

Annual Climate Emergency and Sustainability report 2023/24 – template and guidance for NHS Scotland Health Boards

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This report was collated through the Sustainability Governance Framework and approved by the Corporate Management Group on Thursday 9th January 2025 which was chaired by

Jane Grant – Chief Executive, NHS Greater Glasgow and Clyde

A handwritten signature in blue ink, appearing to read 'Jane Grant', is positioned below the printed name.

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1. Introduction

This is NHS Greater Glasgow & Clyde's (NHSGGC) annual Climate Emergency and Sustainability Report.

NHSGGC provides health care to the 1.2 million people who live in Greater Glasgow area, covering six joint integrated boards (Glasgow City, East Dunbartonshire, East Renfrewshire, Inverclyde, Renfrewshire, and West Dunbartonshire) employing over 38,000 people across a broad estate of:

- 35 Hospitals
- 240 General Practitioner (GP) practices (in total around 790 GPs)
- 300 Community Pharmacies
- 270 Dental practices
- 180 Ophthalmic practices

The World Health Organisation (WHO) recognises that climate change is the largest health threat facing humanity. Health organisations have a duty to cut their greenhouse gas emissions, the cause of climate change, and influence wider society to take the action needed to limit climate change and adapt to its impacts. More information on the profound and growing threat of climate change to health can be found at the following [link](#).

In response to this, our vision is to make our buildings and services as efficient and sustainable as possible. They will be welcoming places, which are pillars of our communities, with safe active travel routes and connected to low-carbon transport links to the rest of the city. Our outdoor estate will be safe, attractive, green spaces for relaxation, exercise and positive mental and physical wellbeing. We wish to foster an environment for patients, staff and visitors to lead healthy, active lives, with access to the tools and resources they need to continue to provide and access high-quality care. Our vision is for an equal, prosperous and healthy city region, with NHSGGC serving our communities with a resilient health service which is socially, economically and environmentally sustainable.

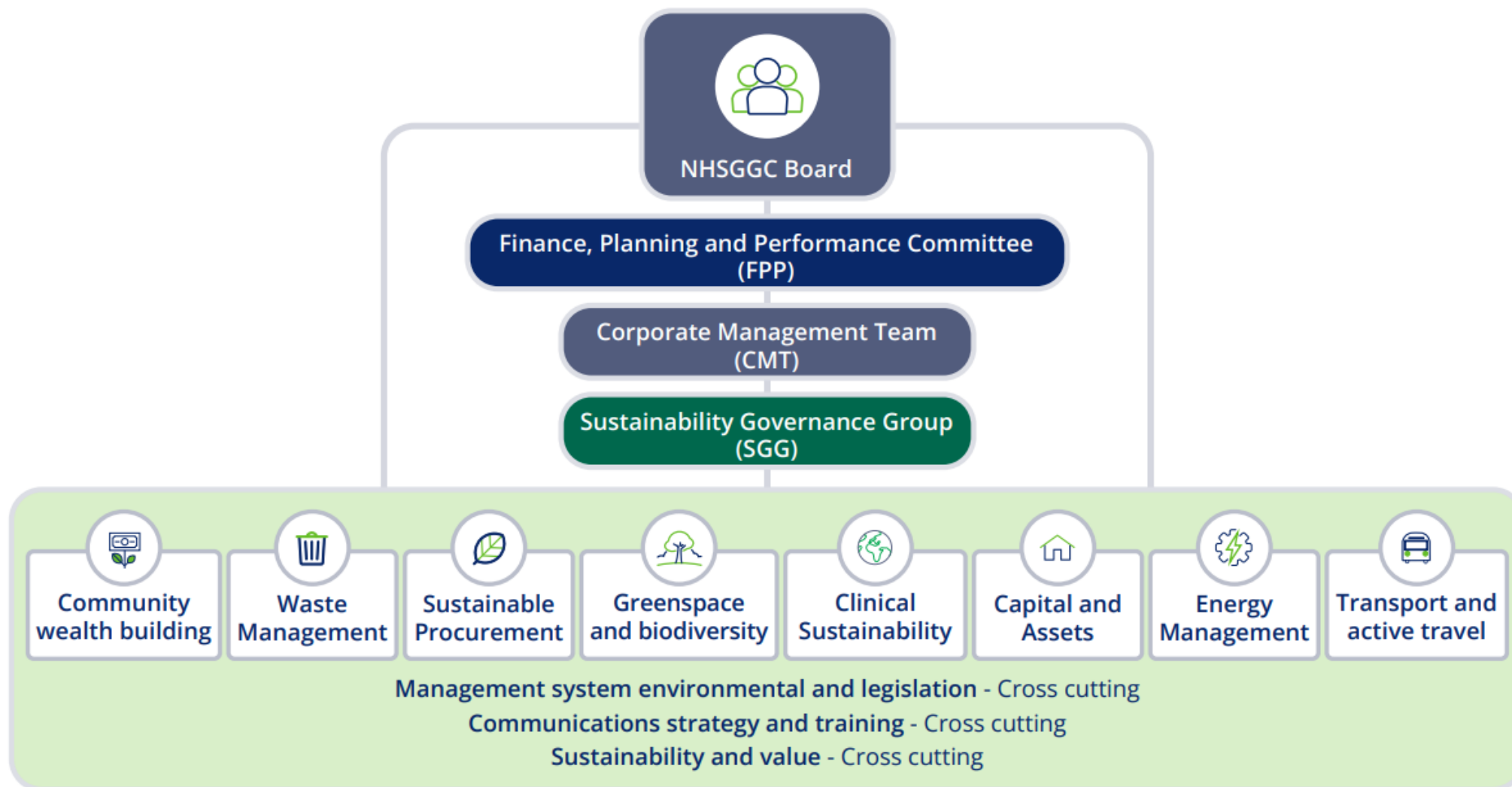
2. Leadership and governance

NHSGGC has designated the following key leadership roles:

- Michelle Wailes is our Board Non-Executive Sustainability Champion & Chair of the Audit & Risk Committee.
- Professor Tom Steele, Director of Estates & Facilities, is our Executive Sustainability Champion.
- Climate Change and Sustainability is overseen by the Board's Sustainability Governance Group (SGG), which is chaired by William Hunter, Deputy Director Facilities and Corporate. SGG reports into the Corporate Management Team (CMT), as well as the Financial Planning & Performance (FPP) Committee, and then on to the NHSGGC Board
- NHSGGC launched its Climate Change & Sustainability Strategy in September 2023 following rigorous stakeholder development and governance approval, reporting to the Board annually and to our external stakeholders through our communications team. NHSGGC's Climate Change and Sustainability Strategy is available at this [link](#).

See Figure 1 for visual representation of NHSGGC Sustainability Governance Structure:

FIGURE 1 - NHSGCC SUSTAINABILITY GOVERNANCE STRUCTURE



3. Summary of Impacts

Table 1 below sets out the amount of Greenhouse Gas (GHG) produced by NHSGGC annually. To meet national policy commitments NHSGGC aims to reduce the GHG emissions outlined in table 1 and become a Net-Zero organisation by 2040. As the implementation of the environmental management system progresses, SMART targets will be formalised as monitoring, measurement and analysis matures around existing and additional reporting sources to assist in year targets.

Table 1 – NHSGGC Greenhouse Gas Emissions

Source	2022/23 emissions (tCO ₂ e)	2023/24 emissions (tCO ₂ e)	Percentage change – 2022/23 to 2023/24
Building energy	90,518.00	92,486.26	2.17% ↑
Non-medical F-gas	728.00	933.29	28.20% ↑
Medical gases	6,180.00	5,904.55	-4.46% ↓
Metered dose inhaler propellant	20,031.00	19,785.00	-1.23% ↓
NHS fleet travel	1,278.00	1,317.88	3.12% ↑
Waste	1,660.00	1,823.5	9.8% ↑
Water	362.00	362.85	0.23% ↑
Business travel	3,290.00	3,177.43	-3.42% ↓
Total emissions	124,047	125,791	1.41% ↑
Carbon sequestration	N/A	N/A	N/A
GHG Emissions minus carbon sequestration	124,047.	125,791	1.41% ↑

Table 2 below sets out the quantity of key resources used over the last two years. Detailed content is provided for each of the key resources section further into the report:

Table 2 - NHGGC Key Resource Usage

Source	2022/23 Use	2023/24 Use	Percentage change – 2022/23 to 2023/24
Building energy (kWh)	474,358,000.	474,433,420.	0.01%
Waste (tonnes)	11,882.	12,798.	7.71%
Water supply and treatment (cubic metres)	2,515,988.	2,522,469.	0.26%
Business travel (km travelled)	19,281,515.	19,652,742.	1.92%

4. Climate Change Adaptation

Scotland's climate is changing faster than expected according to research published by the James Hutton Institute in December 2023. According to this research:

- “Between 1990 and 2019, February and to a lesser extent April have become wetter, particularly in the west, by up to 60%, exceeding the projected change by 2050 of 45-55%.”
- “Scotland is on track to exceed a 2°C increase in temperature by the 2050s, with the months from May to November experiencing up to 4°C of warming over the next three decades (2020-2049).”
- “The number of days of consecutive dry weather – an indicator for drought and wildfire risk – are also expected to increase in drier months, such as September.”

Climate change exacerbates existing health risks and introduces new challenges, ranging from the spread of infectious diseases to the intensification of heatwaves and extreme weather events that will impact the health of the population, healthcare assets and services. NHS Scotland and NHSGGC will play a pivotal role in safeguarding the life and health of communities by developing climate-resilient health systems capable of responding to these evolving threats.

The changing climate is increasing risks to health and health services. More information on these risks in the UK can be found in the UK Climate Change Committee's Health and Social Care Briefing available at the following [link](#).

What are the main risks from climate change that the Health Board has identified through its Climate Change Risk Assessment?

NHSGGC Identified Climate Risks

NHSGGC works with several key organisations, such as the Scottish Government, NHS Assure and Climate Ready Clyde to identify the magnitude of the impacts that climate change is likely to have on our assets and services. Through its climate change risk assessment NHSGGC have identified the following risks:

- Weather damage to buildings,
- Increased energy use associated with cooling or heating the healthcare environment,
- Impacts on public health such as extreme weather events and the emergence of new diseases.

What actions has the health board taken to reduce those risks – what has changed since the last report?

NHSGGC has entered a research collaboration with Glasgow Caledonian University to investigate various aspects of sustainability, including how the Board should respond to the challenges of climate change and how to increase our impact in terms of the use of renewable energy and sustainable procurement to reduce associated transport emissions.

In response, the Board has begun to take proactive steps to ensure that its systems and infrastructure can accommodate the impacts of climate change and the resulting impacts on healthcare delivery as follows:

- In the last year NHSGGC has increased and enhanced the amount of greenspace within its estate through the development of garden and growing projects. Wherever possible, such projects incorporate increased shade and shelter and sustainable drainage systems.
- Key Performance Indicators (KPI's) are being developed as part of Environmental Management Systems (EMS). Specific climate change and adaptation measures will be captured in line with in year targets and work plans which support the delivery plan objectives and NHSGGC Climate Change & Sustainability Strategy.

What are we doing to be prepared for the impacts of climate and increase the resilience of our healthcare assets and services?

NHSGGC is dedicated to preparing for the impacts of climate change and increasing the resilience of our healthcare assets and services through short, medium and long term Business Continuity Planning, which is a core theme of the Boards Moving Forward Together Strategy. Our approach, as outlined in the Board's Sustainability Strategy, emphasises a comprehensive, proactive framework to address climate-related challenges and ensure the sustainability and effectiveness of our healthcare infrastructure. Please refer to Section 8 and 11.

Sustainable Design and Construction

NHSGGC are embedding climate resilience into our building designs and construction practices. This includes adopting sustainable design principles that account for extreme weather events, incorporating energy-efficient technologies, and selecting materials that enhance durability and reduce environmental impact. *please refer to Section 11 for further detail.

Energy Efficiency and Decarbonisation

To support our net-zero targets, NHSGGC is investing and upgrading systems to maximise on energy efficiency i.e. lighting upgrades, variable speed drives, upgrades to building management systems and viability of more sustainable energy sources, such as District Heating Systems. Our aim is to reduce our carbon footprint and increase the resilience of our energy infrastructure. Decarbonisation plans are being developed for the acute hospitals across NHSGGC, which will allow a plan and pathway to progress. Please refer to Section 5 for further detail.

Strategic Partnerships

NHSGGC is collaborating with industry experts in the Sustainable Glasgow Regional Group, including private industry, local authorities, academia and other public sector bodies that are working to develop a regional response to climate change adaptation. These partnerships will enable NHSGGC to understand best practice and identify areas for collaboration to improve the resilience of our healthcare infrastructure.

Our approach aims to ensure that NHSGGC plan appropriately for the impacts of climate change, whilst continuing to deliver high-quality, resilient healthcare services in the face of evolving environmental challenges.

5. Building energy

NHSGGC's ambition is to use renewable low carbon and sustainable heat sources, such as solar power and district heat networks, for all the buildings owned by 2038.

NHSGGC utilises natural gas for space heating across most of the built estate, including acute hospitals & primary care buildings. Natural gas is also used for process heat in some of the Specialist Facilities inclusive of Laundry and Decontamination premises.

The largest component of measured energy consumption arises from the use of natural gas (49.47% of all measured emissions and 73.42% of all building energy emissions). Decarbonisation of heat therefore presents a major challenge going forward.

Table 3 below shows that in 2023/24, NHSGGC emitted 92,486 tonnes of Carbon Dioxide equivalent (tCO₂e) were from energy use within buildings. This was an increase of 2.17% from previous reporting period.

In 2023/24, NHSGGC used 474,433 megawatt hours (MWh) of energy. This was an increase of 0.01% since the year before due to rise in process demand from laundry and decontamination services.

In 2023/24, NHSGGC generated 121,997 kilowatt hours (kWh) of energy from renewable technologies.

It should be noted, however, that measured against the baseline year of 2015/16, there has been a drop in building energy emissions across NHSGGC. 2015/16 was the first year that NHSGGC provided data for mandatory public sector bodies reporting and is, therefore, used as the baseline year.

Table 3 - Building Energy Emissions

Building Emissions energy emissions, 2015/16, 2022/23 and 2023/24 – tCO ₂ e				
Source	2015/16 energy emissions	2022/23 energy emissions	2023/24 energy emissions	Percentage change 2015/16 to 2023/24
Building fossil fuel emissions	78,154.	61,936.	62,482.	-20%
District heat networks and biomass	5,558.	4.	2.	-99.96%*
Grid electricity	83,061.	28,578.	30,001.	-64%
Totals	166,773.00	90,518.00	92,486.26	-44.54%

**Reduction is due to the main biomass steam boiler at RAH being offline. A comprehensive repair project to restore this asset is progressing. This is due to be operational by March 2025.*

Table 4 - Building Energy use

Building energy use, 2015/16, 2022/23 and 2023/24 – MWh				
Source	2015/16 energy use	2022/23 energy use	2023/24, energy use	Percentage change 2015/16 to 2023/24
Building fossil fuel use	366,305.	338,525.	340,758.	-7%
District heat networks and biomass	28,051.	342.	208.	*-99%
Grid electricity	164,546.	135,398.	133,345.	-19%
Renewable electricity	54.	93.	122.	126%
Totals	558,956.	474,358.	474,433.	-15%

*Increase in Renewable Electricity is due to inclusion of generation data from Eastwood Health and Care Centre which was not available in previous reporting years.

What did we do in 2023/24 to reduce emissions from building energy use? Table 5 below outlines measures taken during 2023/24 to reduce emissions from building energy use;

Table 5 – Emissions Reduction Measures

Project Description	Energy Savings (Kwh)	FYE - Carbon reduction/annum (t/CO2)
All sites across NHS GGC – Main Boiler Temperature Reduction	8,180,111	1826
QEUH (Queen Elizabeth University Hospital) Multi Storey car Park (MSCP) No1 - Supply, Installation & Commissioning of LEDS	241,110	51
QEUH Multi Storey car Park (MSCP) No2 - Supply, Installation & Commissioning of LEDS	224,110	48
QEUH Corridor Areas L2 - Supply, Installation & Commissioning of LEDS	52,557	10
QEUH A&C - Supply, Installation & Commissioning of LEDS – Stairwells	52,660	10
QEUH Lab Block – Upgrade Building Management System (BMS) Phase 2	629,464	115
Stobhill Hospital - Block CX, Block AW, Block AV, Block AO, Skye Therapies Block C – Supply & Installation of LEDS	334,886	66
Springburn Health Centre - Supply, Installation & Commissioning of LEDS	156,839	34
Inverclyde Royal Hospital (IRH) – Upgrade BMS System	433,428	96
Royal Alexandra Hospital (RAH) – Upgrade BMS System	386,500	90
Glasgow Royal Infirmary - Supply, Installation & Commissioning of LEDS – various Areas	299,530	49
Gartnavel General Hospital (GGH) - Installation of Variable Speed Drives (VSD's)	1,514,359	477
Gartnavel General Hospital (GGH) – Beatson - Upgrade of Building Management System (BMS) – Phase 1	629,464	115
Hillington Laundry – Supply & Installation of Plate Heat Exchanger	1,947,000	360

TOTAL	15,082,018	3,347
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What are we doing in 2024/25 to reduce emissions from building energy use?

NHSGGC has committed to a 4.5% emission reduction in FY 24/25 as part of our Delivery Plan (DP) energy objective. In support, several Energy & Carbon reduction schemes have been submitted to the Scottish Government for funding during FY 23/24.

As can be seen in Table 6 below, the total FY carbon saving forecast:

- 5,213 t/CO2 saving
- 23,302,179 kWh saving

Table 6 – Net Zero projects 24/25

Net Zero in the Built Environment – Projects 24/25		
Project Description	Energy Savings (kWh)	FYE - Carbon reduction/annum (t/CO2)
BMS Optimisation of 25 Health Centres	665,000	123
QEUH Theatre Lights (Phase 3) - Supply, Installation & Commissioning of LEDS	137,576	27
GGH Main Tower Block - Level 3 - Supply, Installation & Commissioning of LEDS	95,250	20
GRI (Glasgow Royal Infirmary) - BMS Upgrade/replacement	140,650	28
QEUH Corridor Areas L2 - Supply, Installation & Commissioning of LEDS	86,730	17
QEUH Office Block - Supply, Installation & Commissioning of 'Bespoke' LEDS – {Phase 1 of 3}	159,381	32
QEUH Teaching and Learning Centre - Supply, Installation & Commissioning of 'Bespoke' LEDS – {Phase 1 of 2}	152,355	31
QEUH (A&C) – Supply, Installation & Commissioning of Variable Speed Drives (Phase 1)	1,488,260	298
RAH Laboratory Block - Supply, Installation & Commissioning of LEDS	163,238	34

Stobhill Hospital Generator Room, Stores & Engineering Department - Supply, Installation & Commissioning of LEDS	53,480	11
Stobhill Hospital Management Building - Supply, Installation & Commissioning of LEDS	70,690	15
Stobhill Hospital Ward 23 - Supply, Installation & Commissioning of LEDS	95,712	20
Levendale Hospital - BMS Upgrade/replacement	233,500	43
Levendale Hospital - Supply, Installation & Commissioning of LEDS	80,357	16
Boardwide – Main Boilers Temperature reduction/Turn down	8,180,000	1,416
RAH Biomass Boiler - Restart of Biomass Boiler & Heliex CHP	13,500,000	3,082
TOTAL	23,302,179	5,213

What long-term projects are we planning to reduce emissions from building energy use?

QEUH Wastewater Heat Pump (WWHP)

NHSGGC in collaboration with Scottish Water, plan to utilise waste heat from the Shieldhall Sewage Work. This project will require significant funding to realise this opportunity and will take several years to implement.

Installation of Solar Panels (Photovoltaics (PVs)) in 7 Health Centres

NHSGGC are investigating the feasibility of PV projects at 7 Health Centres as part of a phased approach to reduce electrical demand from the grid and increase renewable generation. This will bring estimated energy savings of 417,155 kWh and 88 tCO₂e.

West of Scotland Cancer Centre (WoSCC) – Replacement of Chillers with Air Source Heat Pumps (ASHP) & installation of Photovoltaics (PV's)

NHSGGC are investigating the viability of replacing the existing chillers at WoSCC with ASHP Technology and installation of PV's. This will bring estimated energy savings of 849,300 kWh and 138 tCO₂e, it will also diversify renewables whilst increasing resilience.

6. Sustainable Care

[The National Green Theatres Programme \(NGTP\)](#) is a key component of NHSGGC's Delivery Plan. The programme consists of several clinical sustainability actions released from the Centre for Sustainable Development (CfSD); that enables Boards across Scotland to work towards Net Zero targets through clinical sustainability initiatives that provide financial and environmental benefits to the organisation. This programme of work is overseen by the Board's Clinical Sustainability Group that monitors progress towards implementation of these actions.

6.1 Anaesthesia and Surgery

Anaesthetic gases used for pain relief are also potent greenhouse gases. These gases include nitrous oxide, Entonox (a mixture of oxygen and nitrous oxide) and 'volatile gases' - desflurane, sevoflurane and isoflurane.

Through improvements to anaesthetic technique and the management of medical gas delivery systems, NHSGGC can reduce the impact of these emissions sources, such as the elimination of desflurane and decommissioning of pipe nitrous oxide manifolds.

NHSGGC total emissions from gases in 2023/24 were 5,904.55, a decrease of 275.74 from the previous year.

More detail on these emissions are set out in the tables below:

Table 7 - Nitrous oxide and Entonox emissions

Nitrous oxide and Entonox emissions, 2018/19, 2022/23, 2023/24 – tCO ₂ e				
Source	2018/19 (baseline year)	2022/23	2023/24	Percentage change 2018/19 to 2023/24
Piped nitrous oxide	2,509	2,013	1,701	-32%
Portable nitrous oxide	67	92	119	77%
Piped Entonox	3,502	3,228	3,287	-6%
Portable Entonox	370	377	408	10%
Total	6,448	5,710	5,515	-14%

NHSGGC has seen an increase in portable Nitrous and Entonox units. This is due to a holistic shift away from conventional and inefficient piped systems. The clinical sustainability group is hoping to complete this National Green Theatres objective by decommissioning the remaining piped systems in early 2025.

What did we do in 2023/24 to reduce emissions from anaesthetic gases?

NHSGGC decommissioned piped nitrous oxide manifolds across four hospital sites last year, namely:

- Vale of Leven Hospital
- Royal Alexandra Hospital
- Inverclyde Royal Hospital
- Gartnavel General Hospital

This has resulted in a reduction of emissions from piped nitrous oxide by 32% from baseline data in 2018, with piped and portable nitrous oxide and Entonox showing an overall reduction in emissions of 14% within the same timeline. Please refer to Nitrous and Entonox Table 7 above.

What are we doing in 2024/25 to reduce emissions from anaesthetic gases?

A Sustainability & Value backed (S&V) project plan has been developed, which will see all remaining piped nitrous oxide manifolds decommissioned across NHSGGC. It is anticipated that this will reduce nitrous oxide emissions significantly by 170 tCO₂e. In addition, consideration of how emissions are reduced from the use of Entonox gases, where practicable, will be discussed with NHSGGC clinical leads moving forward.

In 2023/24, NHSGGC did the following to make operating theatres more sustainable:

NHSGGC established its Green Theatres Programme with the support of Planning and S&V colleagues, focussing on key actions to implement at scale. The Clinical Sustainability Group which oversees National Green Theatres Policy (NGTP) action reports the Sustainability Group and Acute Clinical Governance Forum to all initiatives that have clinical and non-clinical approval and governance.

Heating Ventilation and Air Conditioning (HVAC) Controls in operating theatres

It is well evidenced that HVAC systems in theatres are energy intensive. In furtherance of NHSGGC plans to reach the Scottish Government's Net Zero targets, the automated shut down of HVAC systems during out of hours periods were trialled across two theatres at the Queen Elizabeth University Hospital. During this trial period, results from the theatres energy management systems show a significant reduction in the amount of kWh used when compared to the same period in the previous year. Data showed a 50% reduction in energy used i.e. from 18kWh per theatre per week to 9kWh per theatre per week. This of course will fluctuate depending on the time of year and weather conditions, however, six weeks of data showed a reduction of 2.4 tCO₂e.

Table 8 – Volatile medical gas emissions

Volatile medical gas emissions, 2018/19, 2022/23, 2023/24 – tCO ₂ e				
Source	2018/19 (baseline year)	2022/23	2023/24	Percentage change 2018/19 to 2023/24
<u>Desflurane</u>	2,499	142	73	-97%
Isoflurane	11	2	2	-82%
Sevoflurane	376	326	315	-16%
Total	2,886	470	390	-86%

Surgical Fluid Collection and Disposal Systems

This work stream relates to a change in equipment used within theatres for surgical suction. The installation and implementation of an alternative surgical fluid collection and disposal systems will eliminate the need for single-use suction containers and their disposal within the clinical waste stream, which are commonly used across Health Boards in Scotland.

NHSGGC is currently trialling the Neptune system across selected theatres at Queen Elizabeth University Hospital (QEUP). It is anticipated that by using this system, NHSGGC estimate a saving of 47 tCO₂e per annum whilst also making savings across the clinical waste stream and reducing single-use equipment.

Change from Preoperative Intravenous Paracetamol to Oral Paracetamol

Based upon national prescribing data, there is a potential green dividend of over £53,000, provided the use of intravenous paracetamol was reduced by 70%. It is estimated this process can save 38 tCO₂e across Scotland (0.65 tCO₂e for NHSGGC).

What are we doing in 2024/25 to make surgery more sustainable?

Automated switch off of out of hours Heating Ventilation and Air Conditioning (HVAC) within operating theatres

NHSGGC has over ninety theatres that fall within the scope of this clinical sustainability initiative and will be implemented within respective theatres throughout FY 2024/2025. It is projected that by undertaking this work, NHSGGC will save over 1000 tCO₂e of carbon emissions across its theatres within FY, whilst continuing to provide effective, and safe patient care.

Automated switch off of Anaesthetic Gases Scavenging Systems out of hours

Installing automated systems with occupancy sensors can reduce NHSGGC energy consumption by 50%. NHSGGC will take forward this work stream in FY 2024/2025. Estimations indicate the potential saving of 11.3 tCO₂e.

Rub not Scrub

Embedding “Rub not Scrub” as outlined in the Opportunity for Change release from the Centre for Sustainable Delivery (CfSD), enables a greener approach to scrubbing in for surgery. In most cases, it is safe to use Alcohol Based Hand Rub (ABHR) after the first surgical scrub of the day. The “Rub not Scrub” initiative encourages theatre practitioners to do this and, in this way, to save NHSGGC water, energy and money. NHSGGC has requested implementation across all its theatres by December 2024 through the Boards Acute Clinical Governance Forum, supporting by Board communications and local awareness materials.

Rationalising fluid giving sets and warming devices

In many Scottish hospitals, units are used to warm intravenous fluids during transit to patients, though there are some concerns around the associated costs and environmental impact of these single-use devices. Estimations released from the CfSD indicate that there is an opportunity for Scotland to save circa 12 tCO₂e. There is the potential for NHSGGC to save 100g of plastic per case and 2.5 tCO₂e per Annum. Undertaking this initiative will be considered for implementation during the latter part of FY 2024/2025.

Reducing the use of battery-operated Pulse Lavage

This initiative seeks to avoid the use of disposable single-use AA battery operated Pulse Lavage Systems across NHS Scotland. Pulse lavage is used in cemented procedures to prepare the bone bed, improve fixation strength at the bone-cement interface and reduce the risk of bone cement implantation syndrome. It is estimated that the carbon footprint for materials, manufacture, and transport of the 349,730 AA alkaline batteries used in 2022 was 37.42 tCO₂e. NHSGGC will consider this action in early 2025, through the Clinical Sustainability Group with projected savings of 8 tCO₂e.

Implementing lean surgical trays

This work stream aims to reduce the carbon and financial costs associated with the decontamination of surgical trays, by rationalising surgical trays across all specialties in NHS Scotland. It is estimated that there could be 402 tCO₂e saving across Scotland with this initiative. NHSGGC will look to consider this action. Early feedback from clinical leads indicate that stakeholder engagement and significant resources will be required to implement this action across NHSGGC. It has been postulated this action will be piloted at a chosen site early in 2025, to ascertain what resources will be required and what benefits could be realised prior to implementing a Board wide approach.

6.2 Respiratory Medicine

Greenhouse gases are used as a propellant in metered dose inhalers used to treat asthma and Chronic Obstructive Pulmonary Disease (COPD). Most of the emissions from inhalers are from the use of reliever inhalers – Short Acting Beta Agonists (SABAs). By helping people to manage their condition more effectively, NHSGGC can improve patient care and reduce emissions.

There are also more environmentally friendly inhalers such as dry powder inhalers which can be used where clinically appropriate.

NHSGGC estimate that emissions from all inhalers were 19,785 tCO₂e in FY 2023/2024.

Table 9 – Inhaler Propellant Emissions

Inhaler propellant emissions, 2018/19, 2022/23, 2023/24 – tCO ₂ e				
Source	2018/19 (baseline year)	2022/23	2023/24	Percentage change 2018/19 to 2022/23
Primary care	18,054	19,333	19,112	6%
Secondary care	631	698	673	7%
Total	18,685	20,031	19,785	7%

Possible reasons for the increasing trend of inhaler emissions across the whole system could include utilising inhalers without benefit and lack of barriers to prescribing inhalers. NHSGGC Meter Dose Inhaler pilot that is managed through Primary Care Sustainability Leads and GP's looks to address this by ensuring patients are on the correct medication, using it correctly and their long-term condition is being managed effectively.

What did we do in 2023/24 to reduce emissions from inhalers?

NHSGGC ran a pilot quality improvement project which sought to prioritise the implementation of best practice in respiratory health by switching to low carbon inhaler alternatives in primary care. This involved a cluster of 18 General Practitioner (GP) practices in the North-West of Glasgow looking to improve clinical sustainability around the respiratory care pathway for patients with asthma and COPD.

The cohort of patients chosen to take part in this pilot were those who had been dispensed 6> shorter acting relieving inhalers per annum. A clinical review was undertaken of each cluster's cohort of patient's long term respiratory care needs, and those assessed as suitable were transferred to a Dry Powdered Inhaler (DPI).

Data from the pilot showed that there had been an average reduction from those patients using 6 > Metered Dose Inhalers (MDIs) to using 3 DPI devices per annum. In addition to reducing greenhouse gas emissions from inhaler propellants, evidence clearly indicates that overuse of any type of short acting reliever inhaler for asthma and COPD indicates poor disease control. By undertaking this pilot project, the following benefits have been noted:

- Review of patients on larger quantities of MDIs demonstrate good practice in managing long term respiratory conditions as part of chronic disease management programmes in primary care.
- Reduction in the use of MDI's and the switch to DPI's, where appropriate, can lead to improved clinical outcomes.
- MDI propellant gases are known to be particularly detrimental to the environment; therefore, any reduction in the number of MDI's used by patient's leads to lower carbon emissions.

What are we doing in 2024/25 to improve patient care and reduce emissions from inhalers?

Sensitivity analysis will be undertaken through Primary Care and Realistic Medicine colleagues on the data collected from the pilot with a view to expanding the project to a small selection of GP practices across NHSGGC. In addition, a holistic system approach will need to be considered around how respiratory quality improvement work in primary care can lead to a reduction in secondary care respiratory presentations at Emergency Departments.

What are we doing to raise awareness with staff and patients, including primary care?

Raising awareness through virtual events, hosting education & learning events as well as working with corporate communications and wider communications plan.

Virtual Events are as follows:

- Better respiratory care: Better Planet Care
- Go green travel for better health
- Watch your Waste

6.3 Other Sustainable Care

What else did we do in 2023/24 to make care more sustainable?

NHSGGC established the Clinical Sustainability Group to oversee the implementation of all actions from the National Green Theatres Programme (NGTP). Included in this was the development of Terms of Reference for the oversight group and reporting and governance structures.

Across NHSGGC there are Sector Delivery Groups responsible for taking direction from the oversight group and implementing actions from the NGTP. In addition, clinical and management leads serve as co-chairs of each sector group, thus, representing their services across the clinical sustainability agenda as members of the Board level clinical sustainability group.

What else are we doing in 2024/25 to make care more sustainable?

NHSGGC continue to share learning with other NHS Boards across Scotland and the UK by holding clinically sustainable care webinars/events utilising a corporate and sector-based

communications approach. Active members of the Strategic Clinical Sustainability Group run by the Centre for Sustainable Delivery (CfSD), enables NHSGGC to maintain and participate in sustainable care initiatives at local and national levels. Through this robust stakeholder engagement activity, NHSGGC can share and learn from others e.g. clinical leads are keen to progress green initiatives out with the NGTP such as the Gloves off Campaign, due in FY 2024/25, which aims to highlight the unnecessary increased usage of Personal Protective Equipment (PPE) since COVID-19, whilst demonstrating the need for continued hand hygiene practice.

7. Travel and Transport

Domestic transport (not including international aviation and shipping) produced 28.3% of Scotland's GHG emissions in 2022. Car travel is the main source of these emissions.

NHS Scotland is supporting a shift to a healthier and more sustainable transport system where active travel and public transport are prioritised.

What did we do in 2023/24 to reduce the need to travel?

NHSGGC revised the Business Travel Policy using Transport Scotland travel hierarchy to promote active and sustainable travel.

[Sustainable travel and the National Transport Strategy | Transport Scotland](#)

What did we do in 2023/24 to improve active travel?

NHSGGC secured funding from Paths for all, with match funding from NHSGGC, to recruit 2 staff to carry out regular staff engagement events across NHSGGC. This also includes "Dr Bike" maintenance sessions.

What did we do in 2023/24 to improve public and community transport links to NHS sites and services?

NHSGGC worked with Strathclyde Partnership for Transport (SPT), major transport providers and engaged with Community Transport Association. Initiatives include increased provision of cycle to work services (e.g. safe storage), engaging with public transport providers, salary sacrifice scheme and the introduction of an e-cargo bike.

What are we going to do in 2024/25 to reduce the need to travel?

NHSGGC continued promotion and awareness of Business Travel Policy and flexible working, where possible - [Blended Working Guide - NHSGGC](#)

What are we going to do in 2024/25 to improve active travel?

Through the Sustainable Communications Plan, the team will continue to promote staff engagement and Dr Bike sessions to promote awareness of active and sustainable travel, as well as promotion through NHSGGC communication channels.

What are we going to do in 2024/25 to improve public and community transport links to NHS sites and services?

NHSGGC worked with SPT and Glasgow City Council to install Real Time Information (RTI) screens for buses into our main acute sites. Also continuing to work in partnership with SPT, major transport providers and Community Transport Association. NHSGGC is working to remove all petrol and diesel fuelled cars from our fleet in line with Scottish Government

Targets. Table 10 below sets out how many renewable powered and fossil fuel vehicles were in the NHSGGC fleet at the end of March 2023 and March 2024:

Table 10 – Percentage Zero Tailpipe Emissions Vehicles

	March 2023		March 2024		
Source	Total vehicles	% Zero tailpipe emissions vehicles	Total vehicles	% Zero tailpipe emissions vehicles	Difference in % zero tailpipe emissions vehicles
Cars	108	28%	102	41%	13%
Light commercial vehicles	272	46%	251	59%	13%
Heavy vehicles	16	0%	18	11%	11%

Business travel involves employees traveling for work purposes using either their personal vehicles or public transportation. It includes reimbursable travel expenses but excludes commuting to and from the workplace. Table 11 below presents our emissions from business travel, categorised by transport type as per reporting requirement for financial year 2023/24 the below information is provided as our baseline year to give context to future reporting periods.

Table 11 – Business Travel Emissions by Transport Type

Business travel emissions, tCO2e	Cars	Public transport	Flights	Total
2023/24	3,177.43	N/A	N/A	3,177.43

8. Greenspace and biodiversity

8.1 Biodiversity

Biodiversity, or the wide variety of living organisms within an environment, has declined at a rapid rate in the last 50 years. Evidence demonstrates that these trends are attributed to human activities, such as land use change, habitat degradation and fragmentation, pollution, and the impacts of climate change. The State of Nature report published in 2023 has highlighted the decline of nature across Scotland, with 11% of species now classed as threatened with extinction.

Public bodies in Scotland have a duty under the Nature Conservation (Scotland) Act 2004 ([Nature Conservation Scotland Act 2004](#)) to further the conservation of biodiversity, taking care of nature all around us. Furthermore, the Wildlife and Natural Environment (Scotland) Act 2011 ([Wildlife and Natural Environment Scotland Act 2011](#)) requires every public body to summarise their activities to meet this duty, through the production of a publicly available report.

What actions have been taken to identify, protect and enhance biodiversity across your organisation?

NHSGGC has worked with NatureScot to carry out UK Habitat Classification (UKHABs) surveys across its estate. This information forms an integral part of the wider mapping exercise being undertaken, which aims to provide better baseline information about the natural value and diversity of the land NHSGGC own. In turn, this will be used to identify areas in need of protection and enhancement and those with potential to contribute to wider natural networks.

Internally, NHSGGC have improved partnership working on greenspace and biodiversity by enhancing the role of the Greenspace and Biodiversity Working Group. This group actively promotes greenspace and biodiversity projects across different sites and departments and plays a key role in allocating dedicated funding for these projects.

Externally, NHSGGC are actively working to identify partnership projects with local authorities, community groups and other relevant parties. For example, NHSGGC are currently in the initial stages of a project with West Dunbartonshire Council that will connect green spaces and improve access to the grounds around Vale of Leven Hospital.

NHSGGC are also working with GCV Green Networks to identify sites within our estates that fall within or close to strategically important woodland and grassland networks in the Greater Glasgow area. NHSGGC are also working with GCU on a research collaboration that will identify how NHSGGC can improve its approach in key areas such as renewable energy generation, climate change adaptation and sustainable procurement practices, all of which have an impact on greenspace and biodiversity across the Board.

What actions have been taken to contribute to the NHS Scotland Estate Mapping programme, or to develop an internal mapping programme?

NHSGGC have completed our contribution to the NHS Scotland estate mapping programme working with Public Health Scotland to confirm the boundaries of NHSGGC's outdoor estate. As part of this exercise Public Health Scotland also calculated the percentage of our overall estate which is green and open space. This was verified at 62%, which is the second highest in Scotland. We are now working with Public Health Scotland and other bodies to enhance this information and apply it to our greenspace and biodiversity strategy and development, as detailed above.

What actions have been taken to mainstream biodiversity across the organisation?

NHSGGC's collaboration with GCU will include research into how the Board's procurement practices can be made more sustainable in a variety of ways. This will include how to ensure that impacts on biodiversity at the local and Global levels are taken into consideration.

As noted above, following the UK Habitat Classification survey work that has been undertaken, NHSGGC are working in partnership to identify sites within our ownership that could be strategically important in terms of grassland and woodland networks around Greater Glasgow. This information, along with the habitat survey data and our own estate mapping, will be used to inform decisions about which biodiversity and greenspace interventions are most appropriate and where these might have the greatest impact.

NHSGGC has developed a Climate Change and Sustainability Strategy 2023 – 2028. This provides a framework for mainstreaming sustainability, including biodiversity issues, into the policies and actions of the Board. Greenspace and biodiversity targets are now also included as core activities within the NHSGGC Annual Delivery Plan, meaning that NHSGGC are required to report on progress in meeting these targets on an annual basis.

How have nature-based solutions been utilised to address the climate and biodiversity emergencies?

NHSGGC Endowments block grant funding has been made available specifically for green and open space projects across the Board. Funding decisions are made based on several criteria, including how the project proposal will preserve or enhance biodiversity. Examples of funded projects include tree planting, the inclusion of wildflower and pollinator friendly species within garden projects and the development of new and biodiverse green spaces on sites that were previously hard landscaped or species poor. The introduction of this block grant has raised awareness of the benefits of greenspace across clinical and non-clinical areas and has increased the number of greenspace projects undertaken.

Elsewhere in the Board estate, the Estates and Facilities Directorate has used Sustainable Urban Drainage Systems (SUDs), such as the attenuation pond at the Queen Elizabeth University Hospital, to help address climate change related flooding.

As noted above, one focus of the research collaboration with GCU will be to assist with the development of the Board's approach to climate change adaptation. It is anticipated that further expansion of green and open space project activity across the Board's estate will be an important part of this.

What actions have been undertaken to raise awareness, engagement and understanding of biodiversity and nature?

The Sustainability and Transport groups have engaged directly with NHSGGC's Communications Office to develop a Communications Strategy and to raise awareness of a variety of issues, including biodiversity and nature i.e. providing publicity for large-scale events such as the completion of the RAH Pond development, and a number of smaller projects such as the planting of an individual memorial tree at Gartnavel. NHSGGC also makes use of the staff intranet and website to raise awareness of national and international campaigns such as Climate Week and Earth Day.

Volunteers within NHSGGC are engaged in several greenspace and biodiversity roles, including maintenance and development of garden areas and food growing initiatives. This provides invaluable knowledge and experience for the volunteers and helps to raise awareness of greenspace and biodiversity issues amongst patients, staff, and visitors, through contact with the spaces and the volunteers that work there.

What surveys, monitoring or assessment of biodiversity have been undertaken? If you have – have systems been developed to continue monitoring long-term?

NHSGGC has identified a need to quantify progress in improving biodiversity through monitoring of, for example, hectares of quality greenspace across the board and numbers of species before and after the implementation of projects or policies. SMART (Specific, Measurable, Achievable, Relevant, Timed) objectives will be developed in this respect, once a more detailed picture is provided of quantity, quality, and variety in the NHSGGC outdoor estate. The Board intends to work in partnership with others to complete the mapping process and to develop appropriate monitoring targets and tools.

8.2 Greenspace

The design and management of the NHS Scotland green estate for human and planetary health, offers an opportunity to deliver a range of mutually beneficial outcomes. These include action on climate change (both mitigation and adaptation), biodiversity, health and wellbeing for patients and staff, community resilience building and active travel.

Table 12 below outlines any key greenspace projects and their benefits;

Table 12 - Greenspace Projects and their Benefits

Project name/ location	Benefits of project	Details of project
RHC (Royal Hospital for Children) – Elsewhere Garden	Climate change adaptation Climate change mitigation Biodiversity Health and wellbeing	Royal Hospital for Children, Teapot Trust, and Semple Begg Designers collaborated to relocate the Elsewhere Garden from Chelsea Flower Show to the RHC children's play area to enhance the area for patient and family respite

Leverndale Hospital - Phase 2	<p>Climate change adaptation</p> <p>Climate change mitigation</p> <p>Biodiversity</p> <p>Health and wellbeing</p>	Phase 2 of Design in the Vale where access to improved outdoor space, greenspace and artwork benefit patients and staff
QEUH - AMB Gro Garden	<p>Climate change adaptation</p> <p>Climate change mitigation</p> <p>Biodiversity</p> <p>Health and wellbeing</p>	Semi-permanent structures created with wildflower meadows on brownfield land to encourage access to a relaxing outdoor space on a bustling site. Promoting a quiet and reflective space to practice mindfulness and decompress through for staff, patients, and visitors
RAH – Pond and Beyond	<p>Climate change adaptation</p> <p>Climate change mitigation</p> <p>Biodiversity</p> <p>Health and wellbeing</p>	The Halo Gardens and the Pond are an award-winning project that provides access to grassland, wet land and aquatic biodiversity for patients, staff, and visitors.
Stobhill - Food growing	<p>Climate change adaptation</p> <p>Climate change mitigation</p> <p>Biodiversity</p> <p>Health and wellbeing</p>	Growing beds and polytunnel to be installed to encourage local food growing and green prescribing on site
Inverclyde Royal Hospital	<p>Biodiversity</p> <p>Climate change mitigation</p> <p>Health and wellbeing</p>	Refurbishment of the garden space at the Langhill ward to encourage more active use of the garden and to develop a more stimulating and biodiverse environment for patients, staff, and visitors.
QEUH - Langland's	<p>Climate change adaptation</p> <p>Climate change mitigation</p> <p>Biodiversity</p>	Clinically led improvements to enhance entrance spaces and courtyard gardens for patients during rehabilitation

	Health and wellbeing	
RAH – sustainable management plan	Climate change adaptation Climate change mitigation Biodiversity Health and wellbeing	A first of its kind sustainable maintenance plan to support the works at RAH by encouraging biodiversity with light touch maintenance and community, patient, and volunteer involvement. Improving community wealth building indicators and reducing our impact on the environment

9. Sustainable procurement, circular economy, and waste

Earth Overshoot Day marks the date when our demand for resources exceeds what earth can regenerate in that year. In 2024, the UK's Earth Overshoot Day was 3 June. The current level of consumption of materials is not sustainable and is the root cause of the triple planetary crises of climate change, biodiversity loss and pollution.

NHSGGC aim to reduce the impact that our use of resources has on the environment through adopting circular economy principles, fostering a culture of stewardship, and working with other UK health services to maximise our contribution to reducing supply chain emissions to net-zero by 2040.

What did we do in 2023/24 to reduce the environmental impact and the quantity of the goods and services we buy?

From a contracting perspective, here are examples of aspects placed in tendering processes:

- Increased introduction of reusable products being added to the scope of contracts- (i.e. gowns, trocars) to provide options for clinical staff to transition from disposable to reusable items where appropriate to do so
- Working in partnership with suppliers to reduce packaging. An example of this is pulp products where packaging content has significantly reduced
- A Green Theatres Group has evolved, with key clinical and sustainability leads- looking at key sustainable projects such as reduction in the use of medical examination gloves from education on use in wards and departments
- Membership of the Supplier Development Programme has increased our visibility and opportunities to local providers to maximise carbon footprint impact of supply chain

What are we doing in 2024/25 to reduce the environmental impact of the goods and services we buy?

The Green Theatres Group continues to evolve, review and implement key sustainability projects and transitions to reusable items across contracts will be encouraged with the relevant clinical users.

From a procurement perspective the Key Supplier Management process has been launched in Q2 of 2024. This process has identified 84 key suppliers across various specialties. The procurement department will meet with 42 key suppliers on a quarterly basis and 42 bi-annually. Sustainability forms a key part of the standard agenda, where suppliers will be tasked with creation of key targets specifically related to their activity within the Health Board. Procurement Officers will engage with key clinical staff to implement and/or liaise with the Green Theatres Group and other Sustainability Groups where appropriate.

NHSGGC wants to reduce the amount of waste produced and increase recycling to meet Scottish Government Targets. Table 13 below sets out information on the waste produced and its destination for the last three years. Please note - all residual general waste is sent to incineration to energy and not to landfill:

Table 13 – Waste Destinations 2021 - 2024

Type	2021/22 (tonnes)	2022/23 (tonnes)	2023/24 (tonnes)	Percentage change – 2021/22 to 2023/24
Waste to incineration	5,255	5,103	5,221.00	-0.65%
Recycled waste	921.00	969.00	1,145.65	24.39%
Food waste	292.00	280.00	325.00	11.30%
Clinical waste	5,915	5,530	6,106.60	3.24%

NHSGGC has set targets to reduce the amount of waste produced. Tables 14 to 17 below provide information on our performance against those targets:

Table 14 – Domestic Waste Reduction

Reduce domestic waste by a minimum of 15%, and greater where possible compared to 2012/2013 – by 2025	
Target – reduce domestic waste by	1,052 (tonnes)
Performance – domestic waste reduced by	1,705 (tonnes)

Table 15 – Domestic Waste Sent to Landfill

Ensure that no more than 5%, and less where possible, of all domestic waste is sent to landfill – by 2025	
Target – reduce waste sent to landfill by	All residual domestic waste is incinerated for energy recovery.
Performance – waste sent to landfill reduced by	NHSGGC do not send any residual waste to landfill

Table 16 – Reduction in Food Waste

Reduce the food waste produced by 33% compared to 2015/16 – by 2025	
*No baseline data for 2015/16 was available. Earliest baseline available was established at 359 tonnes in 2020/21	
Target – reduce food waste by	118.47 (tonnes)
Performance – food waste reduced by	34 (tonnes)
Outcome	40% achieved
Further reduction required	84.47 (tonnes)

Table 17 - % Domestic Waste Recycled or Composted

Ensure that 70% of all domestic waste is recycled or composted – by 2025	
Target – recycle or compost	4,683 (tonnes)
Performance – recycled or composted	1,469 (tonnes)
Outcome	31% achieved. Implementation of NHSGGC's new General and Recycling Waste contract in December 2024 will ensure target is met.
Further increase required	3,214 (tonnes)

What did we do in 2023/24 to reduce our waste?

NHSGGC introduced the Waste Champions program to drive forward waste objectives. One or two facilities colleagues per site will be designated as the Waste Champion(s), focussed on reducing clinical waste output and increasing recycling through correct segregation. This led to the creation of 'Exemplar wards,' the waste champion would work with the ward to ensure best practice in place and to prove the concept prior to rollout across site.

The waste team introduced a new voluntary waste module on Learnpro, this provides much more detailed training than the existing module. Furthermore, the waste team raised awareness of correct segregation through core briefs and posters.

Audits played a key role in reducing waste, all acute waste yards were audited to ensure best practice, and our mandatory Pre-Acceptance Audits (PAAs) provided the opportunity to raise awareness of proper waste segregation in clinical areas. An extensive exercise was carried out, highlighting all clinical bins located in non-clinical areas with instructions to remove them.

NHSGGC continued our collaborative approach with fellow Waste Management Officers (WMO's) at other boards, National Procurement (NP) & NHS Assure. NHSGGC forged new links and relationships with clinical colleagues and departments to enable us to be more effective in sharing best practice.

What are we doing in 2024/25 to reduce our waste?

Action Plan for Waste Management and Reduction

Mandatory Waste Training Review

- **Action:** Implement a mandatory review of waste training, processes, and procedures for all staff.
- **Reason:** Compliance with statutory audit requirements by SEPA.
- **Outcome:** Enhanced waste management practices across all staff.

Watch Your Waste Campaign

- **Action:** Continue the Watch Your Waste communications campaign with regular pop-up events.
- **Outcome:** Increased awareness and engagement in waste reduction efforts.

Waste Management in Staff Inductions

- **Action:** Integrate waste management training into all staff inductions in collaboration with Learning & Education (L&E) colleagues.
- **Outcome:** Consistent waste management practices from the start of employment.

Bin Lid Stickers

- **Action:** Develop and distribute new image-based stickers for clinical, domestic, and recycling bin lids.
- **Outcome:** Clear guidance at the point of disposal, increasing staff engagement.

Waste Champion Program

- **Action:** Transition the Waste Champion program from facilities-led to clinically-led, with active roles in sustainability groups.
- **Outcome:** Greater clinical involvement in waste reduction initiatives.

Site-Specific Support Days

- **Action:** Conduct rolling site-specific support days to help facilities achieve waste reduction goals.
- **Outcome:** Creation of site waste management plans integrated with the EMS.

Residual Waste & Recycling Contract

- **Action:** Lead the development of documentation for the mini tender for the new residual waste and recycling contract.
- **Outcome:** Secure a contract that supports waste reduction targets.

Plastics Recycling Program

- **Action:** Implement a new plastics recycling program, focusing on high-quality plastics from services like Renal or Theatres.
- **Outcome:** Segregation and sale of high-quality plastics to the market, reducing waste.

10. Environmental stewardship

What steps did we take in 2023/24 to develop and implement our EMS?

A gap analysis was conducted in alignment with International Standards Organisation (ISO) 14001:2015 standard, enabling an action plan and Gant chart to be developed in formulating a plan for implementation. An Environmental Policy has been developed in recognition of the environmental activities NHSGGC conducts that have an environmental impact. This outlines the aims against environmental/ sustainable themes of minimising or mitigating the adverse environmental impact as well as where the responsibilities lie.

This policy of the overarching board Sustainability & Climate Change Strategy and is a key thread for providing the framework in support of delivering against key themes. The detail that underpins this will be captured within the Environmental Management System Manual, which is under development as the Plan, Do, Check, Act (PDAC) cycle is implemented against key deliverables and improving on related organisational processes i.e. through effective planning, introducing solutions, testing, and analysing results. This will also provide the platform for continual improvement, a key ethos in aligning to the ISO 14001:2015.

Aspect and Impact registers, acting as environmental risk registers, capture related environmental activities to assign significance against risk and develop operational & corporate controls to minimise or mitigate identified risk. The registers have been developed into departmental workbooks to streamline the process as well as provide enhanced leadership commitment by assigning ownership to operational areas. There is a wider exercise being conducted on how risk is assessed, the output of this will require cross-referencing with existing processes to ensure that there is no divergence in methodology for assessing and assigning risk. A brief has been developed to communicate with operational departments and will be delivered when more clarity around the risk methodology matures.

Legal and other requirements have been developed through utilising the online software tool Barbour as well as other resources such as NetRegs, Scottish Environment Protection Agency (SEPA) etc. to ensure that compliance obligations are accurately captured. The legal register identifies the legislation and applicability to NHSGGC as well as capturing permits, licences, authorisations, notifications, and consents. A communication plan has been developed with the team and communications point of contact, this has streamlined the events, campaigns and good news stories relating to Sustainability and has vastly improved wider education and awareness on related topics and themes.

What steps will we take in 2024/25 to further develop and implement our EMS?

The introduction of the Business Management System (BMS) through Q-Pulse. NHSGGC will now progress the management system within Q-Pulse in terms of mapping out document control, non-conformances, corrective action, and associated hierarchy and working instructions against activities & processes to progress wider business planning.

What did we do in 2023/24 to reduce our environmental impacts and improve environmental performance?

Environmental performance will improve as the EMS develops and matures. Key Performance Indicators (KPI's) for environment i.e. energy, waste, water are being developed against the activities being conducted with the aim of standardising data flow for more frequent analysis and evaluation, which will better inform management decisions and forward action. This coupled with the development of an audit schedule will provide better assessment of compliance to assure associated performance whilst providing audit trails in addressing related risk or developing opportunities for improvement.

Waste targets and associated performance is detailed within section 12.

What are we doing in 2024/25 to reduce our environmental impacts & improve environmental performance?

As the KPI and audit schedule develops, the monitoring, measurement, analysis, and evaluation parameters relating to the EMS and associated activities will provide a baseline and act as a springboard for improvement through targets and objectives aimed at improving environmental performance and reducing environmental impact.

What factors have prevented implementation of EMS to ISO14001 Standard for any sites in NHSGGC estate which have not yet reached that standard?

Software issues with Q-Pulse has had a significant delay in progressing implementation of the EMS. An integrated approach in implementing both environmental and quality management systems has also had an impact given the common clauses and benefits of standardising approach in a holistic top-down manner through both Delivery Plan and Board Quality Strategy Objectives.

11. Sustainable Construction

Where there is a need for new healthcare facilities, NHSGGC want both the buildings and grounds to be safe, nature-rich, sustainable, resilient, and accessible. NHSGGC is working on the following building projects:

Glasgow North-East hub

Construction progress on programme to complete October 2024. New building scheduled to open to public in early 2025 with sectional completion of car park. Once occupied the existing Health Centre will be demolished and the car park completed by August 2025.

Key aspects of the design include:

- Enhanced insulation and triple glazing throughout
- Natural ventilation where applicable
- Enhanced air permeability rating of 2m³/m.m²@50Pa
- 75kWp of photovoltaic panels on roof
- Heating via air-source heat pumps
- Point of use water heaters to minimise overheating
- 34 Electric Vehicle (EV) charging points.
- Extensive Social Value programme being monitored by Scottish Government and Scottish Fuels Trust (SFT) together with long-term benefits in relation to targets for impact on health inequalities.
- Promotion of green travel plan.
- Total Embodied Carbon to be 475kgCO₂/m².

New build small scale primary care centre at Dargavel / Bishopton

Part of Dargavel masterplan. Layouts agreed and building designed with focus on embodied carbon. Site start was April 2024 with completion May 2025.

Key aspects of the design include:

- Fully compliant with new SDAC (Sustainable Design and Construction Guide) guidance.
- Enhanced insulation and triple glazing throughout
- Natural ventilation where applicable
- Enhanced air permeability rating of 2m³/m.m²@50Pa
- 25kWh of photovoltaic panels on roof
- Heating via air-source heat pumps
- Point of use water heaters to minimise overheating
- 2 EV charging points.
- Total Embodied Carbon to be <600kgCO₂/m² or better.

Radionuclide Dispensary Relocation

New manufacturing facility of radiopharmaceutical products. Planned site start for October 2024 with completion May 2026.

Key aspects of the design include:

- Fully compliant with new SDAC guidance.
- Enhanced insulation and triple glazing throughout
- Natural ventilation where applicable
- Enhanced air permeability rating of 0.6m³/m.m²@50Pa
- 100m² of photovoltaic panels on roof
- Heating via air-source heat pumps
- Point of use water heaters to minimise overheating

- 4 EV charging points.
- Total Embodied Carbon to be <600kgCO₂/m² or better

What did we do in 2023/24 to make our construction projects more environmentally sustainable?

By adopting sustainable construction practices, NHSGGC can significantly reduce its environmental impact, enhance the resilience of its facilities, and create a healthier environment for both patients and staff. To achieve these goals, are developing a comprehensive process for conducting Building Performance Evaluations (BPE) during the design development and post-project evaluation stages. This process involves systematic data collection, analysis, and reporting to assess the building's performance against key sustainability and operational benchmarks. The findings from these evaluations will be documented and disseminated to relevant stakeholders, ensuring that lessons learned, and best practices are shared to inform future projects and contribute to the broader knowledge base on sustainable construction.

Additionally, NHSGGC should proactively identify opportunities for waste minimisation, streamlining operations, increasing efficiency, and implementing circular economy initiatives. These efforts are integrated into the entire project lifecycle, with the goal of reducing resource consumption, enhancing operational processes, and achieving significant financial savings.

By focusing on these strategies, NHSGGC will lessen the environmental footprint and improve the overall sustainability and economic viability of its projects.

NHS Scotland's guidance document, the Sustainable Design and Construction (SDaC) Guide (SHTN 02-01), provides a robust framework for these efforts. The guide offers detailed advice on sustainable design, construction, and refurbishment of health and social care facilities, outlining the necessary processes, strategies, and considerations to achieve sustainable performance outcomes. It also includes supplementary standards, references to good practice case studies, and aligns with several leading industry frameworks and methodologies, ensuring that sustainability targets are met or exceeded. By adhering to this guidance, NHSGGC can ensure that its construction and refurbishment projects are aligned with best practices in sustainability and contribute to a healthier, more resilient future.

What are we doing in 2024/25 to make our construction projects more environmentally sustainable?

- Develop and implement a process to assess buildings (when leasing and procuring) based on their sustainability performance.
- Continue to Increase spend with local businesses
- Continue to Maximise Community Benefits
- Continue to ensure Procurement contributes to the Community Wealth Building and Anchor Institution agendas
- Continue to promote Fair Work Practices
- Continue to promote Ethical Standards within Supply Chain

12. Sustainable Communities

The climate emergency undermines the foundations of good health and deepens inequalities for our most deprived communities.

The NHS touches every community in Scotland. NHSGGC have a responsibility to use our abilities as a large employer, a major buyer, and one of the most recognised brands in the world, an ‘anchor’ organisation, to protect and support our communities’ health in every way possible.

What are we doing to act as an anchor institution for our local community / communities?

Community wealth building outcomes. The impact the NHSGGC has on people’s health extends well beyond our role as a provider of treatment and care. As large employers, purchasers, and capital asset holders, NHSGGC are well positioned to use our spending power and resources to address the adverse social, economic, and environmental factors that widen inequalities and contribute to poor health. As a key Anchor Institution in the area, collaborate with local partners to model good practice and share ideas.

As an employer – Creating meaningful employment opportunities for our communities through Modern Apprenticeships and other employability programmes and working collaboratively with Local Employability Partnerships.

As a purchaser – Supporting Small & Medium Enterprises (SMEs), Local Businesses, Social Enterprises and Supported Businesses through a bespoke supplier development programme and encouraging Community Benefits that support the health of the most vulnerable groups in our communities.

As an owner of land & assets - Encouraging green spaces, biodiversity, and arts on our NHSGGC grounds & buildings, with projects co-produced with members of the community.

As a partner – Working together with Glasgow City Region (GCR) to promote Fair Work and work strategically across the region by supporting the GCR Anchor Accelerator Summit.

The following work streams demonstrate how NHSGGC act as an anchor institution:

Anchor Strategic Delivery Plan

NHSGGC is committed to our role as an Anchor Organisation, which acts on behalf of the local communities and the local areas that are served by going beyond healthcare provision. Our aspiration is to make the best use of our resources (our workforce, our expenditure and our land and buildings) to improve the quality of life of our communities and to reduce health inequalities. Our Anchor Strategic Delivery Plan is a route to deliver community wealth building outcomes, with a particular focus on employment, procurement, land and assets, as well as our contribution to a range of partnerships.

Benchmarking

Anchors benchmarking process is well underway, utilising Public Health Scotland progression framework “Harnessing the power of anchor institutions.” Public Health Directorate are coordinating the process, with theme leads completing relevant sections. Four out of five sections have already been scored, with action plans developed. The process is expected to be completed in Q2.

Communications

Anchors and Community Wealth Building Communications plan is in development. National Communication resources (including animation and infographics) are now available.

NHS Property Transactions Handbook

NHSGGC's consultation response was coordinated and submitted by the Head of Property and Asset Management. Public Health collated comments from the Community Wealth Building Group and provided links to Public Health Scotland evidence.

Accelerator Summit

Accelerator Summit is a Glasgow City Region summit attended by senior leaders from Anchor organisations, including NHSGGC. It occurs twice a year, providing an opportunity for all representatives to share learning and agree joint actions.

Procurement (Supplier Dev Programme 2)

Procurement Development Project co-delivered by NHSGGC Procurement Department, Supplier Development Programme and Public Health is progressing well. The project aims to improve supplier engagement, develop new and existing suppliers, and increase use and awareness of the Community Benefits Gateway portal via a series of workshops and activities.

- Training has been commissioned, with contents drafted;
- Procurement team created a new Contract Supplier Management Process, making Community Benefit Gateway updates a standard agenda item in meetings with key suppliers across the four commercial streams;
- Partnership working between SDP, Procurement, Public Health, Third Sector Interface, GCVS and other stakeholders has been enhanced to raise awareness of the project and maximise its impact.

Workforce Pillar

Substantial progress has been made to increase employability opportunities across NHSGGC. In Q1, NHSGGC advertised for 21 Modern Apprenticeships posts, with almost 400 applicants across the opportunities. NHSGGC are in the process of developing further apprenticeship opportunities in Data Science, E-Health and Health and Safety. NHSGGC have also recruited for 30 pre-employment streams across facilities, nursing, and healthcare support workers.

In addition, NHSGGC are working in partnership with a nationwide mentoring programme (MCR Pathways) to promote volunteer mentoring opportunities to staff, who can be matched with a young person to help them build confidence and unlock their potential. Public Health

Directorate are supporting the Workforce Lead to develop new, innovative anchor projects. This includes a recently completed literature review of young people's perceptions of health and social care careers, which can inform interventions for removing barriers to accessing these careers.

What are we doing to improve the resilience of our local communities to climate change?

NHSGGC improves the resilience of our local communities to climate change by implementing and supporting a range of strategies and programmes including:

- Active Travel to work, including cycle to work scheme, annual travel ticket scheme, and providing the infrastructure on NHSGGC sites for secure storage for bikes, showering etc.
- Supporting Glasgow food plan & developing NHSGGC contribution through our own Food Plan as a key delivery partner. Glasgow City Food Plan is a holistic 10-year plan aiming for Glasgow to be recognised for its good food and as a city where nutritious, healthy, affordable food is accessible to everyone. The plan has 6 themes and is based around 3 overarching pillars – Equity, Sustainability and Health.
- Greenspace Officer Post embedded in the Sustainability Team

Through our work on Community Wealth Building, NHSGGC continue to explore opportunities to develop our role as an anchor organisation and to encourage staff throughout the organisation to consider how they can develop initiatives within their own services.

13. Conclusion

The inclusion of Climate Change & Sustainability into Board Delivery Plan objectives and greater emphasis within Annual Accounts for the 2024/25 financial year is increasing the wider understanding and consideration of this relatively recent corporate objective. Embedding the agenda and working in collaboration with colleagues across the organisation, particularly; HR, Communications, Learning & Development and Finance will be key in promoting awareness, training, and driving our objectives forward. Setting objectives and measuring progress is managed through our Sustainability Governance framework that provides the platform for the subject specific delivery groups to empower our stakeholders in driving objectives within delivery plan priority areas:

- Energy Transition
- Waste Management & Circularity
- Transport
- Green Theatres
- Environmental Management
- Greenspace

Monitoring and measuring progress against Delivery Planning objectives and Annual Disclosures now forms a core part of the organisation's wider Risk Management approach and decision making with synergies to wider Sustainability & Value objectives.

Where possible NHSGGC realise opportunities to work with external partners, such as the Sustainable Glasgow Charter and Glasgow Caledonian University to explore and embrace new approaches and technologies, and where possible collaborating to realise opportunities, which are currently outside the scope of business-as-usual operations.

The sustainability team regularly undertake **Strengths Weakness Opportunities Threats** analysis of external and internal factors that inform our risks and opportunities, mainly in the form of Financial Sustainability initiatives where we have had success in delivering cost savings and containment initiatives, particularly within our Green Theatres Programme as detailed in Section 7.

14. Glossary of Terms

Term	Definition
ADP	Annual Delivery Plan
BMS	Business Management System
BPE	Building Performance Evaluations
CfSD	Centre for Sustainable Development
COPD	Chronic Obstructive Pulmonary Disease
DPI	Dry Powdered Inhaler
EMS	Environmental Management Systems
FY	Financial Year
GEP	Green Exercise Partnership
GCU	Glasgow Caledonian University
GCR	Glasgow City Region
GHG	Greenhouse Gas
GGH	Garthnavel General Hospital
GIS	Geographical Information Systems
GP	General Practitioner
HVAC	Heating Ventilation and Air Conditioning
IRH	Inverclyde Royal Hospital
ISO	International Standards Organisation
JD's	Job Descriptions
KPI's	Key Performance Indicators
kWh	kilowatt hours
L&E	Learning & Education
LED	Light Emitting Diode
MDI	Metered Dose Inhalers
MWh	Megawatt Hours
MSCP	Multi Storey car Park
NHSGGC	NHS Greater Glasgow & Clyde's
NP	National Procurement
PDAC	Plan, Do, Check, Act
PV's	Photovoltaics
RAH	Royal Alexandra Hospital
SABAs	Short Acting Beta Agonists
S&V	Sustainability & Value backed
SBAR	Situation, Background, Assessment, & Recommendation
SDAC	Sustainable Design and Construction Guide
SEPA	Scottish Environment Protection Agency
SFT	Scottish Fuels Trust
SMART	Specific, Measurable, Achievable, Relevant, Timed
SMEs	Small & Medium Enterprises
SPT	Strathclyde Partnership for Transport
SUDs	Sustainable Urban Drainage Systems
tCO ₂ e	Carbon Dioxide equivalent
QEUH	Queen Elizabeth University Hospital
RTI	Real Time Information
UKHABs	UK Habitat Classification
UN SDG	United Nations Sustainability Development Goals
WHO	World Health Organisation
WMO's	Waste Management Officers
WWHP	Wastewater Heat Pump