





The SRN carries

3x MORE PEOPLE THAN THE RAIL NETWORK

The SRN carries



OF ALL **TRAFFIC** 



**FREIGHT** 

2020 2040

forecast increase in usage of the SRN over the next 20 years

MILLION

journeys are made on the SRN every day



THE SRN COMPRISES

10,000

miles of carriageways

20,000 bridges and other structures

100,000 street lights

150,000 signs

3,500 electronic messaging signs

70,000

sensors, including traffic sensors

4,300 miles of motorway and major A-road **HIGHWAYS ENGLAND CONNECTS** THE COUNTRY

We are the publicly funded, governmentowned company that plans, designs, builds, operates and maintains more than 4,300 miles of motorway and major A-roads that form England's strategic road network (SRN). As well as managing one of the world's most advanced road networks, we provide information and assistance for four million road users who use our network every day.

Cover image: David Evans, A1(M) near Darlington

## **PUTTING SAFETY FIRST**

With more than four million journeys taking place daily on our network, our roads play a vital part in everyone's lives: connecting people to their work, family and friends.

We want to make sure every person gets to where they want to go, safely and reliably. That's why we prioritise the safety of people who travel and work on our roads above everything else.

We can't eliminate every risk from our road network, or from our work. But we can recognise those risks, assess them, and do everything we can to protect people from them.

Our road network is already one of the safest in the world. In 2016, the fatality rate on England's motorway network was 1.29 per billion vehicle miles. That's lower than for every other country for which data is available, according to the International Road Traffic and Accident Database.

Our road network is a much safer place than it was four years ago – for our customers, for our on-road workforce, and for our supply chain partners.

Without doubt though, there's much more to do.

#### THE **CHALLENGE**

In 2014, government set the target of reducing the number of people who are killed or seriously injured on the strategic road network by 40% by the end of 2020.

Our aim is to achieve more: that no one should be killed or injured on the strategic road network by 2040. This is more than just a target. We want our roads to be safer, and we're committed to achieving this through improving our network and encouraging safer driving.

Balancing the demand for more road space with the need to keep all road users safe has presented new challenges. Our aim is to enable safe travel for all – be it in a car, a van, on a motorcycle or bicycle, on horseback or on foot. We cater for all needs and work hard to keep everyone safe when using our roads.

MIKE WILSON Executive Director Safety Engineering and Standards, Highways England



INTERNATIONAL RECOGNITION - In 2018, the International Road Federation (IRF Global) awarded its prestigious annual safety 'Find a Way' award to Highways England.

The award recognises outstanding commitment to safer roads by a local or national government.

IRF President and CEO C. Patrick Sankey said: "The guidelines and contractor oversight practices established by Highways England to eradicate danger on road construction sites are widely praised for their results, and are an inspiration for road agencies worldwide."

"Highways England has shown increasing demand and appetite to learn more about driver behaviour and adopt best practice, all based on evidence. There's an increasing recognition that we need to understand human behaviour better so they can take the right kind of action to improve safety.

The approach is a lot more scientific. It's clear they're adopting a more informed approach to safety."

DAN CAMPSALL

Roadsafe



Institute of

Marketing's

Excellence

Awards 2019.

(CIM) Marketing

represent just 15% of motorcyclists in Great Britain but account for more than 38% of rider casualties.

So, a young rider is over 2.5 times more likely to be injured than someone more experienced.

# A FRESH **APPROACH**

Putting safety first has meant big changes to how we work as a company. We now understand much more about what creates risk on our roads, and we take the most effective actions to reduce or remove that risk completely.

Our safety expertise is world-leading, and our high-speed road network is one of the safest in the world.

#### AN INFORMED APPROACH TO SAFETY

Achieving our road safety target requires a systematic approach, reflecting the complexities of collisions and casualties on our network. This takes human fallibility and vulnerability into account, and accepts that even the most conscientious driver will make a mistake at some point. The goal is to ensure that these mistakes don't lead to a crash; or, if there is a crash. it's sufficiently controlled, so it reduces the severity of

Not all crashes can be prevented by road design alone, so we combine these improvements with marketing communications campaigns to reduce poor driver behaviour and change perceptions of what makes a safe driver.

We use the internationally-recognised Safe Systems model to understand road safety in a more holistic way. By looking at how vehicles, people and the design of our roads interact over time, we've learnt much more about how to improve road safety. We've developed our approach to include designing safer roads, supporting the development of safer vehicles and encouraging safer driving.



#### THE PRICE OF RISK-TAKING

Motorcyclists are more vulnerable than other roads users. But without the protection a vehicle can offer, what they wear can make all the difference if they come off their bike.

Data from incidents involving motorcycles showed us that younger riders were more at risk of having an incident, and the severity of their injuries was worse too.

Our Distressed campaign used fashion to raise awareness of safety for young riders. It centred on the concept of a clothing range, where each garment has a unique price tag. Instead of monetary value, the cost lists a range of injuries or hospital treatments that a young rider could face following an accident.



## SAFER ROADS

We're more focused now than ever before on what our customers need from us. We know that our customers want to feel safe. They want to have control over their journeys. And they want their journeys to be as stress-free as possible.

One of the ways we have changed our roads to meet these needs is by introducing smart motorways. By allowing traffic to use a fourth lane, we've enabled well over a billion journeys – providing much-needed extra capacity on our roads while maintaining the levels of safety we see on traditional motorways.

#### A SAFER ROUTE FOR TRAFFIC ON THE A1

Safety was at the centre of a scheme to upgrade a twelve-mile section of the A1 between Leeming to Barton, in Yorkshire. Until its upgrade, this was the only non-motorway section on the strategic M1/A1(M) route between London and Newcastle, with many junctions providing access to farms and fields.

Access to the motorway is now much safer, due to improved junctions, including a 'grade-separated' junction. This means motorway traffic doesn't have to stop, and local traffic can easily join the A1 from slip roads.

These improvements also provide a new local access road alongside the motorway, and safer routes for local traffic from the surrounding communities, and for cyclists, horse riders and pedestrians. The scheme is predicted to save around 20 lives and prevent around 450 accidents over a 60-year period.

Smart motorways include a range of safety measures includina:

- highly-visible, well signposted emergency areas
- variable speed limits and red-X lane closures
- comprehensive CCTV coverage

On the M25, where we've been operating smart motorway schemes for three years, we've seen a 27% improvement in safety.

Alongside traditional road safety engineering measures, such as road design and vehicle restraints, we use measures appropriate to the location, like driver information and enforcement with police and safety partners.

Our specialist teams are constantly testing new products, such as new road surfacing materials, to evaluate the potential safety benefits to drivers. For example, we introduced intelligent LED road studs for the first time at a motorway junction, which light up in response to changing traffic lights to improve safety for drivers. We've installed around 170 of the innovative LED road studs at one of England's busiest motorway junctions, Switch Island in Merseyside, used by over 90,000 vehicles every day.

The LED road studs light up when traffic lights turn green, so drivers can clearly see which lane they should follow. Cables under the road surface connect them to traffic lights through a nearby automatic controller unit. Visible up to 1,000 metres away – far greater than traditional reflective cat's eyes, they have been proven to help stop drivers drifting between lanes, reducing the risk of collisions.

# SAFER VEHICLES

However safely we design and build a road, it is only as safe as the vehicles on it. Poorly-maintained vehicles lead to incidents and breakdowns, which means disruption and risk to our customers. To address this problem, we work in partnership with industry, motoring organisations, the Driver Vehicle Standards Agency (DVSA) and the police.

2017 10.1 billion HGV 1 2015 2015 2015 12.9

billion

billion

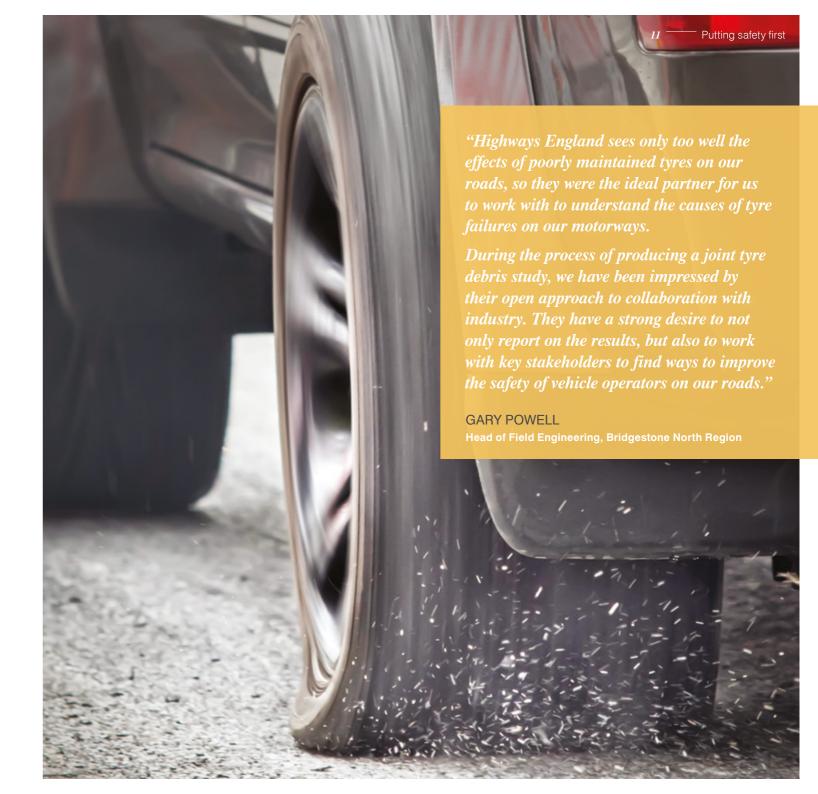
Commercial vehicles, such as vans and heavy goods vehicles, have been a focus for us. We know that improving safety in this area means greater safety for other road users – and provides wider benefits for our economy. So, in 2016, we launched a programme to look into the causes of incidents involving these vehicles, and to find effective measures to prevent them.

Our research with Bridgestone Tyres found that good tyre maintenance can prevent most commercial vehicle tyre failures. Since then we've expanded on this research by installing innovative tyre measurement technology at a John Lewis depot, an AW Jenkinson truck stop in Cumbria, and the DVSA weighbridge in Lancashire. The technology gives us new insight into this group of road users, and provides instant results on the roadworthiness of the vehicle to the driver or transport manager.

We want to keep all road users safe on our roads. Our vehicle checks campaign informs car owners about the six essential checks they should do before setting out on a journey. And, in partnership with regional fire services, we provide free tyre checks during charity car washes. Portable tyre-check equipment has now been rolled-out to fire services across the country.

We're working with industry, government and other partners to support the introduction of technology that will improve safety. For example, we're trialling technology on the A2 that connects vehicles with road infrastructure, warning drivers of potential hazards.

ESTIMATED TRAFFIC MILEAGES FOR HGVs AND LGVs



### SAFER DRIVERS

Drivers often present the greatest risk on our roads.

We use data to identify and target high-risk groups, such as young drivers and motorcyclists. We also focus on poor and risky drivers not only to change their behaviour, but also to understand why they act this way in the first place. Our initiatives vary from campaigns to educate drivers about the dangers of acting irresponsibly, to working with the police to enforce the law on our roads.

#### DRIVERS URGED 'DON'T BE A SPACE INVADER!'

In 2018, our most impactful multi-media campaign to date shone a light on the very serious issue of tailgating on the

Our campaign – which urged drivers to 'Stay Safe Stay Back' - included a dedicated website packed full of information for drivers about what they can do to stay safe. We also created bumper stickers for motorists to display on their vehicles.

A host of organisations backed the campaign, including National Express, the Football Association, RAC, National Police Chiefs' Council and leading road safety bodies Brake and the Institute for Advanced Motorists.

Data collected following the campaign has revealed that the number of people likely to change their behaviour towards tailgating has increased month-on-month since September 2018.



#### SAFELY INCREASING SPEED **LIMITS** THROUGH ROAD WORKS

We know that roadworks cause frustration for drivers on our roads. So we researched the impact of increasing the speed limit from 50 to 60mph, and whether it would be safe for drivers and our workers on the road. Trials taught us much more about perceptions of safety. Not only did drivers feel safe travelling in narrow lanes at an increased speed, but also our road workers noticed the flow of traffic seemed to improve, with vehicles leaving a larger space to the vehicle ahead.

We've now introduced a 60mph speed limit at certain roadworks sites on our roads. when the conditions allow.

#### OPERATION TRAMLINE

Through Operation Tramline, we teamed up with the police to reduce the number of incidents caused by dangerously-driven HGVs on our network.

Our investment provided an unmarked HGV cab that the police used to patrol the network, recording evidence of distracted drivers using mobile phones, laptops, reading and even cooking while driving. The trial cab travelled some 99,000 miles on motorways and major A-roads, spotting an average of one driving offence every 16 miles. Since then, we've invested in three new HGV supercabs after the single cab, which has been used by police forces across the country, stopped more than 9,000 drivers.

# utting safety first 90 **UPGRADES** SCHEMES TO **NEW CROSSINGS FOR** CYCLISTS, PEDESTRIANS **TO EXISTING** SUPPORT CYCLISTS AND WALKERS AND HORSE RIDERS **CROSSINGS**

## **INVESTING** IN SAFETY

We use research and insights to highlight where we can make the greatest safety improvements. We recognise that road safety isn't just about statistics - it matters because it's people, families and communities who are affected.

The creation of Highways England, and the establishment of five-year road investment strategies, has enabled us to take a long-term, evidence-based view of the country's strategic roads. Since 2015, we have modernised and maintained our network to improve safety for customers and road workers.

Our investment has included safety measures such as improved signage, road markings, new safety barriers, improvement to the layout of junctions and slip-road widening. To date we have completed 100 safety schemes with more in construction and development. We'll complete all of them by March 2020.

Our safety improvements don't just benefit cars, vans and HGVs. Providing a safer network for more vulnerable users such as motorcyclists, horse riders, pedestrians and cyclists plays an important role in reducing the number of injuries on our roads.

£175 million

**INVESTMENT SINCE 2015** 

Working with Cornwall Council, our investment of £21.5m has filled gaps in walkways and cycle paths, totalling over 18 miles. The work connects well-established and popular routes, including the Mineral Tramways and the National Cycle Network. The paths provide links to housing and jobs, connect coastal communities, tackle congestion and improve access across the A30.

### SAFETY IN NUMBERS

We know we can't achieve our safety goals on our own. Collaboration with specialists in road safety research such as TRL and the Road Safety Foundation helps us better understand our performance and improve our safety record, and that of our supply chain.

We are world leaders in how we design and build our roads, and we share our knowledge with others. Our Design Manual for Roads and Bridges is widely recognised as setting standards in the design, assessment and operation of trunk roads and motorways. The manual makes it easier for designers to understand road safety considerations, and to make sure they are factored into design decisions.

Working with government, universities, small to medium enterprises, other transport authorities and wider industry will help us to share and stimulate new ideas. We've created an innovation hub that's the focal point for our work. It's helping us to collaborate with others to bring ideas to life.

#### **GUIDING NEW DRIVERS**

New drivers are among those most likely to be involved in an accident. So, in 2018, we teamed up with the DfT, DVSA, Driving Instructors' Association, the Motoring Schools' Association of Great Britain and other partners to launch the New Driver programme.

The programme features a package of valuable resources for learner drivers, who can now drive on motorways if they're accompanied by an approved driving instructor in a dual-controlled car.



WE ARE WORLD LEADERS IN HOW WE DESIGN AND BUILD OUR ROADS. AND WE SHARE **OUR KNOWLEDGE WITH OTHERS.** 

"Road safety isn't exclusive. It's all well to reduce risks, but the more organisations who share good practice, the better.

Highways England is putting its weight behind Driving for Better Business and getting it into the public consciousness. It was a small, quite elite group before, but there are more members now - and not just the household names. There are smaller operators who can see the benefits and are getting involved. The more who join, the more our roads can become safer."

#### **RORY MORGAN**

Iron Mountain (document storage and management company)

"We've seen Highways England's maturity develop, with safety becoming a real collective responsibility, both in terms of road worker and customer safety.

And there's been a significant change emerging in how Highways England listens to advice from suppliers."

#### PHIL CLIFTON

**dpd**group

**Managing Director, Balfour Beatty Highways** 

#### **REDUCING RISKS** FOR BUSINESS

Around one third of road traffic collisions on our network involve someone driving for work or commuting. Almost all of them are avoidable.

Our Driving for Better Business programme looks to address the issue by improving work-related road safety in the business community and public sector. It provides employers with the information and guidance they need to improve how they manage their driving workforce and comply with health and safety legislation.

The programme is supported by business 'champions', who provide advocacy and demonstrate good practice in fleet risk management. They include Tesco, Royal Mail, Skanska, Aarval, McLaren, Clancy Group, British Gas, Iron Mountain and many others.



SAFETY IN

NUMBERS

#### **40 'CHAMPION'** COMPANIES

THIRD PARTY **CLAIMS DOWN** 

84%

**ARVAL** 

AT-FAULT **COLLISIONS DOWN** 

38%

IN 12 MONTHS

**INSURANCE CLAIMS DOWN** 

50%

MCLAREN

**ANNUAL FUEL SAVING OF** 

£60,000

GATESHEAD COUNCIL

SPEEDING DOWN 92% IRON MOUNTAIN

### **MODERNISING SAFETY**

Innovation in safety is about reducing risk above everything else. It's what the Safe System is based on, and it's a proven, effective way to stop injury and deaths on our roads.

Reducing risk used to mean better safety equipment, such as wearing hi-visibility clothing to make sure people could be seen. We still wear safety clothing of course, but today the really cutting-edge work is focused on removing people from risk completely.

#### NEW HEIGHTS FOR INNOVATION

In construction, we've seen projects like the A14 apply innovative design and building techniques to improve safety.

Traditionally bridges have been individually designed and built to suit their locations. On the A14 Cambridge to Huntingdon scheme, however, all that has changed: each of the project's eight bridges are a standardised design – made up of standard parts that are pre-fabricated off-site.

Off-site construction means better quality control, and it reduces the risks to site workers of working at height. The results include an impressive safety record and a RoSPA gold award.

Where we must have people working close to moving traffic, we've improved how we protect them from harm, using innovative equipment.

#### **SAFETYCAM**

This innovative dual-camera system can spot both road workers speeding through construction sites and road users who illegally drive through cones.

This system, housed in one vehicle, was the first of its kind. In the first trials, in the West Midlands, a 50 per cent month-on-month reduction was recorded in road workers driving 10mph above the signed limit through sites. Another trial in Essex saw roadworks incursions reduce by more than 80 per cent.

#### **MOBILE CRASH BARRIER**

Two giant 70ft-long mobile barrier lorries, originally designed for military use to protect against roadside bombs, are now keeping road workers and motorists safe. The 16-tonne mobile barriers protect people at work sites and cut delays by reducing the number of cones needed.

If struck from the side, the barriers absorb the impact from a moving vehicle, while a lorry-mounted crash cushion gives further protection at the rear. The mobile barriers act as a physical protection for both road workers and motorists.

As well as improving safety, the roadworks themselves take less time to complete, as fewer cones and signs are needed.



## RESPONSIBLE, SAFE WORKERS

We care about the workers in our supply chain just as much as our own employees. The work they do to maintain and improve our roads is fundamental to keeping the country connected.

We trust our supply chain partners to do great work for us – and that includes having the safest working practices in place. Our new contracts incentivise our supply chain to go 'over and above' in their work to develop, design and construct schemes safely.

As we've continued to develop as a company, so too has our relationship with our suppliers, who carry out work on our roads on our behalf. Longer-term funding agreements and better contractual arrangements mean we're able to manage safety within our supply chain far more effectively.

We're doing more to share best practice and develop guidance – for example, setting minimum standards for managing risks associated with night working and fatigue.

We regularly inspect our sites – and we always investigate accidents, so we can learn from them and prevent them happening again.



#### **RAISING THE BAR**

Our supply chain partners have a wealth of experience in health and safety, so we're working closely together. We call this initiative Raising the Bar, and it's all about defining the standards we'll follow for all our projects. Ultimately, we want this work to lead our industry to safer working practices.

#### **ZERO CROSSING IS A GAME** CHANGER

We've virtually eliminated the millions of occasions road workers had to cross carriageways each year to put up traffic-management signs in the central reservation.

Working with TRL and the Road Worker Safety Forum, we researched the safety implications of carriageway crossings. On-road trials found that road user safety was unaffected when we only used signs on the nearside verge.



THE RATE OF REPORTABLE ACCIDENTS AMONG OUR SUPPLIERS HAS REDUCED BY



**GINNY RICHLEY** 

**Highways England Traffic Officer** 



**OUR CONTROL CENTRES PROVIDE** LIVE TRAVEL UPDATES

**EVERY DAY OF THE** YEAR, THROUGH

We aim to provide information about incidents and obstructions on our network within two minutes of our teams being notified, with 15-minute updates until the issue is resolved and traffic flows are back to normal.

**OVER** 93,000

**TECHNOLOGY** ASSETS ALONG OUR 3,157 cameras, NETWORK KEEP OUR 3,500 message signs, ROADS CONNECTED 6,656 emergency TO NATIONWIDE **TRAFFIC** MANAGEMENT TEAMS.

Including: telephones. 

**OUR NATIONAL AND REGIONAL TWITTER FEEDS** NOW HAVE ALMOST

LAST YEAR MORE THAN

OF MOTORWAY **INCIDENTS** WERE CLEARED IN UNDER AN HOUR

# SAFER ROADS **FOR ALL**

Our responsibility to everyone who uses our roads is to provide them with a safe, reliable journey. We take that responsibility seriously, and when things go wrong for our customers on our network, we're there to help them get to safety and get on with their journey as soon as possible.

Today, we have more traffic officers who can respond to and clear incidents on the network more quickly than they could four years ago. Our control centres are equipped to identify issues on any section of our network, and can offer advice to anyone who needs it.

We know that when a vehicle has a problem on our roads it can be frightening and dangerous. Our traffic officers and control centres are there to support road users in the event of a breakdown, and we provide support in lots of other ways.

# THE ROAD AHEAD

We're on our way to providing a safer road network that gives our customers more road space and more reliable journeys. Our focus now is on the future of safe road travel.

Technology will have an increasingly important role to play in reducing human error, particularly through automated vehicles and connected highways. The introduction of these vehicles will mark a significant change in how we manage road safety. We're working with manufacturers, fleet managers and innovation specialists to understand what's needed in the short and long-term, so we can get our roads ready for the future.

We're already taking practical steps towards this technology-driven future. Last year we introduced the National Roads Telecommunications Service 2, which connects our 30,000 roadside assets (signs, signals, cameras) to our seven regional control centres and National Traffic Operation Centre. The system enables us to manage and operate our network safely and efficiently, and to provide accurate real-time

information to drivers and travel news providers. The message signs warn drivers of potential hazards and display live journey information.

For road users, improving technology is only one part of the safety solution. Bringing this together with changing behaviours on our network, we'll continue to make a significant difference to the safety of everyone on our roads. We know we can do more to educate drivers and improve safety further. We'll continue to work with others to push the boundaries and drive improvements, so we can make sure everyone who works on or uses our network gets home safe and well.

home safe and well

#### **HOME SAFE AND WELL**

Our **recently-launched Home Safe and Well approach** provides us with a framework to improve our safety over the next five years.

This approach marks a radical change in how we manage the health, safety and wellbeing of our people and those working in our supply chain; with the ultimate aim of reducing the number of people harmed on our roads to zero. We'll be focusing on changing the culture within our company, emphasising the part that everyone plays in keeping themselves and each other safe.

To truly mature our company culture to a level where no one is killed or injured on our roads, we'll need to engrain health safety and wellbeing into everything we do. The high standards we expect should be the natural choice for everyone who works for us, not an additional effort. We've made excellent progress over the last four years, and it's because of this progress we're confident our Home Safe and Well approach is the right direction for the future of our company.



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