



Protecting vulnerable road users

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The most vulnerable road users and how they're affected

Commercial drivers are no doubt impacted by road crashes. For example, large trucks were involved in 450,000 police-reported crashes in 2017. Approximately 4,237 of these crashes were fatal and 344,000 resulted in injuries¹.

However, these drivers also share the road with pedestrians, cyclists and operators of motorised 2- or 3-wheelers (such as motorcyclists), who are among the most vulnerable road users.

The percentage of deaths as a result of road crashes amongst the aforementioned users outweigh drivers and passengers of 4-wheeled vehicles. Worldwide 23% of road deaths are pedestrians, 28% are users of motorised 2- or 3-wheelers and 3% are cyclists².

So, what reasons could there be for such a high rate of death from road-related incidents amongst this population?

- Pedestrians, cyclists and other road users are not as protected as those in enclosed vehicles (such as passenger cars and trucks), making even a minor collision high-risk.
- An increase in the number of vehicles on the road. There are already more than a billion vehicles in operation worldwide and it is estimated that the number of vehicles could rise to 2.5 billion by 2050³.
- Driver impairment. In high-income countries, about 20% of fatally injured drivers have excess alcohol in their blood. In low- and middle-income countries, this number is much higher at 69%⁴. The use of alcohol and drugs profoundly influence the safety of vulnerable road users because it leads to a reduction in decision-making abilities and reaction times.
- Distractions on the road have increased due to most people using smartphones as well as frequent checking of social media.

- Vehicle speeds are higher than ever before and vehicles are also heavier, making it much more dangerous for an unprotected pedestrian or cyclist.
- Roadways have been planned and designed in such a way that it prioritises vehicles over vulnerable road users.
- Overall infrastructure is lacking. There are too few sidewalks, well-timed pedestrian crossings and bicycle lanes making it much more difficult to road users to navigate around vehicles.



The safe systems approach

Back in the 1990s, Sweden and the Netherlands were the first to adopt what is called the safe systems approach to road safety management. This system is based on the principle that life and health should not be compromised by the need to travel.

Humans are at the centre of the safe systems approach. It accepts that humans are fallible and vulnerable. Even the most conscientious people make mistakes while driving. In addition to this, responsibility for the system should be shared by everyone (including lawmakers, fleet managers, the media and so on). All road users, no matter if they're walking, cycling or driving, have a responsibility to comply with road safety rules.

The safe systems approach is made up of four main components:

► Safer roads

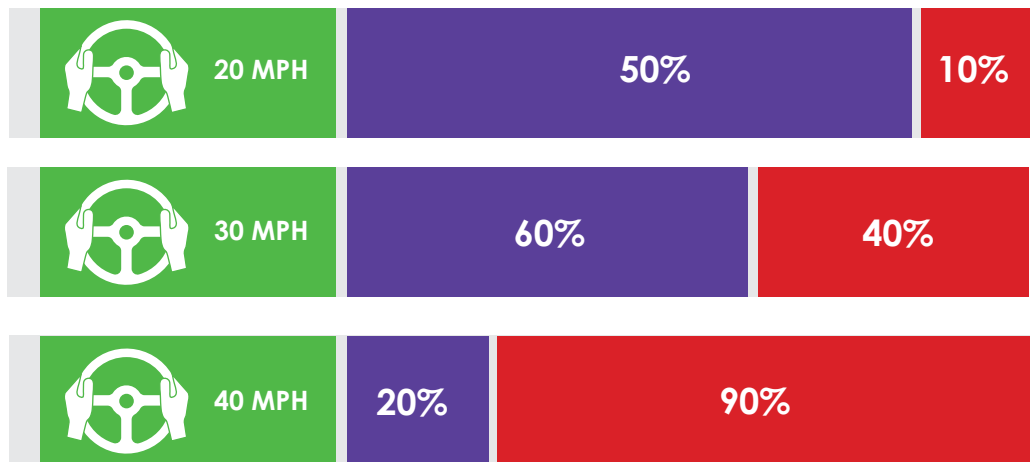
From the outset, roads should be designed to reduce the risk of crashes and the severity of injuries should a crash occur. Design should segregate road users (provide vulnerable road users with safer routes), segregate traffic (implement crash barriers to separate vehicles travelling in opposite directions), reduce speed (place appropriate speed limits) and offer self-explaining roads (drivers must be aware of what is expected of them and be able to behave appropriately).

In addition to the above, proactive measures must also be put in place. For example, the identification of crash hot spots must prompt the installation of traffic lights, the removal of obstacles to vision, improvement of road surfaces and more.

► Safer speeds

Speed limits aid crash avoidance and a human body's limit for physical trauma. The higher the speed a vehicle is travelling at, the shorter the time a driver has to react, and the more severe the injuries are to pedestrians and cyclists. If a vehicle going 32 km/h collides with a pedestrian, the chance of them being fatally injured is 10%. However, if the vehicle's speed is 64 km/h, the pedestrian has an 80% chance of being fatally injured⁵.

If hit by a person driving at:



■ Person Survives the Collision ■ Results in a Fatality

The safe systems approach aims to establish appropriate speed limits, enforce the existing limits by having transport authorities work with police and educate road users through campaigns.

► Safer vehicles

Vehicles are to be designed, built and regulated to minimise the occurrence and consequences of crashes, with an emphasis on collision survivability. This is to be done through:

- Technology: put in place safety measures such as (semi-) autonomous vehicles, stability control, improved road-vehicle interaction, automatic braking systems, air cushion technology, alcolock and speed limiters.
- Road worthiness: encouragement of consumers and businesses to purchase safer vehicles and the maintenance of vehicles to the highest safety standards.

► Safer road use

Within this component, emphasis is placed on shared and proportionate responsibility. Safe road use and compliance with road rules is to be achieved through education, traffic reduction, the use of streets for other, community-related purposes, integrated school travel planning initiatives and the examination of new ways of safety measurement.

Telematics technologies that protect vulnerable road users

▪ In-cab connected video

Video telematics is used to improve operational safety by understanding exactly how drivers are behaving on the road. It offers the ability to record safety behavioural events in real-time and then display them within a connected SaaS platform.

This type of technology places the focus firmly on safety. First off, it provides access to event-triggered video which allows you to see visual evidence of all driving events (such as harsh braking or acceleration, speeding, crashes and more) and impacts to get the full picture instead of relying on second-hand information. Driver trainers can use the videos to help teach drivers how they can improve their behaviours. Organisations can also get the benefit of being able to disprove fraudulent claims and, therefore, reducing overall insurance liabilities.

In-cab video (such as MiX Vision) comes with the ability to view footage alongside data and be able to generate relevant reports, which is a major benefit for driver trainers, especially when measuring the effectiveness of their coaching.

It has been proven that users who implement an in-cab video solution can expect a 54% improvement in safe driving behaviours, the elimination of rollovers and a 60% reduction in crash and claim liability.



▪ In-cab coaching aids

This telematics technology comes in the form of a dash-mounted device that is driver-facing and aids in improving driver safety, vehicle efficiency and driver ID compliance.

An in-cab display provides live coaching through notifications on specific driver events (such as over-revving, excessive idling, harsh braking and more) and preventative maintenance warnings (such as when an engine reaches a dangerously high temperature). It also gives a summary of how the driver performed at the end of each trip and assigns an appropriate score.

To protect vulnerable road users, this technology can be used to warn drivers of pedestrians and cyclists with proximity alerts. Drivers see this as it's happening so that they can take preventative action.

These types of displays can be used as live coaches since they flag dangerous or reckless behaviours as they happen, giving drivers the opportunity to self-correct. By keeping tabs on aggressive behaviours, such as speeding, in-cab displays can reduce the frequency of crashes by 15% to 35% as well as make them less severe, should they occur.

In addition, driver behaviour monitoring with these displays can lead to 15% reduction in vehicle wear and tear (lessening the need for maintenance) and improve fuel efficiency by around 4% to 14%.

▪ Driver performance apps

These apps deliver safety-critical tools directly to the driver. Drivers are able to see their behavioural safety information after each trip they take on their mobile app. Scores are assigned to each driving event so that drivers can measure their performance.

Drivers can see how their performance compares to other drivers in the fleet but they don't know which data or events belong to which driver. This is because data is anonymised and secure.

Combining the scoring and ranking data, drivers can determine in which areas they need to improve to better their safety performance as well as whether they're improving if they've gone through training.

These apps are oftentimes used alongside an appropriate incentive programme to reward drivers if they engage in safe driving behaviours and motivate others to perform better to receive rewards.

Driver performance apps ensure that drivers are more aware of their driving behaviour and their surroundings, which creates a safer environment for vulnerable road users. In addition, these apps have been proven to reduce speeding events by 66% and harsh braking events (a sign of aggressive or impatient driving) by up to 38%. Crashes are also reduced.

▪ Analytics

Telematics technology offers fleet managers and the like the ability to generate safety-related reports. These reports allow for the identification of problem areas within a fleet and which drivers are in need of safety training.

In addition to the safety benefits of analytics, it can be used to practise preventative maintenance. Telematics reports can let technicians know when an engine part is close to failing so that the vehicle can be sent in for repair or, for example, warn of a high engine temperature or low oil pressure.

The reports can also be used to see whether improvements made to safety behaviour are making a difference to engine wear and tear.

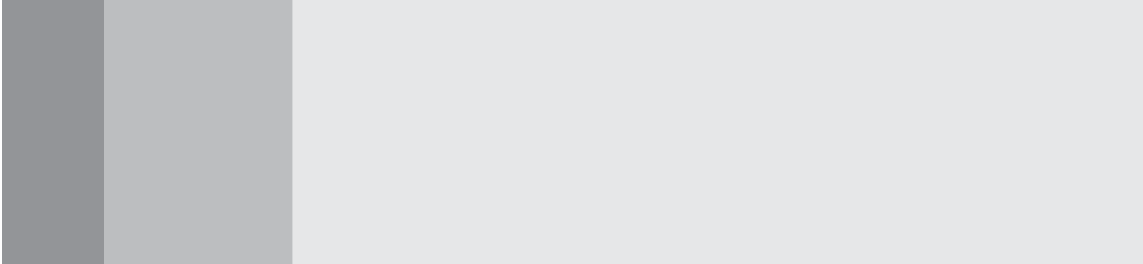
Safe vehicles are vital to reducing the risk to vulnerable road users. If a driver is in a vehicle that is not well-maintained (for example, the brake pads are worn out), it may affect their ability to react properly. A vehicle that is not maintained can increase the risk of a crash.

Preventative maintenance with the help of analytics also has a cost-saving benefit. One MiX Telematics customer saved 3 engines from failure in 6 months by simply monitoring oil and coolant levels, engine temperature and battery voltage, resulting in a total saving of £30,000.

How a waste management company improved the safety of their employees

To better illustrate how implementing stricter safety measures can be beneficial, let's take a look at a waste management company who did exactly that and how they did it.

This UK-based waste management company, an industry institution for more 60 years now, currently owns 95 heavy goods vehicles, employs 165 drivers and manages 6 depots. Their business includes skip hire, road sweeping, recycled aggregates, site clearance, demolition, muck away and much more.



Their aim with implementing telematics was to improve the safety of their employees, since they are the company's biggest assets. The challenges they needed to overcome to do this includes:

- Current industry culture
- Driver shortage
- Excessive vehicle idling
- Non-UK staff with English as a second language
- High fuel and insurance costs
- Resistance to change

The company has implement a comprehensive training programme that offers personal development plans to all employees, with multi-lingual formats available. Drivers are trained in an approved training centre and take a compulsory safe urban driving course, where some of the training involves riding on bicycles to give them an understanding of the challenges faced by cyclists on the busy London roads. There is also a buddy system in place that pairs someone that's new in the industry with someone more experienced.

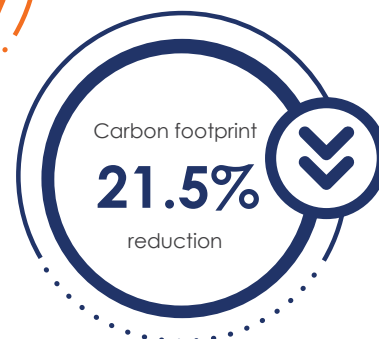
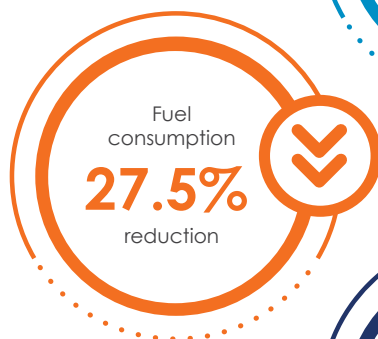
In terms of creating a solid safety culture, the company provides 'on the job' support and, personal training and guidance via a specially-appointed driving standards manager. Since safety is paramount to the company, employees are encouraged to rather complete jobs conscientiously than to rush to complete as many as possible. Employees must follow customers' construction logistics plans which tells them the final mile entry into a site. If such a plan is not in place, they put one in place so that drivers know the safest routes to jobs and how to avoid hotspots, like schools and busy cycling routes, where vulnerable road users are present.

The company has employed what they call safety champions. Employees can go to these individuals with any of their safety concerns or questions, circumventing the hierarchy and thus saving time and energy. The safety champions can then take the matters at hand further. There are also five-way CCTV cameras monitoring and recording incidents. Drivers requested these because they want to have visual evidence in case anything happens on the road to prove that they are doing their job safely and correctly.

The company goes beyond best practice and aims to minimise blind spots with the five-way CCTV cameras (mentioned above), a left-turn warning system and side sensors that provides warnings to drivers about potential obstructions or hazards.

In addition to all of the internal safety measures the company have put in place, they also share their knowledge with other companies in their industry as well as with the general public (such as with children at schools).

Results of the company's safety efforts:



All of the above have provided them with safer vehicles and operations, an enhanced reputation, increased team spirit and pride, increased sales, reduced operational costs and a more inclusive environment.

About MiX Telematics

MiX Telematics is a leading global provider of fleet and mobile asset management solutions delivered as SaaS to more than 714,000 subscribers in over 120 countries. The company's products and services provide enterprise fleets, small fleets and consumers with solutions for efficiency, safety, compliance and security. MiX Telematics was founded in 1996, has a number of offices globally as well as a network of more than 130 fleet partners worldwide.

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