORMANCE MANAGEMENT (HOW DO WE KNOW WE ARE PROGRESSING?)

In 2040, the Partnership will know whether Vision Zero; the aspiration to achieve zero road deaths and serious injuries in Essex, has been achieved.

It is a simple task for the Partnership to track the number of deaths and serious injuries each year and plot these on a graph, as in Graph 2 on page 12, to see whether the numbers are following the required downward trajectory. The Partnership will monitor this monthly and publish annual figures on our website: saferessexroads.org/collision-data

It is important to monitor progress towards Vision Zero in detail to know whether targeted actions are achieving the desired outcomes within the desired timescales. The Partnership will therefore monitor activities (what is undertaken) and outcomes (their impact) of those targeted activities.

Outcomes can be split into direct and indirect outcomes. A direct outcome is the effect of the intervention (both intended and unintended), an indirect outcome is the knock-on effect on the overall aim. For example, an intervention to address speed-related collisions could have three measures:

a) **Activities** – number of motorists receiving an intervention educating them about speeding.

b) **Direct outcome** – change in observed speed compliance rates; and

c) **Indirect outcome** – change in number of speed-related collisions.

In road safety, the indirect outcome is almost always some variation on "reduction in the number of collisions involving deaths and serious injuries". This outcome is relatively easy to measure for site-specific engineering schemes, where a particular feature of the road network is changed to address an identified collision-type, but it is usually difficult to attribute any changes to deaths and serious injuries as a result of a single intervention for education, engagement and training type activities. This is because road collisions are multi-factor events in which many 'layers of prevention and protection' have proved insufficient, representing a failure of the system. There are also likely to be several interventions targeting the same direct outcome and the contribution of each can also be difficult to isolate with any real confidence.

For this reason, interventions are usually only evaluated against direct outcome measures, not indirect measures. These direct outcomes measure things that can be attributed to the activity or intervention.

The link between a direct outcome and an indirect outcome is provided by a 'logic model'. This logic model, supported by data and research, describes how the intervention is expected to make a positive contribution to the overall strategic aim – in this case Vision Zero. This logic model will form part of the action plan for each of the strategic actions.

For example, if the collision data shows that exceeding the speed limit is a frequent contributor to collisions, and research shows that a reduction in traffic speeds is associated with reductions in casualties, then we can build a logic model that says, "Improving speed limit compliance will help reduce casualties".

If we design an intervention to help drivers and riders adhere to the speed limit, and the evaluation shows improved speed limit compliance among drivers and riders who took part in the intervention, then our logic model gives us confidence that delivering this intervention will contribute to our overall aim.

Following this procedure for the development of an intervention provides confidence that the activity will have the desired effect on direct outcomes and the direct outcomes will have the desired effect on indirect outcomes / overall aims.

If evaluation shows that the intended direct outcome is not being achieved, the Partnership will review the intervention at the earliest possible opportunity.

The graphic in Figure 3 below illustrates how the Partnership uses data, research, and logic models to develop action plans that will deliver the Vision Zero Strategy.

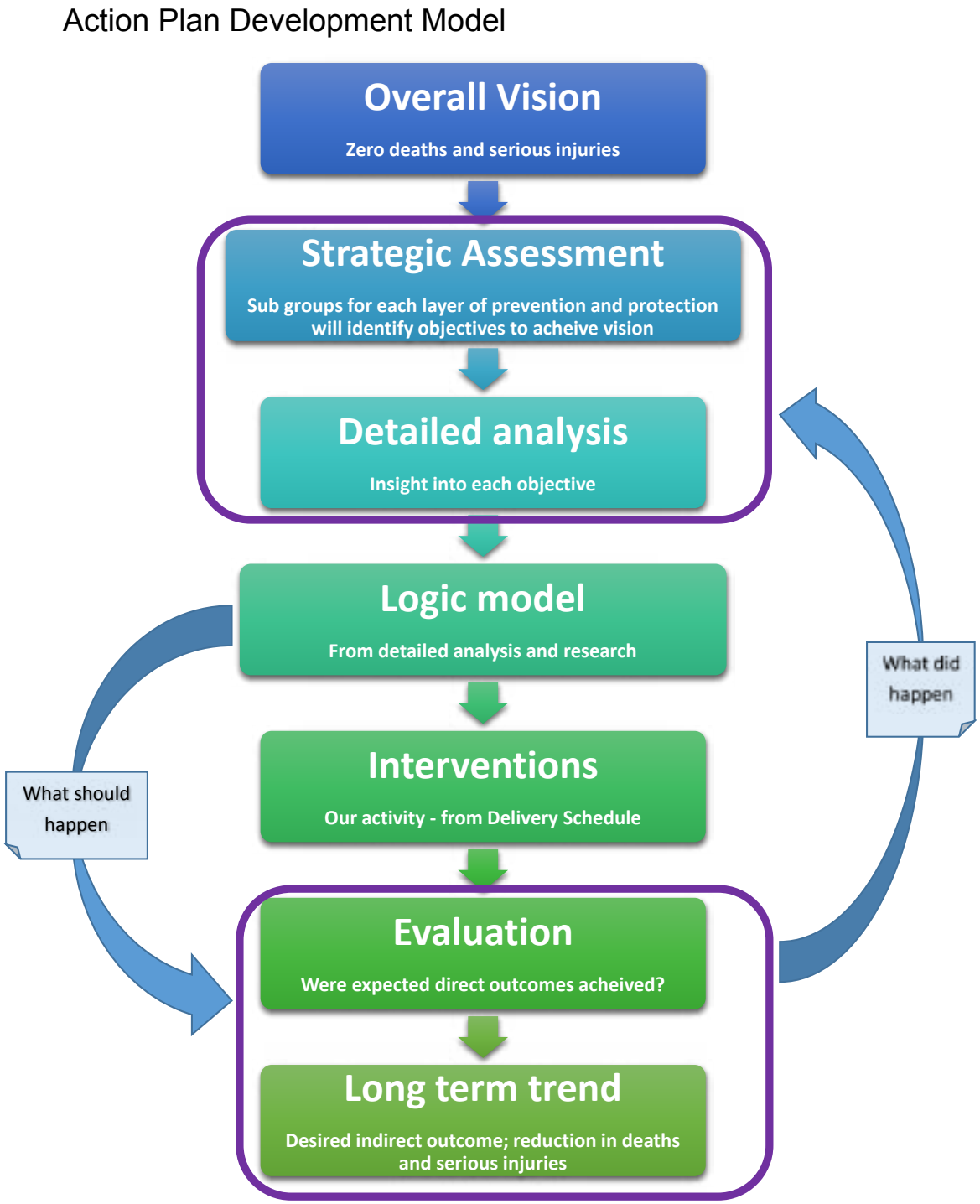


Figure 3 – Showing how the Partnership develops interventions

The Strategic Assessment has informed the Partnership what the objectives should be, but there is a need to understand how much progress is being made towards achieving those objectives. Road Safety Performance Indicators (RSPIs) are measures that indicate the level of progress towards achieving these objectives. Each strategic action plan must be designed to have a positive effect on a specific RSPI.

RSPIs must be selected carefully to prioritise and incentivise activities that will have positive outcomes to improve the 'layers of prevention and protection' within the Safe System approach. Table 3 below shows the RSPIs the Partnership proposes to monitor progression towards Vision Zero.

Road Safety Performance Indicators

Table 3 summarises a range of measures that will be used to monitor activity and outcomes towards achieving Vision Zero.

Safe System 'Layer of Prevention & Protection'	Measure	Data source	Success Criteria
Safe Roads & Roadsides	Develop safety rating system for roads in the Partnership's area to measure future improvements in the safety of the network	Work is in progress to develop a measure using a range of data sources and collection methods	System in place to rate any road by 2024
Safe Road Use	Number of deaths where a car occupant was not wearing a seatbelt	STATS19 data	Reduction towards zero
	Number of deaths involving a vehicle driver impaired through drink or drugs	STATS19 data	Reduction towards zero
	% of people agreeing with statements in support of never committing traffic offences	Survey data	Increase towards 100%
Safe Speeds	% of vehicles travelling within the posted speed limit	Automatic traffic counters / telematics data	Increase towards 100%
Post Collision Response & Care	% of priority collision locations to which appropriate emergency service arrive within 18 minutes of being notified	Fire and Ambulance command and control data	Increase towards 100%
Safe Vehicles	Percent of passenger car sales to registered keepers living in the Partnership's area with a EuroNCAP rating of at least 4 stars	DVLA data and Euro NCAP lookup	Increase towards 100%

Table 3 - Road Safety Performance Indicators

Overall Aim

Safe System 'Layer of Prevention & Protection'	Measure	Data source	Success Criteria
Progress towards Vision Zero	Change in the number of deaths and serious injuries on the roads in the Partnership's area	STATS19 data	50% reduction by 2030

Table 4 - Measuring the overall aim

The Partnership will use a range of more detailed measures to inform priorities on an annual basis. For example, examining changes in the rate of cyclist and pedestrian casualties per road user mile will help determine if measures designed to make these modes of travel safer are having the desired effect.

The RSPIs above are by no means the only data the Partnership will examine. The small number of indicators above will help measure progress towards building the Safe System required to achieve Vision Zero. Individual road safety activities will be informed by their own measures and evaluations that are specific to that activity. The Partnership will examine all relevant data available to design and evaluate road safety interventions and inform strategic priorities.

Vision Zero itself is not a RSPI, it is the recognition that if everyone plays their part and accepts the shared responsibility then together the ambition of zero deaths and serious injuries on the Partnership's roads can be achieved.

REFERENCES

The list of references below is not complete and nor is it assembled in any order, but it does indicate the main documents that have been consulted in developing the Partnership's Vision Zero Strategy document.

1) *Global Plan – Decade of Action for Road Safety 2021 to 2030.* A guiding document, developed by the World Health Organisation and the United Nations Regional Commissions, to support the implementation of the Decade of Action 2021-2030 and its objectives.

2) *"Zero Road Deaths and Serious Injuries – Leading a Paradigm Shift to a Safe System".* International Transport Forum. 2016.

3) *European Commission EU Road Safety Policy Framework 2021 – 2030. Next steps towards 'Vision Zero'.*

4) COMMISSION STAFF WORKING DOCUMENT *EU Road Safety Policy Framework 2021 – 2030 – Next steps towards "Vision Zero".* European Commission, 19.6.2019. SWD (2019) 283 final.

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7) *Towards 2030 – Making Our Roads Safer for All* – Vision Zero Partnership, Delivering Safer Roads for Cambridgeshire & Peterborough. Agilysis and Traject July 2020.

8) Executive Summary *Towards 2030 – Making Our Roads Safer for All* – Vision Zero Partnership, Delivering Safer Roads for Cambridgeshire & Peterborough. Agilysis and Traject July 2020.

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13) *"Vision Zero action plan". Taking forwards the Mayor's Transport Strategy.* Mayor of London / Transport for London. July 2018

14) *"Vision Zero action plan – progress report. Our strategy for making London's roads safer for all.* Mayor of London / Transport for London. November 2021.

15) *Road Safety Plan 2021* – Towards Zero - New South Wales Government - February 2018

16) *East Regional road user safety plan – 2020 – 2025* – Highways England

17) *"Driving Change"* – Road Safety Strategy for Western Australia 2020 – 2030

18) *"Developing safe system road safety indicators for the UK"* – PACTS 2018

19) *"Scotland's Road Safety Framework to 2030 – Together, making Scotland's roads safer".* Consultation Document – Transport Scotland - August 2020

20) *Scotland's Road Safety Framework to 2030 – Together, making Scotland's roads safer* – Transport Scotland - published document 2021

21) *Vision Zero - The Road Safety Strategy for Kent* – a 30-year vision to 2050 and a five-year strategy for 2021 – 2026, produced by Kent County Council.

22) *Post-impact care 2018* – European Commission / European Road Safety Observatory (ERSO)

23) *Safety Ratings 2018* – European Commission / European Road Safety Observatory (ERSO)

24) *Euro NCAP 2025 Roadmap in Pursuit of Vision Zero* – Euro NCAP – September 2017

APPENDIX

Summary of factors recorded in collisions involving deaths and serious injuries

Variable	Layer of Prevention and Protection	Type	% of Fatal and Serious casualties	"No. Fatal and Serious casualties per year (2017-2019)"	Notes
Infrastructure contributing to or failing to prevent collision	Roads	Design and maintenance	8.3%	227	Figure is 45% for a small sample of fatals
Collisions with objects off the carriageway	Roads	Passive safety	10.0%	273	
Pedestrian or cyclist in asymmetric collision with heavier road user	Roads	Segregation	29.2%	797	53% of all collisions were asymmetric
Defects with vehicles contributing to collisions	Vehicles	Vehicle maintenance	1.7%	46	Figure is 12.8% for a small sample of fatals
Involving car-occupant casualties	Vehicles	Vehicle type	44.3%	1209	
Involving P2W rider casualties	Vehicles	Vehicle type	23.0%	628	
Involving pedestrian casualties	Vehicles	Vehicle type	18.1%	494	
Involving cyclist casualties	Vehicles	Vehicle type	11.7%	319	
Involving vans, goods vehicles, buses or other heavy commercial vehicles	Vehicles	Vehicle type	17.9%	489	
Speed and carelessness related contributory factors	Speed	Behaviour	31.2%	852	
Driver or rider impaired by drugs or alcohol	People	Behaviour	8.1%	221	Roughly 70:30 split of alcohol:drugs
Driver or rider inattention, poor observation and distraction	People	Behaviour	43.1%	1177	
Pedestrian careless, reckless or deliberately dangerous action	People	Behaviour	2.4%	66	

Variable	Layer of Prevention and Protection	Type	% of Fatal and Serious casualties	"No. Fatal and Serious casualties per year (2017-2019)"	Notes
Pedestrian impaired by drugs or alcohol	People	Behaviour	1.8%	49	
Pedestrian inattention, poor observation or distraction	People	Behaviour	11.4%	311	
Non-wearing of seatbelts	People	Behaviour	7.2%	197	Recorded rate is 3.5%, 7.2% figure is estimate accounting for status unknown
Poor turn or manoeuvre	People	Behaviour	11.6%	317	
Illness or disability mental or physical	People	Behaviour	4.2%	115	
Pedestrian aged under 16	People	with CF	3.3%	90	
Cyclist aged under 16	People	with CF	1.5%	41	
Pedestrian aged 16-25	People	with CF	1.6%	44	
Cyclist aged 16-25	People	with CF	0.8%	21	
P2W rider aged 16-25	People	with CF	6.1%	166	
Car driver aged 16-25	People	with CF	14.0%	382	
Pedestrian aged 26-69	People	with CF	4.8%	132	
Cyclist aged 26-69	People	with CF	2.9%	80	
P2W rider aged 26-69	People	with CF	9.9%	270	
Car driver aged 26-69	People	with CF	35.5%	970	
Pedestrian aged 70+	People	with CF	1.7%	45	
Cyclist aged 70+	People	with CF	0.2%	6	
P2W rider aged 70+	People	with CF	0.2%	7	
Car driver aged 70+	People	with CF	8.0%	218	
Commercial driver aged 26-69	People	with CF	7.2%	197	


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POLICE

VISION ZERO

NO ROAD DEATHS

Visit our website to see the latest information, stories and press releases.

saferessexroads.org/visionzero

PLEASE GET INVOLVED

- Learn more about safe road use on our website **www.saferessexroads.org**
- Like/follow/share on our social media channels **@saferessexroads**
- Talk to family, friends and people in your community about Vision Zero
- Share ideas about how to make improvements where you live with your local elected representatives
- Subscribe to updates from us at: **saferessexroads.org/subscribe-to-news-alerts**
- Submit footage of road traffic offences to our Extra Eyes campaign: **saferessexroads.org/driving-complaints-2020**
- To share any ideas you have about how you might be able to help achieve Vision Zero in your community, please contact us at: **SaferEssexRoads@essexhighways.org**