Appendix A

SCR:NET ZERO

THE MAYOR'S MCA CLIMATE EMERGENCY RESPONSE FRAMEWORK

Sheffield City Region

SCR:NZ – What does Net Zero mean?

Net zero emissions means that the total of active removals from the atmosphere offsets any remaining emissions from the rest of the economy.

So if carbon dioxide emissions were reduced to zero then no emission removals would be needed.

Under a net zero target, some residual emissions would still be possible as long as there is a corresponding level of emissions removal.

The approach to achieve this will therefore be a combination of not producing any more carbon dioxide, combined with compensatory processes such as carbon capture.

Our Approach

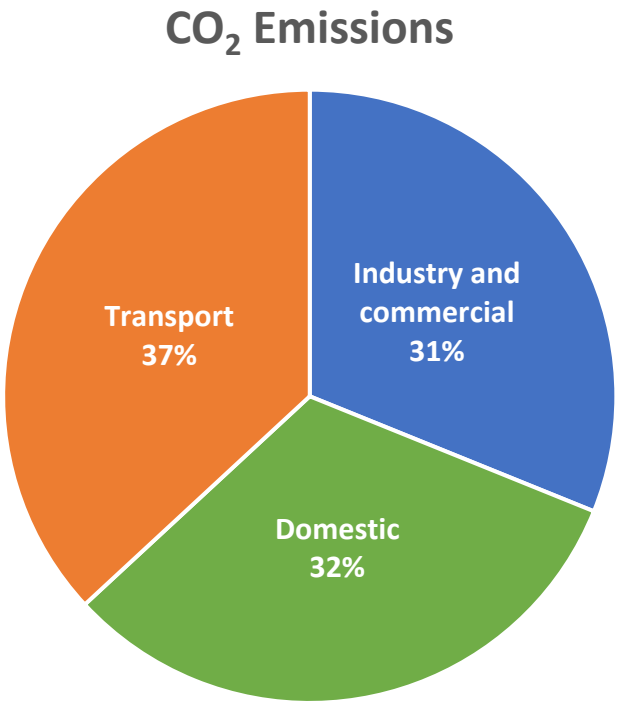
- **We will involve and listen to residents and businesses** – there is a need for leadership and greater awareness in order to achieve our target for a net zero City Region. This needs to be through greater public participation in setting priorities, listening to people and understanding and engaging with the difficult choices that need to be made.

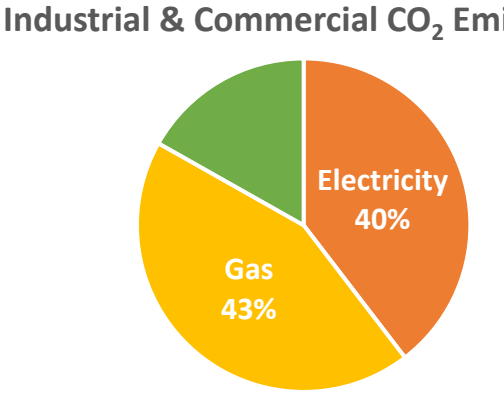
- **We will consider the impact of our investments** – the City Region is a key conduit for Government funding. We will therefore commit to giving equal weight to the carbon impact of the investments we make, alongside the consideration given to economic benefits. This will also include encouraging a fix-it-first and green retro-fitting approach to future infrastructure investments.

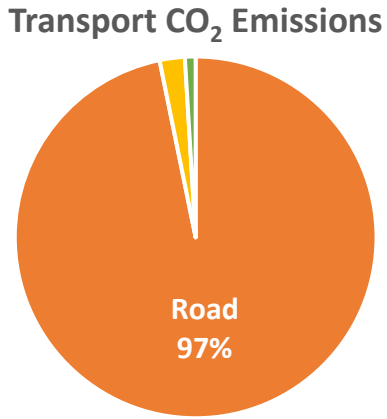
- **We will focus on factors we can influence** – tackling climate change requires an effort at all levels of Government and business. There will be many factors outside of the City Region's control, such as emissions from aviation and shipping, as well as interventions which are best addressed by either national or local government. We will take a systems approach and focus on issues which can be best addressed at a City Region scale, where we have influence, complimenting our individual local authority's responses.

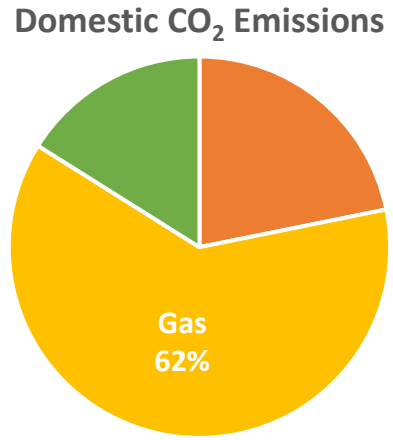
- **We will deliver a 'just transition'** – in our drive to design a new low carbon world, we must ensure sections of our communities do not lose out and ideally gain through being distributive by design. That is why we will champion community ownership and the delivery of low emission active travel neighbourhoods.

The Starting Point









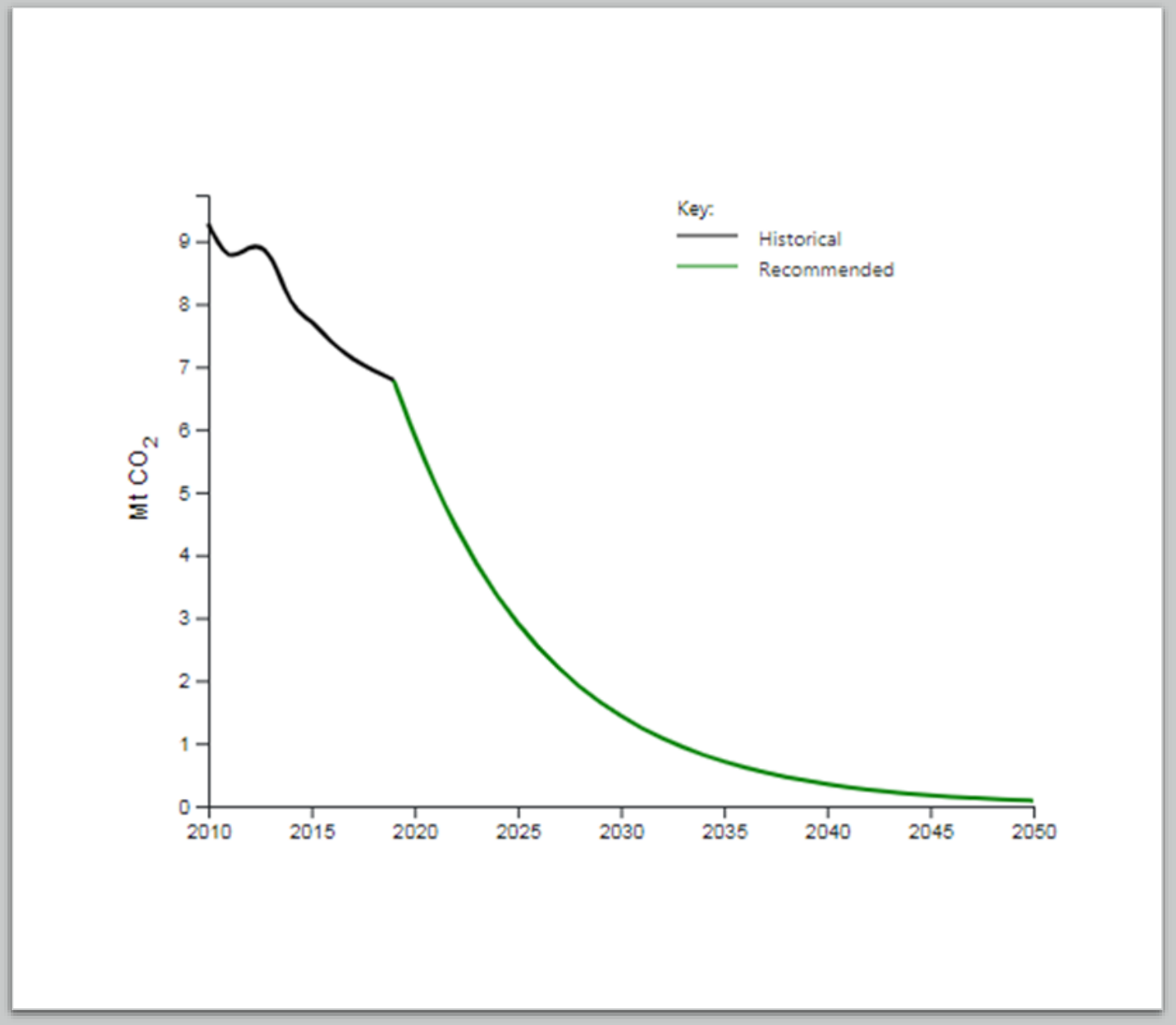
SCR:NZ by 2040

SCR should stay within a maximum cumulative CO_2 emissions budget of **44.7 MtCO2** for the period 2020 to 2100.

At 2017 CO_2 emission levels, SCR would use this entire budget by 2027.

SCR should aim to reach zero or near zero carbon no later than 2040 (5% of carbon budget remains).

This would require average annual emissions reductions of 13.2%.



What does this mean for transport?

The need for a 25% reduction in total travel demand by 2030

The number of car miles reduces by 25% by 2040

By 2035, all vehicles using our roads will need to be 100% zero emissions

Full railway decarbonisation by 2040 including rail freight

The number of freight miles reduces by 30% by 2040

What does this mean for housing?

We will need 60% of our homes to be better insulated by 2040:

- 65,000 cavity walls
- 120,000 solid walls
- 226,000 lofts

Energy demand for domestic lights and appliances needs to decrease by 60%

85% of homes with heat pumps & 15% other form of renewable heating inc. hydrogen

What does this mean for businesses?

Space heating energy demand drops by 40%, hot water energy demand by 30% and cooling energy demand by 60% by 2040

90% of lights to be high-efficiency LEDs

The proportion of commercial heat supplied using a heat pump will need to 80%+, with the remainder using another form of low carbon heating

What does this mean for waste?

The quantity of household waste decreases 20%

The quantity of commercial and industrial waste reduces by 11%

Of the waste we do generate, by 2035, 65% needs to be recycled, 10% will go to landfill, 25% incinerated

Taking Action

Leadership

Carbon Reduction
Energy
Development
Transport

Carbon Capture
Natural Capital and
Carbon Storage

Contribution to SCR:NZ Target

Climate Adaption

Mitigating the impacts

Climate Economy
Business

Harnessing the benefits

Taking Action: Leadership
Mobilisation

If we are to achieve our 2040 SCR:NZ objective, then everyone has to play their part. Leadership should be provided by civil leaders from across the City Region, but real change can only happen if all of our communities are empowered to do their bit. This will take engagement, understanding and ensuring we are all informed about the choices we have to make.

A collective challenge requires collective action. As such the City Region will harness the efforts of our Councils, who are best placed to address issues around waste and housing, and anchor institutions to bring together government at all levels act on the climate emergency.

We must build broad and deep local engagement with climate emergency actions. That is why we will establish a forum by which our communities can engage and be involved with taking action.

We will ensure that all of the City Region's programmes, policies, assets and assurance framework are aligned with the Climate Emergency commitment.

It is vital that everyone has an understanding of the carbon impacts of their activities and choices we will have to make. That is why we will improve carbon literacy in order to empower people to contribute.

We will report back on our actions and key achievements through a standing item at all future Combined Authority meetings to ensure that we communicate the urgency for change.

Taking Action: Carbon Reduction
Energy

The City Region is committed to producing an Energy Strategy which will support the move towards a clean, efficient and resilient energy system, which supports a healthier environment for people to live, work and visit, and which drives our transition to a low carbon economy.

We will utilise and/or repurpose our City Region's current infrastructure and natural resources to decarbonise the energy supply, including the use of energy from minewater as well as building on the City Region's emerging capabilities in hydrogen and nuclear fusion.

We will improve the energy resilience of our City Region through the increased use of smart grids and storage and working with network providers to strategically plan future improvements.

We will drive investment in both new and existing heat networks to increase the overall capacity and bring new sources of low carbon and/or waste heat onto the network.

There will be investment in the training and upskilling of those who will be designing, installing and maintaining our future energy systems.

Communities will be enabled to develop local energy schemes and provide opportunities for residents of the SCR to invest in our City Region's energy infrastructure.

Taking Action: Carbon Reduction
Development

A strategic approach is needed to tackling fuel poverty, improve inefficient dwellings and ensure that the nature of spatial development does not exacerbate carbon emissions. It is important to focus on both the need to retrofit buildings and ensure new developments meet the expectations of reduced running costs of the occupants and take account of the movement away from fossil fuels for heating.

We will support widespread energy efficiency improvements to existing dwellings across our City Region to reduce the number of excess winter deaths.

The public sector should lead by example by improving energy efficiency of their stock, supporting innovation, and building low carbon and sustainable principles into procurement and investment policies.

We must ensure that new housing within our City Region is of a high quality in terms of energy use and efficiency. That is why the City Region will no longer invest in housing schemes which do not meet our net zero ambition.

Through our 'Statement of Common Ground', the City Region will work with our planning authorities to explore how greater housing density along key transport corridors can contribute towards cutting emissions.

Taking Action: Carbon Reduction
Transport

Transport is the area where, working across the City Region, we can have the greatest impact on achieving our SCR:NZ target. It is also where our scope for intervention is broadest. The SCR Transport Strategy, adopted in January 2019, sets out a goal to move towards a 'cleaner and greener City Region'. How this will be achieved will be set out through a series of implementation plans which will be in place by early 2020. These will seek to reduce demand, improve vehicle efficiency and drive modal shift.

Transport Policy 4: **Improve air quality across our City Region to meet legal thresholds, supporting improved health and activity for all, especially in designated AQMAs and CAZs.**

This will include for example:

- Support adoption of sustainable travel modes over private cars to reduce the number of vehicles that use our roads, particularly into our town and city centres, through both infrastructure and behavioural change measures to increase public and sustainable transport.
- Encourage the uptake of low and zero emission vehicles to improve our air quality, including investing in expanding the network of vehicle charging points across the City Region in a coordinated way, to ensure full coverage across the region.
- Work with partners to introduce and enforce low emission and CAZs, supporting them in delivering cuts in emissions though investing in encouraging sustainable modes and reducing the need to travel.

Transport Policy 5: Lead the way towards a low carbon transport network, including a zero-carbon public transport network.

This will include for example:

- Encourage private vehicles using our roads to be electric, hydrogen or hybrid, and to be used primarily for trips that cannot be made by sustainable alternatives, such as public transport, walking and cycling.
- Work with operators to plan a transition from the current (bus and taxi) fleet to make our public transport system a zero-emission service.
- Deliver a zero-carbon public transport network, which requires upgrading the bus and taxi fleet and supporting electrification programmes for our railways.

Transport Policy 8: Enhance our multi-modal transport system which encourages sustainable travel choices and is embedded in the assessment of transport requirements for new development, particularly for active travel.

This will include for example:

- Invest over a sustained period in high quality cycling and walking infrastructure that better connects homes, transport interchanges, education, employment and recreational opportunities using safer, direct and convenient routes.
- Work to reduce the reliance on private transport, encouraging people and working with businesses to choose greener and healthier forms of transport both for existing journeys and new journeys stemming from investment in the City Region.
- Enhance our transport system by investing in mass transit improvements, whether bus, tram, train, tram-train, bus rapid transit, or a brand-new mode altogether.

Taking Action: Carbon Capture
Natural Capital and Carbon Storage

According to the Intergovernmental Panel on Climate Change report, we are unlikely to meet our climate targets without carbon capture. The deployment of renewable energy technologies alone will be insufficient, as such carbon capture will play an important part of the portfolio of low-carbon options we need to move our society into a sustainable direction in the short, medium and long-term.

We will continue with the Mayor's commitment to support the growth of the Northern Forest, which aims to see 50 million new trees planted over the next 25 years to contribute to carbon drawdown.

Through our joint Public Sector Assets work, we will identify land assets which can be used for reforestation and green retrofitting.

Through the City Region's infrastructure programme, we will require green retrofitting of new and existing infrastructure in order to enhance and protect our existing natural assets and assist with carbon drawdown.

Work with the Pilot-scale Advanced CO2 Capture Technology (PACT) centre, as part of the Energy Innovation Zone at the University of Sheffield, to explore the potential for the City Region to become a test bed for ideas which will accelerate the development and commercialisation of carbon capture technologies.

Taking Action: Climate Adaption

Whilst our priority should be to reduce carbon emissions, that approach should be complimented by efforts to adapt to the impacts of climate change in the short to medium term.

We will work with the University of Sheffield's Grantham Centre for Sustainable Futures and Institute for Sustainable Food, to identify how the City Region can increase food production to match export/consumption in an environmentally sustainable manner.

We will establish a South Yorkshire Flood Action Group with the Environment Agency to undertake both flood protection work and identify opportunities for investment in natural flood management.

Working through our local authorities, standards must be adopted through the planning process that equip new buildings to cope better with a changing climate.

It is expected that climate change will lead to more extremes in weather and temperature. This will also exacerbate issues related to air quality. It is therefore essential that we adapt our public health approach to ensure we can support the elderly and very young, who will be the most vulnerable to these changes.

Taking Action: Climate Economy
Business

Whilst businesses have a significant role to play in helping to cut emissions, the low carbon economy is projected to grow four times faster than the growth of the UK economy as whole. Providing the platform for clean growth amongst business will help to drive both productivity and help the City Region benefits from low carbon innovations.

As part of the Strategic Economic Plan (SEP) we will proactively invest in companies which are at the forefront of clean technology. This builds on the City Region's inherent capabilities around light weighting, process engineering and energy.

We must prepare our current and future workforce with the skills required to both respond to the climate challenge, but also to be able to take advantage of the new industries that will emerge.

We will work with the private sector to reduce business2business activity which contributes to carbon emissions. This includes increased local procurement which can reduce travel miles for some of their goods and services.

We need to move beyond a 'take, make, dispose' economy towards one where all materials are treated as precious resources, with nothing thrown away. Alongside our universities, we will identify opportunities to support the creation of a local circular economy within sectors where there is a clear and obvious opportunity.

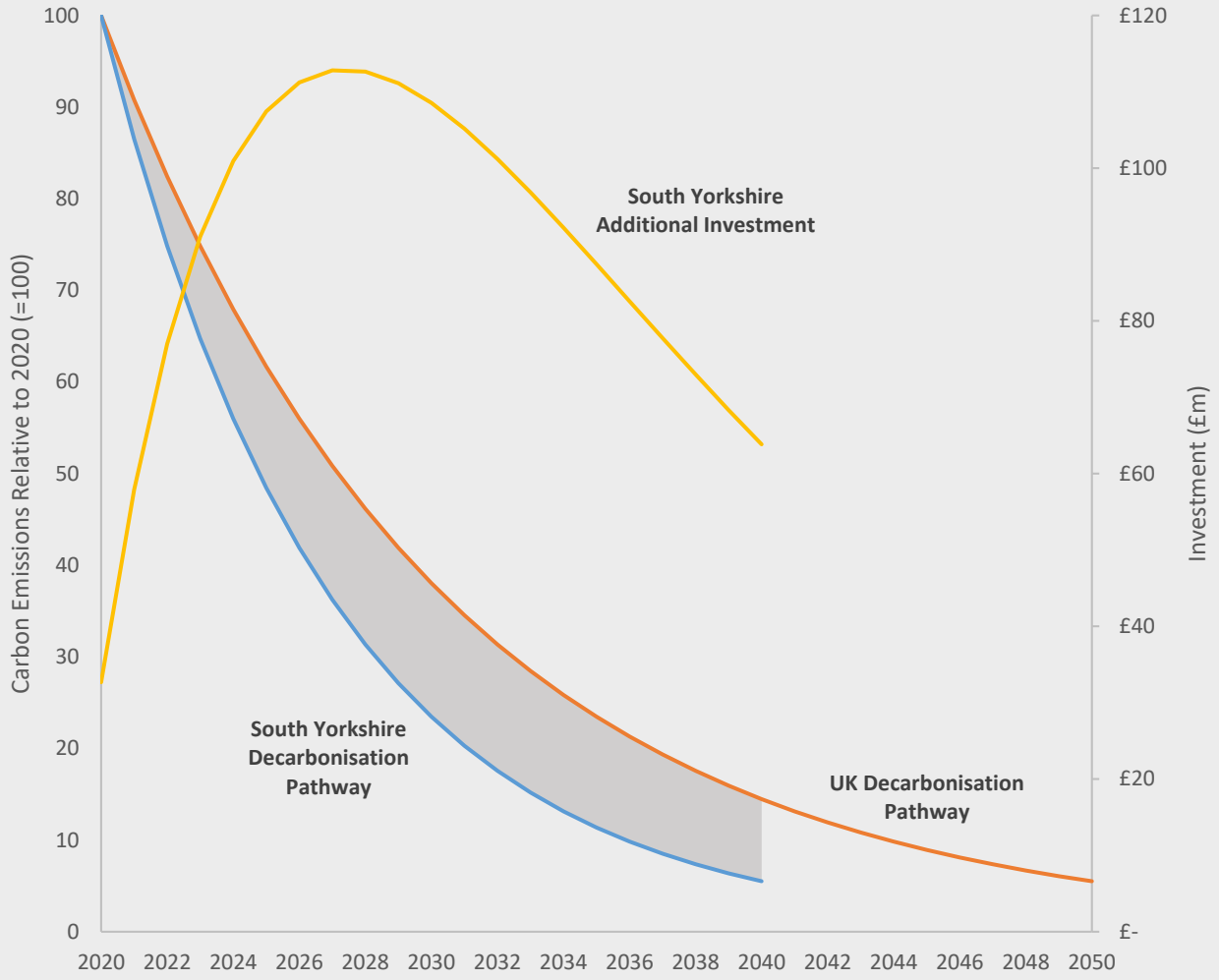
Cost of Decarbonisation

By looking at the difference in speeds of decarbonisation between the UK and South Yorkshire, the amount of *additional* investment (over-and-above that required by central government) can be calculated.

The Committee on Climate Change notes that the UK needs to invest c.£40bn per year to reach the 2050 net-zero target.

South Yorkshire's *additional* investment will therefore need to be **£1.87bn between 2020 and 2040, peaking in 2027 at £113m**. This will be a combination of public, private and personal investment.

This high-level analysis does not take into account re-investment of profit.



Putting the Declaration into Action: SCR:NZ Partnership

Developing a systemic response to these challenges, which capitalises on the technological and scientific capabilities within the region, will bring economic growth which is both inclusive and provides the necessary social and environmental benefits.

The SCRSP will be a jointly led initiative where professionals and academic expertise is harnessed to put in place deliverable action plans during 2020 to build on this climate emergency response.

SCR, the University of Sheffield, Sheffield Hallam University and a range of experts will develop specific solutions to the actions we need to take, making the City Region a live test bed in order to be at the forefront of funding opportunities and accelerate the change required. The work will also firm up the indicative metrics set out in this response so that intervention impact can be accurately monitored.