



Environmental Performance  
Accountability Report

**Environmental  
sustainability is  
everyone's story.**





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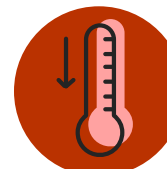
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# Our Focus Areas



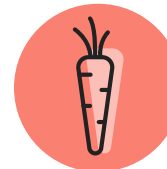
**Leadership and Innovation**



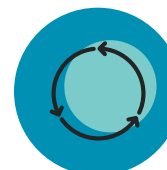
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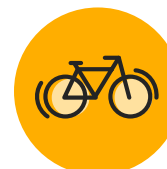
**Energy and Carbon**



**Food**



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This is an interactive report. Easily navigate to different sections by **clicking** on the text headings.

To view a different health organization report, select it from the navigation bar to the left.

This report was written by the Energy and Environmental Sustainability (EES) team, a regional collaboration of four health organizations that works in partnership with the Environmental Health and Climate Change team, the Sustainable Clinical Services team, the Quality Improvement teams and Green+Leaders. It focuses on collaborative actions and achievements in relation to low-carbon, climate resilience and environmental sustainability, but it does not include all of our partners' additional actions and achievements undertaken in the shared journey toward planetary health.

The EES team also partners with clinical and non-clinical departments and health-care and medical staff for impact in diverse areas. Our team's role is about raising awareness and building capacity, in part by uniting efforts and amplifying achievements across the Lower Mainland region and beyond. You will see much of this work on the [GreenCare Network website](#).



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# Executive Message





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Djavad Mowafaghian Centre for Brain Health in Vancouver, B.C.

On behalf of Vancouver Coastal Health (VCH), I am very proud to share our 11<sup>th</sup> annual Environmental Performance Accountability Report. I would like to thank our staff and medical staff, along with the patients, clients and residents we serve, for your continuing efforts to achieve environmental sustainability and climate resilience in all areas of our health system.

The health of our communities and the people we serve is inextricably linked to climate change and the health of our planet. Climate change is a health emergency that threatens us all, but if we take concrete action, we can mitigate, adapt and course correct.

Together, we're doing just that. VCH staff and medical staff are changing the way they work in order to deliver sustainable health care that connects our personal well-being to that of the environment.

As a health organization, we have expanded our strategic framework to include four new pillars: Indigenous Cultural Safety; Anti-Racism; Equity, Diversity and Inclusion; and Planetary Health. More and more, we look to embed planetary health principles and best practices throughout the organization, from the way we manage our facilities to the way we deliver quality care, including how we support climate change mitigation and adaptation efforts across the communities we serve.

Our many sustainability achievements in 2022 attest to our capacity for meaningful change, and they are something to acknowledge, learn from and take pride in. A few notable ones include:

- Embedding climate risk and resilience planning into all major capital projects
- Eliminating the use of the anaesthetic gas that contributes most to greenhouse gas emissions at Vancouver General Hospital, and reducing waste nitrous oxide
- Assessing the options for keeping patients warm, and identifying the patient warming option with the best environmental and cost performance
- Reducing VCH's in-scope emissions footprint by 10.9% (since 2007)
- Initiating four capital infrastructure emission reduction projects estimated to reduce our carbon emissions by more than 2,925 tCO<sub>2</sub>e per year
- Achieving or exceeding diversion of 50% of the waste at six facilities

- Establishing a program and creating resources to support wellness checks for individuals who are more vulnerable to the impacts of extreme heat events

Our team at VCH are problem-solvers and we are resilient. Through our collective commitment and efforts, we can minimize the impact of our health system on the environment, and ensure our staff and medical staff are prepared to provide exceptional care while also protecting our planet.



**Vivian Eliopoulos**  
President and Chief Executive Officer  
Vancouver Coastal Health



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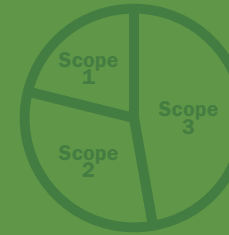
# 1.1 Milestones and Achievements

Here's a summary of our 2022 milestones and achievements, and what to watch out for throughout 2023 and beyond:

## First ever!



**Eliminated** the use of the **anaesthetic gas** that contributes most to **greenhouse gas emissions** at Vancouver General Hospital, and reduced **waste nitrous oxide**; this had the equivalent effect of removing **57 cars** from the road each year<sup>A</sup>



Partnered with **CASCADES** on **innovative work** to measure **scope 3 greenhouse gas emissions**, which are the emissions associated with **waste generation, purchased goods and services, business travel**, and more

## Environmentally preferable decision-making

- Incorporated environmental questions into the mobile MRI and CT scanner procurement process, resulting in a toolkit for action in the Radiological Society of North America's Journal: Radiology ([published 2023](#))
- Included environmental questions in Facilities Management Procurement pre-qualification of construction services
- Through a co-funded quality improvement project, assessed the in-hospital patient warming options to identify the option with the best environmental and cost performance

## 2022 sustainability highlights

**Reduced** VCH's emissions footprint by

**10.9%**

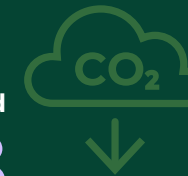
since 2007, which is the equivalent of removing **1,679 passenger vehicles** from the road<sup>A</sup>



**Initiated**

**18**

**energy and emission reduction** projects



Initiated **four** capital infrastructure emission-reduction **projects** estimated to reduce our carbon emissions by more than

**2,925<sub>tCO<sub>2</sub>e</sub>**

per year — a greenhouse gas reduction equivalent of removing **896 passenger vehicles** from our roads<sup>A</sup>



**Registered**

**18**

new **Green+Leaders** — change agents who encourage environmentally sustainable behaviour, improve existing processes, and help to create an overall **culture of environmental health and wellness**



**Awarded a**

**\$5,000**

**Nourish Innovation to Scaling Grant** to develop a roadmap for sustainable infrastructure and operations



**Six facilities** achieved or exceeded

**50%**

of their waste being **diverted to recycling** instead of landfill





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# 2.0 Our Sustainability Story





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# 2.1 Vancouver Coastal Health's Commitment to Planetary Health

With climate change posing a serious threat to human health, the urgency to focus on sustainability and build climate resilience is clear. In alignment with the B.C. Ministry of Health Mandate Letter and [the CleanBC Roadmap](#) to 2030, VCH is accelerating our activities to significantly reduce harmful environmental impacts of the health system, and adapt to be resilient to climate shocks and stressors.

## Planetary Health, a VCH pillar

Planetary Health<sup>B</sup> is one of the four pillars in our expanded strategic framework, and we are developing a Planetary Health Strategic Roadmap to guide us in upholding our commitment to deliver high-quality, culturally safe and low-carbon care, and in focusing on taking an equity-led, intersectional approach to caring for people and planet.

By centering and resourcing sustainability and resiliency initiatives, we will take clear, meaningful action to achieve the following goals:

- Goal 1: VCH is a zero unnecessary waste and low-carbon health system.
- Goal 2: VCH is climate resilient, able to withstand impacts of acute climate shocks and chronic stressors.
- Goal 3: VCH communities are supported as they mitigate climate change and adapt to climate change impacts.

Achieving these goals will require a systems-level approach, and we are committed to extensive changes in behaviour and practices in the areas of service design and delivery; procurement, supply chain and business practices; facilities and land use; food and nutrition; and community mitigation and adaptation.

## Planetary Health

Inspiring people to create, restore, steward and conserve healthy ecosystems.



“

**Human health and the health of our planet are inextricably linked. There are complex interactions between the degradation of the planet's natural systems — by humans and human-made systems — and the corresponding impacts on human health. Clean air, water, soil and a healthy climate underpin our ability to live and thrive.**

– Darcia Pope, Vice President, Strategy, Innovation and Planetary Health

## RECOGNIZING INDIGENOUS NATIONS AND COMMUNITIES

We recognize that our places of work and VCH facilities lie on the traditional homelands of the fourteen First Nation communities of Heiltsuk, Kitasoo-Xai'xais, Lil'wat, Musqueam, N'Quatqua, Nuxalk, Samahquam, Sechelt, Skatin, Squamish, Tla'amin, Tsleil-Waututh, Wuikinuxv, and Xa'xtsa.

We acknowledge that there is much to be learned about environmental stewardship from these nations and communities.



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# 2.2 Building and Operating for Planetary Health

In operating our current facilities, and in the design and construction of new facilities, VCH is supporting the highest level of human and environmental health and well-being by:

- Evaluating and reducing the impacts of climate change on a facility and the surrounding community (e.g. wildfires, extreme heat, floods and storms)
- Assessing how the design, construction and operation strategies of a facility will impact the environment and human health
- Drawing on credible evidence that links health outcomes to planning and design of the built-environment
- Implementing low-carbon, climate resilience and environmental-sustainability strategies
- Collaborating with project compliance teams to ensure energy and carbon performance targets are embedded into design and construction agreements
- Achieving LEED certification (a globally recognized green-building rating system administered by the Canadian Green Building Council)
- Meeting and exceeding environmental and climate change legislation

## Our buildings<sup>C</sup>

**759,719 m<sup>2</sup>**

usable facility space

**192**

distinct buildings

**18,729**

full-time equivalent staff<sup>D</sup>

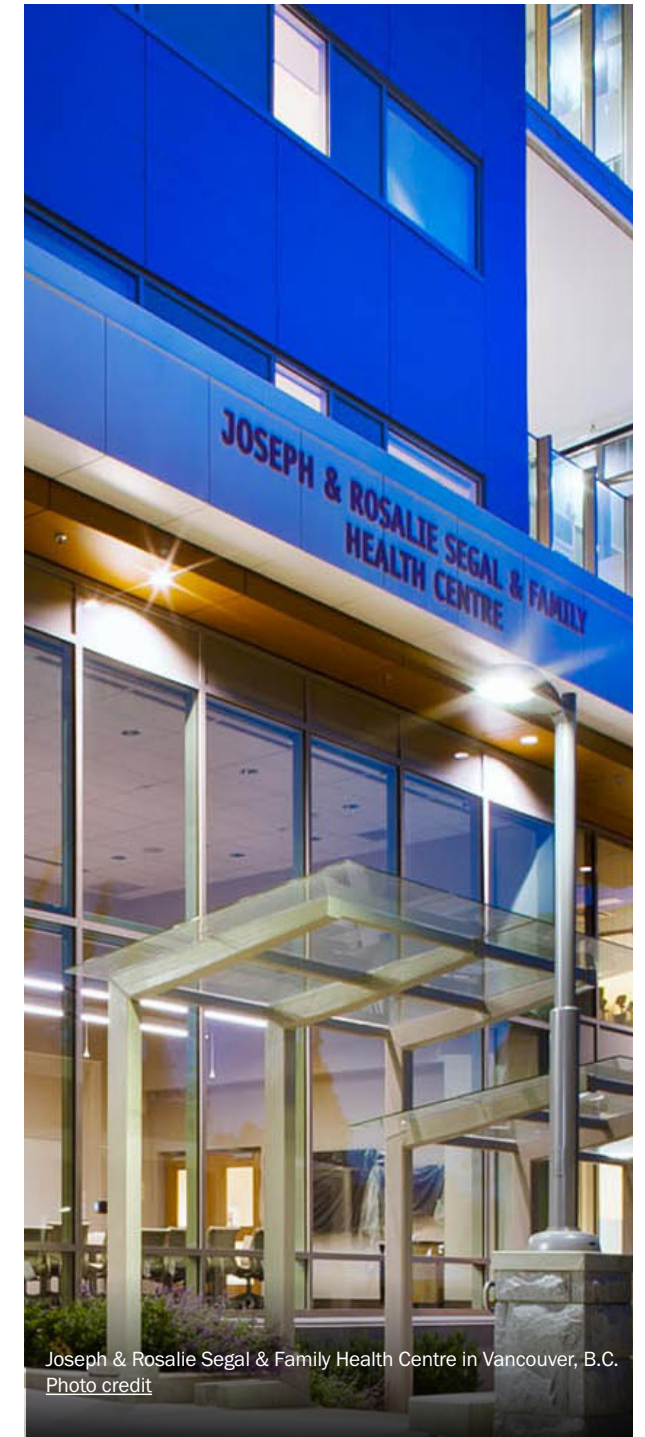
**26,356 m<sup>2</sup>**

LEED Gold-certified facility space

## Our LEED projects

LEED certification is a globally recognized symbol of sustainability achievement and leadership.

To learn more about VCH's LEED projects, click [here](#).



Joseph & Rosalie Segal & Family Health Centre in Vancouver, B.C.  
Photo credit



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# 3.0 Our Progress: Setting Targets and Measuring Results





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# 3.1 The 2022 Dashboard

Setting targets helps us all to recognize achievements and act to transform our health-care system toward environmentally sustainable and climate resilient care. A target may be provincially or regionally mandated, or be VCH-developed and based on past trends and current resourcing.

## Regulatory guidance

The [Climate Change Accountability Act](#) (CCAA) has set ambitious greenhouse gas (GHG) emissions reduction targets (from a 2007 baseline) for public sector organizations:

40%

by 2030

60%

by 2040

80%

by 2050

These targets include emissions from owned and leased buildings, and from the use of fleet vehicles and paper consumption. For reference, 98% of VCH's emissions come from buildings, while the rest come from fleet and paper.

The government's [CleanBC plan and Roadmap](#) is the pathway to achieve these targets and has set even more aggressive targets:

50%

reduction in emissions for public sector buildings  
by 2030

40%

reduction in fleet vehicle emissions by 2030

## Measuring results

The 2022 dashboard captures 11 key performance indicators (KPIs). It is a snapshot in time of our progress and, this year, includes links to trends in previous years and how we will meet our targets.

However, the dashboard alone doesn't tell the entire story. Environmental sustainability is a journey, and there are many process-related KPIs and qualitative efforts that are not included in this dashboard. In addition, some Focus Areas are not represented because of active work to identify the current situation and collaborate on the development of performance targets. To learn more, see [4.0: Our Actions: Finding Solutions Together](#).

For information on the methodology behind the KPIs in the dashboard on the following pages, see the [Energy and Environmental Sustainability \(EES\) Methodology and Context for Calculating Key Performance Indicators on the GreenCare website](#).



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# Energy and Carbon

Goal: Reduce our carbon footprint by increasing energy efficiency and reducing reliance on fossil fuels.

New construction activity increases our impact on the environment and is growing at a fast pace.

| Key Performance Indicator (Metric)  | 2022 Results | 2025 Target | 2030 Target & Traffic Light |
|---|--------------|-------------|-----------------------------|
| <b>CCAA legislated target:</b> Reduce in-scope* GHG emissions from the 2007 baseline (tCO <sub>2</sub> e/year)                            | 10.9%        | 16%         | 40%<br>▼                    |
| <b>CleanBC plan target:</b> Reduce building GHG emissions of owned and leased properties from the 2007 baseline (tCO <sub>2</sub> e/year) | 9.7%         | 16%         | 50%<br>●                    |
| Reduce owned and leased building GHG-emissions intensity from the 2007 baseline (tCO <sub>2</sub> e/m <sup>2</sup> /year)                 | 29.3%        | 40%         | 50%<br>▼                    |
| Reduce owned and operated building** energy-use intensity from the 2007 baseline (ekWh/m <sup>2</sup> /year)                              | 8.0%         | 15%         | 25%<br>▼                    |

## How we will reach our targets

- Partnering with Facilities Maintenance & Operations teams presents an opportunity to identify ways to integrate energy and emissions reduction strategies and support optimization of infrastructure and equipment.
- In collaboration with internal and external partners, we are seeking and implementing a combination of net zero emission designs for new construction and aggressive energy retrofits to existing facilities.
- As we renew our energy infrastructure and assets, we have the opportunity to make system-level changes and shift to lower-impact facilities.

Want to see the trends? Go to the [Energy and Carbon graphs](#) in Appendix B.

- On track to meet 2030 target
- ▼

 Minimal or slow progress towards 2030 target
- Behind schedule to meet 2030 target, and requires attention

- \* In-scope refers to emissions from owned and leased buildings, and from the use of fleet vehicles and paper consumption.
- \*\* Does not include leased buildings.

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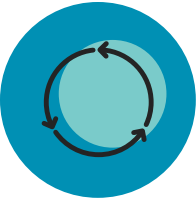
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# Materials

Goal: Choose materials and products that contribute to human and environmental health, while avoiding waste and unnecessary chemicals.

Recycling options are shaped by **global market demand, ability of local processors, complexity of materials and facility logistics.**

| Key Performance Indicator (Metric) *   | 2022 Results ** | 2025 Target | 2030 Target & Traffic Light |
|--|-----------------|-------------|-----------------------------|
| Increase waste-diversion rates at acute care owned and operated sites <sup>E</sup><br>(% of waste diverted, annual average)                  | 30%             | 33%         | 40%<br>▼                    |
| Increase waste-diversion <sup>†</sup> rates at non-acute care owned and operated sites <sup>F</sup><br>(% of waste diverted, annual average) | 42%             | 45%         | 60%<br>▼                    |
| Decrease waste-intensity <sup>§</sup> rates at acute care owned and operated sites<br>(kg/m <sup>2</sup> /year)                              | 10.3            | 9.3         | 8.4<br>▼                    |
| Decrease waste-intensity rates at non-acute care owned and operated sites<br>(kg/m <sup>2</sup> /year)                                       | 13.2            | 11.9        | 10.7<br>▼                   |

Want to see the trends? Go to the [Materials graphs](#) in Appendix B.

## How we will reach our targets

- A shift away from recycling alone and toward overall waste reduction, including choosing reusables over disposables and exploring ways to share or donate usable items to prevent them from going into landfill, is required. Collaboration and close partnership with clinical and procurement staff will be key ingredients in this journey.

- On track to meet 2030 target
- ▼ Minimal or slow progress towards 2030 target
- Behind schedule to meet 2030 target, and requires attention

- \* Does not apply to leased buildings because waste management is the responsibility of the property manager and out of the hands of VCH.
- \*\* In 2022, recycling bins were returned to patient care areas, but recycling diversion rates have not yet reached pre-2020 service levels.
- † Waste diversion refers to waste going to recycling or compost instead of landfill.
- § Waste intensity refers to how much total waste (landfill, recycling and compost) is generated compared to the size of a facility, and helps to measure overall waste reduction at a site.



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# Transportation

Goal: Increase access to and use of transportation modes that reduce negative environmental impacts and benefit human health and wellness.

| Key Performance Indicator (Metric)   | 2022 Results | 2025 Target | 2030 Target<br>& Traffic Light   |
|--|--------------|-------------|--|
| Increase proportion of staff commuting by active transportation modes such as cycling, walking and rolling * (as reported in the GreenCare survey;  annual average)   | 20%          | 25%         | 30%<br> |
| Increase proportion of staff commuting by clean transportation modes such as hybrid and electric single occupancy vehicles, public transit, carshare, carpool and hospital shuttle (as reported in the GreenCare survey;  annual average) | 31%          | 40%         | 45%<br> |


Want to see the trends? Go to the [Transportation graphs](#) in Appendix B.


Access to sustainable commuting is shaped by the municipal and regional transportation infrastructure between home and work locations.


## How we will reach our targets

Continuing to work collaboratively across the health system with internal and external partners to strategically develop and prioritize efforts will:

- Increase electric vehicle (EV) and cycling (including scooters, e-bikes, etc.) infrastructure (including charging stations, safe storage for bicycles and gear, and showers and change rooms)
- Facilitate carpooling and promote public transit
- Engage and empower staff to choose clean or active transportation to commute and while working

 On track to meet 2030 target

 Minimal or slow progress towards 2030 target

 Behind schedule to meet 2030 target, and requires attention

\* e.g. wheelchair, seated electric scooter

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# Water

Goal: Minimize water consumption to reduce demand on natural resources and impact on our living environments.

| Key Performance Indicator (Metric)   | 2022 Results | 2025 Target | 2030 Target & Traffic Light |
|--|--------------|-------------|-----------------------------|
| Reduce building water (use) performance intensity* (m³/m²/year) from the 2010 baseline | 21.7%        | 25%         | 35%<br>▼                    |

Want to see the trends? Go to the [Water graphs](#) in Appendix B.

Water supports many clinical and non-clinical activities, including heating and cooling of our facilities.

## How we will reach our targets

- Working collaboratively across health-system departments to study baseline water consumption and water scarcity risks across VCH facilities will support strategy to prioritize water management planning efforts and allocation of resources.

■

 On track to meet 2030 target

▼

 Minimal or slow progress towards 2030 target

●

 Behind schedule to meet 2030 target, and requires attention

\* The total of all indoor water metres in volume divided by the building metres squared.



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# 4.0 Our Actions: Finding Solutions Together





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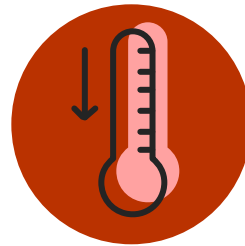
# 4.1 Focus Areas

The Energy and Environmental Sustainability (EES) team works to drive change across the health system, and has categorized efforts to advance environmentally sustainable and climate resilient health care into seven Focus Areas. The selection of actions, achievements and stories in each Focus Area represents the work of the EES team, as well as collective efforts. The EES team cannot do this work alone, and works in collaboration and partnership with teams, departments, and health-care staff and medical staff. For a full list of partners, see [Appendix A](#).

In working together to find solutions that restore and regenerate planetary health, it is important to note that leadership and innovation are essential elements for meaningful transformation of the health-care system, particularly in driving engagement, education and relationship-building. As we all move along our low-carbon, climate resilience and environmental sustainability journey, efforts made as part of the Leadership and Innovation Focus Area will intersect with and impact all other Focus Areas.



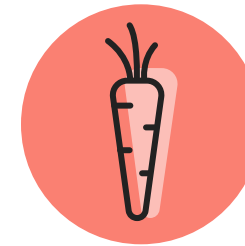
**Leadership and Innovation**



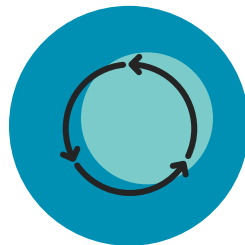
**Climate Change**



**Energy and Carbon**



**Food**



**Materials**



**Transportation**



**Water**

Just like the connections between human and environmental health, these Focus Areas are interrelated in that efforts and progress made in one will impact the others.

Want to read stories or find information and resources related to these Focus Areas? Visit [here](#).



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# 1. Leadership and Innovation

**Our goal:** Collaboratively foster a culture of transformative leadership and innovation for environmental sustainability in health care.

LEARN MORE

## Snapshot in numbers

**183**

Green+Leaders from over 50 different facilities have joined since 2009

**8**

Green+Leader orientation sessions

**7**

virtual coffee conversations for Green+Leaders

**7**

GreenCare Network Lunch and Learn events

## Select 2022 actions and achievements

- ▶ 18 new VCH staff registered for the [Green+Leaders community](#)
- ▶ A new Vancouver Acute/Vancouver Community Planetary Health Committee for medical staff, co-founded by Dr. Andrea MacNeill and Green+Leader Dr. Rashmi Chadha
- ▶ Partnered with [CASCADES](#) on innovative work in the Canadian health-care context to measure scope 3 greenhouse gas emissions; these are emissions associated with waste generation, purchased goods and services, business travel, and more
- ▶ Committed additional human resources and created new teams that increased staff capacity for planetary health action, including dedicated system level coordination
- ▶ Raised awareness about planetary health, including through presentations to the VCH Board, medical staff, and Facilities Management capital project managers and planners
- ▶ Supported implementation of the B.C. Ministry of Health's direction on Carbon Neutral and Climate Resilient Health Care Facilities and Environmental Sustainability and LEED Gold Certification in the Health Capital Policy Manual as part of business project delivery cycle

**The 2022 [Green+Leaders Annual Report](#) recognizes all staff and medical staff working to decrease the environmental footprint of their workplaces and health systems.**

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Emily Doyle and her daughter Hazel

## OUR STORY

### Serve to conserve

With climate change and sustainability coming up more and more in Public Health Nurse Emily Doyle's work and in conversations with clients on the Sunshine Coast, she's taking action, from supporting families to adapt to the weather-related impacts of climate change to implementing sustainability practices in her office environment.

[Read more ▶](#)



Gibsons Health Unit in Gibsons, B.C.  
[Photo credit](#)

“

**Definitely join the Green+Leaders. It's very inspirational to network with other people doing this work. ... I think it's important to have hope when it comes to climate action.**

– Emily Doyle, Public Health Nurse, Gibsons Health Unit



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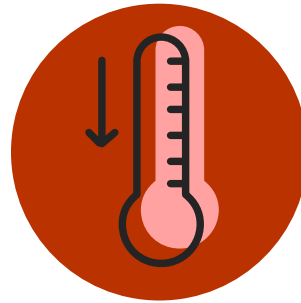
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## 2. Climate Change

**Our goal:** Move toward a climate resilient health system in facility design and operations.

LEARN MORE

### Snapshot in numbers

3

facility exposure screens to identify  
potential climate hazards

3

climate risk assessments to prioritize  
climate impacts

***The Climate Change  
Accountability Act requires  
public sector organizations to  
“manage the risks to the public  
sector organization that could  
reasonably be expected to result  
from a changing climate”.***

### Select 2022 actions and achievements

- Embedded climate risk and resilience into all major capital projects
- Utilized future climate projections in a regional cooling strategy, a first for the B.C. health organizations
- Collaborated on the federally funded [HealthADAPT project](#) (2019-2022), and worked with partners to develop a [Climate Change & Health Adaptation Framework](#) outlining current actions and identifying new priorities
- Engaged in the B.C. Ministry of Health's From Risk to Resilience initiative, with a specific focus on the extreme heat, wildfire and flood events of 2021
- Continued seasonal readiness planning activities, ensuring a coordinated approach to communication and action before, during and after extreme weather events
- Established a program and created [resources](#) to support wellness checks for individuals who are more vulnerable to the impacts of extreme heat events
- Created the Healthy Environments & Climate Change team within Public Health, bolstering staff capacity for climate risk and resilience activities
- Delivered a Green+Leaders [Lunch and Learn event](#) to raise awareness about the potential health implications of climate change on long-term care facility occupants, along with [a corresponding publication](#)

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Extreme heat cooling centre at Denman Community Centre in Vancouver, B.C.

## What do VCH staff and medical staff have to say about the impact of climate change hazards on their work?

Based on GreenCare Survey<sup>6</sup> results, 1,644 responses indicating that job duties were impacted by extreme weather events.

The most common effects on job duties were:

- Physically unable to get to work
- Impacts on physical or mental well-being for staff and their families
- Patient surges from extreme weather events
- Supply chain disruptions

## OUR STORY

### Disaster preparedness in store

VCH and Health Emergency Management British Columbia (HEMBC) are working together to mitigate, prepare for, respond to and recover from the impacts of emergency events, and ensure the continuity of health services. One way this is being done is through the Emergency Shipping Container program.

[Read more ►](#)



Maddy Laberge filling the emergency shipping container

“As the impacts of climate change become more pronounced, initiatives such as the Emergency Shipping Container [program] become increasingly essential to mitigate risks to patient safety and well-being.

– Maddy Laberge, Manager, HEMBC



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## 3. Energy and Carbon

**Our goal:** Reduce our carbon footprint by increasing energy efficiency and reducing reliance on fossil fuels.

LEARN MORE

### Snapshot in numbers

**\$1.2 million**

invested in energy efficiency initiatives  
from the Green Revolving Fund

**\$3.8 million**

invested in carbon reduction projects  
from Carbon Neutral Capital Program funding

**\$1.1 million**

of carbon offsets purchased to become  
carbon neutral

**\$415,000**

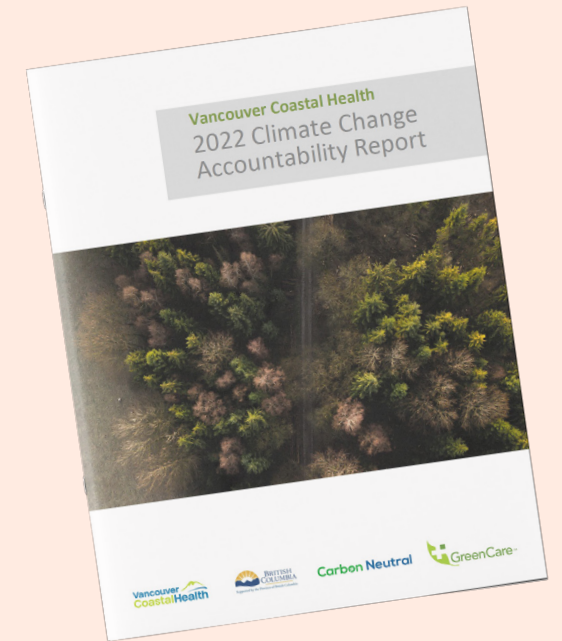
in utility incentives received from BC Hydro  
and FortisBC in fiscal year 2022/2023

**18**

initiatives, including energy studies, cooling  
strategies and electrical capacity studies, which  
will result in a 1,260,000 kilowatt-hour reduction  
in electricity (the amount of energy used to power  
110 homes for one year<sup>A</sup>)

**1,265 tCO<sub>2</sub>e**

of projected carbon emissions reduction,  
the equivalent of the emissions from 388  
passenger vehicles<sup>A</sup>



### The VCH Climate Change Accountability Report

Each year, along with all public sector organizations, B.C.'s health organizations submit a Climate Change Accountability Report (CCAR) to the Climate Action Secretariat of the provincial government. This is a mandated reporting of greenhouse gas (GHG) emissions and other data, and current and planned actions to reduce GHG emissions.

In 2022, VCH had a 29.3% decrease in GHG-emissions intensity from our building portfolio compared to the base reporting year 2007.

[Download the VCH Climate Change  
Accountability Report](#)

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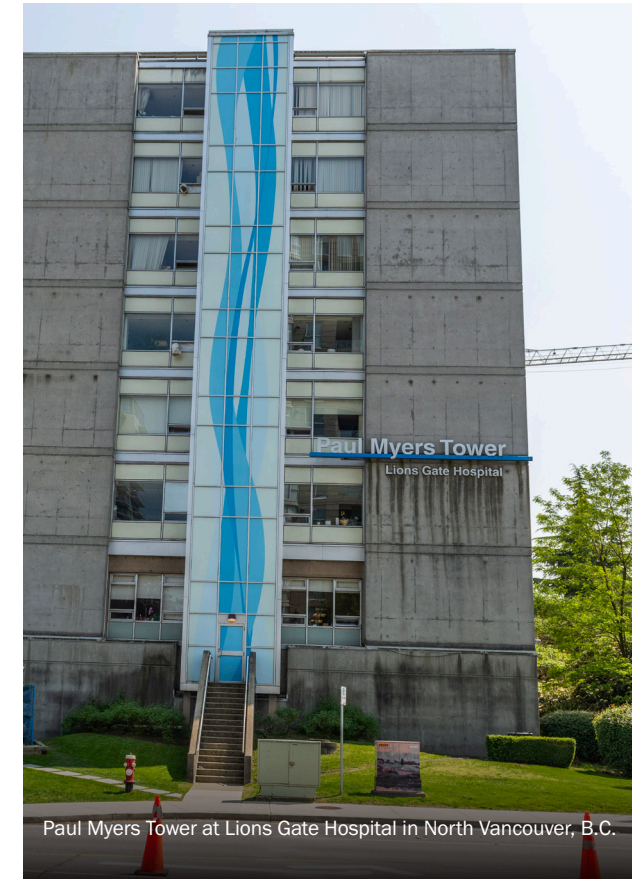
## Select 2022 actions and achievements

- Initiated three capital infrastructure emission reduction projects estimated to reduce our carbon emissions by more than 1,265 tCO<sub>2</sub>e per year. The projects are as follows:
  - The G.F. Strong Rehabilitation Centre steam-to-electric dishwasher replacement, which reduced emissions by 115 tonnes of CO<sub>2</sub>e per year
  - The Lions Gate Hospital (LGH) Chiller-1 replacement, which reduced emissions by 620 tonnes of CO<sub>2</sub>e per year
  - The Vancouver General Hospital (VGH) absorption chiller replacement, which reduced emissions by 530 tonnes of CO<sub>2</sub>e per year
- Eliminated 1,411 tonnes of CO<sub>2</sub>e through air exhaust heat recovery in the VGH Operating Room Renewal Phase 2 Project
- Completed Net Zero Carbon Emissions Assessments in two long-term care facility business plans, with the potential for a more than 60% reduction in emissions
- Developed a Vancouver Acute Cooling Strategy that identified future cooling needs and decarbonization opportunities through waste heat recovery and cooling reclaim
- Studied ways to reduce natural gas and reduce emissions at VGH through steam to hot water conversion, as well as ways to enable future electrical loads and low-carbon electrification projects
- Worked towards full electrification on the Richmond Hospital Redevelopment project, with potential for an over 80% emission reduction compared to a LEED Gold-certified all natural gas

“

**The new tower will be technologically advanced, replace aging infrastructure and incorporate innovations that will enable LGH to deliver the highest quality of care possible ... It will also be built sustainably, so the region will continue to benefit from this significant investment for years to come.**

– Jill Brimacombe, Senior Project Director of the LGH Redevelopment Project



Paul Myers Tower at Lions Gate Hospital in North Vancouver, B.C.

## SPECIAL STORY

### Breaking barriers

In 2022, VCH successfully petitioned the City of North Vancouver to pass a bylaw amendment to allow the implementation of an active heat recovery chiller system at the Paul Myers Tower at the Lions Gate Hospital campus. This new heating, ventilation and cooling (HVAC) system will enable a large amount of heat to be recovered, and will offset traditional fossil fuel heating.

[Read more ►](#)



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## SPECIAL STORY

### Vancouver General Hospital anesthesiologists innovate for a healthier planet

The Vancouver Coastal Health (VCH) Department of Anesthesia is leading the way with its environmental initiatives. After receiving funding from the Vancouver Physician Staff Association through their Small Steps, Big Ideas Grant in 2022, a committee of sustainability-minded clinicians was formed to look at opportunities to reduce their environmental footprint without compromising patient care.

So far, the committee has successfully completed three projects. Firstly, they eliminated the use of the anesthetic gas desflurane at Vancouver General Hospital (VGH). Desflurane has a global warming impact potential 2,500 times greater than carbon dioxide and up to 26 times worse than other inhaled anesthetic gases. For context, using one 250-millilitre bottle of desflurane is equivalent to burning 440 kilograms of coal<sup>H</sup>. In 2017, a VGH surgeon, Dr. Andrea J. MacNeill, demonstrated that the use of desflurane at the hospital was a greater contributor to global warming than all the operating room energy requirements and consumable materials combined! VGH's anesthesia team acted quickly and stopped using desflurane.

The committee's second project looked to reduce waste of nitrous oxide, also known as "laughing gas". Although it was rarely used for anesthesia and pain control, 95 per cent of the gas supply was lost due to leaks in the piped network before it reached patients. To address this, the committee replaced the existing network at VGH with a small local supply that is used only when needed. This move was widely supported and has an impact equivalent to removing 57 cars from the road each year.<sup>I</sup>

Their third project took aim at reducing plastic waste that is unfortunately part and parcel of modern surgical care. The committee looked at the plastic circuits connecting the anesthesia breathing machine to the patient. Each circuit was 200 grams of plastic tubing that went into the waste bin at the end of each day. By sourcing antimicrobial circuits that are safely reusable for one week, the committee reduced this source of plastic waste fivefold!

Dr. Himat Vaghadia was one of the committee members who worked on the desflurane and circuits project. "We want to be good stewards of the environment, but we also have to be mindful of the cost of health care. These projects have allowed us to make a positive impact on both," he says.

These projects can be replicated in other facilities and health organizations looking to reduce their environmental impact. Dr. Stewart Brown, who worked on the nitrous oxide project, notes, "I've not met any health-care workers who aren't frustrated by the environmental impact our work causes. Where we can find ways to improve this, the support is incredible."

The leadership by the VCH Department of Anesthesia has been remarkable, and it is hoped that other facilities and organizations will take notice of what is possible when subject matter experts combine their care for patients and planet together.



Surgical procedure using an artificial lung ventilator

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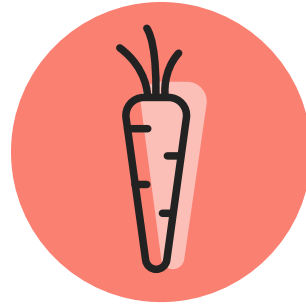
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## 4. Food

**Our goal:** Develop plant-based, local, culturally relevant and equitable food service to advance food as medicine.

LEARN MORE

### Snapshot in numbers

**1.3 million**

hospital in-patients served/year

**3.8 million**

patient meals served/year

**676,580 kg**

of organic waste generated from  
cafeterias/kitchens

**26%**

of protein on regular patient menu  
is plant-based

**29%**

of food produced or processed within B.C.

### Select 2022 actions and achievements

- Awarded a \$5,000 Nourish Innovation Scaling Grant to develop a roadmap for sustainable infrastructure and operations
- Completed a research study at Vancouver General Hospital (VGH) to identify strengths and challenges of the current food services model in relation to surgical patients
- Delivered two GreenCare Lunch and Learn events, featuring food projects by Eileen Wong and Elaine Chu
- Carried out cross-departmental planning sessions focused on increasing sustainable and traditional food options for staff purchase and on in-patient food trays, as well as staff education
- Engaged Capital Project, Food Services and clinical staff to identify infrastructure requirements for sustainable food in health-care new construction



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A patient using the garden at Vancouver General Hospital

## OUR STORY

### Sowing seeds for mental and planetary health

For people with mental health and addiction issues, gardening can be meaningful therapy. Our therapeutic garden and Horticultural Therapy program have been serving clients across VCH and Providence Health Care for the past three years, helping to reduce anxiety and promote positive thinking.

[Read more ►](#)

The 2022 GreenCare Survey<sup>G</sup>  
results show that:

**65%**

of 1,437 staff surveyed are “extremely willing” or “very willing” to try sustainable plant-based food at health-care cafeterias.

“  
I see how the garden and  
the garden program lifts up  
and empowers our patients  
and staff.

– Leo Gosselin, Vocational Rehabilitation Coordinator,  
VCH Adult Tertiary Mental Health and Substance  
Use Program



Kitchen staff preparing patient food

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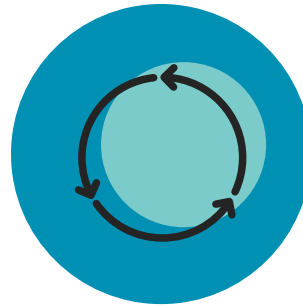
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## 5. Materials

**Our goal:** Choose materials and products that contribute to human and environmental health while avoiding waste and unnecessary chemicals.

LEARN MORE

### Snapshot in numbers

**1,113**

staff took the [Waste Management module](#)  
on the Learning Hub.

**5,645**

tonnes of non-hazardous waste were  
generated, equivalent to 1,129 elephants<sup>↓</sup>.

### Select 2022 actions and achievements

- Achieved or exceeded 50% waste diversion in 2022 for six facilities: Berkley Care Centre, Dogwood Lodge, G.F. Strong Rehabilitation Centre, Margaret Fulton, Pemberton Health Centre and Whistler Health Care Centre
- Supported a request for proposal for a provincial personal protective equipment recycling program that will provide VCH facilities an opportunity to reduce the amount of waste sent to landfill
- Advanced efforts towards environmentally preferable purchasing by:
  - Including environmental questions and criteria in Facilities Management Procurement pre-qualification of construction services
  - Incorporating environmental questions in the mobile MRI and CT scanner procurement process, resulting in a toolkit for action in the Radiological Society of North America's Journal: Radiology ([published 2023](#))
  - Creating and sharing a [Circular Health Care Opportunities Guide](#) intended to provide tangible actions for VCH to avoid and reduce waste
- Through a co-funded quality improvement project, assessed the in-hospital patient warming options to identify the option with the best environmental and cost performance



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Child using hand sanitizer

## OUR STORY

### Sourcing sustainable skin care

The Energy and Environmental Sustainability team has been identifying the cleanest skin care for B.C. health-care patients since 2019, as part of a research initiative in collaboration with the Provincial Professional Practice Stream Wound Ostomy Continence's British Columbia Provincial Nursing Skin and Wound Committee.

[Read more ►](#)



Hospital waste at Urban Impact recycling depot

“

**It is likely the only skin ingredient inventory of its kind in Canada and has empowered the PHSA Supply Chain Skin & Wound Value Analysis Team (SWVAT) to make smart purchasing choices.**

– Shannon Handfield, Provincial Professional Practice Wound Ostomy Continence, Vancouver Coastal Health

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## 6. Transportation

**Our goal:** Increase access to and use of transportation modes that reduce negative environmental impacts and benefit human health and wellness.

LEARN MORE

### Snapshot in numbers

**39**

Level 2 electric vehicle (EV) charging stations  
and 3 Level 1 EV charging stations\*

**40,407**

shuttle rides provided to staff and medical  
staff in 2022

**1,271**

staff on average per month participating in  
the VCH Transit Incentive Program

**3**

owned sites with secure bicycle storage  
and showering facilities

**241**

members of the VGH Cycling Centre

### Select 2022 actions and achievements

- Regional EV charger implementation via a Natural Resources Canada Grant will result in the installation of 16 Level 2 EV chargers and eight Level 3 EV chargers across the Vancouver Coastal Health region,\*\* and over 1,660 CO<sub>2</sub>e per year of transportation emissions avoided through this project, the equivalent of 3,751 barrels of oil<sup>A</sup>
- Completed a cycling assessment at Vancouver General Hospital and received a Bike Friendly Building Award from Hub Cycling
- Hosted GoByBike Celebration Stations at four acute care sites: Lions Gate Hospital, Richmond Hospital, UBC Hospital and Vancouver General Hospital, during which five VCH staff won e-bikes in the GoByBike prize draw
- Formed a regional EV steering committee in order to support regional collaboration for providing electric vehicle charging

\* Level 2 chargers are 240-volt outlets that provide a full charge to an electric vehicle in 6-14 hours. Level 1 chargers are standard 120 volt outlets that provide a full charge to an electric vehicle in 12-20 hours. ([source](#))

\*\* Sites to receive EV chargers are Vancouver General (including the G.F. Strong Rehabilitation Centre); Richmond Hospital; Lions Gate Hospital; and Squamish, Sechelt, and qathet General Hospitals



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Members of Vancouver Coastal Health leadership, Darlene Mackinnon, Fernando Pica and Stacy Sprague, visited the e-bike giveaway at the 2022 Lions Gate Hospital Bike Week Celebration Station in North Vancouver, B.C.

## OUR STORY

### Driving VCH's first electric mile

A team with Richmond Child and Youth Mental Health and Substance Use Services has helped VCH acquire its first electric fleet vehicle, which is used by the team to support clients in the community.

[Read more ►](#)



VCH staff pose with their first electric fleet vehicle  
 Photo credit: Molly Butterworth

## What do VCH staff and medical staff have to say about EVs?

Based on GreenCare Survey <sup>6</sup> results:

**13%**

of 1,140 staff surveyed currently own an EV.

**40%**

of 1,376 staff surveyed plan to own an EV in the next five years.

“When staff have outreach appointments, one of the biggest concerns is the environmental impact of driving to different locations within Richmond. Having an electric vehicle alleviates that concern.”

– Gregg Loo, Operations Manager, Richmond Child and Youth Mental Health and Substance Use Services

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## 7. Water

**Our goal:** Minimize water consumption to reduce demand on natural resources and impact on our living environments.

LEARN MORE

### Snapshot in numbers

3

studies completed for elimination of inefficient cooling refrigeration units

5

energy-saving projects completed, which contribute to water savings

13

LEED water efficiency points embedded in long-term care facility business plans incorporating low-flow plumbing fixtures and air-source chillers

4

acute sites working towards a five-year Pollution Prevention Plan to improve and reduce wastewater effluent, in compliance with Metro Vancouver bylaws

### Select 2022 actions and achievements

- Implemented heat recovery projects at Sechelt Hospital and Vancouver General Hospital (VGH), which will reduce the cooling tower water and chemical consumption
- Added more water meters and linked them to building automation systems to better understand and track water flows at VGH
- Included LEED Building Design and Construction water efficiency credits in two long-term care and one acute-care facility business plans
- In a partnership between the EES, FMO and Infrastructure and Risk teams, audited inefficient cooling refrigeration units at UBC Hospital, VGH and G.F. Strong Rehabilitation Centre, which will enable future water reduction projects
- Investigated and promoted the use of low-flow devices, where applicable, for existing facilities and new construction projects
- The VGH FMO team actively addressed steam condensate leaks that cause system water losses



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Lions Gate Hospital water-saving toilet valve

## OUR STORY

### Flush with success

Lions Gate Hospital will save almost three million litres of water annually thanks to new toilet valves. The new valves will save four litres per flush, and with approximately 200 toilets in the hospital, that reduction in “bowl volume” results in major water and cost savings — not to mention the positive impact it will have on the environment.

[Read more ►](#)



Lions Gate Hospital in North Vancouver, B.C.

“  
**I see the water [use] around here and where  
it should be: in the rivers, in the parks.**

– Thomas Elstone, Mechanical Supervisor, Lions Gate Hospital

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# 5.0 Writing the Story We Want, Now and in the Future

Thank you for your  
ongoing support.

Given our climate reality and the urgency of restoring planetary health, it's clear that environmental sustainability is everyone's story. If we are to continue to offer staff and medical staff, volunteers and patients the very best quality of life and care possible, and support the health and well-being of our families and communities, we must all take responsibility for the environment.

As the many achievements at VCH demonstrate, much is already being done by so many. But as this report also shows, much more remains to be done. VCH invites the whole health-care community to take actions that will restore and regenerate the interdependent health of people, place and planet — now and for future generations.

#### MAKE A DIFFERENCE.

**Learn more about climate change and sustainability in B.C. health care:**

Subscribe to the [GreenCare Network](#) for updates and newsletters, or visit [bcgreencare.ca](#) for more information.

**Get involved in sustainability activities in your health organization:**

Join the [Green+Leaders](#) community and make a difference in your workplace.

**Transform our processes and health system away from business as usual:**

Access [toolkits](#) and [resources](#) to engage your team in discussion and action toward environmentally sustainable practices for your department.

**Inspire:**

Share your environmental sustainability story [here](#).



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# Appendix A: Our Partners

## B

BC Emergency Health Services

BC Housing

BC Ministry of Energy, Mines and Low  
Carbon Innovation

BC Ministry of Environment and Climate  
Change Strategy

BC Ministry of Health

BC Ministry of Health Capital Services Branch

BC Hydro

BC Patient Safety & Quality Council

Business Initiatives Support Services

## C

Canadian Coalition for Green Health Care

CASCADES Canada

Clinical and non-clinical direct-care staff

Clinical dietitians

Communications team

## E

Environment and Climate Change Canada

Environmental Vendor Services

## F

Facilities Maintenance & Operations

Facilities Management Procurement

Finance

First Nations Health Authority

Food Services

FortisBC

## H

Health Canada

Health Emergency Management BC

## I

Indigenous Health

Infection Prevention and Control

Infrastructure and Risk team

Integrated Protection Services, Commuter Services

Interior Health

Island Health

## L

Local and regional governments

## N

National Research Council of Canada

Northern Health

Nourish Leadership

## P

Pacific Climate Impacts Consortium

People and Culture

PHSA Supply Chain

Population and Public Health

Projects & Planning teams

Provincial Nursing Skin and Wound Committee

## Q

Quality Improvement

## S

Simon Fraser University

Strategy and Innovation

## T

Transportation Services

## U

University of British Columbia



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# Appendix B: Our Progress





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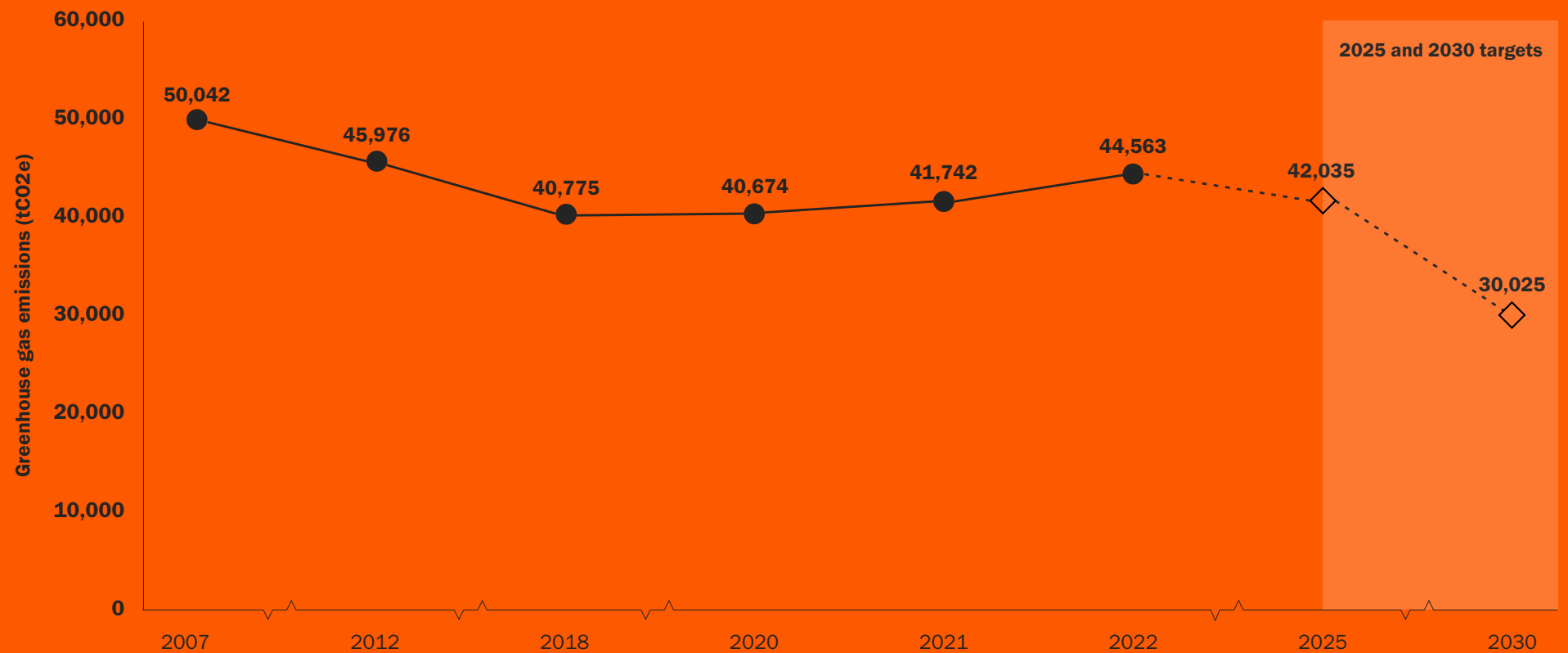
# Greenhouse Gas Emissions (In Scope)

Visit the [Energy and Environmental Sustainability \(EES\) Methodology and Context for Calculating Key Performance Indicators](#) on the GreenCare website.

GHG emissions have **decreased** by

**10.9%**

since 2007.



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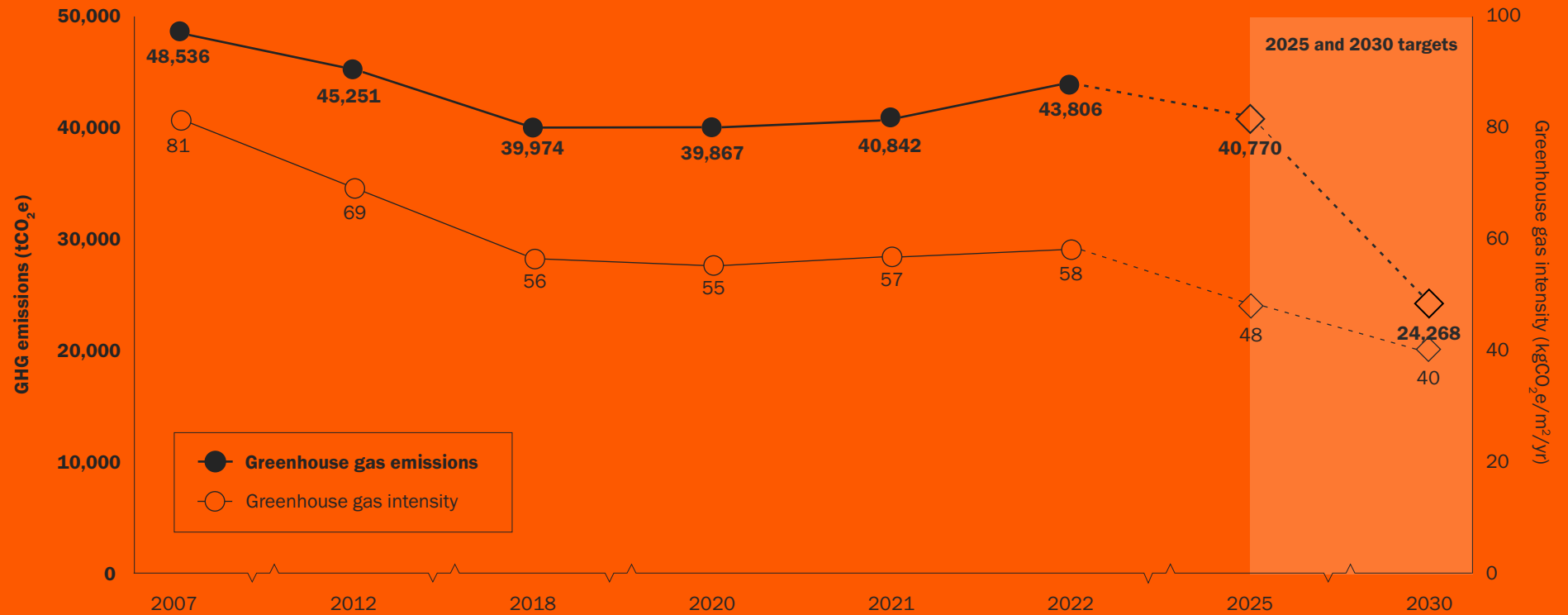
# Greenhouse Gas Emissions and Intensity (Buildings Only)

Visit the Energy and Environmental Sustainability  
(EES) Methodology and Context for Calculating Key  
Performance Indicators on the GreenCare website.

GHG emissions from buildings  
have **decreased** by

**9.7%**

since 2007, despite a **26% increase**  
in total **usable facility space**. This  
equates to a **29.3% decrease** in  
**GHG-emissions intensity**.





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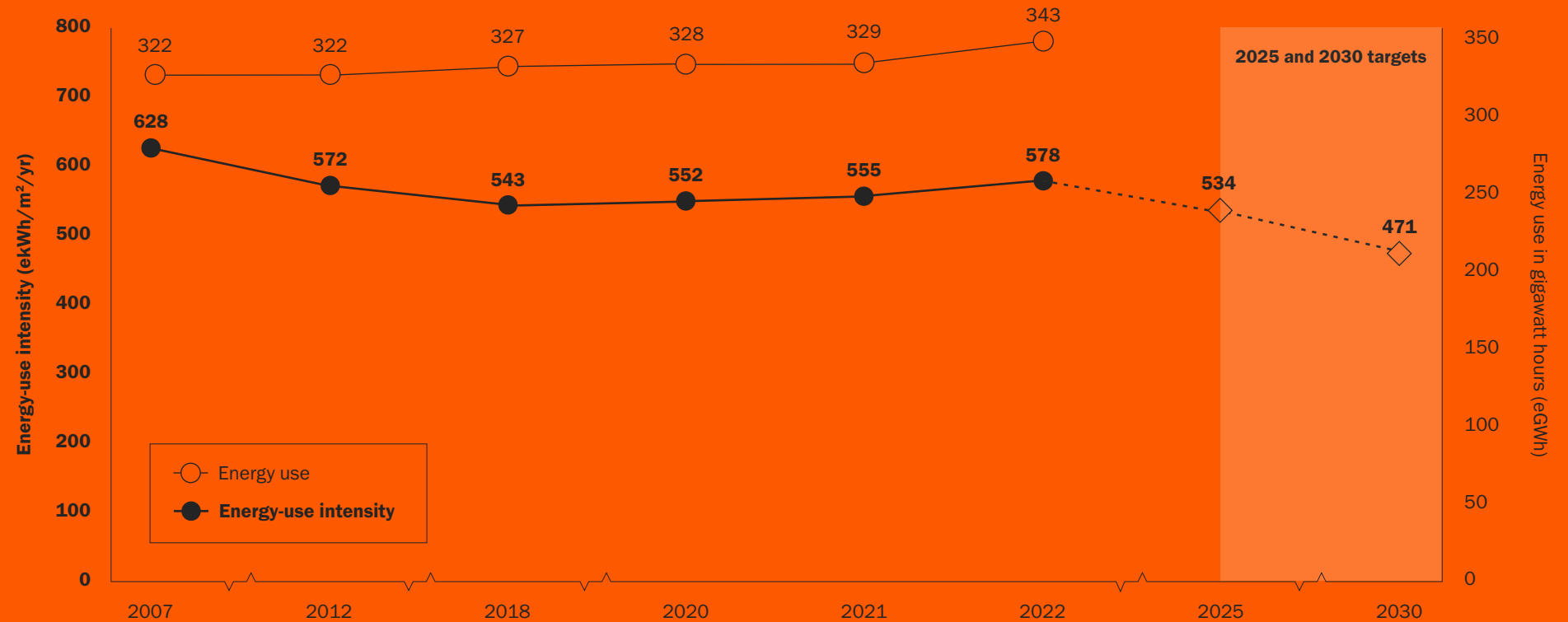
# Energy Use and Intensity

Visit the Energy and Environmental Sustainability  
(EES) Methodology and Context for Calculating Key  
Performance Indicators on the GreenCare website.

Energy-use intensity has  
**decreased** by

**8%**

since 2007, and, despite an  
**increase of 16%** in core facility  
space, our energy use **only**  
**increased by 6.5%.**



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# Waste-Diversion Rates

Visit the Energy and Environmental Sustainability  
(EES) Methodology and Context for Calculating Key  
Performance Indicators on the GreenCare website.

At **acute** care sites<sup>£</sup>, we are

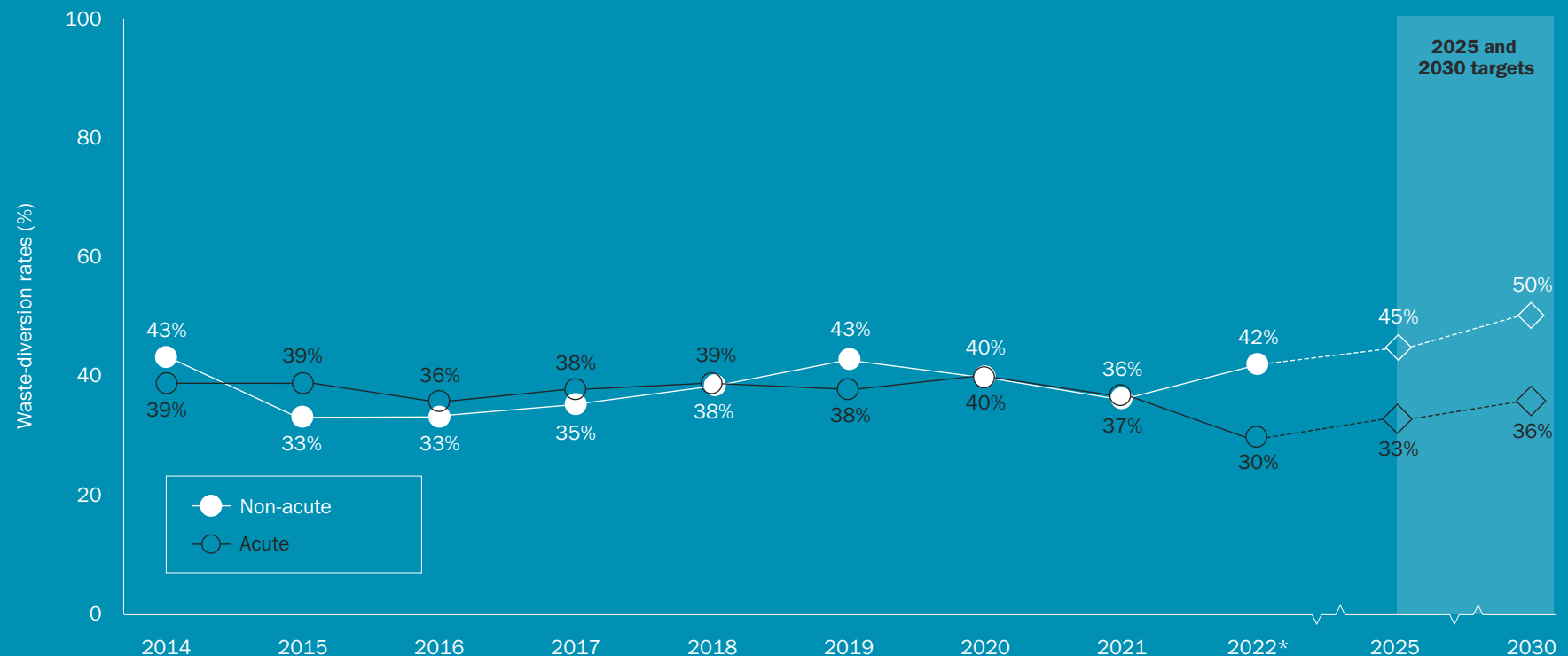
**6%**

away from our **2030 target.**

At **non-acute** sites<sup>£</sup>, we are

**8%**

away from our **2030 target.**



\* In 2022, recycling bins were returned to patient care areas, but recycling diversion rates have not yet reached pre-2020 service levels. Between 2014 and 2019,

acute care waste-diversion rates were stagnant at around 38-40%, with a drop due to COVID-19, and they have not yet recovered.



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# Waste-Intensity Rates

Visit the Energy and Environmental Sustainability  
 (EES) Methodology and Context for Calculating Key  
 Performance Indicators on the GreenCare website.

Total waste intensity has **decreased** by

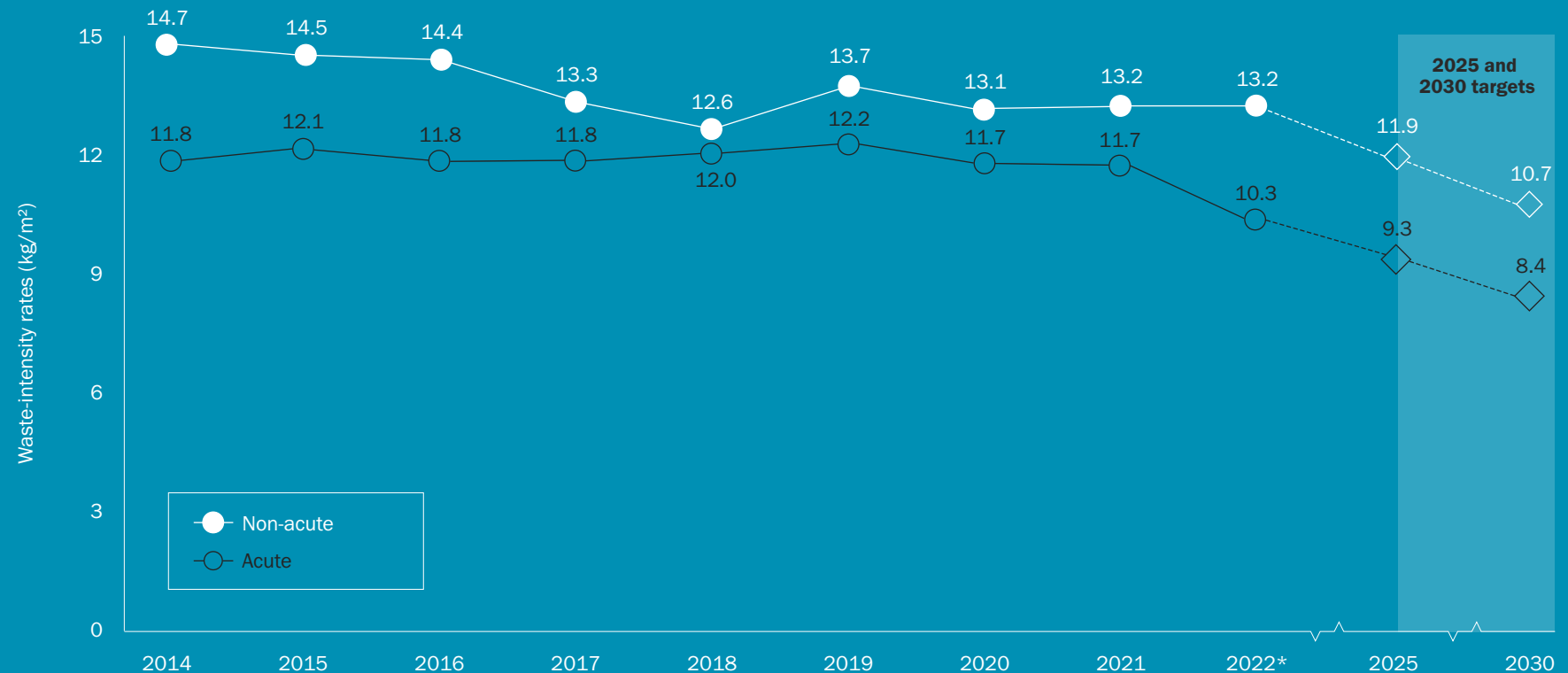
**13%**

at **acute care sites<sup>E</sup>** since data  
 collection was initiated in 2014.

Total waste intensity has **decreased** by

**10%**

at **non-acute care sites<sup>E</sup>** since data  
 collection was initiated in 2014.



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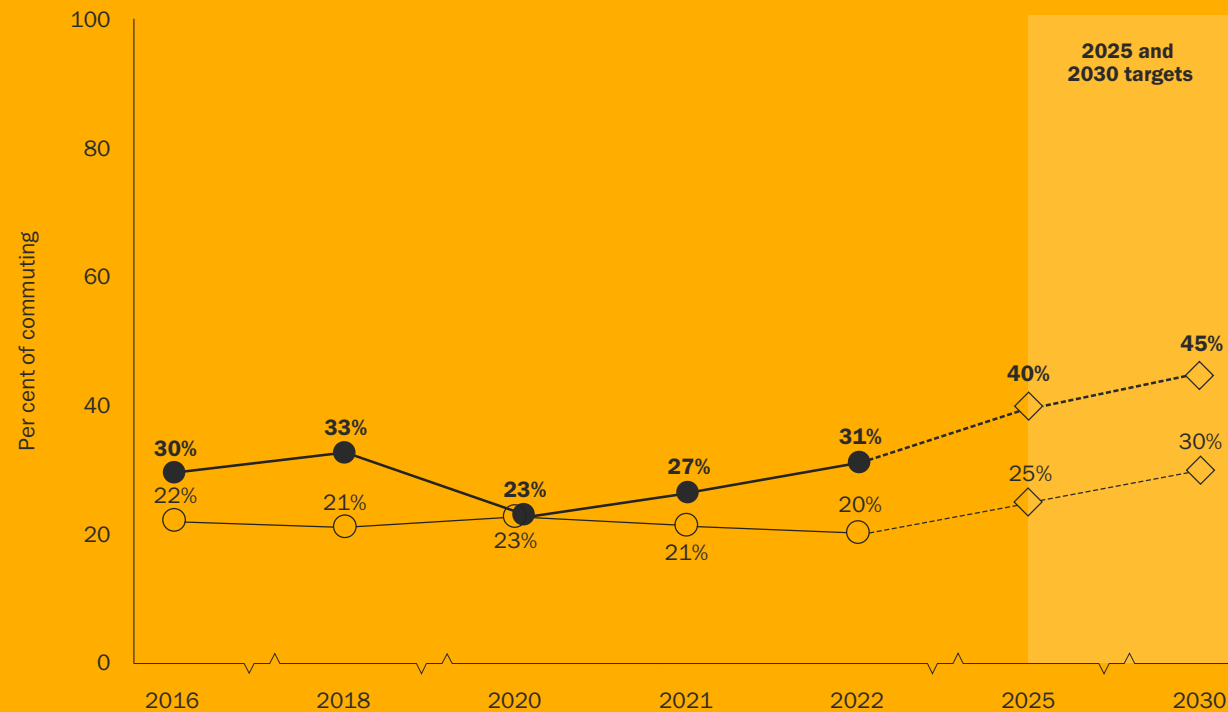
Provincial Health  
 Services Authority EPAR

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# Active and Clean Commuting

Data shown in the graph is based on health-care and medical staff self-reported commuting proportions in the annual GreenCare survey.<sup>6</sup>

[Visit the Energy and Environmental Sustainability \(EES\) Methodology and Context for Calculating Key Performance Indicators on the GreenCare website.](#)



Active commuting by VCH staff is

**10%**

away from the **2030 target**.

Clean commuting by VCH staff is

**14%**

away from the **2030 target**.

● Per cent of commuting by clean transportation\*  
 ○ Per cent of commuting by active transportation\*\*

\* Clean transportation refers to hybrid or electric single occupancy, public transit, carsharing, carpools and hospital shuttles.

\*\* Active transportation refers to bicycles (regular/non-electric, pedal-assist/electric, bike share) and walking/rolling (e.g. wheelchairs, seated electric scooters).



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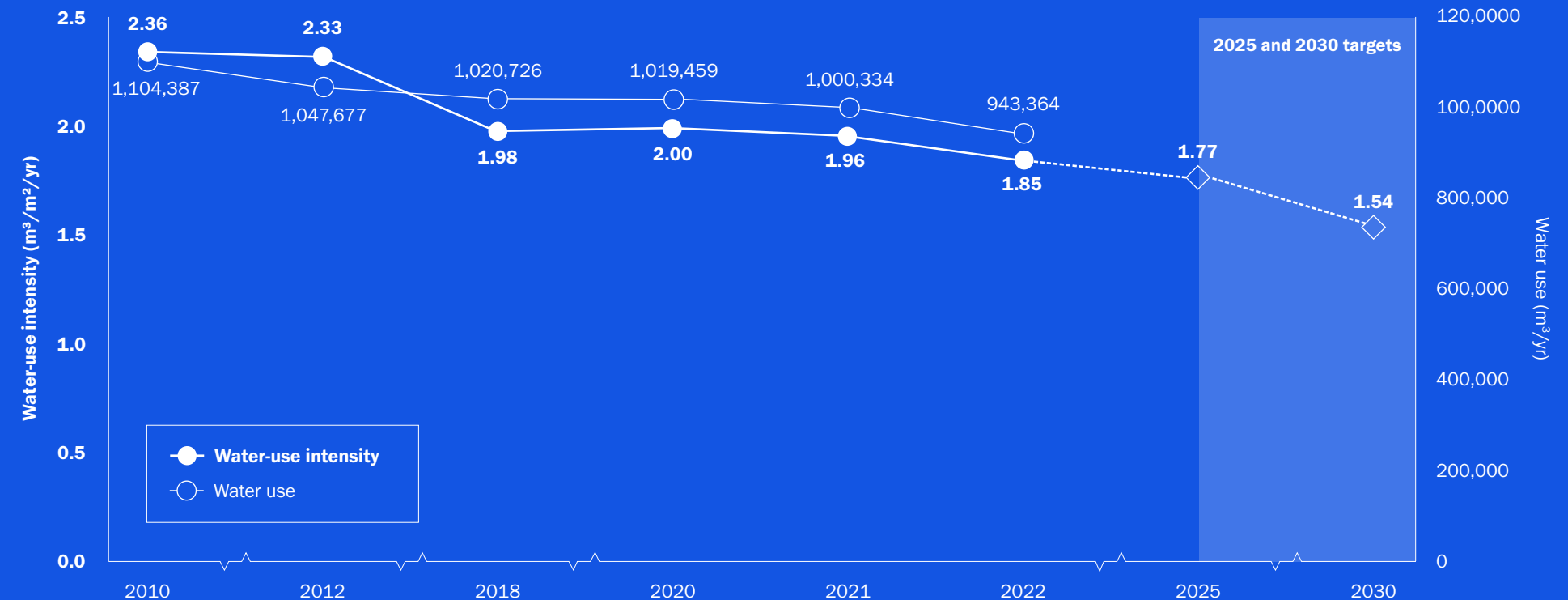
# Water Use and Intensity

Visit the Energy and Environmental Sustainability  
(EES) Methodology and Context for Calculating Key  
Performance Indicators on the GreenCare website.

Water-use intensity has  
**decreased by**

**21.7%**

since 2010, and, despite an  
**increase of 9.3%** in core facility  
space,\* actual water use has also  
**decreased by 14.6%.**



\* Water use is not metered in all areas of facility space, which explains the difference in facility space noted in the energy and carbon metrics.

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- A Natural Resources Canada - Office of Energy Efficiency - Demand Policy and Analysis Division. Greenhouse gas equivalencies calculator [Internet]. Government of Canada; 2017 [cited 2023 June 8]. Available from: <https://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/calculator/ghg-calculator.cfm#results>
- B The Planetary Health Care portfolio is a cross-VCH collaborative consisting of the Energy and Environmental Sustainability (EES) team, the Healthy Environments team within the Office of the Chief Medical Health Officer, and the Sustainable Clinical Services team, with planning leadership and coordination provided by the Transformation Office.
- C Buildings: VCH Real Estate Department
- D Full-time equivalent staff includes all designated groups reported in the Health Sector Compensation Information System (HSCIS). This includes physicians (doctors on staff), executive/excluded, and non-union and bargaining unit employees. It excludes affiliate employers and BC Emergency Health Services (BCEHS) employees. (Source: Health Employers Association of BC)
- E VCH acute care sites are:
  - Lions Gate Hospital
  - qathet General Hospital (missing 2022 data, not included in 2022 performance)
  - Richmond Hospital
  - Sechelt Hospital (missing 2022 data, not included in 2022 performance)
- F VCH non-acute sites are:
  - Squamish General Hospital
  - UBC Hospital
  - Vancouver General Hospital
- G The GreenCare survey is an annual survey (biennial prior to 2020) for all staff working within Fraser Health, Providence Health Care, Provincial Health Services Authority and Vancouver Coastal Health. The survey collects information on staff perspectives, familiarity with, and actions related to planetary health, climate change and environmental sustainability efforts in areas such as transportation and food. The data is used to measure trends and progress, and develop programs that will meet staff needs.
- H Greener NHS» Putting anaesthetic-generated emissions to bed [Internet]. www.england.nhs.uk. Available from: <https://www.england.nhs.uk/greenernhs/whats-already-happening/putting-anaesthetic-generated-emissions-to-bed/>
- I Two sources were used to calculate this: <https://www.epa.gov/greenvehicles/tailpipe-greenhouse-gas-emissions-typical-passenger-vehicle> and [https://natural-resources.canada.ca/sites/www.nrcan.gc.ca/files/oeef/pdf/transportation/fuel-efficient-technologies/autosmart\\_factsheet\\_6\\_e.pdf](https://natural-resources.canada.ca/sites/www.nrcan.gc.ca/files/oeef/pdf/transportation/fuel-efficient-technologies/autosmart_factsheet_6_e.pdf)
- J Based on the assumption that an adult elephant weighs 5,000 kg.

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