



Environmental Performance
Accountability Report

Environmental sustainability is everyone's story.



**Provincial Health
Services Authority**
Province-wide solutions.
Better health.

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Our Focus Areas



**Active & Clean
Transportation**



**Climate Risk &
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Smart Energy & Water



Workplace Leadership



Zero Waste & Toxicity

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This is an interactive (clickable) report. You can easily navigate and link between sections and to areas that most interest you.

To view a report that is specific to one of the Lower Mainland health organizations, click on the name of the organization above. Each report details our GreenCare Focus Areas and programs, and the progress and achievements of the respective health authority.

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Welcome to the ninth annual Environmental Performance Accountability Report (EPAR). This report acknowledges the hard work, commitment, progress and success of everyone at Provincial Health Services Authority (PHSA) in their continuing efforts to achieve environmental sustainability in all facets of our health system.

Given our climate reality, we all know that sustainable, low-carbon and climate-resilient health care is integral to the interdependent health of each of us, our communities and our planet. And, given the speed at which people, communities and health organizations responded to the pandemic in 2020, we know that through collaboration we can change rapidly and accomplish so much.

Over the past year, our health-care providers worked under tremendous pressure to transform our system in response to COVID-19. At the same time, and despite everything that was thrown at them, our staff and leadership continued to make

decisions that, by supporting the health of our environment, are essential to advancing human health.

Our **Green+Leaders** continued to push for and achieve environmental sustainability innovations and change. Our Capital Project and Facilities Maintenance teams prioritized and executed the design and construction of healthy and green health-care facilities and infrastructure, along with operational changes that result in tangible environmental and health outcomes. Departments across our health organizations challenged themselves to find ways to access resources and co-develop projects that stand as models of sustainability. And individuals at all levels of responsibility made decisions to expand active and clean transportation; improve energy and water-use efficiency; build greater health system climate resilience; support and strengthen opportunities for staff engagement; and develop new strategies to further reduce waste.

All of this dedicated work has marked a clear path for health care that will not simply help us to reduce the harm our activities cause to our environment and health, but allow us to build a truly healing system.

As you read this report, I encourage you to take pride in the collective efforts of everyone at PHSA, consider the vital importance of continued sustainability actions, and centre your decisions on PHSA's mission: to achieve results through caring, leading and learning together.



Mauricio A. Acosta

Executive Director, Facilities Management
and Business Performance (VCH)

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This 2020 Environmental Performance Accountability Report represents the collective work of many individuals whose impact extends beyond their immediate workplace, across the health system, and into our communities. They have made environmental sustainability, low-carbon and climate-resilient care a priority while continuing to advance health and wellness for every person.

As a regional collaborative service, the Energy and Environmental Sustainability (EES) team has had the honour of partnering with the staff of the four Lower Mainland health organizations — [Fraser Health](#), [Providence Health Care](#), [Provincial Health Services Authority](#), and [Vancouver Coastal Health](#) — providing expertise and resources, and facilitating programs that promote and support healthy and healing design, construction and operations.

2020 was a particularly challenging year for health care due to COVID-19, coupled with the difficulties created by pandemic response measures. Despite this, PHSA continued to take meaningful action in respect to each of the five, interdependent GreenCare Focus Areas — Active & Clean Transportation, Climate Risk & Resilience, Smart Energy & Water, Workplace Leadership, and Zero Waste & Toxicity — which provide a framework for addressing climate change and the environmental and health impacts of delivering patient care.

PHSA's environmental sustainability story is always being co-created, including its successes, challenges and next steps. This report presents PHSA's sustainability goals, targets and performance metrics, along with stories of partnerships and staff that are impacting our health-care sites.

This report speaks to our capacity for change; our commitment to each other, our place and our planet; and our resilience. It is a means of reflecting on what we've done and celebrating our achievements. But it's also a reminder that there is still much to be done, and that we must work together to do it.

Because environmental sustainability is everyone's story.



2020 Dashboard highlights

29.2%

decrease in greenhouse gas emissions
intensity since 2007

14%

decrease in water use since 2010

38%

decrease in waste intensity since 2014

2020 milestones

- Development of the Climate Resilience Design Guidelines (December 2020) for capital projects
- Implementation of infrastructure projects that are expected to reduce carbon emissions by more than 1,000 tCO₂e per year
- Dispensing more than \$5,000 in seed funding to PHSA Green+Leaders for greening their workplace projects
- Reducing unnecessary plastics and packaging in maternity clinical supplies, resulting in a cost savings win of 20%

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1.2 The 2020 Dashboard: Setting Sustainability Targets and Measuring Results

2020 is a milestone reporting year. The traffic lights indicate whether or not we met the targets set for 2020, helping us to reflect on what is achievable and what requires a shift in action moving forward. In some cases, we will be considering new targets, including 2025 key performance indicators, to help us assess our journey. And in others, we will be strengthening our partnership approach in order to increase impact as we move towards our 2030 targets. Captured in the 2020 Dashboard, these targets and KPIs help us all to determine challenges, recognize successes, and guide the

actions we need to take to transform our health-care system toward environmentally sustainable and climate-resilient care for healthy people, place and planet. Since targets and KPIs are still being determined for Climate Risk & Resilience, this Focus Area is not included in the dashboard.

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Active & Clean Transportation

Goal: Ensure a health-care system in which employees, patients, and visitors commute and travel in a manner that reduces pollutants and emissions, minimizes the need for onsite parking, and increases overall health and wellness.

Target*	Key Performance Indicators (KPI)	Baseline	2020 Results	Traffic Light	2020 Target	2030 Target
Increase staff commuting by active and clean transportation modes.	Percentage of staff commutes made by active and clean modes	2016	44%	●	60%	75%

* This Focus Area is currently under review, including identification of new targets and KPIs.

- 2020 target met or exceeded
- 2020 target within sight; work in progress
- 2020 target not met and requires attention

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Smart Energy & Water

Goal: Minimize energy and water consumption and GHG emissions to reduce costs and environmental impacts, helping to ensure the health and wellness of our living environments.

Target	Key Performance Indicators (KPI)	Baseline	2020 Results	Traffic Light	2020 Target	2030 Target
Reduce energy-use intensity (EUI) of core sites.*	EUI (ekWh/m ² /year)	2007	17.5%	●	20%	30%
Reduce absolute in-scope GHG emissions.**	GHG emissions (tCO ₂ e/year)	2007	22.5%	●	25%	50%
Reduce in-scope GHG-emissions intensity.	GHG-emissions intensity (tCO ₂ e/year/m ²)	2007	29.2%	●	30%	50%
Reduce building water (use) performance intensity (BWPI) of core sites.	BWPI (m ³ /m ² /year)***	2010	34.2%	●	10%	20%

* Core sites are defined as primarily owned health-care facilities that can be actively monitored for energy, water and waste data.

** Absolute emissions refers to total emissions regardless of growth change and weather variation. In-scope emissions are from owned and leased buildings, fleet travel and paper use (as defined by the *Climate Change Accountability Act*).

*** Although facility space is used as an intensity metric for water, it's important to note that total water consumption is influenced by facility staff count, processes, procedures and equipment.

- 2020 target met or exceeded
- 2020 target within sight; work in progress
- 2020 target not met and requires attention

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Workplace Leadership

Goal: Together, reach, engage and inspire health-care staff to be leaders who share a commitment to and passion for healthy, sustainable and thriving communities, workplaces and environments.

Target*	Key Performance Indicators (KPI)	Baseline	2020 Results	Traffic Light	2020 Target	2030 Target
Increase the number of Green+Leaders across the organization.**	Number of staff joining the Green+Leaders program annually	n/a	14	●	15	18

* This Focus Area is currently under review, including identification of new targets and KPIs.

** In previous years, this target was measured as a proportional increase in Green+Leaders. It was decided that using numbers will provide more accurate and meaningful information for monitoring. A refresh of the engagement metrics will take place in 2021.

● 2020 target met or exceeded

● 2020 target within sight; work in progress

● 2020 target not met and requires attention

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Zero Waste & Toxicity

Goal: Minimize waste generated and toxic chemicals used by the health-care system and supporting operations.

Target	Key Performance Indicators (KPI)	Baseline	2020 Results	Traffic Light	2020 Target	2030 Target
Increase waste-diversion rates at existing acute and long-term care sites.*	% of waste diverted (annual average)	n/a	36%**	●	50%	50%
Decrease waste-intensity rates at existing acute and long-term care sites.	Waste intensity (kilograms/m ² /year)	n/a	4.3	●	5.0	4.0

* Waste-diversion data does not include segregated bio-medical waste.

** In 2020, our waste diversion reflects only waste segregation, as our recycling provider paused the collection of recycling due to concerns for staff safety during the COVID-19 pandemic. All recycling and general garbage streams were instead taken to a local waste-to-energy facility.

● 2020 target met or exceeded
● 2020 target within sight; work in progress
● 2020 target not met and requires attention

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2.1 Provincial Health Services Authority (PHSA)

Our mission

- Provincial health
- Results through caring, leading and learning together

Our vision

Province-wide solutions for excellence in health, every time

Our values

- Respect people
- Be compassionate
- Dare to innovate
- Cultivate partnerships
- Serve with purpose

Our commitment to sustainability

Achieving energy and environmental sustainability is a priority for PHSA. To achieve this, in our [environmental sustainability policy](#), PHSA is mindful of the importance of developing a triple-bottom-line approach to sustainability, one that balances ecological, societal and economic imperatives, and recognizes the link between a healthy environment and a healthy population. As such, we recognize our duty to minimize our environmental impact through leadership and strategic partnerships, facility construction and operations.

Our region

PHSA plans, manages and evaluates specialized health-care services in partnership with other B.C. health authorities. In its unique role in B.C.'s health-authority system, PHSA ensures that residents have access to a coordinated provincial network of high-quality specialized health-care services. PHSA delivers these services to communities around the province on the traditional and ancestral lands of many Indigenous peoples, and serves patients by focusing on specialized and sustainable care.

Our services^A

PHSA operates the following specialized centres/services:



BC Cancer, BC Centre for Disease Control, BC Children's Hospital and Sunny Hill Health Centre for Children, BC Emergency Health Services, BC Mental Health & Substance Use Services, and BC Women's Hospital + Health Centre



It also manages provincial health-care programs and services that provide direct health-care services through program collaboration with regional health authorities.

Our direct-care professionals

The 12,119^B full-time equivalent PHSA employees, physicians and nurses are committed to patient-centred, specialized and sustainable care.

Many of these individuals understand and are taking action to reduce environmental risks and increase climate resilience, particularly through their support of and participation in energy and environmental sustainability (EES) strategies and programs in the workplace. They have made environmental sustainability their story, as demonstrated by their participation in the Green+Leaders program and their success stories throughout this report. Given the tools and opportunity, they will continue to play a key role in transforming health care.

“
All stakeholders in the health-care system must be engaged. We need a mandate from the health system — we need patients, communities, frontline providers, administrators and senior leaders to say that Planetary Health is their business.

– Dr. Andrea MacNeill, Surgical Oncologist, BC Cancer; Cancer Surgeon at VCH; Director of the Planetary Health Care Lab (UBC)


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Senior executive team*

“

As our understanding of the links between environmental

 and community sustainability continues to shift through the

 pandemic, it's important that we support and recognize the

 many people who are working diligently to reduce the impact our

 operations have on our surroundings and the people we serve.

– Dr. David Byres, Interim President and Chief Executive Officer, PHSA



Dr. David W. Byres

 Interim President and Chief Executive Officer



Scott MacNair

 Executive Vice-President,

 Business Operations



Donna Wilson

 Executive Vice-President, People & Culture



Dr. Leanne Heppell

 Interim Executive Vice-President

 and Chief Ambulance Officer,

 BC Emergency Health Services



Kendra McPherson

 Vice-President, Clinical Improvement

 and Transformation



Dr. Natasha Prodan-Bhalla

 Interim Vice-President, Professional

 Practice, and Chief Nursing Executive



Laurie Dawkins

 Vice-President, Communications

 and Stakeholder Engagement



Dr. Maureen O'Donnell

 Executive Vice-President, Provincial Clinical

 Policy, Planning and Partnerships



Dr. Patrick O'Connor

 Interim Vice-President, Medical

 and Academic Affairs



Alexandra (Lexie) Flatt

 Vice-President, Pandemic Response,

 and Chief Data Governance

 and Analytics Officer



Ron Quirk

 Executive Vice-President, Digital Information

 Systems and Innovation



Dr. Reka Gustafson

 Vice-President, Public Health and Wellness,

 and Deputy Provincial Health Officer



Michael Lord

 Vice-President and

 Chief Financial Officer, Finance



Susan Wannamaker

 Executive Vice-President,

 Clinical Service Delivery



Zulie Sachedina

 General Counsel and Chief Legal Officer

* As of August 2021

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Building for energy and
environmental sustainability

In design and construction of new facilities (i.e. project planning, design and construction teams), PHSA is supporting the highest level of human and environmental health and well-being by:

- Assessing and reducing the impacts of climate change on a facility and the surrounding community
- Determining how the design, construction and operation of a facility will impact the environment (energy, water, carbon and waste impacts) and human health
- Developing low-carbon, climate risk and resilience and environmental sustainability strategies
- Achieving LEED accreditation (a globally recognized green-building rating system administered by the [Canadian Green Building Council](#))
- Meeting and exceeding environmental and climate change regulations
- Drawing on credible evidence that links health outcomes to planning and design of the built-environment (re: [The Healthy Built Environment Linkages Toolkit](#))

Our buildings^C

425,344 m²

usable facility space

76

distinct buildings



British Columbia Cancer Agency Centre for the North

Our LEED projects

Certification Date	Project Name	Certification Level	Project City	Project Size (m ²)
2018-09-18	Children's and Women's Redevelopment Project – Teck Acute Care Centre	Gold	Vancouver	57,101
2015-03-17	BC Children’s and Women’s Health Centre Child Care Centre	Gold	Vancouver	684
2014-06-19	British Columbia Cancer Agency Centre for the North	Gold	Prince George	5,035
2013-06-20	BC Children's & BC Women's Redevelopment Project Clinical Support Building	Gold	Vancouver	2,319
2011-11-03	Child, Adolescent and Women's Mental Health Building	Silver	Vancouver	6,280
2005-07-22	BC Cancer Research Centre	Gold	Vancouver	21,677

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2.2 The Energy and Environmental Sustainability Team

The Energy and Environmental Sustainability (EES) team was created in 2010 to ensure that a collaborative environmental sustainability approach is taken across the Lower Mainland health organizations (LMHOs) — Fraser Health, Providence Health Care, Provincial Health Services Authority (PHSA) and Vancouver Coastal Health (VCH).

Since then, we've partnered with many departments, teams and individuals to integrate and enhance sustainability infrastructure and practices in a variety of projects and programs, and made health and wellness central to our work.

The EES team is driving the push for environmentally sustainable and resilient health care, but can't do it alone.

Embedding environmental health and wellness

Founded and led by the EES team, GreenCare is a network that unites efforts within the B.C. health-care community to transform our health-care system toward environmentally sustainable and resilient care. By connecting diverse groups across the LMHOs, GreenCare amplifies and celebrates projects, programs and staff actively working to address our climate reality. The [GreenCare website](#) acts as a home and resource to support these efforts.

Due to evolving changes to legislation and health-care priorities, in 2020 the EES team initiated a refresh of the GreenCare Strategic Framework to better meet the needs of the health-care sector. Completed in 2021, the updated framework reflects the diversity of individuals across the health system and the value in creating equity for all; the interdependent nature of people, place and planet; and the importance of building relationships that are inclusive, accountable and respectful. With this reimagined framework,

and upcoming new targets and KPIs for 2025 and 2030, we are excited to increase our focus on relationship building and collaboration, so that our health-care systems, staff, leadership and communities are empowered to meet the sustainability challenges ahead.

In spite of the new challenges that the pandemic brought in 2020, I know how hard the EES team has been working. While adapting to 2020's exceptional circumstances, they have continued to make sustainability and resilience a priority, as shown throughout this report. I also know how proud the team is of PHSA staff and leadership's efforts to continue to embed environmental sustainability within our health-care system.

Given our climate reality, none of us can afford to be complacent. Our well-being, our future, and our friends, family and children depend on our ability and willingness to continue to change how we live and work. We know what to do, we know how, and we know we can. Let's move forward, together.



Robert Bradley
Director of Energy & Environmental Sustainability

Meet the EES Team.



BC Children's Hospital

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3.1 Our GreenCare Focus Areas

To reduce the risks of our climate reality and the environmental impacts of health-care construction and operations, we must all take clear, meaningful action. The GreenCare Focus Areas are essential to this action and have been developed in consideration of the interdependent nature of healthy people, places and planet. None of these Focus Areas exists in a silo: activities and actions in one area have real impacts on the others. In this way, energy and environmental sustainability is a holistic endeavour that requires a unified, coordinated approach that engages all stakeholders in every part of the health-care system.

In order to support meaningful change, each of the following Focus Areas, with the exception of Climate Risk & Resilience*, identifies a goal and a number of targets, along with measurable Key Performance Indicators (KPI) that determine our progress. In some cases, a target is influenced by but not necessarily aligned with provincial or regional mandates. By pursuing these targets and tracking these KPIs in collaboration with key partners, PHSA can assess its progress and achieve environmental sustainability.



Active & Clean
Transportation



Climate Risk
& Resilience*



Smart Energy
& Water



Workplace
Leadership



Zero Waste
& Toxicity

* Targets and KPIs for Climate Risk & Resilience are currently under development and were not in place for 2020.

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1. Active & Clean Transportation

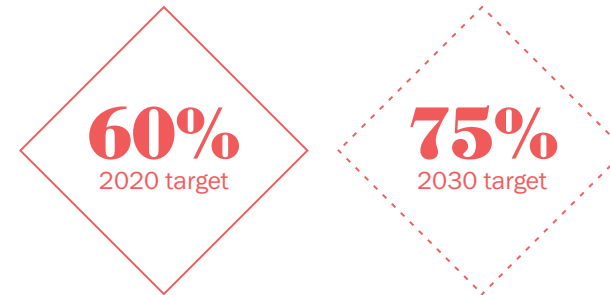
Our goal

Ensure a health-care system in which employees, patients, and visitors commute and travel in a manner that reduces pollutants and emissions, minimizes the need for onsite parking, and increases overall health and wellness.

Working towards this goal, active transportation reduces the risk of disease, the effects of psychological stress and the negative physical impact of a sedentary lifestyle. Active, or human-powered, transportation also provides environmental benefits, as an alternative to fossil-fuel-powered transportation. Modes include walking/rolling, cycling, running, and the use of human-powered or hybrid mobility aids such as wheelchairs, scooters and e-bikes. Clean transportation features modes that reduce greenhouse gas (GHG) emissions and contribute to environmental and human health by providing alternatives to single occupancy vehicles that consume gas and diesel. These include public transit, electric vehicles, plug-in hybrid vehicles, carpooling and electric scooters.

Our 2020/2030 targets

Increase staff commuting by active and clean transportation modes.



Our partners

BC Hydro

Climate Action Secretariat

Integrated Protection Services, Commuter Services

PHSA Supply Chain

Population Public Health

Current programs include:

The Active & Clean Transportation Focus Area is currently undergoing review and revitalization. This process will include close alignment of strategy and targets with municipal strategies, **CleanBC** and Canada's first national active transportation strategy (under development). The EES team will work closely with key stakeholders within PHSA and across the four Lower Mainland health organizations to engage with staff, patients and visitors to increase access to and use of active and clean transportation modes when commuting, and when travelling to and between health-care facilities.

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Report

Vancouver Coastal Health EPAR

Providence Health Care EPAR

Fraser Health EPAR

2020 EPAR Dashboard

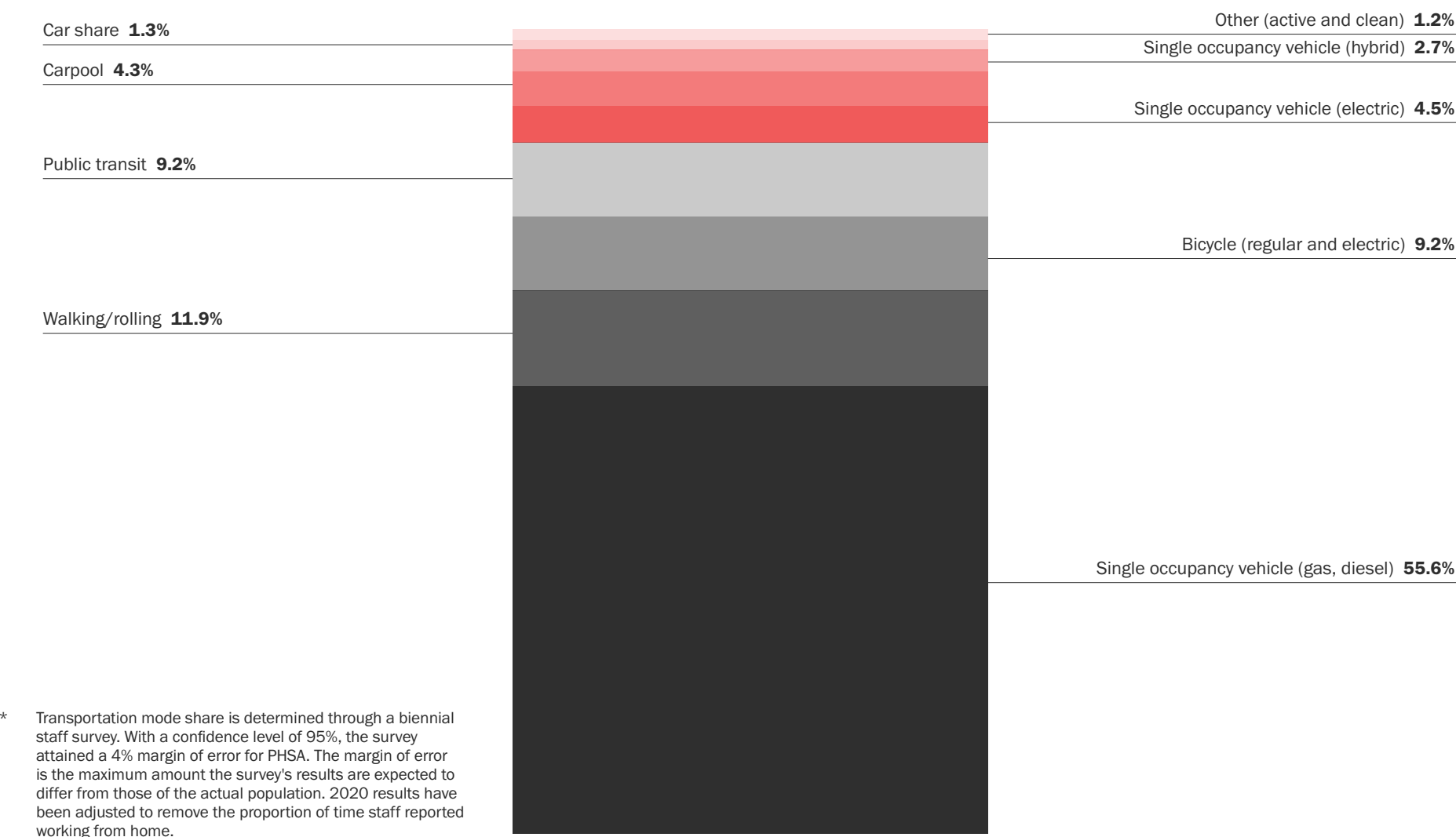
Mode Share

Mode share* is a way to understand how staff are moving to and from home and work, by showing the proportion of transportation by different options, or modes. Transportation is a major producer of GHG emissions, and transportation choices have an impact on the health and well-being of staff and communities. As such, our goal is to see a shift in mode share to a higher proportion of commuting by modes that are

active or do not require fossil fuels. Due to the impacts and concerns of COVID-19, changes in transportation behaviours were seen in PHSA, which were consistent with shifts throughout the province; there was both a drop in transit ridership^D and an increase in the number of people working from home.

56%

of commutes taken by PHSA staff in 2020 occurred by gas or diesel single occupancy vehicle.



* Transportation mode share is determined through a biennial staff survey. With a confidence level of 95%, the survey attained a 4% margin of error for PHSA. The margin of error is the maximum amount the survey's results are expected to differ from those of the actual population. 2020 results have been adjusted to remove the proportion of time staff reported working from home.

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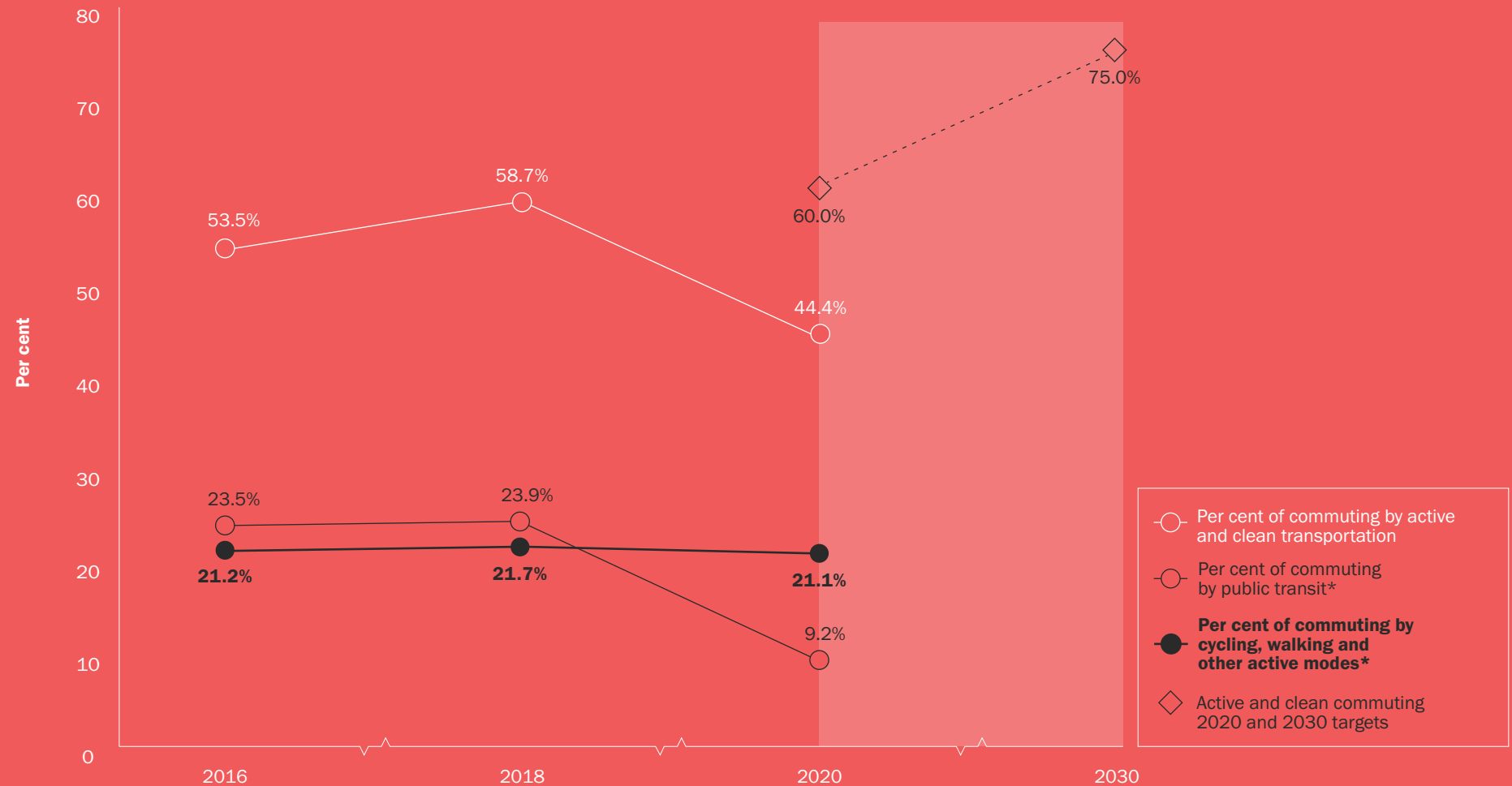
Active and Clean Commuting

Our goal is to support and encourage staff to choose alternative modes of transportation to gas or diesel single occupancy vehicles and to choose active and clean modes, such as electric vehicle, public transit, walking/rolling and cycling. By measuring commuter behaviour

and understanding how that behaviour changes over time, we can more accurately direct our work and support staff in choosing commuting options that have a lower environmental impact.

14%↓

The proportion of active and clean commutes decreased by 14% in 2020. However, staff reported that 29% of commutes were replaced with working from home.



* For reference only. No associated targets.

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Accessibility matters

Understanding accessibility is a key component to understanding staff commuting behaviour. It is also an important component when considering the needs of staff, and what they require from their commuting and transportation modes.

What do staff report as accessible and practical commuting options?^E

61%

Gas/diesel single occupancy vehicles

Despite active and clean modes of transportation, such as transit, cycling and walking/rolling, being relatively accessible and practical for staff, these values are not reflected in commuting behaviour. The majority of commutes (56%) are still taken in fossil-fuelled, single occupancy vehicles. The EES team is working to narrow the gap between what staff report as accessible and practical and what modes of transportation are actually being taken for commuting. Additionally, the team is working to increase the accessibility of different active and clean transportation modes.

36%

Public transit

The EES team also recognizes that, due to different requirements related to mobility, family and work, some staff will always rely on single occupancy vehicles for transportation. Understanding the different accessibility requirements of staff allows the team to recognize what types of active and clean transportation need more resources or support in different regions.

31%

Cycling

23%

Walking/rolling



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Connections

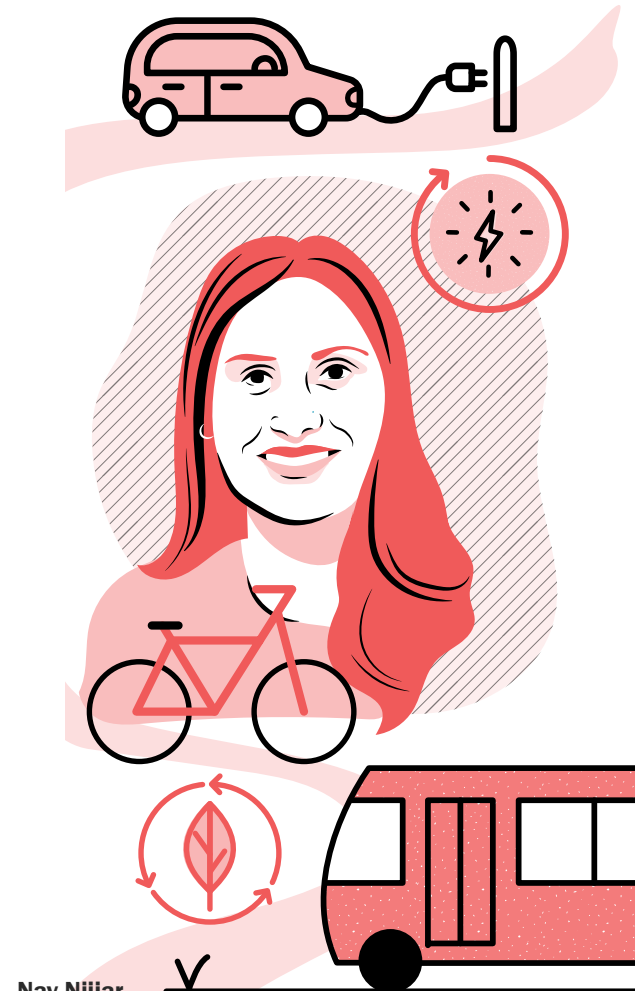
Nav Nijjar's work on sustainable transportation initiatives is influenced by the people she meets. "I connect with individuals who have changed their lifestyles to leave a positive impact on the environment," she says.

In her role as Transportation Demand Management and Commuter Services lead, Nav collaborates with organizations such as TransLink and Hub Cycling to promote public transportation and biking to work. Nav then provides data to the EES team on employee use of public transportation and the hospital shuttle service, bike cages and bike racks, and electric vehicle charging stations. But her ties with the team don't end there.

The EES team and the GreenCare community have introduced Nav to important opportunities and connections and provided invaluable support to her work. For a recent project in which Nav sought new electric vehicle chargers for one hospital, the team introduced her to critical partners and funding programs. "I wasn't aware of all the opportunities and grants that were available in our workplace," Nav says. "The EES team helped our department find viable options with the current government grants to get the most out of our project. ... [and] uses a collaborative approach and works with all the partners for the benefit of health-care employees."

Nav is proud of the health authorities' work to advance green practices, and she values the relationships she has built inside the health authorities as much as those developed externally. She believes that health-care employees "should become leaders in adopting sustainable alternatives, and our organizations' strategies should align with the Government of British Columbia's CleanBC program."

Climate change is a vital concern to Nav, who is currently taking classes on sustainable business development and learning about environmental impacts. "We need to control our GHG emissions and air pollution," she says, "or one day the level of pollution will be so high that we may not be able to go outside without wearing masks."



Nav Nijjar

Transportation Demand Management and Commuter Services Lead, Integrated Protection Services

Workplace leadership boosts cycling at PHSA

In 2020, in partnership with Halima Elmi of PHSA Health Promotion, the EES team sponsored PHSA's Health Promotion Initiatives Fund to support energy and environmental sustainability projects within PHSA.

Five groups from across PHSA submitted applications for projects that would make cycling to work safer, more accessible and more enjoyable, and the initiative funded the creation and installation of various bike storage amenities, as well as bicycle repair events to encourage staff cycling. These projects will affect 170 staff in the short term and an indefinite number of staff in the long term, and are taking direct action to provide the solutions needed to increase cycling throughout PHSA workplaces. While each project team had common goals to increase cycling for the benefit of staff and environmental health, each also uniquely addressed the challenges specific to their site. On-site staff often know most intimately the issues at hand and have key insight into the best available solutions.

Through workplace leadership initiatives like these, this knowledge, experience and motivation can be mobilized, and staff can be empowered to make changes where they will have the greatest impact.



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What do PHSA staff have to say about electric vehicles (EVs)?^E

10%

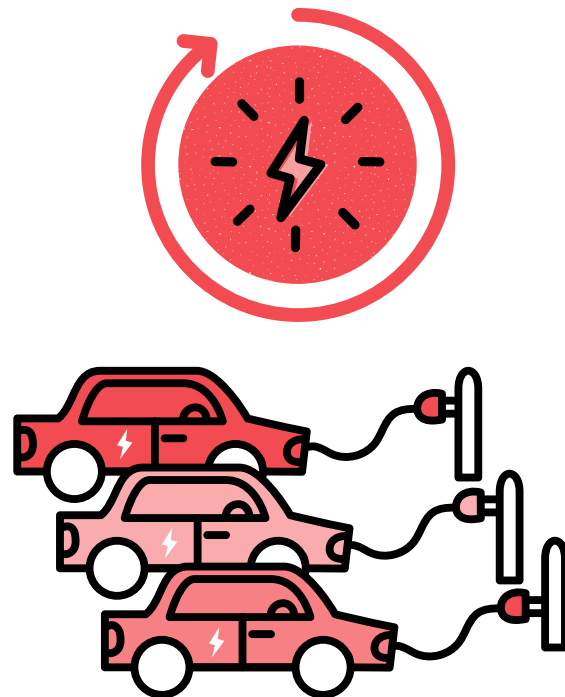
currently own an EV.

38%

plan to own an EV in the next five years.

33%

are unsure about owning an EV.



Our successes

PHSA staff are passionate about and committed to active and clean transportation. In 2020, five cycling projects were initiated by staff and supported through the Green+Leader collaboration with the Health Promotion Initiatives Fund. These projects increased safe cycling storage amenities to facilitate staff, patient and visitor travel by bicycle.

Challenges we face

PHSA's jurisdiction spans across the province throughout multiple regions. Because of the range of locations, as well as the remoteness of some facilities, promoting active and clean transportation can be challenging. Depending on facility location and distance from their homes, commuting via cycling or by walking/rolling may not be an option for staff. Similarly, facility location may mean that staff do not have access to established transit networks, cycling networks, or carsharing and carpooling programs. 37.5% of PHSA staff reported that, because they lived too far from work, cycling was not an accessible or practical commuting option for them. Understanding the unique regions and amenities available in the communities in which PHSA facilities are located is essential as the EES team works to increase active and clean transportation in PHSA.

COVID-19 has impacted staff behaviour when it comes to transportation

The pandemic has had an impact on how PHSA staff commute. 29% of the commutes that normally would have occurred were replaced with working from home, essentially eliminating the negative environmental impacts associated with those commutes. Of the commutes that remained, there was a significant drop in commuting by public transportation and an increase in single occupancy vehicle use, a trend that was seen throughout the province.

“

I started driving after 12 years of commuting on public transit, for safety reasons.

– GreenCare Survey respondent

The work isn't finished

31% of PHSA staff reported cycling as an accessible and practical commuting option, yet only 9% of commutes occurred by bicycle. Similarly, while 36% of staff reported that public transit was accessible and practical, only 9% of commutes were made by bus. Understanding why there is a discrepancy between what staff report as accessible and practical vs. how they actually choose to commute is a key part in the behaviour shift to increase active and clean transportation. The EES team is working to narrow this gap by providing the resources, education and support to make it easier and more desirable for staff to choose clean and/or active commuting options.

The 2030 and 2040 zero-emission vehicle targets set out in the CleanBC plan (30% and 100%, respectively) are an important part of PHSA's roadmap to clean transportation. Electric vehicle (EV) ownership has doubled amongst PHSA staff since 2018: 10% currently own an EV. In the last two years, more PHSA staff have purchased EVs and more staff have an increased interest in, or are considering the option of, owning an EV. With the aggressive CleanBC targets and increased staff interest, the EES team is investigating opportunities to not only support the growing demand for infrastructure but accelerate the shift to low-carbon communities. A part of this process will include the execution of a baseline and feasibility study to understand the demand, challenges and opportunities that come with EVs and the implementation of infrastructure throughout PHSA facilities.

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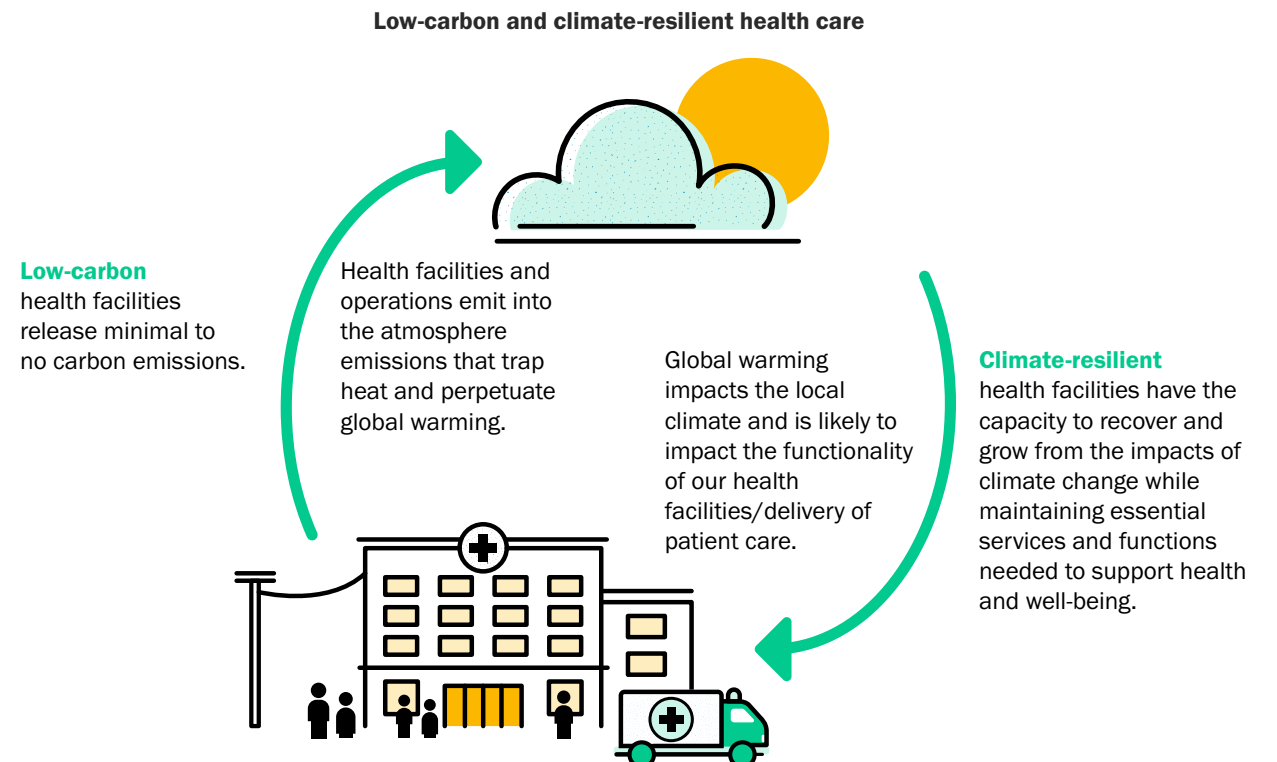
Our goal

In partnership with key stakeholders, move toward a climate-resilient health system, manage climate risks to our hospitals and long-term care homes, and break the chain of cascading impacts on the services we provide in our health-care facilities and our broader communities of care.

Our leadership role in developing fit-for-purpose information, tools and processes to reduce climate risks in planning and design enables our people, services, assets and infrastructure to better manage climate risks over the next 60 to 100 years of operations. By engaging with other leaders in climate risk management, exploring synergies and co-benefits in reducing emissions, and improving human health, our program is on the forefront of developing and translating new knowledge into low-carbon and resilient actions and plans that align with the [CleanBC plan](#) and the [Climate Change Accountability Act](#).

Our targets (under development)

We are in the process of developing climate risk and resilience metrics and targets for new major capital projects and facility operations, health system climate resilience indicators and a system for tracking progress.



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Our partners

BC Climate Action Secretariat, Climate Risk
Management Branch

BC Housing Research Centre, Mobilizing Building
Adaptation and Resilience project

Health Canada, Climate Change and Innovation Bureau

Health Emergency Management BC

Interior Health

Island Health

Local governments

Ministry of Health, Capital Services Branch and Health
Protection Branch

Northern Health

Pacific Climate Impacts Consortium

Population & Public Health

Simon Fraser University, Adaptation to Climate Change Team

University of British Columbia, Collaborative for Advanced
Landscape Planning

Various consultants



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Collaborative planning for climate-resilient facilities

Climate change hazards that pose significant and growing risks to health facilities are most efficiently addressed at the stage of facility planning and design. Completed in 2020, [Climate Resilience Guidelines for BC Health Facility Planning and Design](#) will assist capital project planners and climate adaptation staff and consultants to improve the resilience of health-care facilities and operations to climate risks. This is the first set of such guidelines in Canada, positioning B.C. health authorities as leaders in climate risk management and resilience planning.

The guidelines apply to all new construction, major redevelopments and major renovation projects that require a business plan and use a design-build model. They help facility designers and operators with common and complex challenges, such as understanding risks associated with compound hazards (e.g. pandemic and seismic), which are identified by a climate risk and resilience assessment process outlined in the guidelines. Through the use of open-access online tools, process descriptions and other

information may be downloaded and customized for various projects and procurement models.

The guidelines also provide examples and checklists that may be customized and incorporated into contract, procurement and evaluation documents for capital projects, and they assist capital project teams in meeting annual reporting and information-sharing requirements.

Project partners worked collaboratively to develop the guidelines, which benefited from an advisory committee of subject-matter experts, a working group of B.C. health authority representatives, and a task force of building design and climate risk management professionals, in addition to the core project team. All regional and provincial health organizations contributed to the guidelines, and 10 consulting firms and one public sector organization (BC Housing) provided significant in-kind contributions.

As the project moved forward, the guidelines gained sufficient credibility and momentum to support the

development of a Carbon Neutral and Climate Resilient Health Care Facilities policy, as part of the Health Capital Policy Manual updated by the BC Ministry of Health in 2021.

“**This progressive and long-term approach to the planning process and design of our health-care facilities enables the adoption and implementation of climate resilience features that would be difficult to consider and integrate without this supportive policy in place**”

– Mauricio Acosta, Executive Director,
 Facilities Management and Business Performance (VCH)

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Mapping vulnerability

Some people and communities are more vulnerable than others to the health impacts of climate hazards. Our exposure to the hazard, sensitivity to it (such as from age or health status) and capacity to adapt affect our degree of vulnerability.

The Community Health and Climate Change Mapping project spatially represents such community health vulnerability. Focused on four climate hazards — heat, wildfire smoke, ground level ozone, and coastal and river flooding — it intends to advance the conversation about climate change and health equity while also providing information for adaptation planning.

“The maps produced by this project allow decision-makers to better understand communities that may be most impacted by the health effects of a changing climate,” says VCH Environmental Health Scientist Emily Peterson.

In particular, local governments, provincial health agencies and Health Emergency Management BC can use the maps to inform environment and climate change strategy.

The project also contributes to related initiatives. In Climate Resilience Guidelines for BC Health Facility Planning and Design, the maps are a component of the high-level master planning process that informs the design of new facilities.

Led by VCH Public Health, the project was supported by staff from Fraser Health, Facilities Management, and Health Emergency Management BC, as well as by UBC, BC Centre for Disease Control, municipal and regional governments, and Licker Geospatial Consulting Co.

“

The maps produced by this project allow decision-makers to better understand communities that may be most impacted by the health effects of a changing climate.

– Emily Peterson, VCH Environmental Health Scientist

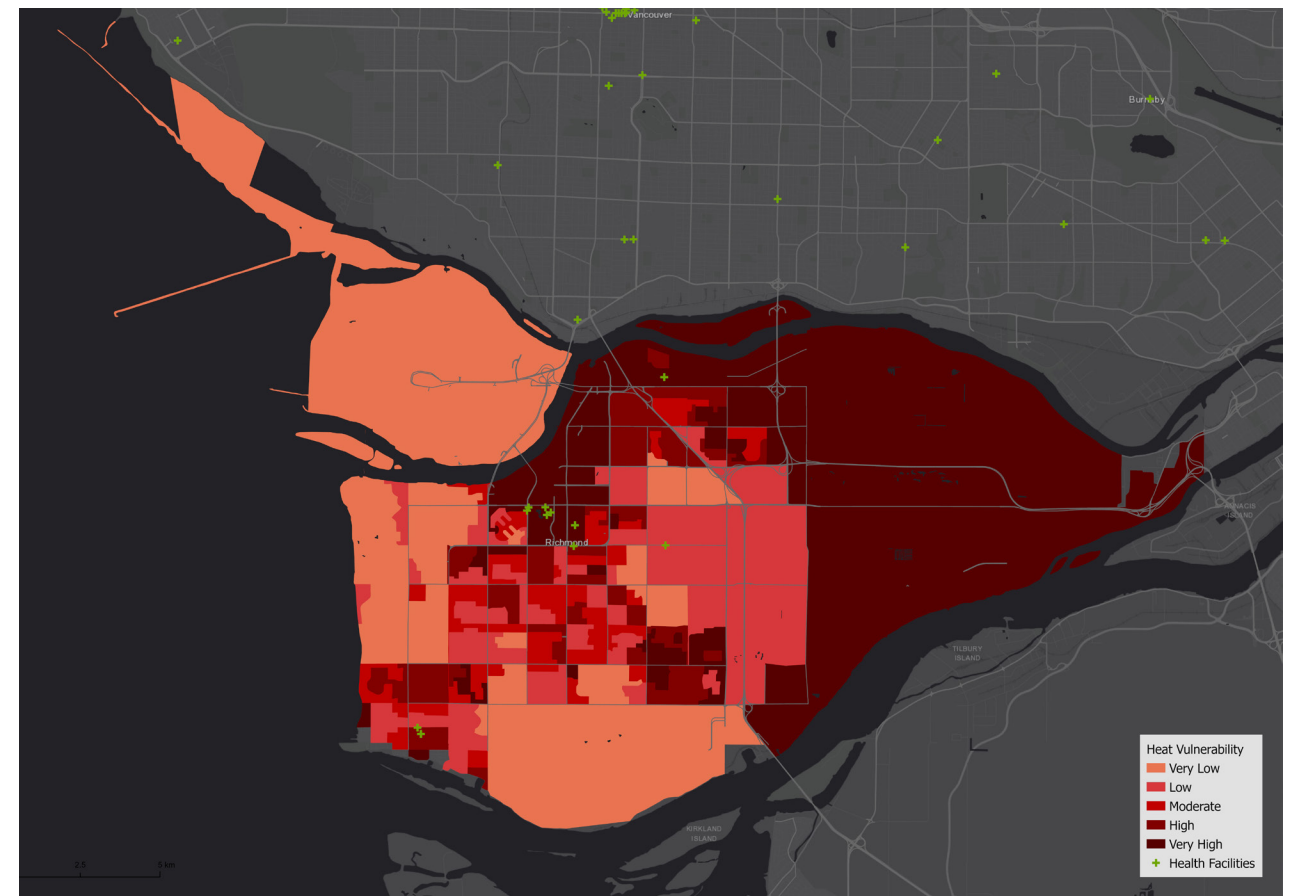


Figure 1. This example community health vulnerability map displays the heat vulnerability index in the city of Richmond. The index comprises heat exposure, population sensitivity to heat and population adaptive capacity.

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What do PHSA staff have to say about the impact of climate change hazards on their work? ^E

76% of PHSA staff reported that they experienced climate change hazards in the last 12 months. The most common were:

- Wildfire smoke
- Wind storms
- Extreme rainfall and thunderstorms/lightning
- Heat waves

23% of PHSA staff reported that climate change hazards impacted their ability to perform their job duties in the last 12 months. The most common were:

- Wildfire smoke
- Snow or ice storms



Our successes

In 2020, we explored successfully the synergies and co-benefits of building climate and pandemic resilience concurrently in the design of the new BC Cancer Centre in Surrey. By ensuring that we grounded our climate risk assessment process in the reality of compound hazards, embedded clinical and patient perspectives into a standardized process, and explored the interdependencies among social and physical resilience, we expanded our knowledge base for reducing climate-related risks in complex facilities that support services such as cancer screening, treatment and rehabilitation. Because the broader “climate risk and resilience assessment” process was integrated early into the capital project timeline, our program was able to establish and build relationships with a new health stakeholder: BC Cancer.

Challenges we face

To work effectively at the scale of our climate challenge, and build health system climate resilience, a climate lens needs to be applied to our governance and accountability frameworks. Key health system-level components, including insurance and enterprise risk management, have a critical role to play in the calculus of investing in resilience and minimizing the costs of inaction. Finally, climate risk and resilience reporting that drives action across our regional and provincial health organizations will better align with marked shifts towards increased transparency and accountability as the new normal in due diligence at national and international levels.

“

Given both the physical and mental health impacts of climate change, I feel that PHSA should be championing environmental considerations in the workplace.

– GreenCare Survey respondent

The work isn't finished

We will continue to work with PHSA leadership and other key health system stakeholders with province-wide mandates, such as HEMBC and the Ministry of Health's Capital Services Branch and Health Protection Branch, to embed climate risk and resilience into strategic and operational priorities. We will also continue to review lessons learned from the whole-system COVID-19 pandemic response with a view to engaging leadership, leveraging pan-organization coordination mechanisms, and capitalizing on momentum gained for climate preparedness and response.

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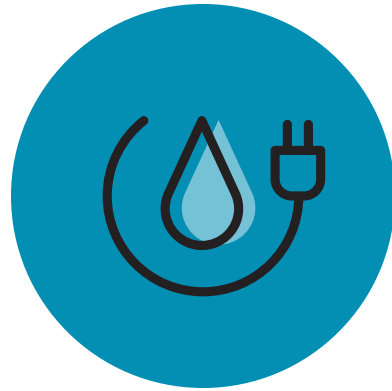
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3. Smart Energy & Water

Our goal

Minimize energy and water consumption and GHG emissions to reduce costs and environmental impacts, helping to ensure the health and wellness of our living environments.

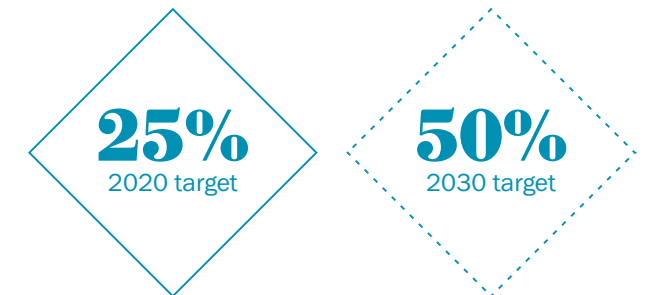
Achieving the Smart Energy & Water goals means stewarding energy and water and their utilities. PHSA is continually looking for opportunities to reduce the amount and intensity of energy and water use and GHG emissions from health-care operations. Energy efficiency measures and water-conserving infrastructure achieve greater output using fewer resources, thereby lowering our environmental footprint without compromising patient care or employee comfort.

Our 2020/2030 targets

Reduce energy-use intensity of core sites* by



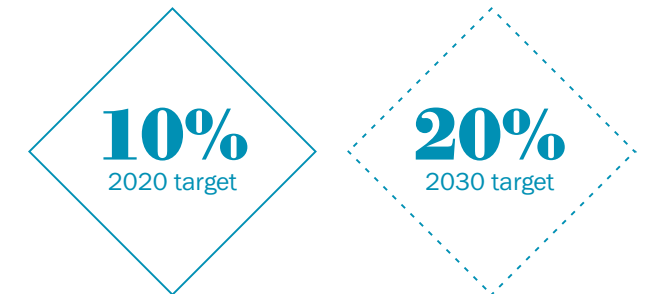
Reduce absolute in-scope GHG emissions by



Reduce in-scope GHG-emissions intensity by



Reduce building water-utilization intensity of core sites by



* Core sites are defined as primarily owned health-care facilities that can be actively monitored for energy, water and waste data.

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BC Hydro^F

BC Emergency Health Services

Climate Action Secretariat

Facilities Maintenance and Operations

Finance

FortisBC^F

Ministry of Environment and Climate Change Strategy

Ministry of Health Capital Services Branch

Municipal governments

Projects and Planning teams

PHSA Supply Chain

Current programs include:

- Energy Management
- Carbon Emissions Management
- Water Management



BC Children's Hospital Family Immunization Clinic

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ENERGY MANAGEMENT

The Energy Management program seeks to reduce reliance on fossil fuels and overall energy consumption, thereby reducing negative environmental impacts and supporting human health.

The program develops strategic partnerships and strong relationships with a wide range of stakeholders — particularly maintenance and operations teams, project and planning teams, consultants and utility providers — to identify and implement energy conservation opportunities. It also undertakes measurement and reporting on key energy performance indicators and benchmarks, connects with internal sustainability consultants on systemic and behavioural change initiatives, and monitors and tracks project funding.

Some of the initiatives included in the energy reduction strategy are as follows:

- ▶ Energy studies to determine project opportunities
- ▶ Heating plant upgrades and district energy solutions
- ▶ Efficient lighting upgrades
- ▶ Control-system optimization
- ▶ Cooling plant site strategies
- ▶ Heat recovery retrofits and installations
- ▶ Behavioural change campaigns for energy conservation

CARBON EMISSIONS MANAGEMENT

The focus of the Carbon Emissions Management program is to reduce greenhouse gas (GHG) emissions and align with the [Climate Change Accountability Act](#) (CCAA) and the [CleanBC plan](#). The CCAA has set ambitious targets for public sector organizations, requiring a reduction in emissions by 40% by 2030, 60% by 2040, and 80% by 2050. The CleanBC plan is the pathway to achieve these targets and has set an even more aggressive target of 50% by 2030 for public sector buildings. Of the total measured in-scope emissions generated by PHSA sites, over 96% are from buildings, while the remaining 4% are from supplies (paper usage) and transportation (fleet and other vehicles) combined. The goals and targets for carbon-neutral operations will be achieved, generally, by reducing GHG (carbon) emissions and purchasing carbon offsets.

Some of the initiatives included in the program are as follows:

- ▶ Carbon emission reduction strategies for buildings
- ▶ Reduction of operational energy (natural gas and electrical) consumption
- ▶ Optimization of existing plants and controls
- ▶ Building new facilities to rigorous energy standards and aggressive carbon targets
- ▶ Consideration of asset planning to ensure lower-carbon equipment

It is important to note that energy management and carbon management initiatives work hand in hand through coordinated efforts. They are not siloed programs; activities within each are planned and executed in concert.

2020 Climate Change Accountability Report Provincial Health Services Authority



The PHSA Climate Change Accountability Report

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

In 2020, PHSA had a carbon footprint offset of 18,671 tonnes of carbon dioxide equivalent (tCO₂e), which was offset at a total cost of \$477,041. This represents a decrease of 22.2% relative to the carbon footprint base reporting year, 2007. This decrease is even more significant, as we assumed responsibility for more programs, services and staff over the last 13 years.

Download: [PHSA 2020 CCAR](#)

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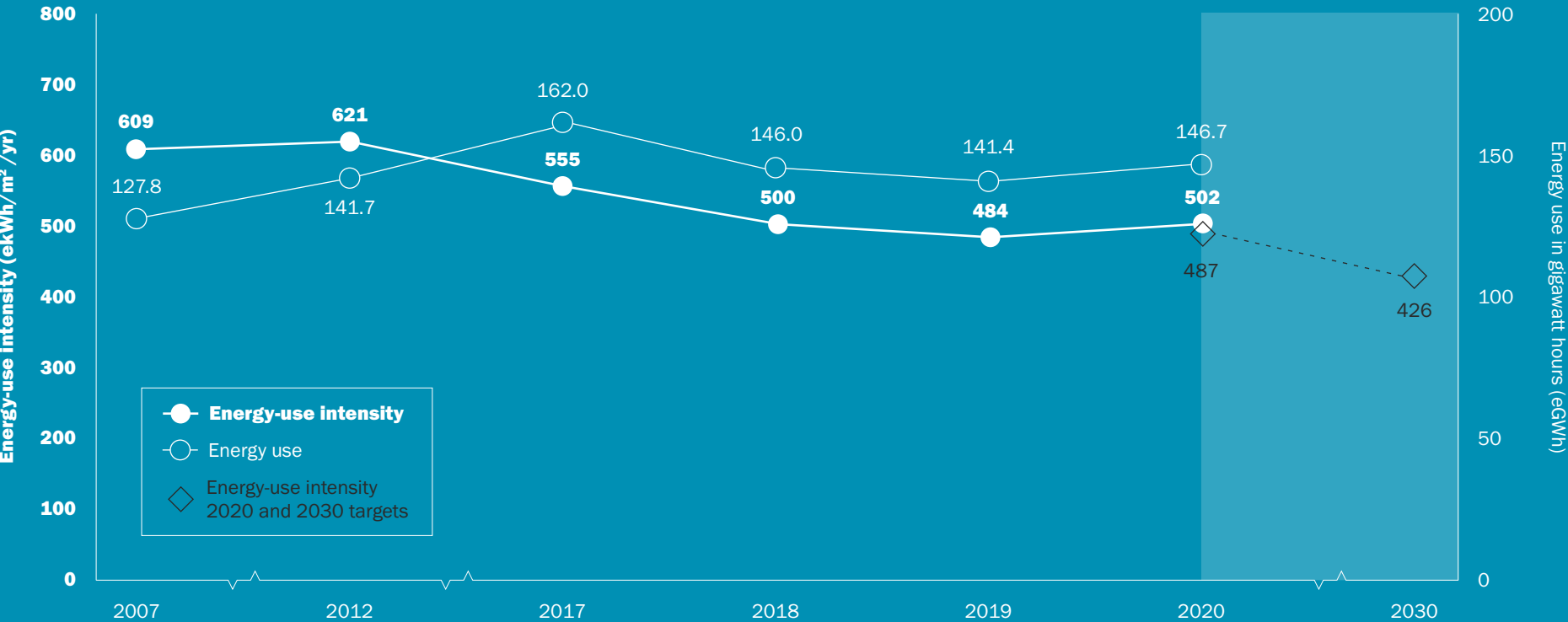
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Energy Use and Intensity

Energy use at core health-care sites* is measured in equivalent gigawatt hours (eGWh) and captures the entire amount of energy used from all energy sources** on an annual basis. Energy-use intensity (EUI) is measured in equivalent kilowatt hours generated per square metre of facility space (ekWh/m²/yr). This graph is a key benchmark for progress of energy consumption since it tells us that even as we grow in facility space,*** we are reducing our energy use per building area. Since 2019, there was a 3.8% increase in EUI for core sites. We believe this is due to operational changes during the pandemic, through which we started using 100% outdoor air as opposed to a mix of return air and outdoor air for ventilation. Additional investigation is underway.



17%↓

The EUI has decreased by 17% since 2007, and, despite an increase of 39% in core facility space since 2007, our energy use only increased by 15%.

* Core sites are defined as primarily health-care facilities that can be actively monitored for energy, water and waste data.

** This includes electricity, natural gas and fuel oil, and energy purchased from district energy systems.

*** Changes to facility area through new construction and demolitions directly impact these figures.

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Greenhouse Gas Emissions and Intensity

Absolute emissions,* measured in tonnes of CO₂e annually,** represent the total reported, in-scope emissions (energy consumption, fleet use and office paper) for all owned and leased buildings. Intensity is measured in kilograms of carbon dioxide equivalent emitted per square metre of usable facility space per year (kgCO₂e/m²/yr); this represents the emission intensity average across all owned and leased sites. Each building has a very different emission profile depending on the main fuel sources, energy infrastructure age, facility condition and clinical programs served. The emission intensity

will continue to improve as we replace old emission-intensive facilities with new, low-carbon facilities and carry out work to replace infrastructure in existing buildings with low-carbon solutions. Note that percentage differences for EUI and GHG emissions do not coincide due to factors such as weather adjustments in EUI data and different emission factors for energy sources. Since 2019, a 1% decrease in GHG emissions was mainly driven by a reduction in paper emissions, as net emissions from buildings remained relatively the same.

29%↓

GHG intensity has decreased by 29%, and, despite a 9% increase in total usable facility space since 2007, absolute emissions have decreased by 22%.



* Absolute emissions refers to total emissions regardless of growth change and weather variation. In-scope emissions are from owned and leased buildings, fleet travel and paper use (as defined by the *Climate Change Accountability Act*).

** Total in-scope greenhouse gas emissions in 2020 was 18,671 tCO₂e. However, for offsetting, a total adjustment of -498 tCO₂e was made to offset required emissions in prior years. After this adjustment, PHSA's 2020 total carbon footprint for offsetting was lowered to 18,173 tCO₂e. See more details in the 2020 PHSA CCAR.

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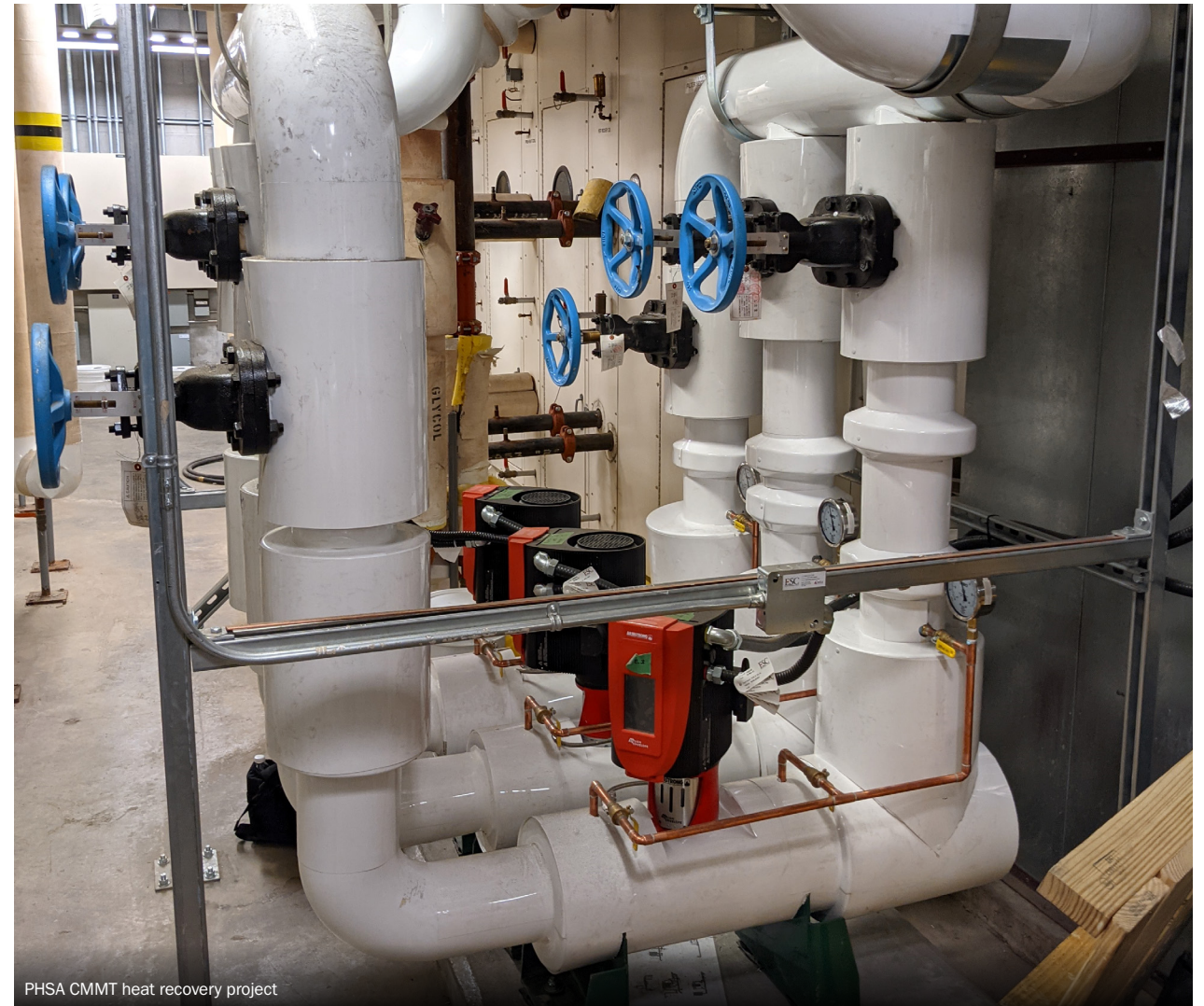
OUR STORY

CMMT heat recovery project

In 2019, an energy and emissions study was conducted to identify opportunities for more efficient heat delivery and recovery and to achieve carbon reduction at the Centre for Molecular Medicine and Therapeutics (CMMT) in the BC Children's Hospital Research Institute on the BC Children's and BC Women's Hospital and Health Centre site. As a result, a number of energy conservation measures were recommended, with the proposed project split into two phases and plans developed to complete the full scope by the end of the 2020/2021 fiscal year.

In the fiscal years 2019/2020 and 2020/2021, PHSA received funding from the provincial government's Carbon Neutral Capital Program (CNCP) to implement the approved energy conservation measures. Through the use of heat pumps for simultaneous heating and cooling, as well as a thermal gradient header to integrate additional waste heat sinks and sources, it is estimated that the project will result in more than 600 tCO₂e/year carbon-emissions reductions at the CMMT building.

The PHSA Energy Management team also applied to FortisBC's Capital Incentive Funding Program to receive additional funding for the implementation of the energy conservation measures. After reviewing the PHSA's energy reports, FortisBC issued two incentive agreements for implementation of the approved measures. Upon completion of the project scope at the end of the 2020/2021 fiscal year, PHSA provided FortisBC proof of installation and compliance with the terms and conditions of the program. The Energy Management team received a \$798,481* incentive (including COVID-19 relief incentives) for full implementation of the approved measures, which are estimated to result in more than 15,000 GJ/year savings of natural gas at the CMMT building and a return on investment of 19.3%.



* The 2020 CCAR published the anticipated incentive amount as \$819,693.

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OUR STORY

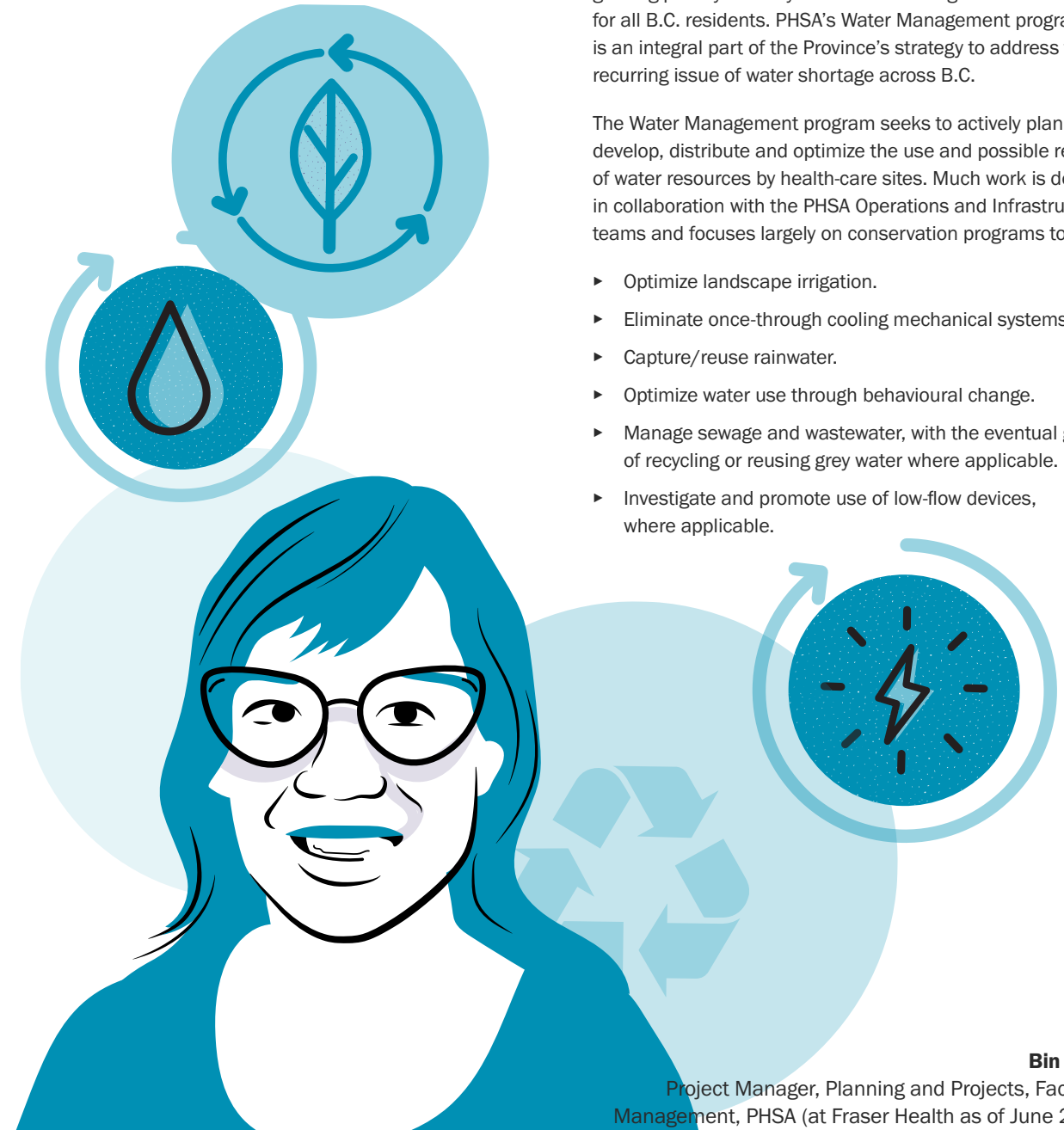
Seeking a greener future

Bin Guan understands humans to be only a small part of a much larger ecosystem, yet we're increasingly endangering our own livelihoods and the other species with which we coexist. "I came from a heavily polluted place," Bin explains, "so it is always on my mind that we humans are responsible for the damage we have done to our planet."

Science and technology have fascinated Bin for a long time, leading her to pursue a career in engineering and apply what she learned in her daily life to reduce her ecological footprint. "Every little bit counts if everyone makes an effort," she says. For example, she uses a heat pump in her home and programs its controls to an energy-efficient schedule.

Knowing that the environment has a direct impact on our health, Bin believes that health-care facilities should demonstrate leadership in the areas of healthy-built environments and environmental impact. Bin started partnering with the EES team a few years ago to assist with thermal-comfort and heat-recovery projects, where she quantifies energy use and other environmental impacts.

In her role as a project manager in Planning and Projects, Bin enjoys working with like-minded colleagues in energy and environmental sustainability, and the opportunity has allowed her to continue acquiring knowledge — which is important to her because "the more you know, the more realize you don't know."



WATER MANAGEMENT

In our climate reality, the management of water use is a growing priority not only for health-care organizations but for all B.C. residents. PHSA's Water Management program is an integral part of the Province's strategy to address the recurring issue of water shortage across B.C.

The Water Management program seeks to actively plan, develop, distribute and optimize the use and possible reuse of water resources by health-care sites. Much work is done in collaboration with the PHSA Operations and Infrastructure teams and focuses largely on conservation programs to:

- Optimize landscape irrigation.
- Eliminate once-through cooling mechanical systems.
- Capture/reuse rainwater.
- Optimize water use through behavioural change.
- Manage sewage and wastewater, with the eventual goal of recycling or reusing grey water where applicable.
- Investigate and promote use of low-flow devices, where applicable.

Bin Guan

Project Manager, Planning and Projects, Facilities
Management, PHSA (at Fraser Health as of June 2021)

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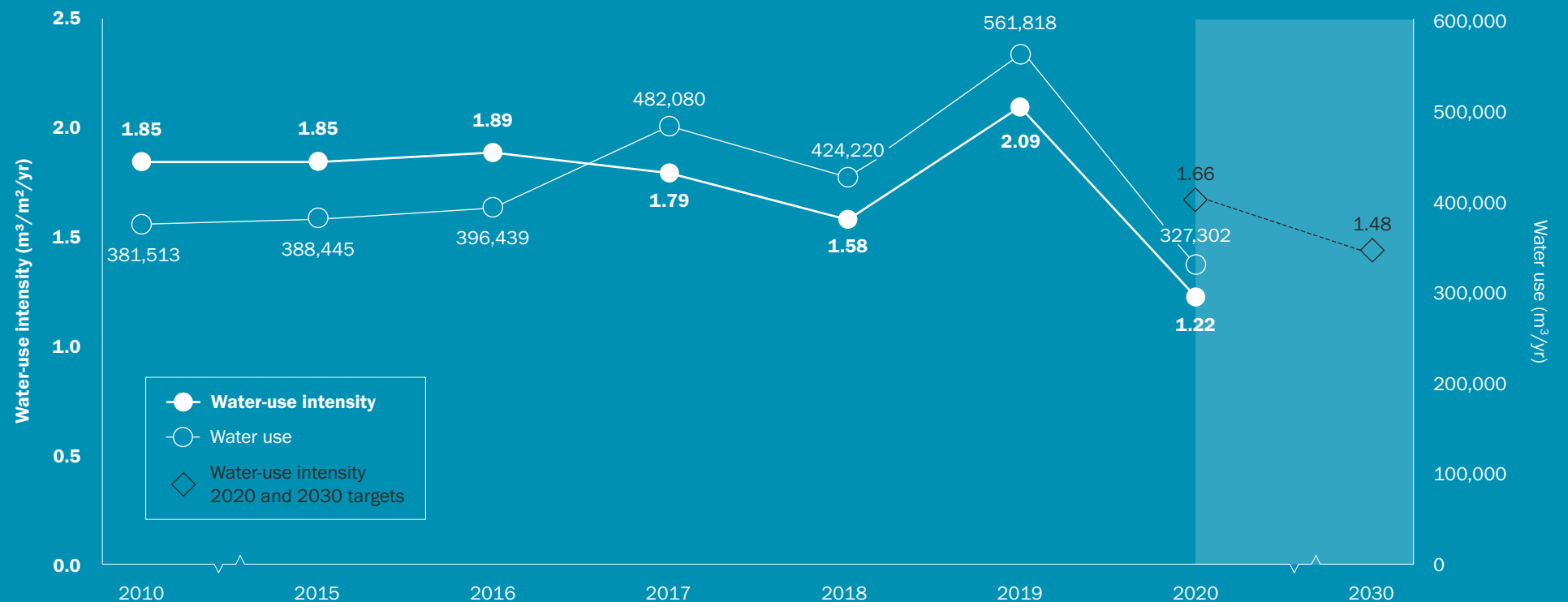
Water Use and Intensity

Water use at core sites* is measured in cubic metres per year (m³/year). Total water-use intensity at core sites is measured in cubic metres per square metre of facility space per year (m³/m²/yr). Water use depends on operational needs, process needs and clinical equipment changes. The significant water-use increase in 2019 is attributed to an underground pipe leak at BC Children's and BC Women's Hospital site, which took some time to locate and repair. This repair contributed to the decrease in 2020 water

consumption but is not the only factor; to fully explain the decrease, further investigation is required. A more in-depth investigation will take place in 2021, with the goals of informing the main end-users of water in core facilities and identifying innovative water-saving opportunities.

34%↓

Water-use intensity has decreased by 34%, and, despite an increase of 30% in core facility space since 2010, absolute water use has decreased by 14% (equivalent to 21.7 Olympic-size swimming pools).



* Core sites are defined as primarily owned health-care facilities that can be actively monitored for energy, water and waste data.

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Our successes

In 2020, PHSA continued with one major heat recovery project within the Phase 3 Redevelopment (opening the new Sunny Hill Health Centre and opening the Cedar Birthing Suites) and another within BC Children's Hospital Research Institute, both at BC Children's and BC Women's Hospital. At BC Cancer Research Centre, PHSA started a new major heat recovery project and lighting upgrade. When completed, these projects are expected to reduce our carbon emissions by more than 1,000 tCO₂e per year. In all three of these heat recovery projects, a low exergy, thermal gradient header (TGH) design approach was selected for implementation to improve cooling capacity while synergistically recovering waste heat and reducing carbon emissions. In addition, PHSA started an energy study at the BC Cancer – Victoria, and another at the Healthy Minds Centre, to identify heat recovery and carbon emissions reduction opportunities.

PHSA also started the implementation phase of BC Hydro's Continuous Optimization Program at BC Cancer Research Centre and progressed with the implementation of the Continuous Optimization Program at BC Cancer – Victoria.

2020 will be the fourth year in a row that a survey on climate adaptation has been carried out by all public-sector organizations as part of the Carbon Change Accountability Report, recognizing the key role that adaptation must play as we face the impacts of our climate reality.

Challenges we face

In order to build on our successes, a number of challenges must be addressed. Integration is key, and an area to continue focusing on. This could be improved through more coordination between the EES team and the greater Facilities Maintenance (FM) teams, and by working with capital planning teams to better integrate energy, emission and water management strategies, infrastructure, and equipment into funding requests.

Further, by expanding communications with and engagement of diverse stakeholders, including executive sponsorship, we will be better positioned to meet the aggressive emissions targets set by the [CleanBC plan](#).

The work isn't finished

We know that actions speak louder than words, so we're working on the following to advance environmental sustainability at PHSA:

- Pursuit of energy and emissions master plans for campuses and buildings, which will guide construction/renovation towards reducing GHG emissions
- Emission reduction and electrification projects funded by the Carbon Neutral Capital Program (largely heat-recovery initiatives)
- Continued efforts to upgrade to efficient lighting and to optimize performance through improvements to building-automation systems
- Continued efforts to influence major new construction projects by embedding clear energy and carbon requirements and associated accountability mechanisms

“
Our health-care organization should be highly involved and motivated to reduce greenhouse gas emissions as climate change ... has a big impact on health.

– 2021 GreenCare Survey respondent



BC Cancer – Victoria

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4. Workplace Leadership

Our goal

**Together, reach, engage
and inspire health-care staff
to be leaders who share a
commitment to and passion for
healthy, sustainable and thriving
communities, workplaces and
environments.**

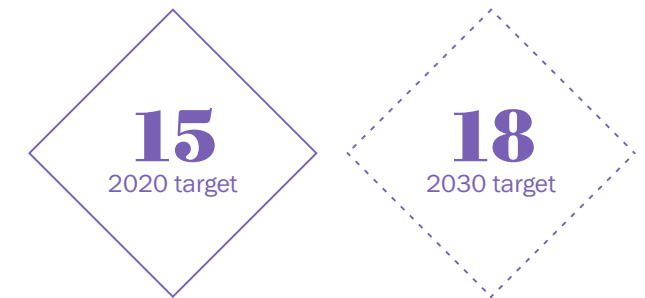
In the workplace, leaders who lead by example and inspire others to do the same are critical to an organization's success. Fostering a culture of workplace leadership for environmental sustainability in health care presents an opportunity for better health outcomes for staff and patients. In addition, supporting and bringing leaders together — whether they are direct-care staff, corporate team members and/or executives — contributes to a more engaged and motivated workplace where values are shared and appreciated.

The Workplace Leadership Focus Area includes [GreenCare](#) and the [Green+Leaders program](#) activities. A network founded by the Energy and Environmental Sustainability (EES) team, GreenCare unites efforts across the B.C. health-care community to transform our health-care system toward environmentally sustainable and resilient care for healthy people, place and planet. GreenCare helps to bring together leaders — whether they are direct-care staff, corporate team members and/or executives — and supports them in creating a more engaged and motivated workplace where values are shared and appreciated. The GreenCare website acts as a home and resource to support these efforts, and, in collaboration with various partners, the EES team is currently in the process of refreshing the website, which should be relaunched in fall 2021.

The Green+Leaders program, a network of health-care staff who participate in projects and initiatives to advance sustainability across PHSA, is a key part of environmental sustainability leadership and innovation.

Our targets

**Increase the number of Green+Leaders across
the organization annually by***



* In previous years, this target was measured as a proportional increase in Green+Leaders. It was decided that using numbers will provide more accurate and meaningful information for monitoring. A refresh of the engagement targets and metrics will take place in 2021.

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Our partners

BC Hydro

Clinical and non-clinical direct-care staff

Communications

Human Resources

Virtual Health

2020 Green+Leaders

In 2020, **14** new staff registered for the program, bringing the total number of Green+Leaders at PHSA to **250** since 2010. PHSA has **94** active Green+Leaders.

The number of Green+Leaders trained throughout the year refers to those staff who have received online training to support their journey as a Green+Leader and is measured as a year-on-year proportional increase. This training isn't mandatory, but strongly recommended as a starting point to joining the program and having the knowledge and tools to implement initiatives that reduce the environmental impact of their workplace.

Current programs include:

GREEN+LEADERS

The Green+Leaders program provides direct engagement and support for health-care staff in their efforts to create environmentally sustainable workplaces.

Green+Leaders make a significant contribution to the improvement of the environmental performance of the Lower Mainland health organizations, with more than 500 trained staff volunteers (working in all areas of health care) now participating in the Green+Leaders program. These individuals are agents of change, encouraging environmentally sustainable behaviour, improving existing processes, and helping to create an overall culture of environmental health and wellness inside and outside the workplace.

The program focuses on behaviour change in the following areas:

- ▶ Energy & Carbon Emissions
- ▶ Water
- ▶ Materials, Waste & Toxicity
- ▶ Transportation
- ▶ Climate Risk & Resilience

It also supports Workplace Leadership efforts while providing the following benefits to staff volunteers:

- ▶ Training, tools and leadership development
- ▶ Support from a community of like-minded colleagues
- ▶ Participation in inspiring and educational events
- ▶ Opportunities for making a positive, meaningful impact on the workplace and community



Nicky Calvert,
BC Cancer Foundation



Rick Molnar,
Senior Manager, Facilities and Maintenance Operations,
Surrey Memorial Hospital



Kelsey Wolfe,
Leukemia/Blood and Marrow Transplant Program, VGH

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OUR STORY

Learning, sharing and leading

When radiation therapist Corinne Fedora heard about the Green+Leaders program, she thought it would be a great way to learn more about how she could influence environmental stewardship among her co-workers and her family. “I’m a health-care provider, so my love for the environment easily pours into the health-care department, where I see so much waste on a daily basis,” Corinne says. “Where does it all go? To the landfills! I feel like we can do better.”

Corinne took Green+Leaders training in 2019 and started her first project in 2020: creating safe storage for bikes for co-workers who cycle to work. Over the years, reports of vandalism and theft had deterred some staff members from cycling to work, which Corinne confirmed with a small survey. But the desire was there, so Corinne pursued the project and obtained financial support from the Health Promotion Initiatives Fund. She also enlisted the help of a local company, Titan Fencing, to secure a bike storage area with new fencing and a keypad lock. The area will hold 37 bikes when finished. “I am excited to promote this initiative with Bike to Work Week and hopefully encourage more staff to cycle to work,” Corinne says.

From her participation in Green+Leaders, Corinne feels more aware of her accountability. “We created a GreenCare community here and I’m hoping it will grow,” she says about her workplace. “There is so much knowledge and I’m excited to learn it and share it. I feel like I have a huge undertaking ahead of me but also feel like it will be so worth the work and challenge.” At home, the sentiment is similar: “I know that sharing the smallest of information about sustainability with my boys creates an awareness that they didn’t have before. That in itself is powerful to me.”



Corinne Fedora/Thompson

Cancer Radiation Therapist, BC Cancer Agency Sindi
Ahluwalia Hawkins Centre for the Southern Interior

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Emily Côté
Primary Care Paramedic, Sidney Station

OUR STORY

Respite on the Rooftop

Sidney paramedic Emily Côté has started a garden on her station's roof, and it's hard to say whether staff take care of the garden or the garden takes care of them. Sidney's paramedics recently moved into the area's new, custom-built Community Safety Building. Together with a coworker, Emily secured a seed fund from the Health Promotion Initiatives Fund to implement the rooftop garden, which offers the station's staff an activity to help them de-stress after a tough shift or get to know each other better as they water the garden. The new green space also helps to reduce the carbon footprint of the concrete and steel station.

"I can see how our society is encroaching on the last green and blue places in the world," says Emily, who spends a lot of time in the outdoors hiking, biking, paddling, or just sitting and reflecting. "I want to preserve what places we have left and maybe make some more." In keeping with this, Emily's love for gardening at home has expanded into her workplace. "My garden at home brings in beautiful animals to watch. For work, I think just a break from the TV and fluorescent lights and air conditioning — to get up on the roof in fresh air and sunshine — has encouraged me."

All in all, the garden has generated some buzz at the station. The compost is getting a lot of use, and the garlic Emily planted is a big hit. "People are talking about it more and asking me questions," Emily reports, "which is a good sign."

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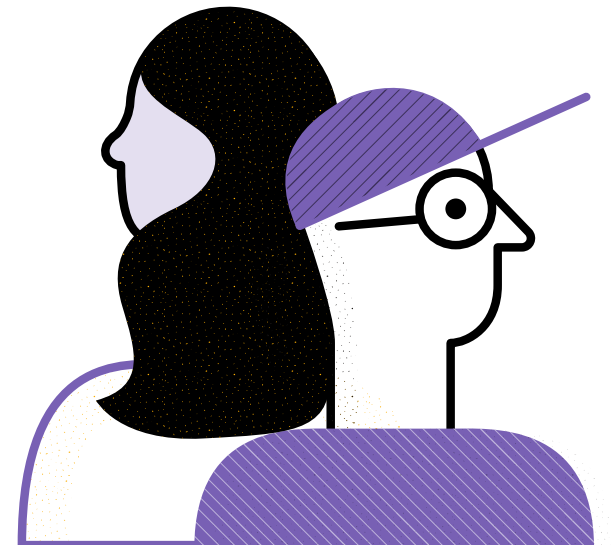
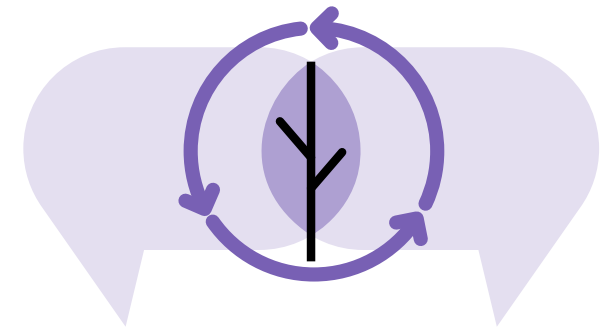
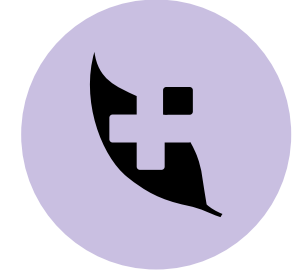
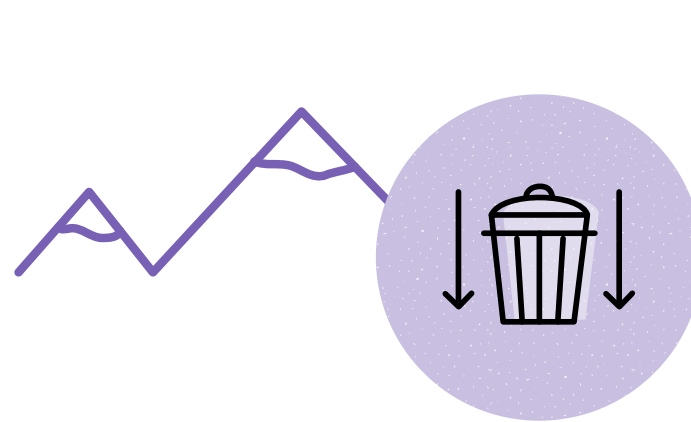
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OUR STORY

Starting a Green Team

How do you know if others in your workplace want to contribute to a more sustainable future? For the BC Cancer Foundation Green Team, it started with simple conversation.

Through informal chats with each other and their CEO, staff at the foundation discovered that they share an interest in sustainability. Each had their own motivations for taking environmental action, ranging from the pervasiveness of plastic to global social impacts, but common to all was the desire to take action in the workplace. And so, with the support of senior leadership, they established the Green Team.

Early on, the newly formed Green Team discovered the GreenCare team, which provided valuable assistance. “We could not have done this without them and their willingness for us to tap into their knowledge and expertise at any time,” Green Team Chair Milly Jones says. “Our main barrier was that we had an interest but not necessarily a lot of knowledge.”

The new team has been using Green+Leaders tools to set short-term and long-term goals, and it meets regularly to keep forward momentum. Having already achieved some small wins, such as increasing the recycling of soft plastics

and pens and generating more conversation through interoffice communications, the Green Team is building a foundation for continued action.

“These are seeds that will grow into something much bigger, stronger and fruitful,” Milly says. “It has been encouraging how well received we have been by our colleagues, and to know that there is support and willingness there to make changes.”

Key to the Green Team’s continued ability to remain engaged is that the work they do on green initiatives is not considered secondary to the work they were hired to do. Busy schedules often make it challenging to meet and plan, but team members make it a priority.

Talking with each other is what originally brought this Green Team together, and conversation remains an important tool to advance their green initiatives. “Talk to people about what you’re feeling and thinking. Talk to people about what they’re feeling and thinking. We’ve been amazed at who is interested and motivated,” team member Nicky Calvert says, “and we need everyone to help us gain traction in the workplace.”

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Our successes

In 2020, we strengthened online engagement opportunities for Green+Leaders. This included initiating the Green+Leaders Coffee Conversations (monthly networking socials) to create a space for Green+Leaders to gather and share ideas with one another. We continue to support staff-engagement opportunities through the Green+Leader Dialogue Series (monthly webinars on sustainability topics) and quarterly e-newsletters. This year, we hosted two Lunch and Learns, two Dialogue Webinars, two training and orientation sessions and one annual recognition event. Highlights include the new Healthy and Green Buildings webinar series that supports the understanding of green design and fosters opportunities for PHSA staff to get involved in design and construction processes in health care.

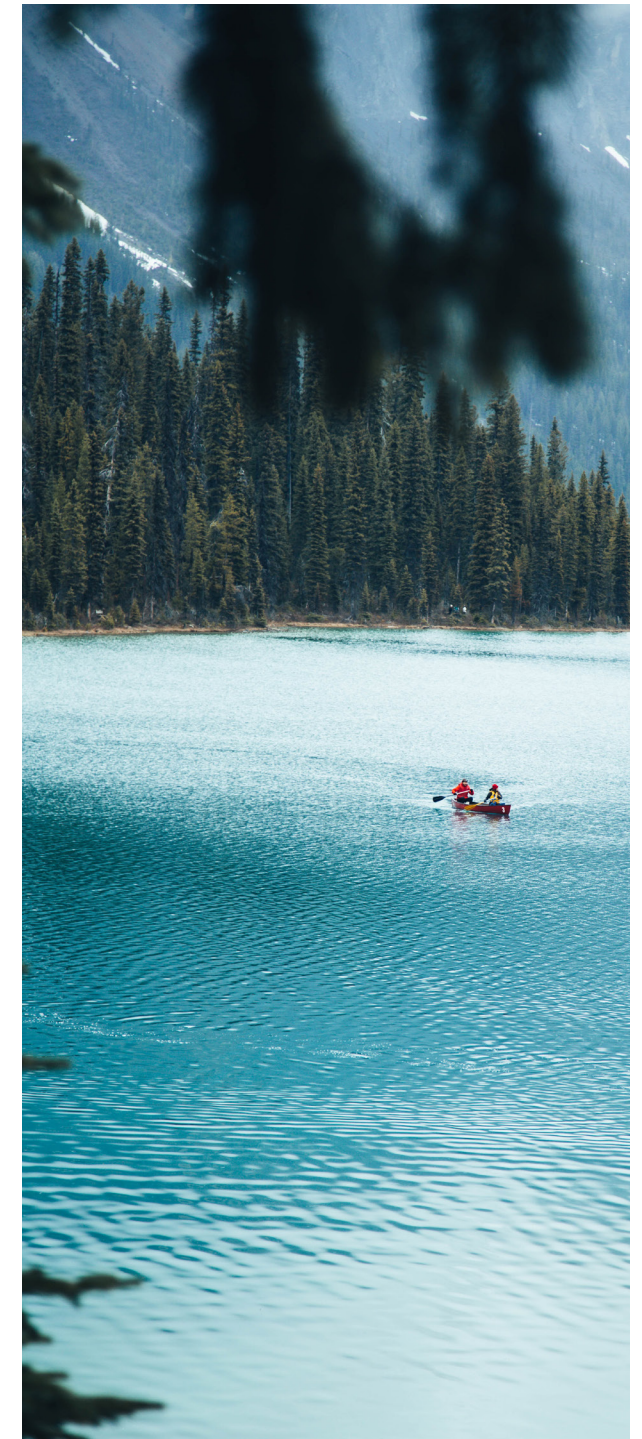
With the support of the Health Promotion Initiative Fund, seven projects (\$5,170 awarded) were initiated and developed to create innovative projects in the workplace to improve environmental sustainability in health care at PHSA. Projects addressed issues around food security, green space, and active and clean transportation. We are pleased that 14 employees across operational, clinical and administrative units have joined the program, bringing together an array of different departments, such as BC Emergency Health Services, Data Analytics, Labour Relations, Reporting & Evaluation (DARE), Nutrition, Radiation, Workplace Management Solutions Scheduling, and others!

Challenges we face

As we continue to support sustainability leadership, some of the challenges include finding inspiring, effective ways to engage staff around sustainability and provide meaningful opportunities for staff to connect with each other on sustainability matters in their workplace. In 2020, due to COVID-19, our work transitioned online to webinar-based workshops, orientations and networking opportunities. This allowed Green+Leaders from across the province to more easily join engagement events and learning sessions, and we will continue to look for ways to make our engagement efforts more accessible.

The work isn't finished

As we work towards ensuring the best support possible for PHSA staff, we'll continue to engage and support leadership as it addresses environmental sustainability, refresh the GreenCare website, celebrate staff, and seek out professional development opportunities for Green+Leaders. We are currently working with a UBC sustainability scholar to analyze current targets, metrics and reporting, in order to improve engagement targets and metrics for the Green+Leader program, through best practice research.



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5. Zero Waste & Toxicity

Our goal

Minimize waste generated and toxic chemicals used by the health-care system and supporting operations.

In health-care settings, reducing waste and exposure to toxins produces better health outcomes for staff and patients, decreasing the risk of disease.

In the broader environment, scaling down the use of toxic chemicals and waste decreases GHG emissions and negative impacts on water, soil and air, thereby reducing associated health impacts such as respiratory and cardiovascular disease, cancer, endocrine disruption and birth defects.

PHSA is working to reduce the negative environmental and health impacts of waste and toxins by focusing on programs that reduce and avoid generation of material waste, divert material waste to recycling streams and reuse programs, and reduce and monitor the use of toxic chemicals in health-care construction, furnishings, maintenance, cleaning and patient care.

Our targets

Increase and maintain waste-diversion rates* at existing acute and long-term care sites to

50%
2020 target

50%
2030 target

Decrease waste-intensity rates at existing acute and long-term care sites to

5.0 kg/m²
2020 target

4.0 kg/m²
2030 target

* Waste-diversion rates show a slow increase over time; however, as is the case for other sites in the Lower Mainland, they seem to plateau at approximately 40%. In order to reach the 2020 target of 50% waste diversion, more aggressive action needs to

be taken to reduce garbage waste and look for new streams of recycling. Until we better understand what actions are feasible, we will maintain the target in 2030.

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Our partners

Business Initiatives Support Services
(including the Sustainable Food Operations Committee)

Environmental Vendor Services

Facilities Maintenance and Operations

Infection Prevention and Control (IPAC)

PHSA Supply Chain

Projects and Planning teams

Provincial Nursing Skin and Wound Committee (PNSWC)

Quality Improvement

Workplace Health and Safety

Current programs include:

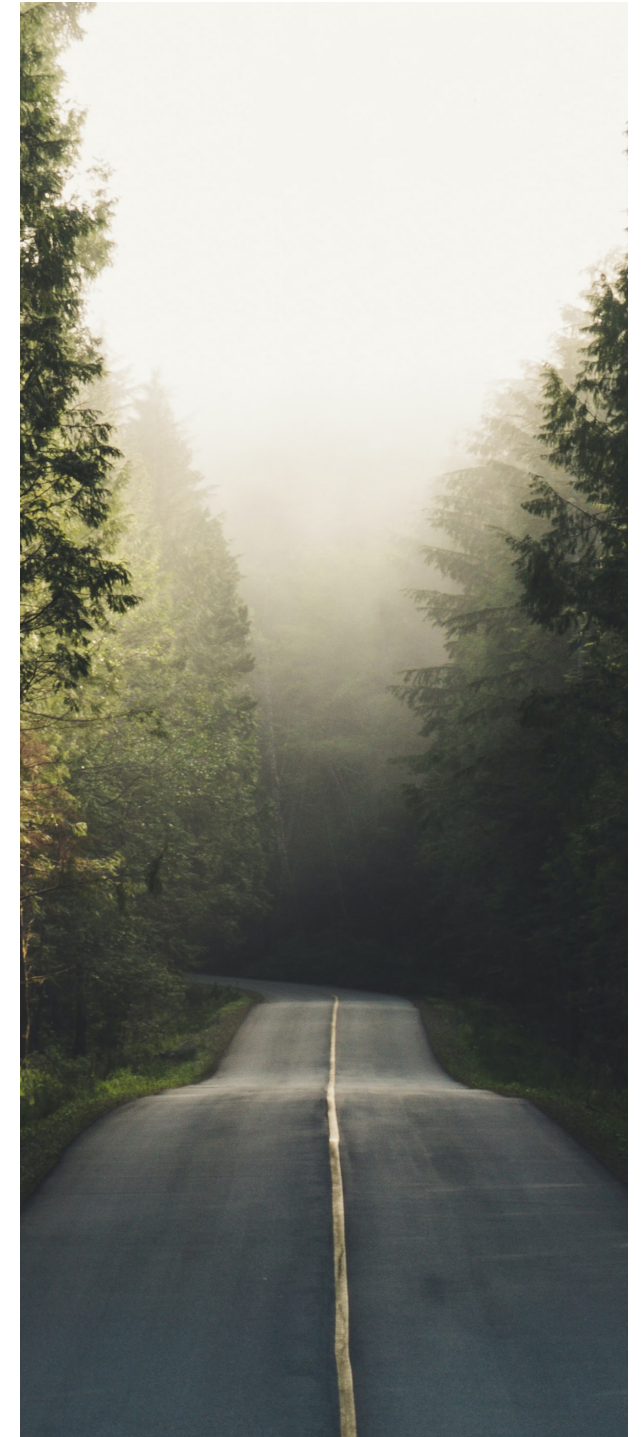
- Blue Bin
- Waste Reduction
- Environmentally Preferable Purchasing (EPP)
- Safer Chemicals^G

BLUE BIN

The Blue Bin program, administered in partnership with Business Initiatives & Support Services, aims to increase material waste diversion at all owned hospital and long-term care sites, with the target of reaching 50% waste diversion by 2020. The program provides health-care sites with recycling equipment and signage and staff education. As a standardized recycling program, it operates in the same way at every site, making it easier for staff, physicians, patients, volunteers and visitors to compost and recycle correctly. Clear signage attached to each bin helps to reduce confusion and error at the time of disposal.

Recycling is undertaken in both (appropriate) clinical and non-clinical areas of Lower Mainland sites for the following material waste streams:

- Mixed containers
- Mixed paper
- Organics



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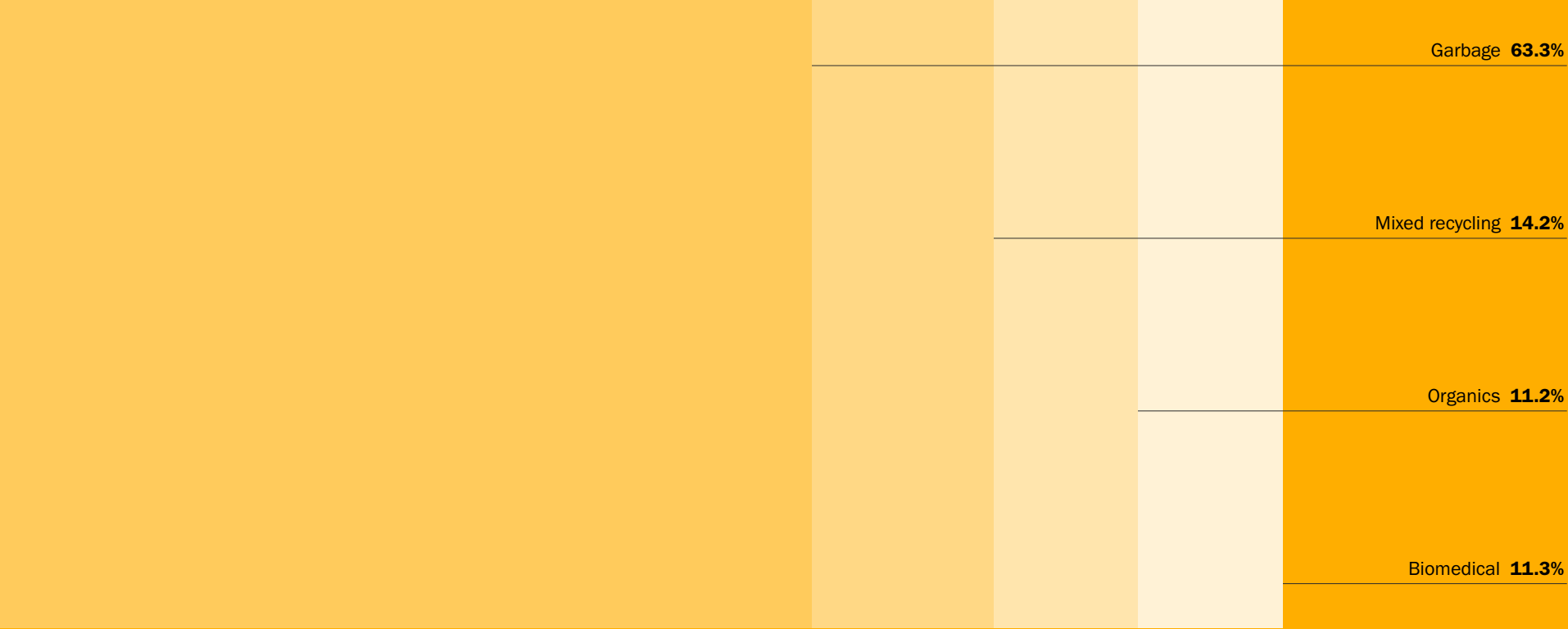
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PHSA Waste Proportions

Waste proportions show most health-care waste is non-hazardous. The majority of waste produced in health care is general, non-hazardous waste that doesn't need any special treatment. This data includes all acute and residential care facilities owned by PHSA.

1,234 t

PHSA facilities generated a total of 1,234 tonnes of waste in 2020, which is the equivalent of approximately 247 five-tonne elephants.



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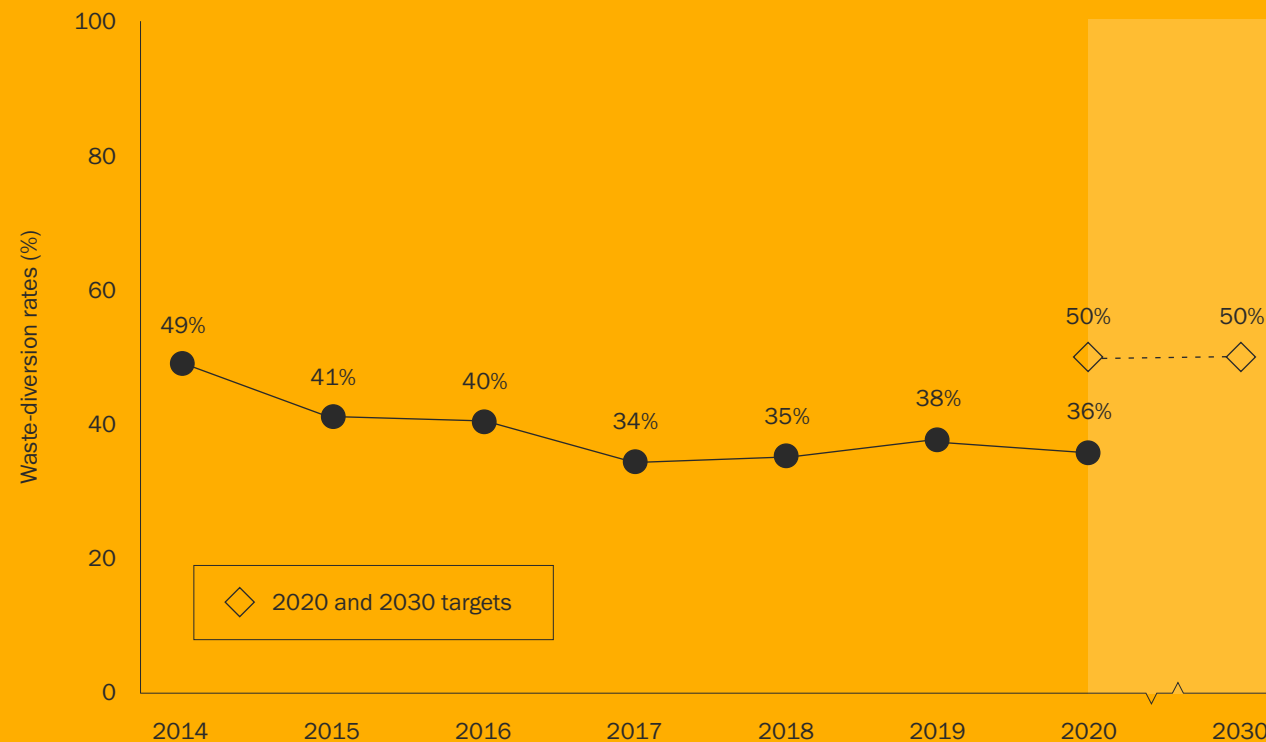
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Waste-Diversion Rates

Waste-diversion rates are for all owned PHSA acute and residential care facilities and do not include biomedical waste. The waste-diversion rate is calculated by dividing total estimated weights for paper, container and organics recycling by the total estimated weight of general garbage waste and recyclables. The decrease from 2014 to 2015 is attributed to the cancellation of the Soft Plastics Recycling program, as well as a change in waste vendors and the methodology used to track data.



In 2020, our waste diversion reflects only waste segregation, as our recycling provider paused the collection of recycling due to concerns for staff safety during the COVID-19 pandemic. All recycling and general garbage streams were instead taken to a local waste-to-energy facility.

“

COVID protocols have increased our use of single-use disposable items, which feels so counteractive to the GreenCare needs/climate change response.

– 2021 GreenCare Survey respondent

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ENVIRONMENTALLY PREFERABLE PURCHASING (EPP)

Purchasing items that generate unnecessary packaging, contain toxic chemicals, and must be disposed of in the garbage or hazardous waste (not recyclable) contributes to the extraction of unnecessary natural resources, GHG emissions and air pollution, which are associated with health problems such as asthma, endocrine disruption and mental illness. The EPP program aims to decrease the negative impact of building materials and patient-care equipment and supplies on environmental and human health.

The program includes the following actions to support the achievement of environmental sustainability goals and targets:

- Collaboration with clinicians and key departments, such as PHSA Supply Chain (which procures goods and services for all B.C. health authorities), Infection Prevention and Control, Workplace Health & Safety, and Facilities Maintenance, in order to signal to health-care vendors the importance of environmental and human health
- Making changes to our procurement processes; in 2020, a weighted environmental questionnaire was included in the request for proposals for waste-management services.



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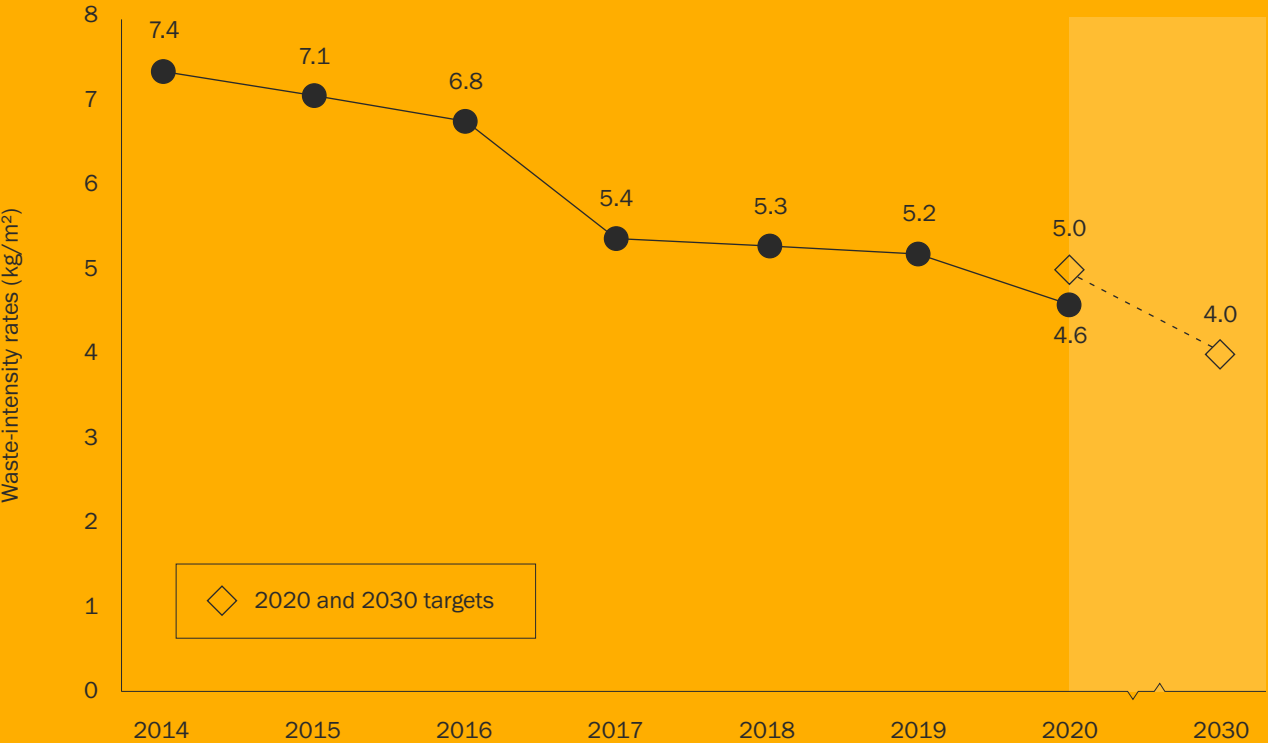
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Waste-Intensity Rates

The waste-intensity rate indicates whether or not we are reducing total waste generated for all PHSA-owned acute and residential care facilities, and is measured in kilograms of waste generated per square metre of facility space (kg/m²).



20.1%



Total waste generated has dropped 20.1% from 2014, despite a 28% increase in facility space.

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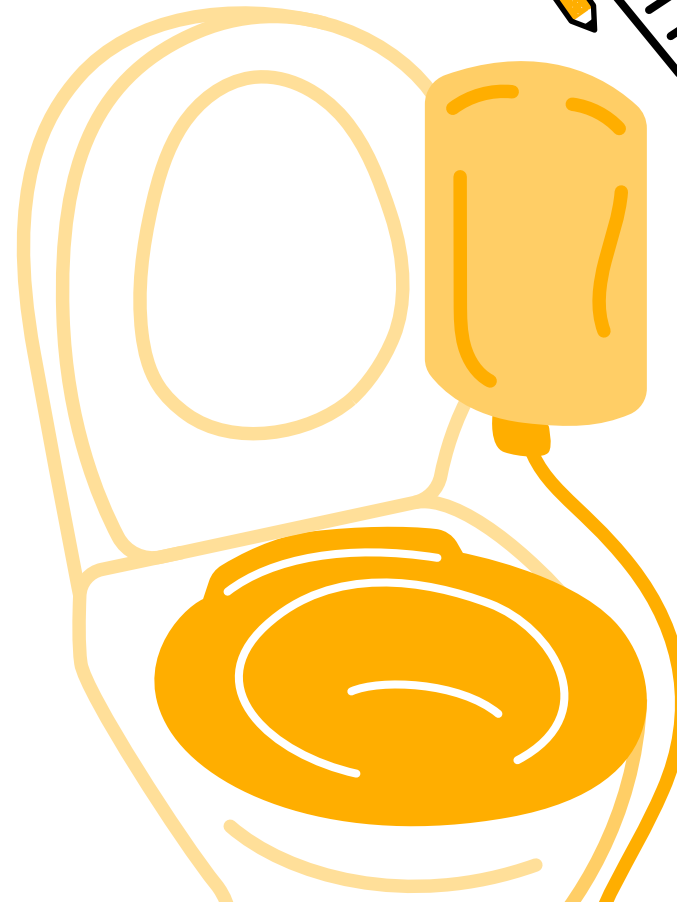
Direct-care staff are drivers of change

A group in the postpartum ward at BC Women's Hospital + Health Centre took action to make an environmental change and cut plastic waste in their work, specifically the plastic bags and tubing that came along with sitz baths — basins commonly used after childbirth for people to sit in warm, shallow water. Care providers on the Postpartum team didn't use them and had been concerned about the plastic waste for years: "The bags were such a waste that nobody used," says Parm Kaila, an antepartum/postpartum RN.

Working with the BC Women's Hospital Quality team, the nurses looked at their usage numbers to build a storyboard of waste in their department. They also collaborated with sustainability consultants on the Energy and Environmental Sustainability team to analyze the problem and consider possible solutions. Province-wide, 6,220 sitz basins were used between April 2018 and March 2019, and almost half of those were at BC Women's Hospital. That meant over 2,600 unnecessary plastic bags and tubing were thrown in the trash in one year at BC Women's alone.

Staff identifying opportunities and finding ways to reduce waste is essential to make PHSA a greener and more environmentally sustainable organization, says Berna Marcelino, Provincial Director, Standardization with PHSA Supply Chain. "It's the end-users like this team who really improve sustainability. Yes, it's Supply Chain that purchases products, but frontline caregivers use those products, see how much waste is being generated and can identify these important opportunities for sustainability."

PHSA Supply Chain worked with the sitz basin vendor to learn about how PHSA could customize the product to remove the unnecessary plastic. Supply Chain also reached out to health authorities to assess clinical needs and historical usage data. The switch has not only reduced plastic waste, but also saves money for the B.C. health-care system by reducing the bag-free sitz basin cost by about 20%.



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OUR STORY

Incorporating Indigenous food and culture into hospital care

Introducing B.C. salmon as a regular menu item at the Forensic Psychiatric Hospital (FPH) and increasing cultural humility has been an upstream push for José Morais, manager, Food and Nutrition Services.

While the fish is a dietary staple for many patients before admission, that cultural link diminishes once they're inside the hospital, as Pacific salmon is served only occasionally as a menu item.

"Thirty per cent of our food spend has to be on local products," José says. "But it's not that easy to do. While I can source locally grown fruits and vegetables in the summer, almost all of my protein products — with the exception of chicken — are imported from outside the province."

FPH sits near the shores of the lower Fraser River. On most summer days, José, a recreational fisher himself, watches First Nations fishers cast their gillnets into the river's brackish water in search of Pacific salmon. Since time immemorial, the fish have been a significant food source for B.C.'s coastal and interior Indigenous peoples.

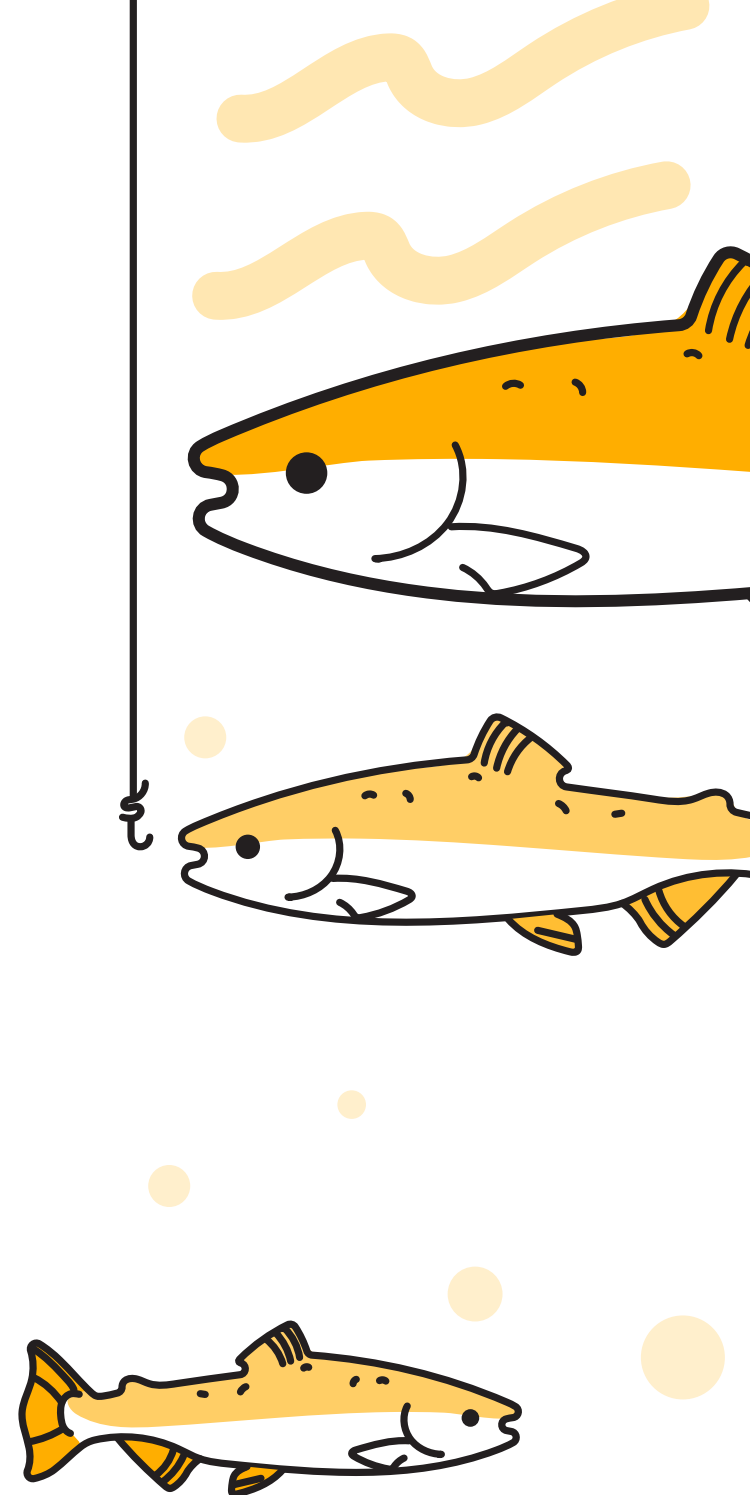
It started José thinking about ways to access this local catch. "I see First Nations on the river all the time. I knew there had to be a way I could access it so that it qualifies under the provincial guidelines pertaining to locally produced food."

While Pacific salmon are as iconic to B.C. as western redcedar, the commercially caught fish that José purchases don't comply with the 30% rule. Why? While they're caught in B.C., they're processed in China. "It's actually considered 'imported' salmon, even though it's caught right here," José explains.

After several failed attempts at sourcing First Nations-caught salmon, José was stuck. But a First Nations business venture in the Okanagan is set to return "Product of BC" branding to Pacific salmon, and FPH will be an early institutional beneficiary.

Through José, FPH is working with Sylix, also known as the Okanagan Nation Alliance, to procure B.C.-caught and processed sockeye and chinook salmon to meet provincial local food regulations. By supporting the Sylix venture, FPH is also contributing to First Nations' desire to rebuild threatened salmon stocks across the province to ensure the fish remain a viable natural resource for generations to come.

"At FPH, we'd like to play a part in ensuring that B.C. salmon stay in B.C.," José says. "By working with First Nations we can help not only to preserve salmon species but also to raise awareness and acceptance of First Nations cultural values, learn to respect each other and work together."



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Circular economy in health care

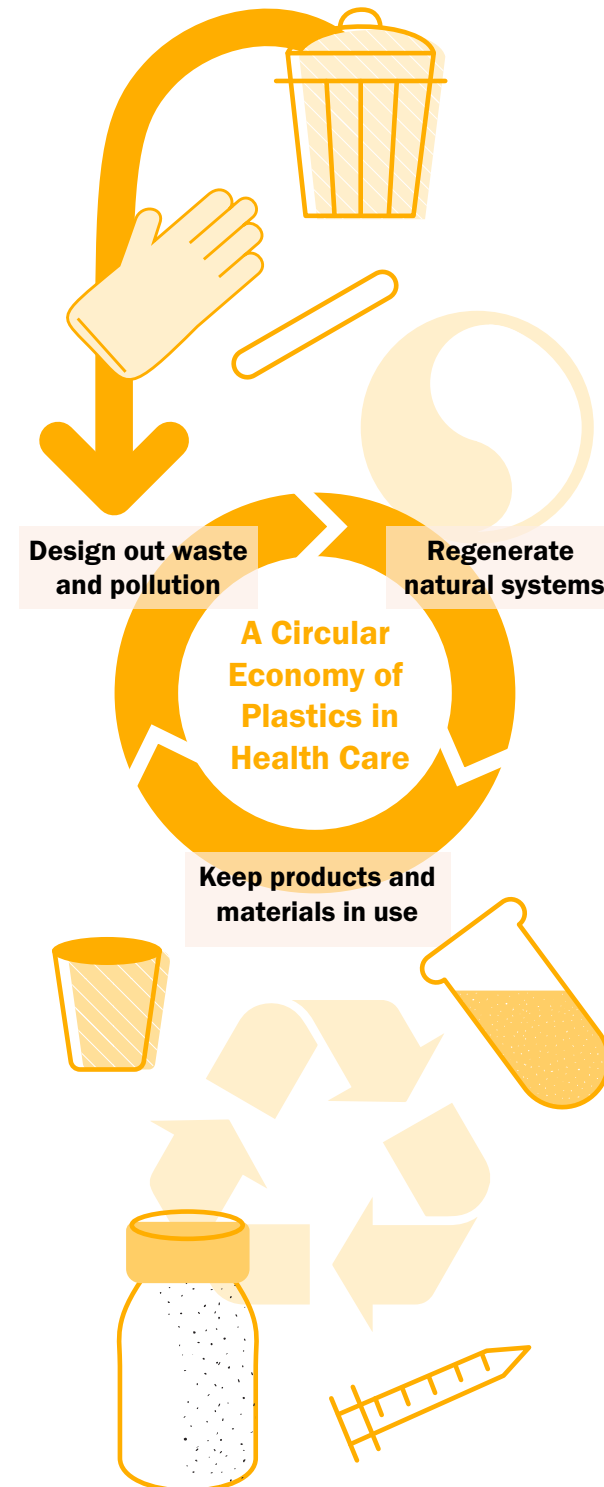
Plastics are embedded in the health-care system and used at every point of care. They are found in intravenous (IV) bags to deliver solutions and medications, airway maintenance devices, syringes, sterilization blue wrap, basins and patient garment bags, and this much plastic exposure has led to concern about adverse health effects.

To understand this better and explore recommendations for health-care practice, the EES team worked with UBC Sustainability Scholar Shayna Moore to research the circular economy framework specifically in regard to plastics. Researching a Circular Economy of Plastics in Health Care introduces potential long-term goals such as embedding circular economy principles in procurement and clinical practices.

A circular economy is based on three principles, which can be used in health care to protect, promote and restore holistic health while fostering sustainable growth and innovation:

- Design out waste and pollution.
- Keep products and material in use.
- Regenerate natural systems.

The intent of the research project was to gather information from other health systems and sectors that could inform health-care delivery in the Lower Mainland health organizations. Further, since the idea of circular economies is relatively new in health-care settings, the project findings are helping the EES team to bring awareness to the concept and encourage conversation.



SAFER CHEMICALS

The Safer Chemicals program aligns with international efforts to recognize that there are chemicals of concern contained in man-made products, including those used in our hospitals for construction, furnishing, maintenance, cleaning, disinfection and patient care. Chemicals of concern refer to chemicals that, through credible evidence, have or can have adverse health effects to people or the environment, including carcinogenic and reproductive/development toxicants, and those that are persistent, bioaccumulative and toxic to the environment.

The Safer Chemicals program aims to develop a strategy across the four Lower Mainland health organizations that:

- Aligns health-care sites with work undertaken by Workplace Health & Safety, Infection Control and other clinical stakeholders in order to develop toxicity reduction targets and create a pathway towards safer chemicals
- Identifies potential chemicals of concern, including using requests for proposals to ask vendors to declare chemicals of concern in their products
- Develops a list of chemicals of concern for health-care site construction and operations

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Safer chemicals for patient care

Ingredients in skin and wound products may include chemicals of concern — chemicals that negatively affect human and environmental health. A recent collaborative project is seeking to reduce the use of hazardous skin and wound products in patient care by preventing their purchase.

The project, Aligning Safer Chemicals with Patient Care in BC Health Care Facilities: Research, Development, Engagement, was undertaken by the EES team, a UBC sustainability scholar, and the British Columbia Provincial Skin & Wound Committee (PNSWC), and builds on the EES Safer Chemicals program.

The project considered the chemical ingredients within three types of products: skin cleansers, moisturizers and barriers. Researchers created a chemical inventory database and implemented a chemical screening framework to categorize inventoried chemicals by hazard and assessed level of risk. Co-mentor Shannon Handfield notes that UBC Sustainability Scholar Anuradha Ramachandran's work "has provided a clear, well-researched, evidence-based method of identifying high-risk chemicals of concern."

The screening framework was developed with reference to work by authorities such as the Environmental Protection Agency, the International Council of Chemical Associations and Green Screen. These authorities have documented human health concerns that range from skin irritation to toxicity and cancer, and environmental health concerns like toxicity in land and water environments, continuous buildup of chemicals in organisms, and the inability of some chemicals to break down.

Thanks to this project, PNSWC can advise which are the least harmful products at the time of procurement. "When Supply Chain brings forward a skin care product for contract consideration, the product's ingredients are run through the screening framework to identify the level of concern for each ingredient," Shannon explains.

Aligning Safer Chemicals represents the start of what is expected to be an ongoing endeavour. Of the approximately 385 ingredients in skin care projects identified by PNSWC, the project considered 60; there are many more chemicals found in skin and wound products used in clinical settings that still need to be screened and assessed. As authorities continue to research and publish new information on chemical hazards, the project's chemical inventory will be updated and expanded in order to avoid chemicals of concern in more skin and wound products. Once all ingredients have been screened, a process to keep the list up to date will be developed. The EES team and PNSWC plan to use the inventory to engage clinical staff and organization leaders about safer chemicals and their procurement.



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Our successes

Throughout 2020, two PHSA sites, BC Children's and Women's Hospital and BC Cancer – Vancouver, hosted a Cafeteria Waste campaign designed to make recycling easier for cafeteria visitors through new recycling and waste bin stickers and campaign posters and banners that are informative and easy to understand.

While, due to COVID-19 related considerations, in-person staff education sessions were put on hold, PHSA continued the delivery of relevant education through a virtual Lunch and Learn for the BC Cancer Foundation team. The session involved sharing information on the context of health-care waste, how to recycle properly, and how to identify opportunities for waste reduction at work and at home.

The PHSA Recycling and Waste Reduction committee, including members from BC Children's and Women's Hospital, Sunnyhill, BC Cancer – Vancouver, and the BC Cancer Research Centre, continued to meet quarterly to discuss emerging issues and look for new opportunities to reduce waste. The committee undertook a cost-benefit analysis of reusable sharps containers, which was used to inform a broader regional strategy expected to begin in 2021.

Challenges we face

Waste-diversion rates seem to plateau at approximately 40%, a trend seen at all sites in the Lower Mainland. Some reasons for this stall are outside PHSA's control, such as recycling markets not accepting many of the materials produced in health care. However, PHSA can also take more aggressive action to reduce garbage waste and look for new streams of recycling.

As with everything in 2020, waste reduction and recycling took a backseat to the COVID-19 pandemic. Staff who were already busy were completely dedicated to the health emergency and had little time for other considerations. Additionally, recycling was paused due to concerns for the staff at recycling facilities. The pandemic shone an even brighter spotlight on the unnecessary waste health care is generating, and our challenge became to find ways to support the pandemic response through waste reduction and conserving the resources we had.

The work isn't finished

We want to build on 2020 successes by continuing to find opportunities to embed waste reduction into practice and by finding co-benefits, including cost savings and supply chain stability. We will also continue to engage key clinical stakeholders, such as Infection Prevention & Control (IPAC) and Workplace Health & Safety. Finally, we want to continue to work with staff in PHSA Supply Chain to understand procurement processes in PHSA and work towards environmentally preferable policies and practices.

COVID-19 has impacted staff behaviour when it comes to waste.

When asked how COVID-19 has impacted the actions they take to reduce environmental impact in health care, PHSA staff reported:^E

- An increased amount of waste, due to increased use of PPE and changes to work practices and protocols
- A decreased amount of paper waste, due to increased use of digital platforms and reduced printing when working from home



Hospital waste at Urban Impact recycling depot

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Thank you for your
ongoing support.

From the successes in PHSA to the challenges still faced, it's clear: environmental sustainability is everyone's story. If we are to address the impacts of our climate reality, ensure that we are making responsible choices for our environment, and continue to offer our staff, volunteers and patients the very best quality of life possible, together we must all take a leading role. The EES team invites the whole health-care community to take actions that transform their workplaces and communities in order to restore and regenerate the interdependent health of people, place and planet — now and for future generations.

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This report has been compiled by Be the Change Group for GreenCare's Energy and Environmental Sustainability team.

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**There are a number of ways
in which you can make a
difference.**

LEAD BY EXAMPLE.

Look for opportunities to reduce
environmental impact in the workplace.

YOUR VOICE MAKES A DIFFERENCE.

Talk to your colleagues and see how you
can work together.

PARTICIPATE.

Attend and support environmental sustainability
events and actions.

LEARN MORE ABOUT SUSTAINABLE AND RESILIENT HEALTH CARE.

Check out the GreenCare website [here](#).

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- B The full-time equivalent staff includes all designated groups reported in HSCIS [i.e. physicians (doctors on staff), executive/excluded, non-union and bargaining unit employees]. It excludes affiliate employers and BCEHS employees. (Source: Health Employers Association of BC)
- C PHSA Real Estate Department
- D Pinkerton E, Desmond K. COVID-19 Impacts on Public Transit [presentation notes]. UBCM Transit Communities Forum [Internet]; 2020 Jun 16; British Columbia, Canada [cited 2021 Jun 22]. p. 1-22. Available from: <https://www.ubcm.ca/assets/Resolutions~and~Policy/Policy/Community~Economic~Development/01%20-Joint%20BC%20Transit-TransLink%20Presentation%20to%20UBCM%20-%20June%2016%202020.pdf>
- E 2021 Provincial Health Services Authority GreenCare Survey [Internet]. British Columbia, Canada: GreenCare Community; 2021 [cited 2021 Jun 23]. Available from: <https://bcgreencare.ca/phsasurvey>
- F Program staff partner with FortisBC and BC Hydro to attract funding support for energy conservation and efficiency projects, with the incentives received from industry partners used to supplement the project funding. The implementation of these projects directly reduces operating expenses and the environmental impact of Lower Mainland health organization sites.
- G Currently, there are no targets for Safer Chemicals.

