



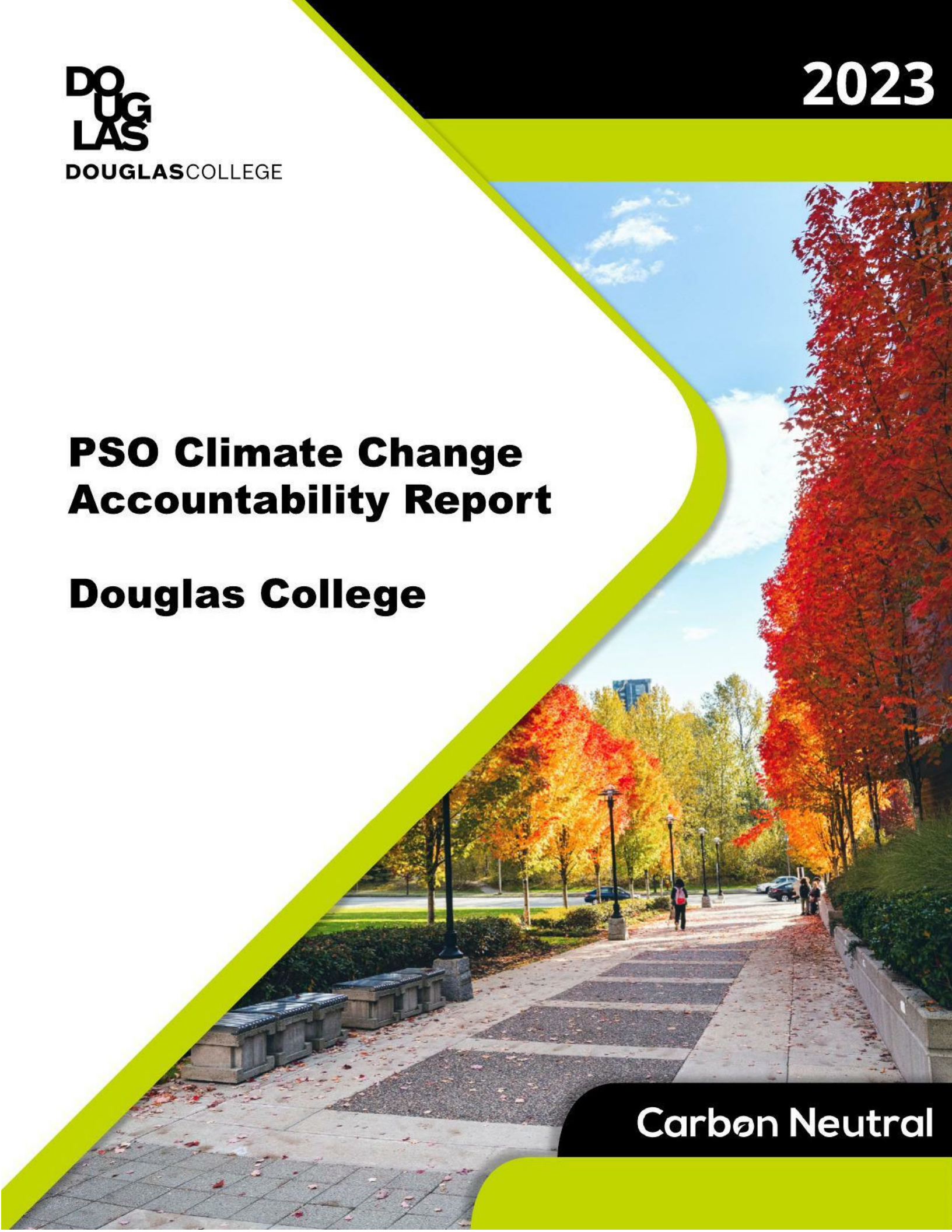
DOUGLASCOLLEGE

2023

# PSO Climate Change Accountability Report

## Douglas College

Carbon Neutral



# 2023 PSO Climate Change Accountability Report

Douglas College

## PART 1. Legislative Reporting Requirements

### Executive Summary

One of Douglas College's core values is that we take the long view. We recognize that decisions we make today will have an impact for many decades to come, so we work hard to make ours count. As a significant public sector organization, the College has a responsibility to be environmentally responsible, and to *be seen* to be environmentally responsible, to educate by example, and to help mitigate the effects of global climate change. This report highlights our key actions in 2023 towards these goals.

In addition to the actions highlighted, Douglas College continues to investigate opportunities provided by organizations such as BC Hydro's Power Smart programs, FortisBC, Climate Action Secretariat BC, Natural Resources Canada (NRC), and the Ministry of Post-Secondary Education and Future Skills (PSFS). These relationships provide access to a variety of resources to assist us in the development of a college-wide environmentally sustainable energy management plan that focuses on achievable, sustainable, and measurable results.

Through these and other relationships with experts and community partners, we can monitor our progress against our plan, and update our procedures based on experience gained. Environmental sustainability is an iterative process, and Douglas College continues to learn and improve every year.

**Declaration statement:** This Climate Change Accountability Report for the period January 1, 2023 to December 31, 2023 summarizes our greenhouse gas (GHG) emissions profile, the total offsets to reach net-zero emissions, the actions we have taken in 2023 to minimize our greenhouse gas emissions, and our plans to continue reducing emissions in 2024 and beyond.

By June 30, 2024, a link to Douglas College's final Climate Change Accountability Report will be posted to our website at [www.douglascollege.ca](http://www.douglascollege.ca).

## Emission Reductions: Actions & Plans

### A. Stationary Sources (e.g. buildings, power generation)

#### Actions taken in 2023

##### 808 Royal - New Academic Building and Student Housing

The design of our new academic building and student housing was completed, with features to reduce emissions during construction and while in operation. These include:

- The building will be heated and cooled without fossil fuels and will have zero carbon status.
- 808 Royal is designed to achieve LEED Gold standard and Step Code 4, indicating a high level of sustainability and energy efficiency in its design and construction.
- Heat recovery ventilators for the entire building (academic and student housing) to use heat reclaimed from washroom exhaust to preheat the outdoor air.
- Waste heat recovery from the cooling equipment in Electrical rooms, Communication rooms and Elevator machine rooms.
- Variable air volume and variable speed drives, to allow system turndown to reduce energy consumption during unoccupied hours.
- Natural ventilation and free cooling via operable windows in student housing suites to supplement mechanical systems during shoulder season, reducing energy consumption.
- Heat pump technology as the heating and cooling plant to maximize heat recovery, improve energy efficiency and reduce carbon footprint.
- DDC control strategies to schedule HVAC equipment operating hours and to optimize their performance via smart sensors to reduce energy and maintain a high level of indoor air quality.
- The building envelope is designed to prevent air leakage and drafts, enhancing thermal comfort and reducing energy losses.
- Installation of LED fixtures throughout the building, which consume significantly less energy and have longer lifespans compared to traditional lighting sources.

##### New Westminster Campus

- LED High Bay light fixtures were retrofitted in the Concourse and Gymnasium, resulting in an annual energy saving of about 73,000 kilowatt hours - approximately enough electricity to power 17 BC condos for a year.
- LED lighting upgrades were made in the following areas:
  - Print Shop
  - Five classrooms: N1340, S2800, S2847, N3200 & N3300
  - S3900 Hallway
- Replacement of 122 metres of aging water line containing lead solder.
- Some updates were made to pneumatic VAV controls, heating blocks and commercial chilling appliances.



## Coquitlam Campus

- Building Envelope Renewal Project – Phase 1 of this major construction project was concluded, and Phase 2 began in March 2023, targeting completion September 2024. Phase 2 will include upgrades to Building A (Levels 1&2), the Atrium glazing and the Atrium roof. The project is targeted to exceed current building code requirements and will reduce the energy used to heat and cool the building, while making the building envelope more resilient to expected temperature extremes due to climate change. By incorporating the following features, the completed project is expected to reduce the amount of energy used to cool and heat the buildings in the summer, and create a GHG reduction of 60,224 kg CO<sub>2</sub> per year equivalent to 3011 †trees:
  - Upgrade of the external building envelope to reduce energy consumption and increase thermal efficiency and sustainability.
  - Installation of larger, non-operable, double-glazed windows to increase both the insulation value and natural lighting of interior spaces.
  - Integration of solar shading into the façade.
  - Increase of the insulation value of the walls.
  - Addition of vestibules to the Atrium (reducing drafts and energy loss).
- LED lighting upgrades were made in the following areas:
  - A/B Building – five classrooms
  - Cafeteria
  - Shipping & Receiving
- An energy audit was carried out for the A & B Buildings.

## Plans for the future

- Continued implementation of Energy Conservation Measures (ECMs) identified in the ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) level 2 audit (e.g. lighting upgrades, occupancy sensors).
- Begin Phase 3 of the Coquitlam Envelope Renewal Project Phase 3 (Jun 2024 to Jan 2026) – to include Building B – Levels 1&2.
- Lighting upgrades in the Finance and Payroll department and HR department.
- Upgrade science labs, including fume hoods and exhausts.
- Upgrade heating coils in main air handling systems to allow for higher capacity and increased efficiency.
- Replace the older 4-tube fluorescent fixtures in the fitness and movement areas with energy efficient LED fixtures.
- Install solar panels on the roof above level 4 south and 6 north, to off-set energy costs.
- Install a heat pump, or heat exchanger for domestic hot water heating for Science Labs.

†tree 1 tree is equivalent to approximately 20kg of CO<sub>2</sub>



- Continue to replace the hallway lights to LED in New Westminster and upgrade with motion detectors. Some of the lights will be tied to the emergency generators allowing for removal of the existing battery-powered emergency lights.
- Upgrade roof insulation to exceed current building code requirements during renewal of roofing on New Westminster campus.
- Install heat recovery units at the Central Plant on Coquitlam campus.
- Replace cooling tower at the New Westminster campus and consider a heat recovery system.
- Implement an energy monitoring program to analyze our energy consumption.

## B. Mobile Sources (e.g. fleet vehicles, off-road/portable equipment)

- Electricity totaling almost 166,000 kWh was provided to College EV drivers. This is equivalent to approximately 18,500 litres of gasoline, and approximately enough electricity to power 37 BC condos for a year.

## Plans for the future

- Potential partnership with SFU and other Canadian PSIs to participate in an EV Charging Community of Practice. This would be a national action lab with the goal of empowering Colleges and Universities to deploy next-generation EV charging infrastructure.
- Replace the College van with an electric vehicle, when a suitable option becomes available.

## C. Paper Consumption

- Adopted the **Paper Cut** reporting tool, which reports on overall and individual copier paper usage across the College. The reports from 2023 and 2022 show a decrease in paper usage equivalent to 130 trees or 2,588 kg of CO<sub>2</sub>.
- The Human Resources department implemented digital/electronic systems to reduce the amount of paper they used:
  - DocuSign – In 2023, 1,690 employment contracts have been completed electronically, resulting in a saving of almost 1,300 kg of CO<sub>2</sub>.
  - Laserfiche – This digital employee record system has reduced the need to print and store paper files by 85%.
  - PeopleAdmin – This digital system allows the HR department to track applications and documentation associated with onboarding, training and offboarding. In 2023, it was used for 292 Job Postings, 15,747 applications and 565 onboarding packs, saving at least 190 packs of paper from being used.
- Purchase of 1,500 packs of sugar sheet paper instead of recycled wood pulp products, saving the equivalent of 110 trees or 2,190 kg of CO<sub>2</sub>.  
([www.socialprint.com](http://www.socialprint.com))

**2023 GHG Emissions and Offsets Summary Table**

Douglas College 2023 GHG Emissions and Offsets Summary	
<b>GHG emissions for the period January 1 - December 31, 2023</b>	
Total BioCO <sub>2</sub>	0.20
Total Emissions (tCO <sub>2</sub> e)	1533
Total Offsets (tCO <sub>2</sub> e)	1,533.2
<b>Adjustments to Offset Required GHG Emissions Reported in Prior Years</b>	
Total Offsets Adjustment (tCO <sub>2</sub> e)	83
<b>Grand Total Offsets for the 2023 Reporting Year</b>	
Grand Total Offsets to be Retired for 2023 Reporting Year (tCO <sub>2</sub> e)	1,616
Offset Investment (\$)	\$40,400

**Retirement of Offsets:**

In accordance with the requirements of the *Climate Change Accountability Act* and the Carbon Neutral Government Regulation, Douglas College (**the Organization**) is responsible for arranging for the retirement of the offsets obligation reported above for the 2023 calendar year, together with any adjustments reported for past calendar years (if applicable). The Organization hereby agrees that, in exchange for the Ministry of Environment and Climate Change Strategy (**the Ministry**) ensuring that these offsets are retired on the Organization’s behalf, the Organization will pay within 30 days, the associated invoice to be issued by the Ministry in an amount equal to \$25 per tonne of offsets retired on its behalf plus GST.



## PART 2. Public Sector Climate Leadership

### 2A. Climate Risk Management

1. As part of the College-wide annual Risk Assessment, issues related to the changing climate were identified and plans were made to continue managing them in 2024 and beyond.
2. The changing climate and sustainability of natural resources are considered in the planning of all operational or infrastructure changes. e.g. redesign of a water feature to conserve water.
3. The New Westminster campus has been approved as a Cooling Centre for the general public in the event of heatwaves.
4. Additional funds have been required for watering grassed areas of the campus. We are considering landscaping alternatives to reduce our water usage in the future.

### 2B. Other Sustainability Initiatives

#### 1. Travel

- Continued promotion of three car sharing programs that allow some employees and students to reduce usage of their vehicles. Zipcar, Evo, and Modo all operate near our campuses.
- Continued availability of the Work from Home program for all employees, reducing the number of vehicles being driven to and from the College.
- Implementation of a Green Commute Allowance pilot program for Faculty and Administrators. This program tracks the number of employees who sign up, and as of January 2024 there were 87 employees who chose to use transit rather than driving to work.

#### 2. Waste

- Approximately 5.8 tonnes of scrap metal were recycled from old furniture.
- Almost one tonne of electronics, including laptops, computers and printers were donated to the charity, [ERA](#), for refurbishment, recycling or responsible disposal.
- 73 Laptops were donated to the [Purpose Society](#) for distribution to individuals, youth and families in the Lower Mainland, who are subject to personal and/or societal distress, marginalization and alienation.
- Water bottle filling stations were used over 2,868,000 times
- 10 battery operated soap dispensers were converted to hard-wired models.
- Students ran clothing drives to reduce textiles being sent to landfills.
- Learning Resources ran secondhand book sales and donated 897 books for resale, reuse or recycling through [Better World Books](#). This resulted in a saving of the equivalent of 44 trees, or over 880 kg of CO<sub>2</sub>.
- Managerial participation in Metro-Vancouver's Solid Waste Management Plan, Technical Advisory Committee.
- Employee participation in an Earth Day shoreline cleanup campaign.

### 3. Procurement

- The College's Procurement Policy specifies that environmental considerations are key to each purchase of goods and services.
- Food Services
  - Meals purchased from the College's food outlets are now served on a tray that can be washed and re-used, rather than in a paper bag, which resulted in unsorted packaging being deposited in the garbage.
  - Single use plastic items have been reduced through the introduction of reusable drinking glasses and plates.
  - All other packaging is now compostable, including wooden knives and forks and recycled paper spoons and straws.
  - By the last quarter of 2023, 36.3% of the ingredients and meals served at the College were locally and sustainably sourced.

### 4. Policy

- The College's Strategic Plan for 2020-25 includes initiatives designed to move us towards a more sustainable future. They include a commitment to:
  - Design and implement a climate action strategy that commits to reducing carbon emissions, energy usage and waste, and enhances Douglas College's capacity to adapt to a changing climate.
  - Encourage the development of curriculum that is responsive to environmental and social needs. This may result in entirely new programs or new course offerings within existing programs.
- Continued participation in the Sustainability Tracking Assessment & Rating System (STARS) program.

### 5. Teaching and Learning

- As part of the College's academic curriculum, several courses that focus on Sustainability were offered, including two-year diplomas in Environmental Science and Environmental Studies; programs supported by Natural Resources Canada, BC Hydro and Fortis BC; and the Practical Energy and Advanced Knowledge for Building Certificate (PEAK) program.
- Facilities Management was involved in a Learning Day event on Earth Day.

### Plans for the future

- The College was awarded a silver STARS rating in 2022 and is developing plans to achieve Gold by 2025.
- Develop a solid waste plan for the College, as well as site plans, conceptual designs, and cost projections for primary waste areas at both campuses.





- Develop campus-wide guidelines to source sustainable and environmentally-friendly materials for Furniture, Fixtures & Equipment.
- Our Food Service providers are part of the [Waste Not 2.0](#) initiative, which involves tracking of waste and utilizing reusable containers (to be implemented in September 2024).
- Continued participation in the [Feed BC program](#).
- Creation of a Sustainability Coordinator position.
- Update of the College Sustainability Policy.

**2C. Success Stories**

The continuing upgrade of our **Coquitlam campus building envelope** is a major project which brings big challenges and great rewards in terms of reducing carbon emissions. The project is funded by the Ministry of Post-Secondary Education and Future Skills (95%) and the College (5%) and is scheduled in phases, over four years, scheduled to be completed in the fall of 2025.

The project is targeted to exceed current building code requirements to lessen the energy needed to heat and cool the campus, while adapting the building exterior to make it more resilient to temperature extremes and weather events as a result of climate change. Features under consideration include:

- Installing larger, non-operable, triple glazed windows to increase both the insulation value and natural lighting of interior spaces.
- Integrating solar shading into the façade.
- Increasing the insulation value of the walls.
- Adding vestibules in the atrium (reducing drafts and energy loss).
- This multi-year renewal project seeks to integrate the most cost-effective design and construction solutions that will repair, enhance and extend the useable life of the building for the next 75 years.

**Executive Sign-off:**



May 27, 2024

Signature	Date
Chris Gardner	Associate Vice President, Facilities & Sustainability

