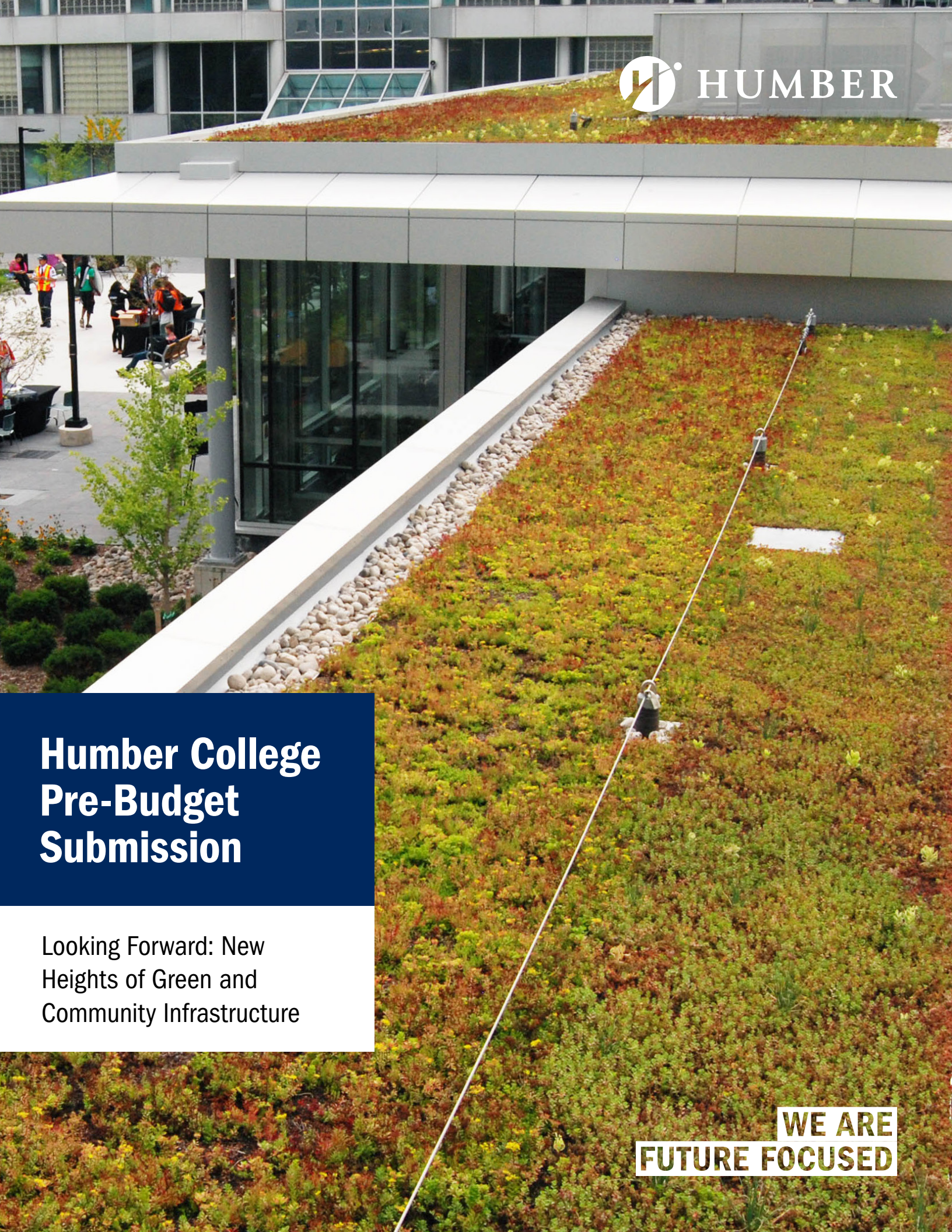



# Humber College Pre-Budget Submission

Looking Forward: New Heights of Green and Community Infrastructure

## LOOKING FORWARD: NEW HEIGHTS OF GREEN INFRASTRUCTURE

The federal government has positioned itself as a national and international leader in initiatives aimed at mitigating the effects of climate change and creating green communities across Canada while generating economic growth to benefit Canadians. As outlined in the Minister of Infrastructure and Communities' 2019 mandate letter,

*"Your focus must be on the successful, timely delivery of our growth-generating investments in public transit, green infrastructure and social infrastructure...The key objectives of this plan are increasing economic growth and creating good middle class jobs with infrastructure that improves people's quality of life."*

Even as COVID-19 has changed the Canadian economic landscape, the government has remained unwavering in its commitment to sustainability and economic development. Green infrastructure programs can further that commitment while supporting local economic recoveries from the impacts of the pandemic.

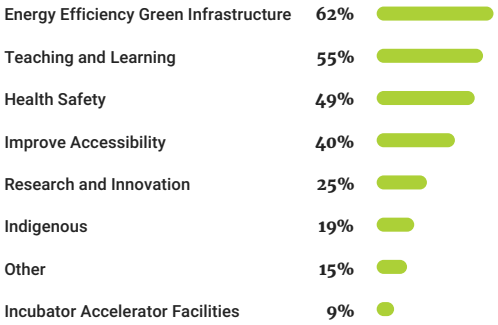
Canada's colleges and institutes contribute over $190B to Canada's economy annually. The sector has demonstrated its ability to serve as a key partner to the federal government with shovel-ready projects linked to economic development; the most recent example being the Postsecondary Strategic Investment Fund (SIF) announced in 2016.

Not only do the infrastructure projects we undertake directly employ and benefit members of our community and local businesses, they also reflect a set of shared priorities between the sector and the Government.

According to a Colleges and Institutes Canada study, energy efficiency and green infrastructure projects are the top priorities for the sector.

Humber College's infrastructure projects sit at the intersection of all of these priorities and are closely aligned with key priorities of the federal government including sustainability, accessibility and Indigenous reconciliation. The impacts of these projects, as detailed below, extend far beyond the immediate employment and work-integrated learning benefits related to construction. They support talent development and create new business opportunities for local small and medium-sized enterprises; facilitate engaging sustainability education opportunities for students, visitors and members of the community; strengthen arts and culture organizations; and demonstrate Canadian leadership in green infrastructure.

**Sector-Wide Priority Projects**




Source: CICan 2019 Survey of Institutional Infrastructure Needs. Colleges and institutes were asked to categorize their infrastructure projects and could choose multiple categories per project, resulting in some overlap.

At Humber College, we are embarking on two new transformational infrastructure projects: the Humber Cultural Hub and Phase 4 of our Integrated Energy Master plan. These shovel-ready projects meet several of the Government's immediate and long-term objectives. They will be shining examples of what is possible within our communities, demonstrating national leadership in sustainability and the fight against climate change. These projects will employ local companies and contractors and provide students with work-integrated learning opportunities. The Humber Cultural Hub will also open up major new, accessible performing venues for community and creative groups to access in the west end of Toronto.

## INTRODUCTION TO HUMBER COLLEGE'S LEADERSHIP IN SUSTAINABILITY

As Canada's largest college, Humber College strives to meet and set high standards as a post-secondary institution and major employer in the GTA. Widely respected as a trailblazer in sustainability, Humber continues to push the boundaries of green infrastructure across our North and Lakeshore campuses. We are passionate about preserving our collective future by taking responsibility for the future impact of the decisions we make today, and providing national leadership in sustainability through environmental stewardship, built environment and education.

Humber has worked tirelessly to embed a culture of sustainability into the college's priorities and practices. In fact, sustainability has been one Humber's core values since 2008. We are now implementing our second multi-year sustainability plan **(https://humber.ca/sustainability/)** and applying universal design principles to ensure Humber's services and environments enable accessibility, functionality and social inclusion.

2019 CANADA'S GREENEST EMPLOYERS

Named one of Canada's Greenest Employers 4 years in a row

FAIRTRADE CANADA

1st Ontario College to have Fairtrade Campus designation (North and Lakeshore Campus)

## COMMITMENT TO GREEN INFRASTRUCTURE

Humber has been particularly active in pursuing the highest standards of sustainability in infrastructure projects. Most notably, two recent projects have demonstrated Humber's commitment to reducing its carbon footprint. The Barrett Centre for Technology Innovation, a 93,000 sq. ft. facility that opened in April 2019, was built to meet LEED-Platinum certification standards. Energy efficiency was a focal point of the building's design and construction, resulting in a net-zero building that features a passive heating and cooling system as well as high-performance roofing system and hydronic in-floor heating. The building's thermal chimney eliminates the need for mechanical cooling and is complemented by the building's green roof.

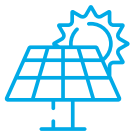
Simultaneously, Humber utilized the construction of a new parking structure to contribute to the Barrett CTI's net zero energy goals by putting 1,832 400W solar panels across the entire roof. As a result, the building was designed to use less than 100kWh/m2/yr of energy use which is roughly 65 per cent less than an average building on the Humber campus.

LEED

1 LEED Platinum,
2 LEED Gold and
2 LEED Silver Buildings

Recognizing that mitigating the effects of climate change is of provincial, national and global importance, Humber has developed a 20-year Integrated Energy Master Plan (IEMP) to address the institution's energy and water consumption more strategically, and have committed to some ambitious goals:

A. Reduce energy use by 50% per square foot by 2034
B. Reduce water use a further 50% per student by 2034
C. Reduce greenhouse gas emissions by 30% by 2034
D. Create a campus-wide energy culture by emphasizing sustainability within the curriculum and throughout the Humber community



700kWh Solar PV (the largest installation on any academic institutional building in Ontario)

To achieve these outcomes specified within our IEMP, we are developing industry-leading energy efficiency methodologies, including new performance benchmarks, scalable models for use by other institutions and programs to educate the next generation of sustainability professionals.

For example, Building NX, located at Humber's North Campus, has been transformed thanks to a retrofit that took the building from one of the campus' most inefficient, to becoming Canada's first retrofit to achieve a Zero Carbon Building (ZCB) Design certification from the Canada Green Building Council. Provincial funding helped the college reduce GHG emissions, a deep retrofit was undertaken addressing both the building envelope and upgrades to its systems. As a result, the renovated building will use 70 per cent less energy than before, making it not only the College's most energy efficient building, but also one of the most energy efficient in North America.

Building NX is the first retrofit to receive a Zero-Carbon Design Certificate from Canadian Green Buildings Council (CaGBC)

**Feature Project: Humber Cultural Hub**
**Shovel-Readiness:** Construction starting in November 2020
**Estimated Cost:** $178M

Known for delivering the most in-demand creative and media arts programming in Canada, Humber is developing a state-of-the-art Cultural Hub (HCH) at its Lakeshore Campus by replacing current infrastructure that is over 65 years old. This 360,000 sq. ft. landmark facility is the largest project in the college's history and will improve access to education, training and engagement in arts and culture for all Canadians.

The Humber Cultural Hub will provide a new home for Humber's award-winning music, creative arts and multimedia programs, as well as the ground-breaking Centre for Creative Business Innovation, where creative experts will partner with business and the arts to improve Canada's economic, creative and innovation performance.

Built to the highest standards of sustainability, the HCH will provide world-class, technology-rich teaching and performance spaces, including an up-to-600-seat performance hall, approximately 150-seat recital hall and professional-quality music, film, TV, multimedia production studios. It will provide much-needed capacity to meet the growing demand for skilled talent in creative industries and deliver important benefits to culturally underserved local communities – attracting businesses, creating jobs, enriching the economy and cultivating new audiences for the arts.

Beyond meeting cultural, economic and accessibility needs in the GTA, this building project will be one of the most sustainable developments in the country and a showcase for global best practices in sustainability and energy efficiency. It will be designed to achieve LEED v4 Platinum certification and Net Zero Carbon targets. We are adopting a passive design approach that uses the building architecture to maximize occupant comfort and minimize energy use. We intend to offset energy use with on-site production and anticipate the building will meet a Minimum Energy Target of 75kWh/m2/year and a Thermal Energy Demand Intensity of 32 kWh/m2/year. Environmental goals will be achieved through state-of-the-art, automated and highly efficient building systems (HVAC, lighting and water management). A high-performance building envelope will reduce heating costs and the strategic use of glazing and shading will control solar heat gain and loss. The building design will also make efficient use of the land to create a compact infrastructure that will support more students with lower operating and maintenance costs, improve internal circulation and enhance connectivity to the surrounding communities and historical parklands.

Finally, the building will also serve as a "living laboratory" for instructing students in sustainable construction practices and efficient operation. Leveraging the many visible sustainability elements on the interior and exterior of the building, students will work with faculty on multi-disciplinary teams to design and test innovative ideas and solutions to real-world sustainability issues, preparing them to shape the future of sustainability.

**A federal commitment of $15M over three fiscal years (2021-2022 to 2023-2024) through the Canada Cultural Spaces Fund will ensure that the building's LEED v4 Platinum objectives will be met and that the Humber Cultural Hub will be a beacon of sustainability and accessibility for communities across the GTA.**

**Feature Project: Integrated Energy Master Plan - Phase 4**
**Degree of Shovel-Readiness:** Immediately, pending federal funding
**Estimated Cost:** $35M

As outlined above, Humber has an ambitious plan to mitigate the impending effects of climate change by addressing the institution's energy and water consumption more strategically.

Phase 4 of the IEMP initiative will take the same best-in-class approach to cutting carbon emissions by retrofitting our North Campus central heating and cooling system. We plan on a complete replacement of the existing steam heating system and to expanding the existing cooling network. The project's key objective is to reduce the carbon emissions and cost of thermal energy supplied to the campus, while being able to handle the future growth of the college in a sustainable way.

The steam system will be replaced with a low temperature hot water system. This will require conversion from the existing steam and condensate pipelines and installation of pre-insulated low temperature hot water supply and return pipelines. Conversion from steam to low temperature increases the number of low carbon heating technologies (e.g. heat pumps) available for heat supply to the campus. The heating baseload of the campus will also be supplied by low carbon heating technologies as part of this project.
The existing chiller plant on campus will be connected to the new energy centre to centralize control. Space will be allocated in the new energy centre for new high efficiency chiller plant, with heat recovery expected to be included in the design. In addition, Phase 4 includes a replacement of the conventional boiler and chiller mechanical infrastructure at the Lakeshore campus, with state of the art geothermal and solar panel system. The goal of this last phase is to ensure the west section of the Lakeshore campus is a net zero carbon facility.

**A federal commitment of $7M in the 2021-2022 fiscal year will ensure Humber's pioneering approach to carbon-cutting retrofitting will not only continue to substantially reduce the college's carbon footprint and energy use but also meet the government's priorities of climate change reduction and immediate economic stimulus.**

## CONCLUSION: THE TIME FOR ACTION

As outlined above, Humber College continues to push the boundaries of leadership in sustainability in green infrastructure.

Humber remains committed to reaching new heights of sustainability on our campuses and in our communities while providing students with practical learning opportunities related to green technology and practices. We know that each action we take as an institution has tremendous potential to create more change and action by our students.

The Humber Cultural Hub and Phase 4 of our Integrated Energy Master Plan initiative clearly reflect our commitment to sustainability. These projects align with the Government's commitment to creating good jobs for the middle class, fighting climate change and creating resilient communities across Canada. We are confident that the federal government's support of these shovel-ready and shovel-worthy projects will generate economic and sustainable rewards for current and future generations of Canadians.

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