

Balfour Beatty

Seizing the day:

Positive change from
Lockdown for the
construction and
infrastructure industry

**Hinkley Point C Marine
and Tunneling project**



Foreword

There have been sweeping changes across the construction and infrastructure industry to allow it to respond to the impacts of COVID-19. It has been a steep learning curve for all of us, but we have risen to the challenge. We can be proud of our response as a sector. We have been forced to examine every element of how we operate and to completely reinvent the wheel in some areas, bringing in a number of radical changes – some of which were frankly overdue.

In some areas, the impossible has suddenly become not only possible, but normal. And this may be where the construction and infrastructure industry finds its silver lining. We do not know exactly where we will be months and years down the line, but now is the time to grasp the nettle and to examine which of the changes the sector should retain and build on so it is fit to face what the future holds. Some of these, for example, as we adopt new working patterns and approaches, will result in a welcome cultural shift, opening up door which have been closed to many people and helping to make the sector a more inclusive, diverse place.

It is time to pick ourselves up and dust ourselves off. We must be bold and resolute. We must keep the mindset of recent months which has allowed us to adapt with agility and constantly question old habits, with technology as the enabler. The mindset which will support us relentlessly moving forward to thrive in the new normal and ensure that we keep delivering for our customers, whatever the obstacles. That mindset will be the positive legacy on the lessons of lockdown, as we go on to outline in this paper.



Leo Quinn
Chief Executive

Key points and recommendations

- 1** The Government should consider establishing a body to oversee and drive through to delivery schemes which are prioritised as being in the national interest as part of the economic recovery. Schemes such as renewable energy, zero emission transport infrastructure and large-scale housing developments are controversial and can face years of delays.
- 2** Government and others should also bear in mind that, while new schemes can have long lead times, vital upgrades, renewal and maintenance of existing assets can be much quicker to implement because gaining approval for them is usually much less complicated. These schemes are just as successful at pump-priming local economies across the regions and local communities of the UK and often have supply chains already in place which can be quickly scaled up.
- 3** Those commissioning infrastructure and the industry itself must use this crisis, with its ongoing social distancing requirements to finally pave the way for the adoption, at scale of prefabricated, offsite, modular construction and other modern methods of construction (MMC). The Government and its agencies and arms-length bodies should all implement a presumption in favour of these approaches as a default, to accelerate change. The industry will only invest fully in these approaches if customers are committed to them.
- 4** The industry has the chance now to bring about lasting, positive change by modernising working practices across the sector. Measures should include remote working, flexible working patterns, and a greater commitment to staff working 3 or 4 days a week and to job sharing. Customers must ensure that there is enough flex in the way contracts are drafted to support different working styles, something which is not currently always the case.
- 5** To help the industry address its skills shortages, there is potential to attract, retrain and deploy highly skilled engineers from other harder hit sectors which will experience a slower recovery, for example, the aviation and automotive industries. Given that many of these people will come from industries which are more advanced in terms of automation, this would play to the construction industry's need to modernise.
- 6** Businesses across the sector must remain committed to apprenticeship and graduate programmes to ensure that the industry is in a position to recover and that it is resilient over the long-term, ideally committing to having 5% of their workforce in earn and learn positions (including apprentices, sponsored students and graduates on formalised training schemes) and joining the employer-led organisation The 5% Club . We must not retreat from our responsibility to young people.
- 7** Cooperation across the industry and close working with Government have increased as we all united against the common threat that is COVID-19. This very welcome wider understanding and cooperation is something we should build on as we move into the post-COVID-19 period through regular, open dialogue between a wide representation of the industry and Government.
- 8** Given budgetary pressures the public sector will be facing following COVID-19, there is likely to be a temptation to undo the baby steps which have been taken to move away from a focus on lowest-price in bids and to begin to drive costs back down to undeliverable levels. This approach is ultimately unsustainable and must be resisted by those commissioning infrastructure. The hidden cost is that it damages the sector over the long-term and hampers its role as a job-creator.
- 9** To allow the sector to play its role in rebuilding the economy, the issue of risk must be addressed – both by the industry's key customers, and by the sector itself. Commissioners must stop driving down the price below what it costs to deliver schemes: driving down costs generally actually increases the final price.

Context

The COVID-19 pandemic has caused untold human suffering and demanded significant personal sacrifices. It has ravaged the global economy and had a profound impact on society. The construction and infrastructure industry has been left reeling, as have other sectors across the economy. Even where sites were able to remain open, new restrictions put in place to stem the spread of COVID-19 and keep our workforce safe, in addition to supply chain disruptions, have made them significantly less productive. This inevitably slows schemes down and adds cost. Work on other sites came to an abrupt standstill when they closed, resulting in cashflow problems for many firms. Bids and planning decisions have been delayed, which will lead to a hiatus in work in the medium-term. The sector has already been tested to the limit but, because the industry is closely linked to the strength of the economy but is post-cyclical, the full picture of COVID-19's impact on the sector may take some time to emerge.



Digital technologies underpin successful project delivery

The sector has had to change. Those businesses that adapt and embrace those changes while anticipating others, may have the best chance of minimising permanent damage and are likely to come out of the crisis on the strongest footing.

Balfour Beatty has undertaken its own strategic review of how it will strengthen its own business and hit the ground running as we emerge from COVID-19. This paper considers the implications for the sector as a whole.

A sustainable recovery?



Restrictions imposed around the world in response to COVID-19 have led to a temporary, yet significant, drop in CO2 emissions and air pollution as factories and transport slowed down and energy demand dropped. The UK's CO2 emissions fell by 31%, a similar figure to other countries around the globe. Closing down the economy through lockdowns is not a long-term solution for reducing emissions. It is also short-lived, as emissions begin to creep back up again as soon as restrictions are lifted. But it shows us what might be possible, and being able to step back and reflect also gives us the chance to consider bold measures which might put the economy on the path to sustained, positive change and enable the UK to meet its net zero emissions by 2050 target if we employ the 'build back better' principle.

There have been calls for the post-Covid-19 recovery strategy to focus on infrastructure which will help ensure a 'sustainable' recovery in its broadest sense. For example, the Committee on Climate Change, the Government's advisory body on climate change, has written a letter to the Prime Minister stating that:



Actions towards net-zero emissions and to limit the damages from climate change will help rebuild the UK with a stronger economy and increased resilience.



Using any COVID-19 stimulus package to set the economy on a path to decarbonisation will require a focus on areas such as renewable energy, zero emission transport infrastructure and 'green' buildings. However, renewable energy and public transport schemes are controversial and face many obstacles before they become a reality. One of the priorities for stimulus packages is generally that they are at a point where they could be accelerated to get 'spades in the ground' as soon as possible, to get liquidity and employment and training opportunities flowing, and infrastructure which can be used as soon as possible. A feature of schemes which are prioritised and approved at a national level remains that they can get bogged down in months or years of bureaucracy at a local level.

To achieve both objectives: that of a sustainable recovery and of a package which helps to quickly boost the economy, new measures may need to be considered to sweep away blockages to infrastructure schemes which have been prioritised as being in the national interest as part of the recovery.

This pause may also be a good point at which to consider how other schemes can be built with a significantly lowered carbon footprint. Reducing carbon emissions in the built environment is the least expensive way of lessening the adverse impacts of climate change, but there are also significant opportunities to reduce carbon, materials and waste if infrastructure is designed and built better, taking a whole-life approach. A more carbon-responsible approach can also help to reduce costs for all parties.

We should use this as an opportunity to take an honest look at how infrastructure is commissioned and constructed and how this can be improved across the piece.

> The silos different parts of the industry operate must be broken down, so designers do not recommend approaches which reduce capital carbon generated during construction, but significantly increase operational and user carbon over the lifetime of the asset.

> Those commissioning infrastructure must be bold and ambitious and be ready for them to be challenged if they want to achieve meaningful carbon reductions. They also hold the purse strings. This means that they can accelerate the industry's decarbonisation through measures such as: prequalifying contractors on the basis of their carbon performance; their ability to engage their supply chain; and their ability to drive and adopt innovation. It is the customer who must ensure an environment that allows and encourages the most carbon-efficient approaches and materials. Although they can be supported by the contractor, it is also the customer who ensures that the entire life cycle of a building – including maintenance and decommissioning - is taken into account from the outset.

> We must do more to make sure we are taking the large number of companies which make up the construction supply chain with us.

Finally, the fact that many businesses in the sector have no serious plan for decarbonising their operations cannot be overlooked. Now is the time to rectify this.

Delivering infrastructure digitally



The restrictions brought in to stem the spread of COVID-19 have led to an exponential increase in uptake of digital platforms and solutions, from the use of Microsoft Teams and Zoom to ensure effective communication and collaboration, to accelerated use of digital rehearsals and virtual reality walkthroughs to plan schemes around social distancing measures and to allow customers to 'visit' sites. Across the sector, businesses have innovated at speed, supported by technology, with changes such as Balfour Beatty's use of MSite's contactless construction site access control system to reduce delays and physical contact at site access points, while maintaining security.

Never has there been a greater incentive for those commissioning infrastructure and those constructing it to be bold and consider new approaches rather than the tried-and-tested, especially considering further possible flare-ups of COVID-19. Surely this crisis, with its ongoing social distancing requirements which limit the number of people onsite, will finally pave the way for the adoption, at scale of prefabricated, offsite, modular construction and other modern methods of construction (MMC). The reduced number of people required on site and in factories at the point of manufacture and the reduced project schedules are a key incentive to accelerate adoption across the piece.

To ensure that the benefits of these approaches can be maximised, we must accelerate the pace of change in the following key areas:

a. Ensure scale and the continuity of pipeline flow

We recognize that much of the responsibility for changing the industry and investing in new technology must lie with the sector itself. However, the industry currently operates largely on the basis of individual projects in which the significant up-front costs of offsite manufacturing and investing in new, large factories and an upskilled workforce, cannot always be justified.

One way in which this could be accelerated is by working on a mechanism which would reward the industry for cross-company collaboration on key technology developments, rather than each company focussing its resources on its own innovation.

b. Improve the standardisation of components and design

While methods such as modular and offsite construction are already established in certain markets, for example, student housing and hotel construction, in other areas there has been poor take-up of the technique, meaning that the benefits are being missed. More must be done to tackle this and to help procurers understand that offsite manufacture requires repeatability. Prioritising the standardisation of designs and components will incentivise increased use of offsite manufacture and help deliver significant benefits to the public sector.

c. Harness learnings from other sectors and countries

Balfour Beatty believes that there is much that the construction industry and those procuring infrastructure can learn from the manufacturing industry. For example, the aerospace and automotive sectors use manufacturing techniques that go all the way from digital models through to components in a factory. This is not yet how modular and offsite manufacturing works in the UK in the construction sector.

Offsite in construction is often understood as constructing elements at a different location – sometimes using the same techniques and processes, as would be used onsite. This means that some of the key benefits of efficiency are being missed. This must be addressed if we are to harness the "lean" principles that have made such impressive productivity gains and carbon reductions in the manufacturing sector. However, changing the way the industry operates requires investment, which in turn relies on a reliable pipeline. Furthermore, with others such as Japan and Scandinavian countries being more advanced in using modular techniques, it may be that there is more we can learn from them.



Virtual reality walkthroughs help with planning works and for stakeholders to 'visit' site.

New ways of working, skills shortages and the talent pipeline

Much has already been written about how the experience of many people across the economy having seamlessly moved to working remotely and flexibly, following Government advice to work from home if possible, is likely to finally help the country embrace different working patterns more wholeheartedly. This is true of the construction and infrastructure industry also, for office-based staff. However, we believe that this should not be the end of the story. Businesses should show greater ambition than simply rolling out a standard 'work from home' policy, especially as there will be many staff working in roles which do not allow home-working. Instead, we believe that this offers the industry the change to bring about lasting, positive change.

Balfour Beatty has already announced that it is developing an industry-leading package of measures called A Great Place to Work which has been created with the input of our workforce via our My Contribution employee engagement channel.

The package includes increased support for flexible ways of working – not just working from home, but more support for different work patterns, job sharing and agile working. And it allows staff to buy back more annual leave to support those who have caring responsibilities or who just want more time off. Other businesses are likely to follow. Our hope is that these measures will help give our employees more flexibility

to help balance their lives at home and at work, and to reduce the carbon emissions we generate through business travel, for example. We are aiming not only for staff retention, but also to increase diversity and help with addressing skills shortages as we move forward, as the measures will better support a wider range of working styles and capabilities.

Driving these changes across the industry will result in a seismic cultural shift, opening the sector up to people who otherwise might not consider working in it or who may be prevented from doing so by rigid work patterns or hard-to-navigate physical spaces. It will help us more quickly break down barriers to enable more people with disabilities, working parents and others, to join the industry and thrive. But to ensure that this can happen, customers must ensure that there is enough flex in the way contracts are drafted to support diverse working patterns, something which is not currently the case as contracts often specify that workers must be on site or in a specific office.



Over time, these moves, combined with ongoing social distancing, will lead businesses to rethink how they use office spaces. As people begin to slowly return to offices, we know that they will be different spaces from the ones we left in March, and that the people will be different, having lived through a pandemic and maybe having a new perspective on hygiene, wellness or coming to work while ill. A range of new measures will be needed to ensure that staff are kept safe and that they feel confident in returning to the office. The focus on hygiene and on safely keeping people apart will increase and office capacity will probably be lower than it was. Working hours may be staggered to keep the pressure on transport systems as low as possible and to reduce the number of people in the office at the same time, or people may alternate days.

Over the medium to long term, as more people are supported in working remotely, it is likely that it will result in many businesses having smaller, more flexible office footprints, especially in city centres. This is not something Balfour Beatty has decided yet for its own business. But were moves like this to become the norm across the piece it could be a significant boost for local economies as people work from home more.

And, if people are able to work from anywhere rather than being tied to city centre offices, it could allow more staff to move away from overheated, expensive cities to somewhere where they might be able to access a better quality of life, bigger garden or be closer to family.

Remaining office spaces could be refocussed to allow for more collaborative working, rather than cramming in as many desks as possible, with more meeting rooms and other collaborative spaces.

In other areas of the skills agenda, it is encouraging that the majority of apprentices have been retained across the sector, with full use having been made of the Government's Job Retention Scheme. For example, according to the latest data, under 1.5% of CITB contracted apprentices have been made redundant due to COVID-19. This understanding of the importance of maintaining the talent pipeline is extremely welcome. There was a significant increase in NEETs (Young People Not in Education, Employment or Training) following the 2007-2009 financial crisis. This is a situation we all have a responsibility to try to avoid, especially given the importance of ensuring the flow of talent into the sector. We must ensure that the industry is in a position to recover and that it is resilient over the long-term. More than that – we must not retreat from our responsibility to young people.

Balfour Beatty remains fully committed to its apprenticeship and graduate schemes – we hope that this remains the case for others across the sector once the Coronavirus Job Retention Scheme comes to an end.

To help the industry address its skills shortages, there is potential to attract, retrain and deploy highly skilled engineers from other harder hit sectors which will experience a slower recovery, for example, the aviation and automotive industries. Given that many of these people will come from industries which are more advanced in terms of automation, this would play to the construction industry's need to modernise. However, capitalising on this will require some flexibility in terms of considering which skills are transferable and which areas will require some retraining. This could offer some of the people who are likely to be made redundant in those sectors the opportunity of a new, fulfilling career, while also meeting the construction and infrastructure industry's needs and helping to insulate the wider economy from some of the impacts of COVID-19.

M4 Digital Innovation Hub

Changes in commissioning priorities



The Government announced the acceleration of a number of road, rail and construction schemes in April and May 2020, partly to take advantage of reduced demand on transport infrastructure allowing schemes to proceed more quickly, and partly to help stimulate the economy. Housing remains a priority, especially as many schemes were put on hold during the lockdown period and housing targets are unlikely to be met. Solutions are likely to be sought to accelerate some of the schemes in the pipeline to try and make up lost ground.

As we look to the next few months, those commissioning infrastructure may revisit capital investment decisions in the light of the 'new normal' and the likelihood that we may be coexisting with COVID-19 for some time:

- > Some schemes, such as Transport for London's (TfL) construction projects, have been placed under review due to budgetary pressures.
- > Key sectors, most notably aviation, have been badly hit by the pandemic and expansion plans and other capital expenditure for the UK's airports have been put on hold for the time being.
- > There may be an impact on the amount of student accommodation needed in the medium-term as universities move quickly to develop their virtual offer.
- > Schemes in the retail, leisure and hospitality sectors are likely to be reconsidered or redesigned, while investment in distribution centres, warehouses, factories may increase.

Looking longer term, COVID-19 has thrown into sharp relief the lack of resilience of some of our transport systems, especially the London Underground and trains and buses across the country, and the need to increase our capacity. The Government has made the bold decision to give HS2 Notice to Proceed. But more may need to be done to ensure that the country is in a strong position to cope should such a situation ever arise again.

The construction and infrastructure industry must adapt and evolve, quickly, to ensure it is anticipating these changes and ready to support customers in delivering their new requirements.

Government and others should also bear in mind that, while new schemes can have long lead times, vital upgrades, renewal and maintenance of existing assets can be much quicker to implement because gaining approval for them is usually much less complicated. These schemes are just as successful at pump-priming local economies across the regions and local communities of the UK and often have supply chains already in place which can be quickly scaled up.

In the UK, new infrastructure adds only 0.5% a year to the value of existing assets. And yet it is often given significantly more prominence than maintenance when annual budgets are set. Given the importance of our existing roads, railways, bridges and power stations, and the need to ensure that they are emitting as few carbon emissions as possible and are also resilient to the impacts of climate change, we believe that ongoing maintenance, with adequately resourced, ring-fenced funding, should be bumped up the priority list. It amounts to ensuring the safety of those using the assets and to protecting our investments by getting the maximum value from assets. It is also the best, most cost-effective way of doing so. Planned, funded maintenance programmes offer the best opportunity to develop and preserve the skilled workforce necessary to keep our infrastructure in peak condition, enabling the development of innovation, driving productivity and keeping costs down – there are few areas of life where prevention is not better, and cheaper, than cure.



The critical role of the construction and infrastructure industry

The pandemic has brought about a welcome shift in understanding about what we as a society need and rely on: from the roads, rail arteries and delivery drivers that get medical supplies to hospitals and food to supermarket shelves to the Wi-Fi and power supplies that have kept business working, the water in the taps which we haven't had to worry about – and the people which, largely unpraised, keep all of this going. This recognition has been why so many of the sector's workforce were granted 'key worker' status.

The construction and infrastructure industry's critical role was also underlined by the important role it played in constructing NHS field hospitals, for example. Balfour Beatty was proud to act as principal contractor on the construction of the NHS Louise Jordan in Glasgow and to help deliver a drive-through coronavirus testing facility for NHS and other essential care workers on its Midland Metropolitan University Hospital site, amongst other work. Much of the sector also continued to work on sites across the country, keeping unemployment down and the economy going, something which prompted the Business Secretary to thank the sector for making:



...a hugely valued and critical contribution to the resilience of our Nation.



Cooperation across the industry and close working with Government have also increased as we all united against the common threat that is COVID-19. This very welcome wider understanding and cooperation is something we should build on as we move into the post-COVID-19 period.

Moving beyond the immediate crisis, the sector will also play an important role in the recovery as the Government looks to fire up the economy. The construction and infrastructure industry is at the heart of the UK economy - an engine for skills and job creation nationwide and for exportable capability. It is investment in infrastructure that will help stimulate the economy after the pandemic, creating new jobs and driving the connectivity and growth that will reinvigorate local areas.



BIM Field 360

However, given budgetary pressures the public sector will be facing following COVID-19, there is likely to be a temptation to undo the baby steps which have been taken to move away from a focus on lowest-price in bids and to begin to drive costs back down to undeliverable levels. This approach is ultimately unsustainable and must be resisted by those commissioning infrastructure. The hidden cost is that it damages the sector over the long-term and hampers its role as a job-creator.

To allow the sector to play its role in rebuilding the economy, the issue of risk must also be addressed – both by the industry's key customers, and by the sector itself. Risk is a critical element of every scheme and every tender. However a conspiracy of optimism means risk is underestimated - we believe by 3-5% of revenue. Contractors' appetite to take on jobs where they will make little or no margin, but shoulder most of the risk, was already dwindling before COVID-19 struck. Now, for the sector to return to its former strength, this issue must be tackled head-on.

A lot has been said and written about aggressive risk transfer since Carillion collapsed. Some of those commissioning infrastructure have taken big strides forward in how they hand out contracts. But too many still focus on driving the price down below what it costs to build schemes. So risk is mispriced, which means that projects become bogged down in costly disputes and drawn out legal battles that both sides lose. Perversely, obsessively driving down cost bumps up the final price.

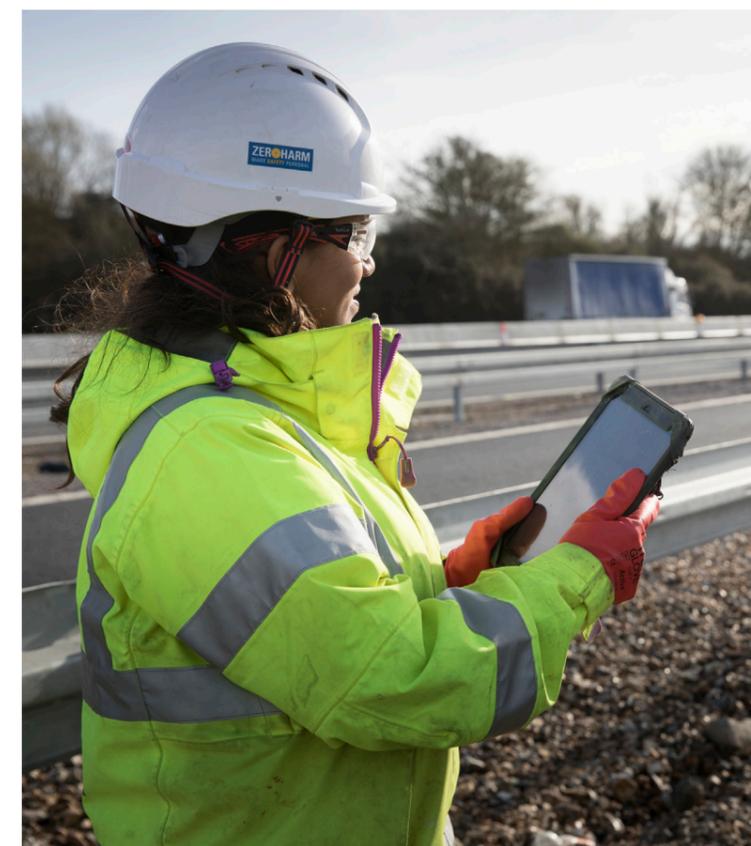
The impact of this approach on the construction and infrastructure industry goes beyond those individual, loss-making contracts. Banks have become more cautious about lending to the industry; the sector has been de-rated by investors, with a knock-on effect on the viability of some schemes. The uncomfortable truth is that the squeeze on the sector also comes at the expense of investment - in skills, training, services and innovation. And at the expense of the industry's global competitiveness.

The reason this matters is because these are the responsible contractors. The ones that invest in their workforces, in innovation, health and safety, in the local communities they work with. The ones that don't want to pass on the squeeze to deliver the undeliverable to the SMEs in their supply chains. The contractors – importantly - with the balance sheets that act as a safety net if something goes wrong: ultimately, if large-scale schemes get into financial difficulty, the burden is passed back to the taxpayer.

The brunt of the risk should be borne by the party best able to control and manage it. Now is the time to address this so the sector can continue to underpin the UK's economy and play its part in rebooting the economy.

Conclusion

The COVID-19 crisis has had a significant impact on the construction and infrastructure industry. But it has also given us an opportunity to reflect. It will act as a burning platform to accelerate the rate of change in the sector in some key areas. We must take this chance to strengthen and streamline the sector to enable it to emerge, phoenix-like from the ashes of COVID-19.



**M4 Junction 3 – 12
Smart Motorway Programme**

Balfour Beatty

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