How the infrastructure sector is building a more sustainable nation

The development of our transport infrastructure is interwoven with the UK's ambition to become a more sustainable economy that emits net zero greenhouse gases. Supporting the growth of sustainable transport options is only part of the story.

When we talk about sustainability in the context of transport infrastructure it's essential to see the whole picture. There are also important goals around waste reduction and biodiversity that affect how a company like Octavius operates.

Zero carbon rail

A zero carbon rail network will play a vital role in the sustainable transport system of the future. Electrification and sourcing energy from renewables will drive the transition. Octavius has developed a collaborative delivery model for electrification programmes (including upgrades and maintenance) that combines E&P works with civils and other activities.

Combining project expertise helps us develop more efficient solutions with a lower overall carbon cost, helping to bring a net zero rail network closer to reality. There's plenty still to do. As of November 2020 only 38% of the UK rail network was electrified.

In some areas the most sustainable way to extend the network will be through hydrogen or battery powered trains rather than electrified tracks. These options will create additional technical challenges for charging and fuelling.

Scope 2 and 3 emissions

Increasingly the discussion is turning to scope 2 and 3 emissions that are generated indirectly by operating rail assets. This will influence design decisions as we work on projects such as AfA upgrades to existing stations, ensuring that we design for low maintenance and reduce embodied carbon wherever possible by using modular and offsite approaches.

A more resilient network will need less maintenance and will ultimately be responsible for less atmospheric carbon.

Supply chains are instrumental in reducing the overall carbon footprint in both rail and highways operations. Octavius has been careful to incorporate our supply chain partners into our sustainability strategy as part of our "Sustainable Legacy" key pillar.

We are switching our purchased energy to renewables to help eliminate scope 2 emissions. The immediate future eliminating scope 3 emissions from our business activities is an important area of focus as we strive to make our operations net zero carbon by 2030.

Across our organisation we deploy Lean principles to make activities as efficient as possible and reduce material use, limit vehicle movements and streamline processes.

Zero carbon highways

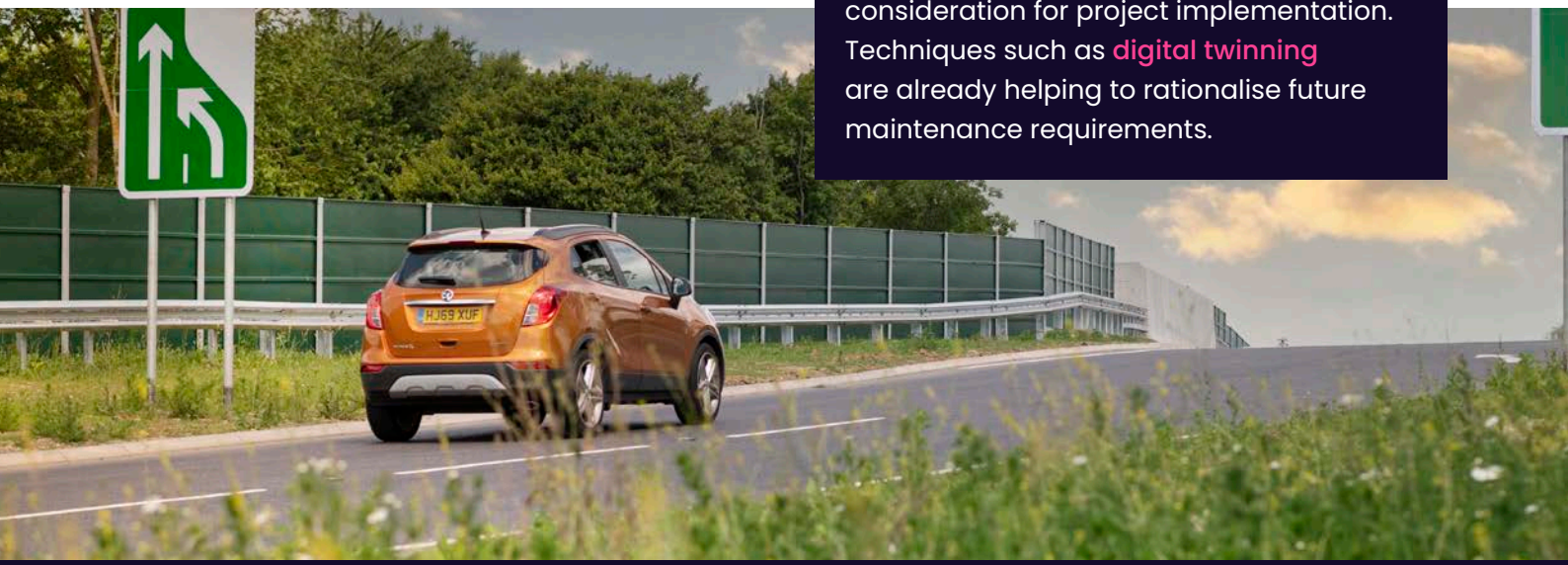
Zero carbon highways can be a more difficult concept to grasp. Many may look at the thousands of tonnes of reinforced concrete and asphalt typically used in a highways project and wonder: how do you make all of that net zero?

There are some exciting developments in low carbon versions of mainstream construction materials. The production of steel and concrete will increasingly be powered by renewables and there are emerging technologies such as capturing the CO2 emitted by cement production within the structure of concrete. But these are only part of the story.

Supporting the decarbonisation of road transport is central to achieving the national net zero objective. This involves providing the charging infrastructure for EVs and making it easier for people to walk or cycle on safe routes. More multi-modal hubs will help people switch easily between modes of transport in a single journey.

If you look around one of our construction sites you'll already see some of the ways we're reducing emissions. Actions range from how we power our site offices through to hydrogen powered plant.

Again, the resilience of the assets we build, maintain and upgrade is a vital consideration for project implementation. Techniques such as digital twinning are already helping to rationalise future maintenance requirements.



War on waste

The circular economy is becoming increasingly important within the infrastructure sector. Reducing material use is part of the solution and is supported by using Lean principles and modular structures.

We also seek to reuse as much material as possible, such as recycling road spoil into aggregate within the same project so that it doesn't need to be transported anywhere.

Rewilding and biodiversity

There are over 16,000 route-kilometres of rail lines in the UK and over 50,000 Km of major roads. When you consider the land area associated with verges, embankments and cuttings there's a huge opportunity to promote biodiversity and potentially create wildlife corridors.

Octavius is committed to exploiting this resource for the benefit of the environment. We also support tree planting schemes that help with rewilding and carbon reduction.

In talking about all the things we're doing to enhance sustainability we're conscious of how much there's still to do. We're on a mission and we won't be content until everything we do and create is as sustainable as it's possible to make it.

To learn more about our approach to project delivery visit our Transport Infrastructure Resource Centre or contact us by email at hello@octaviusinfrastructure.co.uk