



# Campus Living Labs

A Best Practices Guide for  
Canadian Colleges and Institutes

Volume II



Funded by the  
Government  
of Canada





COLLEGES &  
INSTITUTES  
CANADA

COLLÈGES &  
INSTITUTS  
CANADA

ImpAct-Climate is a five-year pan-Canadian project delivered by Colleges and Institutes Canada and funded by Environment and Climate Change Canada.

#### **About Colleges and Institutes Canada**

CICan is the national and international voice of Canada's largest post-secondary education network. It advocates, builds capacity, and drives knowledge to strengthen Canada's publicly supported colleges, institutes, CEGEPs, and polytechnics to meet Canada's biggest challenges. With more than **95%** of Canadians living within **50 km** of a member institution, and thanks to its extensive reach around the globe, CICan works to future-proof communities in Canada and abroad.

We respectfully acknowledge that CICan's offices in Ottawa are located on the traditional and unceded territory of the Algonquin Anishinaabe Nation.

#### **Colleges and Institutes Canada**

1 Rideau Street, Suite 701  
Ottawa, Ontario, Canada, K1N 8S7  
613-746-2222

.....

**CICan.org**

# Campus Living Labs

## A Best Practices Guide for Canadian Colleges and Institutes

### Volume II

This second edition of the Campus Living Labs report summarizes and highlights best practices from the second cohort of projects, implemented from April 2023 to March 2024.

Volume I was published in September 2023. A third and final report will be available in fall 2025.

We hope this updated report and the final version to come will inspire GHG reductions and awareness-raising and provide a practical path forward for college and institute executive leadership, sustainability staff, and potential funders alike.

## Table of contents

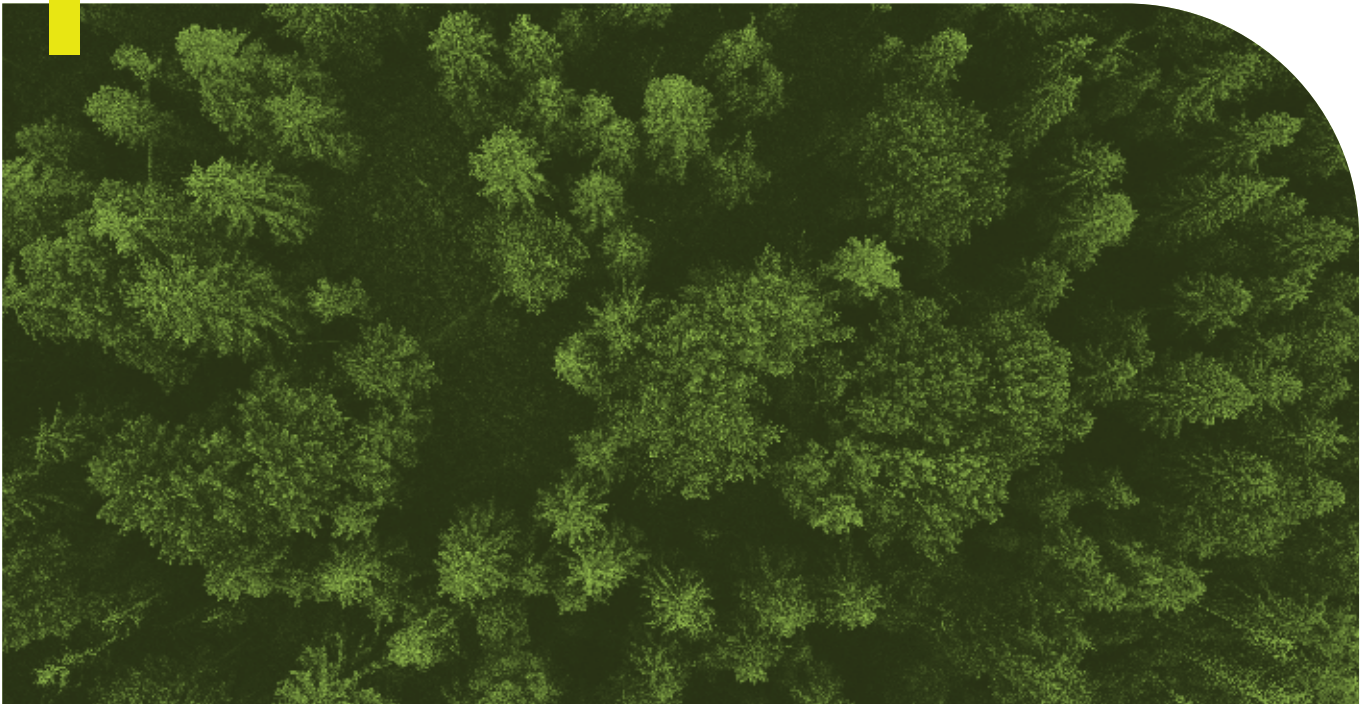
<b>About ImpAct-Climate</b> .....	<b>1</b>
<b>About Campus Living Labs</b> .....	<b>3</b>
Turning Campuses into Living Labs	
Why Living Labs Matter	
What is a Campus Living Lab?	
Campus Living Lab Themes	
Living Labs and the SDGs	
<b>Key Impacts</b> .....	<b>12</b>
Emissions Reduction	
Awareness Raising	
<b>Lessons Learned</b> .....	<b>18</b>
<b>Moving Forward</b> .....	<b>22</b>
<b>References</b> .....	<b>23</b>
<b>Appendix - Cohort II Projects (2023-2024)</b> . . . .	<b>24</b>

Delivered by Colleges and Institutes Canada and funded by the Government of Canada.



Funded by the  
Government  
of Canada





## About ImpAct-Climate

---

CICan's ImpAct-Climate initiative raises awareness about greenhouse gases and encourages behaviour change to reduce emissions in the college and institute sector.

We connect and mobilize college and institute leaders, sharing the knowledge, skills, and tools needed to combat climate change and its impacts.

By using the United Nations Sustainable Development Goals (SDGs) as a framework for collaboration, we give colleges and institutes the opportunity to work together towards a common goal, to learn from each other, and maximize the impact of Canada's largest post-secondary network.

**ImpAct-Climate prioritizes  
five thematic areas:**



---

**Campus Living Labs demonstration projects are  
one of three pillars of the project.**

---



# About Campus Living Labs

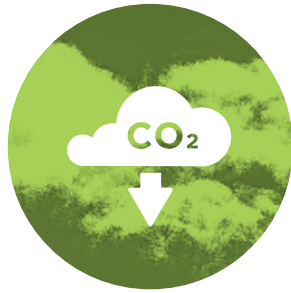
---

## Turning Campuses into Living Labs

Campus Living Labs invite colleges and institutes across the country to turn their campuses into living demonstration projects.

That means integrating applied research and teaching with campus planning, infrastructure, operations, and community development in a way that maximizes the impact of sustainability projects.

**Each Campus Living Lab project consists of two parts:**



An activity to reduce greenhouse gas (GHG) emissions on campus; and



A strategy to raise awareness on campus and in the surrounding community.

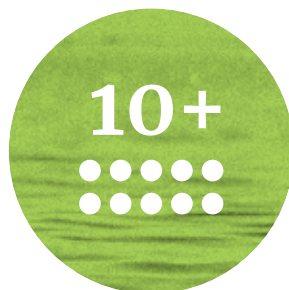
---

**In total, three cohorts of Campus Living Labs will be funded by Colleges and Institutes Canada through ImpAct-Climate.**

---



**3** cohorts over **3** years



At least **10** Campus Living Lab projects per cohort



A total of **33** projects over **3** years



Funding ranges from **\$25,000** up to **\$70,000** per project

## Why Living Labs Matter

Climate change is known as a ‘wicked problem’ due to its inherent complexity.<sup>1</sup> It impacts all aspects of life on earth and calls on everyone to contribute solutions, especially upper and upper-middle income countries.

On top of that, the problem is often worsened by the difficulty in both communicating climate-change knowledge to the public and translating that knowledge into meaningful changes in human behaviour.<sup>2</sup>

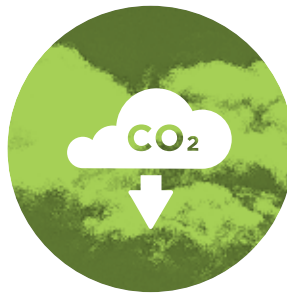
Still, climate change is destabilizing our environmental and socio-economic landscapes.

That means fundamental cultural and economic shifts must occur to sufficiently address it. As impacts and challenges arise more severely and more regularly, citizens around the world must work together, share knowledge, gain green skills, and react in real-time.

### Learning, Awareness, and Action

Campus Living Labs provide solutions that integrate learning, awareness, and action in meaningful impact. Whether anchored in community collaboration or addressing high-level operational change, each project provided the college or institute with tangible impact through emissions reductions on campus.

The results not only contribute to institutional climate objectives, but also serve as an important mechanism for raising climate awareness, giving students, staff, faculty, and community members the chance to see the impact our of actions first-hand, and draw connections between our daily lives and our global communities.



---

**So far, Campus Living Lab projects have reduced and sequestered their total campus GHG emissions by at least 1,054 metric tonnes (mt) CO<sub>2</sub>e!**

---

<sup>1</sup>World Bank Group (2014).

<sup>2</sup>Sun, Jiazhe & Yang, Kaizhong (2016).



## Challenge-Driven Impact

CICan members are Canada's publicly supported colleges, institutes, CEGEPs, and polytechnics. With nearly **700** locations across the country, we make up the largest and most dynamic post-secondary network in Canada.

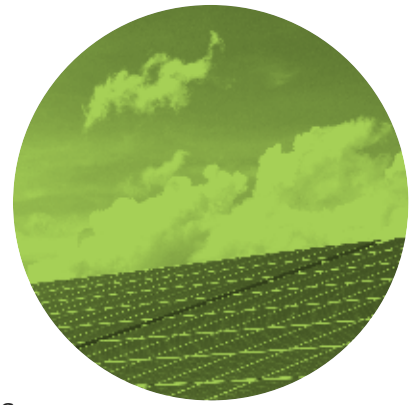
Over **95** percent of Canadians, including more than **86** percent of Indigenous peoples, live within **50** km of one of our members.

And, through skills development to meet workforce demand, community engagement, and business innovation our members generate more than **\$190 billion** for the national economy annually.

As an association, CICan's primary objective is to strengthen the capacity of our network to meet Canada's – and the world's – biggest challenges.

These challenges – like transitioning to clean energies, preparing for and preventing large natural disasters, driving growth, and industrial transformation – require focus, creativity, and ambition.

But, if we think differently about how we work together each challenge becomes an opportunity for colleges and institutes as educators, partners, and innovators to be a bigger part of the solution.



## What is a Campus Living Lab?

- 1. Campus Living Labs are creative.** Projects can use grassroots community approaches, high-level organizational approaches, or a mix of the two.
- 2. Campus Living Labs blend action and awareness.** Projects focus on reducing campus GHGs in a particular area while also increasing general awareness and equipping participants with new professional and personal skills.
- 3. Campus Living Labs are places for learning.** Projects provide a venue for peer and community mentorship where sustainability experts can share knowledge to help each other overcome roadblocks.
- 4. Campus Living Labs are collaborative.** Successful projects bring together people within and beyond the campus community, including Indigenous communities.
- 5. Campus Living Labs are flexible.** Funding is provided with few restrictions to allow for creative approaches and ideas.



### NEW in Volume II!

- 6. Campus Living Labs integrate Indigenous perspectives.** Projects integrate Indigenous knowledge and 2-Eyed Seeing<sup>3</sup>, and contribute to reconciliACTION<sup>4</sup>.
- 7. Campus Living Labs think circularly.** Projects are collaborative, often address multiple issues and themes at once, and favour circularity<sup>5</sup>.
- 8. Campus Living Labs are a viable option for a college or institute of any size.** Project budgets ranged from \$25,000 to \$70,000 and achieved vital outcomes in every instance.
- 9. Campus Living Labs emphasize relationships with nature.** Regardless of the project's objectives, a Campus Living Lab is an opportunity to bring more nature onto campus.
- 10. Campus Living Labs encourage behaviour change.** Projects tackle big issues on rational, emotional, educational, and social levels, and can be effective motivational tools.
- 11. Campus Living Labs highlight the connection between climate action and Reconciliation.** Recognizing and valuing Indigenous knowledges and perspectives is an important part of Reconciliation. Integrating that knowledge in all areas of campus operations can contribute to greater climate impact.

<sup>3</sup>Bartlett, C., Marshall, M. & Marshall, A (2012).

<sup>4</sup>"A reconciliACTION is a meaningful action that moves reconciliation forward. ReconciliACTIONS aim to bring Indigenous and non-Indigenous people together in the spirit of reconciliation to create awareness, share, and learn. It answers the call to raise further awareness, do something that improves the lives of Indigenous people, and improves the relationship between Indigenous and non-Indigenous people. ReconciliACTIONS act as the catalyst for important conversations and meaningful change, recognizing that change starts with every one of us and each person can make an impact." Definition from the Downie and Wenjack Fund. For more on how ReconciliACTIONS can be integrated, please see this list as developed by Shawn Bailey and Lancelot Coar of University of Manitoba who separately developed the term.

<sup>5</sup>"The circular economy re-engages consumption and production beyond the linear model by decoupling economic growth from resource use. Circularity has the ability to improve the value of natural resources, reduce carbon emissions, and eliminate waste. It redefines value, and encourages innovation in product design and business delivery systems." Definition from Circular Innovation Council.

## Campus Living Lab Themes



### Indigenous Knowledges and Practices

Projects in this category focus on integrating Indigenous knowledge and practices within a climate change context, or are either led or co-led by Indigenous staff, faculty, students, or communities.

**Did you know?** Today, First Nations, Métis, and Inuit entities are partners or beneficiaries of almost 20 per cent of Canada's electricity-generating infrastructure, and almost all of that infrastructure is producing renewable energy.<sup>6</sup>



### Transportation

Projects in this category focus on limiting GHG emissions related to transportation, including on-campus vehicles, vehicles or machinery used in instruction, or may also address student, staff, or faculty commuting options.

**Did you know?** If everyone in the world replaced 2.6 km of their daily driving with cycling, we could reduce global GHG emissions by around 20% of carbon emissions from the global passenger car fleet in 2015<sup>7</sup> - the equivalent of removing almost 200 million cars from the road<sup>8</sup>.



### Food

Projects in this category focus on food consumed, grown, or sold on campus, including in campus cafes or restaurants or through culinary or agricultural programs.

**Did you know?** Food production is responsible for approximately 26% of global GHG emissions?<sup>9</sup>

<sup>6</sup>Canadian Institute for Climate Choices (2022).

<sup>7</sup>Chen et al. (2022).

<sup>8</sup>Based on almost 950 million cars on the road globally in 2015 (Number of vehicles in use worldwide 2015 | Statista).

<sup>9</sup>Ritchie (2019).



## Waste Management

Projects in this category focus on addressing waste management at any point of an institution's waste stream, such as cafeteria food or packaging waste, medical faculty waste, laboratory waste, administration-based waste, or on-campus retail.

**Did you know?** Globally, landfills are the third highest source of methane (CH<sub>4</sub>), primarily due to food waste<sup>10</sup>, in fact, 10% of our global emissions come from food we don't eat.<sup>11</sup>



## Green Buildings and Land Management

Projects in this category focus on use applications, approaches, or technologies to reduce or sequester GHGs as they pertain to buildings, infrastructure, or campus lands.

**Did you know?** Buildings represent 39% of global greenhouse gas emissions<sup>12</sup>, including 28% in operational emissions and 11% in building materials and construction<sup>13</sup>, so it's important to not only address how we design and run buildings, but what materials we use<sup>14</sup>.

**When submitting, projects were asked to select a main theme from one of the following five, although many projects align with more than one. In fact, it's encouraged!**

<sup>10</sup>Perez et al. (2003).

<sup>11</sup>Gikandi (2021).

<sup>12</sup><https://worldgbc.org/article/global-status-report-2017/>

<sup>13</sup><https://worldgbc.org/article/global-status-report-2017/>

<sup>14</sup>World Economic Forum (2021).



**John Abbott College**'s project embraced two-eyed seeing in addressing a lack of biodiversity on campus with a dense, highly diverse microforest composed of **600** native trees and a First People's Garden Kahnikonri:io.



## Living Labs and the SDGs

The United Nation Sustainable Development Goals – or SDGs – are **17** actionable items that make up the United Nations 2030 Agenda.

They are a global call to action to work together to solve issues that affect us all – like poverty, hunger, inequality, and climate change – while planning for a long-term equitable, peaceful, and prosperous future.

Everyone has a role to play in making progress towards the goals.

### SUSTAINABLE DEVELOPMENT GOALS



**Each Campus Living Lab contributes to at least one SDG (and often many more).**



## Key Impacts

---

### Emissions Reduction

Greenhouse gases (GHGs) are gases in the Earth's atmosphere that trap heat from the sun, creating a natural warming effect that makes our planet habitable. These gases are naturally present in the atmosphere, and they help keep the Earth's temperature stable.

However, when we do things like burning fossil fuels (like coal, oil, and gas) for energy, cutting down forests, or using certain farming practices, we release GHGs into the atmosphere. This traps more of the sun's heat, increasing overall average temperatures and temperature variance.

This destabilization sets off environmental reactions, including Arctic and Antarctic ice melt, forest fires, more storms, more flooding, more drought, erosion, earthquakes, and more natural disasters overall.

---

**So far, Campus Living Lab projects have reduced their total campus GHG emissions by at least 34 metric tonnes (mt) CO<sub>2</sub>e. When we include carbon sequestration, the number reaches a minimum of 1,054 mt CO<sub>2</sub>e!**

---

## What That Means

That's equivalent to:<sup>15</sup>



Driving **7,533,953 km** in a passenger vehicle – (that's like driving to the moon and back **10** times).



Generated monetary gain equal to **€74,538.90** in the EU Emissions Trading System (the GHG cap and trade system of Europe<sup>16</sup>) or **\$111,957.43 CAD**.



Protecting or planting **652 acres** of forest.<sup>17</sup>

---

## On-going Impact

We say “so far” because many of the projects will continue to have an impact on campus for years to come:

- Cohort I Campus Living Lab projects contributed to a combined total reduction of GHG emissions equivalent to **11 mt CO<sub>2</sub>e** in their first year. All Cohort I projects, however, continue to operate on their respective campuses!
- In one year, Cohort II Campus Living Lab projects have already contributed to a combined total reduction equivalent to **23 mt CO<sub>2</sub>e** and committed to protecting a carbon sink worth **1,020 mt CO<sub>2</sub>e** annually. This means that while **1,020 mt CO<sub>2</sub>e** will remain sequestered in an already standing forest, another **23 mt CO<sub>2</sub>e** were deliberately and conscientiously removed from campus operations. In many cases – the impact continues to grow.

---

## Measurement Challenges

We say “**at least**” because some of the projects encountered challenges in measuring their reductions impact. This was especially true for calculations involving embodied carbon or in projects involving tree planting, where the capacity to offset can only be measured when the trees mature.

In total, **15** of the **20** projects were able to measure their GHGs in carbon dioxide equivalents (CO<sub>2</sub>e), but the total reduction is likely much higher.

<sup>15</sup>Calculations found using: CO<sub>2</sub> Converter - OpenCO2.net

<sup>16</sup>Learn more about the EU Emissions Trading System here: What is the EU ETS? - European Commission (europa.eu)

<sup>17</sup>Based on an estimation of a forest with 1,500 trees per hectare (a conservative approximation rounded down from the estimated number of a mixed woodland forest found here: How many trees per hectare? - NHS Forest



**Canadore College's** project assessing forest health, structure, and composition found that their forest sequesters **1,020 mt** of CO<sub>2</sub> annually.



**Dawson College's** vermicomposting project transformed cafeteria food and campus landscape waste into rich organic soil to be either used on the campus or sold as rich fertilizer. The project has already reduced emissions by **5.2 mt CO<sub>2</sub>e**, with the potential to double!

Part of **Collège La Cité's** project involved using AI-powered Oscar Sort stations installed in high-traffic areas to encourage proper recycling. In total, the college reduced their campus waste emissions by **10 mt CO<sub>2</sub>e** annually.





## Key Impacts

---

### Awareness Raising

Climate change is notoriously difficult to communicate well. The challenge involves not only understanding the effects of climate change but also understanding how our own individual and collective actions contribute to the problem.

In fact, approximately **33%** of Canadians lack basic knowledge about climate change, and **28%** still hold the misconception that humans are not responsible for the climate crisis.<sup>18</sup> We are running out of time, which makes Campus Living Labs so important.

---

### Campus Living Labs provide direct learning and support direct behaviour change.

When it comes to acting for conservation goals, including GHG emission reductions, there is no one way to go about influencing behaviour.

Campus Living Labs allow for projects to test different types of learning and seeing which approaches best influence behaviour to support long-lasting change.

<sup>18</sup>Learning for a Sustainable Future (2022).

---

**So far, Campus Living Labs projects have generated more than  
3,368,824 interactions in awareness-raising.<sup>19</sup>**

---

## **What That Means for Cohort II**

- **18,759**: Awareness-raising interactions including in-person activities. For some projects that included planting trees, participating in a workshop on clothing repair, or attending an event such as an art exhibition or a bike rally.
  - **2,726,058**: Some projects used social media, webinars, virtual tours, websites, podcasts, and video to communicate climate change information and how their project was addressing the issue.
  - Other projects used school news or traditional newspapers. Thanks to traditional and online media, awareness-raising often extended beyond campus boundaries to local communities as well.
  - Among project leads and their staff, **95%** found they learned something new regarding GHGs and climate change; **95%** gained new professional skills as they relate to climate change; and **100%** felt engaged in climate action!
- 

## **Impact on Behaviour**

Encouraging behaviour change is one of the primary objectives of the ImpAct-Climate project, which makes Campus Living Labs a powerful tool. When dealing with a topic like climate change – that can often lead to denial, apathy, and despair – optimism is key. In many cases, those involved in Living Lab projects reported feeling inspired to continue with the work.

---

## **Staff and educators reported:**

- Feeling reinvigorated and more hopeful, thanks to their work and message being received by a wider audience;
- Optimism with senior leaders, students, other departments and the community at large engaging on climate action; and
- Their work leading to the development of meaningful new green skills among campus populations.

While the social and traditional media numbers are high, it is important to emphasize that opportunities for interactive learning were especially meaningful for behaviour change.

<sup>19</sup>Includes totals for both Cohorts I & II.

**Cégep de la Gaspésie et des Îles** used a range of recycling activities, including bread-bag tag recycling, pen and marker recycling, and clothing repair workshops to engage staff members across their four campuses.



**Cégep du Vieux Montréal** brought the city-wide “Green Alleys” concept to their main campus building to encourage more community action. Green Alleys is an urban planning initiative that introduces plants, trees and other softscaping to urban alleyways to enhance biodiversity.

For **Selkirk College** implementing campus- and community-wide awareness raising activities with limited staff resources was a challenge. Instead, they focused on optimizing outreach to a smaller audience. Sometimes quality is better than quantity!





## Lessons Learned

---

### So, you have an idea?

Take these lessons learned as best practices for turning your own campus into a living lab!

### Think circularly.

Projects that support circularity reap impressive rewards that extend beyond project boundaries and can lead to a more meaningful culture shift.

- Circularity requires creativity in finding upstream and downstream partners to provide or take resources before and after use. While there may be additional challenges with more moving pieces overall, the potential to reach a wider audience, inspire greater future action, invigorate all who participate can be higher.
- Campus Living Lab projects that embrace circularity are more likely to touch on multiple themes.

---

**“In a circular economy, nothing is waste. The circular economy retains and recovers as much value as possible from resources by reusing, repairing, refurbishing, remanufacturing, repurposing, or recycling products and materials.”**

Government of Canada, 2022<sup>20</sup>

---

<sup>20</sup><https://www.canada.ca/en/services/environment/conservation/sustainability/circular-economy.html>

## Go campus-wide.

Collaboration is the key to success in all Campus Living Labs projects.

- In particular, improving collaboration with Indigenous communities and knowledge holders can open your mind to valuable Indigenous perspectives and support greater collaboration with nature.
- Projects that have the support of senior leaders and the momentum of the wider campus community are best placed to create meaningful and lasting change. Don't underestimate the power of a grassroots initiative-based project, but also don't shy away from more high-level operations-based projects – find your champions!
- Going campus-wide can also help you identify where policies conflict. For example, if an institution is subsidizing parking while their Campus Living Labs project is trying to encourage more cycling, the college may ultimately be working against the project's goals.



---

## Grow your networks.

Campus Living Labs benefit from valuable peer learning and peer support.

- By forming a Community of Practice, Living Labs participants have access to information from previous projects that can serve as inspiration and help implement similar projects on other campuses.
- In other examples, collaboration and Communities of Practice established beyond the Campus Living Labs projects were just as vital.
- Other members reported benefiting from the peer mentorship within the network.



**Saskatchewan Polytechnic** used vermicomposting to convert food waste from the commercial kitchen into a useful resource. The college also developed a composting toolkit to help other colleges, institutions, and businesses start their own on-site composting programs.



## **Invest in data (and data sharing).**

Projects are most successful when leads have access to data and interdepartmental cooperation.

- Making resources accessible and sharing information and ideas means starting halfway instead of at the beginning.
- Keep in mind that nature-based projects result in benefits that are not always measurable, such as increased biodiversity and deepened human connection to the land.



**Medicine Hat College** assessed soil moisture levels in diverse locations on campus and its surrounding areas. The acquired data was then used to determine optimal sites for planting trees that would demand minimal irrigation.

## Dream big, but don't forget the day-to-day.

Climate action requires ambition, but projects also need to be managed:

- Remember to account for supply chain delays that could affect purchasing of systems, hiring professionals, or moving supplies on campus. Consider distance when planning delivery of equipment to remote campuses.
  - Prepare for on-site delays that could impede your project, such as campus maintenance or obstructed infrastructure.
  - Consider other college activities or policies that could undermine project results, such as subsidizing student parking when active transportation projects are underway.
  - Account for weather. Cold, snow, rain, or heat could hinder nature-based projects, growing or harvesting times, or conducting work outdoors.
  - Build time into your schedule for consultation. Keep in mind that key rightsholders or Indigenous knowledge keepers may not always be readily available or accessible.
  - Plan for learning curves and training when using new technologies in a project.
- 

### *Campus Living Labs in Action* - Example from Cohort II

To reduce automobile transport to campus, **Vanier College** tested different promotional activities and incentives to plant the seeds of sustainable transportation and decrease car dependence of staff and students.







## Moving Forward

---

Reducing GHG emissions is one of our biggest shared global challenges and requires a different way of thinking about solutions.

### **We must think circularly and collaboratively.**

Campus Living Labs demonstrate the importance of colleges and institutes as educators, partners, and innovators in developing solutions that embody upstream and downstream responses to problems and foster the relationship we have with nature.

By thinking purposefully about applied research and teaching, integrating campus planning and operations, and prioritizing collaboration, meaningful communication and community development, we can – and will – maximize the impact of our work.

What begins on campus must find its way into our communities and into our daily lives.

With nearly **700** locations across Canada, colleges and institutes are where Canadians are. Together, we make up Canada's largest, most dynamic post-secondary network, mobilizing to bring solutions to Canada's biggest challenges.

By working together in meaningful ways, we can change the way our institutions operate and the way we behave and build resilience in the face of the climate crisis.

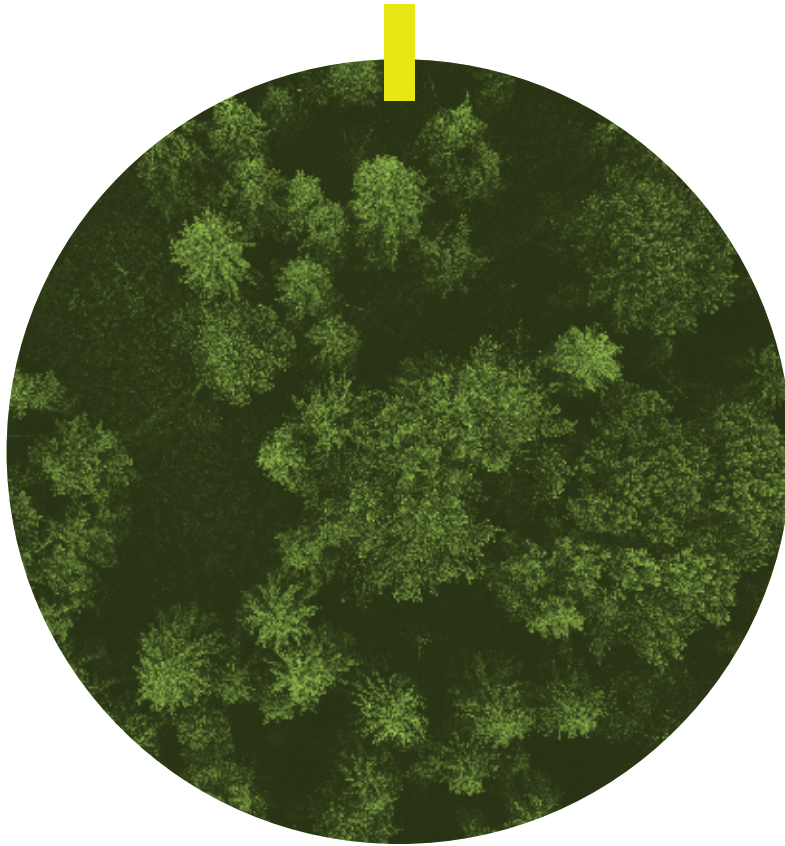
---

We hope this report will inspire and provide a practical path forward for college and institute GHG reduction and awareness raising for executive leadership, sustainability staff, and communities alike, and create a better future for us all.

# References

---

- Bartlett, C., Marshall, M. & Marshall, A. (2012). Two-Eyed Seeing and other lessons learned within a co-learning journey of bringing together indigenous and mainstream knowledges and ways of knowing. *J Environ Stud Sci* 2, 331–340 (2012). <https://doi.org/10.1007/s13412-012-0086-8>
- Canadian Institute for Climate Choices (2022). *Waves of Change*. February 2022.
- Chen, W., Carstensen, T.A., Wang, R. et al. Historical patterns and sustainability implications of worldwide bicycle ownership and use. *Commun Earth Environ* 3, 171 (2022). <https://doi.org/10.1038/s43247-022-00497-4>
- Circular Innovation Council. *Circular Economy: Beyond Recycling*. (Accessed September 13, 2024).
- Downie and Wenjack Fund. *What is a ReconciliACTION*. (Accessed September 13, 2024).
- European Commission. *What is the EU ETS* (Accessed September 13, 2024).
- Gikandi, Lilian (2021). 10% of all greenhouse gases come from foods we throw in the bin. World Wild Fund, Gland, Switzerland.
- Government of Canada. *Circular Economy*. (Accessed September 13, 2024).
- Horn, Star (2022). *Indigenous Perspectives on Circular Economy*. Indigenous perspectives on Circular Economy | Pomerleau.
- Learning for a Sustainable Future (2022). *Canadians' Perspectives on Climate Change & Education: 2022 Executive Summary*. Lakehead University, Thunder Bay.
- Pérez, T., Vergara, S.E. & Silver, W.L. (2023). Assessing the climate change mitigation potential from food waste composting. *Sci Rep* 13, 7608. <https://doi.org/10.1038/s41598-023-34174-z>
- Ritchie, Hannah (2019). "Food production is responsible for one-quarter of the world's greenhouse gas emissions" Published online at OurWorldInData.org. Retrieved from: '<https://ourworldindata.org/food-ghg-emissions>' [Online Resource]. (Accessed September 13, 2024).
- Williamson, K., Satre-Meloy, A., Velasco, K., & Green, K. (2018). *Climate Change Needs Behavior Change: Making the Case for Behavioral Solutions to Reduce Global Warming*. Arlington, VA: Rare. Available online at [rare.org/center](http://rare.org/center).
- World Bank Group (2014). *A Wicked Problem: Controlling Global Climate Change*. September 13, 2014.
- World Economic Forum (2021). *How to Build Smart, Zero Carbon Buildings – and Why it Matters*. September 8, 2021.
- World Economic Forum (2024). *Circular Transformation of Industries: The Role of Partnerships*. Circular Transformation of Industries: The Role of Partnerships | World Economic Forum ([weforum.org](http://weforum.org)). Published January 17, 2024.



---

Appendix:  
**Cohort II Projects**  
(2023-2024)



## Forest Management Canadore College

Project Lead: Jesse Russell  
Canadore College, North Bay, Ontario

### Project Description:

Canadore College created a **10-year** forest management plan to obtain Forest Stewardship Council (FSC) certification at the college, which would help assess the sequestration capacity of the college's co-managed **650-acres** of forested land. The project included assessing forest health, structure, and composition, and measuring the annual rate of carbon sequestration.



### Key Highlights:

- This is the first FSC certified forest at a college or university in Canada;
- **1,020 t** sequestered with an additional future potential of **25,000 kg** (because of trees added);
- **130** trees planted, winning Tree Canada's National Tree Day Contest 2023; and,
- Through this project, Canadore College became the first college in Ontario to join the Campus Biodiversity Network.
- The project including a strong online media campaign to raise awareness, including a project webpage, social media content (paid and unpaid), and video.
- The project also fostered strategic partnerships including: collaborating with Beyond21 Academy to deliver a course focused on Circular Bio-Economy, Biomimicry, and Climate Action; and partnering with Ontario Woodlot Association for ongoing management and resources.



---

**Canadore College will continue to plant more trees, spread awareness, and follow up on action items within their 10-year forest management plan with a goal of inspiring other landowners to do the same.**

---





## Adaptation of a Sustainable, College-Wide Waste Management Strategy Cégep de la Gaspésie et des Îles

Project Lead: Charles Flageole  
Cégep de la Gaspésie et des Îles, across four campuses in the  
region of Gaspésie et des Îles-de-la-Madeleine, Quebec

### Project Description:

The project aimed to reduce of GHG emissions through the adoption of a college-wide waste management strategy that would divert waste out of landfills into recycling, composting, an aquaponics system; and through repair and repurposing of workshops and resources on all four campuses. The project included the creation of a Community of Practice, the acquisition of sorting equipment, and the deployment of awareness-raising activities and tools.



### Key Highlights:

- The objective was to ensure that each campus would have enough sorting stations to enable and facilitate waste diversion.
- The project also installed two conical-bottom tanks to mineralize aquaculture waste from their fishponds and serve as fertilizer for plant growth in the aquaponics greenhouse at the École nationale des pêches et de l'aquaculture (ÉPAQ).
- Awareness raising included video, a significant and diverse range of activities from clothing repair workshops to small appliance repair workshops, and many other events to promote good waste management practices, autonomy and individual action.



The CEGEP will continue to develop new ways to divert waste from landfill and work to educate its students, staff, and faculty about waste and creative ways to reduce waste!





## Bringing the “Green Alley” Concept and Eco-Design to the Campus Cégep du Vieux Montréal

Project Lead: Pascal Labonté  
Cégep du Vieux Montréal, Montreal, Quebec

### Project Description:

The project involved redesigning the secondary entrance of the main building as a "green entrance," a continuance of the city-wide “Green Alley” concept, as well as bringing green design principles overall to campus operations, procurement, and future decision-making. The new entrance also provides an event space to host events and rally community to inspire practices that can reduce climate change emissions.

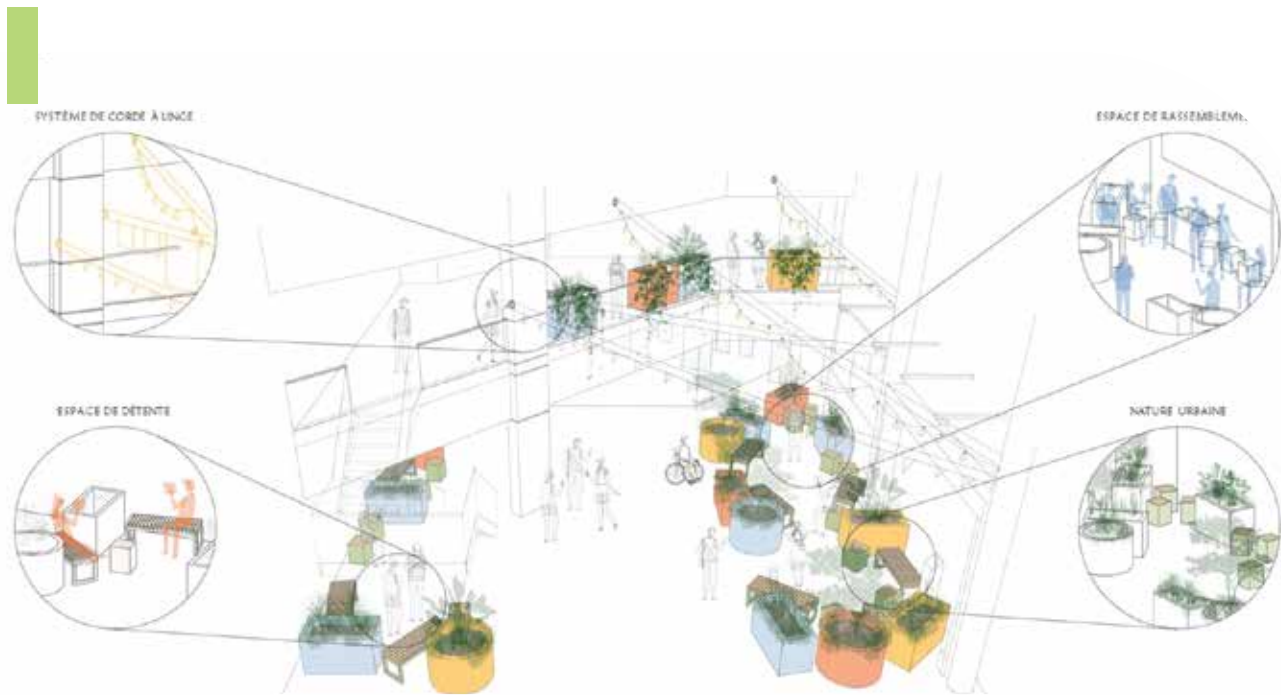
The objective of the project is to foster a sustainability-minded community, change campus culture, and alter behaviour to encourage reduced GHGs in everyday life.



### Key Highlights:

- The CEGEP designed the entranceway and purchased climate-friendly furniture that created a green space and rest area for the community.
- The entranceway is a continuation of the CEGEP’s Atelier Écodesign project that involves using plastic recycling to create new useful objects.
- Signage and information were installed to highlight and inform visitors of the space and its carbon-neutral approaches.
- The Challenge was to select an approach that would both seamlessly integrate with the existing mechanics of the building and still celebrate the works of art displayed in the building, which are very important to Montreal culture.
- Ultimately, the redevelopment of this secondary entrance provides opportunity for facilitating active transportation and communicating the impacts of climate change and the integration of the Sustainable Development Goals.





**The CEGEP plans to build on its green spaces and foster greater engagement among its campus population in greening behaviour overall.**





## Vermicomposting: A Circular Economy Waste Solution Dawson College

Project Lead: Sophie La Font  
Dawson College, Montreal, Quebec

### Project Description:

Dawson College aimed to showcase a circular economy solution that repositions cafeteria food and campus landscape waste into rich organic soil to be either placed back on the campus grounds or sold or given to the community as rich fertilizer. They chose the vermicompost project to show students and staff how worms, as a nature-based solution, can be used to reduce waste through aerobic decomposition, as opposed to organic waste breaking down anaerobically in landfill (a methane-producing approach). Without this project Dawson College would not have the capacity to reduce organic waste on-site because standard composting can attract wildlife, causing human-wildlife conflict.



### Key Highlights:

- Overall, the college reduced the amount of food waste going into landfills and composting system by **30 kg** (so far) and hopes – at max capacity – to reach **5,200 kg** per year, with an estimate of **10.442 mt** of CO<sub>2</sub>e sequestered.
- Additionally, the harvested compost tea is being used to fertilize the indoor plants.
- Awareness-raising included displays, social media campaigns, events, and personal contact at Hungry Bins (the receptacles for the vermicomposting), and an educational and promotional video .
- The sustainability office also gave class-specific (mechanical engineering, industrial design, electrical engineering, leadership training, and interior design) tours of the project.
- Bins were placed in high traffic areas and students and staff stop to investigate the signage and ask questions.
- The project was also integrated into Sustainable Happiness training sessions as an example of a circular economy solution reducing waste & GHGs.



---

**The college is building a new outdoor garden highlighting this project and the use of vermi-fertilizers. The project will also continue to engage students in observing and measuring the effectiveness of the vermi-fertilizers.**

---





## Microforest and First People's Garden (Kahnikonri:io) John Abbott College

Project leads: Dominique Godin (Project Manager), Chris Levesque (Biology Department), Kim Tekakwitha Martin (Dean of Indigenous Education), Shannon Coulter-Low (Sustainability Office), Catherine Scheer (Project Manager)  
John Abbott College, Montreal, Quebec

### Project Description:

Braiding together Indigenous Knowledge and Western science through the lens of two-eyed seeing and in the context of the climate and ecological emergency, the John Abbott College project consists of two parts joined together in a cohesive unit: a microforest and a First People's Garden Kahnikonri:io. The project addresses a lack of biodiversity on campus, while providing representation of the Nations that are a major part of the community – First Nations, Inuit, and Metis.



### Key Highlights:

- The microforest is a dense, highly diverse area composed of **600** native trees will attract wildlife and directly remove GHGs from the atmosphere.
- The First People's Garden will provide an area for students from the Indigenous community to host ceremonies and events. Together, the microforest and garden raise awareness about climate change and the importance of nature.
- Strong engagement of Indigenous elders and Knowledge Keepers included co-design workshops through the summer and fall.
- Awareness raising on the campus educated students, staff, and faculty about plans for the land once the winter thaw had passed.
- In Spring 2024, **370** John Abbott College students, faculty and staff planted **600** trees on a **200** m<sup>2</sup> area. The First People's Garden was planted shortly after.



---

**The college aims to continue their work, planting an edible plant meadow around the borders of the garden and microforest areas, and continuing to use the Living Lab as a teaching tool.**

---





## AI Technology Demonstration Project Collège La Cité

Project Lead: Lan Chi Nguyen Weekes  
Collège La Cité, Ottawa, Ontario

### Project Description:

Collège La Cité's project applied AI technology to improving waste diversion and reducing GHG emissions from waste. In total, **22** organics receptacles and **2** Oscar Sort stations were installed in the high-traffic main cafeteria of the Ottawa campus, with the intent of using AI technology to encourage proper waste sorting.

Prior to this project, students, faculty, and staff did not generally have access to organic waste diversion, aside from a small capacity in one of the kitchens. The increased availability of organics receptacles and the presence of Oscar were intended to influence students to put waste in the proper place and promote responsible production and consumption.



### Key Highlights:

- **24%** increase in overall waste diversion (from **41%** to **51%**).
- **19%** reduction in GHG emissions from annual landfilled waste (from **49.6** to **40.1 mt CO<sub>2e</sub>**).
- **75%** increase in the capture rate of organic waste (from **29%** to **51%**).
- NEW: diverting paper towels to organic waste (from **0%** to **11%**).
- **23%** increase in disposal accuracy at Oscar Sort stations.
- **19.3%** reduction in incorrectly disposed compostable food boxes at Oscar Sort station
- The project also promoted a net zero-culture through pledges, education, and on-going public messaging.
- The school community was surveyed to identify gaps in knowledge. From there, messaging was then developed to address gaps in knowledge and sent out to staff and students in weekly bulletins (digital newsletters), posters, and other media-based education.
- In-person communication events were planned, including a launch event followed by two waste booths and a Waste Educator week.



To reach their goal of 40% diversion by 2026, the college will continue experimenting with ways to incentivize proper waste sorting, including offering prize draws. The college is also looking at the FoodCycler, which was used by another Cohort II member.





## Urban Tree Planting Medicine Hat College

Project Lead: Brent Smith  
Medicine Hat College, Medicine Hat, Alberta

### Project Description:

This Campus Living Lab project was an applied research initiative primarily focused on assessing soil moisture levels in diverse locations on campus and its surrounding areas. The acquired data was then used to determine optimal sites for planting trees that would demand minimal irrigation. The project also included gathering native seeds from the region and cultivating tree seedlings within the campus greenhouse.

While urban trees can mitigate surface temperatures, the project goal was to reduce water consumption as well, to further reduce overall GHGs associated with tree planting.



### Key Highlights:

- The project included applied research to assess air temperature, soil temperature, and soil moisture levels across campus and the city.
- Updated LED technology installed in the greenhouse, reducing GHGs
- Seeds collected from **8** different species of native flora, and successful cultivation of different species of native flora
- Produced drought-adapted trees and shrubs for the public to sequester carbon and produce shade.
- In awareness raising, the project also brought together participants from different communities and disciplines, including artists and design students who communicate the importance of urban forests to members of the public in an accessible and non-scientific way. This cross-pollination between science and art is useful in reaching an audience that might otherwise not hear about the importance of urban trees.





---

**The college will continue conducting assessments, including an inventory of carbon stored in urban and natural tree systems in Medicine Hat, an estimate of reduced solar radiation because of tree-shading in urban areas, resulting in decreased GHG emissions, and more!**

---





## SustainaCuisina Saskpolytech Composting Project Saskatchewan Polytechnic

Project Lead: David Halstead  
Saskatchewan Polytechnic Prince Albert Campus, Saskatoon,  
Saskatchewan

### Project Description:

The problem was campus food from the commercial kitchen was being landfilled when it could have stayed on premises and used as a resource. To remedy this, Saskatchewan Polytechnic designed a project aimed to reduce GHGs from organic waste in landfill (and leachate from entering groundwater). The project used vermicomposting and in-vessel composting systems and developed a “SustainaCuisina On-site Composting Toolkit” for other colleges, institutions, and businesses to start their own on-site composting programs.



### Key Highlights:

- The project sought ways to work creatively with nature. For example, given the cold temperatures, the worms were kept in a warm shed that was originally built for a different project, repurposing idle infrastructure.
- Saskatchewan Polytechnic also worked with BrewNature to adapt their systems as an in-vessel composting system.
- Awareness-raising activities included a survey, composting workshops, and the development of a composting toolkit, as well as a promotional video.
- Students were especially enthusiastic about the project, which delighted project leads.
- Overall, this project was dependent on collaboration with campus departments as well as private industry, and other external partners.



---

**Saskatchewan Polytechnic will continue vermicomposting as well as sharing their toolkit with other colleges and organizations. The polytechnic is also hoping to expand operations by signing up to a food scrap collection service to continue diverting the food waste.**

---





## Expanding Organic Waste Diversion Selkirk College

Project Lead: Kayla Tillapaugh  
Selkirk College, Castlegar, BC

### Project Description:

Selkirk College has five campuses and three smaller learning centers, and up until 2022, only its main campus in Castlegar offered any kind of organic waste diversion, which due to its size and operation was ineffectual and failed to produce any product to integrate into food growing. Thus, the goal was to divert organic waste, starting with the cafeterias and culinary kitchen.

The City of Nelson lent an industrial-sized FoodCycler to the college and Selkirk College purchased two additional FoodCyclers as part of their Campus Living Lab: an ES150 for the Castlegar Campus and an ES80 for the Silver King Campus. Organic waste is now being diverted from all three campus kitchens and campus-wide collection is starting up on each of the three campuses.



### Key Highlights:

- Selkirk College's organic waste now diverts to the FoodCycler, a pre-treatment appliance that dehydrates and grinds the food waste, reducing its volume by up to **90%**. Annually, Selkirk College anticipates diversion of **1,124 kg** CO<sub>2</sub>e from Castlegar Campus and **562 kg** from Silver King campus.
- Left with a dry, sterile, and shelf-stable product that can easily be packaged, stored, or transported and used as fertilizer, the College gives the substrate to local farms to use as a soil amendment or compost additive, contributing to a circular economy.
- Awareness-raising took the shape of education and training of staff, faculty, and students through various avenues, including conferences, tours, outreach programs, and even integrating the FoodCycler into the College's Culinary Program.
- This project has provided excellent opportunity for collaboration through innovation, bringing together post-secondary institutions, local governments, and businesses to jointly pilot technological solutions to organic waste diversion.
- Selkirk College has also committed to Net Zero by 2030, which requires addressing all sources of GHG emissions, such as waste.



---

**Selkirk will continue to increase campus-wide collection, including Castlegar and Silver King Campuses. Collaboration will continue with the City of Nelson, The Regional District of Central Kootenay, Food Cycle Science, businesses in the community, and other post-secondary institutions.**

---





## Vanier Sustainable Transport Vanier College

Project Lead: Richard Dugas  
Vanier College, Montreal, Quebec

### Project Description:

Despite being well-served by public transit, automobile transportation to Vanier College is increasing. In its Campus Living Lab project, the College used various activities and promotions to plant the seeds of sustainable transportation and reduce car dependence among staff and students, both while at the College and after they move on or graduate. The project tested the promotion of bicycles to staff and students to find the best ideas in the long term and share the findings with partners.

Integral to social resilience and human engagement in urban spaces, bicycles help reduce GHGs through more efficient spatial use and decreased fossil fuel use, while benefitting society through improved health and finances.



### Key Highlights:

- The project used a wide array of incentives, education, promotions, and programming to support seasoned cyclists and the uptake of cycling by those who are inexperienced.
- Tools to support behavioral change included student-led learn-to-bike classes, learn-to-ride harmoniously in traffic workshops, and workshops on winter riding and mechanics.
- The project also partnered with Cégep de Saint-Laurent on a Bike Buddy System.
- Electric bikes were also purchased for facilities (this was very popular), as well as promoting BIXI, transit passes give-away, and a bicycle toolbox available to community.
- Awareness-raising included social media, posters, newsletters as well as direct marketing through swag (t-shirts, stickers, etc).
- An ambassador team was assembled to approach students directly and deliver classroom presentations. Different types of events were held, including bike days, a video contest, as well as collaborative meetings to promote bikes.
- Using the bicycle as a tool for experiential education, this project created stronger ties with Vanier College's community partners to support climate education.



**The college continues to improve conditions for sustainable transport to and on the campus, including continuing with bike days, the BIXI promotion, and transit promotions. A parking levy will finance the most promising aspects of the program going forward.**





## Our Members Across Canada

Canada's colleges and institutes work with industry and social sectors to train learners of all ages and backgrounds at campuses serving urban, rural, northern and remote communities across the country.

[Learn More](#)

**CICan.org**



COLLEGES &  
INSTITUTES  
CANADA

COLLÈGES &  
INSTITUTS  
CANADA