



GreenCare™
2020

Environmental Performance
Accountability Report

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

Providence
HEALTH CARE

How you want to be treated.

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Our Focus Areas



**Active & Clean
Transportation**



**Climate Risk &
Resilience**



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 Providence Health Care (Providence) 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.

Sustainability is a Foundational Principle of Providence's Mission: Forward Strategic Plan. At its core, our sustainability plan is about ensuring we can continue to pursue our mission into the future by reducing our environmental footprint to achieve — and hopefully exceed — national benchmarks for sustainable, green and minimal impact. Everyone at Providence has a role to play. As you read this report, we encourage you to draw inspiration from the actions of your colleagues and Providence's foundational commitment to the sustainability in your own actions.



Mauricio A. Acosta

Executive Director, Facilities Management
and Business Performance (VCH)

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1.1 Executive Summary

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, Providence 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.

Providence's environmental sustainability story is always being co-created, including its successes, challenges and next steps. This report presents Providence'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

15.2%

decrease in greenhouse gas emissions intensity since 2007

6

new Green+Leaders in 2020

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 1,650 tCO₂e per year
- ▶ Approval of a seed fund for Providence Green+Leaders to develop future projects for greening their workplace
- ▶ 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	57%	●	65%	85%

* 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	3.4%	●	5%	15%
Reduce absolute in-scope GHG emissions.**	GHG emissions (tCO ₂ e/year)	2007	8.4%	●	10%	50%
Reduce in-scope GHG-emissions intensity.	GHG-emissions intensity (tCO ₂ e/year/m ²)	2007	15.2%	●	15%	50%
Reduce building water (use) performance intensity (BWPI) of core sites.	BWPI (m ³ /m ² /year)***	2010	8.0%	●	15%	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	6	●	4	7

* 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	35%**	●	50%	50%
Decrease waste-intensity rates at existing acute and long-term care sites.	Waste intensity (kilograms/m ² /year)	n/a	15.3	●	12.0	10.0

* 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 Providence Health Care (Providence)

Our mission

Inspired by the healing ministry of Jesus Christ, Providence Health Care is a Catholic health-care community dedicated to meeting the physical, emotional, social and spiritual needs of those served through compassionate care, teaching and research.

Our vision

Driven by compassion and social justice, we are at the forefront of exceptional care and innovation.

Our values

- ▶ Spirituality – We nurture the God-given creativity, love and compassion that dwells within us all.
- ▶ Integrity – We build our relationships on honesty, justice and fairness.
- ▶ Stewardship – We share accountability for the well-being of our community.
- ▶ Trust – We behave in ways that promote safety, inclusion and support.
- ▶ Excellence – We achieve excellence through learning and continuous improvement.
- ▶ Respect – We respect the diversity, dignity and interdependence of all persons.

Our commitment to sustainability

Achieving energy and environmental sustainability is a priority for Providence. To achieve this, in our [environmental sustainability policy](#), Providence 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.

Providence has also identified sustainability as one of its Foundational Principles as part of the [Mission: Forward Strategic Plan 2019 - 2026](#), working towards proactive financial and environmental stewardship. Goals include:

- ▶ Ensuring Providence's financial plan is sustainable and has diversification of our revenue sources to support capital infrastructure and innovations needed to deliver our Mission: Forward Strategic Plan.
- ▶ Being the public health care sector industry environmental sustainability leader in B.C. by achieving the goals laid out in the [CleanBC plan](#).

Our services^A

Providence is home to St. Paul's Hospital. St. Paul's serves 174,000 unique patients who account for over 500,000 visits annually. As one of two adult academic health sciences centres in B.C. (affiliated with the University of British Columbia, SFU and other post-secondary institutions), St. Paul's is a renowned acute-care hospital recognized provincially, nationally and internationally for its work, including its several centres of excellence and affiliated research programs.

In coordination with its health partners – including the Ministry of Health, VCH and PHSA – the Providence Health Care Research Institute leads research in more than 30 clinical specialties. This research continues to advance the lives of British Columbians every day.

By integrating evidence-based research, teaching and care, Providence leads advancements in health care that improve the lives of British Columbians, while setting the standard for best practices in Canada and around the world.

Our direct-care professionals

The 5,188^B full-time equivalent staff and medical staff of Providence Health Care are committed to the values of respect, integrity and trust in pursuit of providing the best health care possible to every individual across the region.

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.

“
Whether it be physicians, clinicians, administrative staff or leadership, we all have a role to play in advancing sustainability at Providence. Only through continued collaboration and innovation, with support from the EES team, can we see real change. More than ever before, we must come together!

– Dr. Steve Petrar, Anesthesiologist, Providence Health Care

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Senior executive team*

“

Here at Providence, sustainability is one of the four foundational principles of our Mission: Forward Strategic Plan. At its core, our sustainability plan is about ensuring we can continue to pursue our mission into the future, through proactive financial and environmental stewardship. We are committed to reducing our environmental footprint to achieve – and hopefully exceed – national benchmarks for sustainable, green and minimal impact.

– Fiona Dalton, President and Chief Executive Officer, Providence Health Care



Fiona Dalton
 President and Chief Executive Officer



Leanne Heppell
 Chief Operating Officer, Acute Care
 and Chief of Professional Practice
 and Nursing



Dr. Darryl Knight
 Vice-President, Research
 and Academic Affairs



Mark Blandford
 Vice-President, Seniors Care,
 Clinical and Operations



Shaf Hussain
 Vice-President Public Affairs,
 Communications and Stakeholder
 Engagement



Dr. Janet Kow
 Interim Vice-President,
 Pandemic Response



Dr. Ronald Carere
 Vice-President, Medical Affairs



Dave Ingram
 Vice-President, Major Capital Projects



Deborah Mitchell
 Chief Strategy Officer
 and Vice-President, Governance



Christopher E. De Bono
 Vice-President of Mission,
 Organizational Development and Ethics



Harmony Johnson
 Interim Vice-President, Indigenous Wellness
 and Reconciliation



Brian Simmers
 Chief Financial Officer and Vice-President,
 People and Health Informatics

* 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), Providence 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](#))

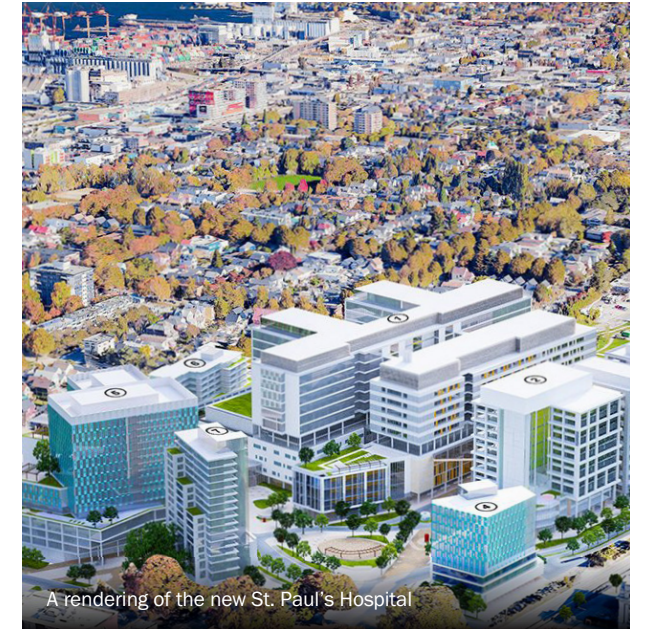
Our buildings^C

182,914 m²

usable facility space

44

distinct buildings



A rendering of the new St. Paul's Hospital

Our LEED projects

Certification Date	Project Name	Certification Level	Project City	Project Size (m ²)
2015-03-18	PHC BCCFE West Wing Renovation	Gold	Vancouver	652
2006-11-09	St. Paul's Hospital 9A Mental Health Unit (Providence Health Care Society)	Certified	Vancouver	799
TBD	The new St. Paul's Hospital	TBD	Vancouver	137,000

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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.

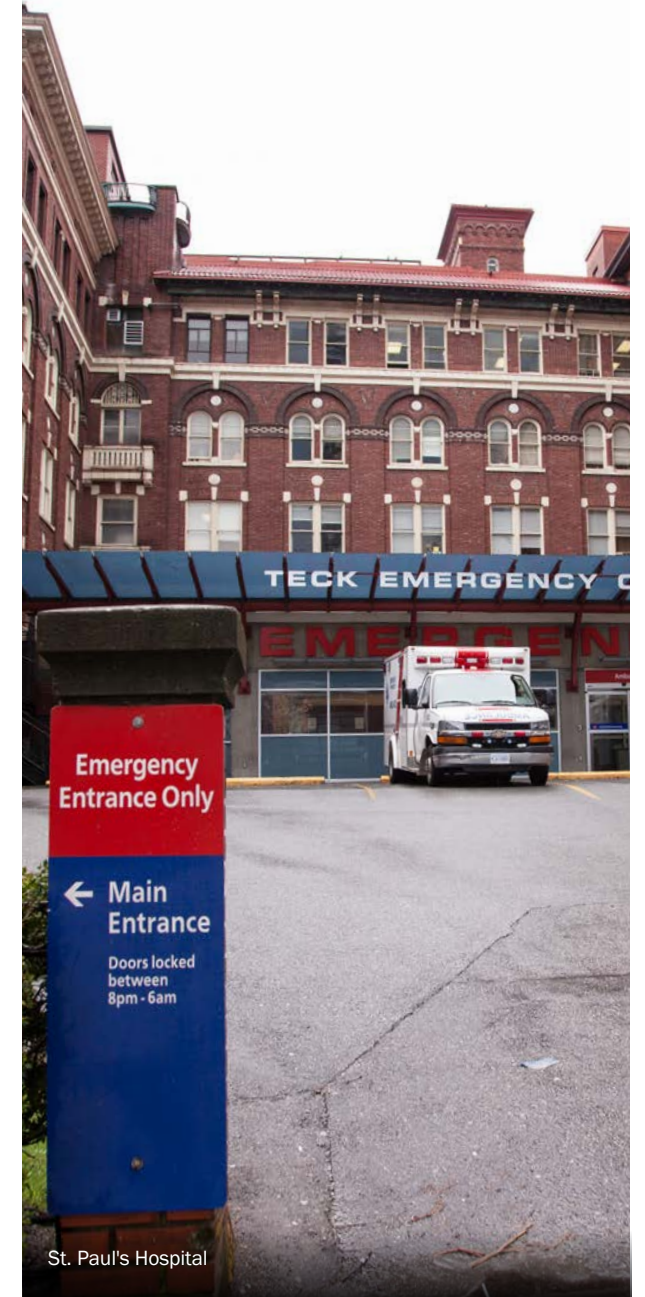
In spite of the new challenges that the pandemic brought in 2020, I know how hard the EES team has been working. While adapting to 2020's exceptional circumstances, they have continued to make sustainability and resilience a priority, as shown throughout this report. I also know how proud the team is of Providence 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.



St. Paul'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, Providence can assess its progress and achieve environmental sustainability.



**Active & Clean
 Transportation**



**Climate Risk
 & Resilience***



**Smart Energy
 & Water**



**Workplace
 Leadership**



**Zero Waste
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* 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 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 Providence 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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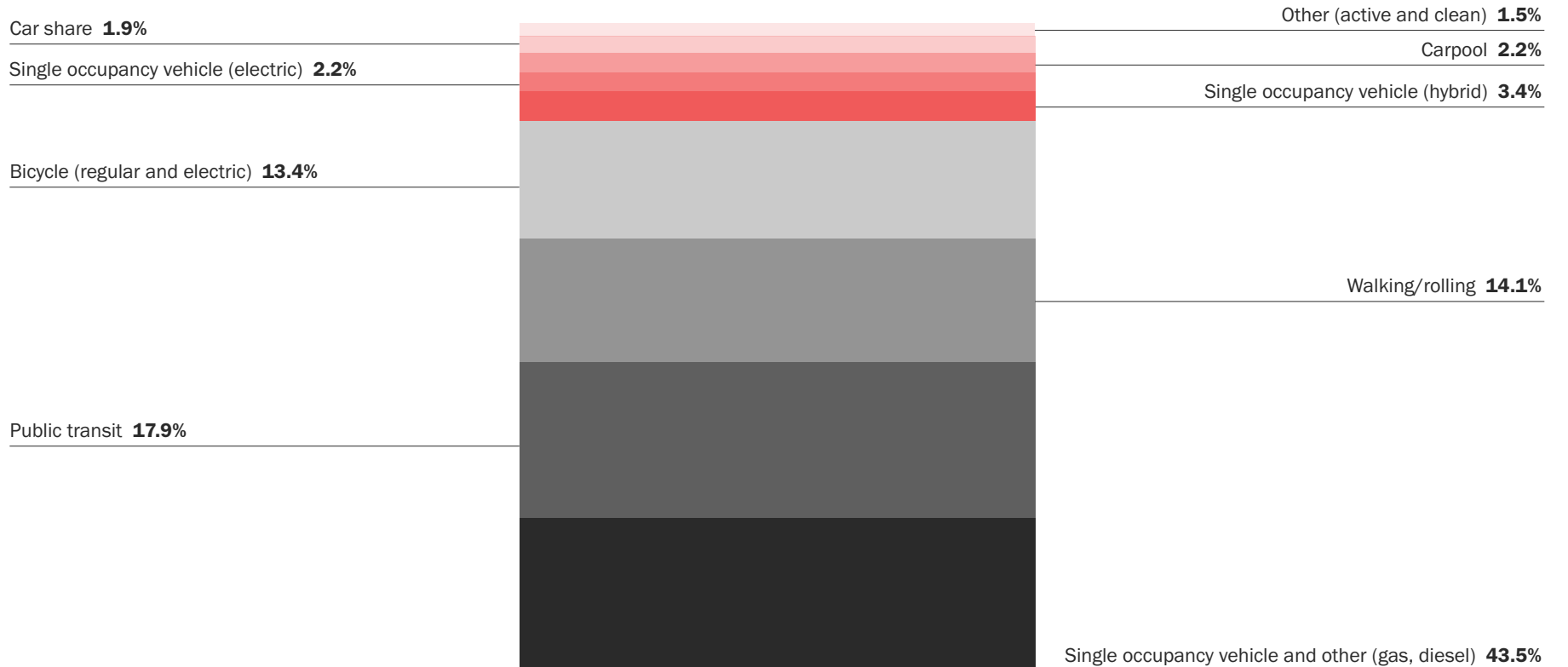
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Mode Share

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 transportation types. 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 of and concerns around COVID-19, changes in transportation behaviours were seen at Providence. There was a drop in transit ridership, which was consistent throughout the province,^D as well as an increase in active commuting and an increase in the number of people working from home.

44%
 of commutes taken by Providence 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 Providence. 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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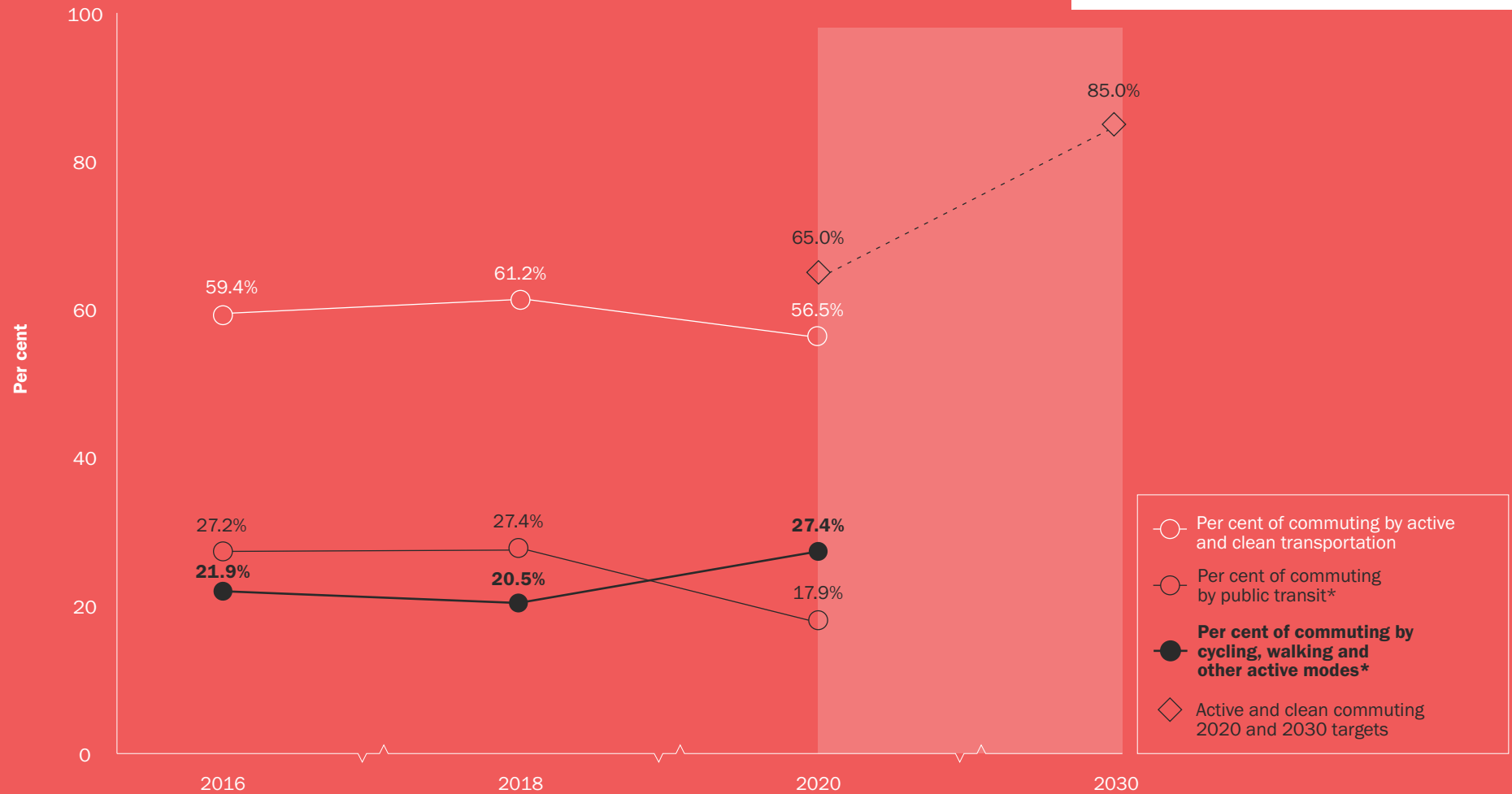
Active and Clean Commuting

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

4.7% ↓

The proportion of active and clean commutes decreased by 4.7% in 2020, primarily due to transit commutes decreasing by almost 9.5%. However, active modes increased by 7%, and staff reported that 20% 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

55%

Gas/diesel single occupancy vehicles

55%

Public transit

32%

Cycling

28%

Walking/rolling

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 commuter behaviour: we still see that fossil-fuelled single occupancy vehicles are the most commonly used transportation mode (43% of commutes). 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.

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.



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OUR STORY

Connections

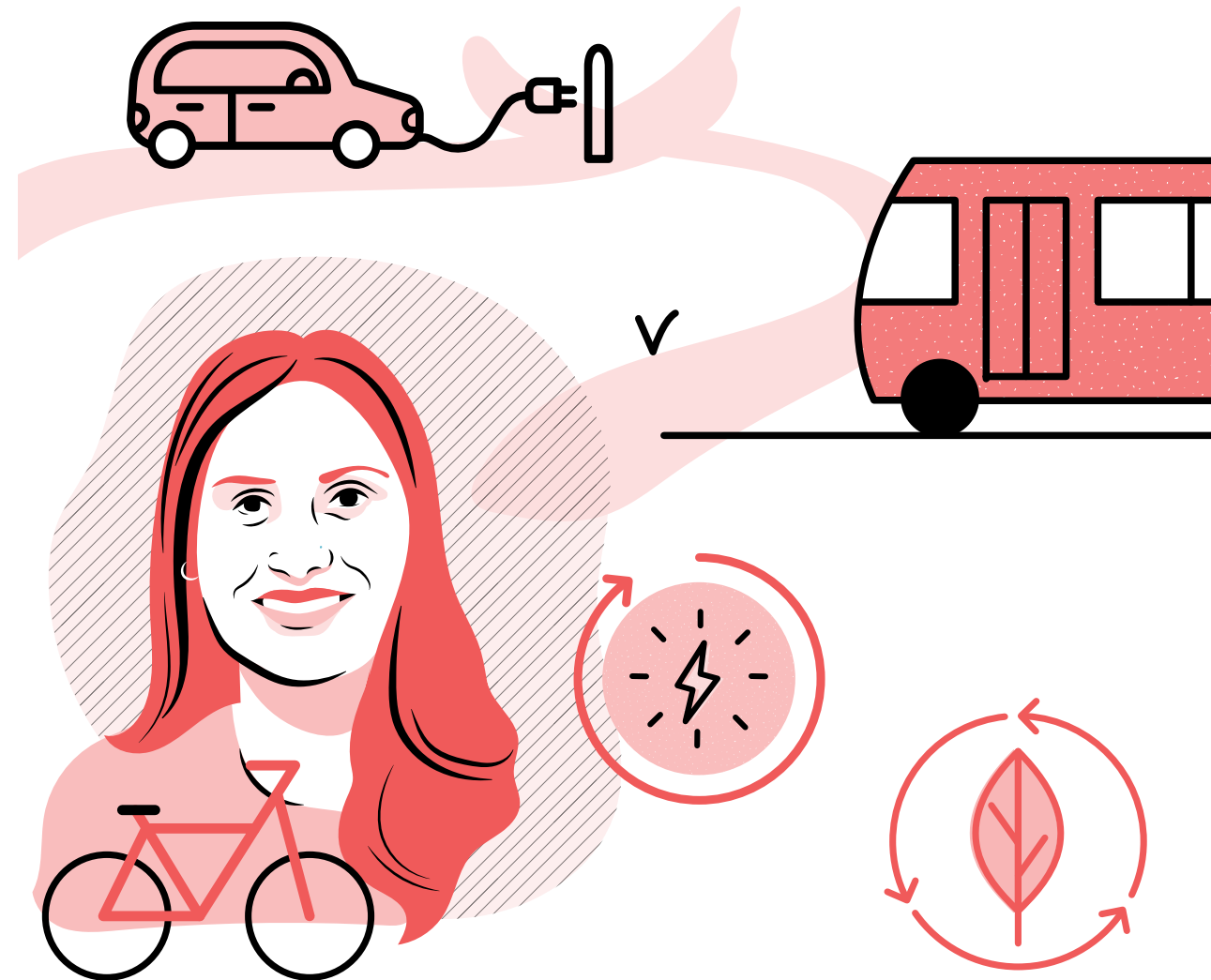
Nav Nijjar's work on sustainable transportation initiatives is influenced by the people she meets. "I connect with individuals who have changed their lifestyles to leave a positive impact on the environment," she says.

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

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

6%

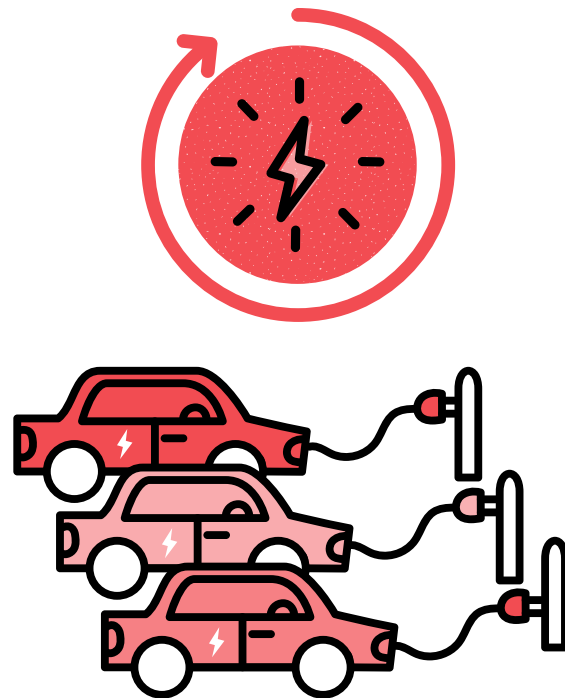
currently own an EV.

32%

plan to own an EV in the next five years.

31%

are unsure about owning an EV.



Our successes

In 2020, Providence saw a clear shift from public transit to active modes of transportation. In response to the pandemic, staff were able to opt for an alternative active and clean transportation mode (cycling) when another (public transit) was not preferable or available. This shift indicates the accessibility of sustainable transportation modes to staff and the resilience of Providence's active and clean commuting options.

Challenges we face

As ownership and transportation by EVs rise, we face new challenges associated with how to best manage EV charging stations. Despite the wave of EVs, there is no standardization for charging either at a local or regional level. This challenge will require careful planning and communication with EV owners, to ensure that charging infrastructure for staff is managed in a way that meets the unique needs of many health-care staff.

The work isn't finished

32.1% of Providence staff reported cycling as an accessible and practical commuting option, yet only 13.4% of commutes occurred by bicycle. Similarly, while 55% of staff reported that public transit was accessible and practical, only 17.9% of commutes were made by transit. Understanding why there is a discrepancy between what staff report as accessible and practical versus 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 Providence's roadmap to clean transportation. In the last two years, more staff have an increased interest in, or are considering the option

of, owning an EV. With these increases, 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 Providence facilities.

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

The pandemic has had an impact on how PHC staff commute. 20% 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. However, the percent of commutes by active transportation such as cycling and walking also increased, after having remained steady the last four years.

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

– GreenCare Survey respondent

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2. Climate Risk & Resilience

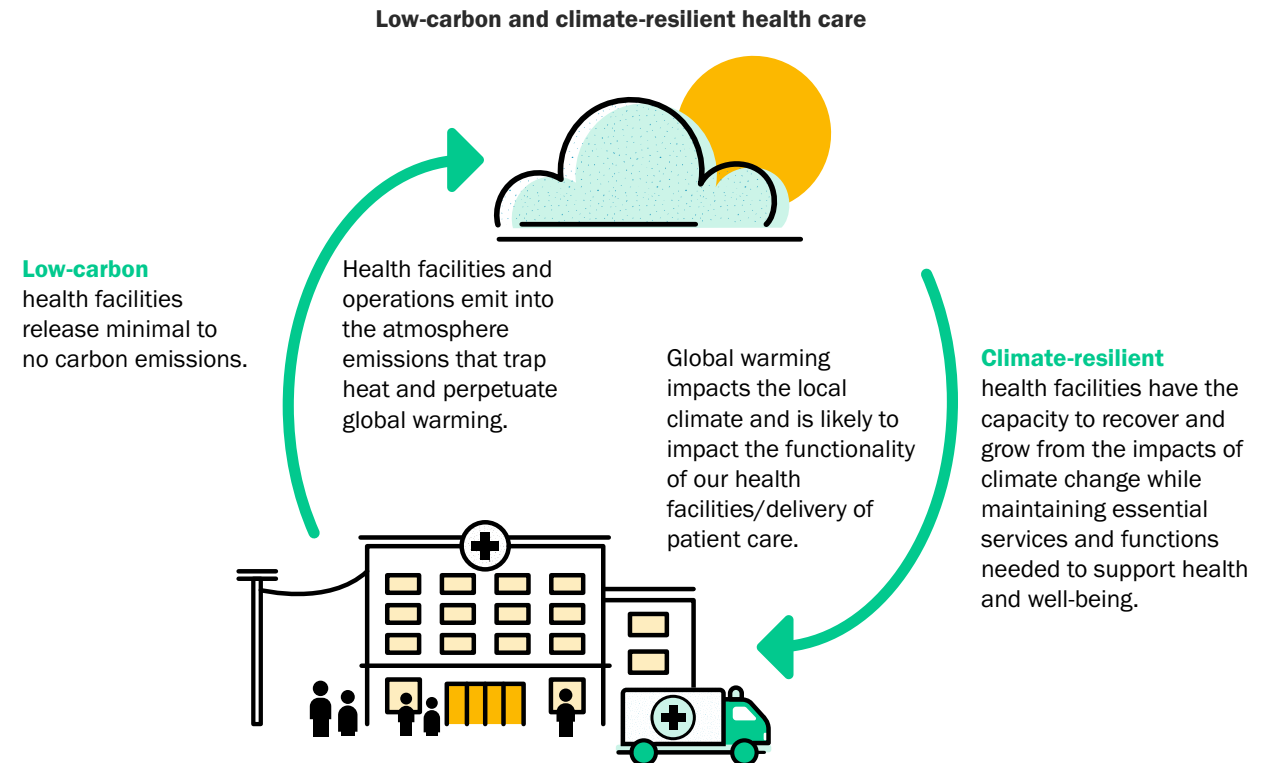
Our goal

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

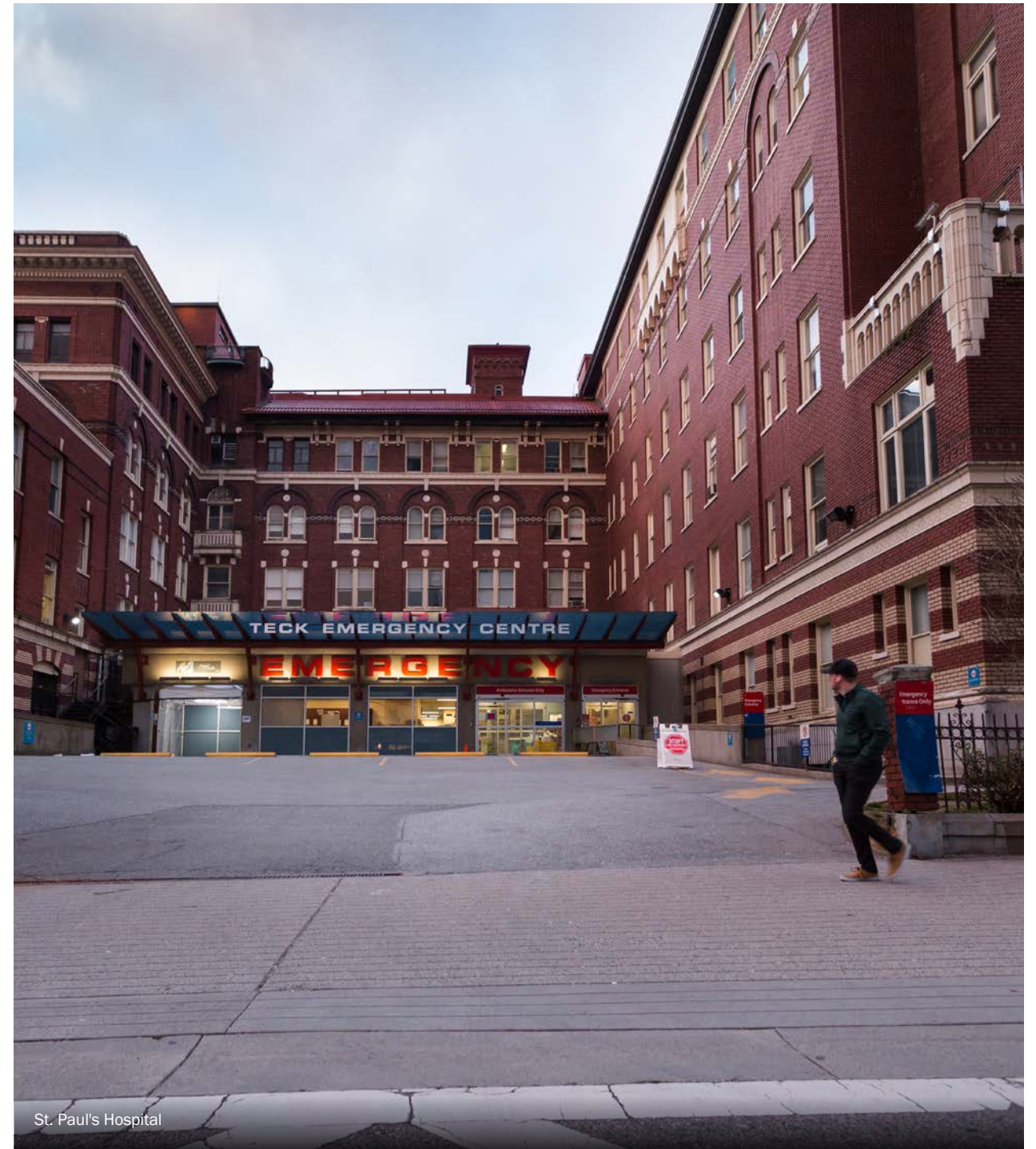
Pacific Climate Impacts Consortium

Population & Public Health

Simon Fraser University, Adaptation to Climate Change Team

University of British Columbia, Collaborative for Advanced
Landscape Planning

Various consultants



St. Paul's Hospital

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OUR STORY

Collaborative planning for climate-resilient facilities

Climate change hazards that pose significant, growing risks to health facilities are most efficiently addressed at the stage of facility planning and design. Completed in the fall of 2020, [Climate Resilience Guidelines for BC Health Facility Planning and Design](#) is a resource that 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 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, as well as a number of consulting firms and one public sector organization (BC Housing).

As the project moved forward, the guidelines gained sufficient credibility and momentum to foster the development of a health capital policy by the B.C. Ministry of Health in 2021.

The guidelines are already in action, as seen in the planning and design of a new acute-care centre – the new St. Paul’s Hospital in Vancouver – to be completed in

2027. “This project is unique in that it explicitly includes requirements for climate resilience, which were a focus during the specification development phase,” says Marc Dagneau, senior manager for the new St. Paul’s Hospital project. “This will also be the first time a complete climate risk and resilience assessment process will be completed.”

Rezoning at the new St. Paul’s site was required to accommodate the project, and the conditions of that rezoning reinforce principles of sustainability, resilience and climate adaptation. To meet the conditions, the City of Vancouver and Providence jointly entered into a multi-hazard vulnerability risk assessment for climate and seismic risks, which sets an exciting precedent in the design and construction of health-care facilities.

“It is a major milestone to have the full climate risk and resilience assessment process completed for a large health-care project – the new St. Paul’s Hospital is setting the trend in planning for climate hazards,” Marc says. “By planning for and adapting to a changing climate, the new St. Paul’s Hospital will be able to support the community throughout the extreme climate events that we anticipate within this century.”

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OUR STORY

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,” VCH Environmental Health Scientist Emily Peterson says.

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

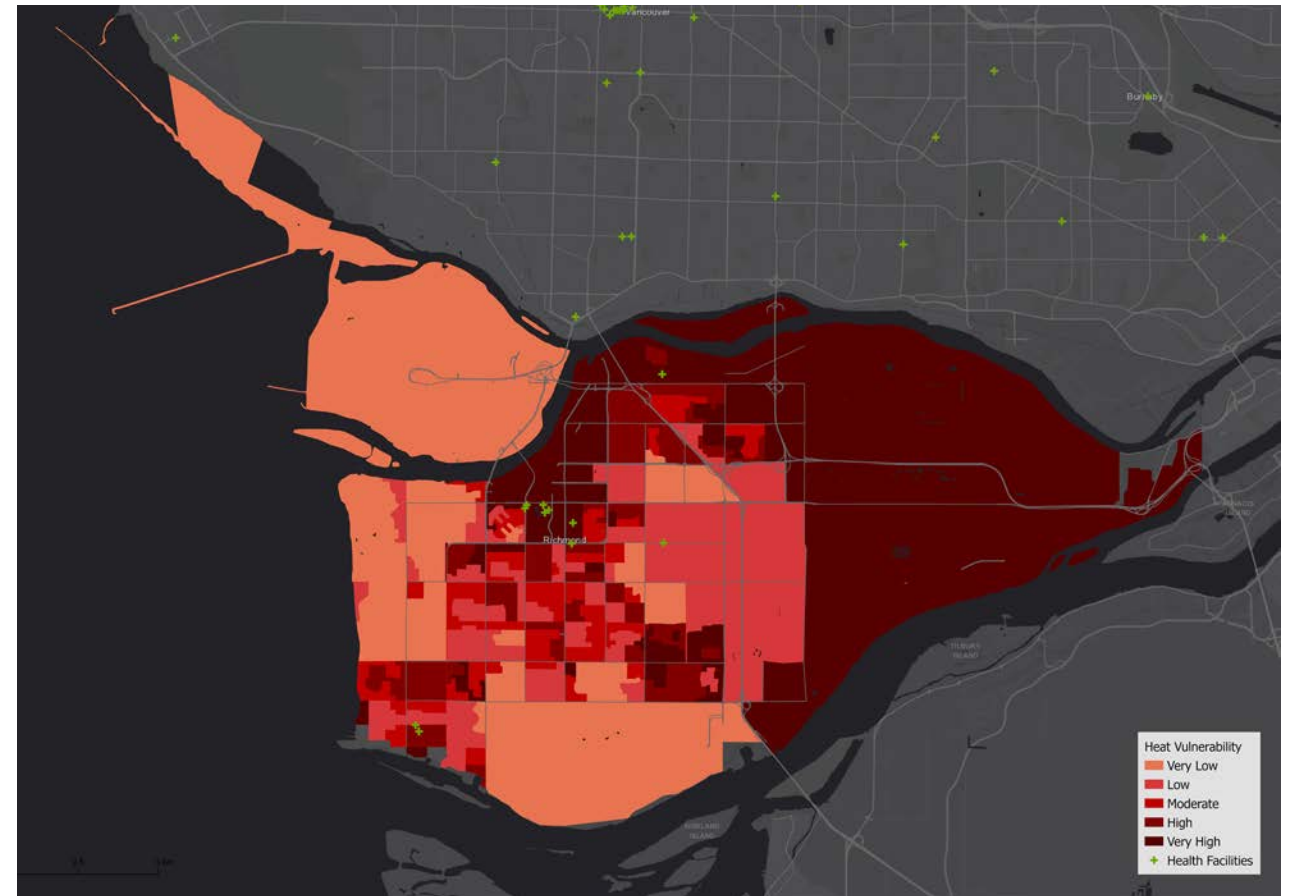


Figure 1. This example community health vulnerability map displays the heat vulnerability index in the city of Richmond. The index comprises heat exposure, population sensitivity to heat and population adaptive capacity.

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

70% of Providence 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

21% of Providence 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 were invited to serve on the City of Vancouver's Resilience Panel, with a view to supporting the new St. Paul's Hospital Redevelopment project's process for planning and executing:

- ▶ A multi-hazard (climate and seismic) and vulnerability assessment
- ▶ Climate and seismic risk assessments
- ▶ Facility design responses to mitigate risk

Our program provided feedback and advice on the design teams' assessment methodology, outcomes and design responses for the hospital campus site in the context of a BC Building Code design-level earthquake (i.e. probability of occurrence is 2% in 50 years) and future climate (2050s), including higher temperatures, more intense rainfall and longer dry periods. By including clinical planners, facility operations, Indigenous and community perspectives, and critical infrastructure and services providers (e.g. water, sewer, power) in the assessment process, both challenges to and opportunities for reducing risks and embedding long-term resilience at building, campus and community scales were surfaced. As a result, our climate program deepened its understanding of potential synergies with seismic resilience and co-benefits with community health, and established a pathway forward to working constructively with the design builder and Providence in 2021 to ensure resilience objectives are met in detailed design and construction.

The panel comprised subject-matter experts from UBC, a structural engineering firm, City of Vancouver's Chief Resilience Office and Planning & Sustainability, and the EES Climate Risk & Resilience program.

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.

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

– GreenCare Survey respondent

The work isn't finished

We will continue to work with Providence 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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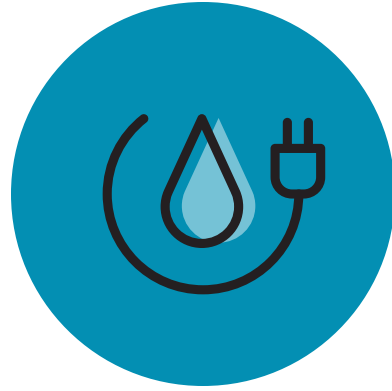
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3. Smart Energy & Water

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.

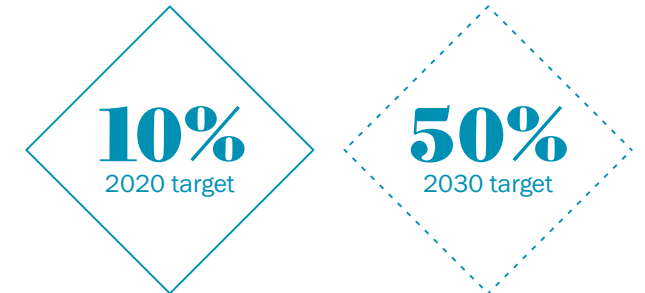
Achieving the Smart Energy & Water goals means stewarding energy and water and their utilities. Providence is continually looking for opportunities to reduce the amount and intensity of energy and water use and GHG emissions from health-care operations. Energy efficiency measures and water-conserving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

Our targets

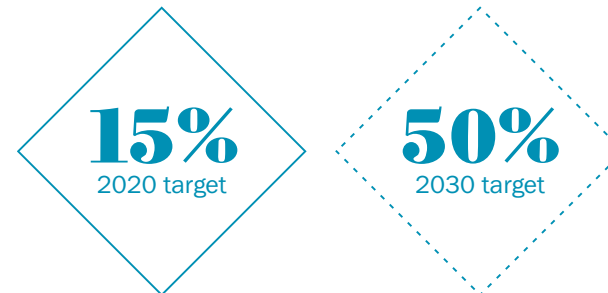
Reduce energy-use intensity of core sites* by



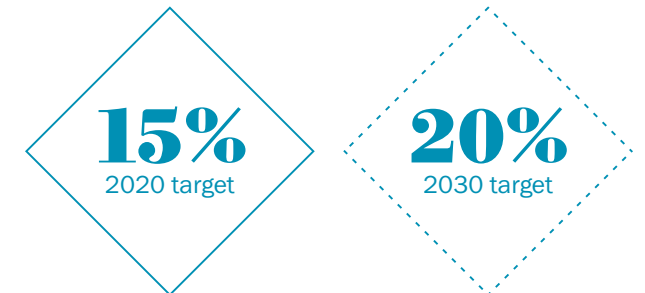
Reduce absolute in-scope GHG emissions by



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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Our partners

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



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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 and cooling upgrades on HVAC and domestic hot water systems
- ▶ Efficient lighting upgrades (i.e. upgrade to LED lighting system)
- ▶ Installing variable frequency drive controls on hydronic pumps and ventilation fans to reduce energy consumption
- ▶ Control system optimization (through BC Hydro's Continuous Optimization Program)
- ▶ Cooling plant site strategies
- ▶ Installation of heat-recovery chillers and heat pumps using a thermal gradient header (TGH) innovative system
- ▶ 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 Providence sites, over 97% are from buildings, while the remaining 3% are from supplies (paper usage) and transportation (fleet and other vehicles) combined. The GreenCare 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 Providence Health Care



The Providence 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, Providence had a carbon footprint offset of 10,564 tonnes of carbon dioxide equivalent (tCO₂e), which was offset at a total cost of \$248,975. **This represents a decrease of 7.2% relative to the 2019 year.**

Download: [Providence 2020 CCAR](#)

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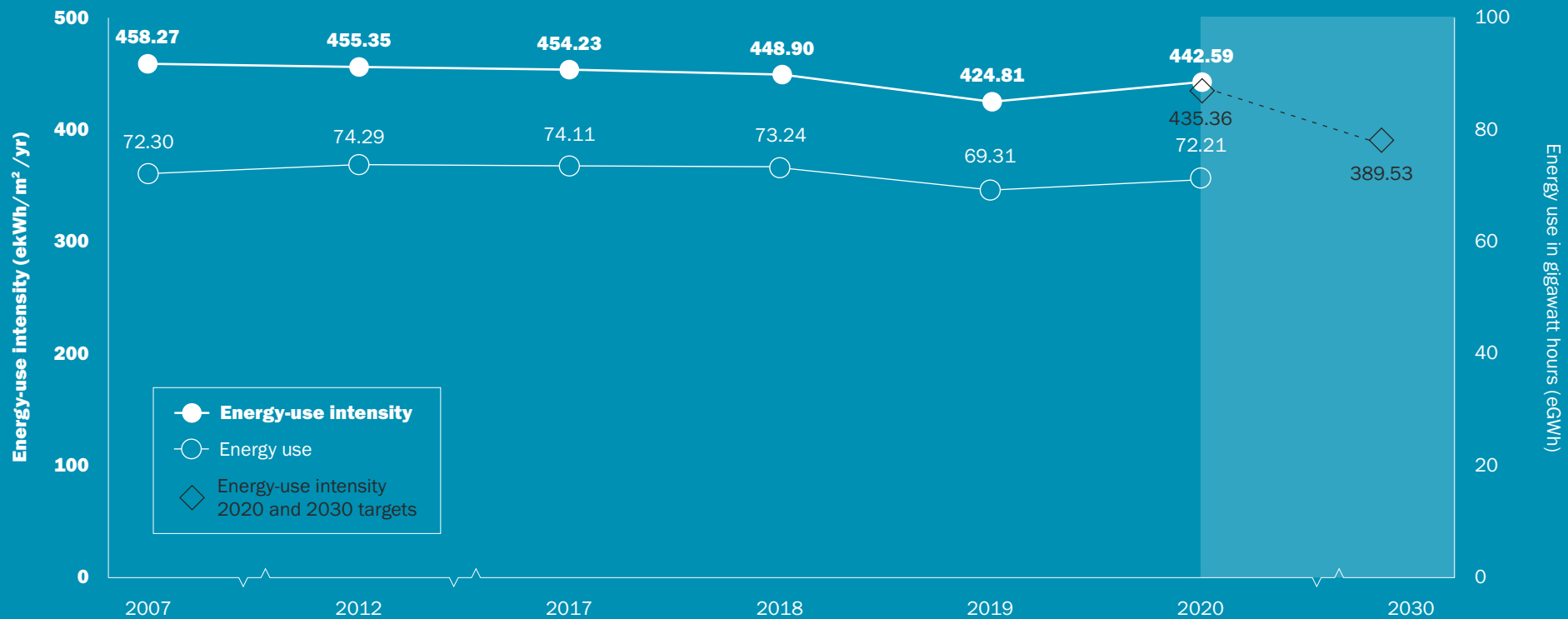
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Energy Use and Intensity

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 has been a 0.04% 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 for ventilation (as opposed to a mix of return air and outdoor air).

3.4%↓

EUI has decreased by 3.4% since 2007, and, despite an increase of 3.4% in core facility space since 2007, our energy use has decreased slightly by 0.1%.



* 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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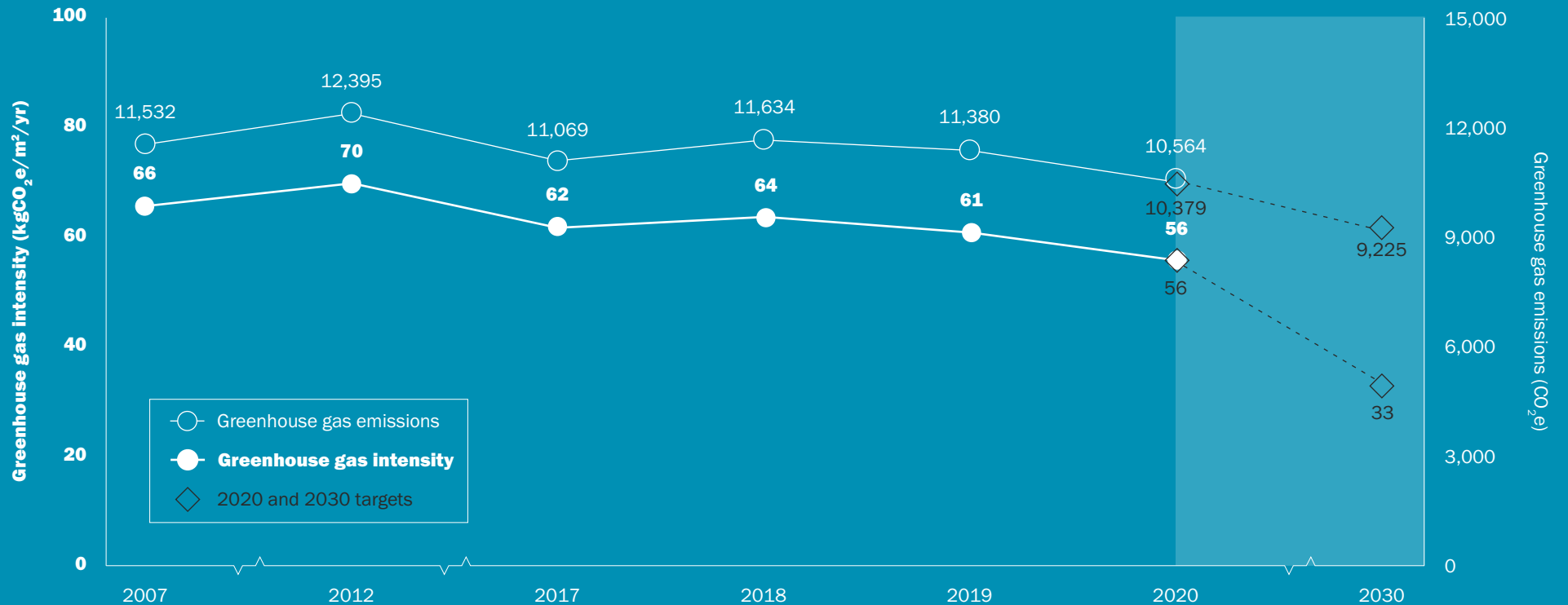
Greenhouse Gas Emissions and Intensity

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.

15.2% ↓

GHG intensity decreased by 15.2%, and, despite a 4.5% increase in total usable facility space since 2007, absolute emissions decreased by 8.4%.



* 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*).

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132-tonne heat recovery chiller which provides cooling and heating through a thermal gradient header system

OUR STORY

Cool wins at Mount St. Joseph

Mount St. Joseph Hospital, a forty-year-old facility, has been supplementing its current HVAC system for several years. Hot summer weather has been causing discomfort to patients and staff, and the HVAC system, which is past its life expectancy and requires replacement, can no longer meet the task. The hospital has been renting cooling equipment, incurring significant costs.

The Thermal Comfort Cooling Systems Upgrade Project, along with the Cooling and Domestic Hot Water Upgrade, sought to replace the hospital's equipment and systems for a modernized, safe and code-compliant HVAC system. To address carbon- and energy-reduction goals in these projects, the EES team conducted an energy study to consider energy conservation measures.

The hospital generates a lot of waste heat (as all hospitals do, unless they deliberately recover it), so the study's proposed measures incorporate heat recovery as part of the cooling system upgrade, which would offset natural gas use for both space and domestic hot water heating. The study also considers the locations of ventilation and cooling,

recognizing the need to bring comfort cooling into all clinical and patient-care areas.

In selecting conservation measures to implement, the hospital looked to additional project objectives: 1) to provide sufficient redundancy for hospital operations in case of partial HVAC system failures and 2) to provide stable and sufficient cooling for operational demands for the next 15 years. Maximizing resilience to future climate risks and controlling operational costs were important factors. Multiple measures were approved, with estimated annual savings of 635 tCO₂e.

Actively seeking additional opportunities for energy efficiency and carbon reduction (beyond the relatively simple task of replacing failing HVAC equipment and systems) makes the Mount St. Joseph Hospital upgrade a win on several fronts. By taking a holistic approach to the problem and valuing close collaboration, the co-benefits of better patient care, comfortable staff environments, cost savings, energy efficiency and carbon reduction can be achieved.

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. Providence'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 Providence Operations and Infrastructure teams and focuses largely on conservation programs to:

- ▶ Optimize landscape irrigation
- ▶ Eliminate once-through cooling systems
- ▶ Capture/reuse rainwater
- ▶ Optimize water use through behavioural change
- ▶ Investigate and promote use of low-flow devices, where applicable



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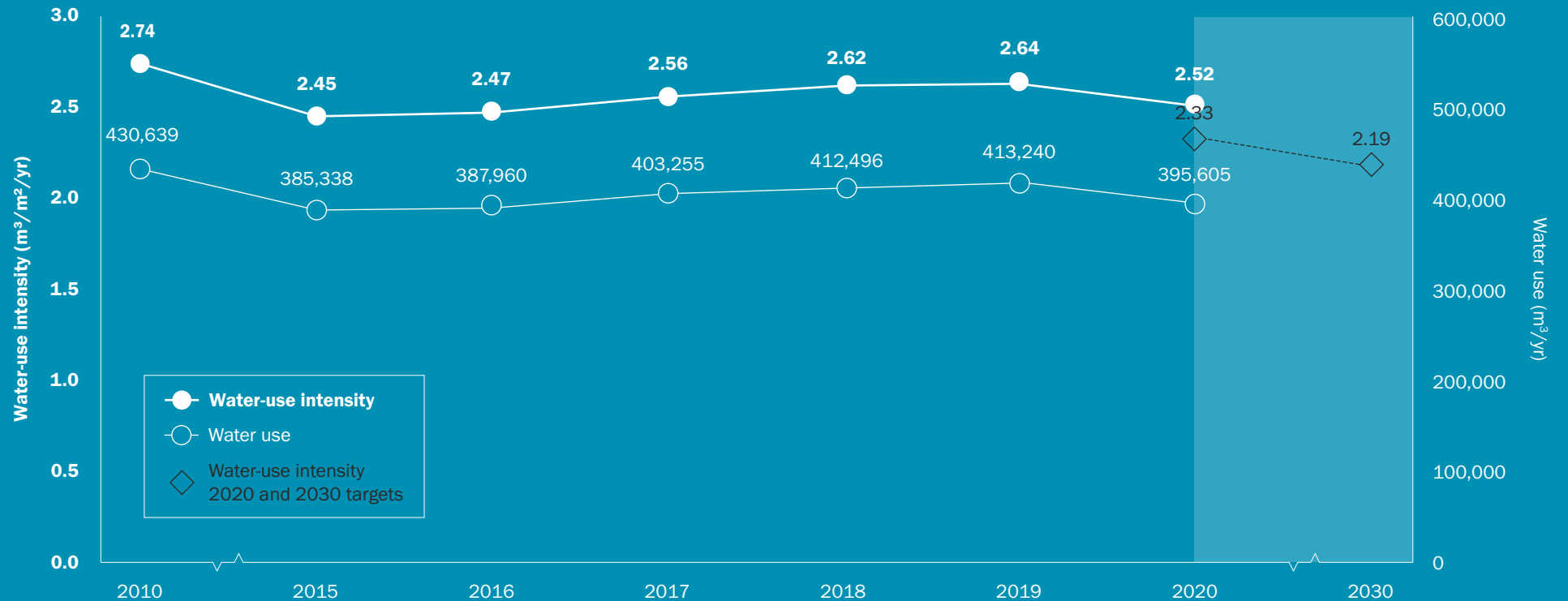
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Water Use and Intensity

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.

8.1%↓

Water use was reduced by 8.1% (equal to seven Olympic-size swimming pools) even though facility space stayed the same.



* 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

Providence received a total incentive of \$739,724 from FortisBC in recognition of significant carbon reductions in 2020. Brock Fahrni, a carbon reduction project, will increase cooling while also reducing carbon emissions and operating costs.

In addition, we made significant progress on three major retrofitting projects at Holy Family Hospital, St. Vincent's Hospital Langara and Mount St. Joseph Hospital, even as the indicative design for the new St. Paul's Hospital was completed, including strategies to achieve Leadership in Energy and Environmental Design Gold certification.

Finally, 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 Climate 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. There is on-going discussion with BC Hydro on the feasibility and availability of power and how this might impact electrification strategies for low GHG-emission buildings.

Similarly, the availability of renewable natural gas from FortisBC presents a challenge. While there is a good opportunity to use this fuel for a zero-carbon application, its availability in the near future is unclear.

Integration is key, and an area to continue focusing on. This could be improved through more coordination between the EES team and the 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 Providence:

- ▶ Increased focus on achieving low- and no-cost energy savings through greater engagement with Facilities Maintenance and Operations staff
- ▶ Implementation of a broad plan for measurement and verification to evaluate our current implemented measures and analyze the data for future improvement of our conservation plans
- ▶ Development of Energy and Emissions Master Plans for campuses and buildings, which will guide construction/renovation at the sites towards reducing GHG emissions
- ▶ Carbon Neutral Capital Program (CNCP)-funded emission reduction projects (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
- ▶ Initiation of studies on new technologies and areas of opportunities (such as an onsite waste-to-energy study for the entirety of core sites)

“
I believe we will eventually realize [that health care and the environment] are intrinsically linked ... planetary health systems are the foundation for human (and all other life) health systems.

– 2021 GreenCare Survey respondent



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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.

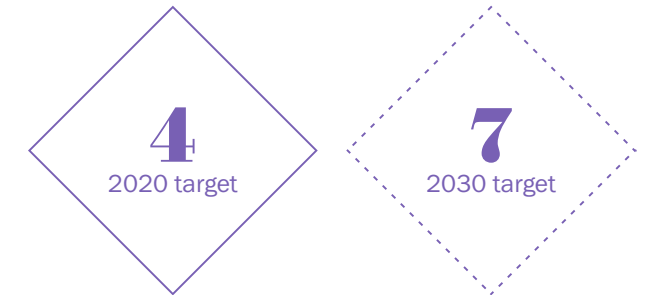
In the workplace, leaders who lead by example and inspire others to do the same are critical to an organization's success. Fostering a culture of workplace leadership for environmental sustainability in health care presents an opportunity for better health outcomes for staff and patients. In addition, 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 Providence, 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, **six** new staff registered for the program, bringing the total number of Green+Leaders at Providence to **37** since 2010. Providence has **15** 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:

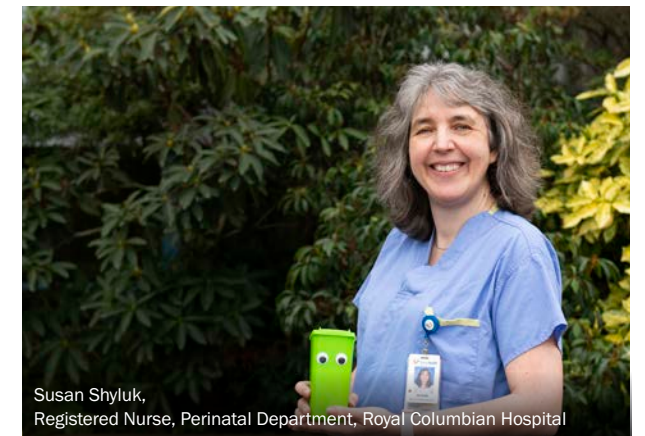
- ▶ Training, tools and leadership development
- ▶ Support from a community of like-minded colleagues
- ▶ Participation in inspiring and educational events
- ▶ Opportunities for making a positive, meaningful impact on the workplace and community



Lexy Wishlow,
BSc, MLT, Anatomic Pathology, St. Paul's Hospital



Nicky Calvert,
BC Cancer Foundation



Susan Shyluk,
Registered Nurse, Perinatal Department, Royal Columbian Hospital

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OUR STORY

Glove recycling in the lab

When Providence supported a funding opportunity for staff environmental sustainability projects, the Transfusion Medicine Laboratory at St. Paul's Hospital suggested a glove recycling pilot program using the TerraCycle Zero Waste Box program. Green+Leader Jodi Shad identified an opportunity to reduce glove waste in the lab and took action!

Traditional hospital recycling programs do not accept nitrile and latex gloves, which means this high-volume item usually ends up in landfill where it takes decades to break down.

The Zero Waste Box program collects used, non-hazardous gloves for recycling. From March to September 2020, approximately 7,140 nitrile and latex gloves were recycled through the pilot program.

The Transfusion Medicine Laboratory was a suitable pilot location for this program because the majority of gloves are not exposed to hazardous or biomedical material and are therefore eligible for recycling. The lab is also almost entirely separate from adjacent labs, making the Zero Waste Box secure from potential cross contamination by staff working in other labs.

The program is simple to run, requiring only a budget and a system of accountability to bring the full Zero Waste Box to the loading dock for pickup.

Gloves collected through the program are aggregated at a TerraCycle sorting facility and then sent for processing, where they are pelletized and moulded into new plastic products. Most recycled gloves are used in construction as insulation, or as rubber flooring in gyms and community centres.



Jodi Shad

Medical Laboratory Technologist, Transfusion Medicine Laboratory, Green+Leader, St. Paul's Hospital

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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 Providence staff to get involved in design and construction processes in health care.

With the support of the Workplace Sustainability Initiative Fund, three projects (\$2,850 awarded) were approved and will be carried out in 2021. These seek to implement an innovative workplace sustainability project that contributes to the transformation of health care at Providence. Proposed projects will address issues around waste and toxicity. We are pleased that six employees across operational, clinical and administrative units have joined the Green+Leaders program as a result, bringing together an array of different departments, such as Administration and Clerical, Emergency Department, Oncology and Senior Leadership.

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 Providence 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.

Providence 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



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



* 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:

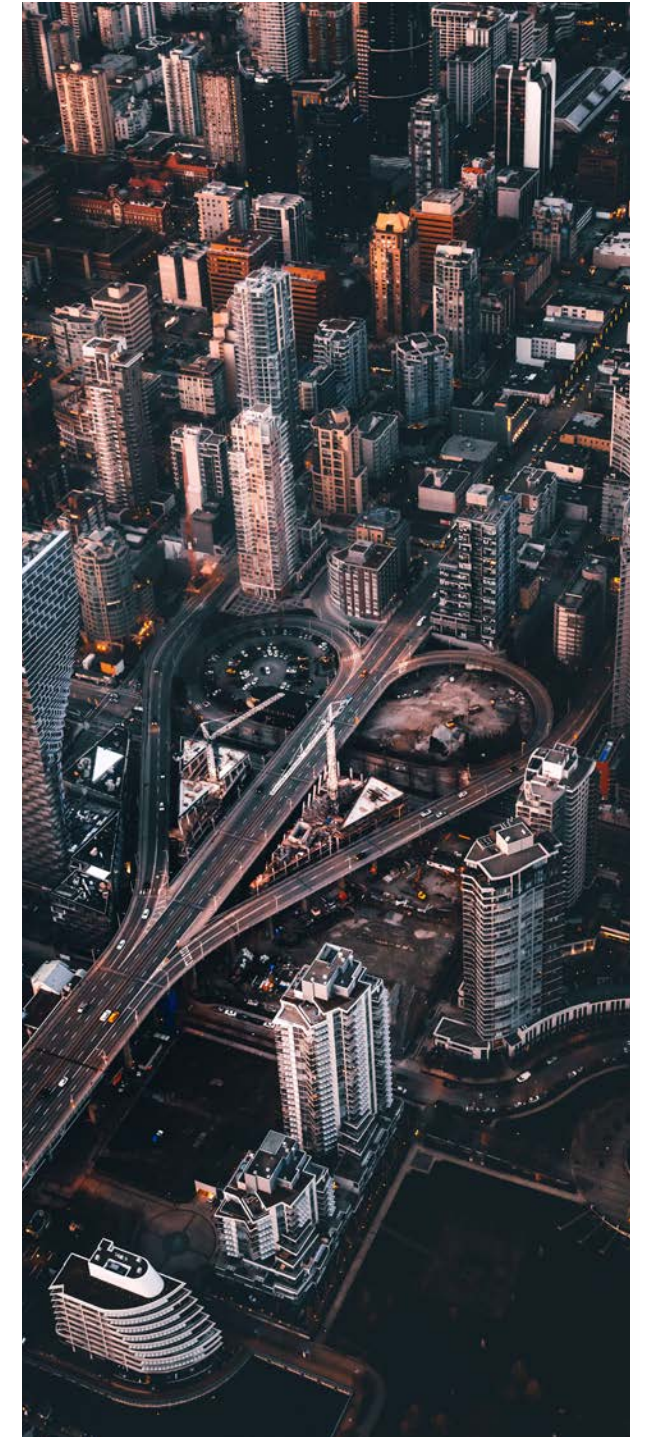
- ▶ Blue Bin
- ▶ Waste Reduction
- ▶ Environmentally Preferable Purchasing (EPP)
- ▶ Safer Chemicals⁶

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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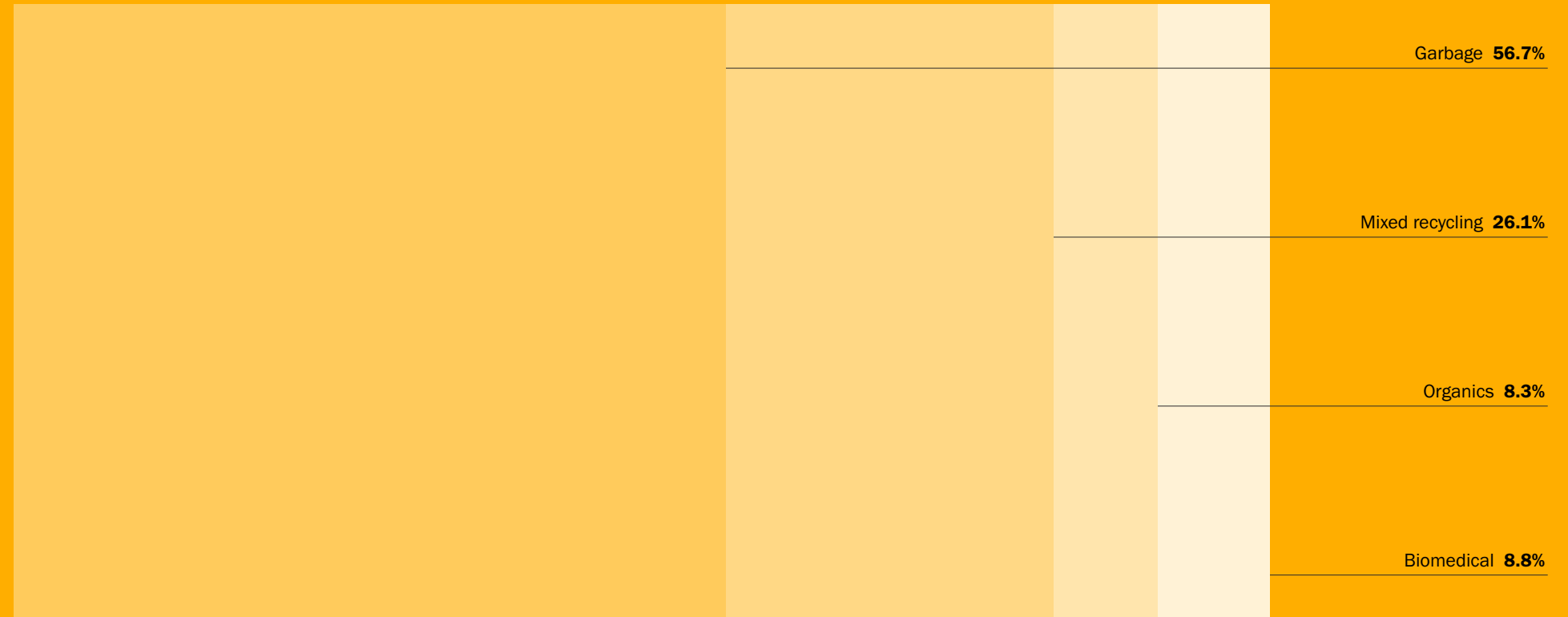
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Providence Waste Proportions

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 Providence.

2,500 t

Providence facilities generated a total of 2,500 tonnes of waste in 2020, which is the equivalent of approximately 500 five-tonne elephants.



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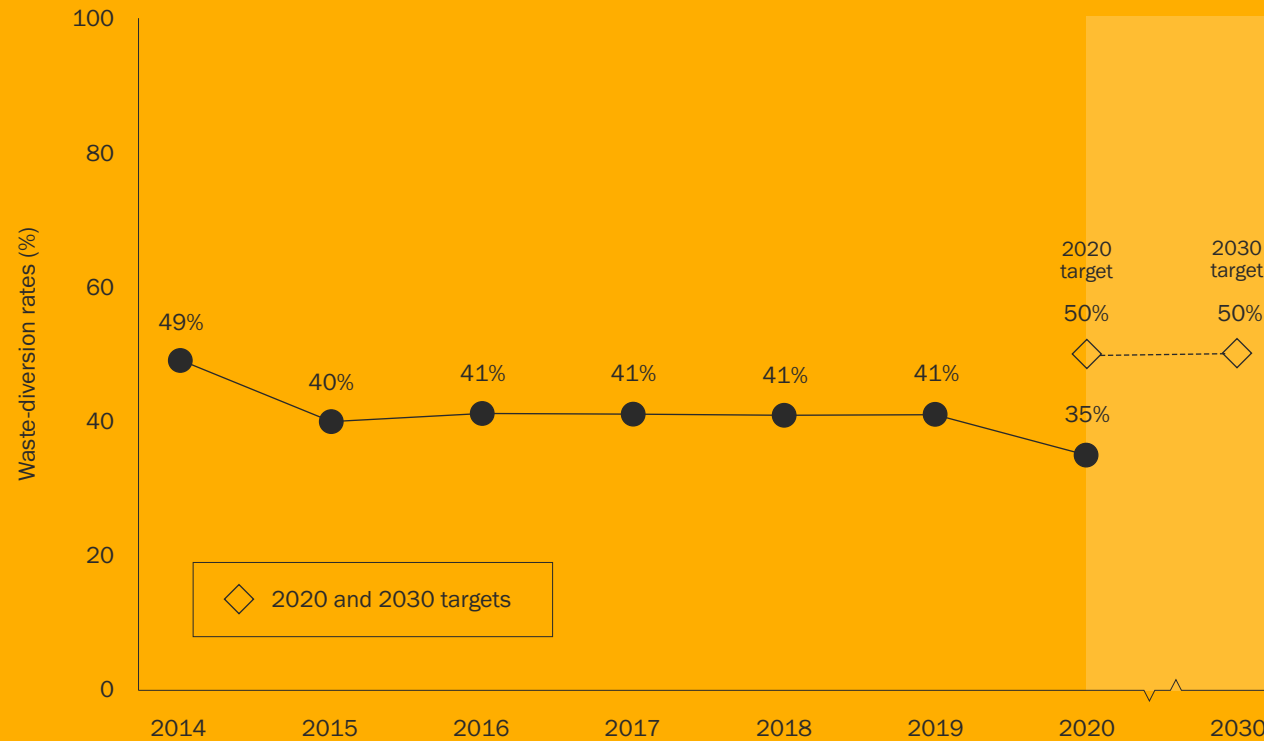
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Waste-Diversion Rates

Waste-diversion rates are for all owned Providence 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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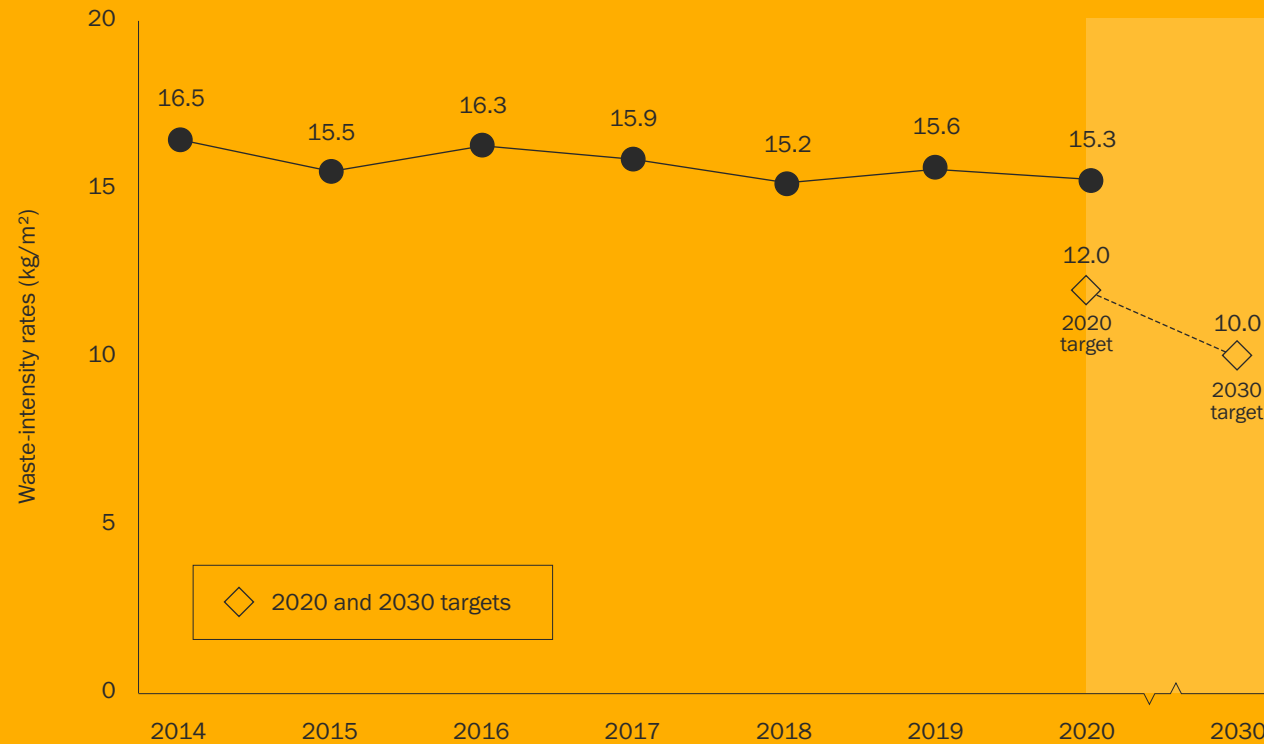
Waste-Intensity Rates

The waste-intensity rate indicates whether or not we are reducing total waste generated for all Providence-owned acute and residential care facilities, and is measured in kilograms of waste generated per square metre of facility space (kg/m^2).

7.1% ↓



Total waste generated in the same facility space has dropped 7.1% from 2014.



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OUR STORY

Reducing plastic and saving money

Staff identifying opportunities and finding ways to reduce waste is essential to make all B.C. health authorities greener and more environmentally sustainable, says Berna Marcelino, Provincial Director, Standardization with PHSA Supply Chain. “It’s the end-users 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.”

One direct-care team 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. Province-wide, 6,220 sitz basins were used between April 2018 and March 2019. A group in the postpartum ward at BC Women’s Hospital + Health Centre noticed that 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.

PHSA Supply Chain worked with the sitz basin vendor to learn about how to customize the product to remove the unnecessary plastic. Supply Chain also reached out to all BC 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

Circular economy in health care

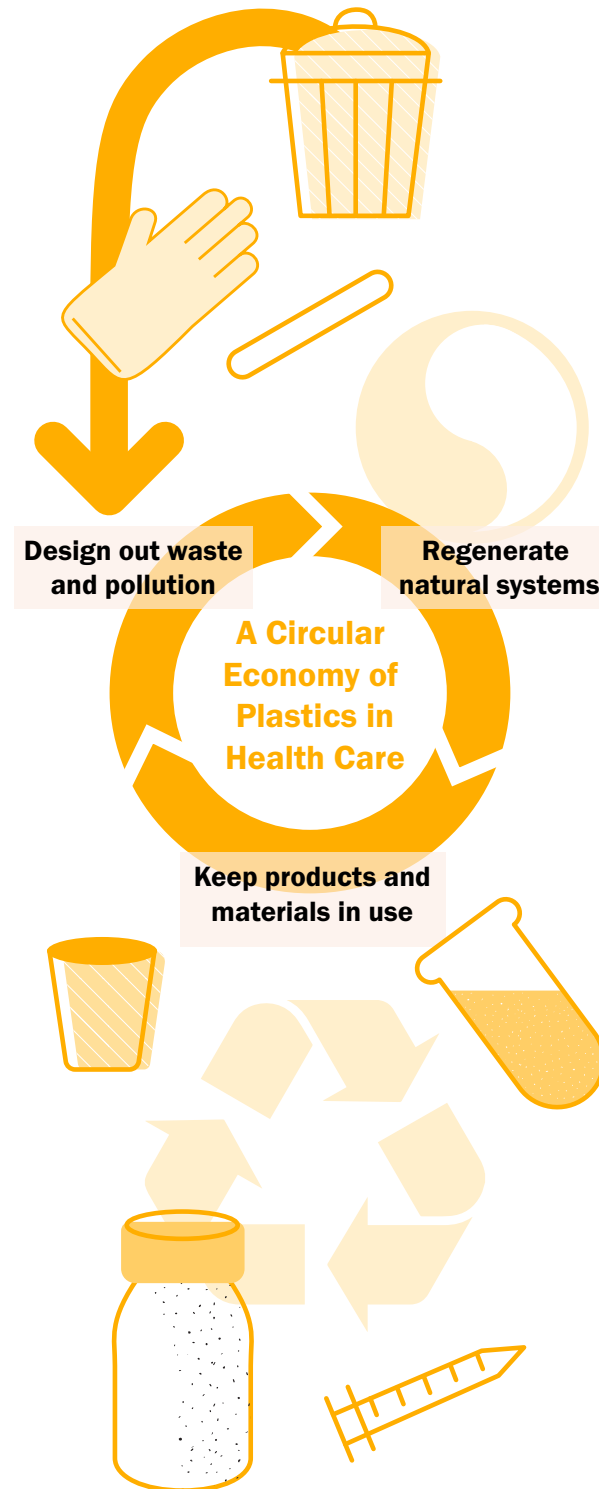
Plastics are embedded in the health-care system and used at every point of care. They are found in intravenous (IV) bags to deliver solutions and medications, airway maintenance devices, syringes, sterilization blue wrap, basins and patient garment bags, and this much plastic exposure has led to concern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

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

In March 2020, St. Vincent's Langara undertook a solid waste audit of the disposal streams of the inpatient care and kitchen areas in order to determine the priority waste items for reduction or recycling opportunities, and to further understand the waste context of residential care sites in the Lower Mainland. The study showed that eliminating Styrofoam cups would be an easy win, that there were additional opportunities to recycle paper towels and kitchen soft plastic packaging, and that food scraps composting could improve.

The Transfusion Medicine Laboratory at St. Paul's Hospital piloted a nitrile and latex glove recycling project, a first of its kind in acute-care sites in B.C. The project demonstrated that used but clean gloves can be diverted away from landfill and into recycling with minimal cost and effort. The COVID-19 pandemic paused the collection, but it stands as a demonstration of success and of what is possible.

From January 1, 2020 to December 31, 2020, a total of 653 Providence staff completed the online Waste Management Basics Learning Module available on LearningHub, up from 329 in 2019. This module familiarizes learners with the impacts of improper waste management and how to discard different types of waste appropriately.

Challenges we face

Waste diversion rates seem to plateau at approximately 40%, a trend seen among all sites in the Lower Mainland. Some reasons for this stall are outside of Providence's control, such as recycling markets not accepting many of the materials produced in health care. However Providence 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.

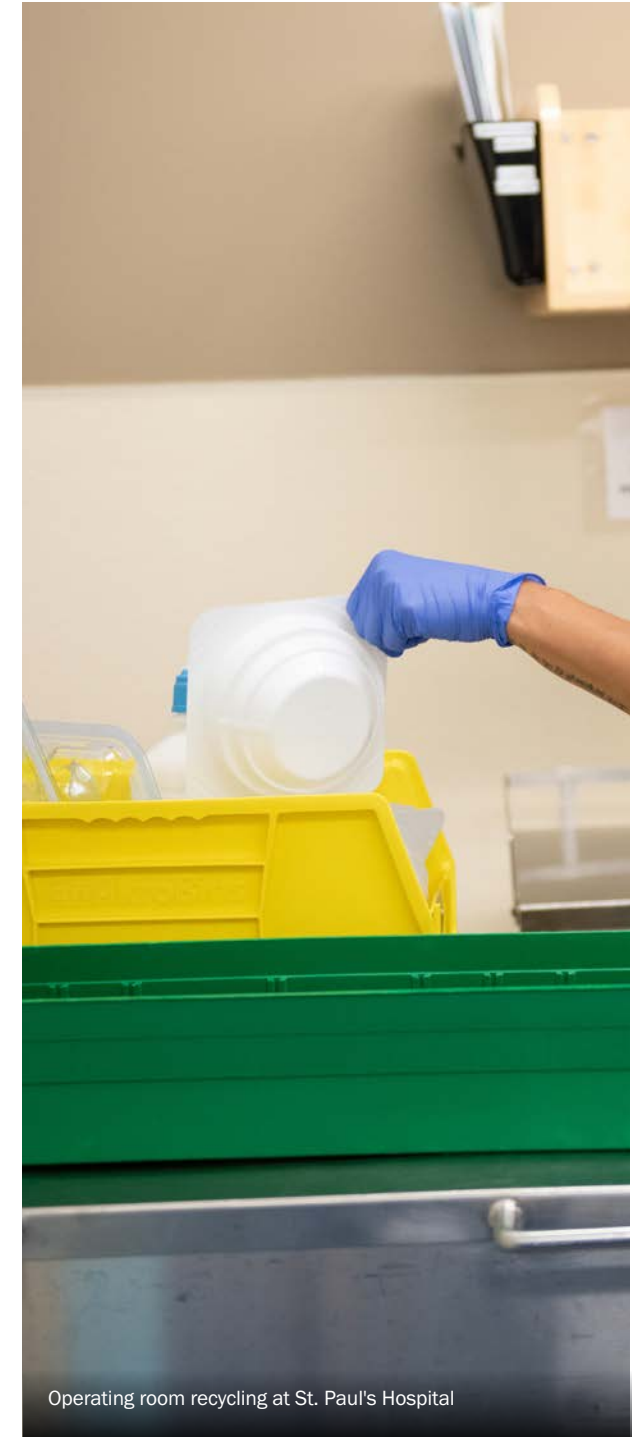
The work isn't finished

We want to build on our 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), Workplace Health & Safety and Quality Improvement. Finally, we want to continue to work with procurement staff to better understand purchasing processes in Providence 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, Providence staff reported:^E

- ▶ An increased amount of waste, due to increased use of PPE and changes to work practices and protocols
- ▶ Decreased paper waste due to working from home
- ▶ An increased amount of waste due to the pausing of some recycling programs



Operating room recycling at St. Paul's Hospital

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Thank you for your ongoing support.

From the successes in Providence 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.

For further information contact:

Sonja Janousek
Environmental Sustainability Manager
sonja.janousek@vch.ca

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](#).

MEET OTHERS INTERESTED IN ENVIRONMENTAL SUSTAINABILITY.

Find out more about the Green+Leaders program [here](#).

INSPIRE.

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

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The EES team



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



Ryan Galloway
 Regional Thermal Energy Manager



Catherine MacDonald
 Regional Energy Coordinator



Sabah Ali
 Regional Energy Coordinator



Mehrdad Gharibnavaz
 Energy Manager, Providence
 (backfill for Alex Hutton while on leave)



Jeson Mak
 Energy Manager, Fraser Health



Robert Bradley
 Director, Energy and
 Environmental Sustainability



Alex Hutton
 Energy Manager, Providence



Aubree McAtee
 Sustainability Consultant,
 Workplace Leadership



Sarah Currie
 Sustainability Consultant,
 Workplace Leadership



Sonja Janousek
 Environmental Sustainability Manager



Gaurav Shah
 Energy Specialist, Providence



Douglas Davila
 Energy Specialist, PHSA



Kori Jones
 Energy Manager, VCH



Sara Wollschlaeger
 Low Carbon Resilience Specialist



Marianne Dawson
 Sustainability Consultant,
 Recycling and Waste Reduction



Kelly Lim
 Energy Specialist, VCH



Angie Woo
 Climate Risk & Resilience Manager



Ghazal Ebrahimi
 Energy and Emissions Manager, PHSA



Emily Lomax
 Sustainability Consultant,
 Active and Clean Transportation

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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 Providence Real Estate Department 2020
- 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%20Joint%20BC%20Transit-TransLink%20Presentation%20to%20UBCM%20-%20June%2016%202020.pdf>
- E 2021 Providence Health Care GreenCare Survey [Internet]. British Columbia, Canada: GreenCare Community; 2021 [cited 2021 Jun 23]. Available from: <https://bcgreencare.ca/phcsurvey>
- 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.

