

25-06-2020 GLOUCESTERSHIRE COUNTY COUNCIL

EVIDENCE REPORT

Environment and Climate Action Group

1
MILLION

GLOBAL DEATHS

1 million estimated global deaths per year from climate change by 2030 [1]. This compares to 433,000 to date (15-06-2020) from Covid-19.

75%

CAR USE REDUCTION

There was a 75% reduction in car use nationwide in first few weeks of lockdown [6], but already back at >75% of pre-lockdown levels. Gloucestershire saw a 67% drop, now back to 70% of pre-lockdown levels.

5%

2020 CARBON EMISSIONS

The predicted reduction in global carbon emissions is 5% in 2020 compared to 2019 [2], but emissions are bouncing back to pre-lockdown levels in many countries.

£90
BILLION

ACHIEVING NET ZERO

The annual net benefit to the economy of achieving 'Net Zero 2050' is estimated at over £90 billion [5].

7.6%

LIMITING GLOBAL WARMING

The annual reductions in carbon emissions required to limit global warming to 1.5 degrees is 7.6% [3].

40,000

DEATHS FROM AIR POLLUTION

Estimated 40,000 deaths from air pollution each year in the UK [7], with Covid-19 at 41,000 (15-06-2020).

85%

GLOUCESTERSHIRE PRIORITY

In Gloucestershire, 85% of people think tackling climate change is the highest priority for local and national government post-Covid-19.

50%

REDUCTION IN NOx

NOx levels in Stroud town in April 2020 reduced by 50%, compared with average levels in January and February [8].

187TH

POOR BIODIVERSITY INTACTNESS

The UK's position in world ranking of "Biodiversity Intactness" is 187th of 218 countries assessed [4].

58%

PARK USE INCREASES

Significant increase in park use since lockdown of 58% [9] compared with pre-lockdown levels.

[1] Haines, A., & Ebi, K. (2019). The imperative for climate action to protect health. *New England Journal of Medicine*, 380(3), 263-273.

[2] <https://www.carbonbrief.org/analysis-coronavirus-set-to-cause-largest-ever-annual-fall-in-co2-emissions>

[3] <https://wedocs.unep.org/bitstream/handle/20.500.11822/30797/EGR2019.pdf?sequence=1&isAllowed=y>

[4] IPBES (2019): Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany

[5] https://www.wwf.org.uk/sites/default/files/2020-06/Keepingus_competitive.pdf

[6] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/886865/2020-05-21_COVID-19_Press_Conference_Slides_for_publication.pdf

[7] Haines, A., & Ebi, K. (2019). The imperative for climate action to protect health. *New England Journal of Medicine*, 380(3), 263-273.

[8] Data supplied by Stroud District Council to the author, personal email, 16.6.20

[9] <https://www.google.com/covid19/mobility/>

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1. Evidence for developing resilience by 'Building Back Better'

We have a unique opportunity to build upon behaviour changes witnessed over the period March – June 2020 to help people become healthier, happier and more productive. Trends in transport and consumption indicates a social readiness for a stronger Place Making, Green Infrastructure and Sustainable Travel agenda in the recovery, which in turn has clear positive implications for economic growth in the county. This report compares evidence of changes that happened during lockdown to the wider evidence base to support a case for a 'Green Recovery'.

A priority for recovery should be developing:

- Resilience to future pandemics; preparing our infrastructure and economy for more shocks. This includes food supply, transport and active travel, digital infrastructure, energy supply and green infrastructure.
- Resilience to climate change; reducing carbon emissions and adapting to inevitable climate impacts such as flooding and drought
- Resilience to the ecological breakdown; connecting habitats and enhancing our natural and built environment making it better for nature and us.
- Personal Resilience; a reduction in health and wellbeing inequalities, leading to a more productive workforce and greater resilience to future pandemics, through active travel, improved air quality, and better access to green space.

Carbon emissions are set to drop by 5% in 2020 compared to 2019 levels¹. 7.6% reductions are needed year on year for us to keep global warming to 1.5°C². So even with the huge restrictions placed on travel, economic activity and other carbon emitting industries for one quarter of the year, it is still not enough even for the first year, let alone incremental reductions of this size in the following years. This demonstrates the scale of change needed.

To provide some perspective, by mid-May 2020 COVID-19 had tragically caused an estimated 318,000 deaths globally³. The World Health Organisation estimates that climate change already causes 150,000 deaths per year and that this will rise to 250,000 by 2030⁴. This is a best-case scenario and recent research suggests that the actual mortality rate will be closer to 1 million per year⁵. Air pollution alone causes an estimated 40,000 avoidable deaths per year in the UK⁶ and is set to increase with climate change. As we rebuild our society and economy after COVID-19 we cannot afford to make the same mistakes again by ignoring environmental issues.

Moreover, recent polling suggests that 80% of people are willing to make the same level of personal sacrifice to stop climate change as they have made to stop coronavirus⁷. BEIS data from 2019 supports this⁸.

It is important to remember that whilst coronavirus restrictions in the UK have lasted 3 months so far, and the recovery period is likely to last much longer, the biodiversity crisis has been ongoing for at least 50 years.

¹ <https://www.carbonbrief.org/analysis-coronavirus-set-to-cause-largest-ever-annual-fall-in-co2-emissions>

² <https://wedocs.unep.org/bitstream/handle/20.500.11822/30797/EGR2019.pdf?sequence=1&isAllowed=y>

³ European Centre for Disease Prevention and Control. COVID-19 situation update worldwide, as of 19 May 2020. (2020) at <https://www.ecdc.europa.eu/en/geographical-distribution-2019-ncov-cases>

⁴ Patz, J. A., Campbell-Lendrum, D., Holloway, T., & Foley, J. A. (2005). Impact of regional climate change on human health. *Nature*, 438(7066), 310-317.

⁵ Haines, A., & Ebi, K. (2019). The imperative for climate action to protect health. *New England Journal of Medicine*, 380(3), 263-273.

⁶ <https://www.theguardian.com/environment/2020/jan/27/one-in-19-deaths-uk-cities-air-pollution>

⁷ <https://www.forbes.com/sites/solitairetownsend/2020/06/01/near-80-of-people-would-personally-do-as-much-for-climate-as-they-have-for-coronavirus/#1fef60a360b4>

⁸ <https://www.energylive.com/2019/05/09/uk-public-more-concerned-than-ever-before-about-climate-change/>

Scientific data shows that the number of species going extinct is now 1000 times higher than natural rates over the last 10 million years⁹ with an estimated 1 million species facing extinction within decades¹⁰. Whilst any impact of COVID-19 on biodiversity will be interesting, there is a much longer failure to address through any recovery plan that is integrated with social and economic activities.

Similarly, the evidence for urgent action on climate change is now decades old¹¹. As all seven Local Authorities in Gloucestershire have declared a climate emergency, now is the time to show commitment to real change. This evidence report highlights the ways in which the world changed over the period from March to June 2020 with a view to guiding decision-making so that we can Build Back Better to deliver a cleaner, greener, more resilient Gloucestershire.

2. Delivery Team and Timeline

This evidence report has been compiled by members of the Environment and Climate Action Group, a subgroup of the Recovery Coordination Group (part of the Local Resilience Forum in Gloucestershire).

A timeline of the activities of this group is presented below in Figure 1. The initial evidence report will inform an 'immediate actions report' from the Environment and Climate Action Group, outlining what action Gloucestershire partners can take to deliver environmental and climate benefits whilst responding to the COVID-19 crisis. This will be followed by a slightly longer-term Strategic report outlining a Build Back Better direction of travel for the county that supports Green Growth whilst combatting climate change and supporting nature's recovery.

This report is split into a series of issues for ease of reference. Clearly, there are interactions between these which the report highlights.



Figure 1 ECAG Timeline

⁹ J. M. De Vos, L. N. Joppa, J. L. Gittleman, P. R. Stephens, and S. L. Pimm, "Estimating the normal background rate of species extinction," *Conserv. Biol.*, vol. 29, no. 2, pp. 452–462, 2015

¹⁰ M. Fischer et al., "IPBES: Summary for policymakers of the regional assessment report on biodiversity and ecosystem services for Europe and Central Asia of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services," 2018, pp. 1–48.

¹¹ <https://history.aip.org/climate/timeline.htm>

3. Transport

From March 2020 – June 2020 Government lockdown restrictions forced dramatic changes to how, and the extent to which, people moved around. For many, this was the most noticeable impact of the crisis. These restrictions resulted in huge positive shifts in behaviour such as were considered impossible to achieve in such a short timeframe previously. The following evidence clearly shows that governments, both local and national, can deliver massive benefits to public health and carbon emissions through transport policy if the business case is compelling enough.

Data from Google¹² show movement trends by region, across different categories of places. These data are valuable to understanding how people’s movement patterns have changed. Figure 2 below shows patterns of movement from 17 April – 29 May against a baseline of 3 January – 6 February 2020.

Gloucestershire

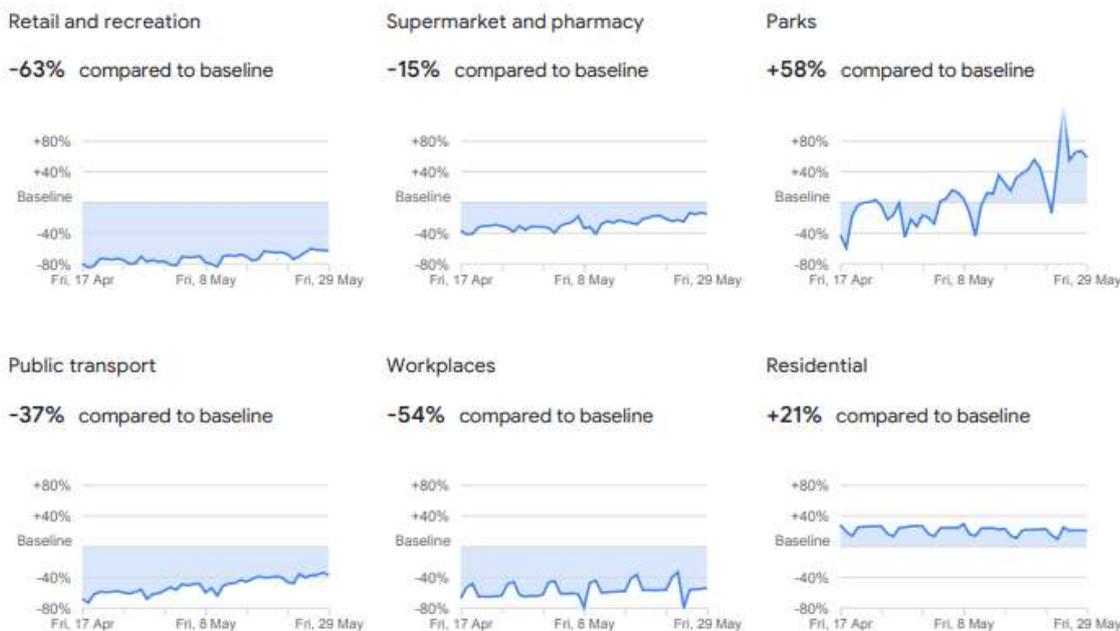


Figure 2 Google API data on time spent in various settings in Gloucestershire, compared to the baseline

Achieving widespread behaviour change in active travel is exceptionally hard, as the Local Sustainable Transport Fund (2012-14) demonstrated. (£16.5 million spent on support sustainable travel in Gloucestershire). Indeed, Department for Transport data shows that in the South West, levels of car ownership rose from 528 cars per thousand people to 558 per thousand between 2011 and 2016¹³.

Over the last few months all this changed. Cycling rates increased nationally by 100% in first weeks of lockdown¹⁴. More granular data available for Gloucestershire shows a slightly lower but nonetheless significant increase in cycling rates over the last 3 months (Figure 3).

¹² <https://www.google.com/covid19/mobility/>

¹³ <https://www.bbc.co.uk/news/uk-england-35312562>

¹⁴ <https://eciu.net/news-and-events/press-releases/2020/comment-coronavirus-and-transport-challenges-and-opportunities>



Figure 3 Cycling rates in Gloucestershire compared to pre-lockdown levels (GCC).

A Cycling Insight survey highlights a concern that 63% do not believe their local council is doing enough to support cycling infrastructure, but 61% believe more people will start cycling because of COVID-19¹⁵. The number of people walking regularly has also gone up in recent weeks – to around two thirds of all adults. And the Cabinet Office reported a reduction in car use of over 75% nationally¹⁶ (Figure 4).



Figure 4 Cabinet Office data showing dramatic drop in car use.

This is supported at county level by data from Gloucestershire County Council, which shows huge reductions in car use over the weeks of lockdown (Figure 5).

¹⁵ <https://wecanmove.ning.com/main/authorization/signIn?target=https%3A%2F%2Fwecanmove.ning.com%2Farticles%2Fcoronavirus-cycling-report>

¹⁶ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/886865/2020-05-21_COVID-19_Press_Conference_Slides_-_for_publication.pdf

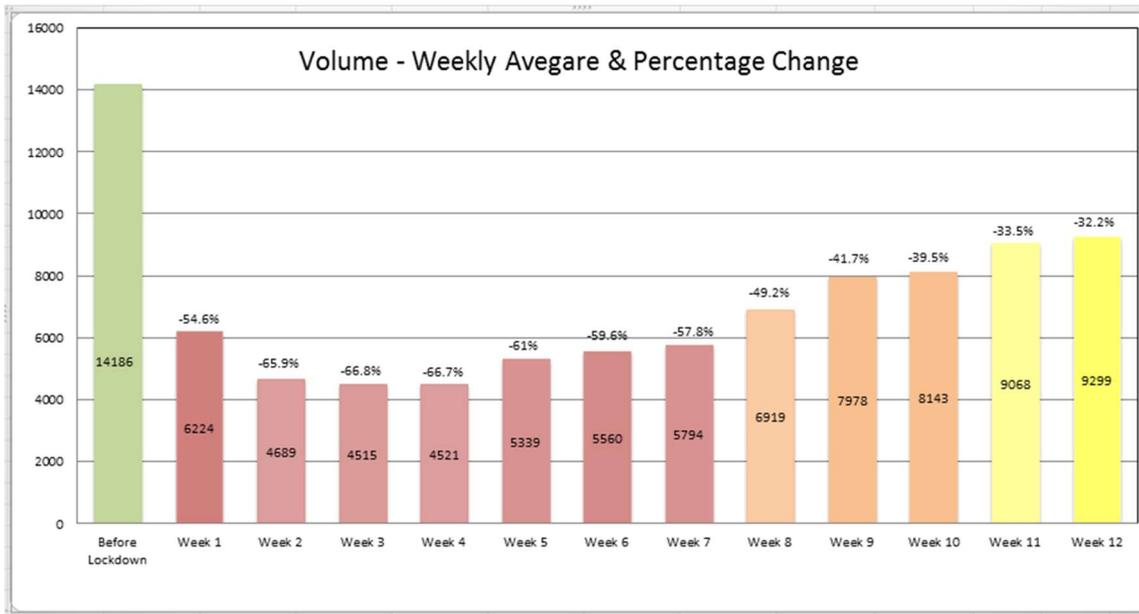


Figure 5 Weekly average and percentage change in traffic levels in Gloucestershire

Moreover, research conducted by the AA shows that drivers pledge to maintain behaviour changes:

“Half say they will walk more; four in ten vow to drive less; a quarter will work from home more and one fifth will cycle more. However, in the shorter term some who want to avoid public transport due to social distancing may take the car.” Edmund King, AA President¹⁷.

People have adapted to the restrictions by working from home – the last week of April saw 45% of people working from home nationally¹⁸. Technology has facilitated this massive shift in how employees operate. Zoom usage across the UK increased by 3000% from February 2020 to April 2020¹⁹. But still 5% of Gloucestershire households do not have access to high speed broadband. Initially supported for both entertainment and to allow for businesses to operate from more locations, high speed broadband is now a requirement to be an effective employee. Working from home does entail slight increases in energy use, but recent modelling shows these are dwarfed by reductions elsewhere²⁰ (Figure 6).

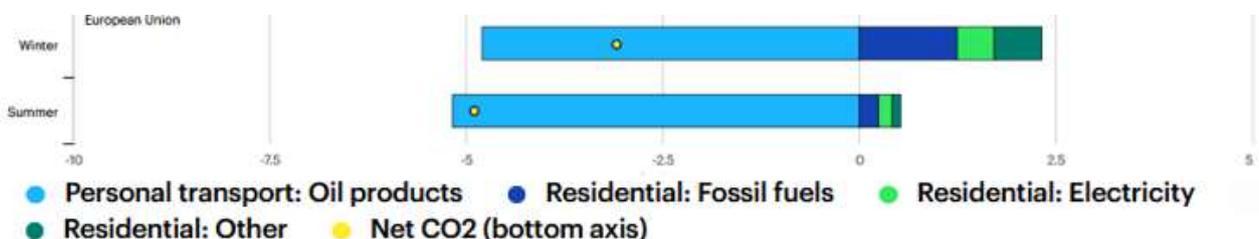


Figure 6 Average change in energy demand and CO2 emissions from one day home working for a single household with a car commute.

¹⁷ Ibid

¹⁸ <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/bulletins/coronavirusandthesocialimpactsongreatbritain/29may2020>

¹⁹ <https://www.theverge.com/2020/4/23/21232401/zoom-300-million-users-growth-coronavirus-pandemic-security-privacy-concerns-response>

²⁰ https://energypost.eu/calculating-the-energy-saved-if-home-working-becomes-the-norm-globally/?utm_campaign=shareaholic&utm_medium=twitter&utm_source=socialnetwork

These changes deliver multiple benefits, not least to air quality. Levels of NO_x in Stroud Town Centre in April were at less than 50% of their usual levels (see appendix) – this is clearly directly correlated with the reduction in traffic volumes. The effects that maintenance of these levels of air quality would have on public health outcomes (and natural environment outcomes), is huge. Currently (16 June 2020) the number of UK deaths from Coronavirus is only slightly higher (41,700) than the annual avoidable deaths from air pollutions (40,000)²¹.

A converse behaviour change is the reduction in public transport use. Government guidelines have led to huge drops in the number of people taking the bus in Gloucestershire²² (see Figure 7). The Chartered Institute of Logistics and Transport have published a report with insight into how to promote public transport whilst tackling COVID-19²³.

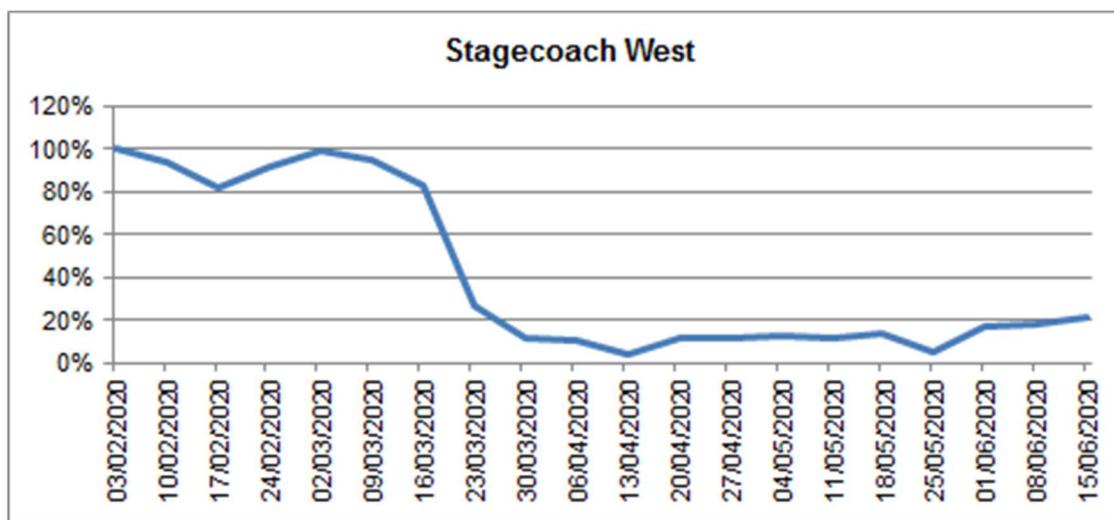


Figure 7 Passenger numbers since lockdown started of Stagecoach Southwest.

People will need to return to their places of work, although likely in a different way and to a different extent than before. Some will need to drive. However, there is a unique opportunity to support people who are making new habits so that they can lead healthier, happier and more active lives, and the Actions Report will look at some suggestions for how this can be delivered. We know that if all cars on the road (at normal levels) were EVs, the UK could report a 12% drop in annual CO₂ emissions²⁴. We also know that making streets in towns, cities and villages more attractive for active travel would have knock-on benefits for people’s sense of place, and there are clear links here with the Green Infrastructure agenda. Evidence has shown that cyclists visit shops more regularly and spend more than most other modes of transport, furthermore, per square metre, cycle parking delivers five times higher retail spend than the same area of car parking²⁵. A Report for transport for London reports that high street walking, cycling and public realm improvements can increase retail sales by up to 30%²⁶.

But urgency is required. In the widely accepted Transtheoretical Model of behaviour change, new behaviours, once enacted, take around 6 months to become normalised (or maintained). Lockdown has lasted for around

²¹ <https://www.theguardian.com/environment/2020/jan/27/one-in-19-deaths-uk-cities-air-pollution>

²² Passenger numbers since lockdown started of Stagecoach Southwest - Data supplied by James O’Neill of Stagecoach buses to the author, personal email, 17.6.20.

²³ Rebuilding the Bus Market to meet the decarbonizing challenge in a post-Covid-19 world, Chartered Institute of Logistics and Transport (CILT), 2020.

²⁴ http://irep.ntu.ac.uk/id/eprint/37981/1/1201517_Al-Habaibeh.pdf

²⁵ Dft (2016) The Value of Cycling. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/509587/value-of-cycling.pdf

²⁶ TfL (2019) Walking & Cycling: the economic benefits. <http://content.tfl.gov.uk/walking-cycling-economic-benefits-summary-pack.pdf>

3 months; this points to the need to act now to maintain these patterns²⁷. Indeed, emerging evidence from countries where lockdown has already been lifted shows car use exceeding pre-COVID-19 levels²⁸.

4. Climate Change and the Economy

The economy has suffered hugely because of lockdown. The evidence presented here does not paint a picture of the extent of that damage but focusses on evidence that supports the case for Building Back Better. The evidence here shows why Gloucestershire needs to prepare for the Green Industrial Revolution that Chancellor Rishi Sunak announced on June 3rd 2020, and the £100billion available for 'shovel ready' infrastructure schemes announced by Housing, Communities and Local Government Secretary Robert Jenrick²⁹.

We must build back better, moving to a zero-carbon, forward-looking economy because:

4.1. IT IS GOOD FOR BUSINESS:

The UK government is planning a Green Revolution, promising that the economic recovery package will accelerate progress on climate change. The OECD Green Growth Strategy, and the report, Towards Green Growth³⁰, argues that greening growth now is necessary to prevent further erosion of natural capital, including increased scarcity of water and other resources, more pollution, climate change, and biodiversity loss, all of which can undermine future growth for the county. The report states green growth has the potential to address economic and environmental challenges and open-up new sources of growth through several channels, such as: productivity, innovation, new markets, confidence, stability, reducing resource bottlenecks and imbalances in natural systems.

Green growth seeks to spur investment and innovation in ways that give rise to new, more sustainable sources of economic activity and jobs³¹. The total output of the Gloucestershire economy was approximately £14.82 billion in 2014, representing 12% of the value of output in the South West and 1% of the UK economy^{32 33}. By being at the forefront of the green growth agenda the Gloucestershire has the ability to considerably increase our economy share in the future. Gfirst LEP's Draft Local Industrial Strategy had a very clear commitment to prioritising green growth³⁴. Much evidence points towards improving energy efficiency of buildings as a top priority³⁵ (Figure 8).

²⁷ <http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories6.html>

²⁸ <https://www.theguardian.com/environment/2020/jun/14/congestion-set-to-exceed-pre-lockdown-levels-as-cars-crowd-back-on-to-uk-roads>

²⁹ <https://www.forbes.com/sites/carltonreid/2020/06/13/uk-government-dangles-100-billion-for-green-recovery-infrastructure-deadline-june-18/#1f05a8b45d7a>

³⁰ https://read.oecd-ilibrary.org/environment/towards-green-growth_9789264111318-en#page1

³¹ <http://www.greengrowthknowledge.org/page/explore-green-growth>

³² <http://www.imf.org/external/pubs/ft/weo/2016/update/01/>

³³ https://inform.gloucestershire.gov.uk/media/1520793/gloucestershire_economy-22.pdf

³⁴ <https://www.gfirstlep.com/industrial-strategy/>

³⁵ https://twitter.com/_JamesGriffiths/status/1272999637314666496

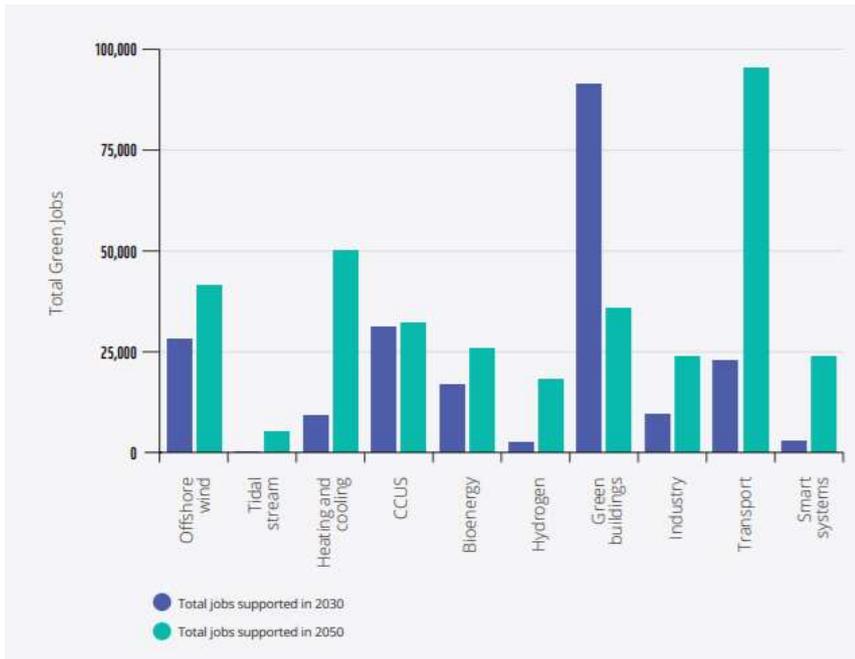
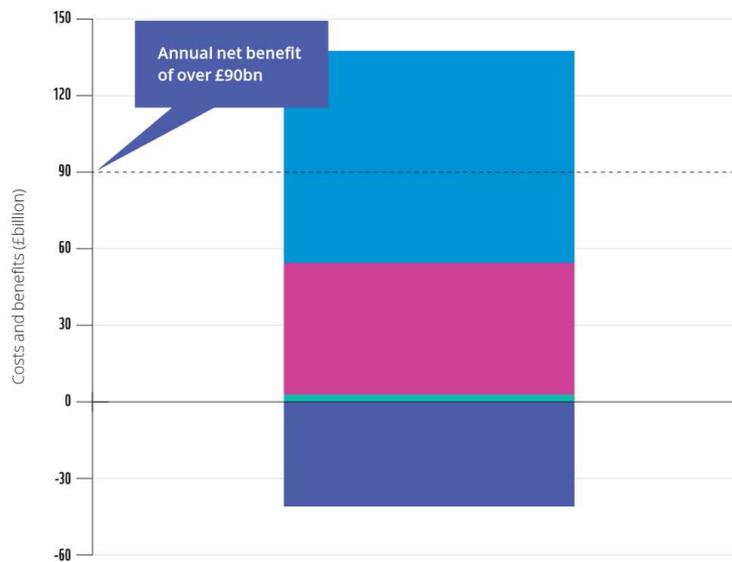


Figure 8 Vivid Economics report showing green jobs created by sector on road to Net Zero 2050

That the costs of inaction over climate change far outweigh the costs of action has been proven time and again, most famously by Nicholas Stern in his 2006 review for the UK government³⁶. A recent study, conducted by Vivid Economics on behalf of the WWF³⁷, illustrates this point (see Figure 9).

FIGURE 1:
ANNUAL NET COSTS AND BENEFITS OF ACHIEVING NET ZERO (2050)

- Around £40bn of resource costs
- Over £80bn of co-benefits
- Over £50bn of potential business opportunities unlocked
- At least £3bn of avoided costs of inaction



Note: The estimates of annual costs and benefits are based on bottom-up literature of costs and benefits. They are hence incomplete due to the scope of previous studies. For example, estimates of the business opportunities only consider business opportunities associated directly with selected low-carbon technologies.

Source: Vivid Economics

Figure 9 Vivid Economics Report showing annual net costs and benefits of achieving Net Zero by 2050.

³⁶ Stern, N. (2007). The Economics of Climate Change: The Stern Review. Cambridge: Cambridge University Press. doi:10.1017/CBO9780511817434

³⁷ https://www.wwf.org.uk/sites/default/files/2020-06/Keepingus_competitive.pdf

Leading businesses such as KPMG; Marks and Spencer; Deloitte are acting on climate change on the basis of the business case. Climate Change impacts will result in cost, infrastructure and resource impacts that businesses must prepare for. These businesses realise that acting now is better business than delaying. The same is true of Local Enterprise Partnerships and Local Governments across the UK; not least Greater Manchester which is leading calls for a national Build Back Better movement across the UK³⁸.

4.2. IT'S GOOD FOR THE PLANET

The economy has failed to address the twin inter-related existential threats of climate change and biodiversity loss. The impact of business, industry and modern lifestyles on climate change has been well documented and it is not considered useful to rehearse that argument here. What does bear repeating is that global carbon emissions are set to fall by just 5% in 2020 compared to 2019. In order to keep global warming to less than 1.5 degrees we need a year-on-year decrease in emissions of 7%. Our current model is patently failing to meet the challenge.

Declines in biodiversity are dealt with in the final section of this Report.

4.3. IT'S GOOD FOR PEOPLE AND SOCIETY

A YouGov poll showed 57% of people in the UK want the economy to be 'significantly different' to how it was before³⁹. Respondents to this UK survey clearly see climate change as the biggest issue the world needs to address as we move past COVID-19 (Figure 10). And local politicians are calling for action. The Conservative MP for Gloucester Richard Graham last year stated that he wants Gloucester to be at the forefront of a green revolution⁴⁰.

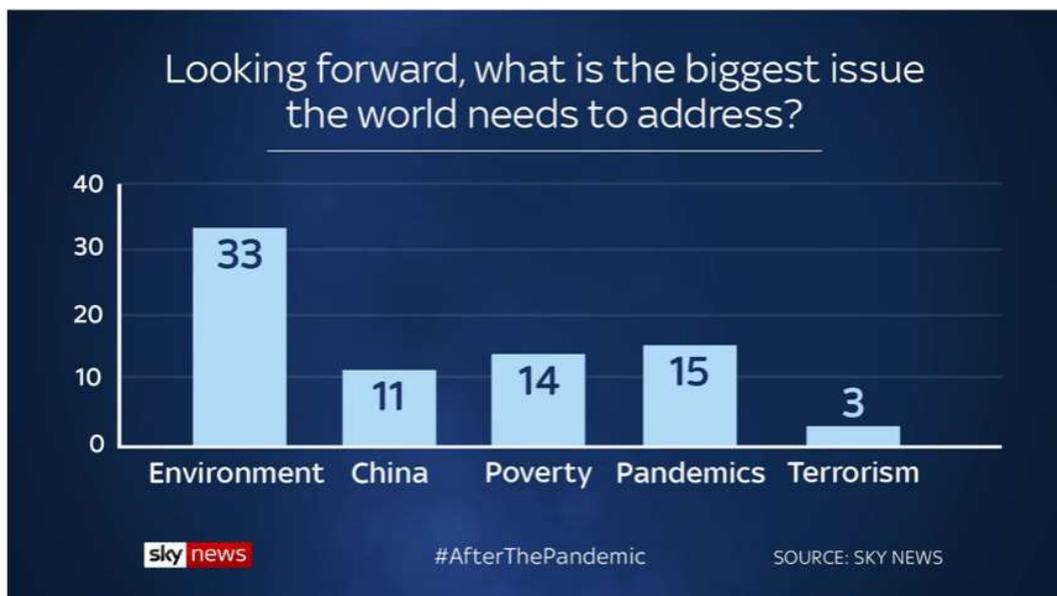


Figure 10 Results from a YouGov survey. The option in the survey was climate change, not environment.

³⁸ <https://www2.deloitte.com/uk/en/pages/regions/articles/deloitte-backs-mayoral-build-back-better-campaign.html>

³⁹ <https://news.sky.com/story/after-the-pandemic-britons-want-a-significantly-different-post-virus-economy-11998793>

⁴⁰ <https://hansard.parliament.uk/HoC%20Debate/2019-05-01/debates/3C133E25-D670-4F2B-B245-33968D0228D2/web/#contribution-4B488624-B46E-4456-BDBF-CD3D20720945>

Overall levels of inequality have continually increased over the past fifty years, with the bottom decile (10%) of earners accounting for just 1% of income share (compared with nearly 5% in 1971-72) and the top decile earning over 30% of all income, up from just 22% in the same time period⁴¹. In considering climate change businesses have the opportunity to explore multi-benefit solutions that can support their progress in other areas such as equality, diversity and corporate responsibility.

UK shoppers are increasingly turning to local shops, markets and farms for their essentials where they can and are also trying not to stockpile, while looking out for their neighbours. 55% of consumers want to increase their support of local businesses as a result of the lockdown – primarily by visiting local shops and markets when they can do so again⁴². This supports some of the logic demonstrated in the Transport Section, and points to encouraging a stronger Place Making, Green Infrastructure and Sustainable Travel agenda in the recovery. This also links with some of the findings in the following section, about the resilience of the Local Food Sector and the impacts of food on the climate.

5. Food and Farming

Panic buying and disruptions to global, national and local food supply chains saw supermarkets and other food retailers restricting purchases of certain items. Some staple items, such as flour, milk and eggs have become very difficult to source. Interestingly, local, independent retailers appear to have been able to provide more secure access to these items (author observation).

The UK's food system is not resilient or secure. In the 2000 lorry drivers' strike, senior ministers admitted the UK was only a couple of days away from food crises. Industry insiders now deem this to be closer to 3 days⁴³. In 2016 Britain imported £ 44.8bn of food. UK self-sufficiency is 50%. And just 23% in fruit and vegetables⁴⁴.

Food accounts for a staggering 26% of global greenhouse gas emissions⁴⁵. Local food produced to high environmental and animal welfare standards has the potential to reduce much of agriculture's and the food system's impacts on the natural environment.

There is clear support for change:

- 80% of veg box schemes in the UK now have waiting lists, a huge increase on pre-COVID-19 levels. Sales increased by 111% in the 6 weeks from the end of February⁴⁶. This represents a huge demand from the public for more resilient, sustainable, local food supply.
- 93% of professionals in the food and farming sector support a focus on local, short supply chains, supporting the trends seen from consumers during the pandemic, with 69% supporting more powers for local authorities to lead and support local food policy⁴⁷.

⁴¹ <https://www.equalitytrust.org.uk/how-has-inequality-changed>

⁴² <https://internetretailing.net/customer/customer/shoppers-across-the-uk-are-turning-local-for-their-essentials--and-helping-each-other-out-21283>

⁴³ Lang, T., Feeding Britain, Page 45

⁴⁴ Lang, T., Feeding Britain, Page 87

⁴⁵ Poore, J. and Nemecek, T. Reducing Food's environmental Impacts through producers and consumers. *Science*, 360 (6392) 987-992.

⁴⁶ <https://foodfoundation.org.uk/wp-content/uploads/2020/05/Food-Foundation-COVID-19-Veg-Box-Scheme-report.pdf>

⁴⁷ <https://www.ffcc.co.uk/lockdown-survey>

6. Health and Wellbeing and access to Nature

The rise of COVID-19 is partly a consequence of decisions we made regarding our natural environment. New diseases are emerging at an increasing rate and most are ones that pass from animals to humans⁴⁸. Whilst there are multiple reasons for this, the ongoing destruction and degradation of ecosystems is an important one. Our collective failure to stop and reverse habitat loss has created landscapes that increase the risk of disease transmission⁴⁹. This is not to say that people and wildlife should be kept separate. A lack of access to nature is a growing issue particularly for children⁵⁰ and there is growing evidence for the health benefits of having high quality natural green spaces near to where we live⁵¹. The COVID-19 crisis is not over and we can't rule out another pandemic in future, so having quality natural green spaces near to where people live is more important than ever.

Many are expressing concerns of a mental health pandemic following lockdown. For instance, calls to Gloucestershire Wildlife Trust due to loneliness have increased dramatically over the last 3 months. A significant University College London study also showed the 25% of people admitted to hospital with Coronavirus have some kind of confusion or delirium⁵². The same study found that, based on SARS and MERS, almost one in three cases went on to develop Post-Traumatic Stress Disorder.

Providing access to high quality green space close to where people live and work is vital for good mental and physical health, as well as for a happy society and thriving economy⁵³. Nationally, 79% of the public felt that the COVID-19 pandemic highlighted the inadequate provision of local green spaces⁵⁴. Closer analysis of this data reveals a stark economic inequality in access to green spaces, particularly those with high nature value. Households with an annual income less than £10,000 were 3.6 times less likely to have an outdoor green space of their own and 40% less likely to live within 10 minutes of a local green space compared to more affluent households. Another area of inequality is between urban and rural areas, with only 51% of urban households being able to spend as much time in nature as they would like. Providing equitable access to green spaces by investing in enhancing and expanding nature-rich green spaces was through to be a key factor in building resilience to future pandemics by 75% of those questioned.

Similarly, 10% of households in Gloucestershire have no access to a private garden⁵⁵. Similar inequalities are at play here: in England, Black people are four times more likely than people of white ethnicity to have no access to an outdoor space at home⁵⁶.

Again, there is clear support for change. At a local level, 74% of respondents to a Gloucestershire survey spent more time in nature during lockdown⁵⁷. Spending time in green spaces played an important role in maintaining physical health (41%) and mental health (44%) for many people. National figures show more than two thirds of adults have reported that nature has made them feel happy during lockdown⁵⁸. During the

⁴⁸ Lackey, N. Q., Tysor, D. A., McNay, G. D., Joyner, L., Baker, K. H., & Hodge, C. (2019). Mental health benefits of nature-based recreation: a systematic review. *Annals of Leisure Research*, 1-15.

⁴⁹ Jones, K., Redding, D., Gibb, R., Fletcher, I., Enright, L., Simons, D., Franklins, L. (2020). FAQ's - Relationship between infectious disease and habitat loss, biodiversity, bats and live wildlife markets, UCL.

⁵⁰ McCurdy, L. E., Winterbottom, K. E., Mehta, S. S., & Roberts, J. R. (2010). Using nature and outdoor activity to improve children's health. *Current problems in pediatric and adolescent health care*, 40(5), 102-117.

⁵¹ Mensah, C. A., Andres, L., Perera, U., & Roji, A. (2016). Enhancing quality of life through the lens of green spaces: A systematic review approach. *International Journal of Wellbeing*, 6(1).

⁵² [https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366\(20\)30203-0/fulltext](https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(20)30203-0/fulltext)

⁵³ <https://www.mentalhealth.org.uk/statistics/mental-health-statistics-economic-and-social-costs>

⁵⁴ RSPB (2020). A report on public opinion on the role and importance of nature during and in our recovery from the Coronavirus crisis in England. YouGov commissioned survey of 2155 adults, weighted to be representative of all UK adults. Bedfordshire, UK

⁵⁵ <https://www.ons.gov.uk/economy/environmentalaccounts/articles/oneineightbritishhouseholdshasnogarden/2020-05-14>

⁵⁶ Ibid

⁵⁷ Gloucestershire Wildlife Trust (2020) Life after lockdown survey of public opinion in Gloucestershire on environmental recovery post-covid. Results from 748 responses as of 12/06/2020. Gloucester, UK

⁵⁸ <https://www.nationaltrust.org.uk/press-release/uk-values-nature-more-as-a-result-of-lockdown-according-to-summer-solstice-poll->

recovery period, 57% of people questioned in Gloucestershire planned to spend more time in green spaces with family and friends and 39% felt that increased provision of public natural green space was a priority for new housing. 73% of people in the food and farming sector also believed people need easier access to nature. Many of these are landowners with the ability to provide it⁵⁹.

47% of people in England who had left their house had visited a park or public green space in the third week of June⁶⁰. Daily exercise in lockdown has seen some places overcrowded, a particular risk for social distancing but also the detrimental effect of high visitor pressure on the wildlife at these sites. In a national YouGov survey over half of respondents said they planned to make a habit of spending longer in nature once things go back to normal⁶¹. Gloucestershire needs to prioritise nature corridors with localised green spaces for county residents offering choice and nature escape on their doorsteps.

7. Biodiversity and Natural Capital

Biodiversity is the building blocks of the natural capital that underpins most of Gloucestershire's society and economy. There is overwhelming scientific evidence that the loss, degradation and fragmentation of wildlife habitat have been the fundamental driver of biodiversity declines for at least the last 50 years, but probably longer⁶². This is the case in both rural⁶³ and urban⁶⁴ areas, and leads to decreased economic, societal and environmental resilience. The ONS reported the partial asset value of the UK's Natural Capital as £761 billion, but stated it is likely to be much more as the value from many assets is not yet estimated. 58% of this value comes from supply of cultural and regulating services⁶⁵.

In most cases it is too early to tell how or if the pandemic had affected Gloucestershire's wildlife. There is often a time-lag in the impact of acute changes on wildlife and any effect on habitats or species populations may not be detectable until 2021 at the earliest. Gloucestershire Wildlife Trust has received anecdotal reports of some species initially thriving during lockdown due to a reduction in disturbance from people and dogs, however, this changed following the significant increase in visits to green spaces as restrictions were eased, with estimated 100% increases at some GWT reserves. Species that are reliant on specific land management are likely to have suffered as most organisations have been unable to undertake conservation management activities.

The UK is now one of the most nature depleted countries in the world (189th of 218 countries assessed⁶⁶) and much of this is due to years of policy and land-use practices that have driven habitat loss, degradation and fragmentation. For instance, Gloucestershire Wildlife Trust's data indicates that the county has lost 70% of its traditional orchards and most of its species-rich grasslands since the 1970s.

⁵⁹ <https://www.ffcc.co.uk/lockdown-survey>

⁶⁰ <https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/bulletins/coronavirusandthesocialimpactsongreatbritain/19june2020>
⁶¹ <https://www.nationaltrust.org.uk/press-release/uk-values-nature-more-as-a-result-of-lockdown-according-to-summer-solstice-poll->

⁶² IPBES (2019): Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany

⁶³ Humphrey, J.W., Watts, K., Fuentes-Montemayor, E. et al. What can studies of woodland fragmentation and creation tell us about ecological networks? A literature review and synthesis. *Landscape Ecol* 30, 21–50, (2015). <https://doi.org/10.1007/s10980-014-0107-y>.

⁶⁴ Ignatieva, M., Stewart, G.H. & Meurk, C. Planning and design of ecological networks in urban areas. *Landscape Ecol Eng* 7, 17–25 (2011). <https://doi.org/10.1007/s11355-010-0143-y>.

⁶⁵ ONS (2018) UK natural capital: Ecosystem service accounts, 1997 to 2015.

<https://www.ons.gov.uk/economy/environmentalaccounts/bulletins/uknaturalcapital/ecosystemserviceaccounts1997to2015>

⁶⁶ IPBES (2019): Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. E. S. Brondizio, J. Settele, S. Díaz, and H. T. Ngo (editors). IPBES secretariat, Bonn, Germany

In Gloucestershire, 83% of people are concerned about the impact of food production on wildlife and 50% are willing to buy more wildlife friendly food⁶⁷. Access to affordable, locally sourced, sustainable food were the main barriers that people wanted addressing – see Food and Farming section of this report.

Whilst people undoubtedly want economic recovery, economic growth was the top priority for just 21% of people surveyed in Gloucestershire (Figure 11), falling significantly behind action on climate, environmental and social issues. A majority of people questioned (78%) felt that economic growth targets must be sustainable by accounting for the protection and restoration of nature⁶⁸.

Q6 What do you think should be the priority of local and national governments post Covid-19?

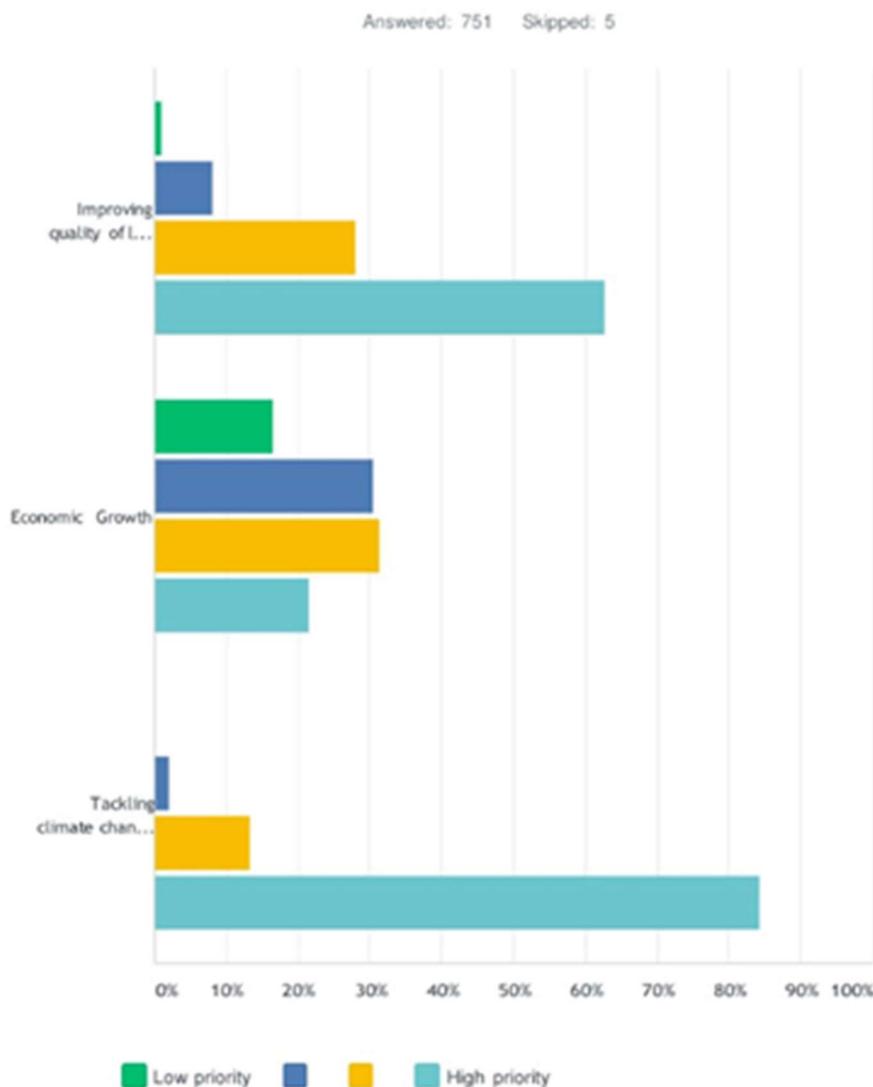


Figure 11 GWT survey showing preference for government focussing on climate change and the environment.

⁶⁷ Gloucestershire Wildlife Trust (2020) Life after lockdown survey of public opinion in Gloucestershire on environmental recovery post-covid. Results from 748 responses as of 12/06/2020. Gloucester, UK.

⁶⁸ More evidence on active and sustainable travel can be found here <https://wecanmove.ning.com/articles/list/tag/active+travel?page=1>

For detailed insight into Air Quality changes see here:

<https://ee.ricardo.com/downloads/air-quality/life-after-lockdown-%E2%80%93-webinar-materials>

More evidence on food and farming and the impact of Covid-19 can be found here

<http://www.ccric.ac.uk/covid-19-food-system/>

More evidence supporting a natural capital approach to growth for Gloucestershire can be found here

<https://www.gloucestershirenature.org.uk/local-industrial-strategy>

8. Conclusion and Next Steps

This report has demonstrated that many environment and climate-related elements of society have dramatically altered since the UK entered lockdown on 23rd March 2020. It has also demonstrated the urgency with which we need to act if we are to take advantage of many of the positive changes.

There is a unique opportunity to support people who are making new habits so that they can lead healthier, happier and more productive lives. The intrinsic connection between human basic needs and their ability to function highly in home and working life is borne out in data that reflects the well-established model by social psychologist Maslow in his work on human motivation (1943,1954) and makes explicit the benefits of sympathetic human interactions with their local environments.

More importantly, what is clear is that the evidence for urgent action on climate change and the biodiversity crisis has existed for a long time, and inadequate action has been taken to address these existential threats. Lockdown has lasted for around 3 months, and emerging evidence from countries where lockdown has already been lifted shows how quickly things are returning to the pre-COVID-19 levels. This is also in line with established psychological models on human habit formation and the fragility of new behaviours over several months.

Evidence on shopping habits, food resilience and transport patterns indicates a social readiness for a stronger Place Making, Green Infrastructure and Sustainable Travel agenda in the recovery. In turn this is linked to the economic growth potential for Gloucestershire which has the potential to address economic and environmental challenges and open-up new sources of growth through several channels.

This report will be followed by an Immediate Actions Report on June 29th 2020, highlighting actions that can and should be taken immediately by partners in the county to begin the delivery of the urgent action required.