consultancy engineering business environment

COMPREHENSIVE SPENDING REVIEW (CSR) REPRESENTATION

September 2020

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EXECUTIVE SUMMARY

This year has been a sharp reminder that our society and communities face huge challenges both anticipated (such as reaching Net Zero) and unexpected (COVID-19). As the Government prepares its Comprehensive Spending Review (CSR), and embarks upon an 'infrastructure revolution', it should prioritise using smart investment in infrastructure to improve three types of resilience:

- **Social resilience:** ensuring our built environment is equal to the changing needs and aspirations of our communities, and acts as a catalyst for 'levelling up'.
- **Climate resilience:** ensuring our built environment is no longer a cause of future climate change while being robust enough to deal with the unavoidable impacts of it.
- **Economic resilience**: Ensuring the infrastructure sector has the momentum to support jobs and economic activity across the UK.

Social resilience through the built environment

Communities need a built environment which is sensitive to how their needs and aspirations are changing while also creating places where they want to live their lives. Patterns of work, travel, education and healthcare are evolving, and we need to be able to create and adapt our infrastructure in a more flexible way to manage this. The CSR can facilitate this through:

- Bolstering the role of local authorities and LEPs as the architects of regeneration
- Creating a new local recovery investment vehicle, with the capability and financial resources to develop ambitious regeneration programmes, more effectively combining public and private investment to drive real regeneration in deprived parts of the country.
- Imaginative planning and design reforms which encourage flexible, multi-use local/social infrastructure as well as new housing
- A focus on reliable and affordable public transport that connects communities with employment

Climate resilience through the built environment

The 2020s are a make or break time for determining whether the UK can reach Net Zero by 2050. We must switch to building and retrofitting infrastructure to ensure it is compatible with a fully functioning zero emission economy. We also need to adapt our infrastructure networks and strengthen our flood defences so they are capable of withstanding the rigours of a changing climate. The CSR must kickstart these changes by:

- Resourcing and delivering funding models for net zero technologies such as CCS and hydrogen, as well as ensuring the electricity market delivers enough low carbon generation investment.
- Reforming planning and regulatory frameworks so that 'locking in' high carbon infrastructure becomes impossible.
- Delivering better regulatory and accreditation systems to create the robust environmental markets that will deliver the Government's 25 Year Environment Plan.
- Driving take up of the CIH value toolkit to structure routes to market to move away from 'lowest cost' towards a more rounded definition of value that incorporates environmental and social value.

Economic resilience through the built environment

The infrastructure sector employ over 10% of overall workforce across all parts of the UK and represent over 8% of GDP. It was hit hard in the early stages of the pandemic but has been able to rebound quicker than most sectors and has the potential for rapid growth in the short term. We need to facilitate this growth, while also making sure that the critical mass of blended skills (engineers, planners, project managers) that give the sector its impact, is retained. To make this happen the CSR needs to:

- Bolster business confidence to retain staff by updating and republishing the IPA procurement pipeline on a 6 monthly basis
- Create a stable pipeline of work for the wider construction sector by investing in accelerating the design and development phases of projects
- Begin a comprehensive update of the NPSs to reflect Net Zero and the ambitions of the National Infrastructure Strategy to provide the medium term policy and regulatory certainty necessary to attract private investment in infrastructure.

Ministry of Housing, Communities & Local Government

Social resilience

COVID-19 showed not just the role of communications technology but the importance of place as well. The differing economic and social structures of different communities made enormous differences to the impact of the pandemic. As we seek to rebuild after the pandemic, place and spatial issues are core to many of the challenges we need to address such as housing supply , heat decarbonisation and reform of the planning system. MHCLG has a key role working with local authorities, city regions and other spatial stakeholders to ensure that resources and plans are coordinated to address these challenges. The priorities are:

- **Devolution**: empowering local areas to deliver the affordable homes needed, the regeneration of town centres as part of 'levelling-up' and to help deliver the ambitious environmental goals of Net Zero and the Natural Environment. This implies a new, stronger role for unitary/combined authorities working alongside LEPs.

- **Regeneration funding**: There is also a specific challenge around the operation of the many existing regeneration funding streams. Too often these funds, on the basis of standard cost benefit approaches, end up channeling resources towards areas that are already more economically active. While this may make economic sense at an aggregate UK level, it does not fit with the governments aim of levelling up whereby investment is by definition targeted at more disadvantaged areas. **Recommendation**: Create a new 'local recovery investment vehicle', with the capability and financial resources to develop ambitious regeneration programmes, more effectively combining public and private investment to drive real regeneration in deprived parts of the country.

- **Flexible infrastructure**: While we know that work, travel and social patterns are changing, the uncertainty over Covid along with broader factors such as the potential range of behavioural responses to the climate emergency, the labour market impact of Brexit means that it is very difficult to predict with certainty the infrastructure that a particular place or community will need in 20 or 30 years time. To address this we need more imaginative solutions. There should be a premium on flexibler infrastructure whose use can be flexed depending on changing trends, abrupt changes in the nature of pandemic or terroris threats and so on. Making this a reality will require a combination of much closer working between the engineering consultancy sector between the infrastructure sector and empowered local authorities, the use of modern techniques such as off site manufacturing and a thoughtful application of tools such as the CIH value Toolkit.

Climate resilience

- A robust **Future Homes Standard** that incorporates water efficiency as well as energy efficiency. The energy efficiency standards identified by the Committee on Climate Change should be in place and enforced by the end of the CSR period.
- **Properly funded enforcement of energy efficiency standards**: Higher regulatory standards will only deliver progress towards Net Zero if adequately enforced. Yet research by ACE's sister body EIC has shown that EPCs and ESOS are rarely enforced. In part this is due to enforcement being under Trading Standards who have other priorities and in part due to underfunding. Regional enforcement agencies for energy efficiency would be a solution.
- Support for local authorities, working at regional level where needed, to enable them to effectively masterplan how to **blend local net zero infrastructure** (heat networks, heat pumps, EfW, EV charging and building electricity use etc)
- The **local recovery investment vehicle'** recommended above**,** would have certain environmental conditions attached to ensure the delivery of Net Zero and Environmental Net Gain.

Economic resilience

Along with the medium term changes identified above our communities need investment, and the local jobs and spending that built environment construction can deliver, right now. Within the MHCLG portfolio are a number of initiatives which we believe could be accelerated and or strengthened in support of the governments objectives .

Stronger Towns Fund

- The Towns Fund and Future High Street Funds capture around 150 towns across the UK. There is scope to expand the Towns Fund to cover more towns across the UK, to boost supply chain activity and stimulate growth.

MHCLG Garden Communities Programme

- These projects require substantial infrastructure investment across a wide range of sectors (typically £50,000 per home) and therefore support a diverse supply chain. Homes England's support should be stepped up to accelerate the delivery of the existing programme. This should include: funding support in the early infrastructure heavy phases of development for projects that are 'oven ready'; taking the lead delivery role on projects where the private sector is unable to deliver; developing and sharing technical skills and expertise; brokering support across Government Departments etc.,

Redeveloping Local Authority Controlled Brownfield Land for Social Housing

- To meet the combined challenge of delivering a significant increase in social housing whilst redeveloping blighted brownfield land Government should fund an accelerated programme of developing small and medium-sized brownfield sites already in Local Authority ownership for new homes.

Department for Transport

Transport faces major challenges over the next five years. It is a sector that has proved stubbornly hard to decarbonize but at the same time has to readjust to post-Covid travel patterns as well as play a vital role in support of the government's 'levelling up' agenda, connecting communities to employment.

1. Transport and social resilience

Transport is an integral part of our society. Communities could not exist and prosper without it. As such its benefits need to be recognised as creating social value as well as against measurable economic indicators. Integration is also key - each part of the transport system transport network needs to be thought of as part of a system of systems.

The CSR provides an opportunity to rethink some of our transport assumptions. Covid has already required the government nationally to take a more active in supporting and managing parts of transport networks - for example through the train operating companies or the funding for local authorities to extend pavement space for social distancing. We need to use theis context to rethink of funding models and governance of transport with the following aims:

- Improving the affordability and accessibility of public transport.
- Giving local authorities the flexibility to get the detail right for example effective lighting around bus stops is essential to encourage individuals to make use of bus services or adapting public spaces to social distancing and efficient vehicle movements can be a challenge.
- Harnessing the mobility revolution (Uber, e-scooters etc) to work wit our transport networks.

AS part of this rethinking, we need a better understanding of the extent to which Covid 19 will influence how transport infrastructure is used. This needs research that combines technical transport demand modelling with the best emerging survey and data evidence of how the public's long term attitudes to travel and commuting have changed. ACE members can provide this modelling expertise, while research by organisations such as Demos (*Renew Normal: the People's Commission on life after Covid 19*) and CBI/KPMG work on 'the future of commuting' are the sort of analysis that needs to be incorporated.

The vision also needs to heed the work of the National Infrastructure Commission (ref. 2019 report) and consider how we can facilitate end to end freight movements which are both net zero but also support new industrial geography such as CCS industrial clusters and the levelling up agenda (NIC 2019). For example rail freight hubs on the edge of cities that are serviced by electric vehicles for last mile delivery.

2. Climate resilience

The shift from an 80% reduction target by 2050 to full net zero, puts real pressure on how we design, build and operate transport infrastructure. Yet we have systemic failures in how net zero is part of the transport planning framework: National Policy Statements are not up to date in terms of incorporating the net zero target; EIA carbon chapters used to measure carbon impacts

rather than mitigate them while the GHG calculations within them are not made consistently. Meanwhile the design standards of public bodies such as Network Rail not compatible with net zero.

At a strategic level, the CSR must address this through, for example, **revising the NPS'** to align either explicitly with the relevant Committee on Climate Change pathways to net zero or with an evidenced government-backed alternative pathway. There is also a need for a over-arching 'super-NPS' for economic infrastructure as awhole, which would clarify and reconcile governments expectation for such infrastcuture in terms of net zxzero, wider environmental and adaptation.

At a modal level, there are specific spending/policy priorities to advance net zero in different modes:

Roads:

- A Zero Emission vehicle mandatwe, as advocated by the CCC, should be introduced culminating in a 100% sales mandate (ie equivalent to a total ban on diesel and petrol vehicle sales) by 2032 at the latest.
- Establishing market standards for EV charging to enable city wide roll-out and appropriate network enhancement, while addressing any required shift from existing fuel tax revenues towards dynamic road user charging as recommended in ACE's *"Funding roads for the future report*".
- Continued financial grant support for electric vehicle take up and funding to improve electric vehicles charging infrastructure.
- EV business models for the Strategic Road Network need to be developed.

Rail:

- The Williams review must be concluded and its recommendations used to reform the rail sector to enable the top down carbon management plan envisaged in the RSSB report *Decarbonising the Rail Sector*. This is likely to require a central body such as an 'SRA Mk2' empowered to enforce rail carbon targets.
- Net Zero must be fully integrated into all Network Rail design standards
- Subsidies may be required where network operators are required to retire or retrofit rolling stock with netzero technologies before the end of their economic life.

Aviation:

- Given it is unclear whether low carbon aviation technologies such as aviation bio fuels and electric aircraft can be developed and deployed quickly enough to avoid demand restraint becoming necessary DfT should increase funding for zero carbon aviation R&D.

Ports:

- Freeport status should only be granted to ports which have a clear commitment and plan to deliver net zero carbon infrastructure and which favour zero carbon vessels
- The Modal Shift Support Grant should be used to support short sea shipping
- As in other EU countries, public funding should be given to shore to ship electrical power

While these changes will help ensure that our transport systems are not contributing to further climate change, we also need networks which are resilient in the face of the inevitable impacts

of the climate change already in the system. The recent Stonehaven train crash was a sobering reminder of both the need for and the challenge of doing this.

3. Economic resilience

Within the large DfT portfolio of projects there are specific ones which could be accelerated thus bringing forward their wider economic and social benefits while also providing economic momentum in the short term.

HS2

- **Euston**: To attain an optimum solution, which can be initiated quickly, still requires significant work. However the consultancy industry is able to provide dedicated strategic resource and wider capacity to ensure the earliest dates for implementation and value for money are achieved for the entire stakeholder community. The new oversight board should be able to provide clarity on future delivery and ownership of Euston Station and surrounding campus.
- **Rail systems and Rolling stock**: Most of the Rail Systems PQQs are in progress or about to be issued: early and clear decisions on tender shortlists and a straightforward ITT process would be encouraged by all suppliers. An early Rolling Stock procurement announcement would give confidence to the market and supply chain
- **Crewe Hub**: Phase 2a design development, including that of Crewe Hub for Network Rail, could be progressed without further delay. The precise scope of Design Delivery Partner is not completely clear, perhaps hampering the industry's ability to form teams with confidence to be able to address what the client is looking for; a firm procurement timetable could be shared and an efficient tendering process would be encouraged in order to maximise efficiencies in design and construction based on lessons learned from the Phase 1 procurements and HS1. Crewe Hub implementation would also need to be aligned with Phase 2a timescales to maximise value for money.

NPR/HSNorth

Industry is able to support DfT/TfN, NPR, NR, HS2 and other stakeholders, to accelerate the arrangements for a delivery vehicle and plan for HS North. The next stage of development for NPR is to submit a Strategic Outline Case (SOC) for approval. The current procurement of additional expertise and the identified further skills requirements could also be accelerated. The recent £600m kickstart announcement on TRU is a positive step, and it would be a further positive step to see the progression of other similar existing line upgrades forming the network, alongside new high-speed provision.

East West rail

EWR's position on the main partner roles (client-side, technical and commercial) is becoming clearer. If this could be finalised and a firm procurement timetable is shared, this would get wide support. Once again, as we emerge from Covid, industry would welcome an efficient tendering process.

SPECTRE Framework

Procurement is complete and awaiting award however has been delayed due to C-19. This could easily be accelerated which provides opportunities for the Tier 2 and SME community.

Future Flight

Has been delayed to prioritise C-19 opportunities however needs collaberation from digital innovators, business model experts, local authorities, asset owners architects, AI, regulatory experts and social scientists to deliver innovation development that will accelerate UK exports.

Digital Railway

The DR programme offers extra capacity, moving freight off road, better safety, reduced cost of maintenance, better resilience, future ready. Increased national skills base. Exportable experience and skills. This should be accelerated now that the new NR regional structure is bedding in.

Medium term priority schemes

The following schemes are less suitable for immediate acceleration but should still be seen as priorities during the second half of the CSR period

- In context of northern powerhouse exploring build multi modal transport schemes focused around central transpennine connectivity and Manchester NW quadrant alternative approach as stated in RIS 2 Transpennine multimodal schemes
- Midlands/East connectivity – Oxford to Cambridge alternative to scheme abandoned in RIS2.
- Station Improvement Plan

Department for Business, Energy & Industrial Strategy

Social resilience

BEIS' responsibilities across net zero, skills and innovation give it an important role in how we adapt our communities built environment for the challenges ahead. While its responsibilities relate more to economic infrastructure than social infrastructure, issues such as the energy networks that wil heat and power our homes , schools and hospitals, and the location of employment opportunities in the new industrial geography of a net zero economy will have major impacts on social wellbeing.

Climate resilience

The Committee on Climate Change has estimated that '*Total UK electricity supply will need to double by 2050, and electricity from low-carbon sources will need to quadruple, in order to deliver the UK's commitment to become a Net Zero emissions economy by that year'.* The Committee's scenarios for electricity generation require 22-29 GW of onshore wind capacity and 23-43 GW of solar by 2030 – and more by 2050 – compared to onshore wind and solar capacity of around 13 GW each today. At the same time the Department must develop policies and ensure funding for new technologies such as CCS and hydrogen as well as for the huge challenge of energy efficiency.

BEIS must therefore prioritise:

- **A step change in low carbon generation deployment**: The Energy White Paper must address the future of the electricity market design as renewables make up an increasing share of generation, including consideration of technology neutrality, subsidy-free renewables, mechanisms for repowering, the need to ensure sufficient energy supply resilience at both national and regional levels.
- **Nuclear:** Complete the regulated asset base policy development in a way which allows Sizewell C and future nuclear power stations to be built
- **Energy efficiency**: BEIS must publish long-awaited policies to deliver the Clean Growth Strategy ambitions on retrofit (minimum EPC band C by 2035), the 20% business efficiency target and the public sector energy efficiency targets
- **CCS funding**: BEIS must decide funding model and allocate funding to ensure CCS operational at several industrial clusters by mid 2020s. Projects on Humber, Teesside and in the North West so could be combined with a broader package for the North. All these projects have the potential to create the enabling infrastructure for the hydrogen economy.

- **Hydrogen**: Funding must be allocated for large scale hydrogen trials by mid 2020s.

Net zero infrastructure: the systemic challenge

The shift from an 80% reduction target by 2050 to full net zero by the same date requires a major change in the way we plan design and build infrastructure. EIC/ACE analysis shown that there are a number of fundamental problems.

- The implications of net zero for infrastructure are currently not properly reflected at any level of the infrastructure policy framework. National Policy Statements are not up to date in terms of incorporating the net zero target. Carbon chapters in EIAs are being used to measure carbon impacts rather than mitigate them and the GHG calculations within them are not made consistently. Meanwhile the design standards of public bodies such as Network Rail not compatible with net zero.
- As a result the planning system and many procurement frameworks are not fit for purpose and do not ensure that what is procured and approved by planning is fully compatible with a net zero future.
- The increased emphasis on embedded and construction carbon is welcome as are schemes such as PAS 2080. However these are **not** a substitute for a policy framework that ensures that delivered infrastructure will function effectively in a net zero economy in 2050. Ensuring that what will be stranded assets in the 2050s were built using low carbon materials is not in itself progress.

We have identified the following solutions to this challenge which BEIS must work across government to deliver:

- **NPSs must be revised** to align either explicitly with the relevant Committee on Climate Change pathways to net zero or with an evidenced government-backed alternative pathway. There is also a need for a over-arching 'super-NPS' for economic infrastructure.
- Sectoral net zero **interdependencies for infrastructure need to be understood and resolved at a regional level** and th concept of an 'Energy Systems Architect' could be considered to address this.
- **EIA carbon chapters must be reformed** so that they become a genuine check on the net zero compatibility of projects for which they are completed.
- **Clarity is needed for each infrastructure sector over the extent to which the business models of developers and asset owners and operators can evolve** to be consistent with net zero or alternatively how public subsidy is needed instead.
- All procurement should use the **Construction Innovation Hub value toolkit** with the operational carbon factor reduction metric set at a high minimum.

Economic resilience

There is wide business support for the concept of a green recovery and it is clear that investment in 0 carbon economic infrastructure as discussed above will generate significant knew skilled jobs across the country. We would also support the calls by the construction leadership council and others for a major homeless retrofit initiative which will be needed to meet net zero goals and can also provide training and employment across the UK in the short term.

Department for Environment Food & Rural Affairs

Building environmental markets to deliver the 25 year environment plan:

The need to bolster the resilience of our natural ecosystems - ie to tackle the climate and ecological emergencies - is better understood than ever before. Likewise the pandemic and associated 'lockdown' demonstrated the innate value of access to nature and open space and its link to good mental health.

The government has rightly set ambitious environmental targets not just around net zero but around the natural environment much more broadly. We strongly support these ambitions but with finite public funding it is essential that business and markets play their part. The UK has a productive and successful environmental technology and services sector which has historically outperformed the economy as a whole. To achieve the targets set out in a 25 year Environment Plan Defra needs to focus its policies and spending on measures which will build strong efficient environmental markets. This requires:

- **Innovation spending** has been too focused on large low carbon on large scale low carbon technologies. These are important but EIC research has shown that innovation across the broader environmental protection agenda is equally important to delivering better environmental outcomes at acceptable cost. There should be a new mission under the Clean Growth Industrial Strategy Grand Challenge, entitled 'Enhancing our Natural Capital' with UKRI funding and grants taking account to this.
- **Properly fund enforcement**. In recent years the enforcement systems and structures that underpin environmental markets have been hollowed out. AIC research has shown that only ex percent of local authorities have contaminated land officers and only why percent perform on site remediation cheques. Enforcement bodies including the Environment Agency must be properly funded. Effecting her infective effective enforcement also requires more then just increased budget. For example the GLA needs additional powers to enforce its NRMM emission standards as at the moment these can only be enforced as a planning condition at borough level on construction sites which is not effective. In addition a National Air Quality Agency should be set up to oversee enforcement across all air quality areas.
- **Testing infrastructure**: too often environmental innovation his frustrated due to the lack of access that innovative companies can get to test sites or test infrastructure. This means that promising you technologies that would deliver environmental benefits cannot get accreditation and or market credibility. Investment is needed by death breath to tackle these bottlenecks. As a priority an additional vehicle emissions testing centre along the lines of the Millbrook research facility should be funded by Defra. In addition a properly funded vehicle emissions accreditation system along along the lines of the CVRAS system developed by LCVP for London his needed nationwide covering all aspects of vehicle air pollution control.

- **Incentivise Green Infrastructure**: A proportion of Defra funding for the environment (especially from ELMS and the Nature for Climate Fund) – suggested at £100m - should be used to support largescale demonstration projects joining up public funding and with a requirement for matched private funding.

Table 3.1: Snapshot of the potential "innovation gap" between the current trajectory and what is required to fully meet the selected 25 YEP goals and targets

25 YEP Goal	Innovation gap snapshot (taking account of the current trajectory & level of certainty against stated targets)	Rationale	Examples of potential innovations that could contribute to meeting 25 YEP targets[12].
Spatial Data Analysis	Some gap expected	This potential gap is associated with the use of spatial data for using natural resources (i.e. doubling productivity) where existing data, analytical metrics and management arrangements are insufficient for managing natural capital (and net gain).	Blockchain; Sensors; AI & machine learning; Data optimisation
Clean Air	Some gap expected	This potential gap is associated with the target of "meeting legally binding targets to reduce emissions of…" ammonia and PM2.5 and the intended outcome to "halve the effects of air pollution on health by 2030" where diverse actions and system level changes are expected to be required.	Mobility as a service; cycling related innovations; diesel retrofit & repowering; sustainable biofuels; low emission tyres.
Clean & Plentiful Water	Some gap expected	This potential gap is most associated with the target to "reduce abstraction of water from rivers and groundwater" and to a lesser extent to "reach/exceed objectives for rivers, lakes, coastal and ground waters" and to "reduce water loss through leakage".	Agricultural AI applications for water use; greywater reuse solutions; remote leakage detection models; trenchless technology.
Using Resources from Nature more Sustainably & Efficiently	Some gap expected	This potential gap is associated with the target of "Maximising the value and benefits we get from our resources, doubling resource productivity by 2050" i.e. for food, fish and timber.	Cross Laminated Timber production; GPS soil sampling; Aquaponics; Gene Editing for crops; Remote ecosystem monitoring.
Minimising Waste	Some gap expected	This potential gap is associated with the targets to "Meet all existing waste targets" and to "eliminate waste crime and illegal waste sites" where progress has plateaued recently.	Industrial symbiosis; Landfill mining; Electronic and Radio frequency tracking; Fibre to fibre technology; Mechanical processing.
Managing Exposure to Chemicals	Some gap expected	The potential gap is associated with the targets to 'reduce land-based emissions of mercury to air and water by 50% by 2030'.	Nanotechnology; Bioremediation and microbial degradation; Copper Sorbents; Thermal desorption.

Source EIC/Ramboll

Defra infrastructure pipeline: Opportunities for accelerating projects:

While primarily a policy-led department Defra also plays a crucial infrastructure role in its responsibilities for flood and coastal erosion defence, as well as overseeing OFWAT and the water industries response to water stress. This infrastructure is a fundamental part of climate resilience and is needed now more than ever. With the new Defra FCERM strategy in place it is vital that the procurement of this infrastructure is accelerated.

Accelerate/bring forward funding into EA AP6

- Critical Resilient Infrastructure is vital to protecting vulnerable businesses and communities for current and future flood risk. Ensure construction delivery capability not lost post Covid 19 with enabling transition to increased spend whilst increasing focus on delivery efficiency. Required Action: Accelerate / Bring Forward Proportion of additional funding into this (AP6 – April 2020-April 2021) period - £200m. Enable design and consenting work to be fast tracked and get schemes shovel ready.

EA FCRM – Major Schemes Portfolio

- Defra should accelerate programme for development, design, consenting and procurement of major long-term schemes - e.g. River Thames Scheme; Bridgewater Barrier; etc.

The following schemes are less suitable for immediate acceleration but should still be seen as priorities during the second half of the CSR period:

- Derisking assets across Canal & River Trusts
- 'National Grid for Water'
- OFWAT schemes in PR19 FD Strategic Regional Water Resource Solutions
- AMP7 leakage schemes

Defra data analysis/modelling pipeline: opportunities for accelerating projects.

The UK environmental consultancy sector is world class and is well placed to accelerate work on the following projects

- Defra Environmental Noise Modelling Design and Build
- Defra Air Quality Future Evidence Programme (FEP)
- UK's support to TFEIP (the Task Force on Emission Inventories and Projections)
- Review of the Gothenburg Protocol and possible resulting changes to reporting particulate matter(PM)

As well as bring forward these specific initiatives, we also need wider reform of the data architecture underpinning environmental data, much of which is based on analogue procedures and EU reporting requirements, is a priority. For example noise, GHG and local air quality data are all siloed and not comparable. Funding of about £30m would enable this to be fixed. An integrated environmental assessment at national level bringing together the environmental information routinely needed once on a single digital platform, to give developers better information and reduce the requirement at project level.

Department of Health & Social Care

The Covid 19 pandemic was a stark reminder of how fundamental NHS is to a civilised society. The pandemic highlighted concerns over the resilience of the NHS, including its infrastructure capabilities. The government has prioritised investment in NHS infrastructure but it is vital that this infrastructure is fit for purpose.

1. Social resilience

An effective healthcare system is self evidently at the heart of social resilience, and the government has pledged the resources to support it. But in designing and creating health infrastructure we need to recognise that Covid and wider social changes are reshaping what 'fit for purpose' looks like. This is true in a number of ways:

- **Adaptability**: The success of the Nightingale hospitals showed the infrastructure sector at its best designing and building a hospital that was fit a specific function in a matter of days. The Nightingale approach opens up new ways to think about health infrastructure. For example can we design more flexible multi-use community infrastructure which is designed to be adapted for use in a future pandemic but has other community and economic value the rest of the time? Combined and unitary authorities and the NHS must work closely and imaginatively together to realise the opportunities here.

- **Safety**: Given that we may need to live with Covid 19 or similar pandemic risks for a long time to come we need to make our hospitals as safe as possible. Things like workflows and ventilations systems need to be redesigned so that these areas can be as safe as possible

- **Technology**: We also need to exploit the opportunities provided by new technology and remote medicine taking some of the pressure off traditional NHS infrastructure while also improving accessibility and reducing patient travel.

At the same time, we need to recognise that the commissioning of health infrastructure is complex, with DHSC having overall responsibility but this being mediated through NHSEI and the individual NHS trusts. The NHS has been exploring with the Construction Innovation Hub the use of the CIH Value Toolkit in NHS infrastructure procurement. This will help ensure it has strong consistent business cases for its projects, based on a rounded definition of value. It is vital that this initiative is progressed and the toolkit becomes a permanent integral part of NHS infrastructure procurement.

2. Climate resilience

The NHS produces about 5% of UK greenhouse gas emissions and so as part of rethinking the future of health infrastructure we must take every opportunity to reduce its carbon footprint. Remote medicine will have a role to play here as well increased used of zero emission vehicles within the emergency services. A focus on NHS estate redevelopments which result in GHG reduction will also help - this will require robust energy efficient standards both for NHS estate both new build and retrofit.

We also need to factor in how the changing climate milder winters hottest summers will affect patterns of illness what affect seasonal patterns and types of illness and how this may change the pressures on the nhs.

3. Economic resilience

Specific opportunities for accelerating DHSC projects:

In addition to the overall priorities above, there are also specific opportunities to acclerate projects.

NHS infrastructure plan: Currently P22 has been extended with P 2020 delayed. However a review of procurement and contract strategy and approach is needed which could be achieved through P 2020**:**
Immediate or enabling actions:

- Accelerate the Business Case(s), Consider how all schemes could be progressed quickly, perhaps with more central coordination and commissioning rather than via individual trusts
- Release funding
- Consider external procurement support - either via other procurement bodies or external consultants
- Timeframes involved: For immediate actions - next 6 months

All health innovation R&D related projects

- Immediate or enabling actions:
  - Accelerate the Business Case(s)
  - Prioritise and accelerate projects that would provide solutions to post COVID-19 challenges/learning
  - Release funding

Digital health infrastructure

- More effective and efficient healthcare systems - especially in light of COVID-19. Release funding and focus on pan sector potential eg Integration with social care (Local Authorities)

Association for Consultancy and Engineering

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