



Environmental Performance  
Accountability Report

# Environmental sustainability is everyone's story.



**fraserhealth**

Better health. Best in health care.



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# Our Focus Areas



## Smart Energy & Water



## Zero Waste & Toxicity



## Active & Clean Transportation



## Workplace Leadership

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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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# 1.0 Executive Summary

Environmental sustainability  
is everyone's story.





# 1.1 Executive message

Welcome to the eighth annual Environmental Performance Accountability Report (EPAR). This report represents an opportunity to acknowledge the hard work, leadership, and willingness of everyone at Fraser Health to support environmental sustainability.

This commitment is more important than ever. In 2019, 11 Lower Mainland municipalities declared a climate emergency,<sup>A</sup> but, despite health professionals from around the world voicing their opinions about the importance of addressing climate change and environmental sustainability, environmental and climate policy has been late to factor in human health.

As health-care providers, we must continue to take action. From individual, personal choices such as refusing single-use items when possible, to supporting our youth and others by participating in community events that are also part of a global movement for action, to becoming **Green+Leaders** who push for environmental sustainability innovations and change, we can write a story of health and well-being.

At an organizational level, we can make leadership decisions that align our organizations with the **Climate Change Accountability Act** and the **2018 CleanBC plan**, and determine a path toward greenhouse gas reductions through building better, more resilient buildings; supporting cleaner transportation; reducing consumption of single-use items; and recycling whenever and wherever possible.

There is no single solution, nor easy ones. But, for the good of our communities, we must make the decisions that make a difference.

As you read this report, I encourage you to reflect on the successes achieved this year and the challenges we still face. Together we can produce a system-wide shift that is vital to both our present and our future.



**Mauricio A. Acosta**  
Executive Director,  
Business Performance & Corporate Support



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# 1.2 Executive summary

This report represents the collective work of many individuals, all of whom continue to collaborate to transform their workplaces and health-care systems into thriving environments of health and wellness for staff, patients, and their families.

Serving the four Lower Mainland health organizations — [Fraser Health](#), [Providence Health Care](#), [Provincial Health Services Authority](#), and [Vancouver Coastal Health](#) — throughout 2019, the GreenCare Energy and Environmental Sustainability (EES) team worked to promote and support environmental sustainability in our health-care systems via the GreenCare initiative. This initiative promotes a wide range of energy and environmental sustainability strategies, programs, and projects to reduce the environmental impact of health-care operations and improve the resiliency of health-care facilities and human and environmental health.

In this report, you'll find Fraser Health's environmental sustainability story, including its successes, challenges, and next steps.

You'll also meet Fraser Health's senior executive team and the EES team, who, together, have been finding solutions to the problems presented by our climate reality.

These solutions lie within our four GreenCare Focus Areas, for each of which the report presents Fraser Health's sustainability goals, targets, and performance metrics, along with important partnerships and stories of staff who are making positive changes at our health-care sites. Collectively, the EES team, leadership, partners, and staff have helped to put Fraser Health on track to meet its 2020 environmental sustainability targets.

The four strategic Focus Areas — Smart Energy & Water, Zero Waste & Toxicity, Active & Clean Transportation, and

Workplace Leadership — are complemented by the important work of our Climate Resilience & Adaptation program. Together, they provide the decision-making tools that support tangible changes to meaningfully address environmental and health impacts of our climate reality.

Ultimately, you will find yourself, your colleagues, and the people you serve in the 2019 Environmental Performance Accountability Report, along with a better understanding of the work ahead of us, including many achievements to celebrate.

Because environmental sustainability is everyone's story.





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# 2.0 Our Story





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## 2.1 Fraser Health

### Our vision

Better health. Best in health care.

### Our purpose

To improve the health of the population and the quality of life of the people we serve.

### Our values

Respect, caring and trust characterize our relationships.

### Our commitment

- To be passionate in pursuit of quality and safe health care
- To inspire individual and collective contribution
- To be focused on outcomes, open to evidence, new ideas and innovation
- To embrace new partners as team members and collaborators
- To be accountable

### Our region

Fraser Health is the largest health authority in B.C., delivering a wide range of health-care services to more than 1.8 million people within 20 municipalities.

The communities served by Fraser Health are as diverse culturally as they are geographically and include First Nations residents associated with 32 bands, new Canadians, and refugees. Facilities and services are designed to provide each patient (from newborns to centenarians) with the right care at the right time and place, whether in hospital, in an outpatient clinic, in a centre for mental health and substance use, or at home.

### Our services<sup>B</sup>



12 acute care hospitals from Burnaby to White Rock to Hope



An outpatient care and surgery centre



7,760 long-term care beds



Mental health care, public health, home health services, and community care

### Our direct care providers

More than 40,000 employees, physicians, and volunteers of Fraser Health — including 19,126<sup>C</sup> full-time staff — are committed to the values of respect, caring, 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 Environment 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.



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“  
**Thank you to all our staff,  
 medical staff, and volunteers,  
 as well as key external partners,  
 for their hard work to reduce  
 Fraser Health’s environmental  
 and carbon footprint. We know  
 every individual can make a  
 difference. By working together,  
 we are able to provide both  
 quality care and a greener  
 health-care environment for our  
 patients and our community.**

– Dr. Victoria Lee,  
 President and Chief Executive Officer, Fraser Health

**Fraser Health’s environmental  
 sustainability policy**

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



**Our 2019 sustainability successes**

**Fortis BC Efficiency in Action Public Sector –  
 provincial award**

For making energy efficiency part of its everyday decision making and annual planning, resulting in significant energy savings, Fraser Health received the Fortis BC Efficiency in Action Public Sector – provincial award. In its ongoing efforts to use energy resources wisely through its energy-management programs and continued effort to leverage new technologies and design improvements, Fraser Health maintained a reliable, healthy indoor environment for patients and staff in acute and long-term care facilities across the region.

**HealthADAPT project funding**

As project partners, Fraser Health, Vancouver Coastal Health, Health Emergency Management BC, and Facilities Management (GreenCare) were awarded \$300K funding for the HealthADAPT project by Health Canada’s Climate Change and Health Adaptation Capacity Building Contribution Funding Program.

[Pre-2019 sustainability awards/successes](#)

**Building for energy and  
 environmental sustainability**

In key aspects of construction of new facilities (i.e. project planning, design, and construction teams) Fraser Health is supporting the goal to achieve 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, resilient, and environmental sustainability strategies
- Achieving LEED accreditation (a globally recognized green-building rating system administered by the [Canadian Green Building Council](#))

- Meeting and/or 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](#))

The benefits of building for environmental sustainability include:

- Prioritizing design strategies that enhance human health and well-being
- Adding value to building projects via synergistic and holistic solutions
- Finding opportunities to minimize risks, cost, and unintended consequences on the environment and human health
- Promoting health and environmental sustainability values that directly impact staff and patients, and are not captured in energy- and climate-related programs and legislation
- Focusing on better health outcomes by constructing buildings that don’t make people sick

**Our buildings**

**664,249 m<sup>2</sup>**

Usable facility space (Source: ARCHIBUS)

**117**

Distinct buildings (Source: ARCHIBUS)



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Our LEED projects

Registration Date	Certification Date	Project Name	Certification Level	Project City	Project Size m²
2004-12-06	2010-03-19	Czorny Alzheimer Centre	Certified	Surrey	3,107
2005-03-14	2009-09-10	Abbotsford Regional Hospital and Cancer Centre	Gold	Abbotsford	60,000
2005-03-14	2007-09-14	Cottonwood Lodge - A Fraser Health Residential Mental Health Facility	Gold	Coquitlam	1,387
2005-05-02	2008-12-17	CareLife Maple Ridge	Silver	Maple Ridge	9,777
2005-11-04	2012-10-11	Creekside Withdrawal Management Centre	Certified	Surrey	2,415
2006-08-08	2010-06-23	Good Samaritan Canada, Victoria Heights Assisted Living	Certified	New Westminster	8,668
2008-07-15	2012-09-19	Jim Pattison Outpatient Care & Surgery Centre	Gold	Surrey	32,172
2008-09-23	2012-10-11	Maxxine Wright Place	Gold	Surrey	4,406
2010-04-20	2013-04-22	Czorny Alzheimer Centre – Phase Two	Gold	Surrey	3,158
2012-08-22	2015-07-20	Mission Community Health Project – Complex Residential Care	Gold	Mission	12,962
2016-01-26	TBD	Delta Hospital Lab & Medical Imaging Expansion Project	TBD	Delta	1,770
2016-11-22	TBD	Peace Arch Hospital Expansion	TBD	White Rock	6,000
2017-03-24	TBD	Royal Columbian Hospital Redevelopment Project – Phase One	TBD	New Westminster	37,094
2017-10-17	TBD	Langley Memorial Hospital ED	TBD	Langley	3,105
2020-04-05	TBD	Burnaby Hospital Redevelopment – Phase One	TBD	Burnaby	12,696



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## 2.2 Senior executive team\*

“

**Our health services use a lot of resources, including energy, water, and single-use plastics. It is important we are aware of the impact we have on the environment and use resources mindfully so we limit the health and environmental consequences of our own operations. ... Together, everyday changes can make significant, long-term impacts, including protecting the health of our communities and our planet.**

– Victoria Lee, President and Chief Executive Officer, Fraser Health



**Dr. Victoria Lee**  
President and Chief Executive Officer



**Cathie Heritage**  
Interim Vice President,  
Clinical Programs and Support Services



**Brenda Ligget**  
Vice President, System Optimization &  
Chief Financial Officer



**Cameron Brine**  
Vice President,  
Employee Experience



**Dermot Kelly**  
Vice President, Quality,  
Access and Flow



**Dr. Roy Morton**  
Vice President, Medicine



**Dr. Elizabeth Brodtkin**  
Acting Vice President, Population Health  
and Chief Medical Health Officer



**Brent Kruschel**  
Vice President, Informatics,  
Technology and Facilities



**Naseem Nuraney**  
Vice President,  
Communications and Public Affairs



**Linda Dempster**  
Vice President,  
Pandemic Preparedness and Response



**Laurie Leith**  
Vice President,  
Acute and Community Care



**Norm Peters**  
Vice President, Regional Care Integration

\* As of July 2020



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## 2.3 Our climate reality

“  
**Managing the risks  
resulting from a changing  
climate is essential to  
secure the longevity of  
asset investments, protect  
our health and well-  
being, and reduce costs  
associated with climate-  
related disasters.**

– CleanBC plan

The Government of British Columbia is taking action to promote environmental sustainability. The *Climate Change Accountability Act* is currently being amended to introduce a new climate change accountability framework under the CleanBC plan, which includes enhanced reporting requirements on plans, actions, and progress to manage climate change risks, and the identification of organizational costs and road maps for public sector organization performance beyond the government-legislated emission reduction sectorial targets. **This equates to a reduction of carbon emissions by public sector organizations of an additional 10% over and above the Act's target of 40% by 2030.<sup>D</sup>**

Climate change and its associated environmental and human health problems are our current global reality — a reality which we must all take action to address if we are to protect our environment and maintain strong, effective health systems that support the health of all individuals and populations.

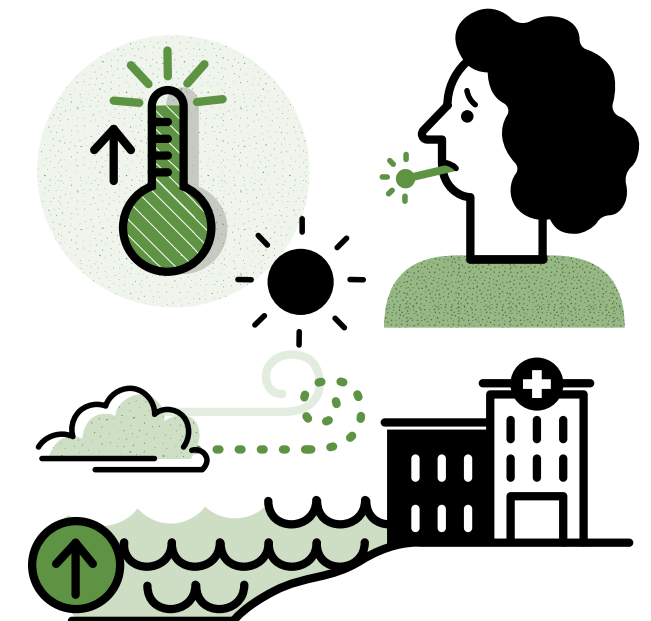
B.C. is experiencing the effects of global climate change right now: average temperatures are increasing, sea levels are rising and causing coastal flooding, and variable and extreme weather is becoming more frequent.<sup>E</sup> With the rise in average precipitation, we face an increased risk of seasonal flooding, even as seasonal water droughts contribute to more powerful wildfires. Despite efforts to reduce carbon pollution, these changes will affect the physical and mental health of British Columbians directly — especially the most vulnerable — as well as the capacity of the health-care system to deliver the health services that we rely on.<sup>F</sup>

Paradoxically, the health-care activities that address these health challenges can also contribute to global climate change and environmental pollutants. For instance, from 2009 to 2015, largely due to emissions from hospitals, pharmaceuticals, and physician services, the Canadian health-care system generated “33 million tonnes of greenhouse gas emissions and over 200,000 tonnes of other pollutant emissions, resulting in 23,000 disability-adjusted life years lost annually.”<sup>G</sup>

All of this means we have a clear responsibility to act: consistently, decidedly, and with urgency. As we continue to work toward a healthier future, we need to understand and meaningfully address the impacts of health-care construction and operations on the environment.

“  
**As health professionals, we  
have an obligation to first, do no  
harm to both the health of our  
communities and the planet. The  
health and care sector has the  
political and economic leverage,  
as well as the moral obligation  
to lead from the front when it  
comes to climate change.**

– David Pencheon, Director, Sustainable Development Unit  
for NHS England and Public Health England





## 2.4 Health care's impact

### Energy and water

Health-care sites and operations often run 24/7 and require large amounts of energy and water to maintain the highest level of care to a growing population across the Lower Mainland of British Columbia. Diagnostic and life saving equipment and processes, as well as all of the support services in our facilities, require uninterrupted energy sources. Likewise, keeping facilities clean and disinfected for the safety of staff, patients, and visitors necessarily require water use. Fraser Health has an environmental and fiscal responsibility to reduce energy and water use and its resulting carbon footprint.

“The health sector is one of the most trusted and respected sections of society, and it is also one of the largest employers and consumers of energy. This presents both a duty and a window of opportunity to achieve climate-neutrality, efficiency and cost reduction all at the same time.

– World Health Organization's Health Security and Environmental Cluster

### Material waste

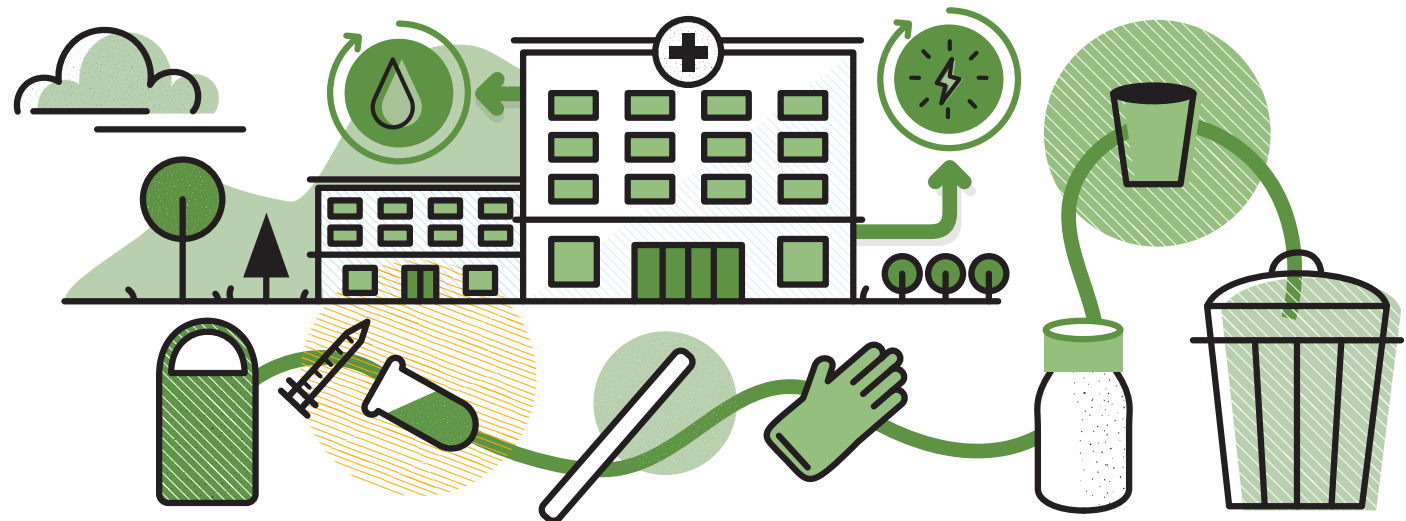
Quality patient care requires a vast amount of supplies, including single-use items designed to deliver care and reduce infections, which results in large amounts of material waste. These health-care needs, the decline in global recycling markets, the differences in regionally accepted materials, and the real and perceived contamination risks in the recycling streams accepted by local vendors has limited our ability to reduce the material waste sent to landfills or incineration.

Nevertheless, health-care organizations have an environmental responsibility to reduce the amount of waste sent to landfills or incineration by focusing on reducing the amount of materials procured and brought into the system.

Fraser Health generates on average over twelve kilograms of waste per acute bed, per day. Addressing this waste is critical to reducing our environmental impact.

“Measures to ensure the safe and environmentally sound management of health-care wastes can prevent adverse health and environmental impacts ... thus protecting the health of patients, health workers, and the general public.

– World Health Organization, Health-Care Waste





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## Chemicals

Chemicals are a part of health care, as they are part of providing safe, quality patient care. They are used in construction and maintenance, in building materials and furnishings, for cleaning and disinfection, and in the treatment of our patients, and they end up in our waste. That's why it's important that we work towards reducing and eliminating staff, patient, and visitor exposure to harmful chemicals by improving chemical purchases, and management, use, and disposal practices.

Health-care organizations have an environmental responsibility to work within the *Canadian Environmental Protection Act* to increase management of and exposure to chemicals in products and operations.

“**Health-care professionals, particularly nurses, are at increased risk for chemical and pharmaceutical exposure, and so are health-care patients. Reducing exposures is an important step as the health-care sector fulfils its oath to ‘first do no harm’.**

– Bobbi Chase Wilding, Kathy Curtis, Kristen Welker,  
Hazardous Chemicals in Health Care - A Snapshot of  
Chemicals in Doctors and Nurses

## Transportation

Every day, health-care staff provide lifesaving care to British Columbians, but many staff drive to work in single occupancy (fuel-based) vehicles, which impacts the environment and health.

Accordingly, health-care organizations have an environmental responsibility to reduce the resulting air pollution and an opportunity to improve the active health of their staff.

“**The Government of Canada estimates that 14,600 premature deaths per year in Canada can be linked to air pollution from fine particulate matter, nitrogen dioxide and ozone, as outlined in the technical report Health Impacts of Air Pollution in Canada. ... The total economic valuation of the health impacts attributable to air pollution in Canada is \$114B per year (based on 2015 currency).**

– Estimates of Morbidity Outcomes and Premature Mortalities, 2019 Report





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# 3.0 We're Finding Solutions: Together.



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# 3.1 GreenCare's Energy and Environmental Sustainability team

Our Energy and Environmental Sustainability (EES) team was created in 2010 to ensure that a collaborative energy and environmental sustainability approach is taken across the Lower Mainland health organizations. Since then, we've partnered with many other stakeholders to integrate and enhance sustainability infrastructure and practices in a variety of programs, and made health and wellness central to our work. Like you, we know that healthy communities, healthy workplaces, and a healthy environment are linked, and environmental sustainability is essential to the health of staff, patient care, the health-care system, and an overall healthy population.

We also know that Energy and Environmental Sustainability work is not without challenges, including understanding and reconciling competing priorities in health care. For example, quality patient care and efforts to reduce infections can have an impact on the environment. To this end, we are focused on the following priorities:

- Identifying and supporting the implementation of environmental co-benefits of health-care facility design and operations, without compromising patient care
- Climate resilience through building emissions reductions and adaptation strategies
- A partnership approach that embraces greater integration with other support services, departments, and teams
- Coaching engaged staff, peer learning, and change management

## Embedding environmental health and wellness

Our team's work is guided by GreenCare, an initiative that supports the four Lower Mainland health organizations

in becoming regional and national leaders in energy and environmental sustainability. By advancing an environmentally conscious culture that is actively aware and engaged in creating sustainable solutions for healthy lives and a healthy community, the GreenCare initiative encompasses and promotes a wide range of energy and environmental sustainability strategies, programs, and projects to reduce the environmental impact of health-care operations, reduce climate risk, and improve the resiliency of health-care facilities and human and environmental health.

Due to recent changes to legislation and changing health-care priorities, our current [Strategic Framework](#) needs to evolve to meet the needs of the ever-changing health-care sector. We're working on updating the framework to ensure that our health-care systems and leadership are supported in meeting the challenges ahead.

While the Government of British Columbia continues to review regulations and update legislation, and health-care staff awareness around climate change is increasing, given our climate reality, there is still much work to be done to embed environmental sustainability within our health-care system. I am so proud of our team's [achievements to date](#), and just as proud of Fraser Health staff and leadership for their commitment to building healthier workplaces. Our team looks forward to continuing to work together with Fraser Health in making environmental sustainability an essential part of health care.



**Robert Bradley**  
 Director of Energy &  
 Environmental Sustainability





## 3.2 These are 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 four GreenCare focus areas are essential to this action, and have been developed to ensure the health and well-being of health-care staff, patients, our communities, and our environment.

In order to support meaningful change, each of the following focus areas identifies a goal and a number of targets, along with measurable key performance indicators (KPI) that determine our progress. By pursuing these targets and tracking these KPIs in collaboration with key partners, Fraser Health can assess its progress and achieve environmental sustainability.



**Smart Energy  
& Water**



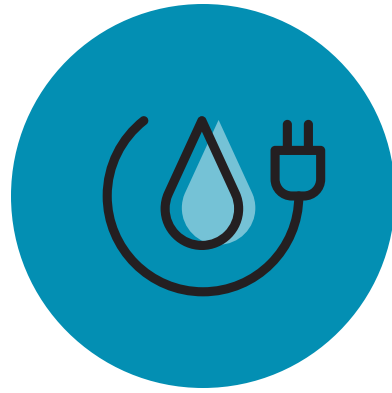
**Zero Waste  
& Toxicity**



**Active & Clean  
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**Workplace  
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# 1. 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.**

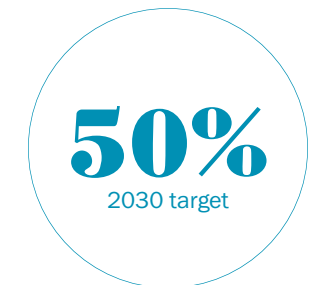
Achieving the Smart Energy & Water goals means stewarding energy and water and their utilities. The Lower Mainland health organizations are continually looking for opportunities to reduce the amount and intensity of energy and water use and GHG emissions from health-care operations. Efficiency measures and water-conserving infrastructure do more with less, thereby lowering our environmental footprint without compromising patient care or employee comfort.

## Our targets

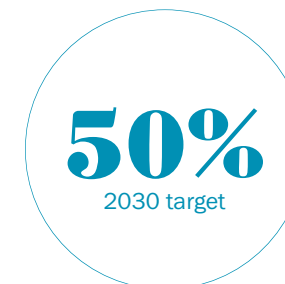
Reduce energy-use intensity of core sites\* by



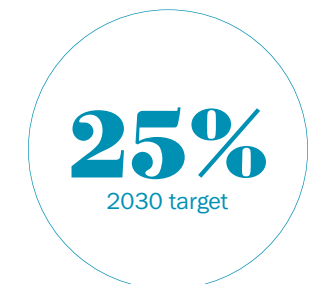
Reduce absolute in-scope GHG emissions by



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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**Smart Energy & Water EES team**



**Jeson Mak**  
Energy Manager



**Cathy McDonald**  
Energy Specialist



**Jacob Vu**  
Energy Coordinator



**Sabah Ali**  
Energy Coordinator



**Ghazal Ebrahimi**  
Sustainability Consultant,  
High Performance Buildings

**Our partners**

BC Hydro<sup>H</sup>

Climate Action Secretariat

Facilities Maintenance and Operations

Finance

FortisBC<sup>H</sup>

Ministry of Environment and Climate Change Strategy

Ministry of Health

Municipal governments

PHSA Supply Chain

Public Health

Projects and Planning teams

**Current programs include:**

- Energy and 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-reduction opportunities. It also undertakes measurement and reporting on key energy-performance indicators and benchmarks, connects with internal sustainability consultants on systemic and behavioural change initiatives, and monitors and tracks project funding.

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

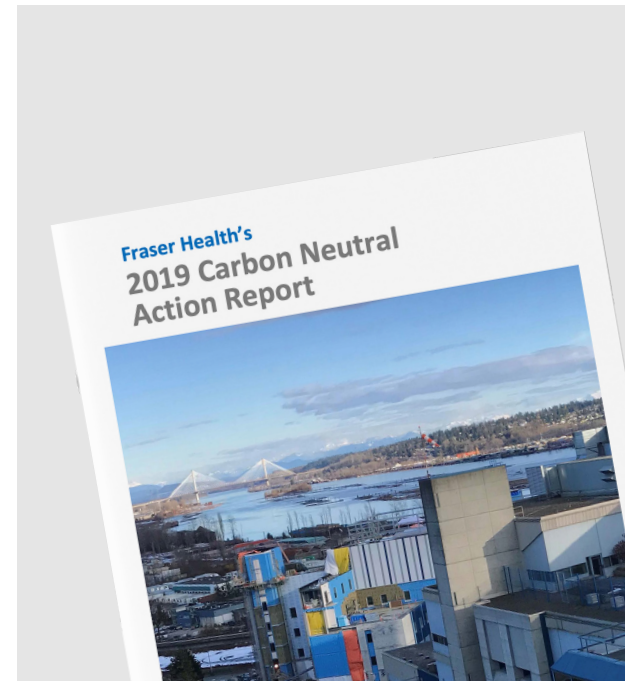
- Energy studies to determine project opportunities
- Heating-plant upgrades and district energy solutions
- Efficient lighting upgrades
- Control-system optimization
- Cooling-plant site strategies
- Heat-recovery chiller installations
- Waste-heat recovery strategies
- Behavioural-change campaigns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

EMISSIONS MANAGEMENT

The focus of the Emissions Management program is to reduce greenhouse gas (GHG) emissions and align with the [Climate Change Accountability Act](#) and the [CleanBC plan](#). As indicated earlier, the CleanBC plan has set ambitious targets for public sector organizations requiring a reduction in emissions by 50% by 2030, by 60% by 2040, and by 80% by 2050. Of the total measured in-scope emissions generated by Lower Mainland health-care sites, over 95% are from buildings while the remaining 5% 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:

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



**The Fraser Health Carbon  
Neutral Action Report**

Each year, along with all public-sector organizations, B.C.'s health authorities submit a Carbon Neutral Action Report (CNAR) to the Climate Action Secretariat of the provincial government. In this mandated reporting of GHG emissions and other data, and current and planned actions to reduce GHG emissions, CNARs detail our progress toward carbon neutrality.

However, due to the COVID-19 pandemic, health authorities have been instructed to use their 2018 GHG emissions as a temporary estimate for their actual 2019 GHG emissions. Although 2018 emissions data will be used as a placeholder for 2019, all other qualitative components of this CNAR are completed with information from 2019.

Download: [Fraser Health 2019 CNAR](#)



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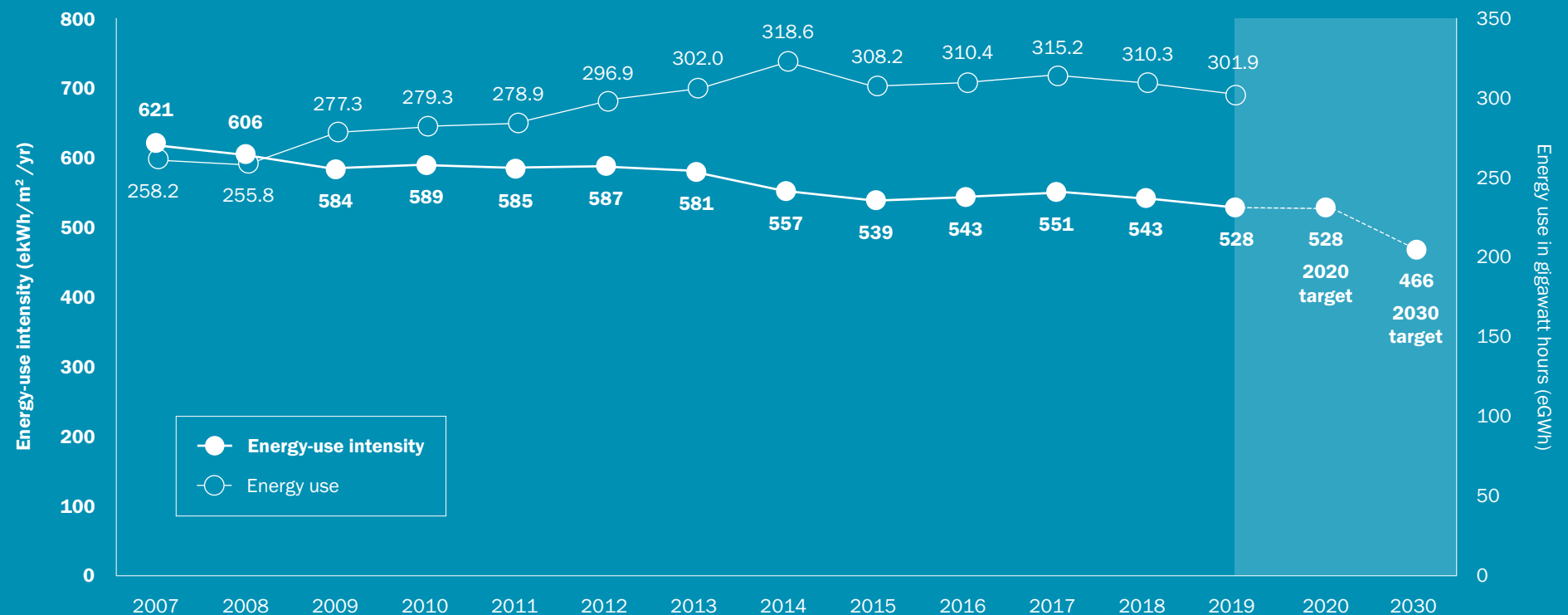
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# Energy Use and Intensity

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, including an adjustment for fluctuations in weather. Energy-use intensity (EUI) is measured in equivalent kilowatt hours generated per square metre of facility space per year (ekWh/m<sup>2</sup>/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.

15%↓

The EUI has decreased by 15% since 2007, and, despite an increase of 37% in core-facility space since 2007, our energy use only increased by 17%.



\* Core sites are defined as primarily owned 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.

# Celebrating new technologies through performance recommissioning

In 2019, the EES team worked closely with the Eagle Ridge Hospital Facilities Maintenance and Operation (FMO) team to maximize the potential of a powerful new heat-recovery chiller (HRC) installed at the hospital. A community hospital located in Port Moody, Eagle Ridge Hospital was constructed in 1982 to provide primary and secondary care with some specialty services, and an additional extended care unit for seniors was built in 1992. An earlier energy study showed the existing chillers were over-sized and performed poorly in fall and spring when the cooling load is small.

The project goals were to improve overall heating and cooling efficiency, and capture escaping energy from the exhaust air to reduce GHG emissions by installing a 250-tonne HRC, replacing three of the six standard multistack chillers; connecting the heat-recovery chiller to exhaust-duct heat-recovery coils; installing variable-speed drives on hot-water pumps; and implementing an advance control strategy to optimize the system performance. The HRC is a dynamic machine that responds to both heating and cooling systems that change throughout the day and year, leading to impressive energy efficiency, and it can achieve greater efficiency by ramping down at low loads supported by variable-speed pumps that can lower the flow of chilled water. The heating feature displaces natural gas that would otherwise be burned by boilers for heating. In addition, the HRC can capture and reuse heat from exhausted warm air in the winter for space heating and to heat domestic hot water. This complexity requires the well-tuned, integrated operation of all systems; otherwise, the energy efficiency potential is lost.

With funding supported by BC's Carbon Neutral Capital Program (CNCPP), the unit was successfully installed and in operation. However, the FMO team noted that the HRC was not always performing as intended, and, in winter 2019, the energy team engaged the original designer of the HRC system for "performance recommissioning." By observing how the HRC was actually performing after the first summer and winter season, the designer was able to adjust programming parameters. As a result, the HRC's winter operation is more stable and with less downtime, and the average HRC operation has increased from 50 to

80% of its full capacity. The designer will perform the same optimization for summer operation.

This project is an environmental-sustainability win, as Eagle Ridge Hospital saved 3,633 gigajoules (GJ) (13%) in natural gas in 2019, representing a decrease of 185 tonnes of CO2 emissions, which is the equivalent of 41 average-sized African elephants. The savings came from a 7,000 GJ reduction due to heat production of the HRC, minus additional ventilation heating load, despite an expected increase in electricity use of 419,000 kWh, which is the equivalent of popping 8.4 million bags of popcorn in the microwave. Following the adjustments, initial trending of performance data shows the hospital expects to more than double the gas savings due to the HRC, for an overall cost savings of \$50,000 per year.

By following up with a performance-recommissioning effort, the hospital was able to get the full potential of its new HRC to maximize energy savings, improve control of the indoor environment, and give operators confidence in their new equipment. Further, in this multi-year project, due for completion in 2021, the building is currently in the process of upgrading the patient rooms' ventilation system by replacing the pneumatically controlled "mixing boxes" with new, digitally controlled "variable air volume" (VAV) boxes, which will enable the optimization of the strategic control of the new VAV-boxes system to further improving energy savings and occupants' comfort.



Eagle Ridge Hospital's multi-stack chillers



Eagle Ridge Hospital's new heat recovery chiller



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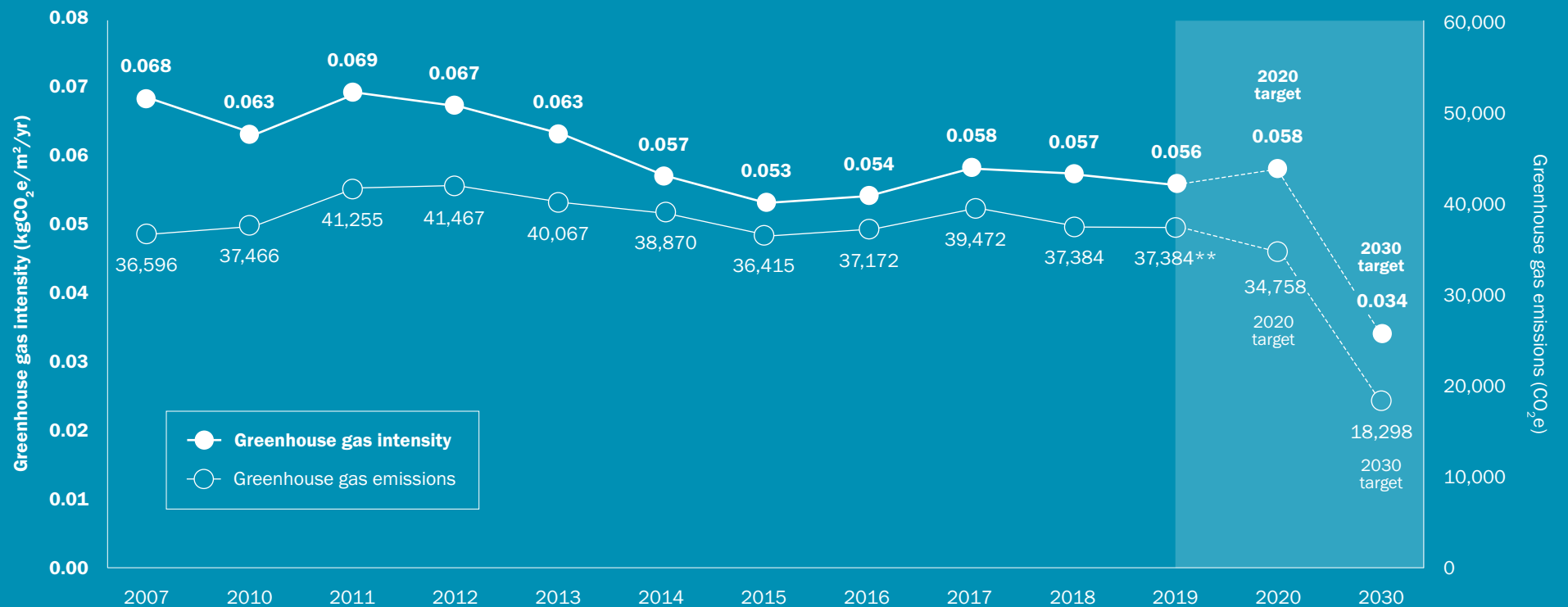
# Greenhouse Gas Emissions and Intensity

Absolute emissions,\* measured in tonnes of CO<sub>2</sub>e 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 (kgCO<sub>2</sub>e/m<sup>2</sup>/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.

17.9%↓

GHG intensity has decreased by 17.9% despite a 25% increase in the total of owned and leased space since 2007.



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

\*\* 37,384 tCO<sub>2</sub>e (tonnes of carbon dioxide equivalents) is a placeholder for 2019 due to reporting interruptions caused by the COVID-19 pandemic. Fraser Health's actual 2019 emissions are to be determined.



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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. Fraser Health'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 Lower Mainland health-care sites. Much work is done in collaboration with the Fraser Health Operations and Infrastructure teams and focuses largely on conservation programs, in order to:

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



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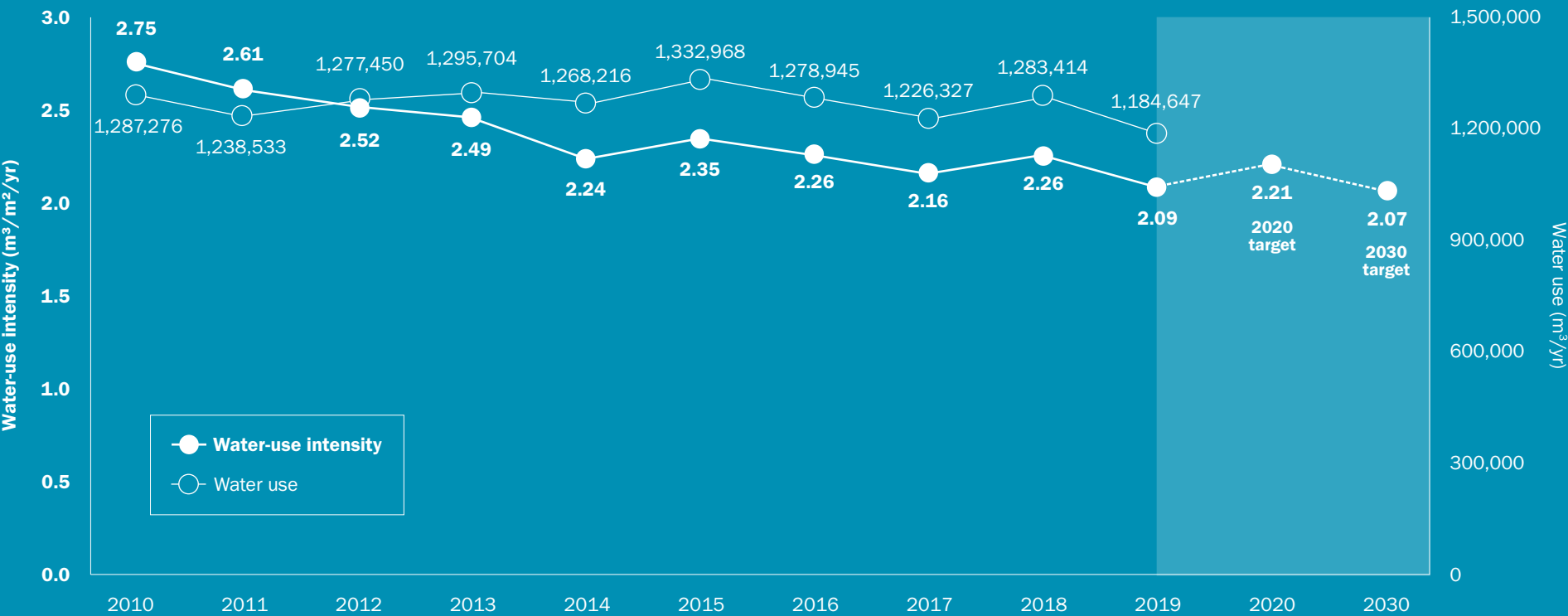
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# Water Use and Intensity

Water use at core sites\* is measured in cubic metres per year (m<sup>3</sup>/yr). Total water-use intensity at cores sites is measured in cubic metres per square metre of facility space per year (m<sup>3</sup>/m<sup>2</sup>/yr). Water use changes depending on operational needs and clinical equipment changes.

8% ↓

Water use has been reduced by 8% (equal to 41 Olympic-size swimming pools), despite an increase of 21% in core facility space since 2010.



\* 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 STORY

# Innovating to save water and money at Peace Arch and Ridge Meadows hospitals

In 2021, to eliminate a wasteful use of water, Fraser Health is upgrading its cooling process for operating-equipment steam sterilizers. By capturing the wasted heat for reuse, this innovative technology is expected to save approximately three per cent and six per cent of total water consumption at Peace Arch Hospital (PAH) and Ridge Meadows Hospital respectively.

The PAH Expansion Project includes a new medical device reprocessing (MDR) department and the installation of three new steam sterilizers (due for completion in July 2021). While standard practice is to use municipal water to quench waste steam and steam condensate, which due to contamination cannot be recycled, this process uses a large amount of water and wastes valuable energy. Project Manager Doug Davis saw an opportunity to change this, recognizing that the sterilizer manufacturer has an optional add-on heat-exchanger device that allows cooling from a central chiller loop. Doug organized a tour of B.C. Children's and B.C. Women's Hospital, the first hospital in B.C. to not use municipal water for cooling, and Facilities Maintenance and Operation (FMO) Manager Ron Stevenson got on board with the new device, requesting that the design engineer incorporate a heat-recovery chiller (HRC) which would incorporate the design of low-temperature heating units into the new addition.

PAH will be the second hospital in Western Canada. to use heat recovery as an alternative cooling system for sterilizer waste condensate. While the "dirty" condensate still goes to drain, the extracted heat is recycled for other uses in the hospital. As a result, heat from the steam-sterilizer condensate will be recycled for space heating and it is anticipated that PAH will reduce water consumption by four per cent and save 1,300 gigajoules (GJ) per year in natural gas for a total savings of \$16,000 per year.

Ridge Meadows Hospital (RMH) is also expanding its MDR department, and purchasing three new steam sterilizers. FMO Manager Sergey Fedorchuk and Senior Project Manager Paul Hughes are looking closely at the

possibility of designing a below-grade sump to contain the hot condensate. This will allow a simple pump and heat exchanger to extract heat before the cooled condensate flows into the sanitary sewer. If this project proceeds, it has the potential to save three per cent of RMH water use and 600 GJ per year in natural gas, for a total savings of \$7,000 per year. It will also be of great value for future MDR expansion projects as an alternative cooling option where a HRC is not possible.



MDR surgical tools sterilizer



OUR STORY

## Hospital pollution prevention planning

Nine Pollution Prevention Plans (P2 plans) were created for Fraser Health acute hospitals as required by Metro Vancouver as per its Hospital Pollution Prevention Bylaw. These plans form a commitment to limit the amount of chemicals, unused drugs, and bio-hazardous waste, as well as fats, oils, grease, and solids, from entering the sewer. These wastewater components can have a harmful effect on the natural environment, and can contribute to clogged drains and increased maintenance costs. While hospitals already have effective policies in place, such as requiring that all bio-hazardous waste be taken off-site for disposal, the P2 plans have identified equipment upgrades, new processes, and staff awareness campaigns to further improve the quality of hospital wastewater.



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# Sustainability of energy and water is important to Fraser Health staff. Here is what they are doing to make a difference.

Our staff are already taking action to conserve energy and water, and would welcome the opportunity to do more to advance environmental sustainability.

**What do Fraser Health staff have to say about energy and water consumption?¹**

**66%**

of staff reported always turning off the desk light/office light when away.

**24%**

of staff reported always taking the stairs instead of the elevator.

**67%**

of staff reported always turning off the tap when not in direct use.





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**Our successes**

In 2019, energy- and emissions-reduction projects and climate-resilience and adaptation-strategy work are projected to reduce electricity consumption by over 600,000 kilowatt-hours (the equivalent of the annual electricity consumption of 23 CT scanners) and natural-gas consumption by 9,500 gigajoules (the equivalent of annual natural-gas consumption of 103 homes), reducing our carbon footprint by the equivalent of 413 tonnes of CO<sub>2</sub>. Measures such as optimization of heat-recovery chiller systems, novel steam-sterilizer heat-recovery projects, a heating plant electrification study, and GreenCare's increased role in new construction projects are increasing environmental sustainability in Fraser Health facilities.

In addition, Fraser Health received the Fortis BC Efficiency in Action Public Sector Award recognizing its commitment to using energy resources wisely while leveraging new technologies and design improvements to maintain a healthy, environmentally sustainable indoor environment for staff and patients.

Fraser Health is among the first health authorities in B.C. to publish technical guidance for its capital-project teams and operations staff on how to incorporate future climate projections into planning decisions.

**Challenges we face**

In order to build on our successes, a number of challenges must be addressed. Integration is a clear area of opportunity, from more coordination between the EES team and the greater facilities maintenance teams, to integration of energy, emission, and water management strategies, infrastructure and equipment with capital planning teams and funding requests. Further, by increasing the amount of strategic communication and engagement activities with diverse stakeholders, including executive sponsorship, we will be better positioned to meet the aggressive emissions targets set by the [CleanBC plan](#), which for public service organizations are 10% over and above the Act's target of 40% by 2030.

**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 Fraser Health:

- Low-carbon resilience infrastructure plans, which provide a road map for infrastructure upgrades in alignment with organizational priorities, to ensure we evaluate all emissions reduction and climate-adaptation options as a site and facility develops. There are multiple co-benefits, and these plans will ensure we have a path to legislated [Climate Change Accountability Act](#) compliance and [CleanBC plan](#) emission targets.
- Initiating discussion of "net zero" emissions and energy targets with Royal Columbian Hospital redevelopment, Burnaby Hospital redevelopment, and new Surrey Hospital projects, and increasing environmental collaborative focus in all project phases
- Ensuring persistence of low-carbon upgrades through engineering support, improved controls, and training for facilities teams
- Initiating dialogue around electrifying future fleet-vehicle purchases with Supply Chain







## 2. 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 patient and staff, decreasing the risk of disease.

In the broader environment, scaling down the use of toxic chemicals and waste decreases greenhouse gas 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.

Fraser Health 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**



**Increase waste-diversion rates at all new LEED-certified health-care construction projects 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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**Zero Waste & Toxicity EES team**



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Sustainability Consultant,  
Recycling and Waste Reduction



**Sonja Janousek**

Sustainability Manager

**Our partners**

Business Initiatives Support Services (including the Food  
Waste and Sustainability Committee) Environmental  
Vendor Services

Infection Prevention and Control (IPAC)

PHSA Supply Chain

Projects and Planning teams

Facilities Maintenance and Operations

Workplace Health and Safety

**Current programs include:**

- Blue Bin
- Waste Reduction
- Environmentally Preferable Purchasing (EPP)
- Safer Chemicals<sup>1</sup>

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 (appropriate) clinical and non-clinical areas of Lower Mainland sites for the following material waste streams:

- Mixed containers
- Mixed paper
- Organics



OUR STORY

**Successful banner upcycle campaign**

We put out a call for vinyl banners that were outdated, damaged, or simply not used anymore, and upcycled the banners into a new item to use in our GreenCare and Green+Leaders engagement events. Over 50 individual banners were collected from a range of departments at Fraser Health and we turned them into a unique, waterproof, and reusable bag as a zero-waste initiative and to promote the practice of upcycling!



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# Fraser Health 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 long-term care facilities owned by Fraser Health.

10,014 t

Fraser Health facilities generated a total of 10,014 tonnes of waste in 2019, which is the equivalent of approximately 2,000 five-tonne elephants.

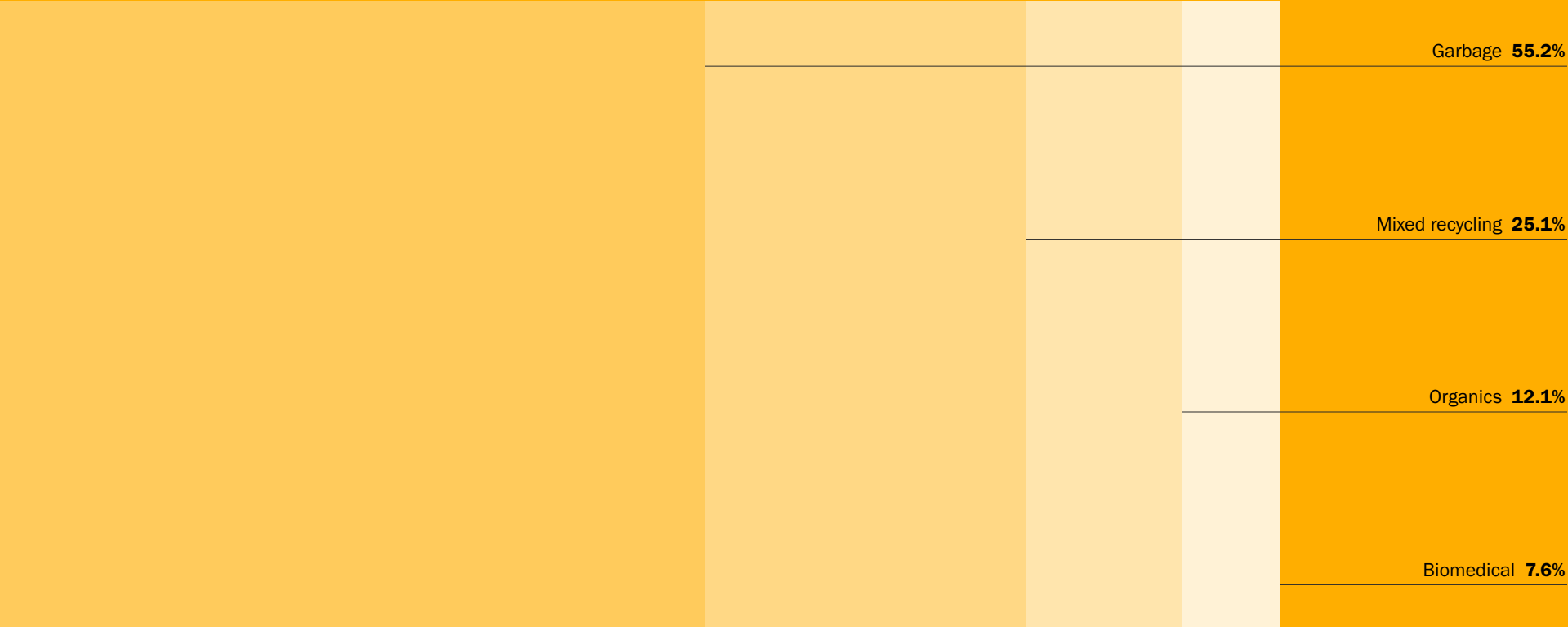


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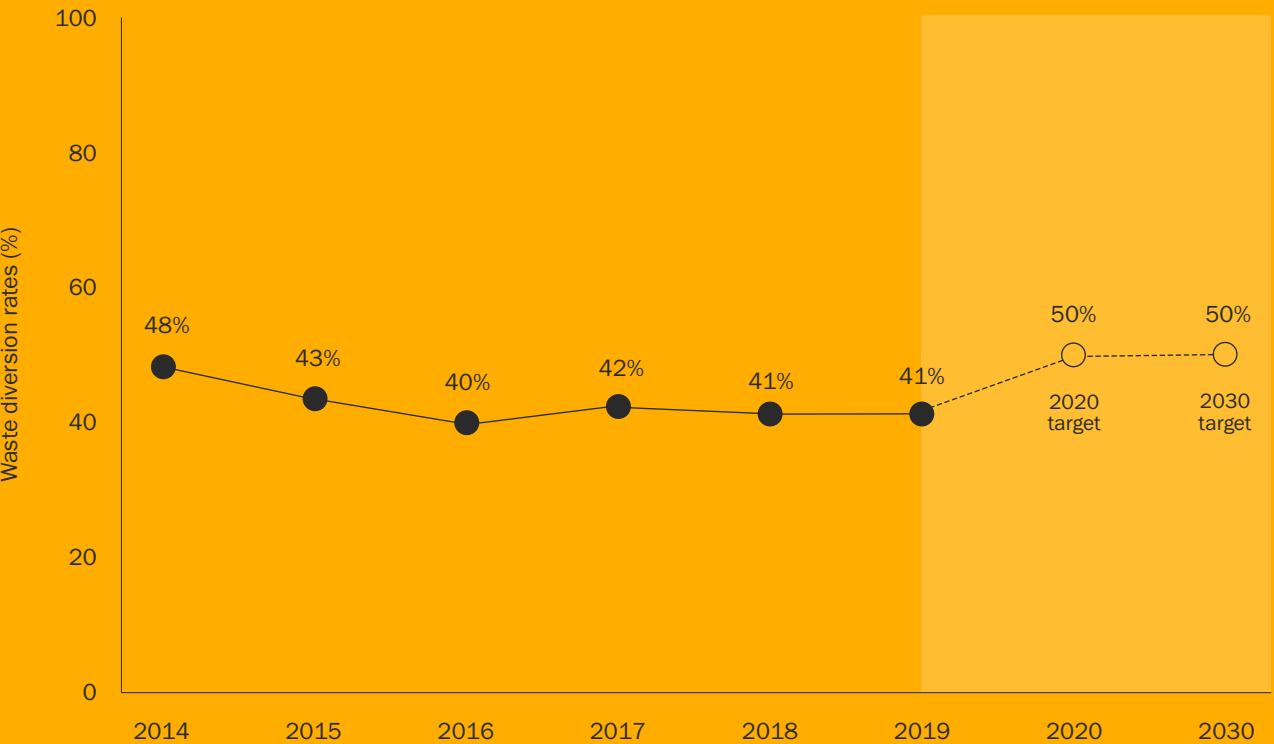
# Waste-Diversion Rates

Waste-diversion rates are for all owned Fraser Health acute and long-term 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. 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. 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.

9%

We are only 9% away from our 2020 target.





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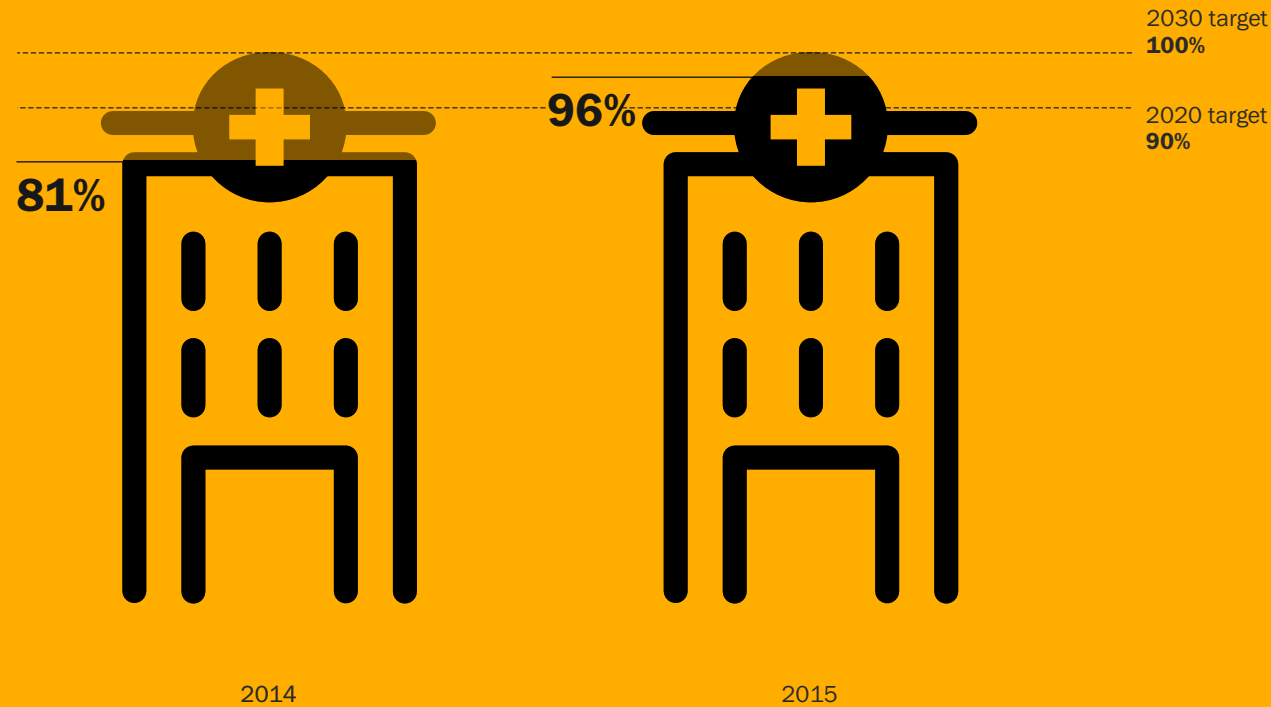
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# Waste-Diversion Rates for LEED-Certified Construction Projects

Waste-diversion rates are only measured on LEED-certified projects, and Fraser Health completed no new LEED-certified construction projects in 2016, 2017, 2018, or 2019.

6%

In 2015, we surpassed our 2020 target by 6%.



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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 unnecessary extraction of natural resources, GHG emissions, and air pollution, which are associated with health problems such as asthma, endocrine disruptors, 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, 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 2019, weighted environmental questionnaires were included in procurement processes related to human waste management systems, nursing trays, adult disposable incontinence, and disposable gowns

## OUR STORY

### Identifying environmental concerns

In 2019, the Energy and Environmental Sustainability team collaborated with Provincial Health Services Authority Supply Chain to create a formal way for direct care providers to report an “environmental concern” (an internal form which may not be accessible to all readers) of a product they use to deliver patient care. Identifying environmental concerns such as “not recyclable” and “excessive packaging” will help Supply Chain track concerns and use this information to shape specifications to procure environmentally preferable products and equipment.





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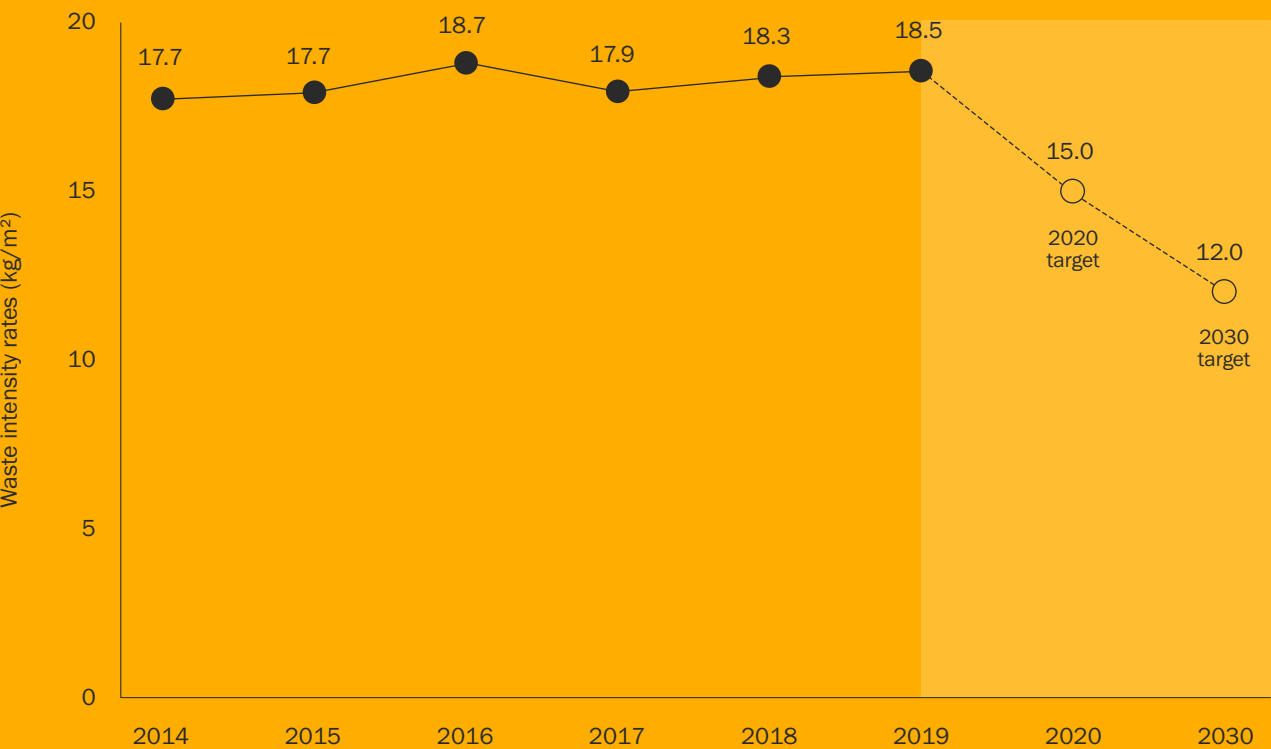
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# Waste-Intensity Rates

The waste-intensity rate indicates whether or not we are reducing total waste generated for all Fraser Health owned acute and long-term care facilities, and is measured in kilograms of waste generated per square metre of facility space (kg/m<sup>2</sup>). Since this metric is recent (2018), work is still being done to learn what practices impact waste intensity the most.



3.5 kg/m<sup>2</sup>

We are currently 3.5 kg/m<sup>2</sup> away from our 2020 target.



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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 on 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

OUR STORY

**Identifying chemicals of concern**

In 2019 the EES team worked with a UBC Sustainability Scholar to develop a master list of chemicals of concern for health care. This list caught the attention of the Provincial Nursing Skin and Wound Committee, and we've committed to working together on a chemicals of concern list specific to skin and wound products.

OUR STORY

**Waste reduction and sustainable procurement at Business Initiatives & Support Services (BISS)**

Tracy Shannon, regional contracts manager, Waste, BISS, has collaborated with the EES team for 10 years on waste management and education and training for clinical staff and housekeeping partners. She connects the health-care world with the waste management industry to deliver waste-management services to hospitals.

Sustainability has long been an important part of Tracy's life, beginning with the influence of her grandparents. She grew up seeing them raise 11 children in a small home, grow their own food, and make their own clothes. This created a connection with the land, and inspired her conservation and appreciation of the environment.

Conversely, working at a crude oil refinery and, later, standing on a landfill for the first time, the ills of waste hit home. For Tracy, waste and sustainability is about "making conscious choices and taking that bit of extra time to take action when we can."

The EES team and the many stakeholders and staff they engage are doing just that — working hard to standardize and improve the waste management and segregation programs and supporting sustainable service delivery at health authority facilities.

Tracy is excited about the new work that's being done by EES in collaboration with PHSA Supply Chain on waste reduction and sustainable procurement, drawing attention to the strong expertise in waste management and sustainability across the Lower Mainland health organizations, and highlighting the positivity and creativity of all the people who are making sustainability a part of their story at Fraser Health.

**Tracy Shannon**

Regional Contracts Manager, Waste, at BISS





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# Reducing waste is important to Fraser Health staff. Here is what they are doing to make a difference.

What do Fraser Health staff have to say about waste?

Fraser Health staff have clearly indicated that they support environmentally sustainable decision making, and are already changing their behaviours.

**75%**

of staff said that they always recycle mixed paper.

**73%**

of staff said that they always recycle mixed containers (e.g. hard plastic and tin).

**66%**

of staff said that they always choose tap/filtered water instead of individually bottled water.

**26%**

of staff said that they always divert/compost organic waste; 23% said that they want to do this more.

## Our successes

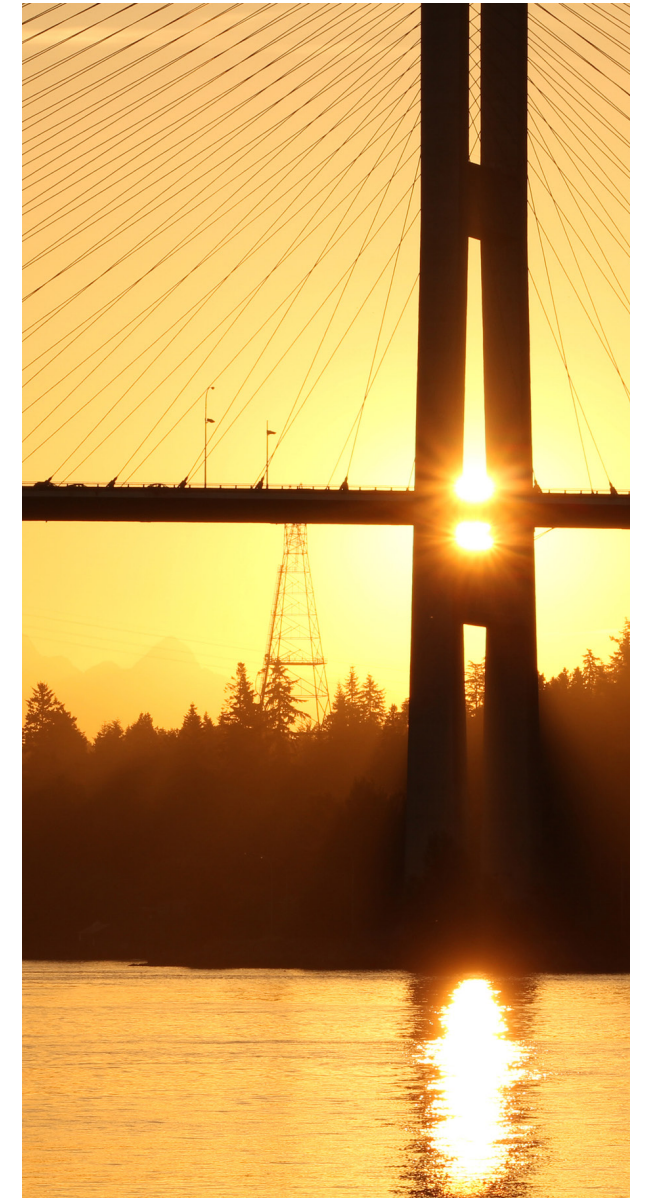
We continued with the second phase of a clinical recycling trainer pilot at Peace Arch Hospital. Communications around the importance of waste avoidance and reduction, rather than recycling on its own, were strengthened with a range of Fraser Health stakeholders, from direct care providers to executive leadership. We also saw an increase in staff requests to reduce styrofoam-cup waste, and Fraser Health kitchens started recycling specific soft plastics that were previously sent to landfill.

## Challenges we face

Fraser Health staff and leadership work hard at their jobs. As a result, time can be limited and meaningful engagement with busy staff is a challenge we need to overcome. We need to work towards more creative and innovation solutions. We also face an ongoing need to improve data collection. Currently, there are gaps in our knowledge of exactly how much waste is being generated and disposed of, and constant improvement of how we collect this information will be key to properly addressing it. Similarly, waste data around non-LEED construction projects is very difficult to obtain, making it difficult to improve disposal practices and diversion rates in these instances.

## The work isn't finished

We want to build on 2019 successes by continuing to engage key clinical stakeholders such as TBQI, IPAC, and Workplace Health & Safety. We'll also continue to learn from our planning, design, and construction teams about how to reduce and divert waste and co-develop health-authority and site-specific waste-reduction plans and strategies. Finally, we want to continue to work with staff in PHSA Supply Chain to understand procurement processes in Fraser Health and work towards environmentally preferable policies and practices.





## 3. Active & Clean Transportation

### Our goal

**Ensure a health-care system in which employees commute to and travel in-between sites in a manner that reduces GHG-related pollutants, minimizes the need for on-site parking, and increases overall health and wellness.**

Active transportation (walking and cycling) helps to reduce the risk of disease, the effects of psychological stress, and the negative physical impact of a sedentary lifestyle. Clean transportation (walking, cycling, carpooling, and transit) reduces GHG emissions and contributes to environmental and human health by reducing consumption of fossil fuels and resulting air pollution. For instance, if all employees of Fraser Health were to commute via an active and clean manner, approximately 12,000 fewer metric tonnes of carbon dioxide would enter the environment annually, which is the equivalent of the emissions from 1,385 homes' energy use for one year.

Please note that this report does not feature data for 2019, as data is collected every two years.

### Our targets

**Increase the per cent of health-care staff that commute via cleaner and healthier means by**

**35%**  
 2020 target

**50%**  
 2030 target

**Increase the proportion of core sites that provide end-of-trip (EOT) bicycle facilities/storage by**

**50%**  
 2020 target

**100%**  
 2030 target

### Our partners

BC Hydro

Climate Action Secretariat

Commuter Services

Integrated Protection Services

PHSA Supply Chain

### Active & Clean Transportation EES team



**Glen Garrick**

Sustainability Manager (until April 29, 2020)



**Sonja Janousek**

Sustainability Manager (from May 1, 2020)

### Current programs include:

- Healthy Transportation



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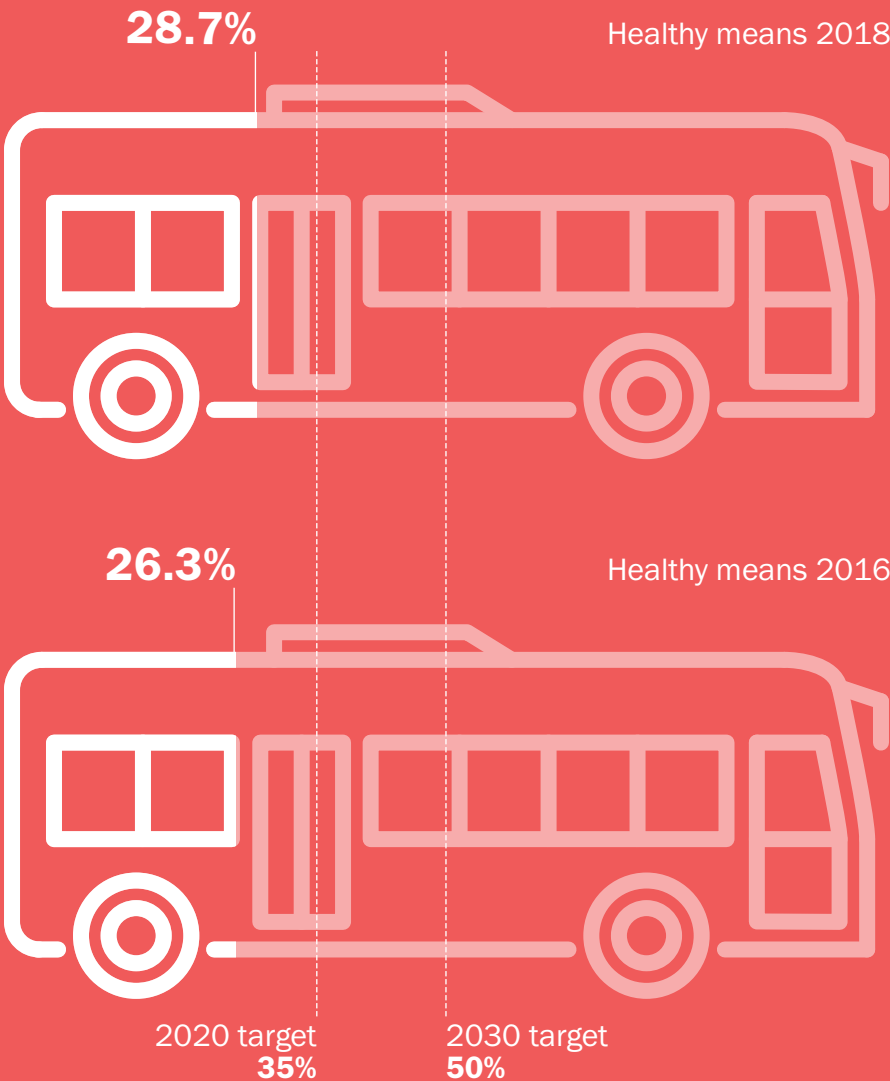
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# Healthy and Clean Commuting


Staff are choosing healthy and clean commuting, which includes carpooling, carsharing, and using single-occupancy hybrid/electric vehicles; taking public transit; walking; cycling (electric or manual); using scooters; and taking shuttles. By supporting these options, our goal is to reduce single occupancy vehicle trips. This information is collected from staff biannually in the Future of Health Care Survey.



2.4%

↑

We have increased healthy and clean commuting by 2.4%.



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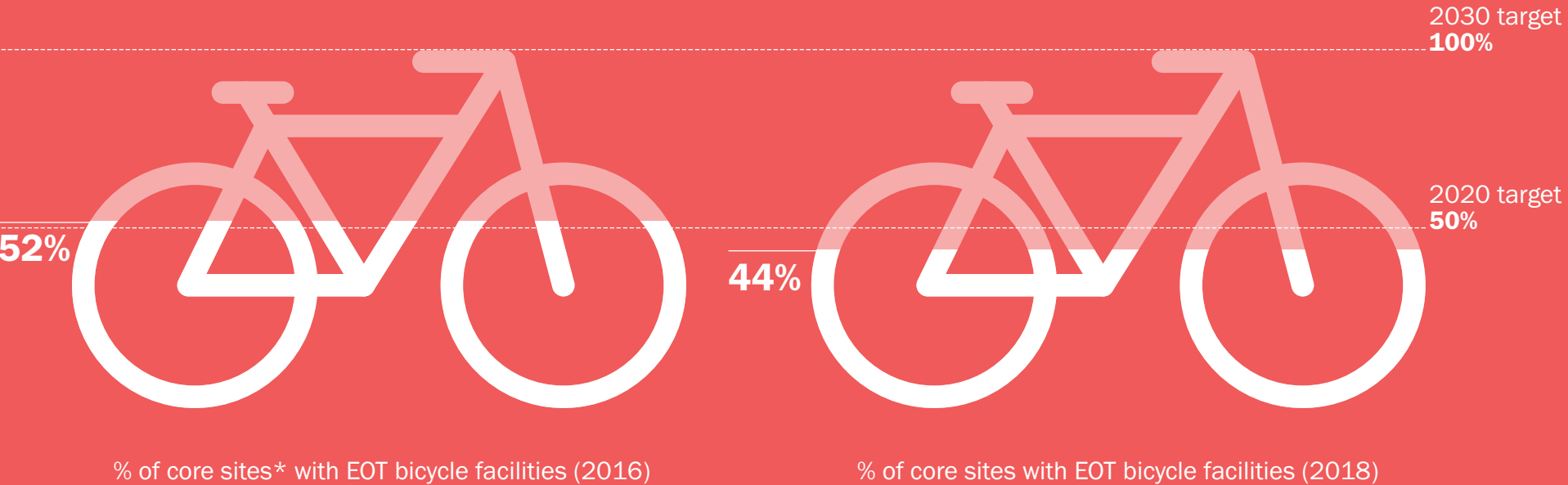
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# Bicycle Facilities at Our Sites

The implementation of bicycle facilities at acute and long-term care sites is trending positively. End-of-trip (EOT) bicycle facilities are defined as sites that provide secure space for bicycle racks, lockers, and/or change rooms where cyclists, joggers and walkers can shower, change, and secure their personal belongings. Bicycle storage or parking areas should be accessible to users, and located within the facility or on-site within reasonable walking distance of a primary entrance of the site.

8% ↓

There's been a 8% decrease in Fraser Health sites with bicycle facilities due to new construction and renovation projects. Unfortunately, due to new construction and renovation projects across Fraser Health, a number of EOT facilities had to be removed. It is planned that these will be restored once the new projects come to completion.



\* 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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# Active & clean transportation is important to Fraser Health staff. Here is what they are doing to make a difference.

What do Fraser Health staff have to say about active & clean transportation?<sup>1</sup>

42% of staff travel more than 20 km to get to work, and 70% of staff report commuting alone using a gas vehicle 70% of the time over the year.

## The future of electric vehicle (EV) ownership

35%

of staff plan to own an EV.

34%

of staff do not own an EV and do not plan to own one; 5% of staff currently own an EV.

26%

of staff are unsure about owning an EV.

## Our successes

We communicated with supply chain about the CleanBC plan to encourage the uptake of electric vehicles in our fleet. Fraser Health now has 60 electric vehicles charging stalls in visitor/employee parking, and there are 470 bike-parking stalls available across Fraser Health sites. In addition, the shuttle transport service for family members, ambulatory patients, and employees between three facilities and the Surrey Central Skytrain Station, Royal Columbian Hospital and Braid Station, and Burnaby Hospital and Gilmore/Patterson Stations continues, with a ridership of 156,125 trips, an increase of 23% over 2018. The Transit Incentive Program (TIP) was implemented effective November 1, 2019, with 298 Fraser Health employees enrolled in the first month, and employees receive a 15% subsidy if they purchase a monthly Compass Card.

## Challenges we face

The Fraser Health region presents unique challenges to the Active & Clean Transportation Focus Area. Distances are lengthy, so promoting walking, cycling, transit, carsharing, and carpooling doesn't always resonate among staff. Also, although there has been an increase in interest in EV charging stations at our sites, we don't have a clear governance structure in place or resources available to address all of these requests. We also face an ongoing need to improve data collection in collaboration with our partners at Integrated Protection Services.

## The work isn't finished

We are continuing to strengthen our relationship and collaboration with Integrated Protection Services, and continuing to work with Fleet Procurement and the transportation demand management coordinator to improve, promote, and establish low-carbon transportation opportunities.



## OUR STORY

### Mitigating EV-charger impact on building power

As the request for EV chargers by Burnaby Hospital's visitors and staff is growing, the electrical demands from the chargers will impact the building's electrical system. In 2019, EES worked with Facilities Maintenance and Operation, BC Hydro, the installer, and the consultant in developing a pilot project to study this impact with the goal of achieving EV-charger energy management. The pilot site will be the current Burnaby Hospital multilevel parking, targeting the existing eight EV charging stations. Chargers will be networked together and the network interfaced with the building's sub-metering or building-management system for power and energy monitoring and controlling. The project will be implemented in 2020/21 and fully funded by BC Hydro as a study project.



## 4. Workplace Leadership

### Our goal

**Together, we will reach, engage, and inspire staff in health care to be leaders that share a commitment to and passion for sustainable and thriving healthy 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 patients and staff. In addition, supporting and bringing leaders together — whether this is direct care providers, corporate team members, and/or executives — contributes to a more engaged and motivated workplace where values are shared and appreciated.

Fraser Health is working to inspire a culture of workplace leadership for environmental sustainability through the GreenCare Community initiative and Green+Leaders staff engagement program.

### Our targets

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



**Increase the number of health-care staff presentations and education and training sessions to**



**Decrease the GreenCare Community website bounce rate\*\* to**



\* Based on the number of Green+Leaders trained in the previous year

\*\* Bounce rate refers to the percentage of visitors who enter the site and then leave after viewing only one page.



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## Workplace Leadership EES team



### Sarah Currie

Sustainability Consultant,  
Workplace Leadership  
(on leave: June 1, 2020-May 31, 2021)



### Aubree Mcatee

Sustainability Consultant,  
Workplace Leadership  
(starting May 25, 2020)

## Our partners

BC Hydro

Clinical and non-clinical direct care providers

Communications

Human Resources

Innovation team

## 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:

- Smart Energy & Water
- Zero Waste & Toxicity
- Active & Clean Transportation
- Climate Resilience & Adaptation

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

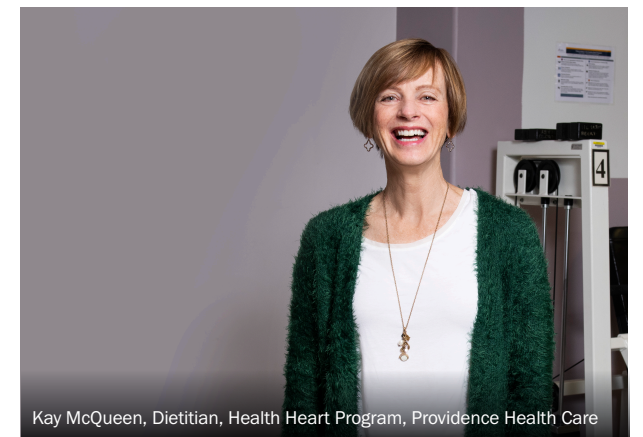
- Training, tools, and leadership development
- Support from a community of like-minded colleagues
- Participation in inspiring and educational events
- Opportunities for making a positive, meaningful impact on workplace and community



Gigi Wong, Clinical Pharmacist, Quality, Fraser Health

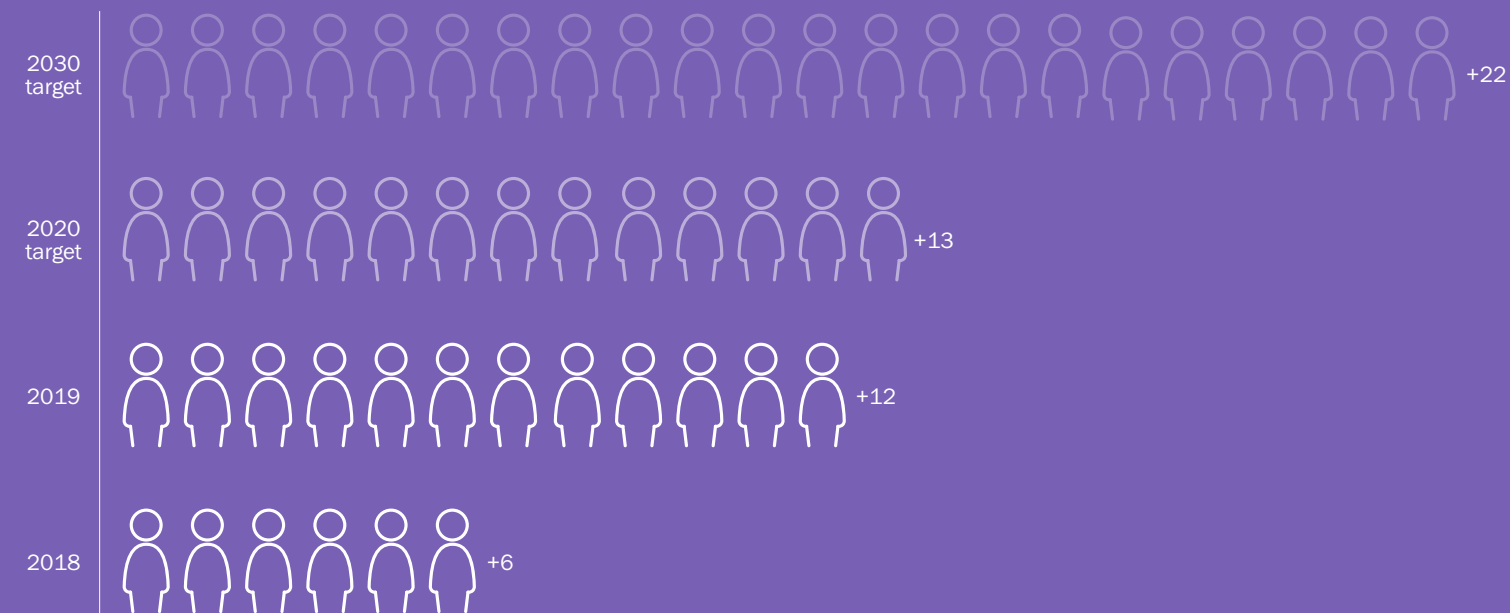


Adrian White, Radiation Therapist, Provincial Health Services Authority



Kay McQueen, Dietitian, Health Heart Program, Providence Health Care

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We've increased the number of Green+Leaders trained to 12, which is a 100% increase over 2018.





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OUR STORY

## Eliminating plastic bottles at Burnaby Hospital

Burnaby Hospital nurse Charmaine Waters designed an education and awareness campaign to eliminate the sale of single-use plastic bottles at the hospital.

The Water Wednesday awareness campaign is designed to educate patients, families, staff, physicians, and visitors about single-use plastics, with the hopes of adding more water fill stations to every ward on site. By running this campaign, Charmaine hopes to create awareness and motivate Fraser Health to make the change across all facilities. She will continue this work with the help of a \$1,000 Exnovation Grant that she was awarded under the environmental-sustainability stream.

**Charmaine Waters**  
RN & Green+Leader, Burnaby Hospital



**Susan Shyluk**  
RN & Green+Leader, Royal Columbian Hospital



OUR STORY

### Peer recycling training a success

In 2019, Susan started a second pilot of the Clinical Recycling project at Peace Arch Hospital. There she provided direct care providers in 33 hospital areas with face-to-face education on recycling best practices. Follow-up visual audits showed a 50% decrease in recycling-bin contamination in staff areas such as kitchens and lunch rooms.

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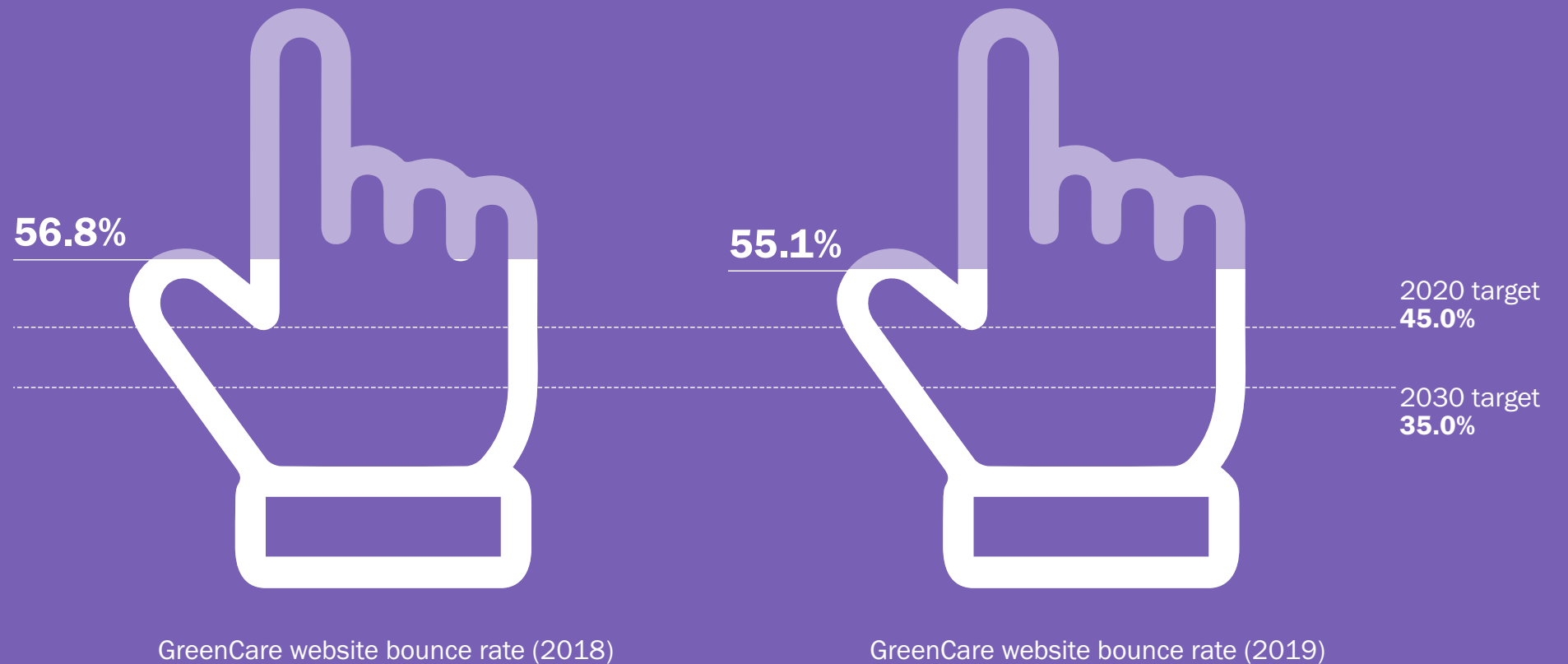
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# Website Bounce Rate\*

In an effort to focus on the improvement of online engagement efforts, the annual BC GreenCare website bounce rate (calculated for all Lower Mainland health organizations) is a new KPI in this focus area as of 2018. Decreasing the bounce rate to 45% by 2020 requires prioritizing a website refresh, and taking a collaborative and strategic approach to GreenCare communications.

1.7% ↓

We've made a 1.7% reduction in bounce rate.



\* Bounce rate: the percentage of visitors to a particular website who navigate away from the site after viewing only one page



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# Education Sessions and Presentations

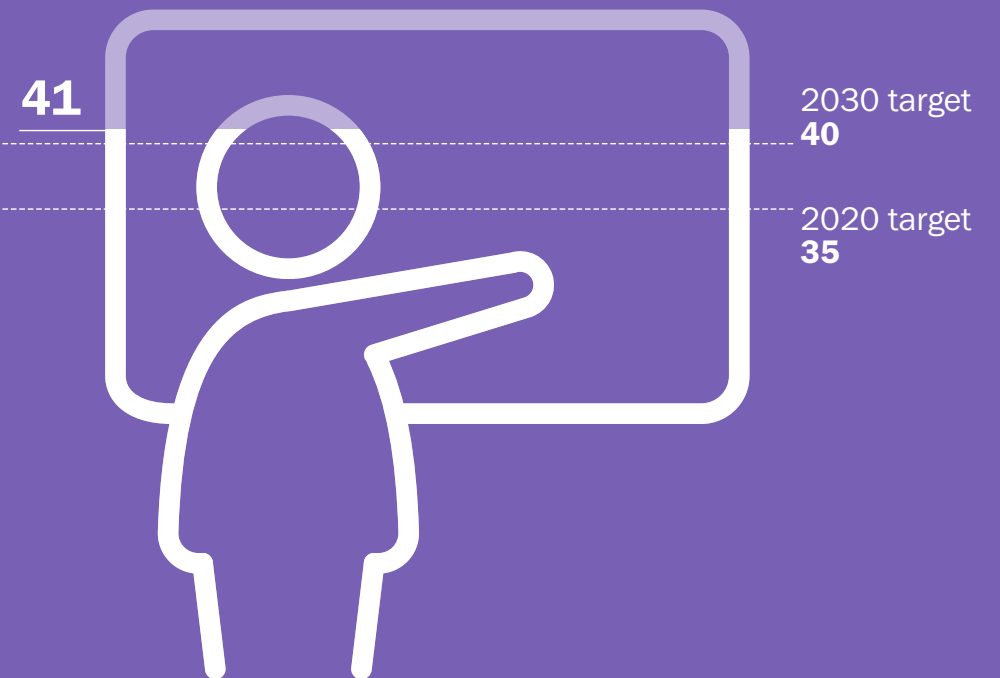
In an effort to increase awareness among health-care staff, the EES team set a target to increase the number of presentations and education sessions undertaken to diverse audiences across the organization. This is a new KPI in this focus area as of 2018.

6↑

The EES team surpassed our 2020 target by six presentations.



Education sessions and presentations in 2018



Education sessions and presentations in 2019

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# Fraser Health staff want the opportunity to engage more with workplace environmental policies and programs. Here is what they are doing to make a difference.

What do Fraser Health staff have to say about workplace environmental policies and programs?<sup>1</sup>

In the survey of Fraser Health staff, in regards to familiarity with policies and programs to address our climate reality within the workplace, staff expressed a need to know more.

77%

of staff said they are not at all familiar with the health authority's environmental sustainability policy.

71%

of staff said they are not at all familiar with the health authority's Green+Leaders program.

79%

of staff said they are not at all familiar with the GreenCare Community website.

## Our successes

In 2019, we strengthened online engagement opportunities for Green+Leaders. This included initiating the Green+Leaders Dialogue Series (monthly webinars on sustainability topics); developing and launching quarterly e-newsletters; and collaborating with Fraser Health's Innovation team to launch the Exnovation Grant (awarded to projects that eliminate waste, and save money or unnecessary processes) with a new environmental-sustainability stream. This year, we hosted three dialogue webinars on waste reduction, green teams, and kick-starting your workplace green project, with over 100 participants. After our successful Green+Leaders Together recruitment campaign this year, we are pleased that seven employees across operational, clinical, and administrative units have joined the program, bringing together an array of different departments, such as Innovation, Planning and Transformation; Inpatient Psychiatry; Leadership and Organizational Development; Health Services for Community Living and Choice; and others!

## Challenges we face

As we continue to support sustainability leadership, some of the challenges include finding inspiring, effective ways to engage staff around sustainability, and overcoming obstacles in website and communications technology that prevent outreach to a larger audience.

## The work isn't finished

As we work towards ensuring that GreenCare can offer the best support possible to Fraser Health, we'll continue to engage and support leadership as it addresses environmental sustainability; refresh the GreenCare website; celebrate your leaders; and seek out additional opportunities for staff and Green+Leader engagement.



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# 3.3 Climate Resilience & Adaptation<sup>K</sup>

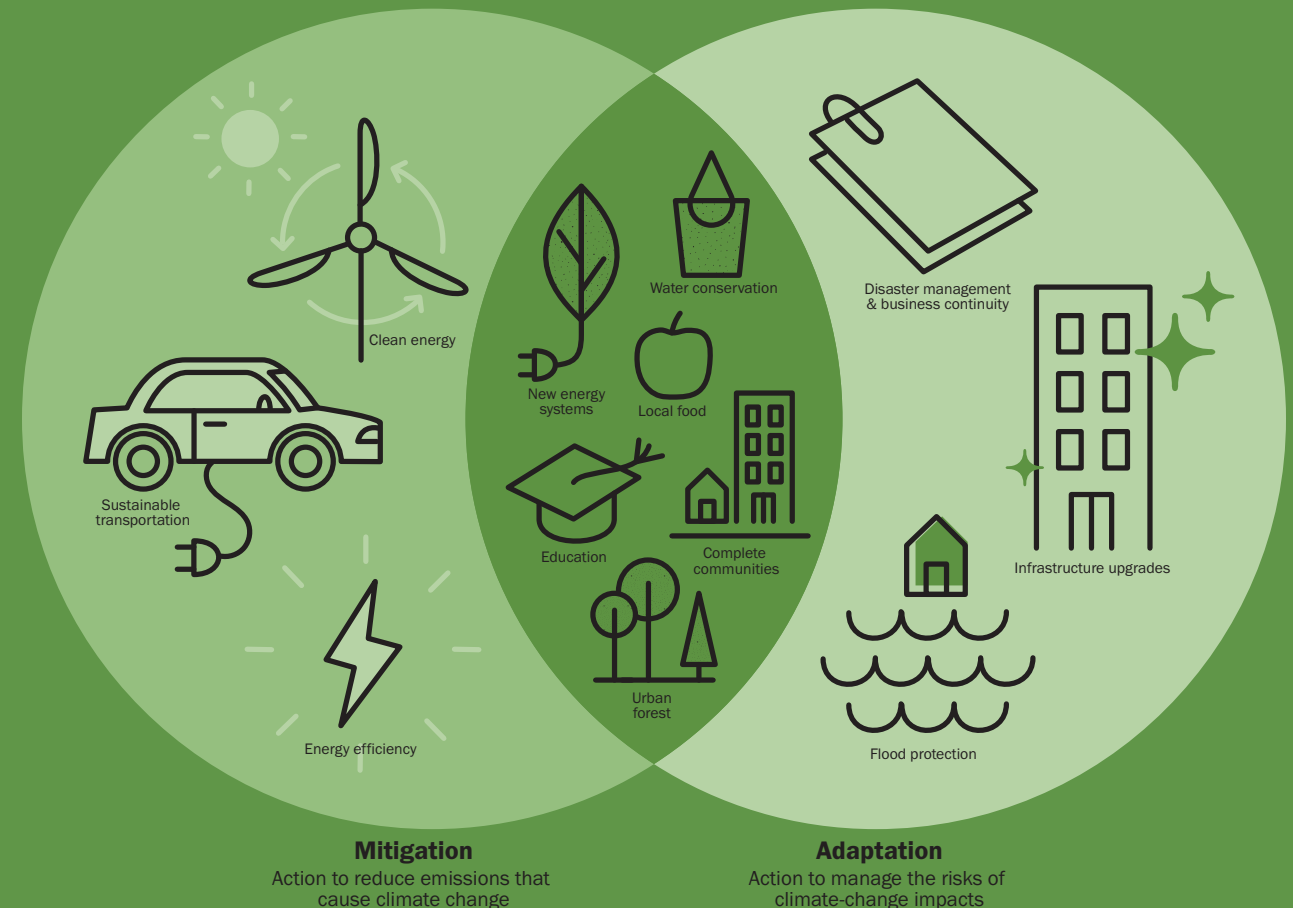
The Climate Resilience & Adaptation program works to reduce the impacts of the environment (e.g. climate shocks and stresses, earthquakes, and pandemics) on our hospitals, community health centres and long-term care homes, and to break the chain of cascading impacts on the services we provide in our health facilities and our broader communities of care. In collaboration with many health system and other stakeholders, we work to reduce risks and build resilience such that we are better prepared for expected and unexpected climate events over the coming years.

In 2016, we recognized that reducing GHG emissions through work in our four GreenCare Focus Areas is not enough to ensure that Fraser Health is prepared for climate change. We created the first Climate Resilience & Adaptation program in western Canada's health sector to reduce climate-related risks to the delivery of patient care and human health/well-being, and build resilience to the impacts of chronic stresses (drought, sea level rise) and acute shocks (extreme weather events). Our work involves reducing the exposure and sensitivity of our health facilities and services to wildfires, high winds, floods, and heat waves, while building our capacity to adapt at the building, health campus, and community levels.

In partnership with Fraser Health Population & Public Health, Health Emergency Management BC, capital project teams, clinical planning and operations, Facilities Maintenance & Operations, and others, we work to ensure that our health system's capacity to absorb shocks and stresses, and adapt in a timely and cost-efficient manner, results in minimal disruptions to health services delivery in times of urgent need.

In order to adapt and overcome adverse conditions resulting from our climate reality, we need a different set of tools and processes to work at the project level and at the strategic systems level in order to address the complexity of risk associated with climate change. By being more flexible and agile in the face of climate-related pandemics and natural disasters, we can achieve both health and climate benefits. Meaningful collaboration among facilities, public health, emergency management, and other health-system building blocks is key to preparing communities for our climate reality. We must build resilience for the organization as a whole, and also work in partnership to support opportunities that achieve co-benefits and integrate resilience and adaption into plans and actions wherever possible.<sup>L,M</sup>

## Building climate resilience



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Angie Woo

Climate Resilience & Adaptation Lead

Our partners

BC Climate Action Secretariat, Climate Risk Management

BC Housing, Mobilizing Building Adaptation  
and Resilience (MBAR)

BC regional health authorities

Canadian Coalition for Green HealthCare

Health Canada, Climate Change and Innovation Bureau

Health Emergency Management BC (HEMBC)

Integral Group and AME, Associated Engineering, Bush  
Bolman, IBI, RDH, Reload Sustainable Design, Stantec, WSP

Ministry of Health, Capital Services Branch and Health  
Protection Branch

Municipal and regional governments

Pacific Climate Impacts Consortium

Population & Public Health (PPH), Vancouver Coastal Health  
and Fraser Health

University of British Columbia and Simon Fraser University

Projects

HealthADAPT

In early 2019, PPH — in partnership with Fraser Health PPH, HEMBC and Facilities Management — launched an innovative, three-year project to create a strategic climate change adaptation plan on the basis of an integrated vulnerability assessment. This initiative will help to reduce negative health outcomes for priority populations in our communities of care, and increase resilience across our health system in B.C., by bringing together the four departments' respective work to reduce vulnerability to climate shocks and stresses. Using an innovative and participative vulnerability assessment methodology, this first-of-its-kind project engages those people on the ground who are most impacted by climate change (including rural and First Nations communities) and ultimately can be change agents in their communities.

Climate Resilience & Well-Being Through  
Neighbourhood-Scale Green Design:  
A Better Practice Guide

Exposure to green landscape elements benefits human health in many ways, and green space is recognized as an important adaptation response to predicted changes in climate. To optimize the impacts of greening on our communities, planners and designers need evidence-based guidance to design and retrofit green spaces that maximize co-benefits for both human health and climate resilience. This report uses as examples Vancouver General Hospital and Lions Gate Hospital to illustrate how health campuses and their communities may use green design strategies to better prepare for and adapt to our climate reality that includes more frequent, intense, and unpredictable heat waves, forest fires, and floods among other threats. It presents eight tangible green-space strategies and associated metrics to integrate climate resilience and human health co-benefits into design and planning. Most importantly, this report provides planners and designers with tools for assessing the benefits and advantages of various greening scenarios, and information to carry out a cost-benefit analysis with respect to conventional green or grey infrastructure strategies.

OUR STORY

Resilience Guidelines for Health Facility  
Planning and Design

In Spring 2019, our Climate Resilience & Adaptation program teamed up with public and private sector leaders to map out a process to jointly develop the first Resilience Guidelines for Health Facility Planning & Design. Our aim is to better ensure that new constructions and major redevelopments are resilient to extreme heat, wildfire smoke, overland flooding, and chronic stresses, with a view to minimizing disruption to patient care as our climate changes over the next decades.

With the support of two forward-thinking executive directors — Mauricio Acosta, Business Performance & Corporate Support, and Larry Harder, Projects & Standards — and Integral Group, an engineering and sustainability consulting firm, our project team set up a task force composed of subject-matter experts in building-sciences research, energy modeling, engineering, and architecture derived from 10 consulting firms; a health-authority working group with capital project, sustainability, and resilience managers; and a cross-sector, multi-disciplinary, and pan-Canadian advisory committee. Our joint initiative set up an iterative process to develop resilience options and pathways; ensure proposed measures' robustness and viability; and contextualize development, application, and evaluation of our guidelines in our working reality.

Our shared success story is in our coming together to develop a practical tool that is intended to be usable from day one. It should be customized as needed by health authorities, and capital project teams and their consultant teams. It should also be updated every three to five years to keep in step with new information and innovations. It has been an ongoing exercise in creativity and collaborative problem solving. The abundance of goodwill among all those who generously contribute their time and expertise to this initiative has afforded regular injections of hope and optimism in these challenging times.

The project team acknowledges the funding support provided by the Lower Mainland health organizations and BC Housing (Mobilizing Building Resilience and Adaptation project).

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## Our successes

Our joint HealthADAPT project was among only 10 in Canada to be awarded a \$300,000 grant from Health Canada's Climate Change and Innovation Branch to improve health-system climate resilience. Our shared success is among several key initiatives that support Fraser Health's commitment to reduce human-health vulnerability to climate change in 2019 and in the coming years. With this project, we will accelerate and amplify our work to reduce exposure and sensitivity of our facilities and services to climate shocks and stresses; leverage partners' knowledge, capacity, and progress to build and embed resilience; and co-create an organization-level strategic adaptation plan that is grounded in our communities' lived experiences.

## Challenges we face

Key challenges to preparing for and adapting to the "greatest threat to public health in the 21st century" include the fact that embedding low-carbon resilience to reduce human-health and services vulnerabilities and risks is not yet a strategic priority in our health-governance framework. The scale and complexity of our shared climate challenge demand a well-coordinated and well-supported "all hands on deck" approach to problem solving that includes leaders and innovators in the health and other sectors. The work ahead necessarily involves tackling our challenges head-on, including developing climate resilience policies and practical tools that enable us to work effectively at the scale of our climate challenge.

## The work isn't finished

We will continue to work with Fraser Health leadership and other key health-system stakeholders to embed climate risk and resilience into their strategic and operational priorities. Our role on the HealthADAPT Project Steering Committee is among our best opportunities to discover synergies and to advance our work in a way to achieve cascading benefits across our health system. We also will continue to do our part in building health-system resilience more broadly, in large part through ongoing collaboration with the Ministry of Health, the Climate Action Secretariat, and Health Canada. Our Resilience Guidelines for Health Facility Planning & Design will be completed in 2020 and ready to use (and adapt for other facility archetypes including existing and long-term care facilities) in 2021.





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## 3.4 This is what we've done: the 2019 Dashboard.

The Energy and Environmental Sustainability (EES) team was created in 2010 to ensure that a collaborative energy and environmental sustainability approach is taken across the Lower Mainland health organizations. Since then, we've partnered with many other stakeholders to integrate and enhance sustainability and climate resilient infrastructure and practices in a variety of programs, and made health and wellness central to our work. Our team's work is guided by the GreenCare initiative that supports the four Lower Mainland health organizations in becoming regional and

national leaders in energy and environmental sustainability. To guide this work, EES has established four focus areas, 12 targets, and related key performance indicators (KPIs) for 2020 and 2030. These KPIs and targets were formulated, monitored, and reported in consultation with relevant senior executives at the various health organizations. In some cases, a target is influenced by but not necessarily aligned with provincial or regional mandates. The following chart lists the results and performance for 2019.

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# Smart Energy & Water

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

Target	Key Performance Indicators (KPI)	Baseline	2019 Results	2020 Target	“Traffic Light”	2030 Target
Reduce energy-use intensity (EUI) of core sites.*	EUI (ekWh/m <sup>2</sup> /year)	2007	14.5%	15%	●	25%
Reduce absolute in-scope GHG emissions.**	GHG emissions (tCO <sub>2</sub> e/year)	2007	-2.0%	5%	●	50%
Reduce absolute in-scope GHG-emissions intensity.	GHG-emissions intensity (kgCO <sub>2</sub> e/m <sup>2</sup> /yr)	2007	17.6%	15%	●	50%
Reduce building water (use) performance intensity (BWPI) of core sites.	BWPI (m <sup>3</sup> /m <sup>2</sup> /year)***	2010	24.0%	20%	●	25%

\* 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 change in facility space. In-scope emissions are from owned and leased buildings, fleet use, and paper use (as defined by the *Climate Change Accountability Act*). 2019 results are a placeholder due to COVID-19 interruptions of the reporting cycle.

\*\*\* It is recognized that water consumption is more directly influenced by staff count per facility. Due the uncertain and changing nature of staff counts, for the time being facility space is used for the intensity metric.

- Work on track, ahead of schedule, or exceeding
- Work on track but requires monitoring
- Work in progress but falling behind schedule

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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	2019 Results	2020 Target	“Traffic Light”	2030 Target
Increase waste-diversion rates at existing acute and long-term care sites.*	% of waste diverted (annual average)	n/a	41%	50%	●	50%
Increase waste-diversion rates at all new LEED certified health-care construction projects.	% of waste diverted (annual average)	n/a	n/a**	90%	●	100%
Decrease waste-intensity rates at existing acute and residential care sites. ***	Waste intensity (metric tonnes/m <sup>2</sup> /year)	n/a	18.5	15.0	●	12.0

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

\*\* No new LEED-certified projects in 2019.

\*\*\* This is a new target as of 2018.

● Work on track, ahead of schedule, or exceeding

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# Active & Clean Transportation

Goal: Ensure a health-care system in which employees commute/travel between sites in a manner that reduces GHG-related pollutants, minimizes the need for on-site parking, and increases overall health and wellness.

Target	Key Performance Indicators (KPI)	Baseline	2019 Results	2020 Target	“Traffic Light”	2030 Target
Increase the % of health-care staff that commute via cleaner and healthier means (i.e. alternatives to single-occupancy vehicles).*	% of annual staff commute via cleaner and healthier means (2016 baseline)	2016	29%	35%	●	50%
Increase portion of core sites that provide end-of-trip (EOT) bicycle facilities/storage options.**	% of core sites with EOT facilities	n/a	44%	50%	●	100%

\* The performance data for staff commuting is determined through a biannual survey of staff across the health-care organizations. Using a confidence interval of 95%, the survey attained the following margin of error, the maximum amount by which the results are expected to differ from those of the actual population, for Fraser Health (3%).

\*\* End-of-trip facilities must include a minimum of one on-site shower/changing facility and a minimum of bicycle secure storage for 5% of on-site staff.

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# Workplace Leadership

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

Target	Key Performance Indicators (KPI)	Baseline	2019 Results	2020 Target	“Traffic Light”	2030 Target
Increase the number of Green+Leaders across the organization through the direct training of staff.*	A year-over-year percentage increase in the number of trained Green+Leaders	n/a	100%	10%	●	15%
Decrease the GreenCare Community website bounce rate through stronger awareness of brand and resources.	Annual BC GreenCare website % bounce rate**	n/a	55%	45%	●	35%
Increase the number of health-care staff actively aware of and informed about how workplace decisions and processes can support environmental conservation and GHG reduction.***	The annual number of BC GreenCare related presentations and educational and/or training sessions	n/a	41	35	●	40

\* Based on number of Green+Leaders trained in previous year

\*\* Bounce rate refers to the percentage of visitors who enter the site and then leave after viewing on single page.

\*\*\* This performance data indicator includes only the number of GreenCare education or training sessions conducted by the Energy & Environmental Sustainability team.

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Thank you for your  
ongoing support.

From the successes in Fraser Health 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 in transforming health care. There are a number of ways in which you can get involved.

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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:

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**Do you want updates on  
environmental sustainability?**

Join the GreenCare community [here](#).

**How about meeting others interested  
in environmental sustainability?  
Want to green your workplace?**

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

**Do you have an environmental  
sustainability story in your  
workplace?**

Share your story [here](#).

**Think environmental sustainability is  
too important a story to write alone?**

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



# 5.0 References

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- H 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 expense and the environmental impact of Lower Mainland health organization sites.
- I Based on the 2018 Future of Health Care Survey of staff; this survey is biannual and was not conducted in 2019.
- J Currently, there are no targets for Safer Chemicals.
- K The Climate Resilience & Adaptation program began in 2015 under the Regenerative Design focus area (see the [GreenCare Sustainability Strategic Framework](#)). In 2018, the Regenerative Design Focus Area was under review, leaving the Climate Resilience and Adaptation program without a proper “home” in our framework.
- As such, the program was not included as a Focus Area but is an important part of our current work. The EES team is working on updating the framework to ensure that our health-care systems and leadership are supported in meeting the challenges ahead.
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