

INFRASTRUCTURE VIEW

SPRING 2019

From **Carter Jonas**

TALENT ACADEMY

Creating
infrastructure
stars
for the
future...



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HS2's TOM VENNER

on how they're
redefining commercial
development

AUTONOMOUS VISION

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transport future

FULLY CHARGED

Making electric
vehicles a reality

SMARTER BY DESIGN

Digitalising the
road network

Mark Hall-Digweed Head of Infrastructures, Carter Jonas



Welcome to our first issue of Infrastructure View, our new publication celebrating the expanding and very exciting UK infrastructure sector. The government's latest National Infrastructure and Construction pipeline shows over £600bn of investment over the next 10 years, with nearly 700 projects planned. These will enhance the nation's transport, energy, water and communications networks, and help to solve the escalating housing crisis, which is affecting so much of the UK population.

Yet for all this investment, we continue to wrestle with an ongoing shortage of skills, particularly those needed to support the facilitation of all these incredible projects. I am therefore pleased and very proud of the talent now flowing from our very own infrastructure training Academy, (see page 30) and look forward to continuing to support our team as their careers blossom within our business and the infrastructure industry.

At Carter Jonas, we have expanded our team to reflect the growing demands of our clients. Our services span road, rail, utilities, energy, telecoms, minerals, waste management and urban regeneration, and we are now employed by most of the UK's high profile publicly owned infrastructure providers, some of whom are featured in this issue. It is most definitely an exciting time. I hope you enjoy reading Infrastructure View.

It is perhaps an overused phrase, but infrastructure investment really does drive the economy. The challenge for the sector now is to deliver on its ambitious plans.

Social value needs to be at the heart of everything the sector does and, now that everyone has a smart phone in their pocket, the way that we interact with the infrastructure around us is transforming. Live data and fast communication inform our decisions on roads and railways, ease our travel, manage our home energy use, and has freed working life from the office.

As a consequence, the sector is changing fast, not least as digital technology and data begin to drive the way we design, operate and maintain assets. Electric and connected autonomous vehicles, smart ticketing and remote monitoring are set to transform not only the way we live our lives but also the way our infrastructure is planned, to minimise impact on the environment.

As the articles in this first Infrastructure View make clear, the outcome of this investment must be sustainable, consumer-focussed infrastructure. That means assets and services that are built around the needs of the public, and that help the UK establish the vital social, environmental and economic objectives needed to drive a post-Brexit nation.

Antony Oliver Consulting Editor



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Editorial
Antony Oliver

Marketing & Production
Head of Rural Marketing,
Leesa Ingham
Rural Marketing Manager,
Hayley Clifton

Art & Design
Head of Graphic Design,
Laura Gale
Graphic Designer,
Amanda Franklin
Graphic Designer,
William Street

*Thank you to our
content contributors*

Photography
Aurelien Langlais

CONTACTS

Head of Infrastructures
Mark Hall-Digweed
+44 (0)7801 666144

Head of Energy
Charles Hardcastle
+44 (0)113 203 1091

Head of Transport
Simon Mole
+44 (0)1962 833398

*Head of Minerals & Waste
Management*
David Sandbrook
+44 (0)7585 903627

Head of Telecommunications
Mark Talbot
+44 (0)1962 833366

Head of Geospatial
Andy Williams
+44 (0)121 306 0392

Head of Utilities
Steven Drennan
+44 (0)20 7518 3244

*Head of Compulsory Purchase &
Land Assembly*
Paul Astbury
+44 (0)20 7518 3328

Carter Jonas

Carter Jonas LLP, One Chapel Place,
London W1G 0BG
020 7518 3200
info@carterjonas.co.uk
carterjonas.co.uk

To keep up to date with all our
news, follow us on twitter:
@CarterJonas

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We'd love to know what you think of this issue of Infrastructure View, and your thoughts on how we could improve it. Visit carterjonas.co.uk/infrastructure-view to complete the survey, and you'll be automatically entered into a prize draw to win a drone. Full terms and conditions on the website.

London launches new £1bn programme to tackle housing crisis

Mayor of London Sadiq Khan has launched a new £1bn City Hall-backed programme to construct 11,000 council homes over the next four years. The plan forms the cornerstone of the Mayor's 'Building Council Homes for Londoners' initiative, the first-ever City Hall programme dedicated to council homebuilding. However, the Mayor also warned that the government still had to do more to help fix the growing housing crisis across the UK and deliver on its pledge to build one million new homes by 2020. However, Prime Minister Theresa May described the housing crisis as "the biggest domestic policy challenge of our generation" in her recent Tory Conference speech and removed the cap on Local Authority borrowing against assets to fund new developments. In November, Chancellor Philip Hammond's Autumn Statement also committed an additional £500m to its Housing Infrastructure Fund, which, he said, would unlock construction of 650,000 homes.

PFI is dead - but private finance remains in the mix

Chancellor of the Exchequer Philip Hammond officially killed off future use of the much criticised Private Finance Initiative (PFI) and its PF2 successor in his Autumn Statement, highlighting "compelling evidence" that it was failing to deliver value for money. "I have never signed off a PFI contract as Chancellor and I can confirm today that I never will," he said. "We will honour existing contracts. But the days of the public sector being a pushover must end."

However, given that 50% of the government's current infrastructure pipeline is expected to be privately funded, he added: "I remain committed to the use of public-private partnership where it delivers value for the taxpayer and genuinely transfers risk to the private sector."

Smarter ticketing

Paper rail tickets will soon be consigned to history following the launch by Transport for the North (TFN) of its new smartcards project. Working in partnership with Northern and TransPennine Express, the scheme will see the upgrade of station ticket offices across the North in readiness for a move to smartcards and eventually embrace the use of contactless, capped payments right across the bus, tram and rail network. "The launch of the smartcard project is a vital first step in the delivery of an even more ambitious, integrated smart travel system for the whole of the North," said TFN Programme Director Alastair Richards. "We hope it is well received by customers and sets the standard for future smart innovations."

Highways England rolls out new smart motorway alliance

Six private sector partners are being sought by Highways England to form its new Smart Motorway Alliance which, over the next 10 years, will roll out a multi-billion pound programme to transform management of the UK strategic road network. The Alliance is part of the company's new Routes to Market procurement approach, and will seek three on-site delivery partners, two digitally enabled design partners and one production management partner to help Highways England to find innovative ways to

improve delivery efficiency and reduce disruption to road users. "We want a step change away from traditional thinking and more towards creating value," says Highways England's Chief Executive, Jim O'Sullivan. Turn to page 10, where we speak to Jim O'Sullivan about his plans for the Highways England network.

York Central scheme set for Spring 2019 start

York City Council is expected to give the go ahead for a vast £60 million York Central regeneration scheme. The scheme, due to start in Spring 2019, should deliver 6,500 jobs, 2,500 homes, 100,000m² of new commercial floor space and add £1.16 billion GVA to the local economy. The project has been assisted by One Public Estate (OPE), the Local Government Association's partnership with the Cabinet Office, which covered the cost of initial viability works and helped form the vital Partnership between the Council, Network Rail and Homes England to drive forward the scheme. The brownfield site lies between the A19 and A59 road corridors to the west of the city's railway station. Currently contained by operational rail lines, it provides a unique opportunity for housing and economic growth in the centre of York. We speak to OPE Director Brian Reynolds on page 6 of this issue.

Crossrail faces new delays and £2bn cost hike

An independent review of London's £15bn Crossrail project by KPMG has highlighted that the likely capital cost of the delays to the project,



as announced in August, could be between £1.6bn and £2bn. New project chief executive Mark Wild also confirmed that the revised Autumn 2019 opening date could no longer be committed to. Mayor of London Sadiq Khan has nominated Tony Meggs, Chief Executive of the Treasury's Infrastructure and Projects Authority (IPA), to take over as Crossrail Chairman and oversee the final stages of delivering the project. This follows Terry Morgan's resignation after five years in the role in December. "I haven't hidden my anger and frustration about the Crossrail project being delayed. This has a knock-on consequence of significant additional cost to the project," said Khan. "It has been increasingly clear that the previous Crossrail Ltd leadership painted a far too optimistic picture of the project's status."

Station designs for new HS2 stations are revealed

The High Speed 2 project has revealed designs for the new Curzon Street station in Birmingham (above), which is expected to open with seven high speed platforms in 2026, as the first new intercity station built in Britain

since the 19th century. As a major new public transport interchange for the region, it will also help deliver longer term development and growth proposals for the area around the station, including new homes, commercial space and jobs. "Curzon Street station will put Birmingham at the heart of Britain's new high speed network and enhance the rail connectivity for the city, whilst Interchange provides a once in a life time opportunity to help drive the growth of the region," said Andy Street, Mayor of the West Midlands.

Lower Thames Crossing to press ahead

Highways England is consulting local stakeholders on its new plans for the Lower Thames Crossing, a major new road linking Kent and Essex via the biggest road tunnel ever constructed in the UK. This will double road capacity across the Thames and halve northbound journey times across the congested Dartford Crossing. The multi-billion-pound project will no longer be part funded by the private sector, but is considered vital to the network's future. With twin 4km long tunnels, it is expected to attract 27 million drivers and reduce the number of vehicles using the Dartford crossing by 22%.



THE PUBLIC ESTATE

“WE CHALLENGE DEPARTMENTS AND PUSH THEM TO SEE IF THE LAND THEY ARE CONSIDERING FOR RELEASE IS AS MUCH AS THEY REALLY COULD.”

One Public Estate was created five years ago to help councils unlock public land to create new homes and social value. Here, we speak to Brian Reynolds, the programme’s director.

One Public Estate (OPE), the partnership between the Cabinet Office and the Local Government Association (LGA), is charged with providing support and funding to councils as they wrestle with the tricky challenge of unlocking public land, while maximising economic growth and capital receipts.

The relentless drive for public sector efficiency means that every central government department is now increasingly tasked with reviewing its property portfolio so as to create new opportunities from the underused assets, reduce overall running costs and ultimately to generate much needed funds to reinvest in services.

There are big opportunities. For example, the Department of Health and Social Care (DHSC) is looking to raise £3.3bn in capital receipts from unused property, the Ministry of Defence (MOD) plans to dispose of 91 of its unused sites by 2040, and the Department for Work and Pensions (DWP) is currently reviewing its 800 building portfolio with a view to selling “not fit for purpose” sites within the next five years.

The latest Government Estate Strategy was published in July and sets out ambitious new plans to support this vast release of public land. It challenges departments to make way for at least 160,000 homes and generate £5bn of capital by 2020.

The One Public Estates programme was launched in 2013 specifically to help broker these tricky deals.

“Our remit is essentially to help central and local government to work together. To deliver better efficiencies

across capital receipts and reduced running costs; create local economic growth, in particular new housing; and provide more integrated, customer focussed services,” explains OPE Director Brian Reynolds.

He points out that when the first two pilot schemes kicked off in 2012, the post-recession austerity drive meant focus was very much on generating efficiencies across the public estate. However, he adds that, by 2013, when they launched officially with 12 full partner areas, it had become clear that the key outcome needed to be economic growth and helping cash-strapped local authorities to leverage the vast public land asset to drive greater social value for their communities.

Five years later, the OPE has over 400 projects on the go and works with 319 councils in 76 partnerships. The numbers so far are impressive, with £145m raised through disposal of property, running costs cut by £23m, 5,700 jobs created and land released for over 2,900 homes. By 2020, projects are targeted to deliver a whopping £615m in capital receipts, cut running costs by £158m, create 44,000 jobs and release land for 25,000 homes.

Reynolds’ small OPE team is divided between the Local Government Association and Cabinet Office, brokering deals around local authorities and across Whitehall. Five regional offices also ensure that they have a local presence to support councils on the ground.

“We try to speed up the release of land from Whitehall; we challenge departments and push them to see if

the land they are considering for release is as much as they really could," he says.

The MOD, for example, is the largest land owner in the country with around 1.9% of the UK's total surface area. While they are releasing huge packages of land, there are still hundreds of hectares that they could release, says Reynolds. Similarly, across the NHS, many of the big hospital trusts operate on just 20-30% of their total land footprint. The rest is open space, redundant nurses' homes and car parks – land that sits in the heart of the valuable urban landscape.

"Our view is to push them hard to make that land available," says Reynolds, rejecting criticism that it is 'selling the family silver'. "We put it differently. It's about making better use of the assets – remember that most of this land is not publicly accessible and so is not actually used. People say that we are selling the family silver, but the reality is that much of it is rather tarnished and some of it isn't actually silver anyway!"

One of OPE's key roles is to help broker the differences between public sector land owners such as the MOD and the NHS – who are challenged to maximise capital receipts from the land they sell – and the local authorities, whose role is to build and support communities.

It is an area which, Reynolds says, OPE has been working hardest on but is still struggling most with.

"The impact of Treasury requiring maximum sales values sometimes hinders getting the best use of the land," he says. "If there is one thing that we have learned over the last 30 years it is that a big site should not be plastered with one tenure – whether that tenure is social housing or housing for sale."

For example, OPE is currently brokering a deal at a former RAF base on which the MOD want to maximise receipts by building 3,000 homes. However, the local authority, concerned about the scale of the development and the transport implications, wants instead to build fewer homes and

expand local business to create high-tech jobs.

Conversely, he says, there are schemes where the MOD plans to release land to build, say, 3,000 homes but the local authority wants to build five times that number so as to justify the investment in schools and transport infrastructure needed to support that new community.

"PEOPLE SAY THAT WE ARE SELLING THE FAMILY SILVER, BUT THE REALITY IS THAT MUCH OF IT IS RATHER TARNISHED AND SOME OF IT ISN'T ACTUALLY SILVER ANYWAY!"

"We recognise the importance of capital receipts – it helps to deliver transformation in the public sector. But so too is getting other government agendas, such as affordable homes, delivered," he says. "We work to help dispose of land more appropriately and work with local authorities when they say they have a better use for a particular bit of land."

The recent Government Estate Strategy, released in July 2018, supports this ambition. Its goal is to transform how the publicly owned built environment and myriad land assets are managed, by placing this vast resource at the heart of future social policies, economic plans and public services.

The strategy is, he says, helping to drive this agenda by exercising more control over department land releases – both in pace and scale, and by trying to address the issue of building in social values to the land, not just seeking the biggest capital receipt.

An example of this is OPE's five-site pilot, in which NHS land in London is being used to create homes for NHS staff, with properties likely to be retained in a quasi-public deal, either by the NHS Trust or by a housing association.

Along with providing resources to help broker deals, OPE also provides local authorities with grants of up to £500k to assist with the cost of masterplanning and other costs associated with challenging development opportunities. To date, £48m has been distributed, and the recently announced new tranche of funding will give another £15m to help local authority partnerships develop difficult sites.

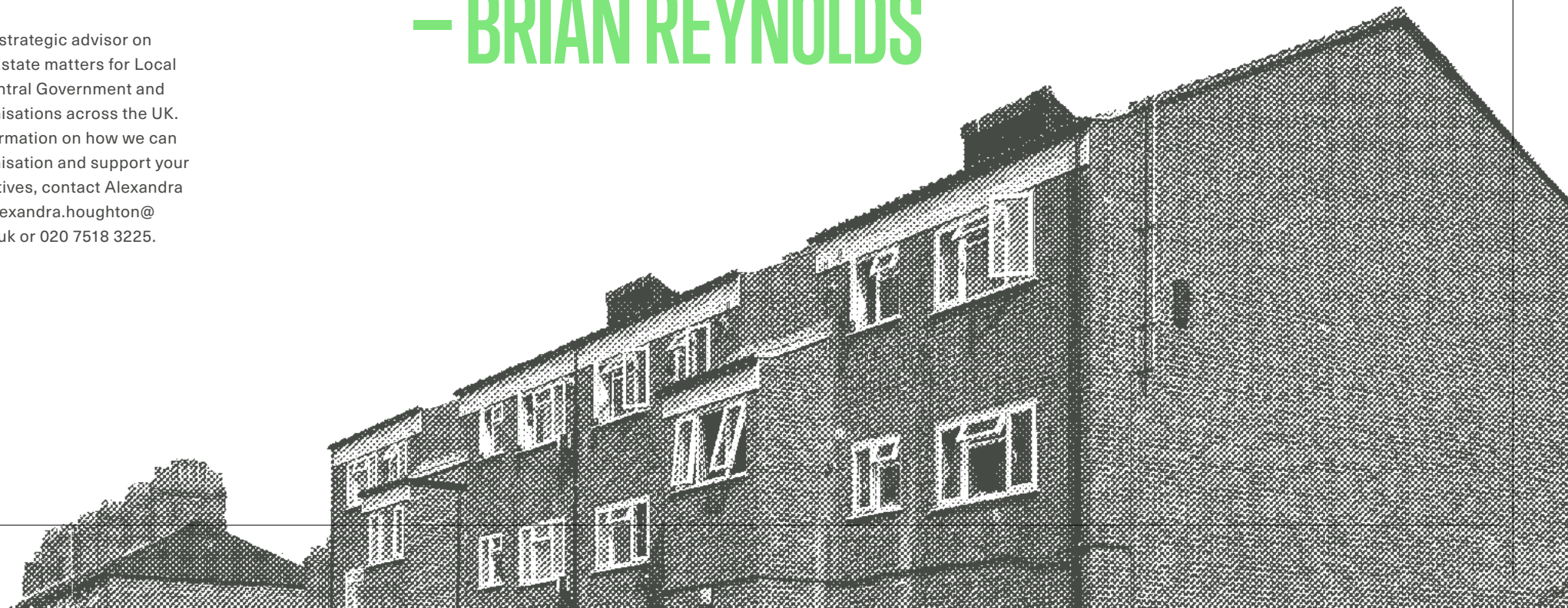
The York Central redevelopment, which recently won planning consent after five years of planning work, is, says Reynolds, a great example of a very complex project, requiring huge public and private sector collaboration, which would have been very risky for the local authority to take on alone.

"Doing a masterplan on that scale is expensive. Local authorities have to think quite hard about whether they can make that investment and so, in the case of York Central, OPE stepping in to pick up the bill went a long way."

Carter Jonas is strategic advisor on all One Public Estate matters for Local Authorities, Central Government and blue light organisations across the UK. For further information on how we can help your organisation and support your strategic objectives, contact Alexandra Houghton on alexandra.houghton@carterjonas.co.uk or 020 7518 3225.

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– BRIAN REYNOLDS



Preparing England's highways for a *digital future*

Carter Jonas speaks to Jim O'Sullivan, Chief Executive of Highways England, about his ambitious £25.3bn plans for the network.

In his October Autumn Statement, Chancellor of the Exchequer Philip Hammond pledged to deliver the largest ever strategic roads investment package as part of a plan to put world-class infrastructure at the heart of the UK's industrial strategy.

For Highways England, the government owned company responsible for operating, maintaining and improving England's motorways and major A roads, this pledge translates into a funding commitment of £25.3bn for the second Road Investment Strategy (RIS2) over the five year period between 2020 and 2025.

Without question it is a hike in ambition compared to RIS1, Highways England's first Road Investment Strategy, which committed a more modest £15.2bn investment between 2015 and 2020. But, in return, it has pledged to go beyond simply meeting the nation's transport needs and to start to tackle wider priorities of rebalancing the economy, supporting the development of new housing, safeguarding the environment and preparing the network for a digital future.

"The final content of the work package has still got to be worked out in terms of which schemes will be built, but RIS2 stabilises our maintenance funding, creates a package of funding for the building and repair of major structures, and allows us to continue our smart motorways programme," explains Jim O'Sullivan, chief executive of Highways England and the architect of the deal.

"We are futureproofing the network by moving the smart motorway programme away from the construction of individual schemes that address congestion towards the creation of a connected spine for the country," he adds, highlighting that embedding technology into the network via smart motorways is key to creating a road network ready to drive the future. "That means joining up the smart network, because at the moment

we are well connected around major cities but not in between them."

The smart motorway programme is clearly central to the future of the nation's strategic road network. Having started in 2006 on the M42 in the West Midlands, as a way to increase capacity through temporary use of the hard shoulder for traffic during peak flows, the programme is now being rolled out across the entire network as a key part of Highways England's vision for digitally managed highways, where connected autonomous vehicles (CAVs) are the norm.

"We are building a network that is ready for electric vehicles (EVs) and connected autonomous vehicles," he explains, pointing out that new technology is already being installed in Highways England control rooms, cables are being laid across the network and they are experimenting with 4G and 5G in preparation. "In the not so distant future, the vision is for connected vehicles to be able to join the network, and receive information for the entire length of time that they are with our network so that they leave having had the best possible journey."

This move to increase focus on creating a smart network is just the latest major transformation for the organisation since it morphed from the Highways Agency into the independent-minded, government-owned company Highways England in 2015. Becoming an informed client which understands and has the capability to manage its assets has been the priority and has seen over 1,000 staff join the organisation to insource many of the critical management activities.

"We should understand the asset, we should understand what the asset does, and we should understand

the maintenance it needs," says O'Sullivan. "We didn't in the past so we have now insourced the staff that organise and do those inspections and maintenance.

"RIS1 has been successful but the question now is what the next step is and how do we start to take the learning from one scheme to the next scheme," he says. "We have got to move towards being an informed buyer in everything we do – and that applies to technology as much as it applies to concrete, steel, and asphalt."

This move started in November, when Highways England announced its new Routes to Market procurement strategy and the £8.7bn Regional Delivery Partnership programme that will develop, design and construct highway projects across England from 2019 through to 2024. This will see the organisation embark on deep collaboration and long-term relationships with a series of new Delivery Integration Partners, in an attempt to boost delivery effectiveness and efficiency.

O'Sullivan explains that contracts will no longer be awarded on price but will examine in detail how the last job was delivered. Key questions will be asked around safety performance, about being a good neighbour in the local community and, of course, about the impact on motorists driving through the work. The goal will be to find the lessons learnt and understand how they will be incorporated by the team into the next job.

"Collaboration relies on relationships, but how do you build relationships when every time you come to the end of a project the team is disbanded and everyone is scattered to the four winds?" he says.

Meanwhile, the Autumn Statement also killed off the future use of the private finance initiative as a procurement tool for public infrastructure – a tool which has been used and developed extensively on the highways network over the last two decades. And with Highways England gearing up to find bidders for the £5bn Lower Thames Crossing – a new three-

lane dual carriageway and 3.8km tunnel between the M2 near Rochester and the M25 in Essex – and the £1.3bn A303 tunnel under Stonehenge, questions remain around what happens next.

O'Sullivan said he remains 100% convinced that these projects will go ahead, pointing out that they are critical to the regions and communities that they serve and so "will be adequately and appropriately funded" by the government – not least as the government has made a commitment to 2026 and 2027 delivery dates for the two schemes.

"The PF2 framework is gone and it will take the government a period of time to put a replacement in place – if they can find a way to deliver value from private finance," he says, adding that that as only a small proportion of the total roads portfolio was to be privately financed, the impact would not, in reality, be that great. "It is for the Treasury to determine how these things are financed. They will find a way."

"It would be good if, by 2025, people truly valued the strategic road network as a national asset and started to have a true understanding of the contribution that it makes to the UK," he says, but points out that there is still a long way to go in terms of cementing highways into the heart of the nation. "In RIS2 we also have to start to think about and prepare for RIS3. It takes about eight years from route announcement, through designing and building a big scheme, to opening for traffic so any work we do today will not be completed until 2026 – and that is definitely RIS3 territory."

Carter Jonas manages property, enquiries, sales and estates for Highways England across its national portfolio, which includes over 900 assets valued at over £100m.

In addition to the estate management team, we also undertake acquisitions and disposals as well as providing landlord and tenant, professional advisory and treasury services on behalf of the portfolio.

"We have got to move towards being an informed buyer in everything we do."

"We are building a network that is ready for electric vehicles and connected autonomous vehicles."



GOOGLING INFRASTRUCTURE

Technology giant Google has built a global empire based on innovative mass market products to exploit location data and information. Google's Geospatial Technologist Ed Parsons explains how their customer focussed approach to technology will transform the way we design, construct and operate the infrastructure that forms the basis of modern life.

"The future is about using infrastructure more efficiently by embracing ambient location technology to provide information about where things are."

Technology solutions are set to transform infrastructure. How can Google help?

Exploiting information is where organisations like Google are focussed and our interest is always from the user's perspective. In the infrastructure sector, we look at how to help create and operate assets more efficiently by making better use of that information. We are not going to be able to just keep building new infrastructure, so we have to use technology to make better use of what we already have.

How will you do that?

Customer focus is where we can get the maximum impact from the use of digital technologies. That means providing information that is targeted at passenger need – whether a commuter, a rail passenger or someone using a new smart motorway. The impact that technology makes on each customer is the most important part – for example, being able to predict that delaying a commute by 10 minutes will save 15 minutes creates a big impact.

What is your vision for the future of infrastructure?

The future is about using infrastructure more efficiently by embracing ambient location technology to provide information about where things are. Travel will be more on-demand, autonomous vehicles will bring about a different model of vehicle ownership, less time will be spent commuting with more working from home, and drones

and autonomous white vans will deliver point to point. Many more products and services will be based on information. Businesses such as Uber and Deliveroo have emerged as on-demand living is embraced in the same way that manufacturing has embraced just in time delivery. Shopping was once a weekly activity – now it arrives on-demand.

Will fears over data privacy hinder ambient location services?

We work hard to ensure that people are aware of when their location is being shared, who it's being shared with and for what purpose. People can then make the conscious decision to share or not. Absolutely there are times when it may not be appropriate and that is fine. In most cases, the power of ambient data is not about knowing where the individual is but knowing about where the crowd is. If you are looking at traffic delay, it is important to know that there are drivers on the road, not who they are.

How does Google see its future role in infrastructure?

We focus on people, not on the big infrastructure. So, when you hand over a digital model of a new building, we have to ask how the property owner actually makes use of that data, and this is something that we are looking at ourselves as an owner. We have lots of new office development, both in London and in California and, when we get that shiny new digital engineering model for our buildings, we ask whether we can actually make best use of it; we are still working it out.

How does Google approach the infrastructure market?

If we can identify a customer need – something that is annoying or causing a problem – then we can usually find a market and generate a revenue from it. But you have to be ruthless about identifying and measuring how successful you are at solving that problem. If, ultimately, it turns out that the problem wasn't as big as you thought, then we stop doing it and move onto something else.

What can infrastructure learn from Google's approach to business?

One of the things we talk about a lot in Google is scaling solution; how quickly you can build up from a small user base to potentially millions of users. In comparison, the infrastructure sector is still a bit of a craft industry. Every building is slightly different; every door is not quite the same as the previous one. Infrastructure cannot continue to be the craft; you get efficiency from taking a manufacturing approach. At Google, we measure everything and are ruthless if a new product doesn't meet customer need. Of course, it is easy to say that if you are writing code; not so easy if you are building a bridge. But, if you are going to fail, fail small and fail frequently.

What tech changes are getting you excited?

In our new campus in the States, we will have areas where people are able to live above the office. It is a radical departure from how we typically design business parks but it is much more efficient and means that people don't do so much commuting, and we don't have to build huge car parks. People don't mind living above the office.

Will autonomous vehicles be with us soon?

Technically we could probably do it now – it's just a question of whether society is ready for it. I think that everyone believes autonomous vehicles will be safer and more efficient. The technology is closer than you think. I have spent time wandering around Silicon Valley and maybe one in 20 cars is autonomous. It still feels quite bizarre – the technology requires society to adapt.

Where can we look for evidence of success?

Nowhere has the silver bullet, but cities in the Far East such as Tokyo and Singapore are ahead because they have always been very densely populated. It is early days for everyone.

“The impact that technology makes on each customer is the most important part – for example, being able to predict that delaying a commute by 10 minutes will save 15 minutes.”

What is Carter Jonas' vision for a digitally enabled infrastructure future? Andy Williams, Partner and Head of Geospatial at Carter Jonas, sets out his view.

Does Carter Jonas agree with Ed's view?

Broadly yes, we agree that ambient data trends can really highlight persistent bottlenecks experienced across transport, communications, water or energy networks, and help to develop the business case that we need to drive the evolution of our infrastructure assets. But we do think work will be needed to boost the value of data at the individual property level. While anonymising data by aggregating at post code or district level is vital to maintain privacy, it does not allow us to answer some of the crucial questions that drive proposals for new residential development, such as the number of hidden households that exist across regions.

How do you describe Carter Jonas' role in this changing business environment?

Despite the rise in automation and artificial intelligence, we actually see the role for expertise growing as infrastructure embraces the Internet of Things and big data. Securing land for infrastructure projects has always been a critical element of the programme and will become increasingly so as political and environmental pressures

on land use intensify. As this squeeze continues, property cost estimates are set to replace construction costs as the key element of project affordability. Our role – of selecting and utilising objective and relevant geospatial, social and economic data and applying it to the real world – will make Carter Jonas professionals core to the future viability of infrastructure projects.

But surely algorithms will automate much of this work?

Certainly we are looking at automated valuations now, and the use of technologies such as blockchain as near term capability developments. The data environment in the UK is slightly behind countries like Denmark, but efforts from the Geospatial Commission should help commoditise property and take the sting out of the conveyancing process. Ed referred to infrastructure as a craft industry, gaining consent for a wind farm will never be a manufactured product or automated process. Similarly, there is an intensely human element to agreeing a price and determining if a farm business is still viable with a railway running through it.

So are you developing the role of digital technology in the infrastructure sector?

We are already up and running with our hybrid model that combines property people with 'proptech'. Our in-house business analysts dovetail information and processes with the client's needs, and are backed up by our own GIS developers and database administrators. We have been doing niche analytics for several years, answering complex questions such as 'what is the demand for high end assisted living in Chelsea?' or 'where is the best place for a new railway depot?'

What is your vision for digitally enabled infrastructure future?

Building Information Modelling and Planning Information Modelling enable us to break down scale and thematic barriers and so use data and information to our clients' advantage like never before. The smart city of the future will, for example, not only know when a building is at the end of its economic life but will also know what societal needs are best served by that space in the future. My vision is that Carter Jonas will be there using technology and skilled professionals to join the dots and navigate to the best solutions.

TAKING THE HOLISTIC VIEW OF INFRASTRUCTURE

Mark Talbot and David Sandbrook are the newest Partners to join Carter Jonas' growing Infrastructures business, focussed respectively on driving the Telecoms and Minerals & Waste Management streams. Yet both also understand the value to clients of breaking down silos to offer an integrated service across all sectors of infrastructure land management.

The UK government's commitment to infrastructure investment continues. Its £600bn+ National Infrastructure Plan investment pipeline was underlined as a key driver for economic growth across the national economy in the Chancellor's latest Autumn Statement, which saw the National Productivity Investment Fund climb from £31bn to £37bn.

As such, the nation ploughs on with mega projects such as the £50bn+ High Speed 2, commitment to a £36bn five-year spending plan for Network Rail from 2019, and a planned investment package for Highways England worth £28.8bn for 2020-25. Meanwhile, despite the demise of private investment initiative (PFI), private investment continues to flow into water, energy, ports and airports via projects such as Thames Water's £5bn Tideway Tunnel, EDF's £20bn Hinkley Point nuclear power station and the £14bn third runway at Heathrow.

Growth in the Carter Jonas Infrastructures team is therefore common sense, according to Partners Mark Talbot, Head of Telecoms, and David Sandbrook, Head of Minerals & Waste Management, the two latest additions to the team. This expansion, they agree, underlines the firm's commitment to being at the heart of delivering the infrastructure that is vital to securing the nation's post Brexit economic future.

But it also signifies a commitment to developing a more integrated and holistic approach to infrastructure delivery. As the National Infrastructure Commission's recent needs assessment report pointed out, it is a sector ripe for change to tackle the "lack of long term infrastructure strategy, siloed decision making in infrastructure sectors, fragile political consensus and short termism".

"The government has made a commitment to investing in infrastructure, but we need to hold their feet to the fire and ensure that this commitment is seen through," explains Talbot. "In particular, we need to look at infrastructure from a holistic perspective, as the sectors are all interlinked and technology permeates all. When people talk about smart cities, such an approach is crucial."

The infrastructure world, he says, is evolving rapidly, yet efficient investment remains vital if the UK is to develop economically post-Brexit. A more integrated view of assets and an appreciation of how large infrastructure projects can generate wider social value is crucial. As a truly multidisciplinary firm operating across all of the different sectors of infrastructure, Carter Jonas, he says, is well placed to provide that so-called cradle to grave solution for clients.

"If you speak to people about infrastructure, they tend to think of the harder areas such as road and rail," Talbot adds. "But you have to make sure that the water, power and communications systems are linked into it. You have to move from a silo mentality and the government needs to take the lead to assist – this investment is required for the whole country."

David Sandbrook, Carter Jonas' Head of Minerals & Waste Management agrees, pointing out that the Infrastructures team is uniquely placed to consult across the asset lifecycle.

"We can bring that holistic view and advise at both a strategic and a practical level," says Sandbrook. "You can't build a new road without mineral resources, and you can't have a growing infrastructure sector without a responsible mineral extraction market."

"We need to look at infrastructure from a holistic perspective, as the sectors are all interlinked and technology permeates all."

For example, he says, you can't talk about the development of infrastructure without looking at land and resources issues, particularly as we increasingly try to retrofit infrastructure into our mature built environment. Whether its urban infrastructure development or broader road and rail schemes, there is a clear link to be made between property services and infrastructure delivery.

"Also, when infrastructure is constructed, it leads to opportunities for redevelopment – releasing latent property value and playing to the skills that we have in the firm," he says. "We are very much at the forefront of dealing with property issues and managing the wider technical issues around compulsory purchase, compensation and wider land and mineral use; it's one of our key strengths."

Fundamentally, this approach should, they explain, also help to meet the challenge of making the infrastructure sector more attractive to the next generation. "We are trying recruit the brightest and the best and we have an opportunity to build a strong and diverse team – that, for us, is such an important element for the future," says Sandbrook.

**NAME:**

Mark Talbot

JOB TITLE:

Partner, Head of Telecommunications

QUALIFICATIONS:

Chartered Surveyor FRICS and chair of the RICS Telecommunications Board since 2008. "The RICS charter is all about representing the public interest and providing appropriate guidance for professionals, not least around the Digital Economy Act 2017, the new ground rules by which telecoms companies can acquire land for infrastructure."

CAREER:

Joined Carter Jonas in September 2018, having spent 23 years with telecommunication infrastructure owner Arqiva, where he led the digital roll out of mobile and broadcast, the digital switchover and fibre programmes nationwide.

LOCATION:

Winchester, but lives in Bournemouth on the south coast – which he accepts isn't entirely sensible for someone with a national role – "but you can usually guarantee some sunshine and you are close to the beach and the forest."

"The government has made a commitment to investing in infrastructure but we need to hold their feet to the fire and ensure that this commitment is seen through."

HOME LIFE:

Married with two grown up daughters – one doing a PhD in BioChemistry, the other training to be an Actuary.

LIFE OUTSIDE WORK:

Enjoys relaxing at home and going for walks with his wife and dogs.

BEST BIT ABOUT THE JOB:

"I enjoy what I do – it always gives me a buzz and, from a technology point of view, it's always dynamic and requires intellectual input."

FAVOURITE PIECE OF TELECOMS INFRASTRUCTURE:

Emley Moor in Kirklees, West Yorkshire – at 330m, it is the tallest freestanding structure in the UK, and the 24th tallest tower in the world.

WHY WOULD SOMEONE JOIN YOUR TEAM?

"The telecoms world is a massively exciting area. In the next five to ten years, the world and the way that we do things is going to change dramatically, as our reliance on technology increases. At Carter Jonas, we work to enable the delivery of that technology and so help to secure the benefits that it brings socially and economically."

ABOUT THE CARTER JONAS TELECOMS BUSINESS

The range and scale of the telecoms sector is not fully understood, says Talbot, highlighting that it covers the infrastructure and technology behind broadcast, mobile, fixed line and satellite communications, data exchange and telephone.

"I am constantly scanning the horizon for the next big thing" he says. "At Carter Jonas, we are able to provide strategic advice around the overall infrastructure, working with both landlords and tenants, as well as parties that know land, or are technology led."

Telecoms infrastructure is becoming the fourth utility, he adds; access to fast digital communication is now seen as a human right, and is certainly key to driving economic growth and as a social enabler.

The priority challenges for his team include preparation for 5G networks which are coming down the road but, more fundamentally, it is about helping the industry and clients to meet the challenges of new regulation, such as the 2017 Electronic Communication Code. "The technologists are perhaps light years ahead of us, but everything touches real estate, so we have to ensure that technology is where it needs to be, he explains. "We are here to give good professional advice to help deploy the technology. Building out the fibre network across the UK is the next critical step."

NAME:

David Sandbrook

JOB TITLE:

Partner, Head of Minerals & Waste Management

QUALIFICATIONS:

Chartered Surveyor FRICS, RICS Registered Valuer, MRTPI, FIQ, MCIWM. Member of RICS Governing Council as the land and resources strategy representative, board member of RICS East Midland region and a member of the RICS Land and Resources Global Board. "I am one of the architects for the new land and resources APC (Assessment of Professional Competence) pathway. RICS has to promote its usefulness to the public and be seen to set the standards for land management and ensure those standards are met."

CAREER:

Joined Carter Jonas in October 2018 after 14 years at multidisciplinary SLR Consulting, where he was a UK director. Prior to this he was at Voaden Sandbrook, and a Partner at commercial property agency GVA.

LOCATION:

Birmingham, but hot-desks across the UK. Lives in Ashbourne, Derbyshire

HOME LIFE:

Married with two boys – both of whom are pursuing careers in property.

LIFE OUTSIDE WORK:

Outdoorsman, mountaineer and, for the last six years, on call 24/7 as an operational member of the Derby Mountain Rescue team. "I have turned up for client meetings unshaven, unshowered and in my mountain gear, but with the buzz that I have just helped save someone's life."

BEST BIT ABOUT THE JOB:

"The development of waste management infrastructure affects us all so is a great opportunity to make a real contribution to the development of communities."

FAVOURITE MINERALS OR WASTE INFRASTRUCTURE:

"A lot of people say they have never been to a quarry – but the chances are they have. I have worked on the development of the Eden Project, Thorpe Park and Eton Rowing Lake for example – all great projects that turn mineral sites into new public amenities."

WHY WOULD SOMEONE JOIN YOUR TEAM AT CARTER JONAS?

"Minerals are the bedrock of our economy and we cannot survive without them. Carter Jonas has a growing team dealing with this challenge as part of a wider infrastructure team. Rather than just giving niche advice in the operational phase of a project, we can help a client right through the lifecycle of their property portfolios."

ABOUT THE CARTER JONAS MINERALS & WASTE MANAGEMENT BUSINESS

The team is expanding its specialist valuation and estates management and planning advice to minerals and waste management companies and is increasingly looking to provide these specialist skills to infrastructure providers based on its successful work for the HS2 project.

The market for our mineral services continues to grow and expand in range. Alongside traditional stone quarrying for aggregates, our projects include brick and concrete production.

A number of new industries are also developing; these include polyhalide mines, creating fertiliser

products, and reopening tin, gold and other rare metal extraction sites to drive the UK's technology sector. Carter Jonas' team works to ensure that companies maintain a responsible attitude to exploiting these resources, and that they work with communities throughout the process.

"Minerals are the bedrock of our economy and we cannot survive without them."

"One of the things that we are keen to do is make sure that the public makes the link between provision of mineral and the use of minerals. Houses made from brick, roads and railways built using aggregates and concrete and even toothpaste made with limestone from Derbyshire. No one wants a quarry or waste site next to them or to see a telecoms mast next to their property, but they will want a secure and serviced home and to safely dispose of their waste."

From a waste perspective, the challenge is dealing with a more sophisticated market, with infrastructure ranging from waste transfer stations that recycle and sort, to a range of more complex sites such as in-vessel composting, anaerobic digestion and big energy from waste plants.

"We see ourselves operating in a broader way than the other, more niche, consulting engineers," he says. "If you are putting in a motorway or railway, can you also put in other services alongside? If you are dealing with waste, can you generate electricity from it? A vast amount of new infrastructure is needed and we see a huge role for us in finding new sites and helping firms with their funding and feedstock issues."

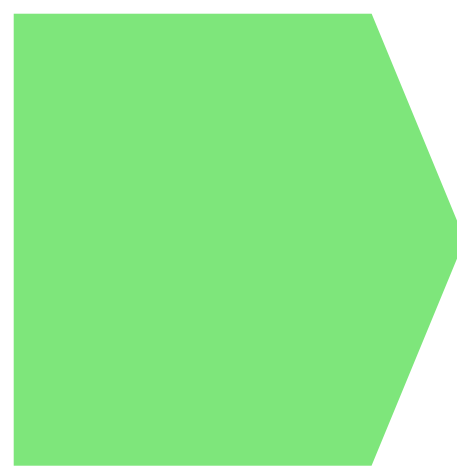


▶ PLUG IN

GREEN K AND

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UP



The shift towards electric vehicles is gaining traction in the UK, yet, in reality, an underdeveloped charging network is holding us back. We look into a new government-backed competition that is set to reverse this, by challenging industry to find creative designs and technologies to spearhead a new generation of low-cost, scalable charging solutions.

Last summer, the UK government set out an ambitious plan to radically update and electrify the nation's road vehicle fleet. The goal of the so-called 'Road to Zero Strategy' is for at least 50% of new car sales and 40% of new vans to be powered by ultra-low emission engines by 2030.

The strategy builds on an existing commitment to invest £1.5bn in ultra-low emission vehicles by 2020 in what it describes as setting the stage "for the biggest technology advancement to hit UK roads since the invention of the combustion engine." This transition to electric vehicles will, it says, "put the UK at the forefront of a global revolution in motoring."

As we saw in September, when Theresa May announced a £106m fund for research and development into green vehicles and battery technology, it's usually the cars that steal the headlines. However, for the strategy to succeed, investment in the charging network is crucial.

This is why we also saw the government's Office for Low Emission Vehicles (OLEV) step forward with the launch of a £400m Charging Infrastructure Investment Fund to accelerate the roll-out of charging infrastructure. Along with other measures to increase availability of charging points, the Electric Vehicle Homecharge Scheme also gives electric vehicle owners £500 towards the cost of installing home charge points.

The inability of some electric vehicle (EV) owners and users, particularly in cities, to charge their vehicles at home or on the road is a major reason that EVs still only make up around 2% of UK sales. Better planning, accessibility and integration of the plug-in network is needed to boost the nation's ability to charge their vehicles if we are to accelerate the transition.

Hence the strategy's inclusion of a new £40m programme to help develop and trial innovative, low cost wireless and on-street charging technology with two competitions launched by Innovate UK and OLEV. These, the government hopes, will kick-start the sustainable

development of a much needed recharging network.

"The key driver of the two competitions is to increase the uptake of electric vehicles," explains Marco Landi, who leads Innovate UK's Electric Vehicles Charging Infrastructure programme. "But the goal is to create new business opportunities. We are looking for solutions that work and that are economically sustainable so that the learning from this programme can be deployed on a wider scale."

The two competitions, each with £20m of research funding on offer, have different goals. The first is focussed on the consumer market and seeks commercially sustainable ideas to increase the number of EV recharging points in public spaces. By making these charging points available, the expectation is that private car owners without off-street parking will be more able to switch from petrol or diesel to an EV.

"More than 75% of private EVs are charged at home, yet only a small percentage of drivers in cities has access to off-street parking and home charging – just 40% in London," says Landi. "If we can find ways to install charge points that are more integrated with the city landscape, more dependable or usable, then we should be able to drive up the use of EVs."

But charging points shouldn't only be installed in public areas, says Charles Hardcastle, head of Energy at Carter Jonas. "Businesses should be actively seeking to future-proof their property to secure the patronage of EV owning customers, whether they provide workspace, retail, leisure or visitor attractions."

The second competition is aimed at the commercial electric vehicle market and, again, is looking to accelerate the switch to electric power for vehicles such as taxis and small delivery vans with wireless charging systems that can be used on the go.

"If you are a business user that relies on the current fixed charging infrastructure then recharging is a problem that can cause business disruption," says Landi – a taxi or

delivery driver having to stop for 40 minutes in an eight hour shift has a major impact on productivity.

"Development of wireless charging will make it much easier to charge throughout the working day," he adds, explaining that the competition is seeking innovative technology-based ideas that will, for example, enable taxis to recharge while queuing at ranks or delivery vans to recharge while loading.

Both competitions are split into two phases, starting in January with initial three-month feasibility studies for which successful teams are offered grants worth between £75,000 and £120,000. 16 consortia have been shortlisted in this first phase for the public spaces EV charging competition and another nine for the wireless EV charging competition.

Based on the outcome of these feasibility studies, the teams will then be invited to apply to take part in the 18 month demonstrator phase, starting in September 2019, for which the bulk of the £20m grant is divvied up.

"IT'S A CHICKEN AND EGG PROBLEM. CAR MANUFACTURERS SEE POOR CHARGING INFRASTRUCTURE AS THE BOTTLENECK PREVENTING THEM DEPLOYING MASS MARKET EVS."

By the end of February 2021, all of the phase 2 demonstrator projects should be complete and should have identified and developed new business cases and approaches to accelerate investment in EV charging and so kick start more widespread production and adoption of EVs.

"It's a chicken and egg problem. Car manufacturers see poor charging infrastructure as the bottleneck preventing them deploying mass-market EVs," says Landi, pointing out that waiting lists for new EVs are often six months to a year. "On the other hand, the firms capable of rolling out charging infrastructure are waiting for more users before investing at scale."

Over the last year, there has been an increase in the number of developers actively looking to lease sites to host new public charging points; these tend to be either in retail and leisure locations to provide a 'top-up' charge while the driver is visiting a shop or café, or on larger scale on major road networks. "For these larger charging stations," adds Hardcastle, "land requirements can be up to an acre, and are likely to include provision for onsite amenities such as toilets and a café or shop."

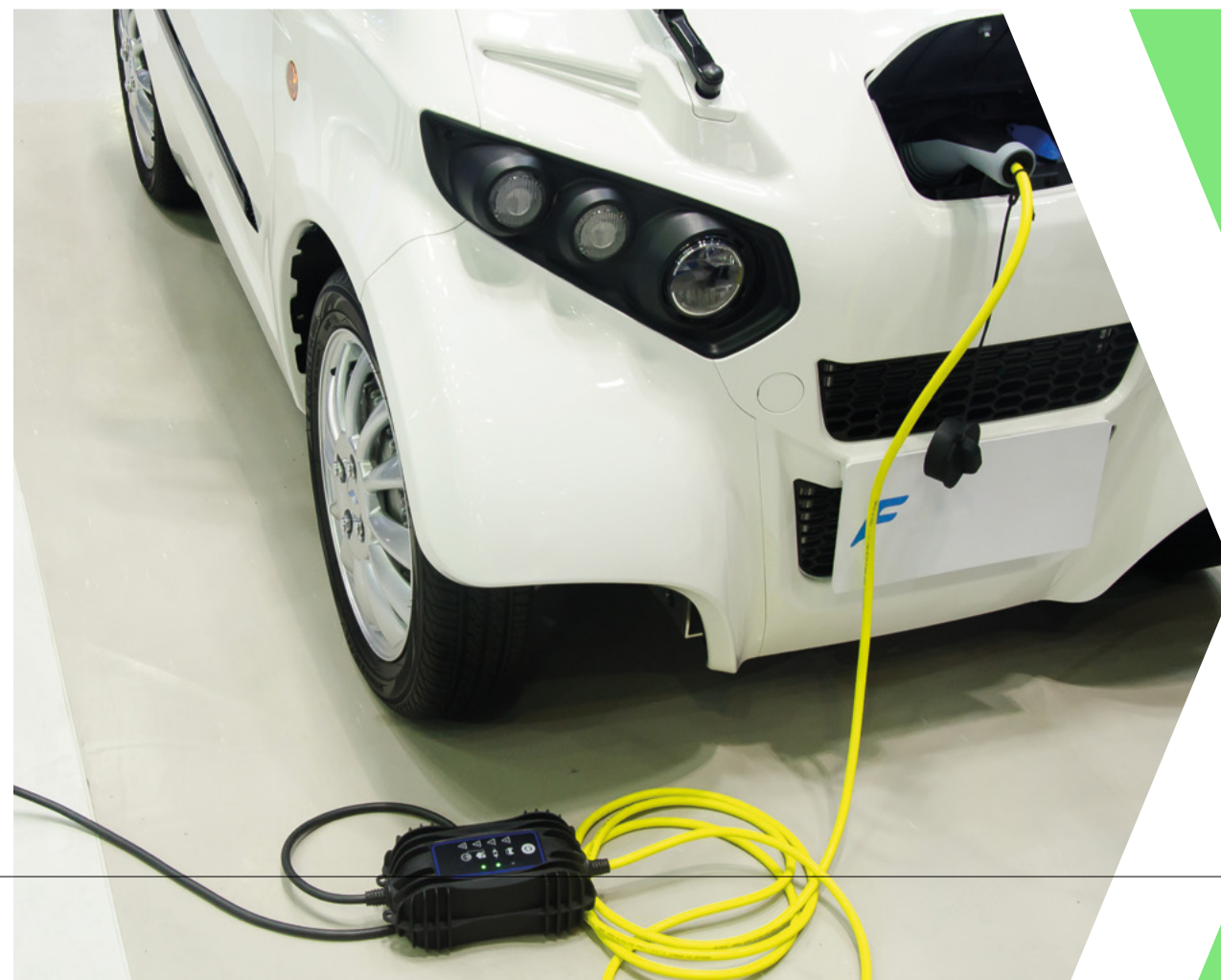
"We've already acted on behalf of both our landowner clients and energy developers to identify and develop sites for large scale charging stations, and this demand can only grow," continues Hardcastle.

Landi adds that there are, in fact, a high number of charge points available across the UK compared to the number of EVs on the road. The problem is that many are in places that people don't want to go, while others are overbooked.

Bids for the phase 1 feasibility studies are currently being assessed by panels of cross discipline experts and, following ministerial approval, winning teams will be announced in October.

"What I would like to see is for solutions to emerge that people are able to use," says Landi, strictly guarding the identity of the phase 1 winners. "Ultimately I expect the winning projects to provide EV users with more choice and lower operating costs."

For more information about installing electric vehicle charging points, contact Charles Hardcastle, Head of Energy at Carter Jonas, on 0113 2031 091 or charles.hardcastle@carterjonas.co.uk.



STRATEGY, COLLABORATION & REGIONAL DEVOLUTION

As Exchequer Secretary to the Treasury, Robert Jenrick MP is responsible for the effective delivery of infrastructure across the UK and driving the nation's economic growth and productivity through the UK Industrial Strategy.

He also heads up regional devolution, city deals, the Northern Powerhouse and Midlands Engine, as well as overseeing the work of both the National Infrastructure Commission and the Infrastructure and Projects Authority. Here, he outlines his vision for a collaborative, digital and increasingly manufactured infrastructure future, and explains why lessons from Crossrail's delivery will ensure that HS2 is completed on time and to budget.

WHY IS THE GOVERNMENT'S LATEST INDUSTRIAL STRATEGY SO IMPORTANT IN TERMS OF BUILDING MOMENTUM AROUND INFRASTRUCTURE DELIVERY?

Our Industrial Strategy shows that infrastructure delivery is at the very heart of our agenda. The strategy is all about boosting the job market and the productivity and earning power of people across the UK. It rightly lists infrastructure as one of the foundations of productivity.

WHAT ARE YOUR KEY AREAS OF FOCUS FOR PUBLIC SECTOR INFRASTRUCTURE INVESTMENT?

The public investment priorities for me are housing and transport, as energy and digital are mainly funded through private investment – although clearly the government plays an important role here too. Transport is where we have the biggest opportunities to relieve congestion to support growth and productivity. And, by enabling more house building, we can reduce pressure on prices, give people more choice and allow growth in key areas.

WHAT CAN THE GOVERNMENT DO TO ACCELERATE DELIVERY OF THE VITAL INFRASTRUCTURE NEEDED TO BOOST THE ECONOMY?

In December 2017, we unveiled our new Transforming Infrastructure Performance (TIP) programme to increase the productivity of infrastructure and government construction projects. TIP is a cross-government initiative that will, over the coming decade, improve the planning, delivery and operation of infrastructure. It explores how the government and industry can work together to benchmark performance, select the right projects, improve integrated planning and increase the uptake of technologies and innovations.

HOW CAN YOU ENCOURAGE GREATER COLLABORATION BETWEEN CENTRAL AND LOCAL GOVERNMENT AND BETWEEN THE PUBLIC AND PRIVATE SECTOR?

I think we have to be very flexible, working across all these boundaries. A good example is what we are doing in the Cambridge – Milton Keynes – Oxford corridor. In response to the National Infrastructure Commission report on how investment could unlock growth, we have set up a cross Whitehall programme board to drive this forward. This promotes greater collaboration both across government departments and with local partners to support the development of local transport and planning strategies. The private sector is also heavily involved, through Local Enterprise Partnerships.

WHAT PLANS DO YOU HAVE TO ACCELERATE DEVOLUTION OF INFRASTRUCTURE MANAGEMENT TO THE REGIONS?

To date, seven mayors have been elected across the country as part of devolution deals which transfer significant budgets and responsibility to their regions, for housing, planning and transport, among others. An eighth mayor is due to be elected in North of Tyne in 2019, pending local and parliamentary consent. The government continues to back further devolution, where appropriate, shifting power and funding to local areas to enable them to make strategic decisions about local priorities, and supporting this agenda with spending, via the Transforming Cities Fund.

HOW CAN BUSINESS INFLUENCE AND SUPPORT THE GOVERNMENT'S PRIORITIES FOR PUBLIC SPENDING ON INFRASTRUCTURE?

I don't expect automatic support for the government's infrastructure priorities, I know we need to make the case for it. I want an ongoing debate with businesses about the right mix of investment for the future of the UK. I want to hear business views, through roundtables with the Treasury ministerial team and through meetings and site visits. I would also encourage businesses to engage with the National Infrastructure Commission, who in turn advise government.

IN WHAT WAYS HAS THE NATIONAL INFRASTRUCTURE COMMISSION SUCCEEDED?

I think the Commission has made a very impressive start as a new institution. Since its inception just three years ago, it has delivered half a dozen in-depth studies and the first ever National Infrastructure Assessment (NIA). One of the Commission's strengths has been its consultation with experts from across business, academia and government. Another is its independence, and I expect some lively debates going forward!

WHAT CAN THE INFRASTRUCTURE SECTOR AND SUPPLY CHAIN DO TO BOOST ITS DELIVERY EFFICIENCY?

There are significant opportunities for greater innovation with, for example, off-site manufacturing and new technologies. We are already seeing evidence that the industry and supply chain are responding through increased collaboration on projects like the Thames Tideway Tunnel.

GIVEN THAT CROSSRAIL IS SET TO OPEN LATE AND OVER BUDGET AND THAT HS2 IS ALREADY OVERSPENT, WHAT CAN BE LEARNED FROM THESE PUBLIC PROJECT EXPERIENCES?

We are disappointed by the delay to the opening of the Crossrail central section and the Department for Transport must now work with Crossrail Ltd and Transport for London to understand the reasons for this delay. The Government is committed to delivering HS2 in a cost efficient way, and we are keeping a tough grip on costs – keeping the project on time and within its funding envelope in order to deliver the best value for taxpayers. Lessons must be learnt from the Crossrail experience and reflected in our approach to delivery across our major project portfolio, including HS2.

HOW CAN THE GOVERNMENT HELP TO MAKE INVESTMENT MORE ATTRACTIVE TO PRIVATE CAPITAL?

The National Infrastructure and Construction Pipeline sets out that around 50% of our £600bn projected pipeline over the 10 years will come from the private sector. I think that maintaining our stable regulatory system, and ensuring it continues to support innovation, will be key to attracting private capital. Existing mechanisms like the UK Guarantee Scheme also have an important role to play. Visibility of projects will continue to be significant, which is also set out in the National Infrastructure and Construction Pipeline.

WHAT IS THE TREASURY DOING TO ACCELERATE THE DEVELOPMENT OF INNOVATION AND INVESTMENT IN NEW DIGITAL TECHNOLOGIES AND MANUFACTURING PROCESSES IN INFRASTRUCTURE?

We will use the government's purchasing power to drive modern methods of construction so that Britain can lead the world in high-tech building. Five of the biggest spending departments have committed to a new presumption in favour of offsite construction by 2019, where it represents value for money. These are the Department for Transport, Ministry of Defence, Department for Health and Social Care, Department for Education and Ministry of Justice.

“ZERO EMISSIONS VEHICLES ARE THE MOST IMMEDIATE TRANSFORMATIVE TECHNOLOGY THAT WILL MAKE TRANSPORT CLEANER AND CHEAPER.”

WHAT, FOR YOU, ARE THE MOST EXCITING DEVELOPMENTS SET TO TRANSFORM INFRASTRUCTURE IN THE UK?

I personally think that zero emissions vehicles are the most immediate transformative technology that will make transport cleaner and cheaper. But I am also keen to see what happens in the energy space, in terms of renewables growth. Digital is key, and is an enabler to all the other networks, with, for example, smart motorways, smart signals and smart energy meters. Of course it is the pace of technological change that is driving all this – there is much to look forward to!

SHAPING FUTURE TALENT



Two years ago, the Carter Jonas Infrastructures team launched The Academy in response to growing demand for expertise following the commissioning of some large scale infrastructure projects.

It was originally intended as an internal training course to boost the knowledge of the Carter Jonas team on compulsory purchase matters, but it's been so successful that it is now offered to our clients – and the interactive format of the training means that it's been a great way to establish relationships both with other team members and with clients.

Here, we talk to some of those involved in The Academy, to find out more about why, for them, it's been such a success.



THE ACADEMY ARCHITECT

Paul Astbury, a Partner in the Carter Jonas Infrastructures team, explains the drivers behind development of The Academy and highlights its role, challenges and successes for the business and for staff.

WHAT IS YOUR ROLE AT CARTER JONAS?

I'm a Partner and lead the London Infrastructures team, specialising in compulsory purchase and land assembly

nationally. I am also the compulsory purchase technical lead for Carter Jonas on HS2, one of our major clients. Our team works across various sectors including rail, road, water, energy and mixed-use regeneration.

Land assembly and compulsory purchase are fundamental elements of delivering infrastructure for the UK, whether it's roads, rail, utilities, housing or urban regeneration. At the same time, it often requires people to relocate their homes and businesses to make way for vital infrastructure and this can have a major impact on their lives and wellbeing. It is essential to provide sound and well-balanced advice in order to achieve a fair and timely outcome.

WHY DID YOU SET UP THE ACADEMY?

Compulsory purchase is a specialist area that is increasingly in demand, but there has been a concern across the industry about a lack of truly informed advice. In response to such concerns, the RICS issued a new professional statement for compulsory purchase work last year, which I co-authored, and it set out minimum standards of conduct, including being able to demonstrate the requisite knowledge and understanding of compulsory purchase.

Our Infrastructures team has expanded exponentially over the last three years and we have a dedicated group of people at different levels of experience and seniority from different career backgrounds. We wanted to ensure that our teams were able to provide consistent market leading advice on land assembly and compulsory purchase, as well as an appreciation of related disciplines. In response to this, we set up an in-depth, comprehensive training course that enables our experienced team to impart their knowledge and experience on our graduates and surveyors. We called it The Academy.

WHAT DOES THE COURSE ENTAIL?

The format of The Academy course is quite ambitious and requires commitment from senior Partners as well as those attending the course, as it demands a day a week of intensive training over a period of several weeks.

The course focusses on building technical knowledge and expertise as well as expanding knowledge about other related disciplines. The aim is to inform colleagues in a variety of areas to understand the constraints and opportunities facing those working alongside them so that they can communicate and work together as effectively as possible.

The course also delivers 25 hours of formal Continued Professional Development (CPD) for RICS members. We stagger the course over a three-month period from November to January so that delegates can spread their CPD over two years and get the maximum benefit.

WHO WAS THE COURSE DESIGNED FOR?

We originally designed the course as in-house training for our graduate intake, but quickly found that there was demand from across the business and also from our clients, who felt that their staff would benefit from a good understanding of the technical aspects, common industry practice and practical real-world implementation of the work they were commissioning from us. This enabled more effective communication at both the requirements stage and the delivery stages, as well as essential relationship building. In the two years that The Academy has been running, around half of the delegates have been clients and the rest from the Carter Jonas team.



THE ACADEMY TEACHER

Simon Mole is one of the key Carter Jonas staff teaching at The Academy alongside his day job as a Partner. He explains why its such a valuable part of the business.

WHAT IS YOUR ROLE AT CARTER JONAS?

I'm a Partner and head up our Winchester Infrastructures team. I specialise in land assembly, compulsory purchase orders (CPO) and valuation across the country, and lead the delivery of our Network Rail contract on behalf of Carter Jonas. My team works on a

variety of major projects including new roads, railways, metro schemes, schools, pipelines and energy generation.

HOW MANY ATTENDED THE FIRST COURSE?

Our first course ran for a 16-week period from November 2017 and was a big success. We had over 35 'students' from a variety of backgrounds, from other Carter Jonas teams to client organisations.

HOW MANY ARE ON THIS YEAR'S COURSE?

I'm pleased to say that we have increased our numbers this year to over 45 and, again, included a range of staff and clients.

WHAT SORT OF PROFESSIONALS DOES THE COURSE ATTRACT?

The course appeals to people at all sorts of levels and stages in their careers. We do attract a lot of junior surveyors who have just started a career in surveying and are either working full time in land assembly and CPO, or who are interested in the subject. There are also other professionals who are looking for more knowledge and understanding of this complex area of property.

WHAT'S THE MOST SATISFYING THING ABOUT RUNNING THE COURSE?

I have made a career from land assembly and CPO – this stemmed from living and working in Kent during the construction of the Channel Tunnel Rail Link/HS1; I found myself lucky to be in the right place at the right time. The opportunities to get practical experience on CPO are limited, and the sheer complexity of the subject can deter a lot of younger surveyors. I try to explain some of the principles of CPO in a clear way by referring to real life situations that I have been involved with, and I hope this helps relate the subject on a more human level. I get satisfaction from passing some of my experiences on to others so that, when they find themselves in similar situations, they can put this into practice.

DO YOU PROMOTE CPO BEYOND CARTER JONAS?

We work with a number of universities and colleges to raise the profile of CPO as we want students to get an appreciation for what it is and the types of projects which rely on its use. For example, I taught a semester at the Royal Agricultural University on Compulsory Purchase and Compensation to their Year 3 Rural Land Management Students. This was the first time the University had a dedicated semester on CPO, which I think reflects the greater public awareness of the subject and high profile projects such as HS2 and Crossrail. We are also engaged with local schools trying to encourage A Level students to consider surveying as a career by giving them an insight to the 'average' day of a CPO surveyor.



THE ACADEMY GRADUATE

Emily Village was one of the first of the Carter Jonas Infrastructure team to benefit from The Academy. She explains how it has helped her career.

WHAT IS YOUR ROLE AT CARTER JONAS?

I'm a Graduate in the London Infrastructures team. My work is extremely varied and I'm lucky that I get to work with a diverse range of clients on a variety of projects. My work has included providing access and valuation advice for Network Rail, helping

Councils with their regeneration schemes, which is really exciting, and providing compulsory purchase and valuation advice to claimants. I have also been working on a large project with Southern Water, facilitating land access for water pipes across over 9,000 sites across the south of England.

WHEN DID YOU GRADUATE FROM THE COURSE?

I graduated from the course in March 2018 after starting with Carter Jonas in March 2017.

HOW HAS THE COURSE HELPED YOU OVER THE LAST YEAR?

Since joining Carter Jonas, I have thoroughly enjoyed the range of work. However, as compulsory purchase is quite a specialist area, there were some gaps in my knowledge. I am required to have detailed understanding, so attending The Academy allowed me to explore in more detail the topics that I deal with on a day to day basis. This has enabled me to have a greater comprehension of the compulsory purchase process, severance, injurious affection and blight. I believe this has benefited me greatly and I've noticed an increase in efficiency and improvement in my work.



THE ACADEMY STUDENT

Natasha Chick is currently studying at the Academy as part of her work with Carter Jonas.

WHAT IS YOUR ROLE AT CARTER JONAS?

I am employed as a Surveyor for Carter Jonas in the Infrastructures division, responsible for managing the South Eastern part of the Highways England portfolio. This is made up of parcels of land and residential and commercial properties, which are acquired by Highways England as part of a road scheme.

WHAT DO YOU FIND CHALLENGING ABOUT THIS WORK?

My role offers me the opportunity to deal with a large variety of management tasks. Over the past year, I have been particularly involved with managing properties that are acquired under blight, compulsory purchase or discretionary purchase – I ensure that they are managed effectively, in order to maximise income whilst they are being held in ownership.

WHY DID YOU WANT TO JOIN THE ACADEMY COURSE?

I believe everyone should always try to continue learning and improving their knowledge; irrespective of where they are in their career. I like to think of it as expanding my professional toolbox. The majority of property related undergraduate degree courses do not cover compulsory purchase in a great amount of detail – due to the nature of my client, and my role within the Infrastructures team, I wanted to ensure that I have a good understanding of the subject in order to be a more effective part of the team.

WHAT ARE YOU HOPING TO GET FROM THE COURSE?

I hope to expand my knowledge of the subject as a whole and, in particular, compensation and blight. I also think that it is important for us, as professionals, to learn about the intricacies of the legislation surrounding compulsory purchase and the valuation methods that are used for different scenarios.

About The Academy

FORMAT

- Part-time, alongside work, for up to three months
- Worth 25 hours CPD
- Series of structured tuition days – a mix of theory presentations and group sessions in which students solve practical scenario-based problems

SECTORS COVERED

- Rail
- Energy
- Electricity
- Water
- Gas
- Telecoms
- Minerals & Waste

SKILLS COVERED

- Compulsory purchase, including:
- Scheme promotion
 - Land assembly
 - Implementing powers
 - Blight
 - Compensation

To find out more contact Paul Astbury on paul.astbury@carterjonas.co.uk or call 020 7518 3328.

DIGITALISING INFRASTRUCTURE FOR INDUSTRY



The digital transformation of UK infrastructure is set to be accelerated by a new £72m government investment programme focussed on the development of technologies such as virtual and augmented reality, digital design and offsite manufacturing.

Compared to other UK industrial sectors such as finance, automotive, aerospace or retail, infrastructure remains resolutely at the bottom of the pack when it comes to embracing digital technologies and driving innovation into the processes of asset design, construction and operation.

The reality is that, for all the talk, energy and investment that has been ploughed into the adoption of technologies such as Building Information Modelling and the creation of digital twins to ease design and construction, the infrastructure sector remains rooted in its traditional ways and highly resistant to change.

All this is about to change with the long awaited £72m investment for the new Core Innovation Hub. As a key part of the government's Industrial Strategy and Construction Sector Deal announced back in November 2017, the Hub will at last start to help the industry to emulate the UK's manufacturing sector successes and embrace so-called Industry 4.0 ideas for a digital future.

"We have the opportunity to revolutionise construction in the UK and the Core Innovation Hub will help us build smarter, greener and more efficient buildings much faster and cheaper than we do now," said Business and Industry Minister Richard Harrington as he launched the initiative. "From the introduction of virtual reality to off-site manufacturing, our modern Industrial Strategy is helping the UK construction sector to develop new techniques and skills – modernising the sector and delivering the homes and buildings our nation needs."

At its heart, the new investment will enable infrastructure to partner with the manufacturing and digital sectors and so lead a revolution around the way crucial infrastructure is designed, delivered and operated. That means finding more efficient and cost-effective ways to work, and

preparing the sector for a digital-led, customer focussed future.

The new Core Innovation Hub will be delivered by the Transforming Construction Alliance, a cross UK collaboration between the Manufacturing Technology Centre (MTC), building research organisation BRE and Cambridge University's Centre for Digital Built Britain (CDBB).

Between them, this Alliance will support research and development in the vital digital and offsite manufacturing technologies needed to transform the sector, underpinning the development and use of technologies such as digital design, advanced manufacturing, robotics, drones and augmented and virtual reality.

"The Hub will at last start to help the industry to emulate the UK's manufacturing sector successes and embrace so-called Industry 4.0 ideas for a digital future."

"The Core Innovation Hub will provide a route to market for businesses and innovators who can help drive a more productive and sustainable built environment," explained Keith Waller, Programme Director for the Transforming Construction Alliance. "This is about more than just the technology – it is about moving beyond assessing value simply through the lens of cost, and embedding digital technology and manufacturing processes to ensure that whole life performance and better social, economic and environmental outcomes can be delivered."

Having spent the last decade working at the Treasury and most recently the Infrastructure and Project Authority, where he authored the recent Transforming Infrastructure Performance (TIP) report, Waller is well placed to lead the charge.

The TIP report set out a number of fundamental observations and solutions to the sector's current low productivity and highlighted the specific challenge and benefits of embracing smarter infrastructure:

- Technology and innovation offer a huge opportunity to unlock productivity improvement and performance gains
- A more widespread use of manufacturing in construction can tackle some of the major skills challenges in the construction sector
- Manufacturing provides an opportunity to spread the benefits of infrastructure investment
- Modern methods of construction can also have significant social benefits
- Technology and innovation have a key role to play in ensuring that we get the most out of our existing infrastructure
- Pockets of new technology use and innovation already exist, but the scale and pace of change is slow in the UK and abroad
- The government can be a driving force to address these challenges

“This is about more than just the technology – it is about moving beyond assessing value simply through the lens of cost.”

Through the new Core Innovation Hub and the drive from the Alliance,

the plan is to create an environment in which the infrastructure sector can start to collaborate and focus its innovation and research investment so as to tackle this challenge and elevate the whole industry.

The goal is to make the UK a world leader in the latest construction techniques and create new jobs along the way with modern methods of design and construction. This will also ensure that fewer workers are put into potentially hazardous environments and so make the sector more attractive to a more diverse workforce.

As such, the government describes it as a “once-in-a-generation opportunity to change and modernise” the infrastructure sector, pointing out that, while many of these techniques and technologies were already proven in other sectors, construction and infrastructure had some way to go before it was able to reap the benefits.

In particular, the Hub will be focusing on developing the incorporation of smart sensors and digital systems into buildings and infrastructure so as to gather data that will boost maintenance efficiency but also eventually enable the more effective planning of future developments in towns and cities.

In addition, work will help to mainstream the use of factory design and constructed components for construction. This need to develop and invest in new techniques and technologies for off-site manufacture is given an increased imperative by the fact that, in accordance with the government's 2017 Budget edict, all public expenditure on infrastructure “will adopt a presumption in favour of offsite construction” by 2019.

“Through the Industrial Strategy and the Core Innovation Hub, the UK will be able to seize this opportunity,” the government explains, “enabling us to master precision manufacturing, resulting in the delivery of better performing schools, hospitals and homes – to the benefit of businesses, public services and people.”

“The Core Innovation Hub will provide a route to market for businesses and innovators who can help drive a more productive and sustainable built environment.”

REGENERATION AT HIGH SPEED

The vast High Speed 2 project is set to spearhead a wave of vital new economy-driving development opportunities across the nation as the new railway opens between 2026 and 2033. Carter Jonas speaks to HS2 Commercial Development Director Tom Venner, who is responsible for bringing these opportunities to life.

With the exception perhaps of the project name, everything about the High Speed 2 (HS2) project is focussed on maximising the economic growth potential across the UK from this unprecedented £56bn multi-decade public investment to transform the UK's rail network.

So, headlines and debate continue to focus on the route, the design, and the engineering challenge of building a 555km high speed rail network – the first new main line north of London constructed in over a century – but the real prize for the nation is the local and regional transformation that this new infrastructure enables.

“We have a very clear mandate, which is to make the most of the opportunities that HS2 presents,” explains Tom Venner, HS2 Commercial Development Director. He highlights the well-used project strap line which defines HS2 as *a catalyst for growth across Britain*; as such, he adds, every piece of land, regardless of size, has value.

“The project from Birmingham to London is one of the biggest land acquisition programmes that has ever been undertaken in this country's history. It is incumbent on us to use that land effectively for the public good,” he adds. “A large part of my job is to realise that potential and to make sure that the way we design our stations and use our assets maximises that potential.”

The mammoth HS2 project will link the UK's major metropolitan areas together with a new high-speed track, carrying trains at up to 360km/hr. Phase 1 will see a new line constructed from Euston to Birmingham, opened by 2026, Phase 2a will link up to Crewe by 2027, and the final phase, 2b, extends the network to Manchester and Leeds, with services starting in 2033. HS2 services will also continue to existing stations such as Liverpool and Newcastle, improving journeys to eight

out of ten of the UK's largest cities.

The result of this £56bn investment is that the government will become major land owners as it constructs new stations and depots; this presents massive development opportunities.

Venner has been with the HS2 project for two years and, prior to that, spent his career in the private sector – most recently with Land Securities, delivering projects across London and strategic developments in the South East. As such, he is first to point out that life as a major public sector client, defining projects rather than delivering them, brings a raft of new challenges.

But they are challenges that Venner is absolutely up for. Not least as this project gives him the chance to set up and spearhead a unique property company with an unprecedented 20m sq ft pipeline of development opportunity across the UK.

“I still believe that I'm a developer, and to be a developer you have to be doing not talking,” he says. The scale and diversity of the opportunities created by this huge public infrastructure investment, he says, makes it a very exciting place to be

“THE PROJECT FROM BIRMINGHAM TO LONDON IS ONE OF THE BIGGEST LAND ACQUISITION PROGRAMMES THAT HAS EVER BEEN UNDERTAKEN IN THIS COUNTRY'S HISTORY.”





“STATIONS AREN'T JUST ABOUT GETTING ON A TRAIN – THEY ARE AN EXPERIENCE.”

and, with strong cross-party political backing, there is a clear agenda to get things done.

“The government machine is phenomenal – what can be achieved with high level political support is huge,” he explains. “A learning curve for me has been that you have to unpack some of the language – explain things in a way that allows politicians to make the important big decisions.”

The political decision to invest in better public transport, of course, adds commercial value to the land around the new infrastructure, as does the connectivity that HS2 provides between cities. However, the challenge for Venner’s team is to not only use that uplift in value to provide an economic return to the public purse, but also to maximise the development benefits of the arrival of the new railway for local communities.

It is fair to say that, despite the overwhelming House of Commons

support for the project when Phase 1 gained Royal Assent in 2017, not everyone in the UK was totally behind the scheme. As with all public infrastructure projects, the pressure is on to deliver to budget and to programme, and to demonstrate progress.

“Public scrutiny is right and welcome. We are doing this for public good but with public money,” he says. “While value generation is certainly now embedded in what we do, we are also focussed on working within a fixed budget – there is only a certain amount of money and we have to deliver a railway.”

“We have to remain embedded in the end user – that is very much what we think about now,” he says. “You also have to put resources where we get the biggest return – the government is investing £55.74bn into this railway and it wants to gain an economic and commercial return.”

Although, so far, only Phase 1 of the project has planning permission, Venner’s work is project-wide, from Leeds to London and everything in between. That means ensuring that every planned station and depot has its development proposal in place – whether it is residential, industrial or office-led – and that this is designed to create the greatest development return possible for the public purse.

“Every opportunity is different and one of the greatest lessons that I took away from my time at Land Securities was that every asset, regardless of its size or type, has to have a plan,” he says. “But it is also important to look at what the community already has. There is no need, for example, to put a big new retail offering in Birmingham as there is already fantastic shopping centre at Bullring and Grand Central. So the plan for Curzon Street has to be something else.”

Although HS2 is only allowed to acquire land that is essential for the construction and operation of the railway, Venner’s team must have a development plan for the land purchased and for the land and opportunities around.

The so-called ‘red line’ area defines the land along the route that is acquired for the purposes of building the railway or land which the state already owns. However, a wider ‘blue line’ area sets out the project’s areas of influence, in which the team works with local authorities and other stakeholders to identify development potential and to understand what HS2 has to do to effectively unlock those opportunities.

The bigger prize is this macro level ‘blue line’ economic development and growth. However, in order to enable this, the project has to collaborate with partners to make best use of land and assets within the red line.

Bringing these stakeholders together is a huge part of the role, not least because building a railway can be a hugely disruptive process

For Venner, that means first acknowledging this disruption, then listening intently to local views, before finally working hard to ensure that all HS2’s stations and assets give something back to the community.

“One thing that I have been impressed with is that every place we have landed has been massively optimistic about the opportunities HS2 brings,” he says. “Yes, it brings new rail infrastructure but more interestingly it provides an opportunity to link places, bring a large area of land into single government ownership, and in turn provide huge potential and flexibility about creating permeability.”

By making London only a 42 minute journey from Birmingham, and just over an hour to Manchester, the project will, he adds, create a genuine step change in the way that people plan

and live their lives. “The idea that a couple can live together with one working in Birmingham and the other in Manchester makes a fundamental difference to the way people think about where they live and work,” he says. “It massively affects how commercial real estate development works.”

Venner defines the opportunities in three tiers:

- **Tier 1** opportunities around HS2 stations – new homes and commercial development opportunities
- **Tier 2** opportunities around HS2 depots – secondary locations largely to be developed for industrial use
- **Tier 3** opportunities – utilising every piece of purchased land effectively

One of Venner’s first tasks when arriving at the project was to sort out the development proposition at Euston, which, with 54 acres of land in government ownership, presents one of London’s biggest transformation opportunities. His challenge was to turn an existing fragmented plan into an investment opportunity that the private sector could get behind.

After the Secretary of State ‘knocked heads together’, as Venner puts it, it became clear that close cooperation between HS2 and Network Rail – the two major land owners – would deliver a better outcome for both. A new joint proposition went to the market a year ago and Lendlease is now on board as the development partner, bringing expertise and capital to the project.

“What we have done at Euston makes us credible in the market, as we are now an investable proposition,” he says. “We have created a relationship with Network Rail that works at Euston and is one we can use to drive development at Curzon Street, Manchester Piccadilly and in Leeds.”

Compared to Euston, most of

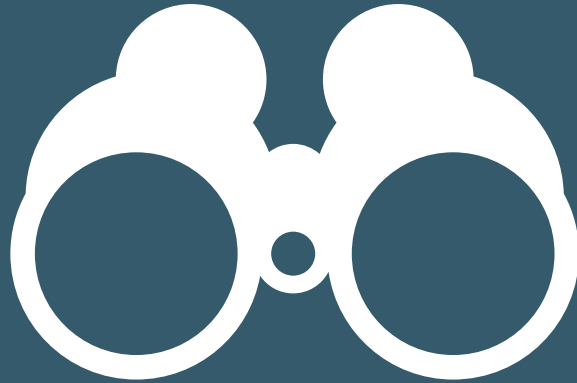
the other projects are much less complex. But few are simple given the scale of ambition and number of stakeholders. Big prizes on the horizon for Phase 1 include the huge Old Oak Common area just outside London and the Curzon Street station site in Birmingham.

Looking further ahead, Manchester has 3-4 million sq ft of prime development available around Piccadilly, and the arrival of HS2 in Leeds unlocks the south bank area, underpinning the aspiration to more than double the size of the city. As a proportion of the existing city size, the opportunities in the North are actually greater than those in London.

“Stations aren’t just about getting on a train – they are an experience. I would be kidding myself if I thought I knew what the retail market would be like in seven years, when our first stations open, but I do know that it will be about quality of experience and environment so that people say ‘wow!’ St Pancras did that and has created a destination, but it doesn’t really provide for the local community. So we want to add on another level – all our stations should be about the local community *and* be a destination.”

So with such a scale of ambition and investment, what could possibly go wrong!? Well, as a developer, the market conditions are never far from Venner’s mind – not least with Brexit and global trade wars impacting investor confidence.

“If I have a concern, it is that we pick the right time to transact – I don’t want to look back and say we could have held assets for another year and made more money,” he says. “It’s always a question of when and how much to invest. It’s public money after all and if we are going to get this right, we have to have a cohesive plan.”



AHOY

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