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# INFRASTRUCTURE Intelligence


# Scotland's five-year Infrastructure plan

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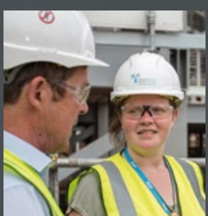

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## Message from the editor

There's a distinctly Scottish flavour to this issue of *Infrastructure Intelligence* and not before time as there is much going on north of the border that should have a beneficial impact on the construction sector. We take a look at the new Infrastructure Commission for Scotland (p10-11) and look at the nation's five-year plan just unveiled by the Scottish Futures Trust (p16-17).

As ever, industry issues get an airing with the ongoing costs of Carillion and Interserve profiled (p6-7) and also the rising costs as a result of infrastructure delays (p24-25). As an industry we really need to get better at delivery and Ramboll shows how that can happen with their innovative housing work (p9).

Speaking of housing, we have an interesting piece from David Cowans, chief executive of Places for people on why classing housing as infrastructure can boost delivery (p14-15). Housing is a massive social and political issue and we need more thinking like this to solve the crisis the nation faces.

Elsewhere, we look at London's new ultra-low emission zone and what it means for the capital (p22-23) and ask whether recent events in Northern Ireland might mean that the construction log jam there is about to be broken (p18).

With our latest roundtable report (p20-21), an interview with the chief executive of the Railway Industry Association (p30-31) and much more, hopefully there's something to interest all our readers in this latest issue.

**Andy Walker,**
Editor,
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# MPs want £39bn downpayment on Northern Powerhouse Rail

More than 80 MPs have sent a letter to the chancellor Phillip Hammond calling for a firm financial commitment to deliver Transport for the North's strategic plan and to fully devolve transport budgets to city and metro mayors.

The move follows the chancellor informing the treasury committee that regional productivity and projects like Northern Powerhouse Rail (NPR) would form a key part of the Spending Review, now expected in the autumn.

The letter was prepared at the request of the co-chairs of the Northern Powerhouse All-Party Parliamentary Group, which comprises Conservative and Labour MPs, peers, business and civic leaders.

Thirsk and Malton MP Kevin Hollinrake, who co-chairs the group, said: "As well as faster journey times, enhanced capacity and greater frequency, NPR would provide opportunities for our young people to secure the skilled jobs we need to drive productivity and link up the great cities of the north to stimulate economic growth.

"It is vital that NPR is delivered to the north alongside HS2, to create a high-speed network for the whole of the country and open up labour markets that are currently not accessible for young people across the north today. With HS2 and NPR it is not a case of either/or – we need both."

Henri Murison, director of the Northern Powerhouse Partnership, commented: "The first downpayment we need on the overall long-term need of £120bn for major Northern Powerhouse specific transport and city region schemes is £39bn for Northern Powerhouse Rail. The chancellor is committed to the case for the economics behind the project, which have consistently been government policy for the almost five years since the Northern Powerhouse was first adopted.

"Business and civic leaders stand firmly behind our parliamentarians on a cross-party basis making the case for the key investment that the north needs, to grow our economy and close the north-south divide."

**Read more online at** www.infrastructure-intelligence.com

# Social value tool signs up Network Rail

A bespoke social impact reporting tool is working with Network Rail to put CSR monitoring firmly on the agenda, by measuring company-wide social value activities.

Impact Reporting has signed-up Network Rail to record and analyse the value of the organisation's social value efforts. Impact is a CSR and sustainability reporting tool which streamlines the way businesses can capture and monitor processes or organisational activity that has a social or environmental benefit. Network Rail, who sponsored the development of the sector's Common Social Impact Framework (CSIF), is now making plans to record and report the social value generated by the organisation.

In the UK 216,000 people are employed by the rail industry and its supply chain and the UK rail system contributes £36bn to the UK economy annually. Chris Farrell, managing director of Impact, said: "We're becoming the go-to social impact tool for the rail sector because we collect the data which drives the values set out in the CSIF. Impact can capture and measure all aspects of community, social and employee engagement and demonstrates what good CSR analysis looks like in real time.

**Pictured left to right are Bethan Williams, head of sales and marketing at Impact, Sarah Borien, Network Rail sustainability strategy manager and Chris Farrell, Impact managing director.**

"We can help rail clients build a clearer picture of the important social value activities they're engaged in, such as outreach in schools, rail safety, suicide prevention, apprenticeships and local economic spend and as a tool Impact then allows clients to set targets for further CSR initiatives which deliver community benefits."

Sarah Borien, sustainability strategy manager at Network Rail, said: "Network Rail is publicly funded and impact millions of passengers and their surrounding communities every day, so we have a social responsibility to be community-focused and provide societal benefits for the British taxpayer.

"We want to measure our social value in a meaningful way and take into consideration a broad range of activities that we know are being delivered across the network, but rarely measured. For example, we will be examining employee's volunteering time, STEM engagement, railway safety, social regeneration and community rail initiatives."

# Construction insolvencies at highest rate since recession

In the wake of recent insolvency statistics published by the Office for National Statistics, the Specialist Engineering Contractors' (SEC) Group has called for urgent action on measures to tighten payment security.

Over the 12 months ending in the first quarter of this year there were 3,013 company insolvencies in the industry, the highest for any sector in the UK. SEC Group's CEO, Rudi Klein, said the figures were alarming. "Insolvencies in the industry are running at their highest rate since the recession," he said.

"Whilst some can be put down to the continuing fall-out from Carillion's demise, many are the result of worsening cashflow and widespread payment abuse. I'm disappointed that, after almost 18 months following the Carillion collapse, we are still waiting for decisive action on payment," said Klein.

SEC Group has been promoting two private members' bills in the House of Commons to improve construction payment security – the construction (retention deposit schemes) bill laid by Waveney MP Peter Aldous and the public sector supply chains (project bank accounts) bill laid by Debbie Abrahams, MP for Oldham and Saddleworth.

The Aldous bill will ensure that retention monies are protected in a ring-fenced scheme. The Abrahams bill required that all payments on public sector projects would be made to the supply chain directly from one ring-fenced account (without the monies having to cascade through the different layers of contracting).

SEC Group says it intends to pursue these measures through to the next session of parliament.

# Carillion to Int construction c

With debts topping £600m and the government continuing to award contracts to Interserve, concerns mount there could still be a repeat episode of Carillion. *Ryan Tute* reports.

**Debbie White, chief executive officer, Interserve**

It's been another tricky start to the year for outsourcing giants with Interserve entering administration in March, but as it continues to promote a "business as usual" message, is the company concealing crisis mode just like its former rival Carillion did?

Interserve's problems are well documented and share many similarities to the story of Carillion with the fact that bosses chased and lost big sums of money in the Middle East and a race to the bottom strategy where contracts would be pursued for little return.

For the year to 31 December 2018, the company net debt increased to £631.2m from £502.6m and its turnover fell by 10.7% to 2.9bn. Operating profits for 2018 were down 27% to £39.6m as turnover dropped to £195.5m from £229m.

But after a couple of years of financial hardship and little more than 12 months after Carillion disappeared for good, Interserve was forced to enter administration on 15 March after shareholders voted in favour of rejecting a second rescue plan.

The pivotal day saw 60% of shareholders vote against the board's Deleveraging Plan that was put on the table. The deal would have seen shareholders keep just 5% of the company, with lenders splitting the rest between themselves.

The contractor, which employs 45,000 people in the UK and manages crucial public services such as hospital cleaning and parts of the probation service, had its business and assets immediately sold to a new company, to be controlled by Interserve's lenders, following the vote. Unlike Carillion, only the holding company went into administration.

But just one day after, Interserve announced a £76m contract with the Abu Dhabi National Oil Company and more recently it has been awarded a place on the £200m National Health Service Shared Business Services framework agreement as the firm continues to boast a "business as usual" message predominantly across social media channels.

A statement from the group following the sale said: "This alternative deleveraging transaction will restore the group's balance sheet and provide additional liquidity. The administrators have immediately sold Interserve's business and assets to a new company. All companies in the group other than the parent company will remain solvent, providing continuity of service for customers and suppliers."

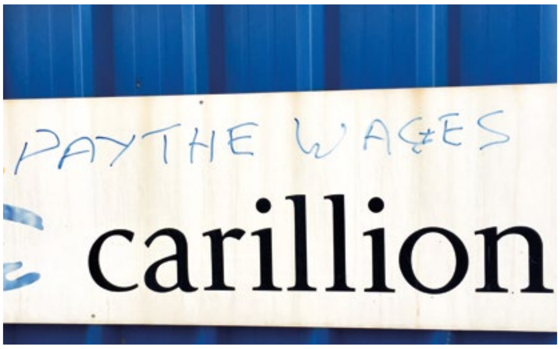
Unite, the leading construction union in the UK, has accused government of failing to learn lessons from the collapse of Carillion. The union's assistant general secretary, Gail Cartmail, says with Carillion yet to have any form of action taken against them, it demonstrates that regulators are failing to do their jobs or that existing laws are too weak.

> *"It is staggering that a year after the biggest corporate failure in modern UK history the government has carried on as though it is business as normal."*
>
> **Gail Cartmail, assistant general secretary, Unite**

"It is staggering that a year after the biggest corporate failure in modern UK history the government has carried on as though it is business as normal," Cartmail added. "If it is the latter then we need better, stronger laws. A year on from Carillion's collapse the government needs to stop prevaricating and start taking effective action to drive bandit capitalism out of the UK."

More worryingly is the latest data revealed by the union which claims the major government contractor was handed £660m worth of public

# terserve: counts the cost


contracts in the run-up to its eventual collapse. According to Tussell, a data provider on UK government contracts, Interserve was handed public contracts worth £432m in 2017 and £233m last year.

Despite posting profit warnings in May 2016, October 2017 and November 2018, the biggest government contract is believed to be in 2018 and awarded by the Foreign and Commonwealth office - £66m for total facilities management services in July.

While the Conservatives have been accused of dropping the ball on the issue, Labour has previously called for Interserve to be banned from public contract bidding. Jon Trickett, Labour's shadow minister for the Cabinet Office, said the move into administration was just the "latest disaster" and one that "could have been avoided".

"Interserve should be prevented from bidding for public sector contracts until they have proved they are financially stable and there is no risk to the taxpayer," Trickett said. "The government has once again dropped the ball on outsourcing and it's the public who will suffer. It shows that the government is not prepared to change their dogmatic attachment to outsourcing, and it is costing the country dearly."

But in an attempt to allay concerns surrounding Interserve's fate, the government has played down any comparisons between the company and Carillion. Late last year, when shares plummeted 73%, John Manzoni, the permanent secretary at the Cabinet Office, insisted Interserve has "basically sound businesses with a couple of issues in the energy to waste sector" and a very different picture to Carillion."

In response to an urgent question in the Commons just a week after going into administration, the parliamentary secretary for the Cabinet Office, Oliver Dowden, said: "The government are not responsible for decisions taken by companies in the private sector. What the government are responsible for is the continued delivery of public services, and I assure the House that has happened in this case. Schools continue to be cleaned, roads continue to be repaired and improved, and services in Government buildings continue to run as normal."

The defiant stance being shown by ministers is much in tune with that of the firm itself with its chief executive officer, Debbie White, adamant that Interserve will be able to continue delivering for customers.

White said: "Interserve is fundamentally a strong business and with a competitive financial platform in place we see significant opportunities ahead as a best-in-class partner to the public and private sector."

*"Interserve should be prevented from bidding for public sector contracts until they have proved they are financially stable and there is no risk to the taxpayer."*

**Jon Trickett, shadow minister for the Cabinet Office**

However, this won't stop people fearing the worst, as similar positive messages were heard from Carillion bosses in the run up to its eventual demise as it continued to win government work on HS2 despite the construction and services giant collapsing under the weight of £1.3bn of debt.

So, as we move forward, surely there are questions to be asked for those inside Whitehall - like what checks did the government make to ensure the contracts they were signing were being given to a company capable of delivering them? But if Interserve struggles were well known, then why did ministers believe it was appropriate to award them if it was feasible that they could not be fulfilled?

All key questions, which the government needs to answer.

# Independent body needed to run railways, say rail firms

An independent non-government body should oversee the rail network, say Britain's rail companies. *Rob O'Connor* reports on the Rail Delivery Group's proposals and the reaction to them.


Rail companies are calling for a new independent non-government body to oversee Britain's rail network. The Rail Delivery Group (RDG) describes its proposals as a golden opportunity to "call time on short term fixes and set out the once-in-a-generation system upgrade the railway needs if it is to help the country prosper over the next 25 years."

They claim their plans would "better join up the railway, improve accountability for passengers and result in easier, better value fares for all." However, although supported by the CBI and the Railway Industry Association (RIA), the RDG's vision is likely to be seen as an attempt to stave off nationalisation, as proposed by Labour, with shadow transport secretary Andy McDonald saying the report "shows how out of touch the so-called rail industry representative body is with the country and the travelling public."

The RDG's proposals would see a new independent organising body put in charge of the industry. Sitting outside day-to-day politics, the report claims the "organising body would drive up accountability and standards, helping to end the blame game when things sometimes do go wrong and giving penalties where rail companies fall short."

Paul Plummer, chief executive of the RDG, said: "We want to move forward with a rail system that is more focused on customers, more responsive to local communities and more accountable, letting rail companies deliver what people want in each area of the country and rebuilding trust between the industry and passengers."

CBI deputy director-general, Josh Hardie, said: "Business wants an efficient and reliable rail system that delivers for the economy, and that means reinvigorating the public-private partnership that runs the railway." Darren Caplan, RIA chief executive, said: "Whilst change in the rail industry should not occur for the sake of change, there is a need for the government to withdraw from day-to-day intervention in the railway, which is widespread, and to concentrate on an outcomes-based approach," said Caplan.

However, the Urban Transport Group, the UK's network of city region transport authorities, called for the Williams Rail Review to give far greater emphasis to the proven success of the devolution of control over regional and urban rail services. Its director Jonathan Bray said: "Where full responsibility for local rail services has been devolved we have seen more investment and better outcomes for passengers and places.

"This is because devolved authorities and administrations are far more accountable and responsive to the needs of both passengers and communities than officials sitting hundreds of miles away in Whitehall. A centralised, one size fits all approach to rail reform makes no sense given the realities of a devolving Great Britain."

Andy McDonald, shadow transport secretary, said: "I'm astonished by the Rail Delivery Group's proposals. Rail franchising is collapsing and disintegrating yet the group thinks a more complex and aggressive system is the right solution. This shows how out of touch the so-called rail industry representative body is with the country and the travelling public.

"The RDG's suggestion would be laughable, but for the misery the broken rail franchising model has inflicted upon millions of rail passengers for so many years. Only Labour will bring track and trains together in one publicly owned company that delivers for people and the country."

*"This shows how out of touch the so-called rail industry representative body is with the country and the travelling public."*

**Andy McDonald, shadow transport secretary**

# Enabling clients to go further, faster

Ramboll's manufactured design work has helped a leading housing association deliver better outcomes compared with a traditional construction solution, writes *Andy Walker.*

Overcoming industry productivity challenges requires a firm focus on delivering the benefits of offsite manufacture, not just talking about them. Successfully working with major developers and design partners, Ramboll is delivering the panacea - reduced costs and risks, while increasing quality and productivity.

Ramboll has demonstrated best practice in high quality design for manufacture, including working with off-site manufacturing partners. The firm helped deliver Swan Housing Association's first ever award-winning modular cross laminated timber (CLT) homes from their UK factory in Basildon, providing structural, MEP, fire, acoustic design and BIM co-ordination. Ramboll designed five fundamental house types and modular design options including extensions, bay windows and additional bedrooms for the 251-plot Beechwood West scheme.

Working closely during factory set-up, Ramboll designed unit connections, ensuring their buildability and movability during construction and production. A continuous on-site factory presence during production resolved any arising problems. Ramboll's revolutionary thinking considered assembly, transport, lifting and erection, enabling a house to be delivered to site and installed in one to two days.

Producing up to 20 modules a week, when at full production, demonstrates how offsite can deliver a more efficient industry. Construction impact was also reduced, with 90% reduction in site deliveries and improved site safety, with 60% fewer workers on-site. Based on standard house types that can be easily customised, Ramboll helped Swan deliver on their aims of beautifully designed homes and improved quality, whilst the standardised house types enable repeatability in the factory environment, driving higher standards.

**Mathew Riley, UK managing director, Ramboll.**

Swan's innovative projects have influenced the way Ramboll engineer the modules. The most notable difference compared to traditional CLT construction is that modules are lifted, transported and later joined together on site. On site, inter-module connections are highly complex, and rely heavily on a well-planned and coordinated sequence of works. The ease of fixing and unfixing screwed connectors to timber panels has been a crucial aspect of the modular design, allowing Ramboll to use the modules in diverse ways throughout the various stages of construction.

Factory construction has reduced the risk of defects and things not fitting together on site. A product approach has led to continuous improvement, with the design and assembly considering feedback from erection and end users. This results in less risks from last minute changes to design, programme and construction delays and house buyers reporting defects, bringing far more surety to programme and quality of each unit.

Ramboll's UK managing director Mathew Riley is justifiably proud of his firm's work with Swan. "The industry has been talking about doing things offsite for years, but the impact of technology and the availability of data means that we can analyse and design very differently than we could even ten years ago," he said.

"The capability to make change is more readily available than previously and we've moved from talking about it to advising clients to deliver it," Riley said. "We've used our historical knowledge in this space and added to that some data-driven analytical thinking and some digital toolkit to meet industry needs around driving a more offsite delivery.

"Our toolkit is giving clients the data-driven advice they need and allowing them to go further, faster. I think there's now momentum and we're seeing a lot of demand for this kind of work," said Riley.

**The first Swan home being delivered to site.**

# Scotland's 30-year v delivering world-cla

The new Infrastructure Commission for Scotland is helping to draw up a long-term strategic plan for the nation's infrastructure. *Ryan Tute* looks at the commission's work and profiles its members.

As Brexit continues to dominate the newspaper column inches and attention of ministers in England, there are signs from north of the border that the Scottish government is not prepared to be left behind when it comes to investing in the country's future.

Whilst the Scottish National Party remains focused on delivering another independence referendum by 2021, it is quietly in the background ensuring the infrastructure needs of the country are not forgotten.

The latest steps include financial promises, with the government under its national infrastructure mission pledging to steadily increase annual investment so that it is £1.56bn more in 2025-26 than in 2019-20, meaning more than £25bn in infrastructure investment through the next parliament.

But ministers are fully aware that money can only go so far and have made moves to draw up a 30-year strategic plan with the help of the newly-formed Infrastructure Commission for Scotland (ICS), together with the appointment of 10 commissioners who have expertise in a range of areas.

The commission, chaired by former Scottish Power chief executive Ian Russell, will advise ministers on strategic investments to boost inclusive economic growth, improve services and support delivery of the country's low-carbon objectives.

Commenting on its establishment, cabinet secretary for infrastructure Michael Matheson, said: "I am delighted the Infrastructure Commission is starting its work. Together the members bring a wide and balanced range of skills and insights. It has a key role in advising Scottish ministers on strategic investments to boost inclusive economic growth, improve services and support delivery of Scotland's low carbon objectives."

**Michael Matheson, Scottish cabinet secretary for infrastructure.**

It was in October, on the opening day of SNP conference in Glasgow, when the government announced it was seeking to establish an infrastructure commission to advise also on which projects should be at the heart of its £7bn investment plan. First minister Nicola Sturgeon called the £7bn programme for new schools, hospitals, transport schemes, digital connectivity and clean energy as the "most ambitious infrastructure plan ever seen in Scotland".

But in efforts to better inform decisions and what the needs of the country are, the ICS has recently called for industry stakeholders to come forward and advise them on priorities.

The infrastructure sectors about which the group has been interested in gaining responses on include - transport, energy, water, telecoms, digital and the internet as well as housing, education, health, justice, culture and tourism, waste management, flood prevention and public services such as emergency services and resilience.

Ian Russell, chair of the ICS, said he believed the call for evidence provided a "rare opportunity" to contribute towards advising on the long-term strategy for Scotland's vital infrastructure. "This first phase of engagement will also allow us to shape future engagement phases that aim to capture the expertise and opinions of people from across industry, business, the public sector, academia, civic society and the wider public," he added.

Last year's SNP annual conference also discussed the possibility of a Scottish National Infrastructure Company in which the commission would be in charge of examining its role. Should it become a reality then it could spark the end for private financing of major projects within the country meaning companies like the now defunct Carillion would be axed from any future delivery.

But one of 10-appointed commissioners, Sara Thiam, who is also set to become the new chief executive of the Scottish Council for Development and Industry (SCDI) in June, believes that skills, technology and tackling climate change are key to the country's future.

"In common with other countries around the world Scotland faces unprecedented environmental, demographic, mobility, educational and technological challenges," Thiam said. "Ensuring our people have the right skills and knowledge, embracing digital technology and tackling climate change hold the key to driving a much-needed surge in productivity and sustainable economic prosperity," she said.

With contributions to the commission's initial evidence gathering culminating at the beginning of May, further opportunities for engagement are planned in the coming months and submissions should form the long journey that ICS and Scotland is preparing to embark on.

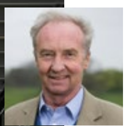
# vision for ass infrastructure

## Who are the appointed commissioners?

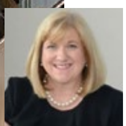
**Ian Russell (chair):** Currently chair of Scottish Futures Trust and HICL Infrastructure Company, a non-executive director of Herald Investment Trust and a trustee of National Museums of Scotland. From 1994 to 2006, he was an executive director of Scottish Power Plc.

**Iain Docherty:** The Dean of the Institute for Advanced Studies at the University of Stirling. Previously he was professor of public policy and governance at the University of Glasgow.

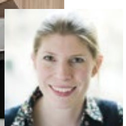
**Ken Gillespie:** Currently chair of both Homes for Scotland and Construction Scotland, and a non-executive director of Home Group. From 2006-2017, He was executive director of Galliford Try plc.



**Benny Higgins:** Executive chairman of the Buccleuch Group, chairman of the National Galleries of Scotland, chairman of Sistema Scotland, non-executive director of Glasgow Life. In September 2017, he was asked by the Scottish government to develop a plan for the creation of a Scottish National Investment Bank.



**Mary Pitcaithly:** Currently a member of the Scottish Police Authority. She also served on the boards of SACRO and Youthlink Scotland and a former chief executive of Falkirk Council.



**Rachel Skinner:** UK Head of Transport and an executive director of WSP, and a vice president of the Institution of Civil Engineers. A patron of Women in Transport, having been one of its founding board members. Named as one of the *Telegraph's* inaugural Top 50 Influential Women in Engineering and in 2017.

**Grahame Smith:** Appointed general secretary of the Scottish TUC in November 2006. He is a non-executive director of Skills Development Scotland and a member of the Enterprise and Skills Strategic Board.

**Sara Thiam:** Director for the Institution of Civil Engineers (ICE) in Scotland. She is a board member for the Construction Scotland Innovation Centre and chaired the Low Carbon Infrastructure Task Force in 2015.

**John Trower:** After starting a career in Scottish Power, he became an independent advisor to the private equity industry working variously for Lloyds Development Capital, Fleming Private Equity and Growth Capital Partners.

**Janette Webb:** Professor at the University of Edinburgh, she has extensive research expertise in multi-level governance of low carbon infrastructure. She was a member of the Scottish government fuel poverty review panel and adviser on Energy Efficient Scotland proposals.

# Time to bring road user charging into the digital age

**Silviya Barrett** is research manager at Centre for London and author of the report *Green Light: Next Generation of Road User Charging for a Healthier, More Liveable, London.*

Technology innovation has enabled an explosion of new products and services catering to almost every transport need. It would have been inconceivable just 10 years ago that you could book and pay for a private taxi, bike or van hire from the palm of your hand. But a point of irritation remains for the user - you need to have multiple apps downloaded to your phone to access the different services you require.

Transport authorities around the world – as well as some private operators – have been looking for a way to create platforms that integrate the "mobility as a service" offer in one place. In London, the key to unlocking this opportunity may lie with road user charging.

While cities like Singapore are leading the way, in London the system for charging drivers for the congestion and pollution they produce is very much stuck in a previous era. The congestion charge was pioneering and world leading when it was introduced over 15 years ago, but it is a flat daily charge that costs drivers the same regardless of how much or when they drive within the zone. This has meant that since the charge's introduction, congestion has crept back up, due to an increase in traffic outside of charging hours and by exempt vehicles.

And while the recently launched ultra-low emission zone is a much needed and welcome measure to tackle toxic air in the city centre, it relies on the same payment and enforcement technology. It also comes on top of the existing congestion charge, the London-wide low emission zone and the Dartford charge, creating a confusing

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Opinion

system for drivers to navigate.

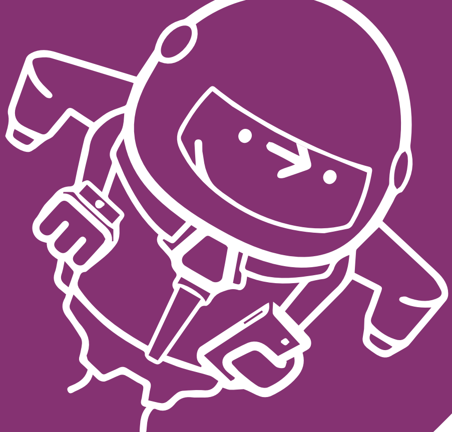
New smartphone and in-vehicle technology both present an opportunity for a more sophisticated approach, charging drivers per mile and with rates variable by vehicle emissions, local pollution and congestion levels and availability of public transport alternatives.

Our new report, *Green Light*, suggests that London should lead the way in developing a single platform that integrates road charging with the rest of the capital's transport system. It would be available as a web platform and app, which we're calling City Move, to help everyone travel across London more easily. With tube, train, bus, bike hire, car clubs, etc. all at people's fingertips, Londoners would be able to easily compare the cost, journey times and associated impacts of alternative options, all in one place.

The technology would also mean that accounts could be linked to the individual, rather than the vehicle, offering the opportunity for targeted discounts, car sharing and splitting the journey cost when riding together – which are not possible under the current system.

*"And while the recently launched ultra-low emission zone is a much needed and welcome measure to tackle toxic air in the city centre, it relies on the same payment and enforcement technology."*

By enabling people to make informed travel choices and to leave their car at home whenever possible, City Move could help reduce overall vehicle usage and create a healthier, more liveable London. London has always been a leader in transport innovation and design. It is time for our approach to transport planning and charging to keep up with the pace of change.



CityMapper has all of Singapore's transport functionalities built into one app.

# Why the UK needs a national guide to air quality design

**Guido Pellizzaro** is associate director for air quality at Waterman Infrastructure and Environment.

Currently in the UK there is no concise checklist of air quality design principles that urban planners should be adhering to when in the design stages of a new development.

At the highest strategic level, the National Planning Policy Framework states that opportunities to improve air quality or mitigate air quality impacts should be identified at the plan-making stage. Yet no further assistance is provided on the air quality design measures the government is seeking. It is left open for urban designers, consultants and local authorities to use professional judgement on what is deemed appropriate, often leading to conflict between individuals.

Given this conflict, there has been an increase in the refusal of planning applications based on air quality grounds. Developments by their nature can increase traffic by attracting new users and the servicing of new uses. They can also release emissions through new energy and heating combustion plants. In areas already exceeding air quality standards, even a small increase in air quality could result in planning refusal. Case laws have now set the precedent for this refusal.

To enable the granting of planning permission, local planning authorities are requesting that the effect of air quality mitigation is quantified (in µg/m3) in order to demonstrate how mitigation will translate into actual air pollution reductions. However, there is a lack of evidence to enable the success of non-vehicle and non-combustion emissions mitigation to be quantified.

What is required is a national guide to air quality design. This would ensure all developments include good air quality design, endorsed at the national and local level, which could avoid planning refusal due to a lack of quantifiable evidence on air quality mitigation. A national design framework could reduce urban air pollution and would provide an opportunity for the UK to improve air quality in the shortest timescale possible. Importantly it would reduce professional conflicts and allow the UK to continue to meet housing targets.

**Read more online at** www.infrastructure-intelligence.com

# Class housing as infrastructure to boost delivery

Bringing housing under the national infrastructure brief could pave the way for more affordable high-quality developments, says *David Cowans.*

The Shelter commission's final report, *A Vision for Social Housing,* makes 23 recommendations to shake up housing and sends a clear message that bold decisions are needed to deliver millions more social homes. But, as highlighted by commission member Lord O Neill, bringing about tangible change will also require the government to view housing through a very different lens.

Speaking about the report, Lord O'Neill, who serves on Shelter's commission, said: "There needs to be a profound shift to see social housing as a national asset like any other infrastructure". I couldn't agree more.

The government's aim to build 300,000 new homes every year by the mid-2020s will only be met by building at scale, including major new villages, towns and suburbs across the UK. For development to happen at this level and to create sustainable places, policy has to change so that housing can be classed as infrastructure in the planning process.

Although recent updates to the National Planning Policy Framework (NPPF) have helped to create a more joined up approach to housing and infrastructure delivery, more needs to be done. We need a policy that prioritises housing alongside transport, broadband, energy and water. This would enable planning applications for larger housing developments to go through the Nationally Significant Infrastructure Project (NSIP) process, so they would be considered at a national level by the Planning Inspectorate instead of the local planning authority.


**The primary school at Brooklands.**

This approach would offer a number of significant benefits. The NSIP 'one-stop-shop' process means that the transport requirements for a new housing scheme could, for example, be determined at the same time as the residential element. Crucially, this would allow developers and local authorities to integrate infrastructure into a development right at the start of the planning process, rather than use it as a bargaining chip at the end.

This approach could be instrumental in creating more great places and not just large volumes of new homes. Residents need to feel at home from the outset and that relies on the delivery of infrastructure right from the beginning of a development project. From transport links and community amenities through to green open spaces and play areas, there needs to be a mix of facilities matched to local needs and which can combine to create genuine and sustainable placemaking.

And as a placemaker that's been delivering new places for more than 50 years, we know that this approach works. Our Brooklands scheme in Milton Keynes is just one example of a large development site where infrastructure came first, including a primary school and as a result, is creating a thriving community. A total of 2,500 homes are being built all supported by a raft of facilities and amenities including a new primary school, health centre, shops and acres of green open spaces for residents to enjoy.

**David Cowans** is group chief executive of Places for People.

**Housing at Brooklands, Milton Keynes.**

**Play area at Brooklands.**


Shelter report

Another benefit of the NSIP process is that it's clearly defined with developers and local authorities aware of their responsibilities from the outset. This would create more certainty for all parties responsible for delivering new housing. And it would encourage comprehensive and early engagement with communities likely to be affected by development as NSIP applications must be properly consulted on.

It's important that not all decisions are taken out of local hands, so planning policy would have to set clear inclusion criteria for NSIPs, such as residential schemes comprising more than a certain number of units or those likely to have a significant impact on local services. However, this is a route which could vastly speed up delivery and help the government to develop a more strategic, national plan for development.

Redressing the planning system may sound like an ambitious move but as Shelter's landmark report has clearly expressed, without significant change, we won't come close to overcoming the housing problems we face.

The much-needed recommendations in the report can't come soon enough, but to get enough spades in the ground by 2022, the government must give housing a clearer identity in the policymaking process.

Bringing it under the national infrastructure brief could pave the way for high-quality developments, which are supported by both the right infrastructure and local communities, resulting in sustainable places that work for everyone.

# Scotland's five-year plan

The Scottish government's independent centre of infrastructure expertise has published its latest five-year plan outlining how it will deliver high-quality infrastructure across the country. *Andy Walker* reports.

The Scottish Futures Trust (SFT), the Scottish government's independent centre of infrastructure expertise, has published its latest five-year corporate plan outlining how it will prioritise its work towards its vision of creating world-class infrastructure for the people of Scotland.

Recognising that high-quality infrastructure underpins inclusive economic growth, sustainable communities and the effective provision of public services, the Scottish government has set a 'national infrastructure mission' to increase infrastructure investment by up to £1.5bn a year over its £5.2bn 2019-20 baseline, so that it reaches £6.7bn in 2025-26.

SFT has a unique role across the whole of Scotland. It works with both the public and private sectors, to plan asset investment and management effectively across sectors and places and innovates in its approaches to funding, financing and delivery. The trust looks to deliver projects and programmes to drive life-cycle value and vibrant construction and related industries and it also manages existing assets, estates and contracts productively.

The SFT's corporate plan sets out the outcomes it will work with partners to deliver, with a key focus on:

- Enabling development in places where jobs can be created and homes built – bringing public and private sector partners together with a focus on infrastructure and innovative financing to unlock the potential of places and assets; and
- Delivering investment programmes in public infrastructure effectively – especially programmes which span multiple organisations such as schools' investment and elements of the National Infrastructure Mission which need new financing approaches to be delivered.

**Peter Reekie, chief executive, Scottish Futures Trust.**

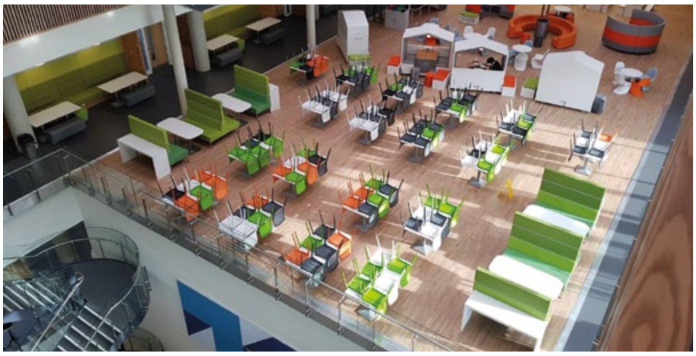

**The Scottish government aims to increase infrastructure investment by up to £1.5bn a year.**

**Ayr Academy.**

In supporting the government's national infrastructure mission to enable a low-carbon, digitally enabled economy, SFT sees an increased focus on:

- Low-carbon infrastructure where the trust is working to deliver better insulated buildings, de-carbonise heat and provide options to increase electric vehicle charging points.
- Digital infrastructure through working on 5G technologies as well as rolling out masts to further increase 4G coverage in mobile 'not-spots'.
- Infrastructure technology with 3D computer modelling, virtual reality and laser scanning are all amongst the new infrastructure technologies the trust is promoting to virtually build a new school or hospital to help flush out any design flaws before moving the building into the construction phase.
- Maintenance and resilience where a renewed focus on making the best use of the assets through effective and joined-up use of buildings and focussed investment in condition can benefit users, the environment and free up budget over the medium term to invest in transformation.

Much of SFT's infrastructure work is delivered in partnership with the Scottish construction industry. Recognising its importance to the economy SFT says it will seek to ensure a vibrant construction industry with increased productivity delivering well-designed and high-quality assets to its customers and fair and rewarding work to a diverse workforce.



Boroughmuir High School, Edinburgh.

Johnstone Town Hall.

Peter Reekie, chief executive of the Scottish Futures Trust, said: "Delivering high-quality, well-functioning infrastructure to support and accelerate economic growth will achieve social and environmental benefits right across Scotland. Building the economy is our focus, and we will continue to provide innovative investment models to stimulate additional private sector investment and create jobs.

"The target to phase out the need to buy petrol or diesel vehicles in Scotland in little over ten years' time will require a big expansion of charging points and we are working with colleagues from Transport Scotland to plan for that now.

"In addition, the economic impact of Scotland becoming a world-leading digital nation is huge as it could boost GDP by around 10%. But to reap that reward, all of Scotland must be at the forefront of technology. We are delivering the 4G mobile mast infill programme to cover many rural mobile not-spots and working on Scotland's 5G strategy which will be piloted at Dundee's waterfront area."

Mark Arthur, Hurley Palmer Flatt executive director and chair of ACE Scotland, said: "Great focus is being placed on both current and future infrastructure need in Scotland and this provides ACE with an exciting opportunity to provide expert advice when shaping investment and policy priorities across energy, water, housing, transportation and sustainability.

"In addition to ACE's own Future of Consultancy campaign, which looks at how technological change will affect our sector and the way we deliver our engineering services, we are working with the newly-founded Infrastructure Commission for Scotland and other key stakeholders to ensure we are able to meet the needs of citizens right across the country both today and tomorrow".

Infrastructure secretary, Michael Matheson, commented: "The Scottish government's £5bn commitment to infrastructure investment in 2019-20 will support 50,000 affordable new homes, delivery of the extension of early learning and childcare, new roads and railways, electric vehicles and delivery of superfast broadband across Scotland.

"As part of this, our recently published pipeline report shows Scottish government procured projects, with a value of almost £3.1bn, are estimated to be in construction across Scotland during 2019-20. Building on this success, SFT will support the delivery of our national infrastructure mission, which will increase annual infrastructure investment by 1% of current (2017) GDP by the end of the next parliament, helping to protect and create jobs, and boost growth across the country."

It looks to be exciting times for the infrastructure sector in Scotland. Consultancy and engineering firms are well placed to provide technical and strategic advice to private and public clients as the industry looks to work together to realise the Scottish Futures Trust's vision of creating world-class infrastructure for the people of Scotland.

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www.acenet.co.uk/groups/scotland/

*"In addition, the economic impact of Scotland becoming a world-leading digital nation is huge as it could boost GDP by around 10%."*

**Peter Reekie,**
**chief executive, Scottish Futures Trust**

# Breaking Northern Ireland's construction log jam

Artist's impression of the new power station at Belfast Harbour.

Construction industry leaders in Northern Ireland have welcomed a third major infrastructure announcement in as many weeks as a sign that the log jam on taking major project decisions might be being broken.

Senior civil servants have approved plans for a £300m gas-fired power station to be built in Belfast, after the Department for Infrastructure (DfI) issued a 'notice of opinion' on 25 March 2019. The Belfast power station will provide energy to around 500,000 homes and businesses and significantly it is the third major planning decision to be made without recourse to ministerial approval in recent months.

With Northern Ireland without devolved government since January 2017, following the row between the DUP and Sinn Féin, there are no ministers in place to make decisions. Westminster legislation gives Northern Ireland civil servants more legal clarity to make decisions while the political deadlock continues.

A spokesperson for the DfI said that its officials were working to progress planning applications, so they are ready for a decision to be made and that "the department will consider on a case by case basis what decisions it is appropriate for senior officials to make in the absence of ministers".

This third major announcement in as many weeks has been welcomed by construction leaders in Northern Ireland who professed themselves "delighted" to see movement on major planning matters that would have come under reserved planning matters, which would have formerly required ministerial sign-off.

Stuart MacKenzie, chair of ACE Northern Ireland and JCP Consulting director, said: "I am delighted to see that our senior civil servants are being given the encouragement and support to make significant and meaningful planning decisions in the absence of a devolved government at Stormont. These will have a very positive impact on the economic future of the construction sector in Northern Ireland and ACE looks forward to seeing movement on major planning matters."

**Read more online at**
www.infrastructure-intelligence.com

Belfast Power director Ciaran Devine welcomed the DfI's announcement. "The project also represents a significant shift towards low-carbon electricity generation in Northern Ireland," he said. Kirsty McManus, national director of the Institute of Directors Northern Ireland, said that decisions being made by the DfI reflected "the strong leadership of its permanent secretary".

Civil servants in Northern Ireland have practically been running departments since the executive collapsed more than two years ago. However, because they are not elected, they are unable to make major policy decisions on any key issues. The latest decisions on infrastructure are seen as an encouraging step by the construction industry that more will follow thereby boosting the sector and the wider economy.

In another positive development, prime minister Theresa May announced in April that power-sharing talks in Northern Ireland will be restarted in an attempt to end the two-year political impasse at Stormont.

In a joint statement with Irish taoiseach Leo Varadkar, the prime minister said they had agreed to establish a "new process of political talks" involving all the main parties in Northern Ireland. "The aim of these talks is quickly to re-establish to full operation the democratic institutions of the Belfast/Good Friday Agreement – the NI executive, assembly and North-South Ministerial Council – so that they can effectively serve all of the people for the future," they said.

Storemont, home of the Northern Ireland assembly.

# Tackling skills challenges in the developing world

The industry needs to act and think differently when working in the developing world and ensure it builds local capacity, says Mott MacDonald project director Changiz Roohnavaz.

**Changiz Roohnavaz** is a project director at Mott MacDonald.

Infrastructure construction in the developing world faces significant challenges including skills shortage and knowledge gaps, outdated technology, lack of engineering and environmental data and, not least, the logistics due to remote project locations.

This is further exacerbated by host government demands for a more sustainable and socially responsible approach from international engineering companies through local content requirements that aim to maximise use of local resources. The traditional approach of delivering civil infrastructure by sourcing the bulk of project needs from outside the host country may no longer be an option.

Skill deficiencies in local workforce and outdated technology are no longer considered valid grounds for international companies not to use available local resource. To make matters more challenging, host governments themselves continue to focus primarily on the development of the urgently needed physical infrastructure to the detriment of long-term capacity building. With globalisation forces at work, local industry and human resource constraints will persist and further worsen.

The question is - should international engineering companies see it in their long-term strategic interest to help develop in-country skilled resource and technology to meet their infrastructure delivery? The short answer is yes.

Major companies have been leveraging the use of global design centres (GDC) for cost-effective delivery in generally less developed regions of the world over the last decade. While the GDC business model is primarily aimed at maintaining global companies' competitiveness, it clearly helps to reduce the gap in technical absorption capacity of those few developing countries where it is located in. This, however, is a small percentage of civil infrastructure construction projects built in the developing world where the benefits to the locals are not realised.


**Economic cycle linking the development of physical infrastructure in the developing countries to human resource capacity constraints.**

Developing countries have been at the receiving end of modern infrastructure designed and constructed to match the developed countries' competencies and technology. The lack of existing skills inhibits their participation in those projects. The relatively short-term duration of such projects means that the participating international companies also have little opportunity for growth within local markets, even if they initiate a development programme, as this would not have moved the locals beyond the required steep and technically demanding learning curve.

But how can this standing pattern be reversed? In parts of the world where poverty, high mortality rates, stagnant economies and growing populations have been the norm for decades, building smart infrastructure is not the answer.

Participating international companies have an ability to innovate and could formulate well-structured skill transfer frameworks with predefined criteria, based on resource available locally, to modify design and construction processes to be more in line with local workforce competencies and technology. The socio-economic needs of locals can then be reconciled with the commercial needs of the projects, transforming lives by creating shared value.

This would gradually elevate and move the local construction industry along the learning curve, preparing the ground for technological advances to be adopted more widely and purposefully. We would then stand a better chance of sustaining our technological lead and business longevity.

The biggest hurdle will be getting the industry to act and think differently. Perhaps the time has come to drop the old protectionist belief that knowledge and technology transfer means nurturing future competitors.

# Ambitious risk taking needed to deliver game-changing projects

The future funding of infrastructure was up for debate at a recent *Infrastructure Intelligence* industry roundtable, which looked at project risk and how financing systems need to change to deliver key strategic projects. *Andy Walker* reports.

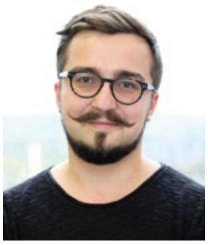
The second of three *Infrastructure Intelligence* roundtables looking at a fundamentally different approach to infrastructure delivery, focused on the financing of projects and whether innovative projects like Hyperloop and other game-changing initiatives make it easier or more challenging to secure funding.

Attendees at the roundtable, sponsored by Costain, heard Matthew Vickerstaff, interim chief executive at the Infrastructure and Projects Authority, say that a project like Hyperloop would currently be very difficult to do if delivered by the private sector. The risk was too great he said and with the unproven technology involved he thought that the private sector would not deliver it at the present time.

The roundtable discussed the Treasury's recently announced infrastructure finance review and specifically whether there was a need for a national infrastructure bank (NIB). Given continued uncertainty around Brexit and the danger of the UK crashing out of Europe, a number of those present thought that an NIB was needed, particularly to replace the investment from the European Infrastructure Bank (EIB), which in 2018 provided 12.25bn euro to support infrastructure projects.

Projects like offshore wind have also been heavily dependent on the EIB in the past and there was a view that post-Brexit, the money previously allocated to the EIB should be earmarked for a new UK national infrastructure bank.

Vickerstaff said that it was hard to predict when projects came on stream and so there was an ongoing question over managing risk. This was understandable and risk management was fine,



**Adam Anyszewski, co-founder and system architect at Continuum Industries.**

he said, "but what about risk taking?" he asked. "We should be encouraging risk taking more," said Vickerstaff.

AECOM's Laurence Brett said that the industry needed to think in a different way to financing and delivering infrastructure to attract more support, while ACE's Hannah Vickers said that it was important to look beyond just the project and see the bigger picture. "We need to look at what construction contributes to the UK economy as a whole," she said.

> *"We need to look at what construction contributes to the UK economy as a whole."*
>
> **Hannah Vickers, chief executive, Association for Consultancy and Engineering**

With infrastructure spending bringing £60bn a year into the UK economy, the contribution of the sector was a significant one and it was felt that the industry could do more to highlight that benefit.

Geoff Smith of First Class Partnerships also highlighted risk as a key



factor in encouraging investment. “Risk dictates the appetite of investors to get involved,” he said. “Technology will help to reduce project risk, but risk is an important topic that cannot be ignored,” said Smith. Smith also said that risk needed to be managed by the party best placed to deal with it and that meant that there would always be a role for government.

In relation to the prospects for a UK Hyperloop getting off the ground, there was some scepticism around the table. Many of those present questioned whether there was really a strong demand for Hyperloop and whether such a project would meet real needs. At a time when the existing surface rail network was still in need of improvement, some felt that investment in other technologies was more of a priority. Defending Hyperloop, Continuum Industries’ Adam Anyszewski said that it would cost $2bn to show that Hyperloop could work and given the transformational nature of the project this was not a prohibitive cost.

Despite some concerns over the specifics of Hyperloop, it was pointed out by many participants how important it was not to lose the enthusiasm for innovative and transformative infrastructure projects. “The passion that drives innovation is often lost to a project at its end and we need to harness that,” said Peter Jarman of the Estates and Infrastructure Exchange.

The importance of seeing infrastructure and especially transport as a system was also highlighted in the discussion. Increasingly, integration and connectivity and digital and data is providing the industry and operators with the information it needs and the creation of more models which show how transport can be measured and predicted would lead to better real time decisions being made.

Mark Coates of Bentley Systems said it was precisely these systems to integrate that offer the industry the opportunity to be more joined up and that this in itself could go some way to reducing risk. This was a crucial point and vital in encouraging infrastructure investment. “As long as you can quantify risk then people will take a look at it,” said Max Fieguth of IFM Investors. Adam Anyszewski said that technology risk was large in scale when compared to other risks but that this could still be quantified and managed in relation to Hyperloop.

The clear message from attendees at the Costain roundtable was that ground-breaking and game-changing infrastructure projects needed deep pocketed investors, including government, to make them happen. To bring such investors to the table meant highlighting the real and lasting benefits to UK plc and society of innovative infrastructure.

Closing the event, professor Gordon Masterton of the University of Edinburgh, asked whether the UK could once again be seen as an international infrastructure innovator. “In the past, the UK has led the way with transformative and often pioneering projects,” he said. “Could this be the case again, with major innovations being rolled out early in this country and being seen as a beacon to the world? Or would risk aversion and lack of ambition lead to a lack of investment that meant that the UK would always be second or third in line?” Masterton asked those present.

This was certainly something for the industry and government to ponder on. What was also crucial was the industry having the confidence to deliver innovative and inspirational projects as this would give funders the confidence to back them, promote them and make them happen.

# London's battle against the "invisible killer"

April saw the introduction of the capital's ultra-low emission zone (ULEZ) but how far-reaching and effective will it be? *Ryan Tute* investigates.

Hailed as the world's toughest vehicle emissions standard, Sadiq Khan is attempting to spearhead the fight against the capital's toxic air health crisis that currently leads to thousands of premature deaths every year with the launch of an Ultra Low Emission Zone (ULEZ).

The ULEZ is the latest move to combat London's invisible killer and it is being seen as the most significant action on air pollution that Britain has seen in more than a decade. From 8 April, vehicles which don't meet emission standards and still drive through the central streets of the capital will be slapped with a £12.50 charge in addition to the congestion charge. Fail to pay and motorists will have to cough up £80 or £160, depending on how long it takes them to respond.

City Hall hopes the new measures will reduce the dangerous nitrogen oxide (NOx) and particulate matter (PM) levels in the air. The first phase of the ULEZ will cover central London, with this extended to cover more of London in phases two and three in the coming years.

Transport for London estimates the initial scheme will lead to a reduction in toxic emissions from road transport by about 45% in two years. Khan has said London's air pollution is a "public health emergency" and if all goes to plan then it's hoped these latest efforts will mean London is compliant with legal limits by 2025. London's mayor believes the initiative is a "landmark moment" for the city and a "vital step towards helping combat London's illegal air."

"Our toxic air is an invisible killer responsible for one of the biggest national health emergencies of our generation," Khan said. "I simply refuse to be yet another politician who ignores it. The ULEZ is the centrepiece of our plans to clean up London's air – the boldest plans of any city on the planet and the eyes of the world are on us. I will not stand by and watch children grow up with under-developed lungs in our city."

Sadiq Khan, mayor of London.

In operation 24 hours a day, seven days a week and 365 days a year, estimates show that 40,000 cars a day will be impacted along with 19,000 vans, 2,000 HGVs and 700 coaches. But with a 38% rise in the total number of compliant vehicles already in the last two years mainly thanks to the T-charge, how affective will the initial ULEZ rollout be in accelerating the pace of change?

Simon Birkett, founder and director of Clean Air in London, has applauded the mayor's ambition making special reference to the fact April 2019 ULEZ execution is 17 months earlier than the date set by his predecessor Boris Johnson.

Birkett has likened the steps being taken as the modern equivalent of banning coal and wood burning so successfully after the Clean Air Act 1956 to tackle the visible smog of the 1950s, but insists City Hall must do more to restore London's air quality to legal and safe levels and sees it as an important step on the path to banning diesel vehicles.


"Sadiq Khan should be applauded for making the fight against air pollution one of his top priorities," said Birkett. "His actions contrast sharply with Boris Johnson who spent eight years taking backward steps or delaying action on air pollution. But the mayor must also do more to stop cheating by vehicle operators, businesses and others of emission standards. This should be done by real-world monitoring along busy roads and providing a phone number or app for people to report smoky and idling vehicles," Birkett said.

But with the ULEZ scheduled to expand to the inner London area, bounded by the north and south circular roads, by 25 October 2021, this is where mounting opposition is being seen.

It's been highlighted by a challenger to Khan in the 2020 London mayoral elections, Conservative candidate Shaun Bailey, who is vowing to stop any expansion to outer London if elected, despite the fact that its implementation is intended to cut nitrogen dioxide pollution by a further 23%

Speaking on the issue, Bailey has said he estimates the cost of any such extension at £780m, or £220 for every household in London, means it will "hit the poorest people". "Tackling air pollution is one of the greatest priorities for London, but policies that seek to combat this must be both affordable and effective.



**Vehicles must meet the following to be exempt from the ULEZ charge:**

1. Euro 3 for Motorbikes – engines must not produce more than 2.3g/km of carbon monoxide and 0.15g/km of nitrogen oxide
2. Euro 4 for petrol cars, minibuses, vans – engines must not produce more than 1g/km of carbon monoxide or 0.08g/km of nitrogen oxide.
3. Euro 6 for diesel cars, minibuses, vans – engines must not produce more than 0.5g/km of carbon monoxide, 0.08g/km of nitrogen oxide or 0.005g/km of particulate matter.

Unfortunately, Sadiq Khan's current policies will be costly to Londoners for little effect," Bailey claimed.

The Freight Transport Association (FTA), has criticised the introduction of the ULEZ for the damaging impact on small businesses while delivering "limited air quality improvements". Natalie Chapman, head of urban policy at FTA, believes many vehicle manufacturers have already led the way with investment in cleaner technologies.

Despite the negative reaction from some corners, research identifies the need for change. Analysis undertaken by King's College identifies that the number of schools exceeding the legal limit for NO2 is expected to fall from over 450 in 2016 to five in 2020 and zero in 2025 and if no measures had been put in place then London's air would not come into compliance with legal limits for another 193 years.

Caroline Russell, London assembly member and chair of the assembly's environment committee, says while she appreciates efforts to improve air quality, she believes the ULEZ needs to cover all of London and come in sooner.

"The mayor and TfL should be looking at how to charge per mile and by emissions of the vehicle driven," Russell said. "A smarter, fairer system. We would never allow people to pay a very big fee to smoke (pollute) in a playground; one day we'll wonder why cars were ever allowed in city streets. The ULEZ is a great first step and I'm really glad the mayor is not listening to people stuck in a vision for a future of dirty air and traffic jams,"said Russell.

# Counting the huge cost of infrastructure delays

A new report on infrastructure delivery across the globe has uncovered the huge direct cost to economies of poor delivery, says Mace's *Jason Millett.*

Good infrastructure is a popular policy. And, 73% of people across the world agree that investing in new infrastructure is vital to ensure that their economies can keep growing.

Even if the remaining people are occasionally very vocal in their opposition to infrastructure investment, you will still struggle to find anyone who won't admit that at least some investment and development is required to ensure that we can connect communities, unlock jobs, build new homes and drive economic development.

With more and more people living in towns and cities across the globe, that investment is only going to become more important. That's why more than $5.25 trillion will be spent annual on infrastructure by 2030, the vast majority of it funded by taxpayers from across the globe. It's a huge investment and so it is important that that money is spent well.

Unfortunately, that isn't the reality. Infrastructure projects – by their very nature, complex and lengthy – are prone to going over budget and being delivered late. Figures show that on average, around 80% of projects experience cost or programme overruns. Whether it's delivering new trainlines, bridges or utility projects, the industry's record of successful delivery isn't great.

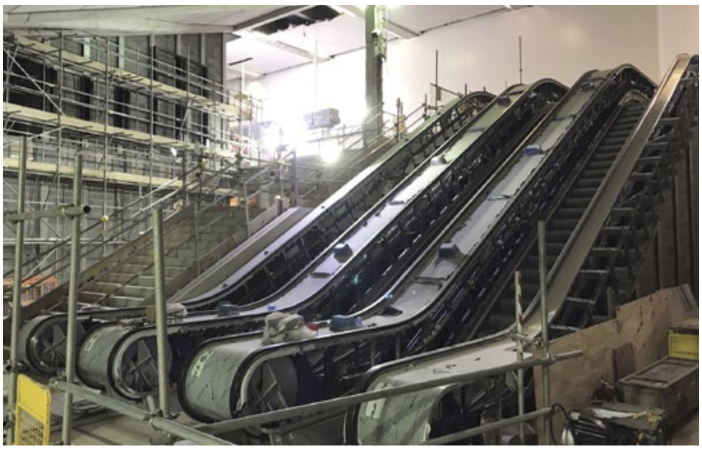
What that means in practice is that vast sums of money are wasted, and millions of people lose out on the benefits that the new infrastructure would have brought. Growth is restrained, careers limited and regions failing to live up to their potential. Too often, solving the challenges of complex infrastructure delivery is seen as too difficult. It's assumed that some many late and over budget projects is just 'how the world works'.

**Jason Millett** is Mace's chief operating officer for consultancy.


**Edinburgh's tram system opened £375m over budget and three years late.**

However, if we're honest with ourselves, that isn't true and shouldn't be accepted. Complex projects can be delivered well. Look at the Moon landings, the £1.5bn A14 upgrade or the London 2012 Olympic Games. It is perfectly possible; it just takes a change of mindset.

In our latest research report, Mace has done a deep dive on infrastructure delivery across the globe, and we've uncovered the huge direct cost to our economies of poor delivery. In the UK alone, taxpayers face an annual bill of £19bn a year by 2030 – and globally, that figure will be more than £1.2 trillion dollars.



**Escalators on the Crossrail project.**

**Station work on Crossrail.**

That just isn't good enough.

All of us in the sector – from clients to contractors to consultants – need to recognise that these delays and overruns are our collective failure. We owe it to society to ensure that we can spend their money better and deliver on our promises. At Mace, our experience in delivering complex programmes has shown us there are a number of measures we could introduce to help mitigate those risks.

First and foremost, the key thing is more independent scrutiny of budgets and programmes. An independent panel of experts overseeing the largest projects means that people have to face up to problems before they become endemic and it helps project teams break free from any group think. This worked well for the London 2012 Olympics and the Hong Kong Aviation Authority. There's no reason we can't do it elsewhere.

Read more online at www.infrastructure-intelligence.com

Crossrail - another major project running late.

We also need to build in more delivery skills on the infrastructure owner side. The best programmes and projects have capable owners, however large infrastructure delivery bodies and developers are often public bodies that often struggle to attract the best talent as they can't compete on salaries. National infrastructure academies could help address that imbalance.

Government departments with responsibility for delivering infrastructure could also be bought together, creating 'centres of excellence' around project delivery that ensure lessons from major projects are captured and we don't lose hard-earned experience every time a major project comes to an end.

Most importantly, however, is a change in mindset. Projects are pressured into providing unrealistic budgets and programmes by political pressure. We all need to recognise that infrastructure delivery is complex, unpredictable and expensive. By spending more money earlier and having realistic expectations around how effectively we can mitigate risks, we can ensure projects face more realistic targets and timescales.

That will take courage from everyone. It will need politicians, clients and the industry to work together to effect change. That's not an easy step, but as our new research shows, if we don't fix this, we'll all have to pay.

# Shortlist for Consultancy and Engineering Awards announced

The shortlist for this year's Consultancy and Engineering Awards has been revealed, with the winners to be announced at ACE's gala dinner on 6 June 2019.

Consultancy
& Engineering
AWARDS 2019

**Details of this year's shortlist are listed below.**

**Future of Consultancy - Integrated Project Team of the Year, Public Sector Client**
- DNRC Project Team - BS Stanford & Arup with Osbornes QS, Steffian Bradley Architects, John Simpson Architects, Interverse Construction and Shepherd Engineering Services.
- TfL - Mott MacDonald.
- Turner & Townsend, Waterman Group and PwC.
- WJPS - Ashley Jordan.

**Future of Consultancy - Integrated Project Team of the Year, Private Sector Client**
- BuroHappold Engineering
- BWB.
- Welsh Water IMS, Welsh Water BIS, Welsh Water Alliance, Arup.

**Best UK Business Performance - micro organisation (Less than 10 employees)**
- CC Hydrodynamics.
- Lewis Hubbard.
- Rail Power Solutions.
- Rivelin Bridge.

**Best UK Business Performance - small/ medium sized organisation (10+ employees but less than 250)**
- ABPmer.
- Adept Consulting Engineers.
- Clancy Consulting Limited.
- Dougall Baillie Associates.
- Geo-Environmental Services Ltd.
- IMC Worldwide.
- Jubb.

**Best UK Business Performance - large organisation (250+ employees)**
- BuroHappold Engineering.
- Curtins.
- Pick Everard.

**Future of Consultancy - Strategic Planning and Placemaking Champion**
- Arup.
- WYG.

**Future of Consultancy – Data-led Asset Performance Champion**
- Amey Consulting.
- BWB & Deetu.

**Environmental Initiative of the Year**
- IMC Social and Environmental Safeguarding Team - Freetown Landfill Feasibility Study.
- Mott MacDonald: embedding PAS2080 across a global business.
- Setting a new standard of air quality during construction – Arup and HS2 Ltd.
- Waterman Group.

**Emerging Professional Employer of the Year**
- IMC Worldwide.
- Stantec.
- WSP.

**Emerging Professional of the Year**
- Josh Dickerson, BWB/Deetu
- John Hargreaves, Turner & Townsend
- Philippa Jefferis, IMC Worldwide
- Christopher McAtasney, Turner & Townsend
- Jamie Radford, Mott MacDonald
- Elizabeth Side, Jubb
- Charlotte Smith, Ramboll
- Gavin Smith, Ramboll

**Apprentice of the Year**
- Matthew Baker, WYG
- Pabita Bista, IMC Worldwide
- Hannah Brough, AECOM
- Willow-Athena Hempell, WSP
- Conor O'Loughlin, Ramboll
- Caitlin Sutherland, PBA now part of Stantec
- Elliott Webb, Arup

# Benchmarking 2019 is now open

ACE is calling on consultancy and engineering firms to come forward to take part in its annual benchmarking process.

Since 2006, ACE has been inviting member firms to take part in the *Benchmarking Overview Report*, a key tool for industry trend analysis and the only in-depth analysis of the health of the consultancy and engineering industry in Europe.

Benchmarking 2019 is now open and ACE is calling firms to take part in the two-part project, the highlights of which will be presented at the European CEO Conference later this year.

*The ACE Benchmarking Report* will present a comprehensive overview of the results of the 2019 benchmarking study and highlights trends across many business areas, drawing a series of conclusions about the state of the sector.

The study is split into two, one half focusing on SMEs and the other on larger companies with **SME Benchmarking** is for ACE member firms with fewer than 250 employees, and **Benchmarking for larger firms** serving the needs of companies with higher staff numbers.

It explores issues as diverse as profitability and growth, costs, productivity, staffing, winning work, environmental and sustainability issues. The report also includes extensive data tables with survey results, with over 550 different metrics being analysed.


Taking part in ACE Benchmarking is easy. Contact Brian Nolk at bnolk@acenet.co.uk or call 020 7222 6557 for more information.

# Building Communities APPG launches placemaking call for evidence

## Parliamentary group launches consultation on how placemaking can lead to greater productivity in the UK.

The All-Party Parliamentary Group on Building Communities is calling for evidence and contributions from all organisations with an interest in the built and natural environment to contribute to its new consultation, which aims to demonstrate how placemaking can lead to greater productivity in the UK.

As part of its remit, the APPG plans to conduct research on the concept of 'placemaking' and investigate design practices that maximise the social value of infrastructure. In this way the APPG hopes to build an evidence base that can be used by policy makers when engaging with the build and natural environment.

APPG chairman, Bob Blackman MP, said: "More needs to be done to understand how places that are designed and delivered with space, health, accessibility, resilience and engagement in mind can be more productive places, driving inclusive growth with better economic and social outcomes across a city, region, nation, or the whole of the UK.

"Creating areas that are aesthetically appealing, have good connectivity and are comfortable provides individuals with the opportunity to use the space most effectively. The interaction that happens in these spaces is also a key driver of a successful service economy, boosting productivity through access to knowledge and networks of people. Talented individuals working for highly productive industries, such as technology firms, are more likely to move to an attractive city or development."

Hannah Vickers, chief executive of ACE, which acts as the secretariat to the APPG, added: "We all recognise that the UK has a productivity gap that is a drag on our economic performance. Despite being the most productive economy in Europe in the 1960s, the UK has steadily fallen behind France, Germany and the United States. In the UK, there is a 44% difference between the most and least productive cities. To combat this decline, the government has launched its industrial strategy at a national level to help bridge the gap.

"The APPG feels, however, that there is a local dimension to improving UK productivity that requires a greater focus on the role of the built environment. Our belief is that the UK needs to make productivity a more tangible part of the planning and design process at this local level to achieve improved economic results and thriving local economies."

appg

**Companies interested in hearing more about the consultation or the work of the APPG should contact**
Julian Francis, ACE director of external affairs at jfrancis@acenet.co.uk


**Left to right - ACE's Julian Francis, Bob Blackman MP and Tom Smith from Mott MacDonald.**

# ACE announces new directors of campaigns and membership

## Two new senior level appointments will help ACE improve its membership and campaigning capability.

ACE has announced the appointment of two new directors to support its campaigning and membership activities.

Tam Simmons has been appointed into the new role of director of campaigns. Tam, who was previously head of marketing and communications at the organisation, has stepped into the role to coincide with the launch of ACE's Future of Consultancy campaign, which aims to help the entire consultancy and engineering sector not only adapt to, but welcome, a new era of design and delivery in the built environment.

In addition, Darrell Matthews has joined ACE as its new director of membership. Darrell was the driving force behind the Institution of Civil Engineers' operation in the north west, leading a large number of member volunteers to educate and inform the region's influencers of ICE's policy and membership activities. He was also responsible for relationships with the larger civil engineering companies, ensuring that they were supportive of ICE activity.

Over the coming months ACE will lead on a number of activities to bring together members, industry stakeholders and clients from the private and public sectors to examine this area and work in collaboration to achieve common goals.

**Darrell Matthews, director of membership.**

**Tam Simmons, director of campaigns.**

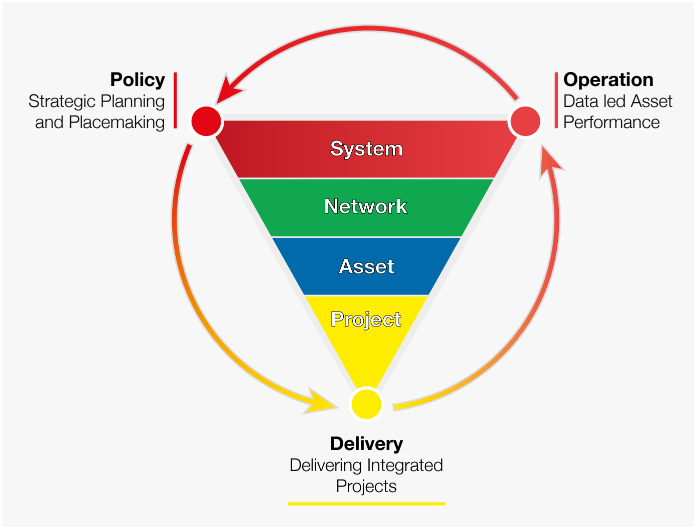
# Business models and contracts for the future

In an industry increasingly led by data and technology, new tools are speeding up work and demanding new business models for consultants, says *Hannah Vickers.*

New tools are constantly emerging in our industry – self-monitoring infrastructure, offsite and modular construction, drones and virtual reality – which are enabling engineers to monitor projects from their desks, undertaking digital design which takes minutes, rather than weeks.

We need to consider a move to business models which enable us to combine (and get credit for) the value that our data, products and technological solutions – as well as our expertise – delivers to clients and end users. It is vital for the long-term growth, productivity and sustainability of the industry and businesses that we find a way to get a return on investment and innovation across all our products and services.

**Hannah Vickers** is chief executive of the Association for Consultancy and Engineering (ACE).




We need to look at how we view ourselves and what our value proposition for a client is. Traditionally, as engineers, we would work at and earn most of our revenue at a project level. Now though, we have a plethora of data and a range of new digital tools which opens up new possibilities to advise clients on their networks, systems and assets - and the chance to earn fees to reflect that.

*“Both approaches create a mechanism for the client to reward a consultant for a defined output rather than a focus on ‘inputs’ and in doing so create the environment for significant innovation to be rewarded.”*

ACE’s Future of Consultancy research, alongside initiatives like Project 13, explores how we take this combination of constituent parts and sell them and which business models will allow us to do this effectively, with fair reward, whilst giving clients comfort and confidence.

*“We need to look at how we view ourselves and what our value proposition for a client is.”*

Models from other industries could be adapted and applied well within our sector. The much-lauded Rolls Royce ‘Power by the Hour’ model is that of a service-level agreement with the client. A similar approach could be taken where a consultant develops an app for building performance monitoring for their client, or perhaps on a programme of compliance activities where the client pays for a defined level of service. Payment for output with incentives for a bonus related to overall outcome or performance, as apply in the sports world, is another option.

Both approaches create a mechanism for the client to reward a consultant for a defined output rather than a focus on ‘inputs’ and in doing so create the environment for significant innovation to be rewarded.

Contracts will need to change to accommodate this, giving us a real opportunity to drive out some current poor practice. We will need different terms, incentivisation and indemnity insurance schemes to support the new models, defining a different relationship between clients and consultants at all levels of the supply chain.

Importantly, this will change the relationship between existing consultants and new entrants. In an area where we are acutely aware of the skills shortage, this is no bad thing. We need to spend our time looking at how best to structure ourselves and find talent in our sister organisations, particularly the more agile and innovative SMEs, to complement our service offering.

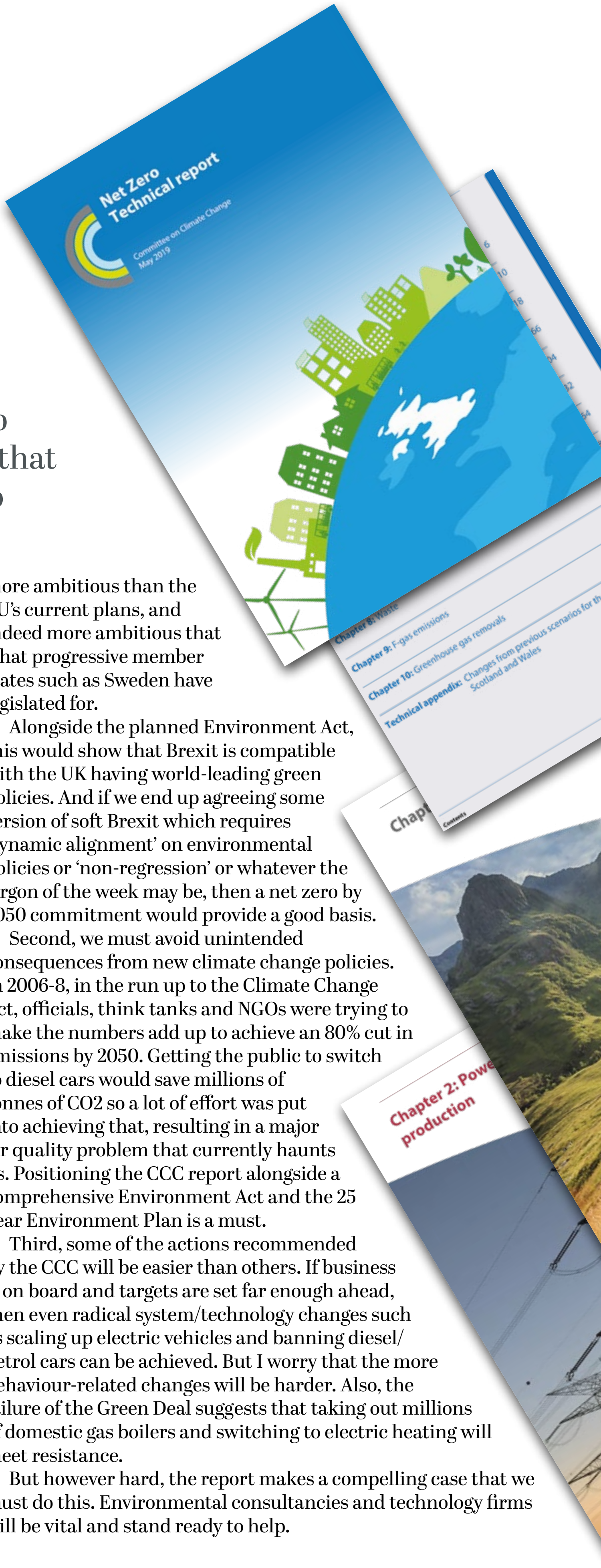
We all need to take a step back and take a good look at where we can add value across a client’s whole asset base rather than just our perceived and known area of specialism. That’s where we should be heading - an industry where consultants are rewarded for the value they add, not just the hours they put in.

Future of Consultancy

**To find out more visit**
www.acenet.co.uk/futureofconsultancy

# Being the best we can be on climate change action

The Committee on Climate Change net zero report makes a compelling case for change that the environmental industry stands ready to facilitate, says *Matthew Farrow.*




Look round any station or airport bookshop and facing you will be row upon row of self-help books, encouraging you to be the best 'you' that you can be. Reading the much-trumpeted net zero report from the Committee on Climate Change, I was reminded of this by the report's careful insistence that the goal it recommends (net zero greenhouse gas emissions by 2050) would represent the United Kingdom's "highest possible ambition" – in other words, we would become, in climate change action terms, the best version of ourselves that we can be.

The phrase was not chosen at random. The 2015 Paris agreement on climate change committed signatories to work together to keep global warming "well under" 2C. And it explicitly called on signatory nations to come up with, yes you guessed it, their "highest possible ambition".

Like any self-help manual, the CCC report treads a careful line between getting us to set goals that are ambitious and aspirational, while at the same time not so unrealistic that we lose motivation. And it breaks down the goal into manageable chunks, both over time, and in terms of actions, with detailed analysis of what can and should be done sector by sector.

A few initial thoughts on the report.

First, while the recent media interest in climate change has been a merciful break from 24/7 Brexit news cycles, the Brexit context is relevant. While the net zero by 2050 goal falls far short of what the Extinction Rebellion protestors wanted (net zero by 2025), if enacted it would be more ambitious than the EU's current plans, and indeed more ambitious that what progressive member states such as Sweden have legislated for.

**Matthew Farrow** is director of the Environmental Industries Commission, the leading trade body for environmental firms.

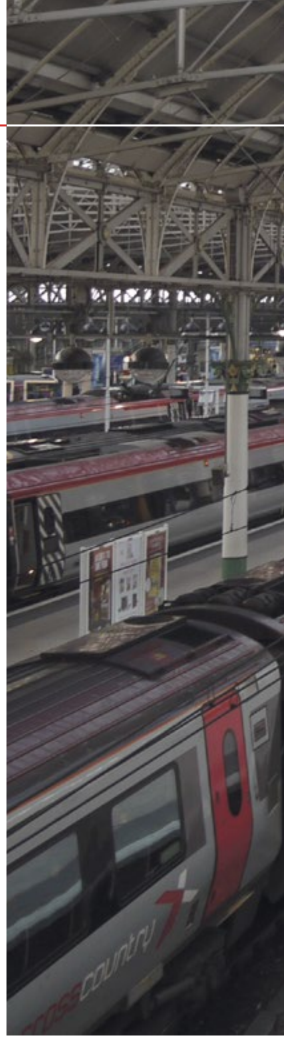
Alongside the planned Environment Act, this would show that Brexit is compatible with the UK having world-leading green policies. And if we end up agreeing some version of soft Brexit which requires 'dynamic alignment' on environmental policies or 'non-regression' or whatever the jargon of the week may be, then a net zero by 2050 commitment would provide a good basis.

Second, we must avoid unintended consequences from new climate change policies. In 2006-8, in the run up to the Climate Change Act, officials, think tanks and NGOs were trying to make the numbers add up to achieve an 80% cut in emissions by 2050. Getting the public to switch to diesel cars would save millions of tonnes of CO2 so a lot of effort was put into achieving that, resulting in a major air quality problem that currently haunts us. Positioning the CCC report alongside a comprehensive Environment Act and the 25 Year Environment Plan is a must.

Third, some of the actions recommended by the CCC will be easier than others. If business is on board and targets are set far enough ahead, then even radical system/technology changes such as scaling up electric vehicles and banning diesel/petrol cars can be achieved. But I worry that the more behaviour-related changes will be harder. Also, the failure of the Green Deal suggests that taking out millions of domestic gas boilers and switching to electric heating will meet resistance.

But however hard, the report makes a compelling case that we must do this. Environmental consultancies and technology firms will be vital and stand ready to help.

# It's time for ministers to deliver visibility on rail pipeline




Darren Caplan, the chief executive of the Railway Industry Association, spoke to *Ryan Tute* about electrification challenges, 'boom and bust' spending issues and major project backing.

With £48bn being pumped into infrastructure in the next five-year funding cycle by Network Rail, it's vital that the rail supply sector ensures that it's delivering on time and budget, works in a collaborative manner and explores any innovation opportunities, according to the man heading up the UK's national trade body for rail supply.

The sector is little more than a month into Network Rail's Control Period 6 (CP6) but there is no doubting the size of challenge that awaits, with 2018 spelling a difficult year for the public's perception of rail.

It was a year that the UK rail's regulator – the Office of Rail and Road (ORR) – described as the worst in five years for punctuality and reliability with commuters bearing the brunt of mass disruptions thanks in part to the introduction of the biggest timetable change in a generation.

The upgrade - which involved changes to 46% of train times – saw Govia Thameslink and Northern cancel up to 470 and 310 scheduled trains respectively each weekday over the course of several summer weeks.

But while some might see the task of delivering billions and billions of pounds worth of work a significant challenge, Darren Caplan, the chief executive of the Railway Industry Association (RIA), believes its one the rail supply industry is ready to meet.

"Last year was a difficult year so it's more vital than ever that the industry is showing is value and worth," he said. "Rail is a major economic contributor to the UK, delivering £36bn in economic growth and employing some 600,000 people. Whilst it might not always be portrayed in the media, our rail industry is a success story, with passenger numbers doubling over the last 20 years - we continue to make the case," said Caplan.

A major focal point of the RIA's campaigning has been on the issue of electrification and encouraging ministers to once again look at the facts and learn from vital lessons of the past. It wants government to collaborate more and renew its commitment to electrification, following the cancellation of a number of schemes in July 2017.

**Darren Caplan, chief executive of the Railway Industry Association.**

Last March, the National Audit Office, the government spending watchdog, rejected claims made by the transport secretary Chris Grayling in which he said electrification schemes were cancelled because there were other ways of delivering improvements. The NAO instead insisted that the decision by government to not modernise lines from Cardiff to Swansea, the Midland mainline and tracks in the Lake District was purely a financial one.

The RIA's recent report showed how schemes can be delivered at 33-50% of the cost of some previous projects by establishing a 10-year rolling programme, which would build up capabilities amongst rail businesses, thus lowering long-term costs.

On the issue of whether the UK has dropped the ball when it comes to upgrading lines, Caplan said only "a few" electrification schemes, such as the Great Western Electrification Programme (GWEP), were over budget in the past, with a number of other examples across the UK delivered on time and budget.

"Simply, RIA believes that electrification is the optimal solution for intensively-used rail and should also be considered as part of the solution to decarbonising the rail network by 2040," the RIA CEO said. "This should be alongside emerging technologies like hydrogen, battery and trimodes. It is for


local and national decision makers to consider the business cases for individual schemes," he said.

The report which was published in March has been backed by notable parties like Network Rail's chief executive Andrew Haines, the chair of the transport select committee Lilian Greenwood and Labour's shadow transport secretary Andy McDonald.

Another crucial issue which the rail trade body has long called for is the end of 'boom and bust' spending due to the stop-start nature of work. The government has acknowledged the need for more consistent profiles of work after the transport select committee recommended that the rail industry work with decision makers within government, Network Rail and the ORR.

The RIA is now pledging to work with all three organisations to progress this recommendation and ensure future control periods benefit from a visible pipeline of enhancements that provides confidence for rail suppliers.

"We have been campaigning for a smoother profile of work since 2017 and we have seen some key successes in our campaign," Caplan said. "In November 2017 we saw the government sign off the reallocation of £200m from within Network Rail's budget to bridge a shortfall in funding at the end of Control Period 5. We do not want to see stop and start workloads that so negatively impact the rail supply industry currently, increasing the cost of the railways by up to 30%," said Caplan.

But Caplan has revealed how the association has recently written to the rail minister Andrew Jones about frustrations on no construction-ready schemes currently in the pipeline. The RIA is urging government to reveal its pipeline, so suppliers have the confidence to invest in people, plant and processes in the future.

"There is currently little transparency as to what schemes are in the pipeline or how long schemes will take to progress through the different stages," the trade body boss said. "No construction-ready schemes currently in the pipeline, mean a significant hiatus for upcoming enhancement projects."

The RIA boss also refers to the government's own procurement 'playbook', which was issued just last February, and claims ministers need to be open about its commercial procurement pipelines on rail enhancements, insisting that it's imperative to now deliver on this.

On the much-debated HS2 and the need for big project backing, Caplan believes all schemes including Crossrail, the trans-Pennine upgrade and Northern Powerhouse Rail should be seen through in their entirety so that the UK network has the capacity it needs and the country benefits from the economical upside.

But on HS2 specifically, Caplan said: "The project does have its opponents, but the economic and connectivity benefits of the project are clear. The industry must continue to make the case for the project, which will deliver more than £90bn in economic growth whilst connecting eight out of 10 of the UK's cities and freeing up capacity on the existing rail network," he said.

*"Rail is a major economic contributor to the UK, delivering £36bn in economic growth and employing some 600,000 people. Whilst it might not always be portrayed in the media, our rail industry is a success story, with passenger numbers doubling over the last 20 years - we continue to make the case."*