

AGENDA ITEM NO:**UNIVERSITY HOSPITALS BIRMINGHAM NHS FOUNDATION TRUST
BOARD OF DIRECTORS
THURSDAY 24 OCTOBER 2019**

Title:	SUSTAINABLE DEVELOPMENT MANAGEMENT PLAN 2019-2024
Responsible Director:	Lawrence Tallon, Director of Strategy, Planning and Performance
Contact:	Phillippa Hentsch, Head of Strategy and Analysis Rukudzo Hakulandaba, Performance Assurance Manager Luke Landers, Energy and Sustainability Manager
Purpose:	To seek the Board's approval for UHB's sustainable development management plan
Confidentiality Level & Reason:	None
Strategy Implementation Plan Ref:	#8 Use our resources as efficiently as possible to meet our financial improvement trajectory #10 Transform the model of care to ensure patients are seen in the right settings and to move lower acuity care off acute/specialist sites
Key Issues Summary:	<ul style="list-style-type: none">• All NHS providers are required to have a Board approved sustainable development management plan (SDMP). It is a requirement in the NHS Standard Contract and NHSE/I view it as a measure of a well led organisation.• The government has now committed the UK to achieving net zero carbon emissions by 2050, requiring all public organisations to develop ambitious plans to improve their environmental sustainability.• This five-year sustainability strategy is mutually reinforcing for many of our key corporate priorities, such as the Digital First agenda, outpatient transformation, our ambition to deliver more care in the community and virtually, and our financial improvement programme.

Recommendations:	The Board of Directors is asked to: <ul style="list-style-type: none">• Approve the proposed sustainable development management plan (SDMP), which is attached at Appendix 1.
-------------------------	---

Signed: Lawrence Tallon	Date: 16 October 2019
--------------------------------	------------------------------

UNIVERSITY HOSPITALS BIRMINGHAM NHS FOUNDATION TRUST

BOARD OF DIRECTORS

24 OCTOBER 2019

SUSTAINABLE DEVELOPMENT MANAGEMENT PLAN 2019-2014

LAWRENCE TALLON, DIRECTOR OF CORPORATE STRATEGY, PLANNING AND PERFORMANCE

1. Background

The NHS standard contract mandates all providers to have a sustainable development management plan (SDMP).

NHS Improvement and NHS England also expect all NHS providers to have a Board approved SDMP as these plans are considered a good measure of a well led organisation. Public Health England also view these plans as evidence of an organisation's commitment to local public health outcomes.

According to the NHS Sustainable Development Unit (SDU), which works on behalf of NHS England and Public Health England to promote sustainability in the NHS, an SDMP forms a "key part of sustainable healthcare delivery to ensure services remain fit for purpose...health and care organisations should use their SDMP to describe their plans to improve...the wider determinants of health in the communities they serve".

Over two-thirds of NHS trusts have a SDMP, but this is the first time the trust is adopting a comprehensive sustainability strategy in its new form.

2. Case for change

There is growing urgency around climate change and the NHS's impact on the environment. According to the Long Term Plan, the NHS is responsible for 6.3% of England's total carbon emissions, and 5% of total air pollution.¹

The government has now committed the UK to achieving net zero carbon emissions by 2050, but many public sector organisations have already committed to going further than this.

More than 100 local authorities have now declared a climate emergency, including the West Midlands Combined Authority and Birmingham City Council. Notably, three NHS bodies have declared a climate emergency: Newcastle upon Tyne hospitals NHS Foundation Trust, University Hospital Bristol NHSFT and the Greater Manchester health and social care partnership. Each declaration has committed their organisation to achieving carbon neutrality ahead of 2050 and to work with government and local partners to make it happen.

¹ NHS Long Term Plan (2019)

To date, UHB has been able to achieve interim carbon reduction targets: between 2007/2008 and 2017/18 we reduced our direct energy consumption by 11.8% and carbon footprint by 15% (against a target of 10%). However, if the trust is to meet forthcoming carbon reduction targets in 2025, 2030 and 2050 (outlined in the Climate Change Act), a broader approach to sustainability is required.

Above and beyond our statutory commitments, we also have committed in our vision to build healthier lives. Air pollution can cause up to 36,000 deaths a year and over 20,000 respiratory and cardiovascular hospital admissions a year. In Birmingham, air pollution can be linked to 900 deaths per year and the city is currently in breach of legal limits for nitrogen dioxide, with the second highest levels in England after London. The impact of this is that primary school children who grow up in Birmingham could lose up to half a year of their lives due to illegal levels of air pollution.²

We have a responsibility beyond the boundaries of our hospitals and community services, in contributing to a greener, healthier and more sustainable environment. Moreover we must support our staff, patients and communities to realise that low carbon lifestyles can have a positive impact on health and wellbeing.

A focus on sustainability is also mutually reinforcing for many of our key corporate priorities, such as the Digital First agenda, outpatient transformation and our ambition to deliver more care in the community and virtually. For example, a 30% reduction in outpatient attendances would remove around 3,000 tonnes of CO₂ from the atmosphere each and every year.³

Environmental sustainability is also an issue that our staff and patients feel very strongly about. We undertook a trust wide survey earlier in 2019, to which around 1,000 staff responded. Only 6% of staff strongly agreed that the trust actively supported the environment with the top three opportunity areas identified as: reducing the amount of waste produced (59%), reducing the amount of energy we use (46%) and using more recyclable products (45%).

3. Overview of UHB's draft sustainability strategy

The draft strategy provides an overarching framework for how we might wish to develop our approach to environmental sustainability in the future.

Our sustainability objectives, as outlined in our SDMP, are to:

- Maximise the benefits of being one of the largest trusts to significantly influence social and environmental issues for Birmingham, Solihull and South Staffordshire.
- Redesign healthcare in a way which supports the development and delivery of a more integrated and sustainable model of care
- Empower our staff to put sustainable and environmental issues at the heart of their work, giving them the necessary tools, resources and training to make responsible decisions.

² King's College London (2019) Birmingham City Health and Economic Impact Assessment study. Available from: <https://www.uk100.org/wp-content/uploads/2019/05/KCL-UK100-Birmingham-City-Health-and-Economic-Impact-2019.pdf>

³ Modelled from the health outcomes of travel tool (HOTT)

- Measure and report on the Trust’s progress against statutory targets.
- Manage our buildings and resources in the most effective way to minimise our environmental impact.
- Work in partnership with other local government and NHS organisations through the Birmingham and Solihull sustainability and transformation partnership (STP) and voluntary sector to deliver shared sustainability objectives.

Our strategy is organised around six priority areas outlined below. The strategy sets out our aims, proposed actions and how the success of those actions can be measured:



The table below outlines key elements of our current approach to environmental sustainability and illustrative initiatives we could further develop in future in line with the strategy, subject to appropriate governance and financial due diligence.

Our current environmental sustainability work <i>Non exhaustive list</i>	Potential future activities <i>Non exhaustive list</i>
<ul style="list-style-type: none"> • Meeting our regulatory requirements e.g. adopt an SDMP • Mandatory reporting e.g. ERIC submissions • Staff shuttles between sites, including a car sharing scheme. • Compliance with relevant audits • Provision of recycling facilities, including recycling bin replacement programme • Installation of solar panels and LED lighting where feasible • Charity funding for some 	<ul style="list-style-type: none"> • Clinical engagement programme to support targeted waste reduction and carbon reduction in key areas e.g. awareness raising, hot-spot audits, carbon footprint information • Staff engagement / behavioural change programmes e.g. green ward/theatre competitions, regular communications/newsletters • Actively monitoring annual performance against our sustainable development management plan, including review against the sustainable development assessment tool and Clean Air Framework⁴ which

⁴ The Clean Air Framework has been co-developed by Global Action Plan and Great Ormond Street Hospital.

<p>initiatives e.g. green spaces and bike sheds/cages</p> <ul style="list-style-type: none"> • Reducing our single use plastics in targeted areas e.g. catering outlets. • Sharing and exchanging initiatives between other NHS trusts e.g. by attending meetings with environmental sustainability leads. • Informal sustainability working group, who meet to discuss small scale projects. 	<p>many trusts do.</p> <ul style="list-style-type: none"> • Support staff and patients to increase active travel and use of public transport e.g. additional incentives to alternatives to car travel e.g. cycle surgeries, cycle breakfasts, electric bikes, journey planning tools • Identification of options for green spaces across all our sites / promote and raise awareness for staff and patients • Expand scope of our travel survey, to include all sites (currently only at QEHB); capture information from patients about how they are travelling to our sites. • Installation of electric car charging points across our sites • Substantial investment in University Station to support clean public transport to QEHB
--	---

As ever, we must continue to balance our focus in this area alongside our primary core purpose as a healthcare organisation but, managed properly, our efforts to work sustainably can have an entirely positive impact on the health and wellbeing of the patients we serve. We also should not do things that have a negative impact on local population health, such as generating harmful emissions.

4. Engagement to develop the strategy

In 2018 we set up a sustainability working group with key corporate teams and interested clinicians across the Trust to shape our plans. This group has influenced the priorities within the strategy, and will be a key group in supporting its implementation.

In 2019, we conducted a Trust-wide survey to understand where staff thought the Trust could be doing more. We have also undertaken a comprehensive evidence review, including engaging with other trusts, to explore the case for change and to identify the most effective interventions.

Corporate teams from across Estates, Facilities, Finance⁵, Procurement and Communications have developed the specific recommendations within the strategy and will develop action plans to support the implementation. We have also discussed with Governors through the Strategy Reference Group and amended the strategy accordingly.

⁵ A review from finance confirmed that the strategy does not commit us to fund certain initiatives, and that any new costs brought forward under the strategy will be in line with the scheme of delegation.

The strategy has also been tested with a number of key external partners, including the University of Birmingham and Birmingham City Council.

5. Comparisons with other trusts

In the development of the strategy we have discussed and shared approaches with neighbouring and peer trusts to understand our respective priorities.

We have identified that at least two Shelford Group trusts - Newcastle upon tyne Hospitals NHS Foundation Trust and Manchester University Hospitals NHS Foundation Trust - have well-resourced sustainability teams and programmes, which have been able to deliver sustained financial and carbon footprint savings. These two trusts were also the first healthcare organisations in the UK to announce a climate emergency. For example, Manchester University Hospitals NHS FT has a dedicated sustainability team within their estate and facilities department. Since 2013, they have partnered with Green Impact⁶ to develop a staff engagement toolkit. This work has saved them £250,000 over the past five cycles.

It is clear that there is scope for us to deliver a more comprehensive sustainability programme in future, as evidenced by the work of trusts across the country. The adoption of a comprehensive sustainability strategy for UHB would represent an important milestone for the trust's environmental credentials.

6. Implementing the strategy

The strategy provides an overarching framework for corporate and clinical teams to develop proposals to improve our environmental sustainability. Following adoption, we will work with relevant teams to develop a detailed annual action plan and will report progress against the strategy to Board on an annual basis.

Any new sustainability initiatives developed will be fully evaluated and assessed from a value for money perspective and will be reviewed through existing governance processes. If carefully designed, many schemes are likely to have a strong return on investment for the trust and, in turn supporting the trust's financial improvement programme.

For example, the following illustrative savings could be made if we able to reduce our energy and utility consumption as well as the type of waste produced:

- **Energy:** we currently spend over £10m a year in gas and electricity costs. Evidence from other NHS organisations suggests that energy bills could be reduced by up to 6% when staff are supported to change behaviours, such as turning off lights and equipment.⁷ If we were able to save 3% a year, this would translate to a £300,000 recurrent saving.
- **Waste:** we currently spend over £2m in domestic and clinical waste. Evidence from other trusts suggests that we could substantially reduce non-recyclable waste in theatres if staff were supported to do so. This would help

⁶ Green Impact is a programme to support environmentally and socially sustainable practices. It is currently used by 450 public sector organisations across the UK.

⁷ Changing Energy Behaviours in the NHS: Operation TLC

us reduce the amount of waste we incinerate, as well as the costs and carbon footprint associated with incineration.

- **Water:** we spend around £1.5m on water and sewage. Other trusts have demonstrated success in water conservation programmes, and evidence suggests they have been able to reduce water consumption by 20-30%. If we were able to replicate these savings, we could potentially generate a recurrent saving of £255,000-£383,500 annually, based on 85% variable costs for supply.

7. Publication

Following review at Board, we propose to professionally design our SDMP, improving the look and feel of the current document. We will work with communications to design an effective campaign for launching the strategy publically, ensuring that it is well known by staff, patients and the wider community. We will also work with stakeholders, including the West Midlands Combined Authority, to align messaging and we have informally sounded out Andy Street's office about issuing a supporting statement.

8. Recommendations

It is proposed that the Board:

- Approve the proposed sustainable development management plan (SDMP), which is attached at Appendix 1.

Sustainability strategy, 2019-2024

A bit about us

University Hospitals Birmingham NHS Foundation Trust (UHB) is one of the largest teaching hospital trusts in England, serving a regional, national and international population.

We provide care across four main hospital sites: Birmingham Heartlands Hospital, the Queen Elizabeth Hospital Birmingham, Solihull Hospital, Good Hope Hospital in Sutton Coldfield and also provide other acute and community services across the city.

The Trust in numbers



INFOGRAPHIC

Our environmental impact

- Our hospitals use over 217,400Mwh in gas and electricity a year¹, the same as powering over 13,400 homes a year.
- Our staff currently commute over 85 million kilometres by car each year², which is the equivalent of making over 2.5 million journeys across our local health economy every year (from Longbridge to Tamworth).
- Our sites use around 690 million litres of water a year³, which is the same as filling around 1.8 million 25m swimming pools.
- We produce over 6,200 tonnes of waste a year⁴, the same as filling over 50,100 household wheelie bins.

¹ 2017/18 ERIC data

² Health Outcomes Travel Tool

³ 2017/18 ERIC data

⁴ 2017/18 ERIC data (includes 1,241 of recyclable waste)

Our achievements so far:

- Reduced our energy consumption by 11.8% and our carbon footprint by 15% for the whole of UHB between 2007/2008 and 2017/2018.
- Reduced our single occupancy car journeys at the QEHB site by 33.5% between 2003 and 2018.
- Increased active travel to work (walking, jogging and cycling) at the QEHB site by 4.5% between 2003 and 2018.
- We now have 19 locations around UHB with solar panels installed. Since their introduction in March 2014, they have saved more than 1,100 tonnes of CO₂ and generated enough energy to power the equivalent of 682 homes for a year.
- As part of our carbon offsetting and commitment to biodiversity, between 2016 and 2019, we planted 1 hectare of wildflowers, 20 square metres of woodland species and 5 fruit trees. We have involved over 1,500 volunteers over 200 sessions.
- Each year the trust generates over 1,200 tonnes of reusable and recyclable material.
- 98% of staff agree that supporting the environment is important.
- When asked how frequently staff were able to be environmental sustainable at work:
 - 80% agreed they were efficient with the amount of water they used
 - 73% agreed they were able to frequently recycle products
 - 68% agreed they frequently turned off lights and electrical equipment

TEXT BOX

West Midlands Air Quality Improvement Programme (WM-Air) ¹

Through the Birmingham and Solihull Sustainability and Transformation Partnership (STP), UHB participates in WM-Air, a five-year initiative to support the improvement of air quality, and associated health, environmental and economic benefits, in the West Midlands.

AP in the West Midlands affects some 2.8 million people, reducing average life expectancy by up to 6 months, and is responsible for economic costs estimated at £860m per year.

Launched in January 2019, WM-AIR will provide an improved understanding of pollution sources and levels in the region. It will support the application of these to specific case studies across the West Midlands, ranging from major infrastructure projects, such as HS2, to making effective use of Green Infrastructure across the city.

As part of the project, the air quality around QEHB, in particular the front entrance is being measured, with the aim of understanding what mitigating actions might be necessary to improve air quality around our sites.

Chair's foreword

As one of the largest NHS foundation trusts in the country and one of the largest employers in the West Midlands, we have a responsibility to work sustainably and to set a positive example for our staff, patients and the community. Our vision is to build healthier lives and that means looking after our environment and thinking about the impact we have on the health of our community.

We already have a good track record in many of the areas outlined in this strategy, but the sustainability challenges facing our society are now so significant that we are committed to doing more to ensure that we are adopting sustainable practices across our organisation.

We obviously need to balance our focus in this area alongside our core purpose as a healthcare organisation but, managed properly, our efforts to work sustainably can have an entirely positive impact on the health and wellbeing of the patients we serve.

The trust will lead on delivering the strategy, but we can't do it on our own. We will encourage and support each and every member of staff to play their part. Anyone can make a difference, no matter how small or big the change. And we will work in partnership with other healthcare organisations, our local authorities and the West Midlands Combined Authority, our academic partners, our suppliers and the voluntary sector, to deliver this strategy.

A message from the Mayor of the West Midlands, Andy Street

To follow

1. Introduction

The NHS is responsible for an estimated 6.3% of England's total carbon emissions, and 5% of total air pollution.²

Collectively the NHS has taken great strides in reducing its environmental impact – the carbon footprint of health and social care has reduced by 19% since 2007, despite a 27% increase in activity.³

However, we could go further still, and sustainability is more than just about reducing carbon emissions. It is about both the social and environmental impact we have through the services we provide to patients and communities.

This document is our five-year Sustainable Development Management Plan (SDMP) and is a demonstration of our commitment to this area of work.

It sets out our strategy and objectives for delivering sustainable healthcare across Birmingham, Solihull and South Staffordshire, in line with national climate change targets.

How this strategy has been developed

In 2018 we set up a sustainability working group with key corporate teams and clinicians across the Trust to shape the plans for sustainability at the Trust. This group has been used to shape priorities within the strategy, and will be a key group in supporting implementation.

In 2019, we conducted a Trust-wide survey to understand where staff thought the Trust could be doing more to support sustainability and be a positive example for staff. Just under a thousand staff responded, providing us with a rich source of information and ideas. We have also undertaken a comprehensive evidence review to explore the case for change and to identify the most effective interventions, including learning from leading NHS trusts and from our academic partners.

Corporate teams from across Estates, Facilities, Procurement and Travel and Transport have developed the specific recommendations within the strategy and will develop action plans to support the implementation. We have also tested the strategy with a number of key external partners, such as Birmingham City Council and the University of Birmingham.

2. Drivers for change

Building healthier Lives

We have a responsibility, as an Anchor Institution⁴, to play an important role beyond the boundaries of our hospitals and community services, in contributing to a greener, healthier and more sustainable city, and in supporting our staff, patients and communities to realise that low carbon lifestyles can have a positive impact on health and wellbeing.

We have some of the highest levels of inequality in the country. In Birmingham, 440,000 people live in the 10% most deprived areas in England. There is a nine-year gap in the life expectancy of the most advantaged and disadvantaged in the city.

Environmental and social factors often go hand in hand. Increases in chronic mental illness conditions such as obesity, diabetes, asthma, hypertension and heart disease can in part be caused and exacerbated by environmental factors. Disadvantaged communities are also more likely to experience multiple health impacts associated with poor quality environments, for example through air pollution, lack of access to green space or poor quality housing.

This matters because almost 30% of preventable deaths in England are due to non-communicable diseases specifically attributed to air pollution (see box XX for more information).⁵ Air pollution in Birmingham alone can be linked to 900 deaths per year and city is currently in breach of legal limits for nitrogen dioxide, with the second highest levels in England after London. The shocking impact of this is that primary school children who grow up in Birmingham could lose up to half a year of their lives due to illegal levels of air pollution.⁶

Climate change targets

The Climate Change Act (2008) requires organisations to demonstrate a substantial reduction in carbon emissions by 2050, against a 2007 baseline:

- 2020: 34% (this target is reconfirmed in the NHS Long Term Plan)
- 2025: 50%
- 2030: 64%
- 2050: 80%

In June 2019, the UK government amended the 2050 target, committing to reducing greenhouse gas emissions to net-zero by 2050 in light of new technologies now available.

However, based on current performance, the NHS is not going to meet these targets. It is estimated that by 2020, we would still be producing over 25 megatons of CO₂ emissions compared to a required 17 and this would level off at around 25 megatons by 2050, compared to a required 7.⁷

Accurate performance measurement against these targets is challenging, as an organisation's impact needs to take account of carbon emissions both from direct consumption (e.g. gas and electricity) as well as indirect consumption (e.g. procurement, staff, visitor and patient travel).

These targets not only matter because they are statutory obligations, but because failure to tackle this has a very real impact on the health and wellbeing of our patients and communities.

3. What we want to achieve

Being at the forefront of delivering sustainable healthcare, by reducing our environmental impact, protecting the natural environment and enhancing social value, speaks directly to our vision to *Build Healthier Lives* and our organisational strategy.

Our sustainability objectives are to:

- Maximise the benefits of being one of the largest trusts to significantly influence social and environmental issues for Birmingham, Solihull and South Staffordshire.
- Redesign healthcare in a way which supports the development and delivery of more integrated and sustainable models of care
- Empower our staff to put sustainable and environmental issues at the heart of their work, giving them the necessary tools, resources and training to make responsible decisions.
- Measure and report on the Trust's progress against statutory targets.
- Manage our buildings and resources in the most effective way to minimise our environmental impact.
- Work in partnership with other local government and NHS organisations through the Birmingham and Solihull sustainability and transformation partnership (STP) and voluntary sector to deliver shared sustainability objectives.

Our strategy is organised around six priority areas outlined below. They set out our aims, proposed actions and how the success of those actions can be measured:



4. Estates, assets and utilities

Across our sites, we consume a substantial amount of gas, electricity and water:

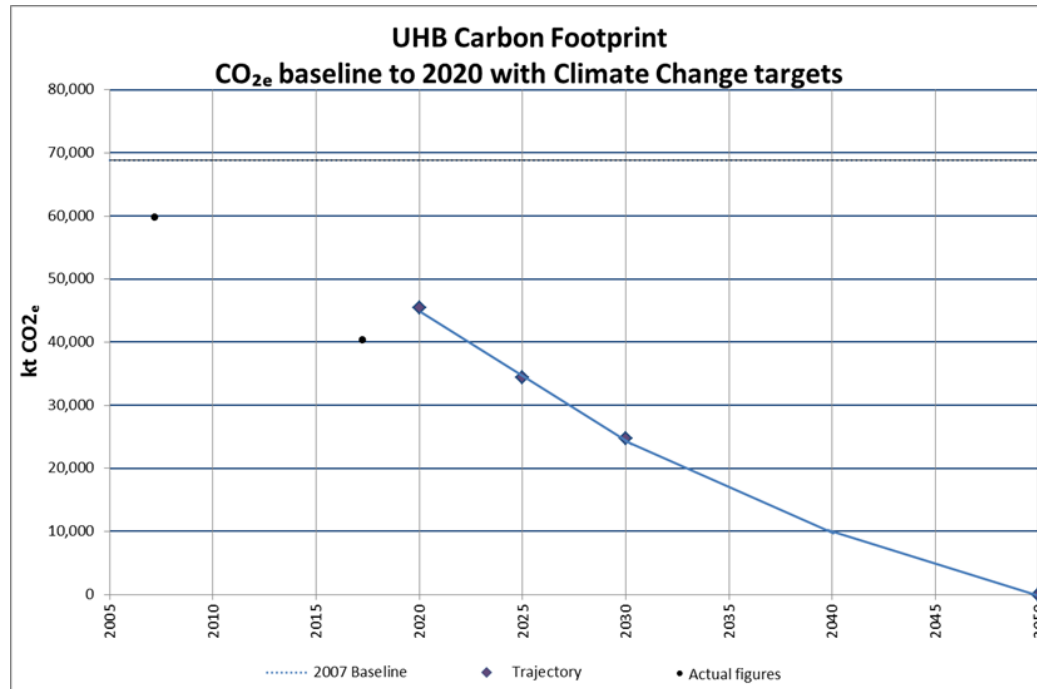
- 217,400Mwh in gas and electricity a year, the same as powering over 13,200 homes a year.
- Around 690 million litres of water a year, which is the same as filling around 1.8 million 25m swimming pools.

We have successfully achieved the interim climate change targets between 2007/2008 and 2017/18 by reducing our direct energy consumption by 11.8% and carbon footprint by 15% across the trust. Given that over the same period we have experienced a 59% increase in emergency admissions, this reduction is notable.

These reductions have primarily been achieved through site rationalisation, the conversion of the boiler house to gas from coal at our Queen Elizabeth Hospital site and the move to Combined Heat, Power and Cooling Plan (CHP) at our Heartlands, Good Hope and Solihull sites. We have also installed solar panels in 19 locations across our sites – since their introduction in March 2014, they have saved more than 1,100 tonnes of CO₂, enough energy to power 682 homes for a year.

However, if the Trust is to meet forthcoming climate change targets in 2025, 2030 and 2050 (figure 1), a broader approach to sustainability is required.

Figure 1: Trust carbon footprint against climate change targets



What do we want to achieve?	How we will achieve it? ⁵
<ul style="list-style-type: none"> Continue to reduce our carbon footprint, at least in line with national climate change targets. Improve monitoring, measurement and understanding of our energy consumption and utilities. Support staff to understand their environmental impact and how to reduce their impact in the workplace. Put sustainability at the heart of our Estates strategy, adopting energy and water conservation measures for all our capital projects, including new builds 	<ul style="list-style-type: none"> Baseline and benchmark current performance, identify opportunities for improvement and seek to align with best practice within the sector. Develop ambitious targets to reduce energy and water consumption. This will be underpinned by a focused action plan of targeted schemes which seek to improve efficiency. Increase the proportion of energy consumption coming from renewable sources. Collaborate, engage and share knowledge across corporate and divisional teams, our PFI contractor and other NHS organisations and external

⁵ Our aspirations in this section need to be managed alongside our existing contractual requirements, under our PFI contract at QEHB.

<p>and major refurbishments.</p> <ul style="list-style-type: none"> • Ensure compliance with environmental legislation and best practice. 	<p>experts.</p> <ul style="list-style-type: none"> • Inform and educate staff, patients and visitors about how their actions affect energy and water consumption. • Respond quickly to maintenance events which lead to energy or water waste. • Assess life cycle costs of energy and water when purchasing new equipment and use this as criteria in decision-making. • Include minimum standards for sustainability when leasing buildings or undertaking refurbishments and new developments.
--	---

How to measure how we are doing

- Annual Estates Return Information Collection (ERIC) returns
- Utilities consumption and cost reports
- Proportion of energy from renewables.

5. Travel and transport

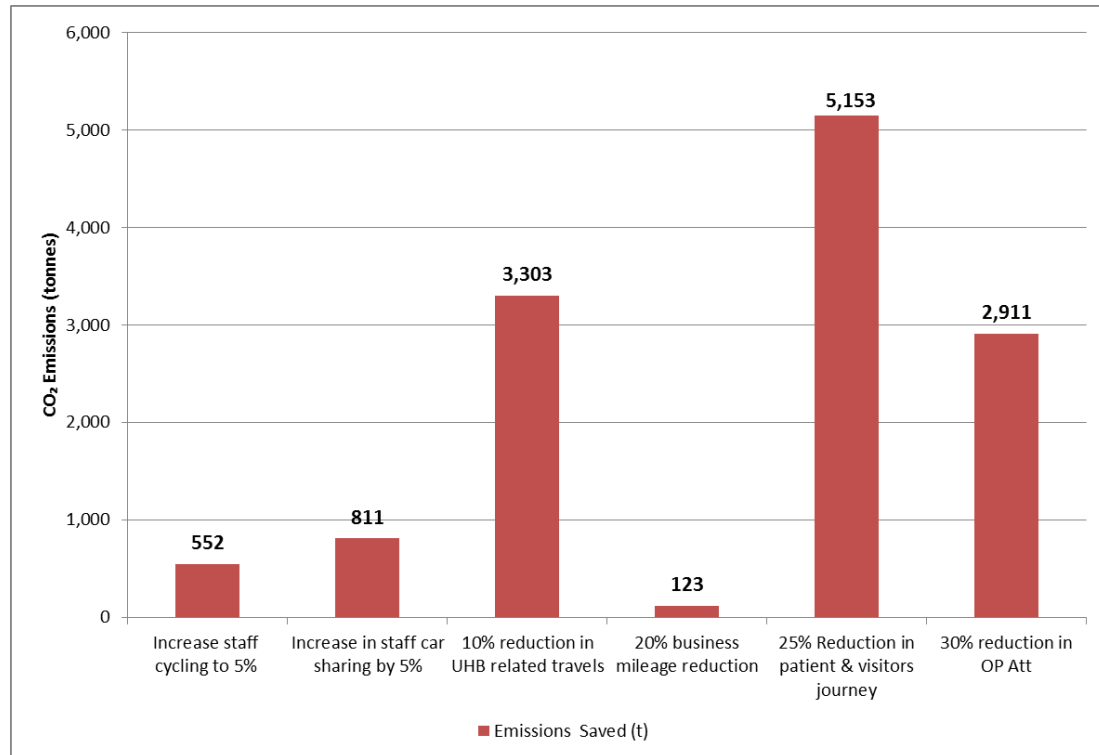
The NHS accounts for almost 10 billion journeys each year – around 3.5% of all road travel.⁸ There are reports that a quarter of England’s hospitals and third of its GP practices are above the World Health Organisation’s limit for pollution.⁹

As a large and complex Trust, with multiple sites across Birmingham and Solihull, the transport of our goods, services, staff, patients and visitors has a significant impact on local air quality, congestion and health. For example, UHB staff commute over 85 million kilometres by car each year¹⁰ – that is the equivalent of making over 2.5 million journeys across our local health economy (from Longbridge to Tamworth) every year, or over 100 journeys to the moon and back.

We also have around 2 million outpatient attendances alone, creating patient and visitor traffic to our sites, when a significant proportion of these patients might be able to be seen closer to their home or virtually. If we managed to convert a third of outpatient appointments to virtual consultations, in line with the ambition in the NHS Long Term Plan, we could reduce the cumulative distance travelled by patients by over 7 million kilometres, and save around 3,000 tonnes in CO₂ emissions a year

(figure 2).¹¹ In fact our Digital First Programme aims to improve on that target for virtual outpatients and associated reductions in emissions.

Figure 2: Health outcomes of travel tool (HOTT) scenarios: UHB CO₂ Emissions Saved



TEXT BOX

The Sustainable Development Unit’s health outcomes travel tool

The SDU’s Health Outcomes of Travel Tool (HOTT) helps NHS organisations measure the impact their travel and transport has in environmental, financial and health terms.

HOTT is a tool that allows the quantification of impacts (such as air and noise pollution, road traffic incidents and greenhouse gases) from different travel sources to allow the creation of a plan and targeted initiatives to reduce the NHS’s impact from travel and transport.

TEXT BOX

Air pollution: the facts

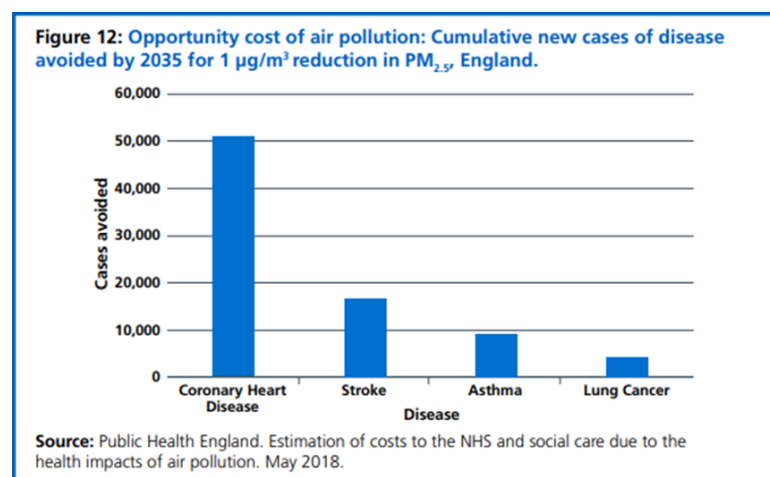
Air pollution impacts upon human health from before birth to old age. According to the Global Burden of Disease, one component of outdoor air pollution (fine particulate matter), is the fifth leading risk factor for death in the world, accounting for 4.2 million deaths (7.6% of total deaths).

In the UK, air pollution is responsible for an estimated 6 million sick days every year, with estimated total economic costs of £20 billion.¹² Exposure to particulate matter (PM) and nitrogen dioxide (NO₂), predominantly associated with road vehicle emissions, is expected to cause 2.4 million new cases of disease in England between now and 2035.¹³ This has a very real impact in demand for NHS services – air pollution can cause up to 36,000 deaths a year, and over 20,000 respiratory and cardiovascular hospital admissions a year¹⁴. For example, air pollution is estimated to lead to around 1,000 asthma admissions from 2014-2016 in children in London, 10% of all asthma admissions in children in London.¹⁵

Exposure to air pollution has been linked to a wide range of poor health outcomes including asthma, COPD, coronary heart disease, stroke, and lung cancer, with emerging evidence showing impacts on low birth weight, diabetes and neurodegenerative diseases such as Alzheimer’s and Parkinson’s Disease.¹⁶ For example, there are around 115,000 hospital admissions for COPD annually¹⁷, of which 5,000 could be attributed to some air pollutants.

Children, pregnant women, older people and those with chronic health conditions are among the most vulnerable to the harmful effects of air pollution.¹⁸ This means that air pollution exacerbates health inequalities across the population.

The World Health Organisation (WHO) advocates an annual limit for PM_{2.5} of 10 µg/m³ to encourage sustainable reductions as no level is considered safe for human health. It has been estimated that reducing PM_{2.5} by just 1 µg/m³ across England in one year would save NHS and social care budgets £1.38 billion by 2035, avoiding 40,312 cases of COPD, 9,253 cases of asthma and 4,171 cases of lung cancer between 2017 and 2035 in England (Figure 3).



We have identified improving air quality as a key enabler in our STP strategy¹⁹ and we are working with Birmingham and Solihull councils to improve public transport, cycling and walking infrastructure.

We are also a partner for the West Midlands Air Quality Improvement Programme, led by the University of Birmingham, which supports the improvement of air quality, and associated health, environmental and economic benefits across the region (see text box X). We will also be playing an active part in supporting the introduction of Birmingham’s Clean Air Zone in 2020.

We have been running a biennial travel survey for our Queen Elizabeth site together with the University of Birmingham with the aim of understanding staff journeys to and from work. Between 2016 and 2018, there has been an 8% reduction in single occupancy car commutes and a 4.5% increase in active travel since 2003.

We have also introduced park and ride facilities and a frequent shuttle service between our sites, with the aim of reducing the number of staff car journeys to and from our sites. We are also supporting the Transport for West Midlands (TfWM) and the West Midlands Rail Executive (WMRE) redevelopment of the University Train station, improving infrastructure to allow many more people access the QEHB site on public transport.

However, at present we have no empirical information regarding air pollutant levels across our sites, relying upon modelling. Obtaining real-time localised information for key pollutant levels would help identify the most affected site locations, enable monitoring of progress of steps to improve air quality and help inform visitors, patients and staff about the potential harms of air pollution and steps that can be taken to reduce these risks.

What do we want to achieve?	How will we achieve this?
<ul style="list-style-type: none"> • Convert a significant proportion of outpatient appointments to virtual consultations, in excess of the ambitions set for the NHS nationally. • Reduce the amount of business travel across and between our sites. • Reduce demand for car parking and single occupancy travel. • Work with suppliers to increase the efficiency of deliveries and to minimise the associated carbon emissions. • Increase active travel and use of public transport by staff, service 	<ul style="list-style-type: none"> • Roll-out our outpatient transformation programme to remove unnecessary physical journeys to outpatient appointments. • Improve Trust-wide facilities for teleconferencing, video conferencing and hot-desking to minimise business travel. • Support TfWM and WMRE redevelopment of University train station. • Support staff to consider different options for travel to and from work, including the roll out of Faxi, an innovative car sharing app. • Continue to provide comprehensive

<p>users and public.</p> <ul style="list-style-type: none"> • Cut business mileages and fleet air pollutant emissions by 20% by 2023/24, in line with the NHS Long Term Plan. • Reduce NO₂ and PM concentrations at our Trust sites in accordance with legal limit values (NO₂) and to progress towards WHO recommendations (PM_{2.5}) 	<p>inter-site staff shuttle to support staff travelling between sites.</p> <ul style="list-style-type: none"> • Promote cycling, by working with Birmingham and Solihull councils to provide safe cycling routes; and across our sites provide sufficient secure lockers, changing and shower facilities. • Operate 'green fleets' across our organisation, ensuring that any new vehicles are electric or hybrid, where those options are available, and that we phase out diesel engines. • Set progressively lower emissions standards for any external suppliers from whom we procure services. • Explore roll-out of electric charging points available to staff and visitors across our sites. • Improve the dissemination of public transport information and information about air pollution to staff and patients/visitors e.g. in appointment letters. • Improve our understanding of how staff and patients travel to our sites, including extending the biennial travel survey to all our sites. • Evaluate and monitor ourselves against the Clean Air Hospital Framework⁶. • Work with the University of Birmingham to install air quality monitoring equipment (NO₂, PM) at Trust sites to evaluate and monitor progress in air quality levels, identifying key pollutant hotspots
--	---

⁶ The Clean Air Framework has been co-developed by Global Action Plan and Great Ormond Street Hospital. Available: <https://www.globalactionplan.org.uk/clean-air/clean-air-hospital-framework>

	<p>suitable for additional intervention measures (i.e. no idling, green infrastructure).</p> <ul style="list-style-type: none"> • Raise awareness of the harmful impacts of air pollution through initiatives such as Clean Air Day. • Explore feasibility of developing a Trust specific carbon offsetting scheme.
--	---

How to measure how we are doing

- Biennial travel survey
- Health Outcomes Travel Tool
- Carbon emissions from travel
- Real-time air quality measurements on-site
- Proportion of Trust fleet that is electric or hybrid, and provision of electric vehicle infrastructure
- Clean Air Hospital Framework.

6. Waste

We generate large volumes of waste and have legal responsibilities to make sure that it is properly segregated, handled and disposed of.

We already have a comprehensive waste recycling programme that, between April 2018 and March 2019, yielded 1,268 tonnes of reusable and recyclable material. Around 13% of our waste currently goes to landfill.

We also actively recycle through our clothing and food banks at our Queen Elizabeth site. Each year we generate around 2 tonnes worth of food and clothing for disadvantaged groups and communities.

Yet we know our staff feel particularly strongly about reducing waste. In our all-staff sustainability survey conducted in 2019, although 73% of staff reported that they were frequently able to recycle products, 59% thought we could reduce the amount of waste we produced.

What do we want to achieve?	How we will achieve it?
<ul style="list-style-type: none"> • Reduce the amount of single use plastics and amount of waste going to landfill. 	<ul style="list-style-type: none"> • Inform and educate staff, patients, visitors and suppliers about what can be recycled/disposed/incinerated to ensure better segregation of waste

<ul style="list-style-type: none"> • Reduce the amount of waste sent for incineration, the most unsustainable form of clinical waste disposal. • Minimise the amount of waste created and promote recycling alternatives. • Reduce the amount of food waste produced across our outlets. • Influence suppliers and on-site retailers to reduce packaging. • Improve our measurement and monitoring of waste streams. • Work with local food and clothing banks to maximise donation opportunities for staff and visitors. 	<p>streams at source.</p> <ul style="list-style-type: none"> • Dedicated recycling initiatives in key clinical areas about what can be safely recycled or reused. • Replace single use products with reusable alternatives across our clinical and non-clinical areas where feasible, including through purchasing systems. • Use our purchasing power wisely, by working with suppliers to procure products that minimise packaging use. • Promote a culture of reuse and refurbishment of items where it is cost effective, rather than buying new. • Reduce the amount of recyclable PVC in our clinical waste streams. • Expand food and clothing donation points across Good Hope, Heartlands and Solihull hospitals
---	---

How to measure how we are doing

- Auditing of waste streams
- Measure the amount of overall waste recycled
- Proportion of products reused
- ERIC returns.

7. Sustainable purchasing of goods and services

A significant proportion of carbon footprint in the NHS comes from procurement, so unless we buy and consume our goods and services in more sustainable ways, we will struggle to meet our climate change commitments. The Trust currently spends around £500 million a year on good and services which provides us with an opportunity to use our purchasing behaviour to influence suppliers.

Although we now have less flexibility in how we purchase due to increasingly centralisation of procurement systems, we will use the Birmingham Hospitals Alliance NHS Shared Procurement Service to influence the national frameworks as much as possible.

We also have a responsibility, set out in the 2012 social value act, to derive as much social value from the goods and services we buy. The Birmingham and Solihull STP has already set up a social value policy and, alongside this, we are exploring the implementation of a social development fund to support health and wellbeing initiatives within the communities we serve and staff we employ.

What do we want to achieve?	How we will achieve it?
<ul style="list-style-type: none"> • Develop an in-depth understanding of the sustainability issues relevant to specific good categories. • Engage with suppliers to promote awareness of ethical and sustainable approaches in their supply chains. • Procure at scale through Birmingham Hospitals Alliance NHS Shared Procurement Service. • Consider 'whole life' costs and impacts when assessing equipment for purchase or lease. • Purchase goods from sustainable sources with a focus on those from local, ethical and fair trade suppliers, where appropriate. • Promote social value through our contracts and suppliers. • Purchase and/or prioritise those items that are manufactured with a high recycled content. 	<ul style="list-style-type: none"> • Establish baselines for impact of procurement on trust carbon footprint. • Include in our tender processes eligibility and evaluation criteria that take into account environmental issues, sustainability, local economic and social value factors as appropriate. • Work in partnership with our supplies to support our sustainability priorities. • Embed our commitment to tackling modern slavery across the organisation and with partners and supplies. • Drive social value through our contracts and explore options for developing a social development fund. • Raise internal awareness of sustainability issues as part of the purchasing of goods and supplies through the promotion and communication of information.

How to measure how we are doing

- Procurement carbon footprint

- Value of contracts placed with local, ethical and fair trade suppliers
- Reduction (removal) of plastic usage across the Trust
- Reduction in supplier packaging
- Move to 100% recyclable packaging for supplies.

8. Green space and biodiversity

As an NHS Foundation Trust, we have been at the forefront of promoting and using our green spaces and supporting biodiversity.

There is evidence now to show the positive impacts green spaces have on the health and wellbeing of both our patients and staff²⁰, how it contributes to improved air quality and local partnerships and this is something we have embraced.

Together with the Conservation Volunteers (TCV), we have used our green spaces' fruit trees, nest boxes, wildflowers, beehives and exercise spaces to encourage physical exercise, social prescribing and biodiversity.

Between 2016 and 2019, we have planted 1 hectare of wildflowers, 20 square metres of woodland species and 5 fruit trees. We have involved over 1,500 volunteers over 200 sessions. The produce we grow is then used by volunteers to distribute amongst staff.

Some of our sites are well provisioned in terms of green spaces, such as the Queen Elizabeth site and the new Homeward Centre at Good Hope, but there is more we need to do to ensure that all our respective staff, patients and communities have access to green areas.

What do we want to achieve?	How we will achieve it?
<ul style="list-style-type: none"> • Improve awareness of green space to the community, patients and staff. • Increase the uptake of Green Gym sessions and social prescribing in our green spaces. • Promote and enhance natural environment. • Improve provision of green spaces across our sites. • Work in partnership with other organisations on sites where there is a paucity of green space 	<ul style="list-style-type: none"> • An audit of green spaces across the Trust, with the aim of understanding which sites and areas might be under provided for or not properly utilised. • Continue to work with partners and local community organisations to enhance green spaces and biodiversity. • Raise awareness with staff and patients of our green space and encourage patients, staff and the wider community to access our sites.

<p>available for patients and staff to access.</p>	<ul style="list-style-type: none"> • Provide clear signage to local green areas (in and around the hospital). • Provide opportunities for staff to get involved in green space activities. • Explore feasibility of planting more trees across Birmingham, Solihull and South Staffordshire to support a Trust carbon offsetting scheme.
--	---

How to measure how we are doing

- Uptake of social prescribing and health and wellbeing activities in our green spaces
- Staff awareness of green spaces.
- Frequency of planting events

9. Sustainable clinical pathways

Transforming clinical pathways represent some of the greatest opportunities for improving our sustainability, through empowering and encouraging staff to design, develop and implement quality improvement.

We already know that converting a significant proportion of our outpatient attendances to virtual consultation will have a significant carbon emission reduction.

There is also more clinicians can do to support more sustainable use of resources – for example, a shift to lower carbon inhalers would deliver a reduction of 4% and a further 2% could be delivered through transforming anaesthetic practices.⁷

Some forms of care also have particularly high environmental costs, for example, one year of kidney dialysis is equivalent to seven return flights between London and New York.⁸

Globally, pharmaceuticals contribute to a large proportion of healthcare-associated greenhouse gas emissions. The sustainable development unit suggests that in 2012,

⁷ NHS (2019) The NHS Long Term Plan. Available from: <https://www.longtermplan.nhs.uk/wp-content/uploads/2019/01/nhs-long-term-plan-june-2019.pdf>

⁸ King's Fund (2013) Time to Think Differently Sustainable Services: Future Trends. Available from: <https://www.kingsfund.org.uk/projects/time-think-differently/trends-sustainable-services>

a fifth of greenhouse gas emissions from the NHS in England were attributable to pharmaceuticals, and 11% to medical devices.

What do we want to achieve?	How we will achieve it?
<ul style="list-style-type: none"> • Embed sustainability as part of our quality improvement strategy and approach. • Take sustainability factors into account when redesigning care pathways. • Improve understanding of key carbon hot spots within the organisation. • Embrace new and existing digital technologies to reduce the environmental impact of care, prevent ill health and manage long-term conditions. 	<ul style="list-style-type: none"> • Carry out a clinical hot-spot audit to identify where improvements can be made. • Provide carbon footprint information about key drugs and their alternatives to support clinicians in their decision-making. • Develop a sustainable anaesthesia programme, raising awareness of the impact of anaesthetic gases on the environment and taking actions to reduce this, subject to clinical effectiveness and suitability. • Design a clinical engagement programme to help clinicians understand how practices can improve sustainability, including exploring a roll-out of a green ward and/or theatre competition.

How to measure how we are doing

- Quality improvement initiatives
- Patient feedback
- Carbon footprint from anaesthetic gases per patient
- Staff awareness levels

10. Reporting and governance

We will report annually against this strategy to highlight the main activities delivered throughout the year, and look to monitor ourselves against sustainable development assessment tool framework. We will also continue to submit data through the ERIC, a mandatory data collection for all NHS trusts required by the Department of Health and Social Care, and our Annual Report.

Any new proposal brought forward under the strategy will require approval in line with the Trust Scheme of Delegation / Standing Financial Instructions. Proposals will be fully assessed from a value for money perspective, including our procurement

processes, to ensure that we are delivering both a sustainable improvement as well as a return on investment.

We recognise that clear governance and leadership is required to deliver this strategy. The key forums and areas of the organisation responsible for overseeing and delivering this strategy are:

- **The Board:** The Board offers senior level leadership, supports implementation and ensures alignment with the organisation's values, culture, strategy and operations. Progress is communicated annually to the Board. The Director of Strategy is the Board Sustainability Lead.
- **Sustainability reference group:** Sustainability reference group is a monthly meeting, bringing together interested clinicians and corporate teams to share, learn and contribute to sustainability plans.
- **Estates and Facilities:** These teams sit within the transformation and corporate nursing functions respectively, and provide project delivery and expertise on the sustainability programmes across UHB
- **Subsidiary company and PFI:** Our facilities subsidiary company and our PFI operator have a crucial role to play in implementing some of the aspirations included in this strategy.

11. Next steps

This document will shape our sustainability priorities over the next five years. Delivering this strategy will be a shared endeavour, with each and every member of staff able to play their part in contributing towards sustainability.

Communication and engagement will be key to driving behaviour change across the whole organisation. By communicating what we are doing both within and outside the organisation and supporting staff to understand what is in their gift to do, we can position ourselves as an exemplar organisation for sustainable healthcare.

The challenges we face and solutions we propose are not unique but we are in a unique position in the region as a very large Trust to affect change. We will leverage our scale by working together with our STP and academic partners to deliver these priorities, to improve the lives of our patients, our staff and the wider communities we serve.

¹ University of Birmingham (2019) *WM-Air – the West Midlands Air Quality Improvement Programme*. Available at: <https://www.birmingham.ac.uk/schools/gees/research/projects/wm-air/index.aspx>

² Sustainable Development Unit (2018) Natural Resource Footprint. Available from: <https://www.sduhealth.org.uk/policy-strategy/reporting/natural-resource-footprint-2018.aspx>

³ NHS (2019) The NHS Long Term Plan. Available from: <https://www.longtermplan.nhs.uk/wp-content/uploads/2019/01/nhs-long-term-plan-june-2019.pdf>

⁴ Health Foundation (2019): Building healthier communities: the role of the NHS as an anchor institution. Available from: <http://reader.health.org.uk/building-healthier-communities>

⁵ NHS (2019) The NHS Long Term Plan. Available from: <https://www.longtermplan.nhs.uk/wp-content/uploads/2019/01/nhs-long-term-plan-june-2019.pdf>

-
- ⁶ King's College London (2019) Birmingham City Health and Economic Impact Assessment study. Available from: <https://www.uk100.org/wp-content/uploads/2019/05/KCL-UK100-Birmingham-City-Health-and-Economic-Impact-2019.pdf>
- ⁷ Oung C (2019) The environment needs to be higher up the NHS agenda, Nuffield Trust comment. Available from: <https://www.nuffieldtrust.org.uk/news-item/the-environment-needs-to-be-higher-up-the-nhs-agenda>
- ⁸ Sustainable Development Unit (2018) Natural Resource Footprint. Available from: <https://www.sduhealth.org.uk/policy-strategy/reporting/natural-resource-footprint-2018.aspx>
- ⁹ British Lung Foundation (2018). Toxic air at the door of the NHS. Available from: <https://www.blf.org.uk/take-action/campaign/nhs-toxic-air-report>
- ¹⁰ Health Outcomes Travel Tool (2019) Sustainable Development Unit
- ¹¹ Health Outcomes Travel Tool (2019) Sustainable Development Unit
- ¹² Royal College of Physician (2018) Reducing air pollution in the UK: Progress report. Available from: <https://www.rcplondon.ac.uk/file/9354/download?token=20iv2NTE>
- ¹³ Department for Environment Food and Rural Affairs (2019) Clean Air Strategy. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf
- ¹⁴ Global Action Plan (2018) Clean Air Hospital Framework. Available from: <https://www.globalactionplan.org.uk/clean-air/clean-air-hospital-framework>
- ¹⁵ King's College London (2019) Health Impact Assessment of Pollution on Asthma in London. Available from: <https://www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/health-impact-assessment-air-pollution-asthma-london>
- ¹⁶ Royal College of Physicians (2016) Every breath we take: the lifelong impact of air pollution. Available from: <https://www.rcplondon.ac.uk/file/2912/download?token=lZSymCK->
- ¹⁷ NHS England (2014) Overview of potential to reduce lives lost from Chronic Obstructive Pulmonary Disease (COPD). Available from: <https://www.england.nhs.uk/wp-content/uploads/2014/02/rm-fs-6.pdf>
- ¹⁸ NICE (2017) Air pollution: outdoor air quality and health NICE guideline [NG70]. Available from: <https://www.nice.org.uk/guidance/ng70>
- ¹⁹ Birmingham and Solihull STP (2019) Live healthy Live Happy. Available from: https://www.livehealthylivehappy.org.uk/wp-content/uploads/2018/10/Draft_v6_BSol_STP_Strategy_Autumn2018.pdf
- ²⁰ Centre for Sustainable Healthcare (2018): Sustainability and Green Spaces. Available from: <https://sustainablehealthcare.org.uk/blog/sustainability-series-green-space-and-health>

