



Public Health
England

Protecting and improving the nation's health

Sustainability in Public Health England 2019

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing and reduce health inequalities. We do this through world-leading science, research, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health and Social Care, and a distinct delivery organisation with operational autonomy. We provide government, local government, the NHS, Parliament, industry and the public with evidence-based professional, scientific and delivery expertise and support.

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Foreword

I am very pleased to introduce PHE's sixth annual report on sustainability, describing the work that PHE has undertaken over the last year. We continue to make progress in reducing our carbon impact across the PHE estate.

Our overall business travel has decreased by 1% over the last year and we will endeavour to continue this momentum. This was partly due to a reduction in the use of private vehicles for business over the last year and to a reduction in rail travel. We have seen an increase in the use of hire vehicles, which is in line with our transport policy objectives of using smaller, more efficient vehicles.

We continue to promote active travel, where possible, and through a series of health and wellbeing initiatives we help our staff to understand the associated health benefits that these activities can bring.

A lot of our external work includes travelling overseas, offering advice and help as part of our organisations response to public health incidents and extreme events.

Our wider work continues to add to the scientific evidence on the health impacts of climate change and extreme events, providing useful data for local authorities and the government.

Our associated work on cold weather and heatwave plans is also helping to save lives, providing advice to those professionals who are on the frontline ensuring better outcomes.

I would like to personally say a big thank you to all our sustainability champions, from across PHE, who are at the forefront of helping to embed our sustainability policies and plans, without their continued work we would struggle to see the great gains we have made to date.

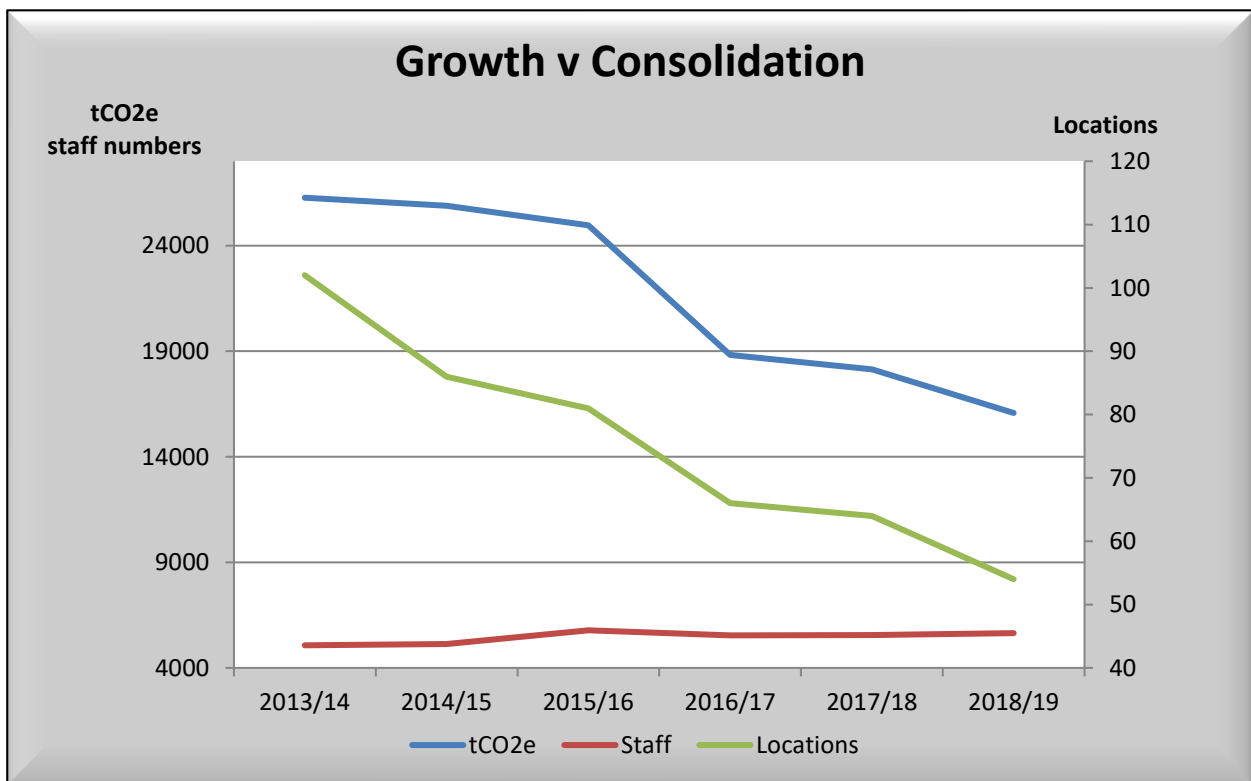
In the coming year we will better co-ordinate our internal and external work on sustainability identifying where we can go further, faster, with a plan of action for 2019/20.

Alex Sienkiewicz
PHE Executive Lead for Sustainability

PHE's 2018/19 emissions

The growth versus consolidation graph, below, illustrates how PHE have continued to lower their carbon emissions, whilst staff numbers have stayed fairly constant and our estate has been consolidated in line with our estates strategy over time.

PHE's total reportable carbon emissions for 2018/19, are 16,076 tCO₂e. This is compared with 18,141 tCO₂e for 2017/18, and 20,693 tCO₂e for 2013/14, representing a reduction of 11% on the previous year, and a 22% reduction on our baseline year overall.



Executive summary

This report describes our sixth year of operation, in which sustainability has continued to be an important part of our work to reduce our environmental impact. Through a small determined group of sustainability champions across PHE our work in this field continues to help meet our targets and embed sustainability into the organisation's activities.

As an exemplar in the health service we believe it is important to lead by example and this report continues to give an in-depth analysis of our carbon footprint – particularly in relation to utility use, the production and management of waste and the business travel we undertake. The report also details the progress we are making on sustainability inside our organisation, our work with partner organisations, and the work undertaken by some of our specialist teams.

In line with government strategy, PHE continues with the consolidation of its estate and this continues to contribute to reducing our overall carbon emissions. The acquisition of our new site in Harlow has expanded the PHE estate and this in turn has increased emissions in some areas. The carbon data for this site will be reported separately this year, to better facilitate comparison with data from earlier years. Demolition work is scheduled to commence in 2019 and relevant carbon data will be included in the future carbon footprint for the organisation.

PHE's total reportable carbon emissions for 2018/19, inclusive of our site at Harlow are 16,076 tCO₂e. This is compared with 18,141 tCO₂e for 2017/18, and 20,693 tCO₂e for 2013/14, representing a reduction of 11% on the previous year, and a 22% reduction on our baseline year overall. In line with Greening Government Commitment requirements, we are reporting on our owned estate of 96,082m² and on an establishment of 5,337 full time equivalent posts.

PHE's carbon footprint comprises Scope 1, 2 and 3 carbon emissions, as defined by government. It comprises data relating to our reportable (owned) estate and our non-reportable sites (that is, those facilities where PHE is a tenant and emissions are reported separately by a landlord).

We continue to report on our carbon emissions to the Department of Health and Social Care on a quarterly basis, in line with the Greening Government Commitment. Keeping staff informed about our carbon emissions and the associated financial cost to the organisation is one of the many communication tools that we continue to employ.

The reportable usage of water for the estate was 113,171 m³, with a further estimated 20,099 m³ being used by our non-reportable sites, though this is estimated in many

places due to the lack of metering. Overall, this represents a significant reduction in consumption of 32% from last year. A number of projects have been undertaken, especially around fixing leaks from old pipework which have helped with the reductions in our water consumption.

PHE-owned sites continue to have a mixture of office and non-office facilities making it difficult to differentiate their water usage into any meaningful datasets.

PHE has set a total waste reduction target of 2% annually to March 2020, in line with the Greening Government Initiative. There was a 3.4% decrease in total waste, compared to the previous year. PHE's total waste figure for 2018/19 was 652 tonnes, compared to 675 tonnes in 2017/18 and 912 tonnes for our baseline year in 2013/14.

Contractors working at PHE sites are regularly reminded about their obligation to reduce their waste wherever possible, in line with PHE's waste policy and its associated management arrangements.

Total non-hazardous waste not sent to landfill decreased by 3 tonnes over the year.

Due to the nature of the work carried out at a number of our sites, a significant quantity of hazardous waste is produced, with the majority of such waste being sent for incineration, in compliance with government guidelines.

We continue to work with our contractor, Computer Disposal Limited (CDL), to recycle and reuse our redundant ICT equipment. ICT waste is collected and disposed of at no cost to PHE, mostly as part of our government contract with CDL. This continues to be an effective method of disposal for this waste stream, in line with government policy. A total of 17 tonnes of ICT waste has been processed in this manner in the last financial year.

In 2018/19, PHE used 15,590 reams of A4 paper, an increase of 0.4 % on the previous year's figure.

In order to facilitate a comparison of travel emissions across the various parts of the organisation, PHE uses the measure of tCO₂e per whole time equivalent (wte) staff.

Due to the continued growth in PHE's international work our travel footprint for this area continues to rise.

There was an increase in the distance travelled by taxis last year. We continue to encourage staff to use public transport wherever possible. Train use has decreased slightly by 1.5%. There was also a disappointing, albeit small, decrease in the use of personal cars of 0.3%.

Our members of staff are encouraged to travel only when necessary and, when they must travel, to use the most sustainable modes of transport. Overall, we have seen a 1% decrease in our reportable business travel carbon emissions when compared to the previous year.

The organisation continues to recognise that less business travel will also benefit public health by preventing air pollution, and support PHE's plans to reduce carbon and save money. PHE continues to lead on the health effects of air pollution, especially in relation to the use of diesel transport in our cities and large towns. This will help to increase the awareness of pollution and help government to develop further measures to reduce its impact upon our communities.

Sustainability is also an important factor in our purchases. Our procurement category managers ensure that all of our tender documents contain relevant questions to confirm that the successful suppliers adhere to appropriate environmental and sustainability standards. These include ensuring that our main suppliers are applying the Social Value Act and Modern Slavery Act.

To help staff understand their sustainability obligations and the importance of reducing our carbon impact, we continue to promote our sustainability e-learning training course. This training is mandatory for all staff, with a refresh every 3 years. In the last year, 1,626 members of staff undertook the training.

A sustainable health system recognises that unhealthy behaviours can cause more damage to the environment than healthier ones. Driving (instead of walking or cycling), eating carbon-intensive processed foods and living in cold homes can all have adverse health effects. We work with other health-related bodies to inform the community about effective, practical actions that can be taken on a range of social determinants of health that are relevant to sustainability.

Summary of PHE's utility and travel usage



Gas usage was down by
2% ▼



Electricity usage was
down by 15% ▼



Water usage was down by
32% ▼



Total Waste was down by
3% ▼



Domestic flights were up
by 10% ▲



Train usage was down by
1.5% ▼



Personal car usage was
down by 0.3% ▼

▼ Decrease
▲ Increase

Introduction

PHE's ambition on sustainability and climate change

The health and wellbeing of the public, now and in the future, continues to depend on us utilising and developing all sustainable assets – environmentally, economically and socially. This includes the natural and built environment, public spaces, transport, physical activity, diet and food supply. It also extends to energy, education, employment, diversity, social capital and community resilience – all of which are fundamental to health and wellbeing. Addressing unsustainable patterns of living offers a wide range of benefits, from operating within safe financial and environmental limits to developing life-saving resilience and life-enhancing activities.

Achieving our goals in sustainable and low carbon ways is critical to turning the biggest strategic health threat we face into the greatest opportunity for collective action and health improvement. There are some areas where PHE can play a very distinctive role, for example providing scientific expertise, leadership for local public health systems and as an exemplar employer.

Our future depends on us embedding mitigation, adaptation, and the principles of sustainable development into all that PHE does.

There are many opportunities for PHE to fulfil this role, including: the way we do business; our role in co-ordinating science; our contribution to policy, and through advocacy.

We can help to achieve this:

- by reducing risks and vulnerability (e.g. extreme events and disaster reduction, improved air quality, safer roads, reduced emissions, smarter ways of preventing the preventable)
- by improving resilience and developing sustainable assets (e.g. education, good housing, life-enhancing public spaces, empowered communities and people, vibrant cultures)
- by ensuring safe, sustainable, and resilient public health and care services (e.g. transformative models of prevention and care, where every opportunity, plan, policy, and contact contributes to healthy lives, healthy communities and healthy environments – now and in the future)

PHE is making very good progress, with clearer and well-monitored corporate sustainability policies. Our staff are committed to making the very best use of available resources, and PHE is a leading member of a national cross-system strategy group for

the UK health and care system. The purpose of this group is to share and provide ambition, leadership, vision, and cross system support in relation to sustainable development from and for the health and care system (specifically the public health, health care and social care sectors).

PHE is committed to sustainable development in all its activities and our Sustainable Development Management Plan sets out our aims to help us operate in more sustainable ways.

PHE continues to embed sustainability into its contracts, helping to highlight risks arising from our procurement activities. We continue to utilise the tools developed by the Government Procurement Service, ensuring we maintain a robust approach to sustainability throughout the supply chain.

This report describes the work that PHE has undertaken on sustainable development over the last year. It includes details of our ongoing commitment to reduce our carbon footprint as well as other activities where sustainability is a key driver, such as climate change and extreme events.

Our carbon footprint

PHE has set a target to reduce its carbon emissions by 3% annually for the period to March 2020, compared to a baseline year of 2013/14, in line with the Greening Government Commitment (GGC).

To achieve this, PHE has agreed a number of carbon-related reduction targets for its estate, which include utility use, business travel, water consumption and total waste. During 2018/19, a variety of projects were undertaken to help us meet our reduction targets and where possible exceed them.

In line with government strategy, PHE continues with the consolidation of its estate. It has been agreed with DEFRA that PHE can report the emissions from its Harlow site separately, thereby ensuring that we can continue to monitor the impact of our carbon reduction activities separately from the construction work which will take place in Harlow over the coming years. Data for the Harlow site will therefore be displayed separately from the main data, where applicable.

In this chapter we include emissions data from both PHE's reportable and its non-reportable sites. (Non-reportable sites are those offices or laboratories that are being reported separately by the premises' landlord.)

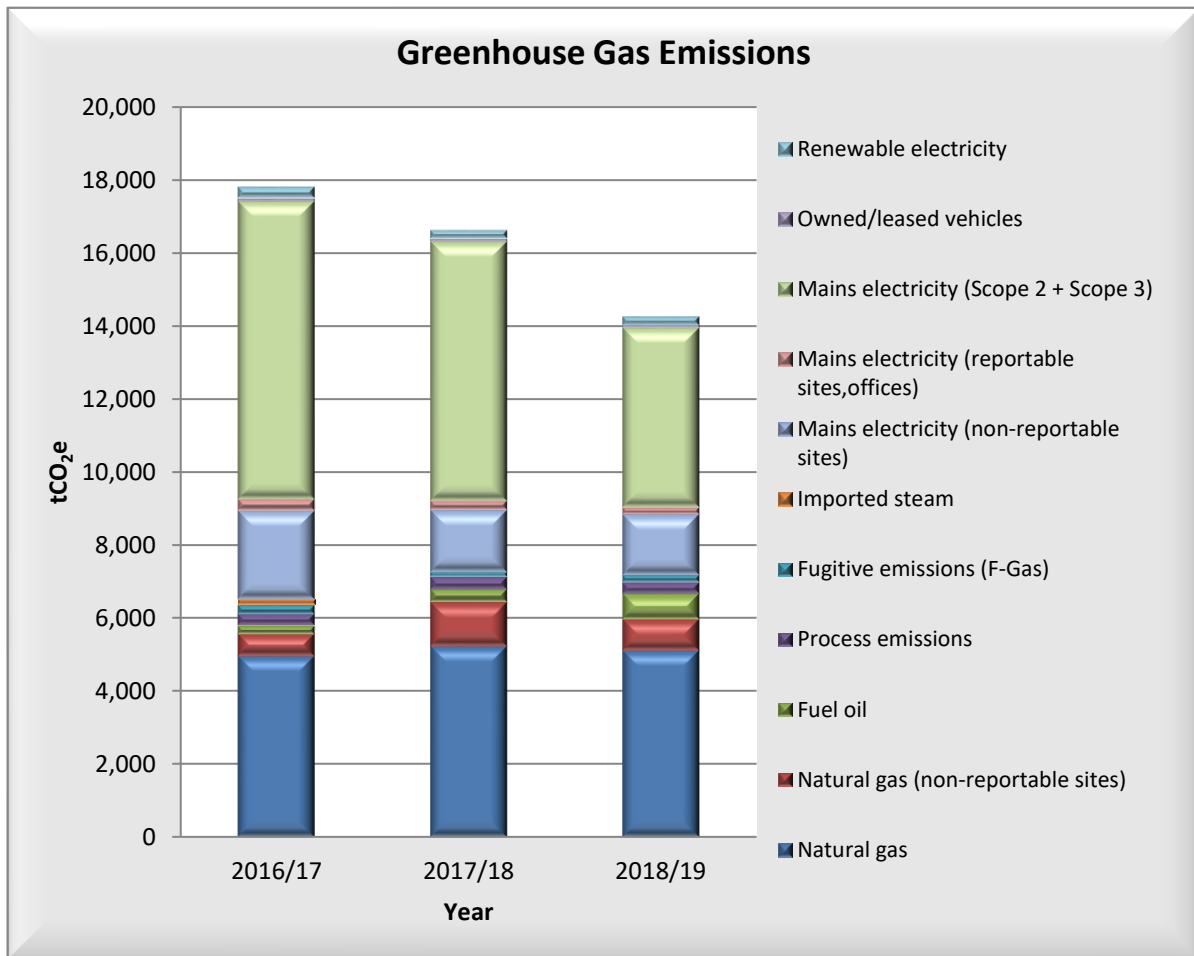
PHE owns 6 of its premises and has numerous shared facilities embedded in government-owned property (including hospitals) and in other tenanted accommodation. There is no direct relationship with the utility provider in these premises and no sub-metering has been undertaken. To avoid double accounting of carbon emissions from these properties, they have been identified separately for reporting purposes. PHE has no properties within SSSI or AONB boundaries.

As part of PHE's continued drive to reduce our carbon emissions, 3 of our larger owned sites, have installed large arrays of photovoltaics in order to help offset our energy usage. The facilities at Porton and Colindale have significantly benefited from this green technology, with the smaller installation at Chilton also offering great reductions.

The investment in PV is helping us to reduce the impact on the environment from our estate as well as our dependency on electricity from the national grid. Making use of green energy is good for the environment, helps us to reduce our costs and contributes towards the sustainable development agenda which PHE is proud to support.

Greenhouse gas emissions

The major impact on the environment from PHE’s activities continues to come from electricity and gas consumption at its main sites at Colindale, Porton and Chilton. PHE reports its greenhouse gas emissions on a quarterly basis to the Department of Health and Social Care, which correlates data from all of its arms-length bodies and executive agencies, in line with the GGC guidelines.



GGC reporting requires PHE to report its scope one, 2 and 3 emissions for its owned estate only, as it is assumed that other parts of the estate where PHE has a presence are already reporting to their sponsoring body. This is to prevent double accounting of the data. Waste water is not reported under the GGC requirements.

Our total greenhouse gas emissions are summarised below – this data includes both reportable and non-reportable sites but excludes PHE Harlow which is reported separately.

GREENHOUSE GAS EMISSIONS		2016/17	2017/18	2018/19
SCOPE 1 + 2				
Non-financial indicators (tCO ₂)	Natural gas ⁶	4,952	5,217	5,097
	Natural gas (non-reportable sites)	623	1,205	869
	Fuel oil	230	353	697
	Process emissions	319	349	315
	Fugitive emissions (F-Gas)	259	137	201
	Imported steam	135	0	0
	Mains electricity (non-reportable sites)	2,426	1,701	1,664
	Mains electricity (reportable sites, offices)	304	244	189
	Mains electricity (Scope 2 + Scope 3) ⁶	8,173	7,103	4,923
	Owned/leased vehicles	68	72	61
	Renewable electricity	307	233	239
Related energy consumption (kWh)	Natural gas	26,609,714	28,330,159	27,689,273
	Natural gas (non-reportable sites)	3,384,729	6,541,778	4,723,000
	Fuel oil	831,506	1,279,918	2,521,975
	Process emissions ²	1,733,696	1,895,109	1,711,413
	Imported steam ⁵	736,233	0	0
	Mains electricity (non-reportable sites)	5,398,338	4,425,648	5,415,882
	Mains electricity (reportable sites, offices)	676,416	634,648	616,520
	Mains electricity (Scope 2 + Scope 3)	18,190,192	18,477,807	16,024,606
	Renewable electricity ⁴	684,097	606,319	776,848
Related consumption (kgCO ₂)	Fugitive emissions (F-Gas) ³	259,290	137,148	201,857
Related Scope 1 travel (km)	Owned/leased vehicles	352,791	291,172	336,596
Financial indicators (£)	Natural gas	616,520	641,948	706,703
	Fuel oil ¹	48,380	69,797	191,628
	Owned/lease vehicles (fuel/i-expenses)	17,130	21,802	8,789
	Fugitive emissions (F-Gas) ³	58,320	36,775	7,837
	Imported steam ⁵	8,920	0	0
	Mains electricity (reportable)	1,970,817	2,086,056	2,057,335
	Renewable electricity ⁴	66,069	56,863	75,004
Total Emissions Scope 1 + 2 (tCO ₂) ⁷		14,440	13,475	11,485
Total gross emissions from non-reportable sites Scope 1 + 2 (tCO ₂)		3,049	2,906	2,533
Renewable Energy tCO ₂		307	233	239

1 Fuel oil only calculated for reportable sites

2 Process emissions from the Porton incinerator

3 F-Gas costs from PHE's major owned sites are absorbed as part of the service contract.

4 Renewable energy from Porton and Colindale PV farms started 2016

5 Due to the closure of the laboratory at Bristol there has been no imported steam to report in 2017/18.

6 Harlow data is reported separately

7 Renewable energy has been netted in this figure

Energy consumption

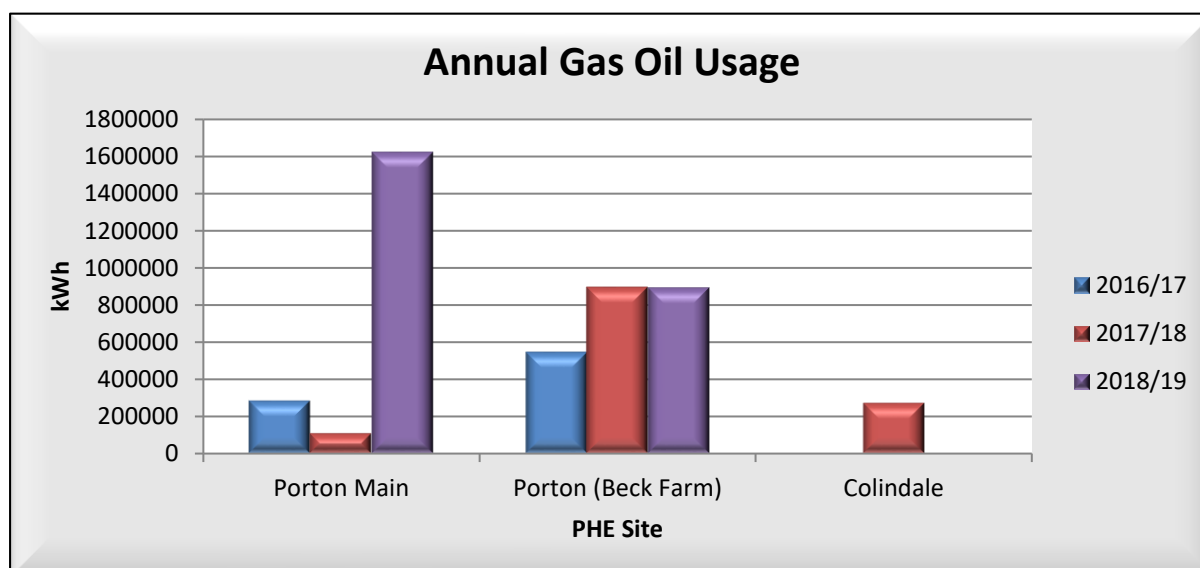
PHE's energy consumption for 2018/19 for our reportable and non-reportable estate is given below.

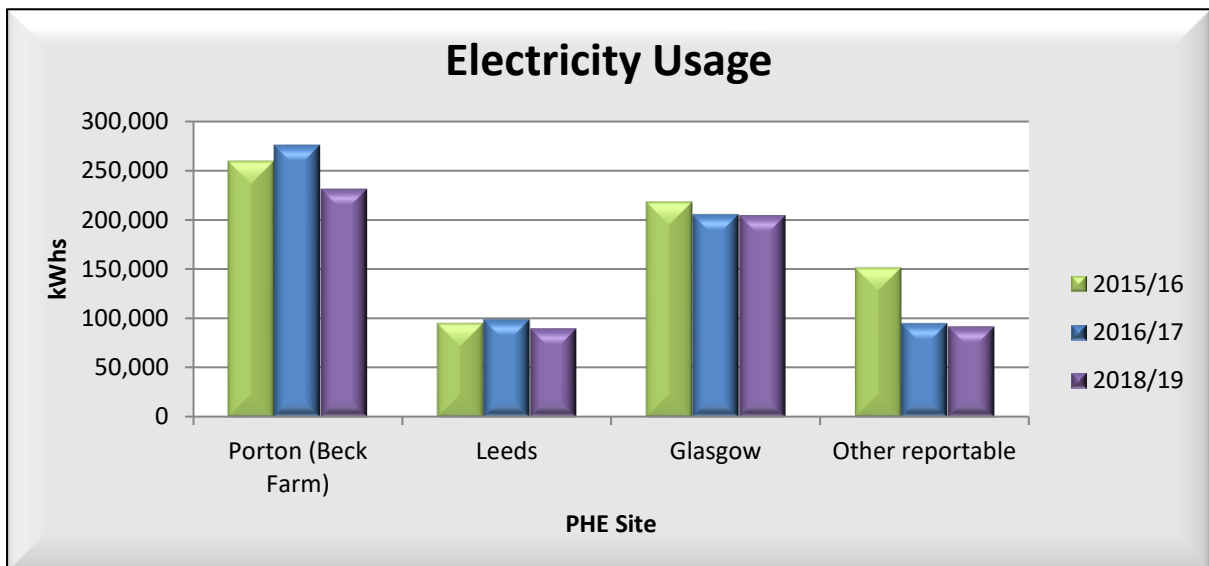
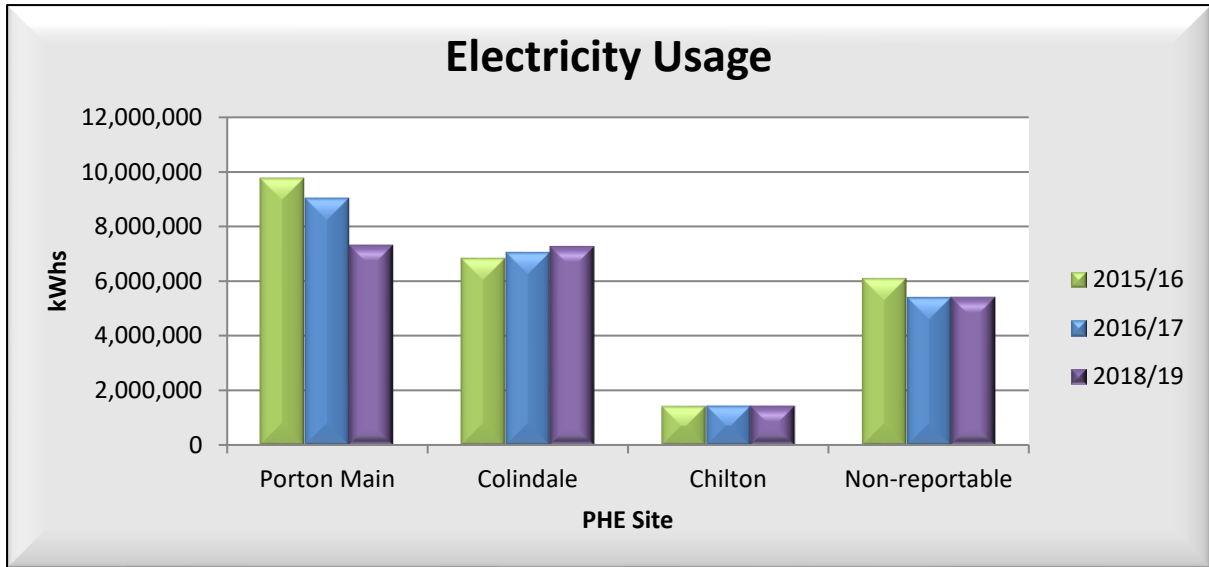
kWh's	Electricity	Natural gas	Gas oil
Porton Main**	7,313,784	12,422,682	1,626,286
Porton (Beck Farm)	230,800	0	895,035
Colindale**	7,260,547	12,779,933	0
Chilton**	1,450,275	1,921,168	655
Leeds	89,940	141,756	0
Glasgow	204,098	345,049	0
Other reportable*	91,681	78,685	0
Non-reportable	5,415,882	4,723,000	0
Total	22,057,007	32,412,273	2,521,976

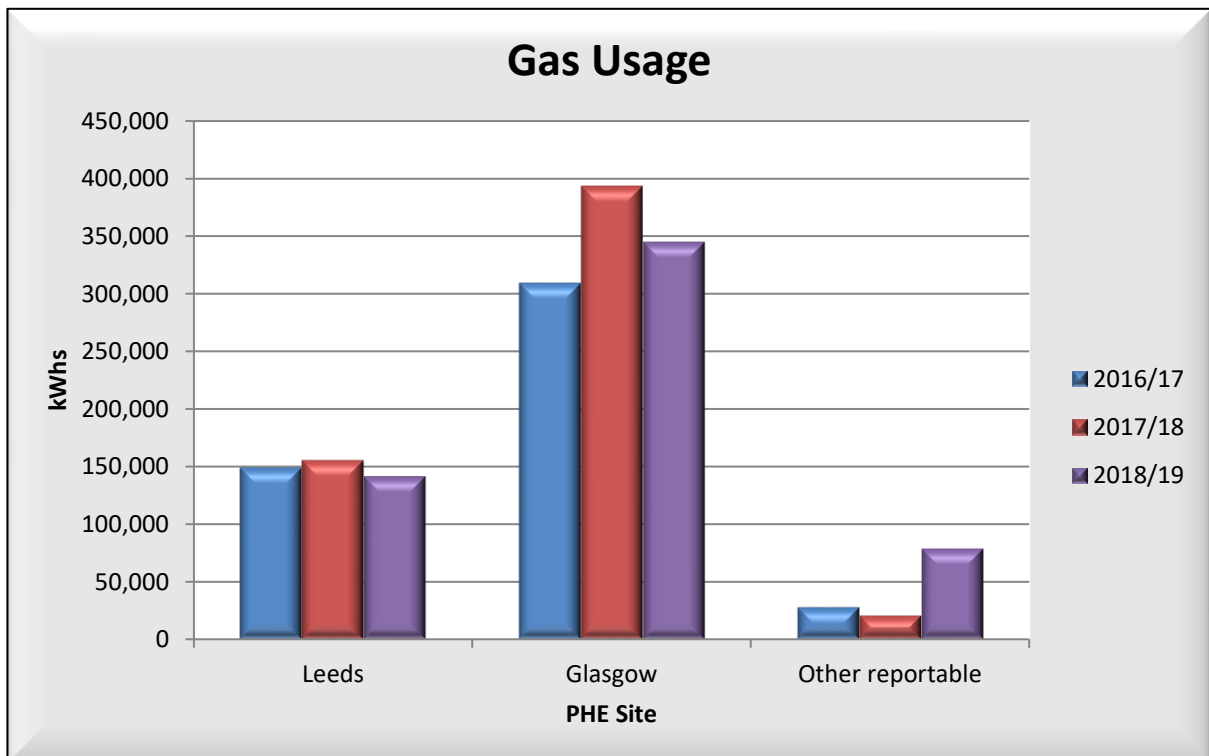
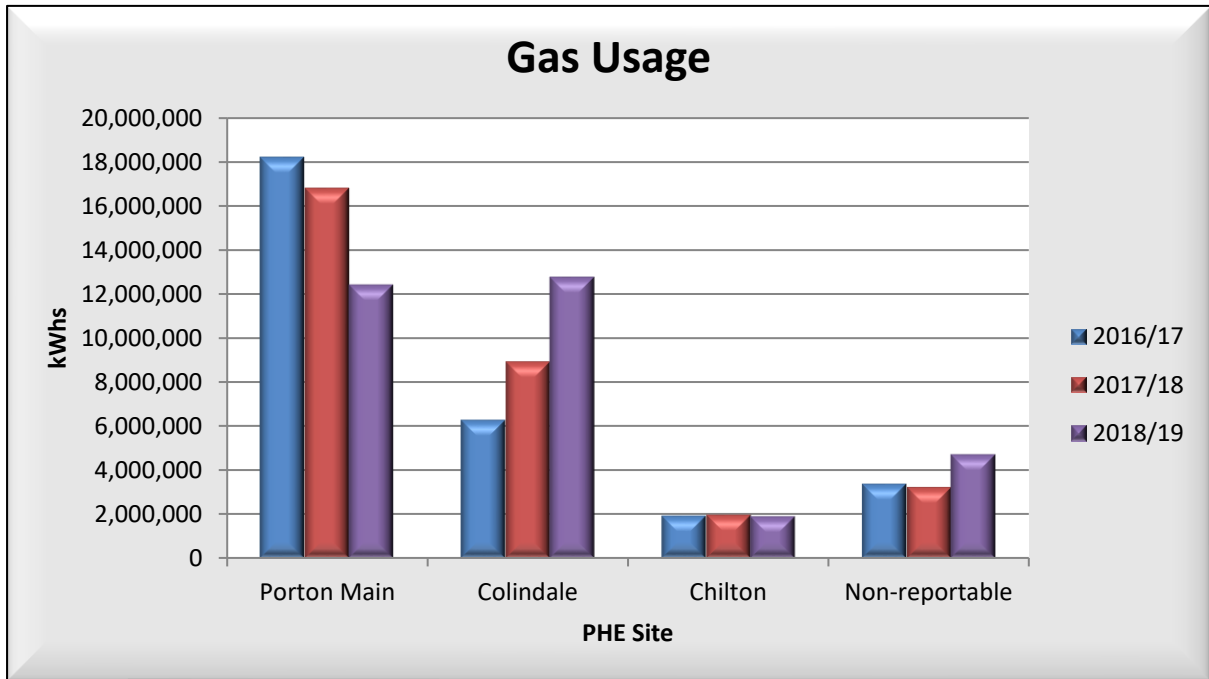
* Other reportable sites are those that we occupy and pay directly to the utility provider for services

** Electricity generated from their photovoltaic equipment has been taken away from the total usage figure

The following graphs illustrate utility usage over the last 3 years.







Carbon emissions: Chief Operating Officer Directorate

		Porton (Main)	Porton Building 1	Beck Farm	Colindale	Other**	Wellington House	Total
Emissions Type	Emissions Source	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e
Emissions from our properties and the operations carried out therein	Natural Gas	2285.30	312.90	0.00	2351.00	384.70	71.20	5405.10
	Gas Oil	449.70	0.00	247.50	0.00	0.00	0.00	697.20
	Emissions from Electricity use	2246.80	94.10	70.90	2230.40	968.00	284.35	5610.20
	Process Emissions (Refrigeration)	2.66	0.00	0.00	123.00	0.00	0.00	125.66
	Water supply	24.30	0.40	0.40	12.40	3.63	1.20	42.33
	Water (Waste)*	45.10	0.80	0.70	24.50	7.10	2.40	80.60
	Sub Total		5053.86	408.20	319.50	4741.30	1363.43	74.80

* Waste water is not reported as part of our Greening Government Commitment

** Other reportable sites are those that we occupy and pay directly to the utility provider for services

Carbon emissions: Health Improvement Directorate

		Oxford	Blenheim House	Other**	Skipton House	Total
Emissions Type	Emissions Source	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e
Emissions from our properties and the operations carried out therein	Natural Gas	14.50	17.70	36.16	71.20	139.56
	Gas Oil	0.00	0.00	0.00	0.00	0.00
	Emissions from Electricity Use	28.20	55.20	79.67	149.40	312.47
	Process Emissions (Refrigeration)	0.00	0.00	0.00	0.00	0.00
	Water supply	0.10	0.30	0.43	0.60	1.43
	Water (Waste)*	0.15	0.50	0.86	1.10	2.61
	Sub Total		42.95	73.70	117.12	222.30

* Waste water is not reported as part of our Greening Government Commitment

** Other reportable sites are those that we occupy and pay directly to the utility provider for services

Carbon emissions: Health Protection & Medical Directorate

		Chilton	Glasgow	Leeds	Other**	Total
Emissions Type	Emissions Source	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e	tCO ₂ e
Emissions from our properties and the operations carried out therein	Natural Gas	353.40	63.50	26.10	5.27	448.27
	Gas Oil	0.10	0.00	0.00	0.00	0.10
	Emissions from Electricity Use	445.50	92.40	44.70	11.60	594.20
	Emissions from Import of Heat or Steam	0.00	0.00	0.00	0.00	0.00
	Process Emissions (Refrigeration)	4.64	0.00	0.00	0.00	4.64
	Water supply	1.60	0.10	0.10	0.03	1.83
	Water (Waste)*	3.30	0.20	0.20	0.05	3.75
	Sub Total	808.54	156.20	71.10	16.95	1052.79

* Waste water is not reported as part of our Greening Government Commitment

** Other reportable sites are those that we occupy and pay directly to the utility provider for services

Water consumption

PHE has set a target to reduce its water consumption by 2% annually to 2020, in line with the greening government initiative. The reportable usage of water for the estate (not including PHE Harlow) was 113,171 m³, with a further estimated 20,401 m³ being used by our non-reportable sites. Data for non-reportable sites are estimated in many cases, due to the lack of metering. Overall, this represents a reduction in consumption of 33% from last year.

This significant reduction was partly due to last year's reported water leaks, at 2 of our major sites, being repaired.

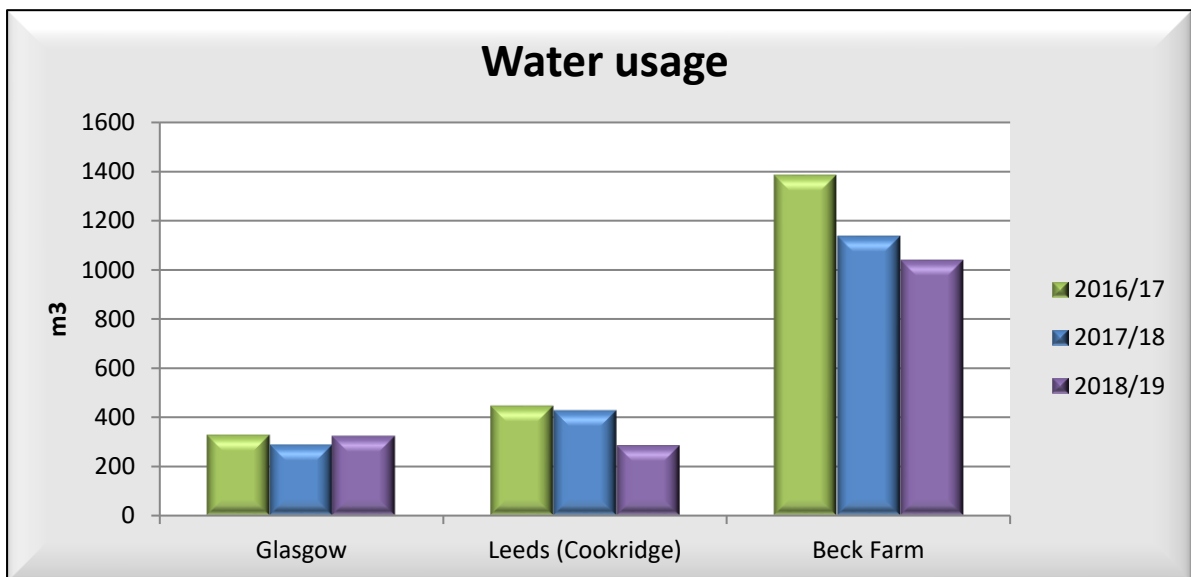
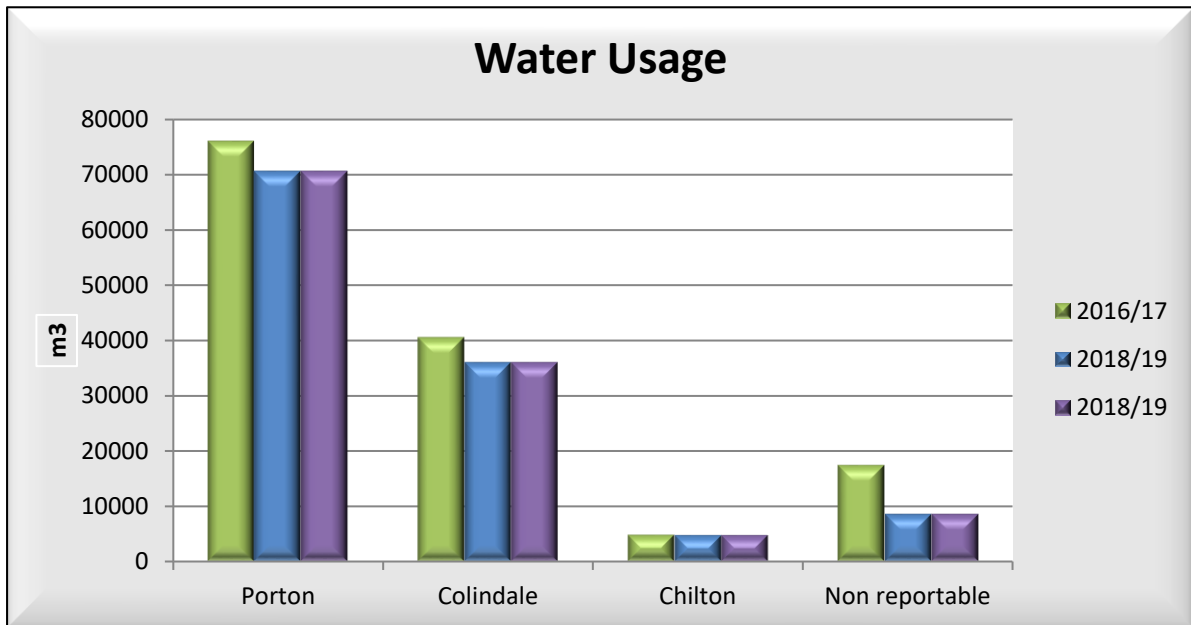
Water		2016/17	2017/18	2018/19
SCOPE 3 (Water)				
Non-financial indicators (m ³)	Water from office estate (reportable)*	262	216	216
	Water from whole estate (reportable) [excluding office estate]	123,195	169,788	112,955
	Total for reportable estate (m ³)	124,187	170,004	113,171
	Water from office estate (non-reportable)*	10,389	15,536	11,837
	Water from whole estate (non-reportable)* [excluding office estate]	7,089	5,987	8,564
	Total for non-reportable estate (m ³)	17,478	21,523	20,401
Financial indicators (£)	Water supply costs**	132,714	199,079	106,751

* Estimated usage from our non-reportable sites

** Costs from our owned estate only

Water that was consumed by our offices and laboratories which are embedded in tenanted, non-reportable accommodation continues to be estimated using a recognised benchmarking algorithm.

Water consumption from the various parts of the estate is illustrated below.

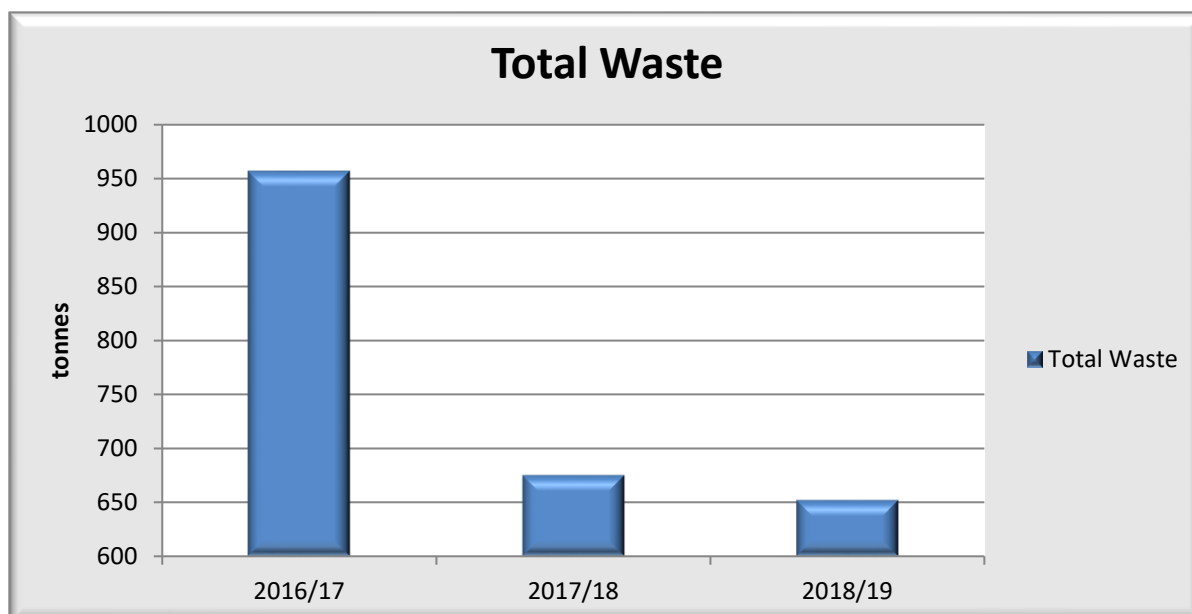


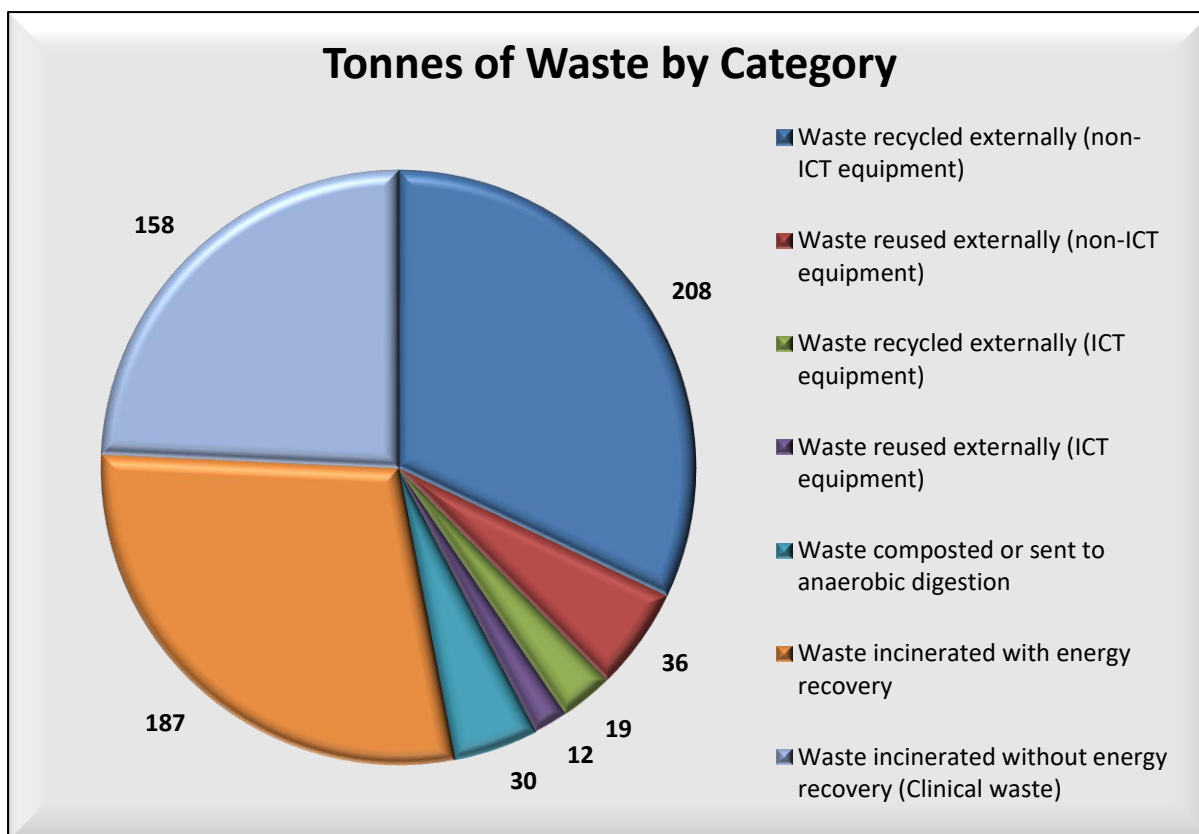
Waste

PHE has set a total waste reduction target of 2% annually to March 2020, in line with the Greening Government initiative. PHE's total waste figure for 2018/19 was 652 tonnes, a 3.4% reduction in total waste compared with 2017/18, and a 28% reduction compared to the baseline figure of 2013/14.

	2016/17	2017/18	2018/19
	tonnes	tonnes	tonnes
Waste recycled externally (non-ICT equipment)	273	183	208
Waste reused externally (non-ICT equipment)	28	42	36
Waste recycled externally (ICT equipment)	12	10	19
Waste reused externally (ICT equipment)	5	7	12
Waste composted or sent to anaerobic digestion	50	27	30
Waste incinerated with energy recovery	257	190	187
Waste incinerated without energy recovery (clinical waste)	277	163	158
TOTAL ICT WASTE	17	18	31
Total waste not sent to landfill	903	623	601
Total waste sent to landfill (non-hazardous)	43	25	28
Total landfill waste deemed hazardous*	10	27	23
Total waste	957	675	652

* Incinerator ash





PHE continues to implement its policy of reducing the amount of waste it sends to landfill and it is therefore very encouraging to see this waste stream falling in the last year.

We continue to incinerate the majority of our waste. This waste stream employs energy recovery as a bi-product of the process, with only a small amount not leading to energy recovery. Due to an increase in usage of the clinical waste incinerator at Porton, the hazardous incinerator ash which is produced and sent to a specialized landfill site decreased last year by 4 tonnes.

We saw a 43% increase in the amount of ICT waste being sent offsite for recycling or reuse.

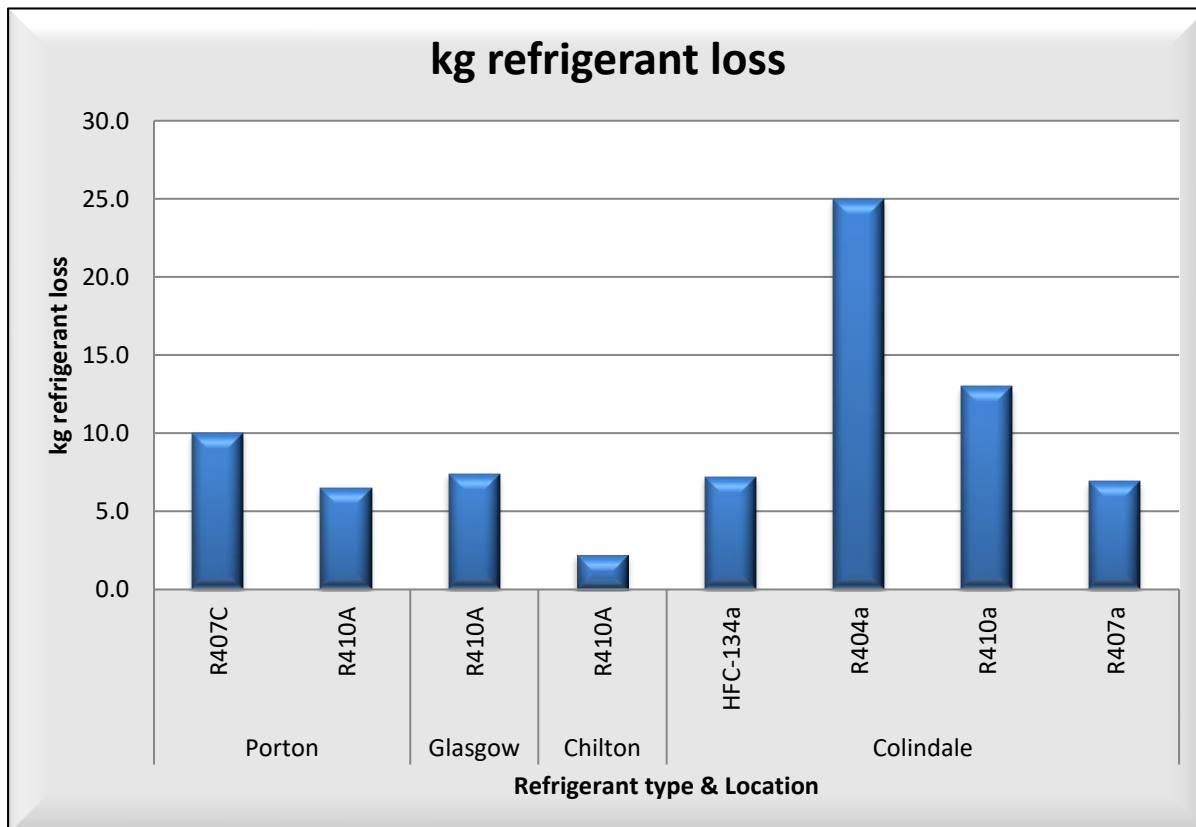
A total of 31 tonnes of ICT waste was produced last year with some 30% being recycled and the other 70% being reused by CDL, our ICT waste contractor.

Refrigerant losses

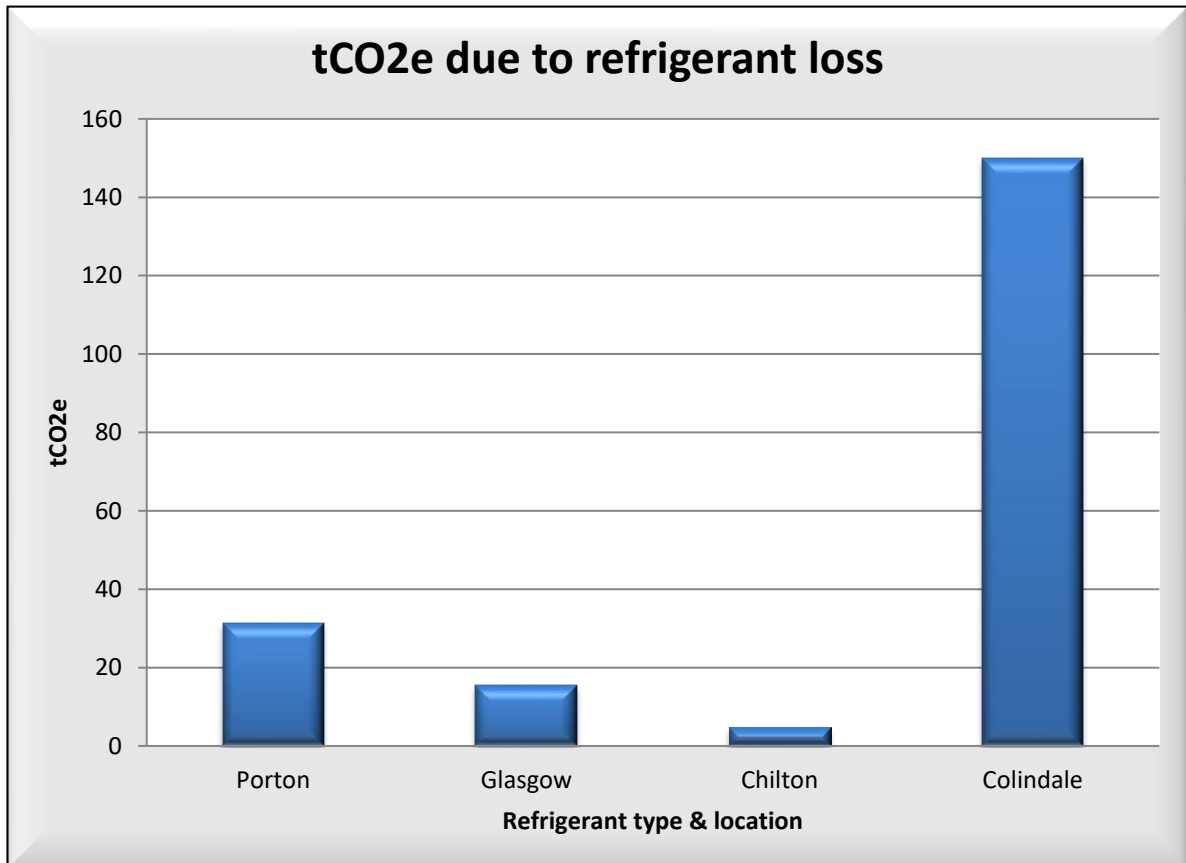
The losses of refrigerant on PHE's estate, with the associated carbon emissions, are illustrated below.

Facility / source description	Type of Refrigerant	Refrigerant Loss	GWP of refrigerant	CO ₂ emissions
		kg	CO ₂ e	tonnes CO ₂
Porton	R407C	10.0	1,774	17.74
	R410A	6.5	2,088	13.57
Glasgow	R410A	7.4	2,088	15.45
Chilton	R410A	2.2	2,088	4.64
Colindale	HFC-134a	7.2	1,430	10.30
	R404a	25.0	3,922	98.05
	R410a	13.0	2,088	27.14
	R407a	6.9	2,107	14.54

Due to the Global Warming Potential (GWP) of each specific gas emitted, the carbon equivalent of each kg of refrigerant gas emitted is significantly higher, see above. As refrigerants, e.g R22 with less GWP, come onto the market these are being taken up across our estate replacing those that have a greater impact.



There is a legal requirement to monitor and measure the amount of refrigerants (known as F-gases) that are lost to the atmosphere from the operation of cooling and air handling systems fitted on our owned estate. At each of our properties where this type of equipment is fitted, an F-Gas log is maintained by the local estates team. This records how much of each particular gas has had to be topped up through operational losses. This information is collated and sent quarterly to DH&SC as part of PHE's return under the Greening Government Commitment.



Paper usage

PHE continues to have an active programme to reduce paper usage, in line with government targets. We can report that on average 47% of the paper used by PHE in 2018/19 comprised of recycled paper.

In 2018/19, PHE used 15,590 reams of A4 paper, 197 reams of A3 paper and 231 reams of A5 paper. Our A5 usage has increased by some 240% and A4 by 0.36% respectively, with A3 decreasing by 23%, compared with the previous year. PHE's paper usage is summarised below.

	Ream		
Year	A5	A4	A3
2016/17	98	21,439	244
2017/18	68	15,534	255
2018/19	231	15,590	197
Reduction	240%	0.36%	-23%

Communication around paper usage and the need to 'think before you print' is still widely encouraged across the estate. Where possible, we have also moved to shared multi-functional devices for printing. We also use 'follow-me' printing, which requires users to log in using their id cards at the printer before any printing is delivered and this, in turn, has significantly reduced waste by ensuring printing only occurs when needed.

PHE Harlow utility usage

We have developed a robust strategy for sustainability and the procurement of goods and services associated with the major construction project being undertaken at our new facility in Harlow.

We have written into our planning documentation that the specification and design of all construction projects shall take due account of the contribution the project can make towards the Greening Government Commitment and that as a minimum all suppliers are to follow 'Achieving Excellence in Construction Procurement Guide 11: Sustainability'.

Procurement for this project will also take account of the Government Buying Standard for Construction. As a minimum, this requires:

- any new procurement project (whether new build, refurbishment, purchased, leased or the procurement of a service - e.g. managed workspace) to fall into the upper quartile of energy performance for the building type, except where specific operational requirements prevent this
- all timber or timber products (including timber used solely during the construction process such as temporary fencing, hoardings or shuttering) to be purchased in accordance with the government's timber procurement policy

Scope 1 and 2 emissions for PHE Harlow, are detailed below.

PHE Harlow greenhouse gas emissions		2018/19
Non-financial indicators (tCO₂)		
Natural gas		4
Mains electricity		913
Related energy consumption (kWh)		
Natural gas		19,788
Mains electricity		2,970,770
Financial indicators (£)		
Natural gas		2,012
Mains electricity		423,658
Total gross emissions reportable under Scope 1 + 2		1,410

Water (Harlow)		2018/19
Non-Financial Indicators (m³)		
Water usage		3,825
Financial Indicators (£)		
Water supply costs		8,133

The main use of water, over the year, has been for the routine flushing of the sites pipework to prevent *Legionella* contamination. Construction on the site is due to commence in the near future, when water supplies to existing buildings across the site will be isolated.

Waste (Harlow)	2018/19
Non-financial indicators (kgs)	
Waste incinerated with energy recovery	6,210
Financial indicators (£)	
Waste costs	916

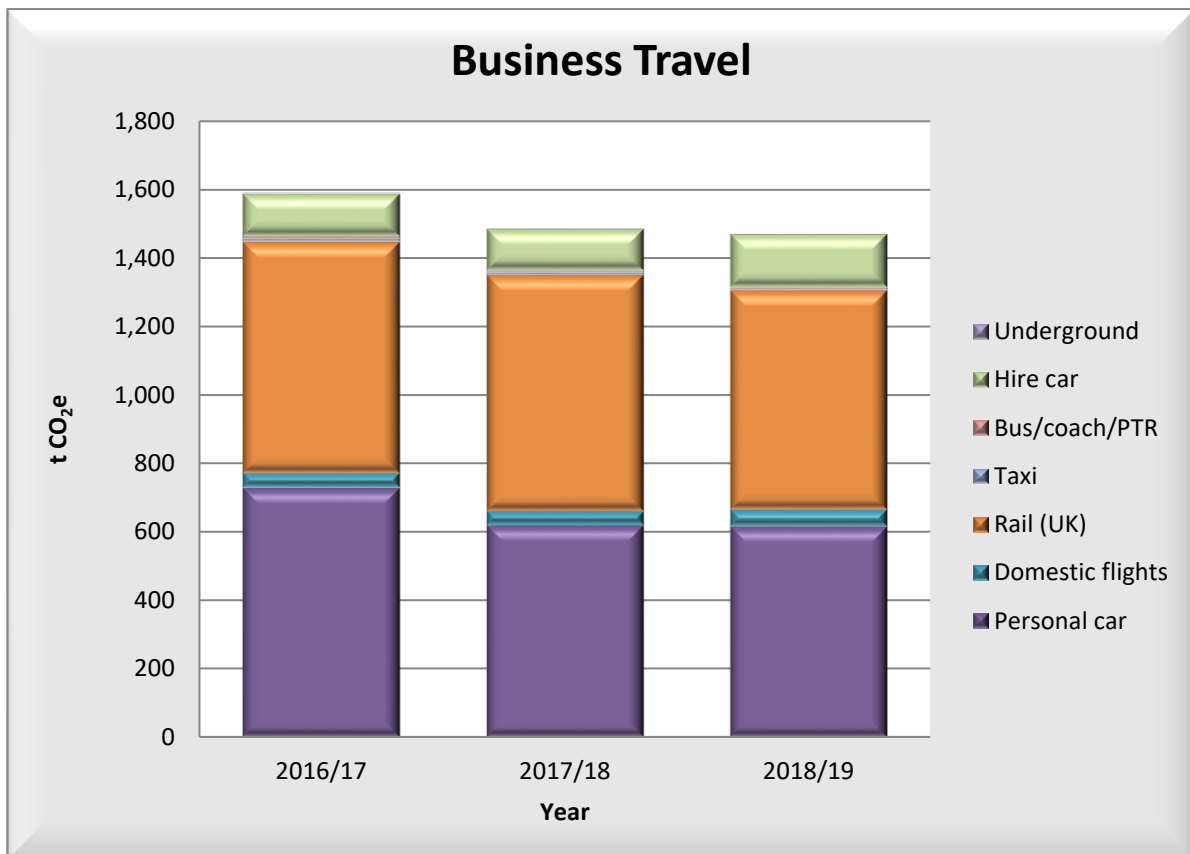
As shown above, general waste at the Harlow site is disposed of via an incinerator with energy recovery. The site reported that some 6.2 tonnes of general waste was disposed of during the last year.

Our travel footprint

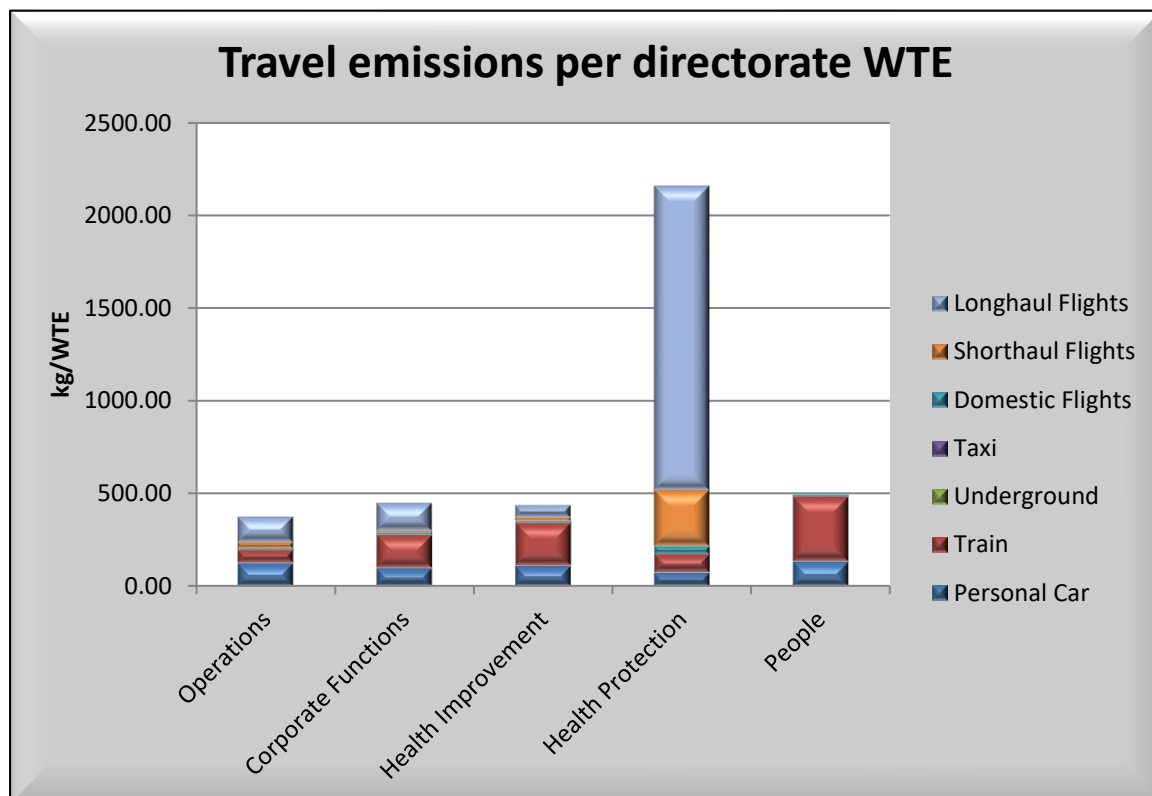
PHE has a target to reduce business travel by at least 2% annually, relative to our baseline year of 2013/14, through to March 2020. Staff are encouraged to limit journeys wherever possible and when they must travel, to use the most sustainable modes of transport.

We accept that our members of staff sometimes need to travel to deliver the business objectives of the organisation. Over the last year there has been a 1% decrease in business travel emissions compared to 2017/18. This was partly due to a reduction in the use of private vehicles for business and to a reduction in rail travel. We have seen an increase in the use of hire vehicles, which is in line with our transport policy objectives of using smaller, more efficient vehicles.

The Carbon impact from domestic flights has increased by some 23% compared to last year. UK rail emissions were down by 7.28%, as was business travel by personal car by 1% compared to last year. However, there was a significant reduction in emissions per WTE by some 48% from international flights compared to the previous year.



A breakdown of the impact of the various reportable types of business travel are given in the graph above, note this does not include short or long-haul flight data as this is not reportable under government reporting requirements. Though in the spirit of transparency these data are reported in detail below



The chart above summarises in detail the carbon emissions per WTE from business travel undertaken by each PHE directorate. Operational activities by the Health Protection and Medical directorate require its staff to travel extensively overseas, as illustrated above. These are discussed in more detail in the section on air travel below.

Business Travel		2016/17	2017/18	2018/19
SCOPE 3				
Non-financial indicators (tCO ₂)	Personal car	727	619	615
	Domestic flights	42	41	50
	Rail (UK)	677	692	641
	Taxi	7	6	2
	Bus/coach/PTR	8	5	5
	Hire car	125	123	158
	Underground	1	0.639	0.52
	Total	1,589	1,486	1,471
Related Scope 3 travel (km)	Personal car	3,890,555	3,392,340	3,402,269
	Domestic flights	288,386	286,752	316,775
	Rail (UK)	13,867,076	14,785,302	14,548,043
	Taxi ²	45,943	41,250	44,483
	Bus/coach/PTR ¹	83,213	47,734	51,985
	Hire car ¹	668,882	673,801	874,057
	Underground ¹	15,183	13,664	13,904
	Total	18,859,238	19,240,842	19,251,515
Financial indicators (£)	Personal car	1,101,425	925,888	964,363
	Domestic flights	55,376	57,605	58,349
	Rail (UK)	3,692,035	4,089,704	4,224,978
	Taxi	102,096	91,666	98,850
	Bus/coach/PTR	32,608	25,260	23,648
	Hire car	116,109	103,443	113,533
	Underground	69,012	62,110	63,189
	Total	5,168,661	5,355,676	5,546,910
Other business travel (km)	Short-haul international average	1,693,778	1,863,015	1,915,578
	Long-haul international average	4,588,511	7,511,569	8,231,834
	Rail: Eurostar	101,482	74,982	70,506
Total	Total Gross Emissions Scope 3 Business Travel (tCO ₂)	1,589	1,487	1,471
	Total Financial Cost Scope 3 Business Travel (£)	5,168,661	5,320,412	5,546,910
	Total Other Financial Cost, not covered in Scope 3 (£)	485,165	694,157	326,553

In order to facilitate a comparison of travel emissions across the various parts of the organisation, PHE uses the measure of tCO₂e per whole time equivalent (wte) staff. The key changes to our travel footprint compared with last year were:

- emissions per wte from UK (domestic) flights are down by 37%
- emissions per wte from international flights are down by 48%
- emissions per wte train use per wte are down by 10%
- emissions per wte from personal car use are up by 4%
- emissions per wte from taxi use are down by 9%
- emissions (tCO₂e) from use of PHE owned/leased vehicles are down by 16%

Microsoft's Skype continues to be a well-supported tool in the initiative to minimise travel for meeting attendance. PHE recognises that less business travel will not only benefit public health by preventing air pollution, but also supports PHE's plans to reduce carbon and saves money.

Active travel initiatives across the whole of PHE are one of the ways we have been asking staff to consider whether they actually have to attend a meeting in person. If staff are travelling locally, walking or using a bicycle (where practicable) are examples of how carbon savings can be made while contributing to improving health. PHE is an advocate of active travel in the UK.

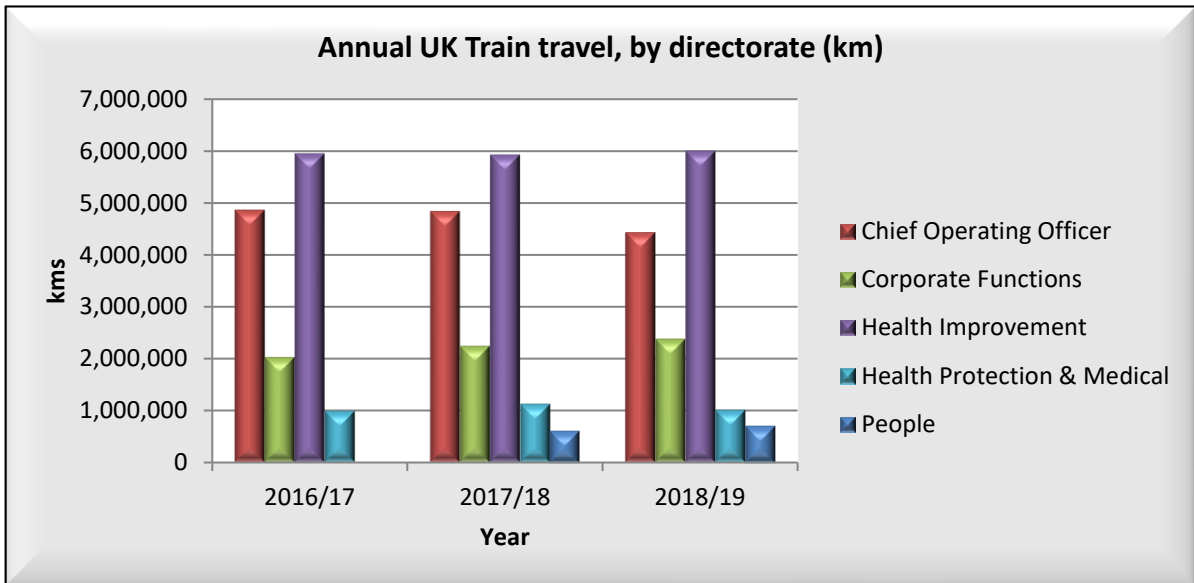
Rail travel

During 2018/19, PHE staff travelled 14,548,043 km by train, inclusive of i-expense claims, representing a 1.5% reduction on the previous year. The Chief Operating Officer's directorate continues to undertake the greatest number of journeys by rail, this is due in part to the dispersed nature of the estate from where this directorate operates. PHE's total spend on UK rail travel amounted to £4,224,978 and the following table summarises PHE's carbon footprint due to rail travel.

Directorate	Distance kms	WTE	tCO ₂	kgCO ₂ /WTE
Chief Operating Officer	4,419,977	3,162	196	62
Corporate Functions	2,379,296	567	105	167
Health Improvement	5,992,564	1,186	265	214
Health Protection & Medical	1,003,292	528	44	83
People	700,185	79	31	302
Total*	14,495,313	5,521	641	828

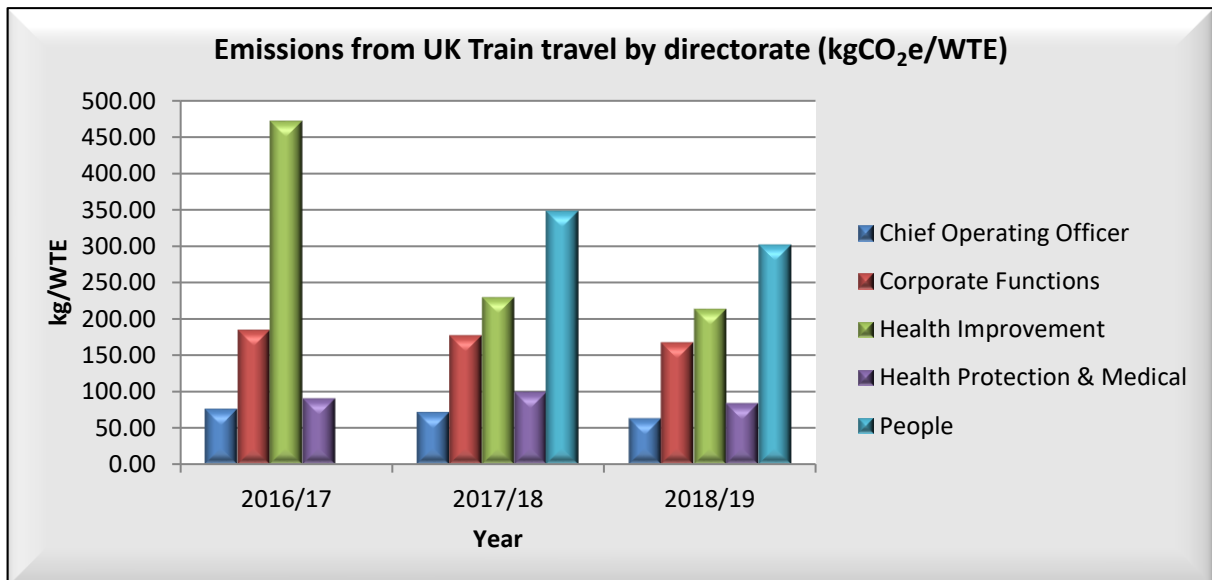
* Does not include i-expenses data

Our rail travel in 2018/19 is summarised below, expressed as both distance travelled, and in terms of emissions expressed as kgCO₂e per wte.



Emissions due to rail travel are expressed as kgCO₂e per wte. It should be noted that the size of each directorate can subtly change over the year, impacting on the total emissions. However, the measure of kgCO₂e per wte still allows a meaningful comparison and gives the following distribution.

Staff in the People directorate generated the highest emissions per person (302 kgCO₂e/wte) from train travel, this is due to the low number of staff in the directorate. This compares with members of staff from the Health Improvement directorate, who generated 214 kgCO₂e/wte, down by 6.95% compared to last year's figures.



Air travel

PHE fully recognises its public health commitments, not only in the UK but also internationally. Therefore, travelling by air to meet these commitments is generally unavoidable but we also recognise the importance of minimising our air travel wherever possible, especially within the UK. Moreover, reducing domestic air travel is a specific Greening Government target.

A large proportion of our international work is undertaken due to our commitment to Global Public Health issues, with PHE having staff in its Rapid Support Team ready to travel anywhere around the globe to respond to outbreaks and incidents of international concern and supporting the public health response to humanitarian disasters. Thus, staff in the Health Protection and Medical Directorate undertake significant international travel. This is evident from in the data below, which summarises our air travel.

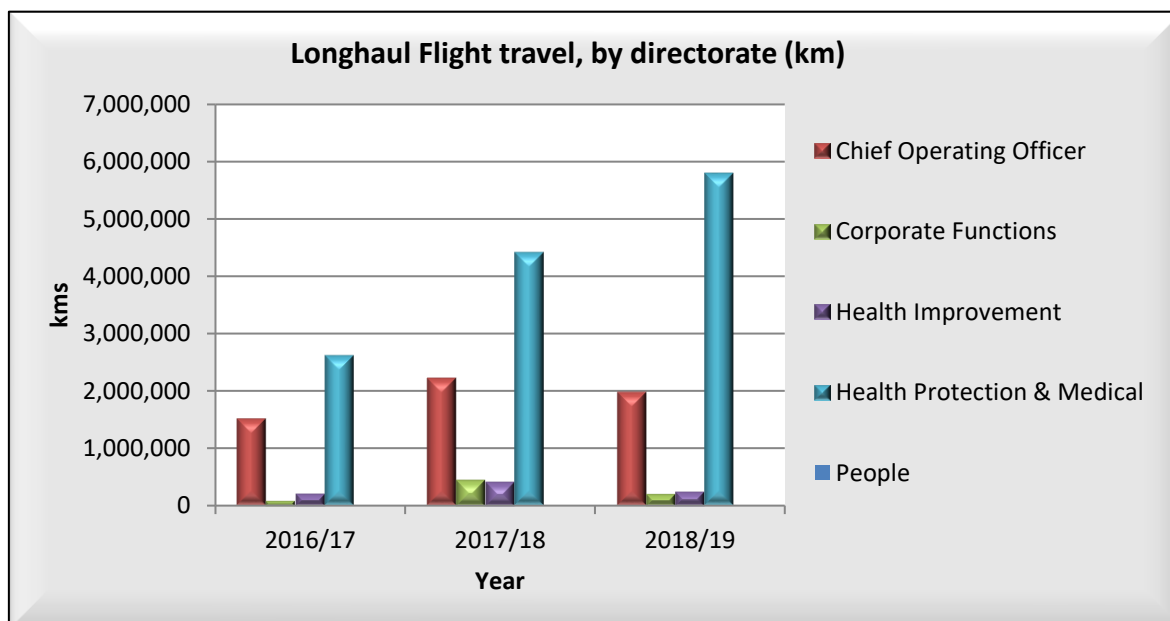
Directorate	WTE	kgCO ₂ /WTE		
		Domestic	Shorthaul	Longhaul
Chief Operating Officer	3,141	6.46	17.94	54.29
Corporate Functions	630	5.38	6.38	28.51
Health Improvement	1,241	6.80	9.54	17.22
Health Protection & Medical	534	33.02	167.99	972.34
People	103	2.13	0.00	0.00
Total	5,648	54	202	1,072

Total distances travelled by air are shown in the following table, by quarter.

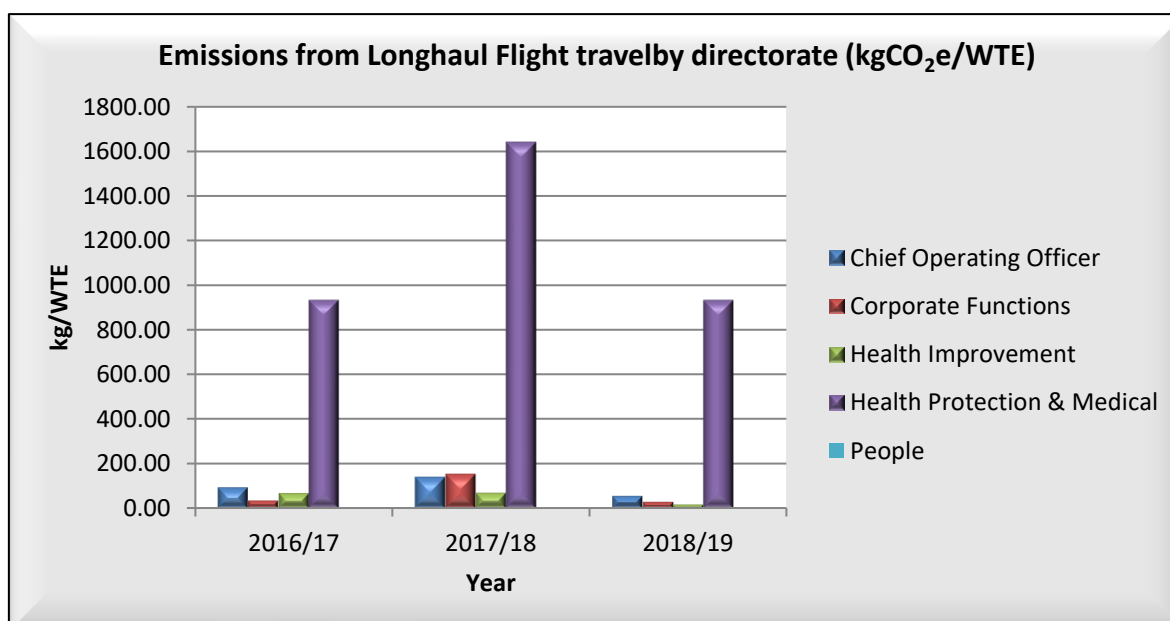
Directorate	Distance travelled (km)				Annual total (km)
	Q1	Q2	Q3	Q4	
Domestic flights (<500 km)					
Chief Operating Officer	95,869	13,099	13,272	6,430	128,670
Corporate Functions	4,601	6,363	2,232	8,259	21,455
Health Improvement	20,202	6,269	6,350	20,639	53,460
Health Protection & Medical	33,380	19,800	36,518	22,105	111,803
People	831	0	0	555	1,386
Total domestic flights	154,883	45,531	58,372	57,989	316,775
Short-haul flights (500-3,700 km)					
Chief Operating Officer	232,671	91,562	241,108	100,602	665,944
Corporate Functions	18,991	20,519	6,211	1,832	47,554
Health Improvement	38,188	26,906	48,693	26,454	140,241
Health Protection & Medical	318,996	230,476	321,961	190,407	1,061,840
People	0	0	0	0	0
Total short-haul flights	608,846	369,464	617,973	319,295	1,915,578
Long-haul flights (>3,700 km)					
Chief Operating Officer	571,938	491,618	541,936	375,621	1,981,113
Corporate Functions	40,388	46,696	50,447	70,987	208,518
Health Improvement	62,524	139,098	22,881	23,648	248,151
Health Protection & Medical	1,217,396	1,381,916	1,410,228	1,784,511	5,794,052
People	0	0	0	0	0
Total long-haul flights	1,892,247	2,059,328	2,025,492	2,254,766	8,231,834
TOTAL ALL FLIGHTS	2,655,976	2,474,324	2,701,837	2,632,051	10,464,187

Long haul flights

There was a 9.59% increase in the amount of international air travel undertaken compared to the previous year. The Health Protection and Medical directorate was the greatest user of long haul flights, as explained earlier this is mainly due to PHE's operational commitments overseas.

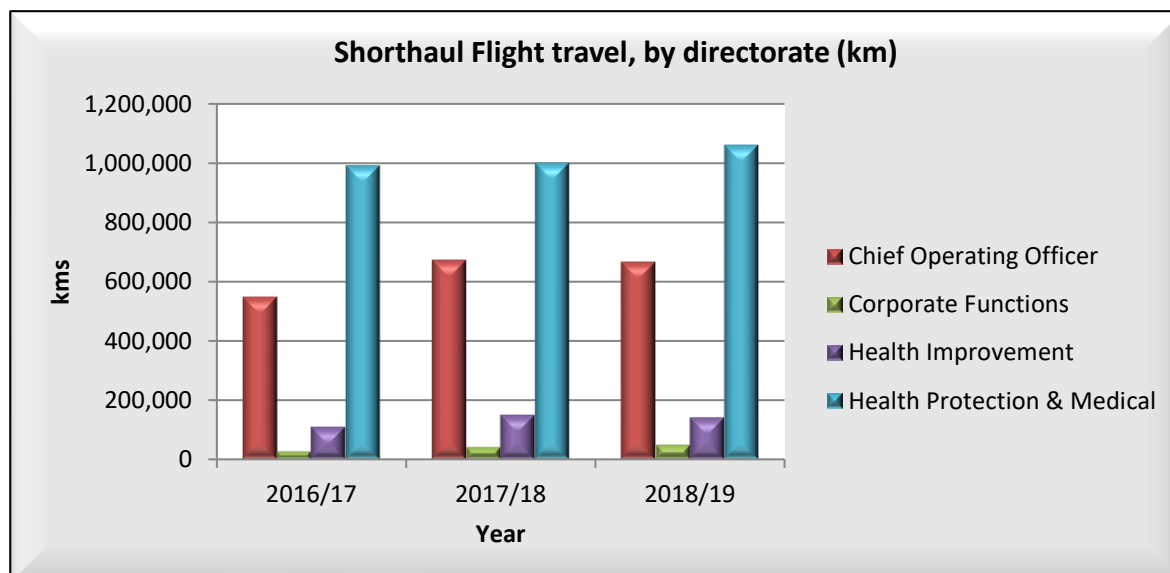


The emissions due to long haul air travel are expressed as kgCO₂e per wte. This gives the following distribution:

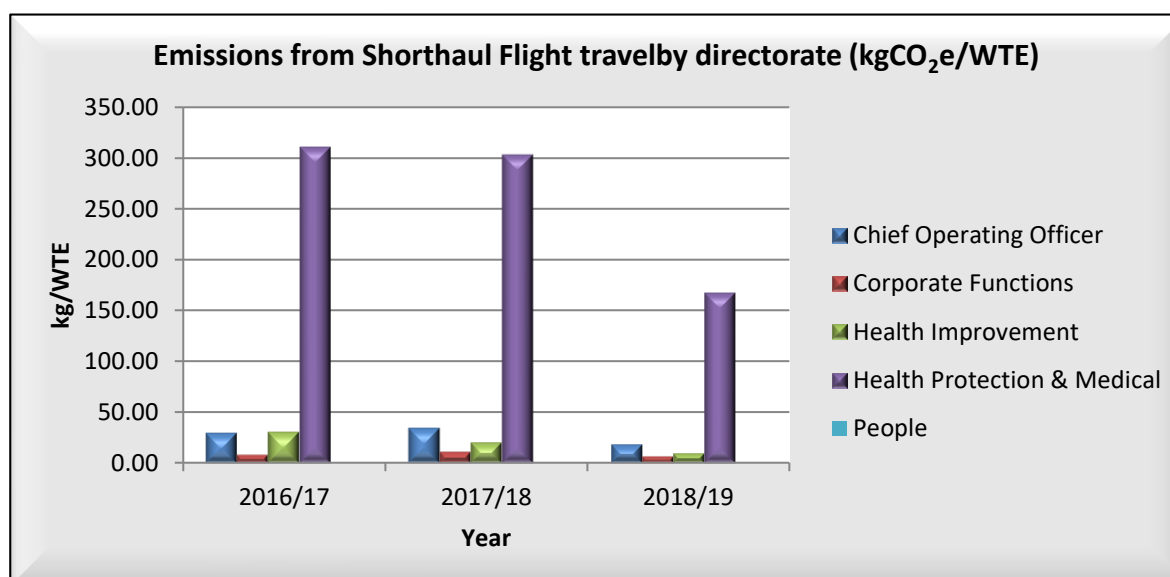


Short haul flights

Short haul between the UK and Europe, increased by some 2.82% in 2018/19 compared with the previous year. The Health Protection and Medical directorate and the Chief Operating Officer's directorates continued to be the greatest users of short haul air travel.

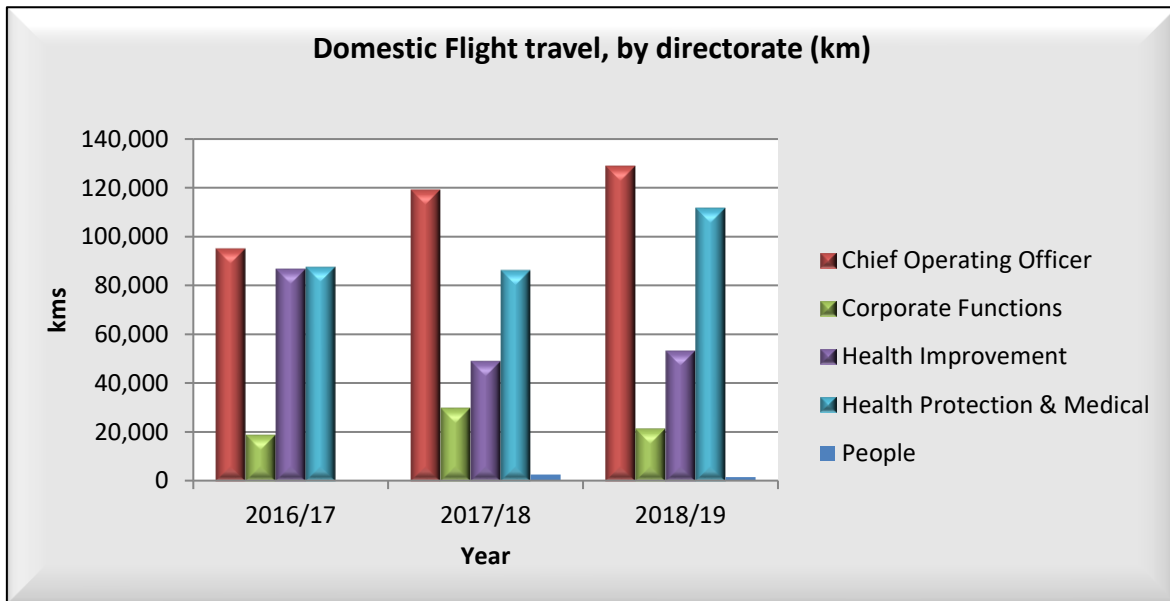


To facilitate comparison across PHE directorates the emissions due to short haul air travel are expressed as kgCO₂e per wte. This gives the following distribution:

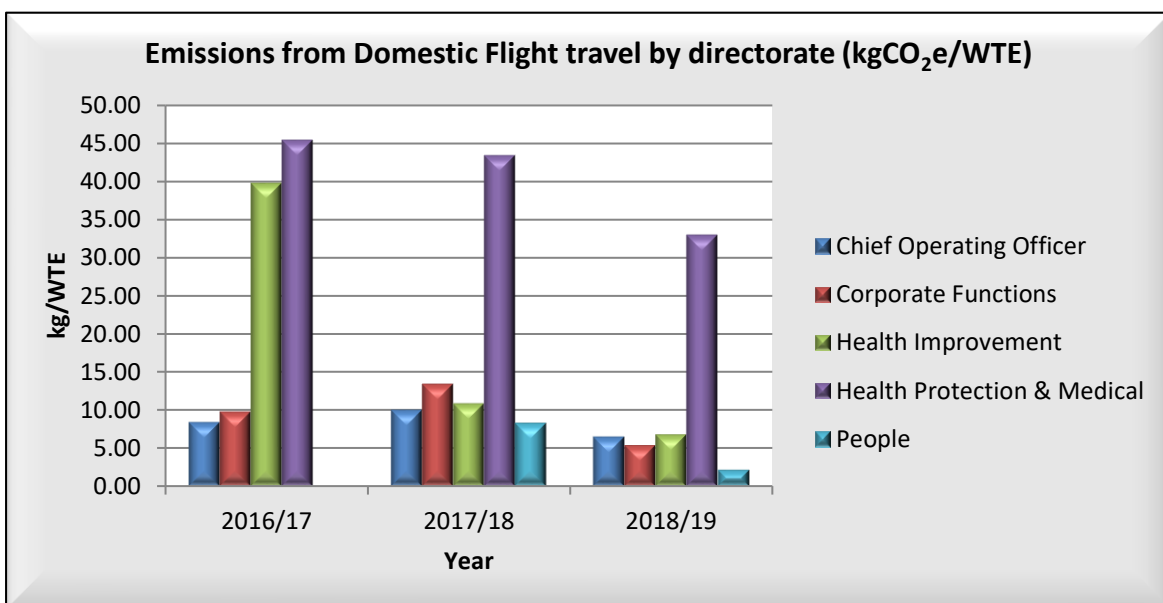


Domestic flights

The government has indicated that air travel within the UK must be reduced significantly and this has been reflected in the latest GGC targets. Distance travelled by PHE staff using domestic air travel increased by some 10% from the previous year.



Although there was an overall reduction in domestic air travel in 2018/19 (above), when the data is calculated as kgCO₂e per wte (below); the distribution reflects the recent reorganisation of staff across PHE and clearly shows which directorate utilises this form of travel most per headcount.



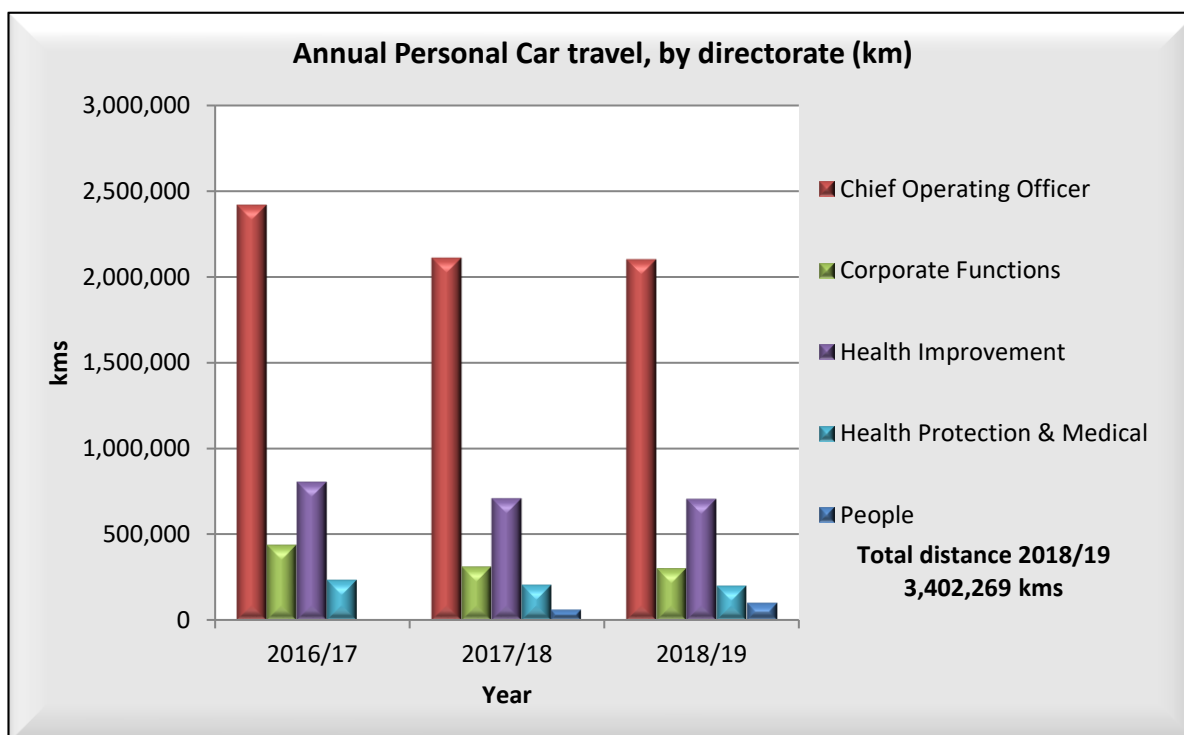
Car use for business travel

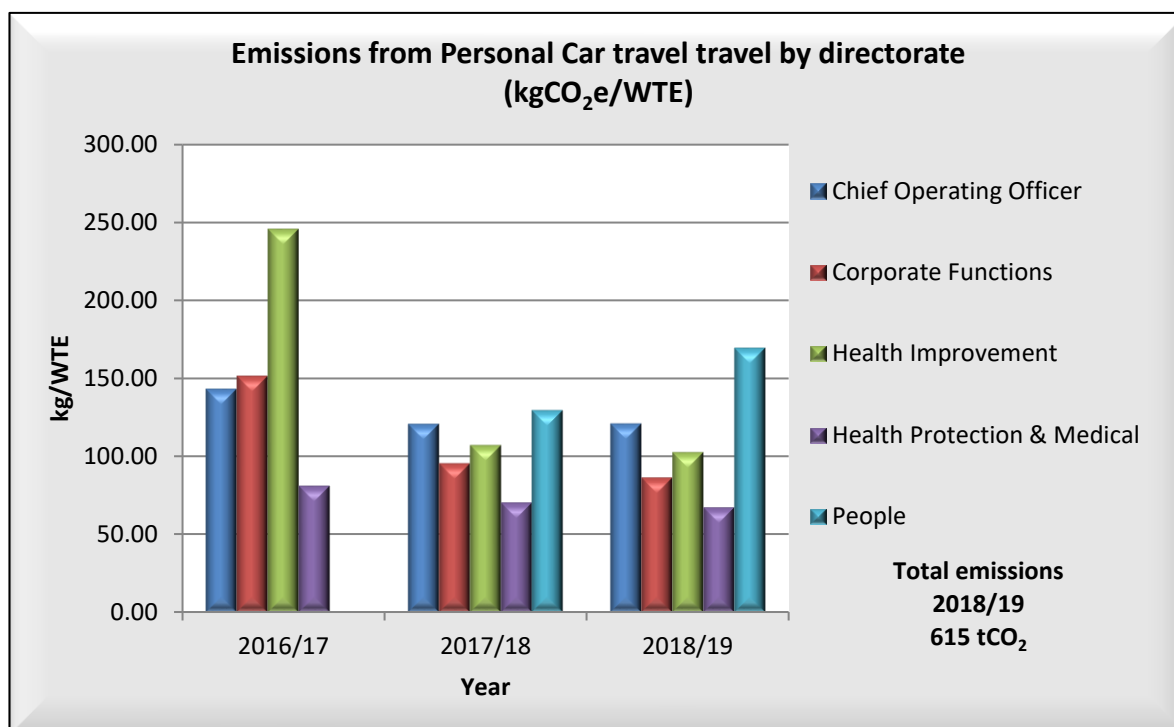
PHE continues to undertake a significant amount of business travel by car, the majority of it in personal cars. For 2018/19 we travelled some 3,392,340 km in our own cars at a cost of £964,363 (i.e. 28p/km). The distance travelled, compared with last year, has increased by some 0.29%. The method for calculating personal car travel is derived from PHE’s i-expenses claims data.

Personal car use by directorate (with associated cost) is shown below:

Directorate	Distance travelled (km)				Annual total (km)	Cost £
	Q1	Q2	Q3	Q4		
Chief Operating Officer	435,798	540,579	616,235	509,670	2,102,282	593,261
Corporate Functions	55,709	80,596	88,081	76,280	300,666	85,362
Health Improvement	133,149	170,121	214,008	187,495	704,774	200,187
Health Protection & Medical	42,482	49,269	58,567	48,249	198,567	57,250
People	22,720	26,251	23,949	23,059	95,979	28,302
Total Personal Car	689,859	866,816	1,000,841	844,753	3,402,269	964,363

Business travel, by PHE staff in 2018/19, using personal cars is shown below.





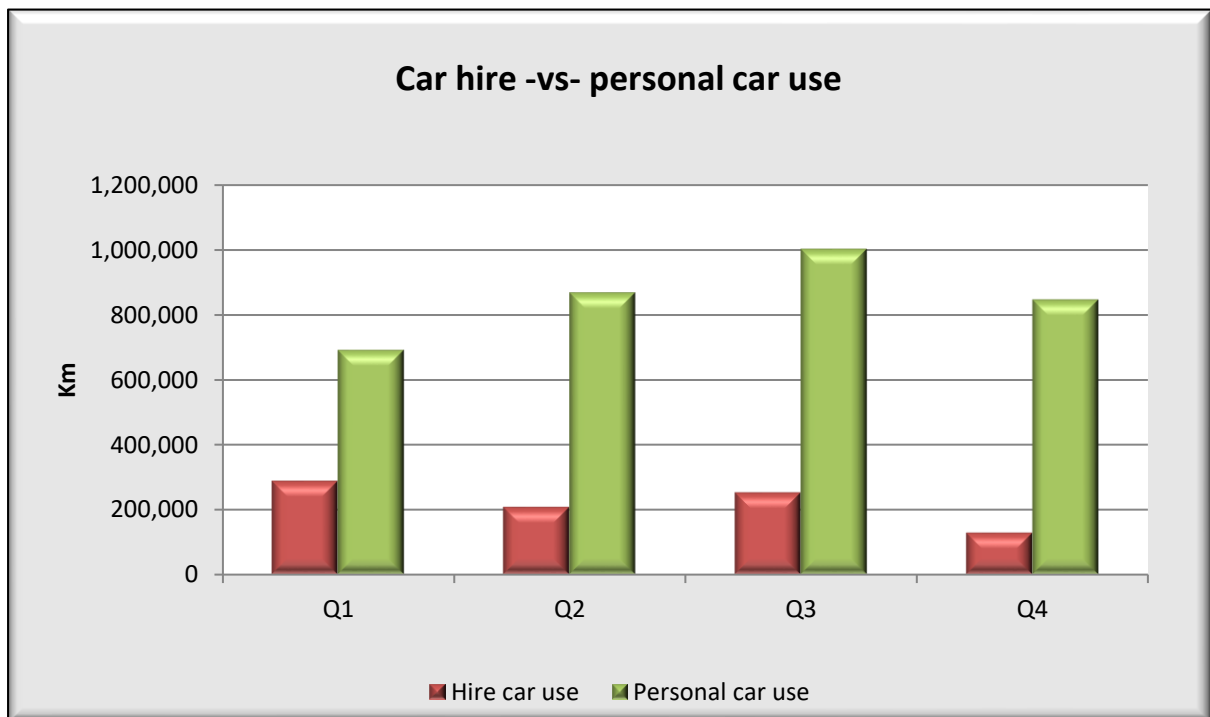
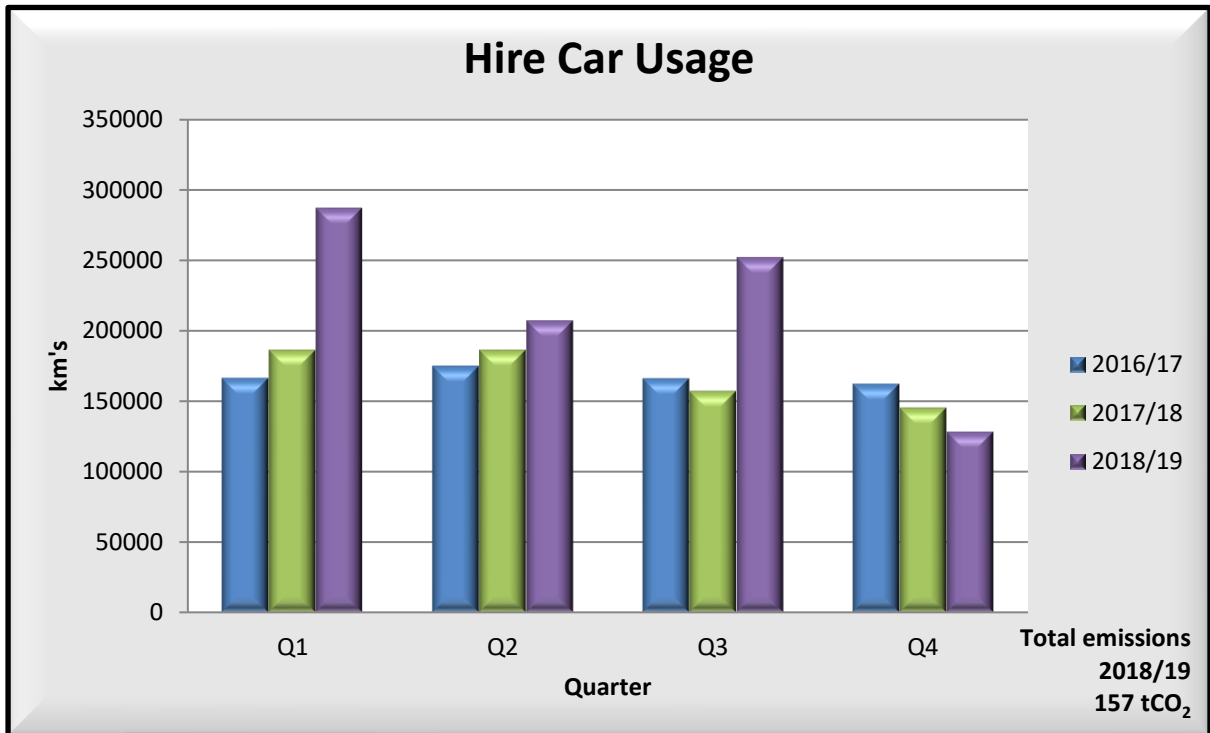
Hire car versus personal car use

PHE continues to have a contractual arrangement with Enterprise Cars for the supply of hire cars across the country. PHE policy states that members of staff should, wherever practicable, use hire cars for journeys over 100 miles, instead of using their own vehicles, with travelling via public transport or rail being the first choice.

PHE staff using hire cars travelled a total of 874,057 km, at a hire cost of £113,533 (i.e. 13p/km) in 2018/19, an increase of some 30% compared with the previous year and a 36% increase on our baseline. The cost of refuelling the hire cars was £30,851.

We are hopeful that as this system continues to mature, across the organisation, we will start to realise the potential not only for greater carbon savings, but also for increased financial savings.

The trend for travel by personal car (compared with hire car) over the last year has increased and this is illustrated below in the car hire versus personal car use graph.

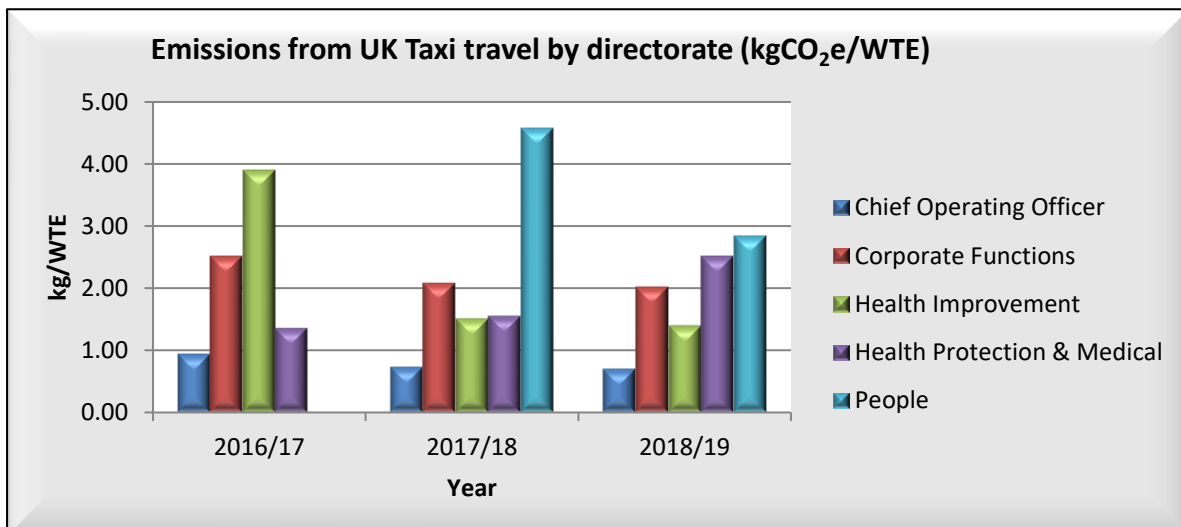
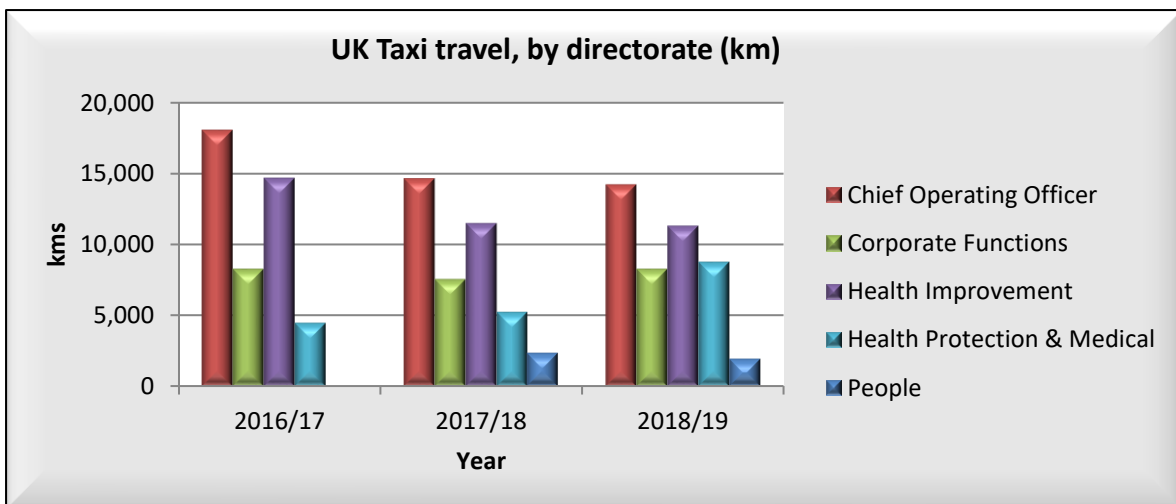


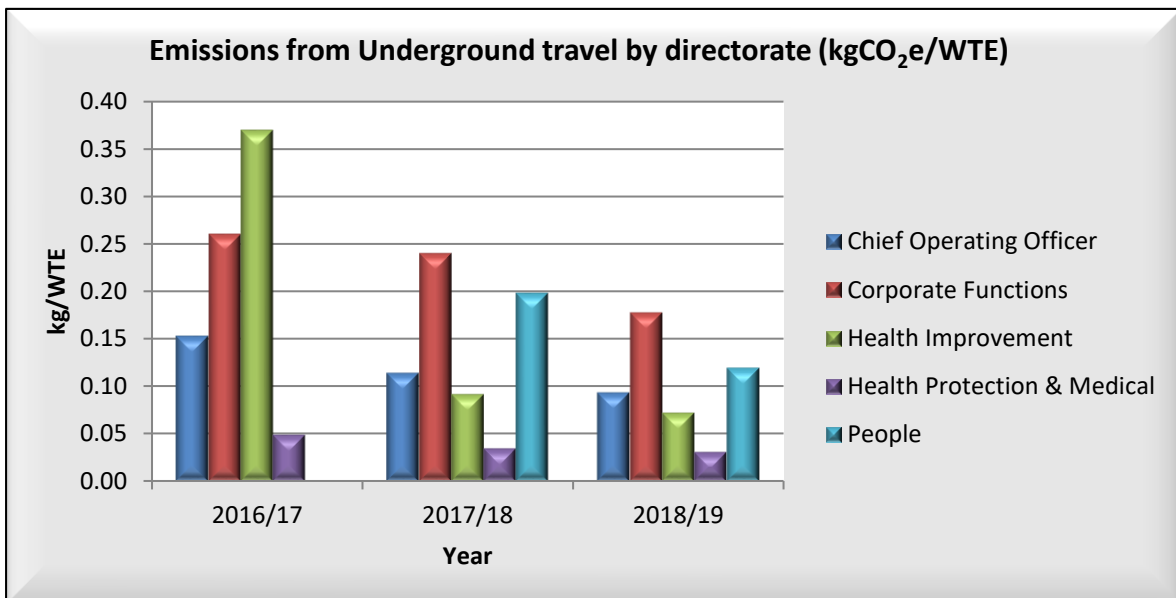
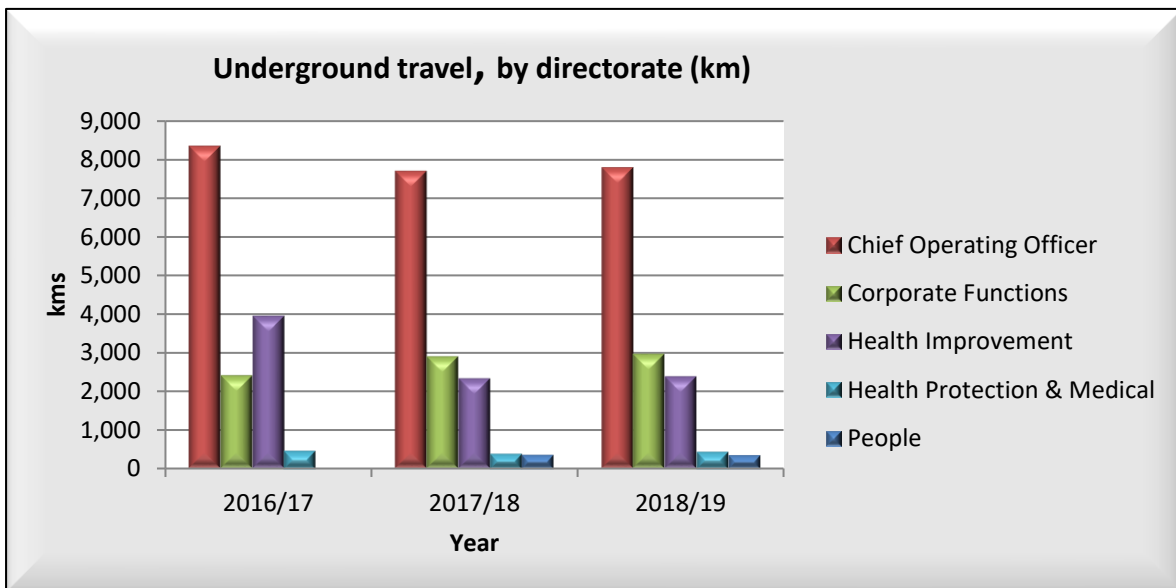
Underground and taxi travel

We continue to use an algorithm developed in-house for calculating distance from the cost of a taxi, bus and underground journey. This method gives us a general estimate. However, it is still difficult to distinguish journeys by bus and underground where either an Oyster or rail travel card has been used, as opposed to the purchase of specific, single transport tickets.

Emissions per WTE from our use of taxis have decreased from 10.44 kgCO₂e in the previous year, to 9.47 kgCO₂e this year, a reduction of 9%. The distance travelled this year was estimated at 44,483 Kms compared to 41,250 Kms the previous year an increase of 8%. Analysis of the data indicates that the majority of taxi journeys are undertaken outside of the capital.

The distance travelled by PHE staff using the London underground in 2018/19 increased from 13,664 to 13,902 Kms, some 2% compared to the previous year. PHE's carbon footprint due to travel by taxi and on the London underground is shown below, by directorate.





Ethical and sustainable procurement

PHE's procurement department, supported by internal stakeholders, seeks to use its buying power to positively impact key public health and social agendas. This work is underpinned by the Social Value Act 2012 and the Modern Slavery Act 2015.

A corporate statement has been published on the PHE's internet and intranet supplier pages, advising suppliers that the procurement team will be working with them as part of their supplier and contract management processes in the following 4 key areas:

- economic
- employment
- environmental
- social

These categories cover areas such as:

- sustainable procurement
- addressing health inequalities
- equality and diversity
- apprenticeships
- third sector engagement
- small and medium enterprises
- the Modern Slavery Act
- payment of the living wage

All professional procurement staff successfully passed the CIPS Ethical Procurement & Supply training. Following endorsement by the Chief Executive of PHE's ethical commercial values, PHE has achieved the CIPS Corporate Ethics Code.

In January 2019, we hosted a supplier conference in order to raise awareness of PHE's approach to Social Value, and launched our supplier development model, which forms part of our supplier management activity focusing on the 4 key areas of economic, employment, environmental and social factors.

To support those who are completing tenders, case studies demonstrating where PHE is generating social value through activities have been completed and published on the intranet. These have also proven useful as examples to our suppliers of how social value can be considered, in particular in areas such as support for mental health.

PHE's procurement department has category managers to ensure that the most cost-effective and sustainable items and services are purchased. Environmental sustainability is therefore an important consideration with our tendering. Category managers ensure that all of our tender documents contain relevant questions to confirm that the successful suppliers adhere to given environmental and sustainability standards, appropriate to the category of purchase.

Our tender process is managed through e-tendering and our documentation is stored electronically. We ask specific questions about a company's environmental management system, including about their impact on energy and water used for production, and their disposal of waste and the sourcing of raw materials.

The tender document can be adapted to include specific questions relevant to a particular tender. This will then be scored to ensure that the companies that take account of the importance of sustainability and environmental issues are recognised for their contribution to this important area.

PHE works closely with the Health Family and Cabinet Office to learn and share best practice. Training courses are being developed for commercial staff across PHE involved in developing specifications and managing contracts, so that our purchases can positively support PHE's social and public health agenda.

Single Use Plastics (SUP's)

We have been working closely with colleagues from our procurement department and with other stakeholders to identify the level of single use plastics which fall into scope for removal from our office estate's waste streams. Where such plastics have been identified they have been removed wherever possible, in line with the government's ambition to remove all SUP's by 2020.

Biodiversity and health equity

PHE fully recognises that health inequalities are systematic, avoidable and unjust differences in health and wellbeing between different groups of people. Reducing health inequalities is not only central to our mission, but also a legal requirement on behalf of the Secretary of State as part of the Health and Social Care Act 2012. While the causes of health inequalities are often deep rooted and complex, there is much that PHE can do to contribute to reductions in health inequalities.

PHE has a legal duty to have due regard to reducing health inequalities (Health and Social Care Act). We must fulfil the public-sector equality duty (Equality Act 2010) in our work, which requires us to consider the needs of all individuals in our products and services. We aim to reduce inequalities through working with national and local government, the NHS, industry and the voluntary and community sector.

We also continue to have an active programme related to 'healthy people, healthy places'. A number of health and wellbeing groups have been set up to inform staff about the benefits of active lifestyles and healthy diets, and the health problems associated with smoking and excess alcohol. Mental wellbeing classes also continue to be run across the estate to help staff to cope with the stresses and strains of everyday life.

All new major build or refurbishment projects undertaken in PHE assess whether they will impact on the biodiversity of the environment. A recent project at one of our main rural sites encountered a badger set in an area where there was a planned demolition. PHE recognised its legal duty to ensure no harm could occur to the potential occupants of the set and a full ecological assessment was undertaken.

A camera was set up to capture any movement of animals in the area, especially at night. Over the period of a month only one badger was seen on the camera, and this didn't enter the set. It was concluded that the set was no longer occupied, and after taking specialist advice it was agreed that the demolition project could go ahead. This is only one small example of the measures PHE has adopted to protect our natural environment.

Sustainability in the centres and regions

Approaches to sustainability

PHE has 4 regions, the North; the Midlands and East; the South; and London. The 3 regions outside London are made up of 8 PHE centres.

Each of the 4 PHE regions has its own approach to sustainability networks and partnership engagement, developed to best serve differing local and regional needs. All regions have networks in place and each PHE region and centre has a sustainability lead.

North of England

Within the North there are 3 Centres – North East, North West, and Yorkshire and the Humber. Each Centre has a sustainability lead and has its own approach to sustainability action, networks/groups and partnership engagement in order to ensure that this best meets local needs. Most cover both internal sustainability including procurement; workplace processes; accommodation; travel; waste and recycling, as well as external sustainability and action alongside our partners.

In addition to this, across the whole of the North there is a Northern Sustainable Development Network, which has over 180 members drawn from various backgrounds across the North. The group has both PHE and external members and the aim is to increase awareness, promote sustainability, share best practice and progress action on sustainability causes, with a steering group in place to drive forward the network.

Some of the sustainability initiatives that have taken place across the North are highlighted below:

Sustainability initiatives

North Masterclass

The North Sustainable Development Network put on a Masterclass in March this year on Plastics, which evaluated extremely well. The purpose of the day was to explore the pros and cons of plastics, consider waste and recycling issues and the difficulties encountered, consider the potential health effects of plastics, consider what can be done at an individual and organizational level and share case studies and experience. Presentations were given from DEFRA, Refill, Yorkshire Ambulance Service, the Sustainable Development Unit and Kirklees Council.

Travel Dashboard

The 3 North Centres all actively use a travel dashboard and this has been in place for the past 12 months. The travel dashboard is an excellent visual tool that Centres use to view the travel of their staff, miles travelled and CO2 emissions. This is used across the North to monitor travel and create action plans, with a view to reducing carbon emissions and reducing travel where necessary e.g. focusing on utilising skype for business, nominating one representative from a team or Centre to attend a meeting as opposed to a number of staff etc. All 3 Centres actively work with their teams on reducing business travel where possible, balancing this against operational need.

Sustainable travel, accommodation and events guidance

Centres reviewed their approach to travel, accommodation and events and the Yorkshire and Humber Centre developed a guidance document across their Centre which has more recently been enhanced to accommodate other Centre issues and is now being recommended as best practice guidance for use across all PHE Centres.

Active travel survey

PHE staff who work in PHE Yorkshire and the Humber Centre have recently completed an active travel survey. The survey received 120 responses and has been used by the Centre to develop an action plan of approach including utilising demographic data to progress car sharing options, promoting the use of the Mcard scheme across West Yorkshire, promoting use of park and ride facilities, improving cycling facilities etc.

Ditching transport

The North West the Centre has been actively encouraging staff to walk to its sites where possible as opposed to using other forms of transport e.g. from Liverpool Lime Street to Cunard. In addition to this the North West are working with the Greater Manchester Health and Social Care Group looking at Active Soles – an initiative which will encourage wearing trainers to work to support active travel.

Clean Air Day

All PHE North Centres were all actively engaged in Clean Air Day earlier this year. The North West actively worked with Local Authorities and the NHS to encourage them to take action and Yorkshire and the Humber ran various activities on the day to promote sustainability including putting on walks to green spaces, encouraging staff to cycle or walk to work and amending PHE parking spaces into a parklet for the day. Reducing waste - As a result of the imminent North East office relocation, the North East have been actively considering sustainable initiatives as part of their relocation. The Centre has ensured that as much of its current furniture as possible will move

with them and any unused furniture has been offered to other parts of PHE, the NHS and local charities in order to reduce waste.

Volunteering

The Yorkshire and Humber Centre now run volunteering dates for staff across the year to not only promote volunteering, but these are all linked to sustainable causes. The most recent was a gardening project which linked closely to work on green spaces/clean air.

Single use plastics

The North East has been instrumental in reducing single use plastics consumption including changes to plastic free stationary and the move away from single use cutlery/dinnerware that was previously used for meetings. The Centre has also moved to a single milk rota for staff to significantly reduce the use of plastic milk bottles in the Centre, something that has since been adopted in Yorkshire and the Humber.

North Sustainable Development Ambassador Programme

The North SD ambassador programme was launched in 2018 to develop named local leaders in health and sustainable development. Ambassadors across the Region came from a variety of backgrounds including general practice, mental health, estates management, hospital consultant, pharmacist, operating theatres, hospital management, local authority public health and Public Health England. The ambassadors took part in a leadership development programme to enable them to engage local health and care professionals, their organisations and the wider system on sustainable development issues, acting as a local contact point for health and sustainability leadership.

A variety of projects were undertaken during the programme including development of green spaces and green strategies, improvement in carbon foot print of theatres, mobilisation of primary care workers to reduce their environmental impact, improvements in pharmacy pathways and patient empowerment, evaluation of the impact costs of smoking and air quality improvements. Sixteen ambassadors were recruited from across the North and 12 people successfully completed the programme. An evaluation of the programme was undertaken, and it was determined that the programme had been a success.

East of England

At the PHE East of England Centre, Sustainable Development is 'business as usual' rather than specified as a development in the business plan. Our progress was audited, and we received an action plan that we aim to complete by Q3. Emissions

from staff travel, a major consideration for us, have decreased slightly relative to the number of staff employed; greater use of Skype is likely to have contributed to this.

We also had looked at the PHE car rental scheme for longer journeys to see how the PHE policy could be best applied for our geography. SD remains a popular area for registrar training projects and this year we've looked at how messaging and infographics might help engage different staff groups.

A project has started, as a pilot, in collaboration with the East of England NHS dental commissioner and Health Education England (HEE), to encourage dental practices (dentistry is 3% of the NHS budget) to demonstrate the steps they have taken to reduce their carbon footprint and single plastics use through using the Green Impact Tool, a tool used extensively in other organisations including other parts of the NHS, and that is run by the National Union of Students.

Our dental version was updated with latest evidence, by a dentist through the HEE leadership fellowship scheme. All dental practices in the UK may access the online tool and should be encouraged to do so (for more information, contact your consultant in dental public health); the difference for our local practices is that they can upload information that will be independently validated. The pilot evaluation is ongoing and amongst the recommendations, will be ways to make the tool more user friendly and more marketable.

The East of England Sustainable Development Network is being refreshed, supported by the Sustainable Development Unit, gearing up to support local leaders to implement the SD ambitions through the NHS Long Term Plan.'

Midlands and East of England Region

The virtual network has continued to meet on a regular basis providing a platform for support and sharing of ideas across the 3 local networks. The network has lost several members from partner agencies due to retirement in the last year. These people have proved to be difficult to replace at least in part because sustainability is most often an extra role to a very busy portfolio and local champions are have an increasing number of competing priorities.

It had been hoped to have at least one sustainability fellowship in place by the summer of 2019 however there has been a delay due to the need to satisfy the deanery on the content of the post however it is hoped that this will go ahead possibly in the autumn. The fellowship holder would be a strategic leader for sustainability in the region, working across organisations to develop and promote the sustainability and health agenda. They would also further sustainability and health at a local level by developing one or 2 discrete projects that are focused around

sustainability, as well as embedding the principles and practice of sustainability more broadly within their base placement location.

Southern Region

Since the corporate environmental audit of the South West Centre and Regional offices at Bristol a newly appointed Sustainability lead has been appointed. The centres sustainability group has been refreshed and is in the process of being set up. We have incorporated a number of recommendations from the sustainable travel and meetings guidance into our ways of working. As part of our communications to staff we have installed a sustainability notice board in Rivergate, with key PHE documents and advice on matters sustainability.

The South West sustainability lead has been supporting the Bristol Government Hub project where sustainability will be at the forefront of its design, and future ways of working, including reduced travel to the office with improved facilities for Skype and videoconferencing.

London Region

PHE London has been working on establishing a group of Sustainability Ambassadors across all London sites to support behavioural change across staff groups.

We have also been promoting the London Refill Scheme to staff groups, encouraging effective recycling amongst staff groups and also encouraging staff to make their own contribution to stopping the use of single use plastic in work and the home.

PHE London is currently working on a joint initiative with the Greater London Authority and London Resilience Forum to support all year-round planning activity for Heat and Cold weather preparedness. Once completed it is anticipated that there will be joint launch of London's first 'cool spots'.

Office moves

Sustainability is at the heart of any office moves that take place across the regions and these projects are used as an opportunity to examine how PHE can become a sustainability exemplar. All such projects consider proximity to public transport and energy efficiency – for example, the fitting of energy-saving devices such as lighting sensors. Recycling is also a key focus across all our premises.

Travel

The Centre Operations Managers focus group has produced guidance on sustainable travel and events. This will be adopted across all PHE centre and regional offices.

Sustainability in the Healthy Places team, Priorities and Programmes Division

A fundamental role for Public Health England (PHE) is to gather and signpost emerging research evidence to improve our understanding of the impacts of the lived environment (built/natural, social, and economic) on health and wellbeing. Our Healthy Places team has taken this one step further by 'translating' the research evidence and the implications of emerging evidence into policy and practice.

The PHE Healthy Places team has recently published, as well as contributed to, documents aimed at supporting the planning of healthier places. The emerging evidence increasingly supports a broad narrative for PHE: what is good for the environment is good for the health of individuals and the wider community, which is good for the economy, now and in the future.

Healthy New Towns

The healthy places team have continued to work with NHS England and other partners on the Healthy New Towns programme. In 2018 a **Putting Health into Place** guidance was published which set out 10 Healthy New Towns principles as a route to creating healthy and sustainable places. The full **report** was published in September 2019 which was a summary of learning from the demonstrator projects with 4 documents – an executive summary, Principles 1-3 Plan, assess and involve, Principles 4-8 Design, deliver and manage, and Principles 9-10 Develop and provide health care services.

PHE annual conference

Building on previous conferences, in 2019, the healthy places team worked with our Air Quality team to deliver 2 sessions focussed on Air Quality. The first focussed on the evidence base, policy context and recent PHE report. This included presentations from the Sustainable Development Unit on how the NHS is tackling this important issue through action in Trusts and procurement and estate mechanisms. While the second session focussed on 'policy into practice' with 2 case studies from Southampton and Portsmouth and also Bradford City Council who shared different approaches to addressing Air Quality in their respective areas, the challenges, their learning and the impact of working in partnership to improve health outcomes for populations.

Spatial Planning conference

In March 2019, the healthy places team held a Spatial Planning for Health conference which brought together over 100 delegates to consider the strengths and challenges of the Spatial Planning for health evidence published by PHE in 2017,

whether the review was up to date and if the recommendations were still valid. A second objective was to understand how the document was being used in local practice by Public health and planning professionals and to identify what else was needed from PHE. This ran alongside a study with University of West of England to undertake qualitative and quantitative research and the findings from this were published in October 2019.

Cross government work

Nationally, the Healthy Places team continues to work across government and with PHE colleagues providing advice and guidance on a range of issues bringing together aspects of built and natural environment and their impacts on health. We support Natural England and have engaged with other partner agencies that have an active interest in the natural environment such as the Forestry Commission and the Royal Society for the Protection of Birds – through their planning and research function. In the past 12 months, Healthy Places have provided advice to DEFRA as part of the 25-year environment implementation plan, as well as Department for Transport for the cycling and walking investment strategy commitments.

Building capacity and capability

The healthy places team have designed and are delivering a series of external webinars on creating healthy places and the impact of healthy places on environments and health outcomes. The topics have been identified from user feedback via sources including our community of practice. The webinars provide policy updates, and external speakers. These have included speakers from local authorities, NHS England, Planning Inspectorate and other partner organisations.

PHE programme work

Healthy places team have provided advice and input into a number of PHE corporate programmes. This includes the new Air Quality Programme Board sub group where we are linking our transport and health programme with this programme to demonstrate how our work will impact on other PHE priorities and programmes. Our Global Health Team have mapped the Sustainable Development Goals to the wider determinants of health and between both directorates we are promoting this as a framework for international, national and local action to support delivery of SDGs through addressing wider determinants of health.

Within the Priorities and Programmes division, a single use plastics project has recently been set up to reduce our use of single use plastics wherever possible.

Sustainability at PHE Porton

Introduction

The Porton site is a large operational site with a variety of complex and resource intensive activities. In addition to PHE's research and administration activities, the pharmaceutical activities of Porton Biopharma Limited (PBL) are located on the site and supported by PHE.

Energy – electricity

There was a 0.8% rise in measured grid electricity used at Porton during 2018-19. Consumption during the summer months of 2018 was above average, this is the result of increased demand for cooling on site due to the particularly warm weather. The site's PV array was repaired in early April 2018 in time to reap the benefits of the summer sunshine; experiencing the best one day's generation to date (4480kWh). Between February and October 2018, operation of the PV array exceeded the expected generation. By the end of March 2019, over 1.6GWh of electricity had been generated by the PV array in total since initial installation, saving over 4000 tonnes of CO₂.

Energy – gas

In 2018-19 there was a 0.7% reduction in the total gas consumption of the main site. However, from December 2018 onwards the site was placed on temporary oil-fired boilers whilst repairs to the site's steam network were undertaken. During this period the temporary boilers used 135,000 litres of fuel. The repairs to the steam network will reduce steam leaks on site, which it is anticipated will have a positive impact of the amount of gas required to generate the steam.

Water

Water use at Porton reduced by approximately 5% in 2018-19. Capital investment on the site's steam and water pipework commenced in the second half of the year. It is anticipated that this work will reduce leaks on site. As demand has shown an upward trend in the last few years, PHE has continued to work with others on the Porton campus to support the development of a sustainable long-term water supply strategy.

Waste

Waste SOP training has continued throughout 2018-19 on a regular basis with 204 people trained in total.

The total quantity of waste produced on site increased by 8 tonnes from the previous year to 421 tonnes; but still demonstrates a reduction from 471 tonnes in 2015-16.

The majority of the increase was the result of a large consignment of WEEE removed from the site. None had been removed from site the previous year.

Work has continued on site to find suitable outlets for reuse both onsite and offsite. Ice packs from the across the site received in the delivery of samples and materials are now being diverted to our Food Water & Environment department for them to reuse. The site donated an automated stainer to veterinary school at University of Surrey and 2 incubators to Lydiard Park Academy in Swindon. We have also been exploring other potential outlets for re-use including the Validate Network and Wiltshire Scrapstore.

Incinerator

The incinerator ran well during the year with no major faults. In March 2019, the incinerator was shut down for an extended period to enable the site's steam works to take place. During this time the site used its contingency plans to ensure that the users' waste service was not interrupted.

There was one notifiable breach to the permitted (hydrogen chloride) emissions levels. This was reported to Wiltshire Council and an investigation implemented. The Council were confident of the approach taken and lessons learnt.

Travel

In 2018-19, PHE Porton has continued to provide incentives to encourage sustainable travel to work as part of the campus' travel plan. These include offering cyclists a loyalty card for free breakfasts; providing a shared free shuttle bus for staff for both commuter journeys and visitors arriving at Salisbury train station throughout the day; and continuing our membership to the web-based Liftshare scheme.

Wildlife and environment

With the rural location of PHE Porton, there is a lot of wildlife living in close proximity to our site, which staff can enjoy on walks in their lunch times. With bats and badgers spotted in the area, the site continues to conduct ecological surveys whenever building work on the site requires it.

Sustainability at PHE Colindale

Introduction

Air pollution causing ill-health and leading to climate change, continues to be a major issue world-wide, driven principally by fossil fuel combustion. At Colindale, we are continually striving to find ways to reduce the health-care burden whilst relieving non-renewable resource use and funds. We aim to meet the Greening Government Commitments set by central government however, technologies are continually improving and more automated. Equally, the climate is becoming more challenging as we have had many flood alerts during this past year and exceptional hot, dry periods causing subsidence and old trees to fall.

Electric

Projects to reduce electric use include replacing 22kw belt-driven pumps with a direct drive close coupled end suction 15kw pumps with individual inverter drives and these are controlled by pressure transducers. The new 15kw variable speed drive motors fitted to the new pumps run at 31.7Hz. This achieves the duty point and only absorbs 4kw of the available power. There will be a carbon benefit of 3.2 tCO₂.

Lighting replacements projects have continued around site in areas 3C and Zone B. These substitutions also incorporate lighting controls, low energy lamps and emergency battery packs. This will save 3.8 tCO₂ of carbon dioxide with an energy reduction of 8,628 KWh.

The heating system has not been able to provide the most appropriate level of comfort and control required so installing mixing boxes controlled by pressure transducers achieve the required temperature of the incoming air supply. The previous mixing boxes were controlled by pneumatics which were difficult to maintain. These mixing boxes aim to achieve a benefit of 21 tCO₂ annually.

Electricity use was reduced by 1% during 2018-19 however the general trend in electricity usage is upwards as new electrically-driven technologies replace manually-driven laboratory techniques.

Gas

Following boiler burner replacements, the gas use was reduced for a short period of time and then the gas use began increasing. The situation was investigated with checks on valves, pipe lines and regulators on the boilers. Gas use has reduced in recent months but the reasons for the increase were unclear. We have had individual meters fixed to each boiler to enable isolation of the problem and over the next few months we will be monitoring gas use for the 3 boilers individually to be able to

identify which boiler is the most efficient for it to be the master in producing steam whilst the next efficient will become the slave.

Water

The main water meter was changed again during 2018-19 to install one that could be used to monitor quantity of water used. So, although the water showed a reduction, the previous year 2017-18 was an estimate however the amount used during 2018-19 was comparable to the previous years.

As we endeavour to move towards reusable plastics, we anticipate that water use will increase due to washing and return of plastics.

Waste

As waste costs continue to soar, it has been important to identify areas where Colindale can change how it reduces environmental impacts from things that it no longer sees as useful to the organisation. Overall, from the previous year, there was a 2% reduction in waste quantities however, since 2014 there has been a 10% reduction in waste.

Moving upwards in the waste hierarchy has reduced our impact that our waste disposal has on the environment. More waste is being reused with furniture being retained for refurbishment projects on site or reusing furniture received from other PHE sites.

Food waste is being separated out from general waste with green kitchen caddies in the kitchens and kitchenettes. This project is going to expand during the year to ensure that staff have direct access to every type of container. A bank of bins needs to be available in every area. A further large bin was introduced throughout the site for the collection of 'Vegware' compostable container items available from the refectory when staff choose a food take-away.

The aim is to move the waste up the waste hierarchy and have as little as possible toward the bottom. This will reduce the impact on the environment as far as practically possible. Colindale has been disposing of its waste in more environmentally friendly methods, reducing carbon dioxide and other fossil fuels.

Plastic disposable drinking cups have been removed from the refectory and replaced with reusable drinking cups. Reusable drinking flasks were sold in the refectory and staff were encouraged to either bring their own flask or purchase a refectory flask to reduce wastage. Compostable coffee cups, salad containers, hot food containers and knives and forks have replaced the plastic containers. They are now made of 'Vegware'. This removes many single-use plastics from the waste chain. Currently, we are looking at replacing all meeting room plastic drinking containers with paper containers.

Biodiversity

Staff on site continue to encourage biodiversity through planting of flowers that attract bees and insects. This year, the physic garden flourished with herbs and plants becoming established however the prolific London plane tree growth shadowed the raised beds and flowers were lacking.

Health and wellbeing

Staff are encouraged to take part in healthy exercises with sports provided on the sustainability days. A participant in the 'cycling for a smoothie' at one of the sustainability days in May 2019.

Healthy mental wellbeing has continued to be encouraged with occupational health organizing 'Mental Health First Aid' training being rolled out at Colindale and charity fund-raising events during the year. Members of occupational health were also available on the sustainability day in May to talk about the importance of posture and to highlight their other services to staff.

Library services at Colindale joined health and wellbeing to reiterate services available from the library whether online or in the actual library.

The winter craft fayre in November was an opportunity to produce items to sell such as jewellery and Christmas decorations with recycled components. We also had a stand explaining signage of the bins installed at Colindale that were recycled from Harlow.

The 'Colindale craft group' knitted clothes, produced hand-made decorations, soft furnishings and made cakes. This event managed to raise a total of £330 which was split between the charities 'Shelter' and 'Help for Heroes'.

Sustainability events

Sustainability events include all members of the 'triple bottom line' e.g.: social, environmental & economic aspects and staff often think outside of the box. Stores has some stocks that were technically out of date for other purposes eg: laboratory gloves can be used for gardening. These old stocks were given away on the day which saves on waste costs and puts the materials to use rather than end up in the waste.

Our contractor, EMCOR, also participated at sustainability events with energy services and health and wellbeing stands. They also held a raffle for charity and supplied prizes for the winning tickets. The Woodland Trust also accompanied the Colindale wildlife group to represent the ecological side of sustainability, to encourage staff to help the wildlife in their gardens at home as well as seeing the larger picture as to how their choices can make a difference to the ecosystems in which we interact with and impact upon.

Sustainability at PHE Harlow

Introduction

Public Health England acquired the former Glaxo-Smith Kline site in Harlow in June 2017. The site has a small resident team who, under the auspices of the site services team at Colindale, are managing the site from day to day until it becomes fully operational.

From a sustainability perspective, PHE has been investigating the use of utilities onsite and the existing engineering framework to determine what services are currently required, whilst the site is not in a working capacity.

Utilities

The utility suppliers were the first to be considered and in order to minimize the costs, our team started by switching off everything that was non-essential on site. PHE have also organized new suppliers for main utilities onsite, through the Crown Commercial Services (CCS), to align services to preferred Crown suppliers. This reduced the price per unit of gas from 7.6 pence per KWh to 1.9 pence per KWh.

When PHE took over the site, gas was being used to fire the sites boilers. to heat the engineering block as the rest of the site was not used. The boilers were subsequently shut down as it was deemed inefficient to maintain running the boilers for this small area; with the office team reverting to local electric heaters instead.

Continued operation of the boilers would have required us to apply for a permit to operate the boilers. This is due to the potential pollution impact of burning any fuel in an appliance with thermal input of 50megawatts or more with associated activities of oil storage, effluent balancing and boiler feed-water treatment.

The electricity supplier was changed, through CCS, resulting in a cost reduction from £0.2 per KWh to £0.09 per KWh.

Fluorinated gases

An asset register had been completed prior to PHE purchasing the site at Harlow. The site team used this register to highlight what equipment had to be removed from the site, with F-gases that were now obsolete or unable to be replaced if leakage occurred. All of the equipment with obsolete F-gases contained inside has been removed and the gases have been reclaimed.

Waste

There is currently limited waste produced on site. Most of it is incinerated with energy recovery. Waste for recycling is collected separately although quantities are minimal.

Office and laboratory furniture, specifically chairs, left on the Harlow site have been reused in offices at the Colindale site.

Transport

No PHE staff permanently work onsite yet so we do not have any data to report with regards travel. We have though organised a number of site visits for staff as part of briefing them on the Harlow programme and to engage them in the corresponding change.

Sustainability at PHE Chilton

Introduction

The CRCE Sustainability Champions Group (SCG) was set up in April 2018 with the aim of monitoring and promoting sustainability issues across the various sites in Chilton, Cardiff, Leeds and Glasgow. A total of 20 Departmental Champions have volunteered to join the group. New Terms of Reference have been agreed and the group aims to meet every 2 months to help improve sustainability across the site.

A new Sustainability Champions section has been created on Chilton's Directorate Document Tracking (DDT) platform and is accessible to the Centre Management Team (CMT) and staff alike. This section contains key documents and reference information on sustainable development and environmental management.

Transport

As part of the monitoring exercise a Travel Survey was circulated to all staff in January 2019. The major issues covered by the survey included staff commuting times and means of transport; means of transport on PHE business and the take-up of Skype to reduce travel times. A number of sustainable actions were recommended to improve the carbon footprint of our commuting and business travel. The survey was conducted via an online Select Survey questionnaire and was facilitated by the champions in each department.

Utilities

There have been a number of projects undertaken to reduce our environmental impact across a number of our sites.

The estates and facilities department is exploring step-wise measures to ensure Chilton is compliant with the Government's plan to eliminate Consumer Single Use Plastics (CSUP) from its estates. The estates and facilities team, along with colleagues from procurement, will be working with suppliers to look at ways to replace existing CSUP items/materials/activities with non-CSUP alternatives over time. Although not compulsory, the government is encouraging all ALBs to sign up to this plan.

Future Initiatives

In co-operation with the Chilton estates and facilities team and the members of the sustainability champions group, a new 'Green Impact' initiative is to be trialled to encourage the sustainable procurement of equipment and operation of its laboratories and departments. Laboratories and departments will be awarded a Bronze, Silver or Gold rating.

Climate change

Climate Change

Informed by the Climate Change Risk Assessment 2017, PHE has been working with colleagues from the Department of Health and Social Care (DHSC), NHS England and the Sustainable Development Unit to identify high-level health objectives under the auspices of the second National Adaptation Programme (2018-2023). This activity was included in the 2018 remit letter to PHE from DHSC. The high-level objectives have been agreed across government and published in The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting.

These objectives include:

- development of a single adverse weather and health plan, bringing together and improving existing guidance. This will aim to 'mainstream' action within the health system and local communities, reduce health risks associated with adverse weather and address the health risks identified in the second Climate Change Risk Assessment
- continue to undertake research to understand more comprehensively the health consequences of hot weather and the health interventions available to minimise preventable harm
- update the evidence base on the health impacts of climate change through the production of a UK focused report ('Health Effects of Climate Change in the UK') based on the latest climate change projections, following publication of United Kingdom Climate Projections¹⁸

Work has now started on scoping the development of a new single adverse weather and health plan, along with continued research on understanding the health consequences of hot weather and the health interventions available to minimise preventable harm.

Cold Weather Plan for England and Heatwave Plan for England

PHE coordinate and publish the [Heatwave Plan for England](#) and the [Cold Weather Plan for England](#) on behalf of the health and social care sector. Both plans set out clear actions to be taken by the NHS, social care, local government, and the community and voluntary sector, as well as the public, to minimise the effects of heat and cold on health.

The plans themselves will remain extant until further notice. An independent evaluation of the Heatwave Plan for England, commissioned by the Department of Health and Social Care, is currently being undertaken by the Policy Innovation

Research Unit at the London School of Hygiene and Tropical Medicine. Results of this evaluation are due to be published in the near future.

Cold weather

Winter 2018/19 was relatively mild with only short periods reaching severe weather action. Late January to early February saw temperatures drop as low as -5°C .

The Cold weather health watch in England operates from November 1st to March 31st and comprises of 5 levels (Levels 0-4), starting from year-round planning, through Winter preparedness and action programme, Alert and Readiness, Severe weather action and Emergency Response. A Level 2 alert is issued for 'cold' temperatures when there is a 60% likelihood that average temperatures will be at or below 2°C for a period of at least 48 hours and a Level 3 alert issued when these conditions are occurring. Each alert level triggers levels of response from the NHS, local government and public health system, and communication of risks to the public.

Between November 1st, 2018 and March 31st, 2019, there were 24 days where a Level 2 heat-health watch alert was issued for one or more region in England, and 13 days where a Level 3 cold weather alert was in force for one or more regions in England.

By 18 January 2019, Level 2 alerts were issued for 6 of the 9 regions of England. For approximately 8 days, almost all regions across England were either at a Level 2 or a Level 3 with only one day in between, where all regions returned to Level 1. Figure 1 (below) shows the cold weather alert level per region in England from January 18th to February 4th.

Routine health surveillance was undertaken, and impacts observed were in line with the severe weather conditions. The weekly all-cause excess mortality surveillance undertaken by PHE for the 2 weeks of Level 3 alerts reported there were no statistically significant excess mortality observed overall in England.

In accordance with the Cold Weather Plan for England, PHE provided scientific and technical advice and guidance across government and the health sector during the alert period. During this time PHE's [Cold Weather Plan for England](#) was downloaded a total of 7,195 times with the 'Keep Warm Keep Well' leaflet (6,231) and PHE's Cold Weather Plan Action Cards (1,479) representing the top 2 downloaded materials outside the Cold Weather Plan for England.

Summer 2019 Heat Health Watch season

Summer 2019 saw periods of above average temperatures throughout the UK. July 2019 saw the highest temperature (38.7°C) ever recorded in the UK. August saw a

hot sunny spell between the 24th and 26th, setting new record temperatures for the late August bank holiday.

The Heat Health Watch Alert season operates in England from June 1st to September 15th each year. The heat health alert system comprises of 5 levels (Level 0-4), from Year-round planning, through Heatwave and Summer Preparedness Programme, Alert and Readiness, Heatwave Action, to National Emergency. A Level 2 alert is issued when there is a 60% likelihood of temperatures being high enough on at least 2 consecutive days to have significant effects on health and a Level 3 alert is issued when these conditions are occurring. Each alert level triggers levels of response from the NHS, local government and public health system, and communication of risks to the public. Alerting thresholds vary across regions in England.

Over the official Heat Health Watch 2019 season there were 9 days where one or more regions in England were at a Level 2 hot weather alert and 10 days when one or more region in England were at a Level 3 hot weather alert.

PHE responded to these extreme temperatures by public health messages through regional/national broadcasting and media, social media and via partners in other organisations. Over the Heat-Health Watch Season, the [Heatwave Plan for England](#) and associated resources were downloaded 7,258 times, with the 'Beat the Heat' resources (1,826) and Heatwave Advice for Health Professionals (870) representing the 2 most downloaded materials outside the Heatwave Plan for England.

Routine health surveillance was undertaken, and impacts observed in line with the raised temperatures. The all-cause Heatwave Mortality analysis for the Level 3 alerting periods in July and August, found no significant excess weekly mortality across all regions in England. The observed health impacts over this summer will formally be assessed with results published later this year.

Flooding

PHE is currently undertaking a systematic literature review on the health impacts of flooding and redeveloping public-facing information materials on flooding and health.

In 2019, PHE responded to 2 major flooding incidents in Wainfleet, Lincolnshire in June and Whaley Bridge, Derbyshire in late July-early August.

Wainfleet, Lincolnshire: A low pressure system and associated fronts brought widespread and slow moving heavy rainfall across England. The Flood Forecasting Centre issued the first severe flood warning on 10th June and the second on 15th June. A major incident was declared by Lincolnshire Local Resilience Forum on 13th

June when the River Steeping burst its banks. Around 600 homes in Wainfleet were evacuated and nearly 130 properties flooded.

Whaley Bridge, Derbyshire: Intense downpours caused flash-flooding in parts of northern England on 30 and 31 July. A severe flood warning was issued for the River Goyt due to damage to the spillway of Toddbrook Reservoir, threatening the risk of the dam breaking. Over 1000 residents were evacuated from over 450 properties in Whaley Bridge; a major incident was declared on 1st August.

In both cases, PHE, in collaboration with partners, provided technical and specialist advice, raised public awareness to the potential risks and consequences and monitored the health impact to support the national response and those PHE colleagues attending local Tactical Coordination Group and Strategic Coordination meetings.

Emerging issues

PHE continues to work with colleagues across government, academia and international partners to identify new and emerging risks, assess the current evidence base and identify gaps in the current knowledge and practice. Most recently, the Extreme Events and Health Protection team of PHE has collaborated with Imperial College London to update the evidence base on the public health consequences of drought and power outages to develop public facing materials and a peer reviewed publication respectively.

With a severe epidemic asthma event following a thunderstorm in Melbourne, Australia in November 2016, PHE have been working with colleagues to explore if the current syndromic surveillance systems used to routinely monitor observed health impacts are sensitive enough to detect episodes of thunderstorm asthma. This work remains ongoing.

National Adaptation Programme

PHE continues to collaborate with colleagues from the Department of Health and Social Care (DHSC), NHS England and the Sustainable Development Unit under the auspices of the second National Adaptation Programmes (2018-2023). Most recently, PHE contributed to the NHS England EPRR deep dive on extreme weather events and the 2019 SDU adaptation progress reporting for the health sector.

Adverse Weather Health Plan

PHE, under the second National Adaptation Programme for Climate Change (2018-2023), has committed to developing and delivering the Adverse Weather and Health Plan (AWHP) to replace the existing Cold Weather Plan for England and the Heatwave Plan for England.

The single adverse weather and health plan will develop capabilities across the system to address the health impacts of adverse weather events now, whilst preparing us for the increasing challenge that climate change will bring as adverse weather events become more severe and frequent. A key aim of the plan will be to mainstream adaptation activities across the system, including primary care, the NHS, and government departments. Mainstreaming activities across the system will ensure that activities are sustained and will support links that maximise the co-benefits for health, the environment and climate change.

Work to develop and introduce the Adverse Weather and Health Plan, and associated resources is underway. PHE has initiated several work streams to support the delivery of the Adverse Weather and Health Plan, including:

- development of an implementation plan and engagement strategy for the AWHP
- progression of systematic literature reviews to update the evidence base
- commission of behavioural insight research to support the development of effective and tailored public messages
- continuing to deliver stakeholder workshops/roundtables around the country
- working in partnership with the Met Office on the development of a year-round heat and cold alerting systems

Environmental Audit Committee Planetary Health Inquiry

The Parliamentary Environmental Audit Committee (EAC) held an inquiry entitled 'Environmental Audit Committee Planetary Health Inquiry'. EAC investigated the effect of environmental damage and climate change on health. The inquiry examined the emerging field of planetary health, including the use of technology to mitigate risks, global interdisciplinary collaborations, and action taken by the UK Government. EAC also explored planetary health's effect on human health in the following areas: malnutrition and food security, air pollution inducing cardiorespiratory illnesses and other disease; extreme-weather related deaths; mental health.

HPRU and research activities

The **Health Protection Research Unit (HPRU) in Environmental Change and Health** funded by NIHR is a collaboration across PHE and the London School of Hygiene and Tropical Medicine, University of Exeter, University College London and the Met Office. Its aim is to enable health decision-making by providing evidence, foresight and tools to mitigate, adapt to and benefit from environmental change, through research into the impacts of and responses to environmental changes that affect our health. Environmental change includes climate change, land-use change, environmental degradation, and the loss of ecosystem services, in the UK and beyond.

The Environmental Change and Health HPRU helps PHE to fulfil its requirements under the National Adaptation Programme (2018-2023) and other policies on sustainable development and supports research of relevance to other government departments such as BEIS, MHCLG, and Defra, regarding the health co-benefits of environmental, housing, planning and energy policies (particularly adaptation to and mitigation of climate change), and the protection of the natural environment.

Topics covered in the current HPRU include health and sustainability in urban and built environments, the Urban Heat Island, housing adaptation measures, air pollution episodes, extreme events such as heatwaves and cold spells, flooding and health protection, green and blue spaces, harmful algal blooms, and the relationship between the weather and infectious diseases particularly vector and water-borne diseases.

The work of this HPRU focuses on topics related to sustainability and climate change and include:

- healthy sustainable cities, demonstrating the effects of the built environment on health, including the Urban Heat Island, building retrofit in line with low-carbon strategies, and the impact of building retrofit on building overheating and associated health effects, as well as urban green space. This research also supports the 'Healthy People Healthy Places' programme and informs the Heatwave and Cold Weather Plans for England
- public health and the natural environment, including green/blue infrastructure, and climate change and infectious diseases

Many members of the HPRU in Environmental Change and Health presented at and attended the PHE Public Health Research and Science Conference, held in Manchester in March 2019. This conference supports high quality and innovative science through the sharing of good practice and to help strengthen scientific activity, with a focus on the application of scientific methods to protect and improve health, including the work of the NIHR HPRUs.

PHE members presented their research on heat-health relationships across the UK, the Urban Heat Island and potential interventions in the built environment that may mitigate the Urban Heat Island and reduce indoor temperatures, as well as the mental health impacts of high temperature, flooding and health protection, and climate and infectious diseases. Work from the HPRU in Environmental Change and Health on the potential benefits of cool roofs won best overall poster at this event.

NIHR will potentially fund a second round of the HPRUs, running from April 2020 to March 2025. The work programme for the second round of the Environmental Change and Health HPRU has been submitted and is currently under review. If

funded, the Environmental Change and Health HPRU will continue to provide research to support decision making relating to the impacts and responses to the environmental changes including climate change that affect our health.

Other research activities

The Environmental Public Health Programme Board (EPHPB) sub-group on Climate Change and Adaptation is currently being set up and will report to the EPHPB. The purpose of the Climate Change and Adaptation sub-group (CCA) is to co-ordinate all activities on the public health impacts of climate change and extreme weather events within PHE and identify key outputs from significant partner organisations, to identify gaps and synergies with other priorities within PHE to better integrate climate change and extreme weather events activities across the organisation.

The impact of weather, climate change and air pollution on ambulance response times and illness types has been investigated and further research is planned within the next round of the HPRU.

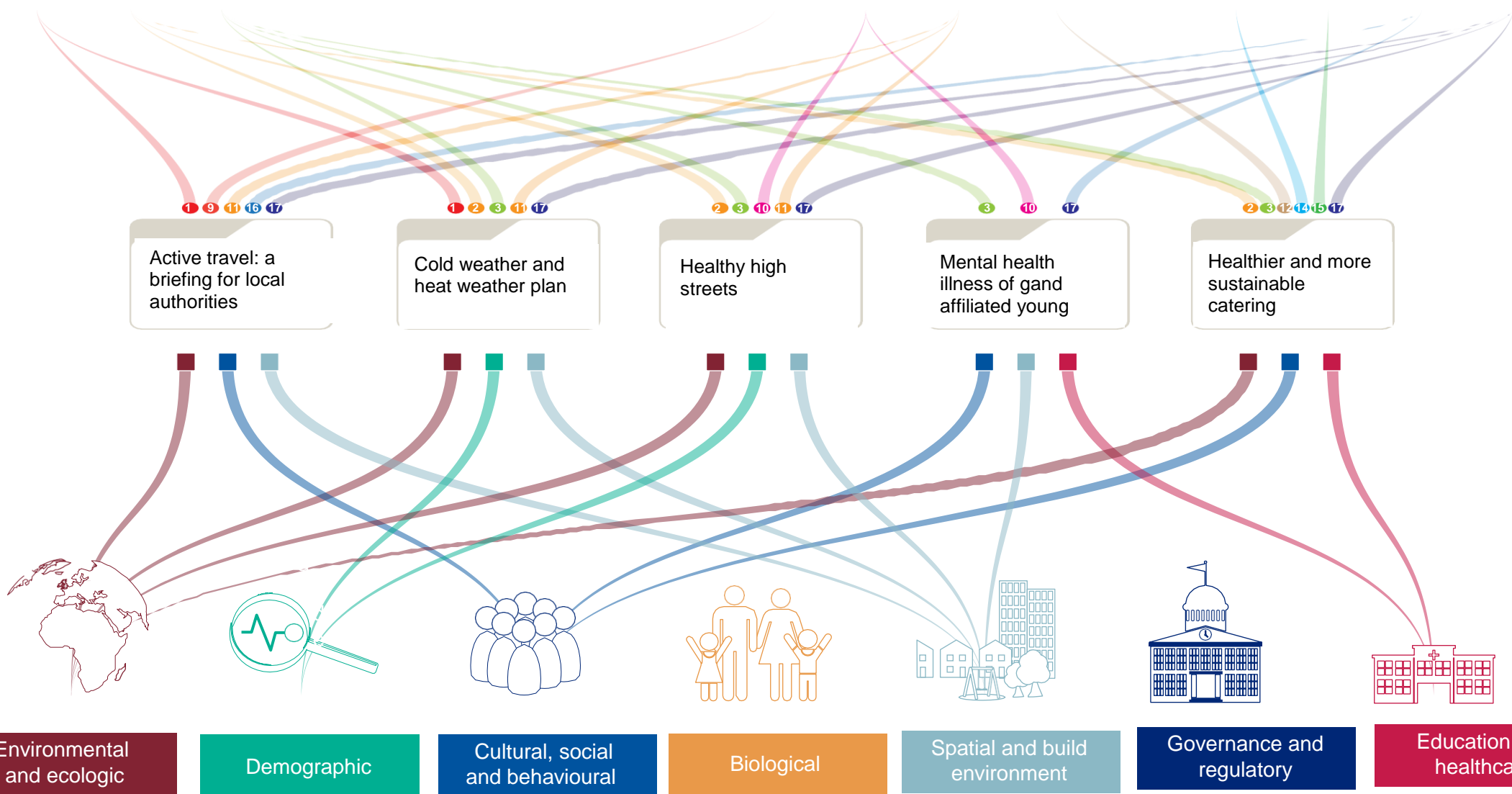
Sustainable Development Goals

Introduction

The work of PHE's Centre's and Regions can be linked to virtually every Sustainable Development Goal (SDG). Goal 3 "Health and well-being for all at all ages" is at the core of sustainable development, although most of the goals have some health-related targets.

PHE's Centre and Regional teams carry out a range of work that links directly and indirectly to the targets for Goal 3, including promotion of healthy lifestyles and place-based working with a range of partners to improve the health of local communities. Highlights from PHE's work towards Goal 3 include:

- responding to 10,000 disease outbreaks and emergencies. Up and down the country our health protection experts worked alongside local authorities and emergency services to keep the public safe. Our expertise was exemplified in our response to the Manchester Arena bombing, the Grenfell Tower fire and the Salisbury poisoning
- helping eliminate hepatitis B, we successfully introduced a new hexavalent vaccine into the childhood vaccination programme
- reaching the milestone of over 6 million people benefiting from an NHS Health Check – the largest prevention programme in the world. People from our most disadvantaged communities are benefitting the most
- launching the most ambitious food reformulation programme in the world to reduce sugar by 20% from the food that children eat the most



Management and governance

The commitment to PHE's sustainability aspirations, obligations and legal requirements is laid out in PHE's Sustainable Development Management plan. This enables the organisation to demonstrate true leadership and highlights the ambition to be an exemplar organisation with regard to sustainability in the health sector.

In 2018, operational delivery of the sustainable development agenda was devolved from PHE's Management Committee to the newly formed Sustainable Development Programme Board (SDPB). This new group will now report directly to the top tier of management in the organisation. This gives a direct line of sight to executive directors, and the Chief Executive, for all sustainability activities in the organisation.

Sustainable Development has implications for all aspects of PHE's business. The organisation's various senior management teams therefore have a responsibility to implement the requirements of the Sustainable Development Management Plan through local business plans. Doing so will enable PHE to measure performance, help achieve a better understanding of our impact on the environment and to prioritise medium and longer-term activities.

It will also help to refine and target advice to others on matters such as climate change and the United Nations Office in Geneva's Sustainable Development Goals and strengthen the ways in which the organisation works across the healthcare spectrum, particularly with organisations such as the NHS Sustainable Development Unit.

Contributors to the year's report

The authors would like to personally thank the contributors below for their help on bringing this report to life.

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