CANADA FOUNDATION FOR INNOVATION

Biosciences Research Infrastructure Fund

Call for proposals for biocontainment and large-animal facilities

Revised March 2022

Enhancing Canada's research capacity for pandemic readiness

INNOVATION
Canada Foundation for Innovation
Fondation canadienne pour l'innovation

Table of contents

About the Canada Foundation for Innovation

The Canada Foundation for Innovation (CFI) makes financial contributions to Canada's universities, colleges, research hospitals and non-profit research organizations to increase their capability to carry out high-quality research.

The CFI invests in infrastructure that researchers need to think big, innovate and push the boundaries of knowledge. It helps institutions to attract and retain the world's top talent, to train the next generation of researchers and to support world-class research that strengthens the economy and improves the quality of life for all Canadians.

A promising future, now

25 years of investing in ideas that change our world

Part 1 – What you need to know about this competition

Background

To advance the Government of Canada's biomanufacturing and life sciences priorities, Budget 2021 announced $500 million for the Canada Foundation for Innovation (CFI) to support the infrastructure needs of postsecondary institutions and research hospitals in these areas. Canada's leading postsecondary institutions and their affiliated research hospitals anchor much of the bio-innovation ecosystem. Important foundational components are centred in these institutions, including laboratories, research and talent.

Canada's scientists need high-performance tools and innovative research spaces and laboratories to bring their ideas from discovery through development and commercialization. In many cases, their work requires specialized equipment in appropriate biocontainment facilities to ensure that infectious disease research is conducted safely. Supporting surveillance, diagnostics, and pre-clinical and clinical trials with flexible research infrastructure capacity is critical to Canada's biomanufacturing and life sciences ecosystem.

In 2020, the CFI and the Office of the Chief Science Advisor of Canada surveyed institutions about their capacity to respond to COVID-19 and possible future pandemics. The institutions pointed to critical issues with their ability to respond to the coronavirus and its variants, as well as their readiness to respond to future infectious disease outbreaks. Notably, 94 percent of institutions with containment level 3 facilities reported needing investments to maintain their readiness to respond to a future pandemic, and 70 percent indicated they were at risk of losing their Human Pathogens and Toxins Act licence without additional specialized equipment and critical upgrades.

The World Health Organization has recognized that animal models are key to advancing COVID-19 treatments. Canada's federal COVID-19 Therapeutics Task Force further noted that access to animal models and laboratories with the appropriate expertise is a challenge faced by researchers and smaller Canadian firms in developing therapeutics. This challenge is equally valid for numerous infectious diseases beyond COVID-19.

The Biosciences Research Infrastructure Fund competition will respond to these critical needs by investing in containment level 3 (CL3) and containment level 4 (CL4) facilities (as defined in the Canadian Biosafety Standard) in research hospitals and postsecondary institutions and associated large-animal facilities capable of working with infectious materials. Research infrastructure funded through this competition will strengthen the capacity of academia to work with industry and government to advance promising discoveries and promote training and talent development.

The CFI will only fund proposals that:

- Meet a high standard of scientific excellence
- Best respond to government priorities to address pandemic readiness and emerging health threats
- Hold the greatest potential to develop commercially viable vaccines and therapies.

CFI investments will ensure that funded CL3 and CL4 facilities are collaborative, durable, flexible, multi-institutional and capable of serving researchers in all relevant disciplines in support of Canada's Biomanufacturing and Life Sciences Strategy.

Equity, diversity and inclusion

The CFI is committed to the principles of equity, diversity and inclusion. In all our activities, we recognize that a breadth of perspectives, skills and experiences contributes to excellence in research.

Equity: We aim to ensure all CFI-eligible institutions have the opportunity to access and benefit from our programs and CFI-funded infrastructure through our well-established, fair and impartial practices.

Diversity: We value attributes that allow institutions and their researchers — from any background and from anywhere — to succeed. This includes individual attributes such as gender, language, culture and career stage; institutional attributes such as size, type and location; and attributes that encompass the full spectrum of research, from basic to applied and across all disciplines.

Inclusion: Our culture encourages collaboration, partnership, contributions and engagement among diverse groups of people, institutions and areas of research to maximize the potential of Canada's research ecosystem.

We believe that nurturing an equitable, diverse and inclusive culture is the responsibility of every member of the research ecosystem, including funders, institutions, researchers, experts and reviewers.

The CFI normally uses data collected through the CFI Awards Management System (CAMS) to report on the representation of underrepresented groups (women, Indigenous Peoples, persons with disabilities, members of visible minorities) in research teams. Given that only a limited sample of users can be included on a proposal and have their data collected through CAMS, we may use other methods, such as surveys, to collect data on the diversity of users of the facilities that apply to and are supported through this competition.

Objectives

The objectives of this competition are to:

- Address immediate infrastructure needs in postsecondary institutions' and affiliated research hospitals' capacity to support pandemic preparedness and respond to emerging health threats, consistent with Canada's Biomanufacturing and Life Sciences Strategy
- Support the development of strong linkages among researchers working in a variety of settings, including government laboratories, and users of research results in all sectors
- Create an environment to attract and train highly qualified personnel linked to the needs of the biomanufacturing and life sciences sector.

Important dates

August 25, 2021	CFI issues draft call for proposals
September 13, 2021	Deadline to submit feedback on the draft call for proposals
September 21, 2021	CFI issues call for proposals
October 18, 2021	Deadline to submit notices of intent
March 2022	CFI reissues call for proposals
April 12, 2022	Deadline to submit proposals
May/June 2022	Review of proposals by Expert Committees
Summer 2022	Review of proposals by the Strategic Review Committee
September 2022	Decision by CFI Board of Directors

Competition budget

The CFI will invest up to $115 million in research infrastructure funding and will fund up to 60 percent of a project's eligible infrastructure costs. In addition, the CFI will provide up to $34.5 million for associated operating costs through the Infrastructure Operating Fund.

Operating and maintenance costs

The CFI will contribute to the operating and maintenance (O&M) costs of funded projects through the Infrastructure Operating Fund. Institutions will automatically receive an allocation equivalent to 30 percent of the CFI contribution for funded projects.

Your institution needs to demonstrate that appropriate O&M resources will be available to ensure optimal use of the requested infrastructure over its useful life. Please note that sustainability is an assessment criterion and an integral part of the review process.

The operating funds awarded through this competition must be allocated by institutions directly in support of the O&M needs of the requested infrastructure.

Eligible institutions

Canadian universities, colleges, research hospitals and non-profit research institutions recognized as eligible by the CFI can apply to this competition. Institutions wishing to be recognized as eligible to apply for, receive and administer CFI funding must first request confirmation of their eligibility from the CFI before applying to this competition.

Eligible infrastructure projects

An eligible project is one that involves acquiring or developing research infrastructure to increase research capacity in existing CL3 or CL4 facilities and only those CL2 facilities that are essential to the operations of the CL3 or CL4 facilities. Projects submitted may include renovations, repairs to existing infrastructure (whether CFI-funded or not), and equipment housed within the CL3 or CL4 facilities or which are necessary to maintain, renew or obtain a new Human Pathogens and Toxins Act licence to work with human pathogens. Proposals for the construction of new CL4 facilities will be considered but would be expected to be exceptional, given the unique and highly specialized nature of these assets.

Minimum project cost

For this competition, the CFI will only consider proposals whose total project costs are greater than $3 million.

In addition to containment facilities, eligible projects may involve associated facilities for large animals, such as non-human primates. Small animal (e.g., rodent) facilities are not eligible. Infrastructure requested for associated large-animal facilities may include:

- Renovations and expansion of animal housing capacity
- Repairs
- Built-in equipment or equipment located in the animal facility and required for safe and effective animal housing, testing and care.

Equipment for the handling and storage of infectious materials is eligible; however, projects focused predominantly on expanding biobanking capacity are not eligible in this competition.

Eligible costs

All costs normally considered by the CFI as eligible costs for an infrastructure project per section 4.6 of our Policy and program guide (e.g. shipping, warranties, initial training, etc.) are eligible, as long as they are incurred in the context of an eligible project described above. In addition, the CFI will accept costs related to physical security and cybersecurity as eligible for this competition.

Eligibility requirements

- Facilities must provide highly specialized equipment, services, resources, and scientific and technical personnel to support a broad range of research on human health threats.
- Facilities must have a management structure and user access policy in place to support their use by multiple research groups.
- Research infrastructure expenditures and in-kind contributions must have taken place after April 19, 2021. We consider expenditures incurred when goods are received, services have been rendered or work has been performed.
- Infrastructure funded through this competition must be located in Canada.

Eligibility restrictions

In general, institutions may not apply for funding for new biocontainment facilities in this competition. The one exception will be with regard to proposals to build a new CL4 facility, or to replace or consolidate current CL3 or CL4 facilities. Where there is an option to either renovate an existing facility or construct a new one, the most cost-effective option must be chosen while considering the full life-cycle costs for the required capacity. As regards new CL4 facilities, given their unique and specialized nature, any proposals put forward would require a clear business case as to the proposed facility's contribution to Canada's overall biomanufacturing and pandemic readiness posture.

Application process

Your institution must submit a notice of intent by the deadline. If you do not submit a notice of intent, you will not be able to submit a proposal.

An institution with a single CL3 or CL4 facility or associated facilities for large animals may submit only one proposal in this competition. Institutions with more than one such facility may submit a separate proposal for each. Multi-institutional proposals will be accepted. There is no limit to the number of proposals an institution can participate in as a collaborating institution.

We will use the notices of intent when we plan the review process to:

- Identify what expertise is needed to assess each proposal
- Recruit committee members
- Identify potential eligibility issues with the project or infrastructure items requested.

The notices of intent are not assessed as part of the merit-review process.

We will publish on our website the list of notices of intent received in this competition. The list will include the project title, the administrative and collaborating institutions, the names and affiliations of the researchers identified in the research teams section, the plain language summary and the keywords.

See "Part 2 — How to apply" for details of how to complete each stage of the application process.

Merit-review process

First, CFI staff make sure that proposals are eligible and complete, and that they do not contain sensitive information that should not be communicated as part of the merit-review process. Proposals are then reviewed in a two-stage process, as outlined below.

Expert Committees

In the first stage of review, Expert Committees review and assess small groups of similar proposals. This process will be tailored to the nature and complexity of the proposals. Expert Committees assess the proposals' strengths and weaknesses in relation to the assessment criteria. Proposals that do not meet the competition's standards of excellence will be rejected by the Expert Committee and will not move to the next stage.

Assessment criteria

Expert Committees evaluate proposals based on six assessment criteria. Each criterion is assessed against a standard that must be met for a proposal to be considered for funding.

Criterion	Standard
Research excellence	The research activities enabled by the biocontainment facility and/or associated animal facility are internationally competitive and aligned with Canada's priorities. The facility has a demonstrated track record of excellence in research.
Research teams	The diverse teams of researchers using the facility have the breadth of expertise to conduct the proposed activities.
Enhancement of the capacity to respond to emerging human health threats	The requested infrastructure is needed to enhance Canada's capacity to respond to pandemics and emerging human health threats. It is appropriate for the proposed activities.
Collaborations and partnerships	The requested infrastructure will support enhanced academic collaboration with industry, not-for-profit organizations and public-sector partners.
Sustainability	The facility will be optimally used, operated and sustained over its useful life.
Anticipated benefits	The team and its partners have a well-defined plan to transfer the results of the research and technology development. Furthermore, the facility will attract and train highly qualified personnel linked to the needs of the biomanufacturing and life sciences sector.

Refer to Part 2 of this document for information about how to apply to this competition, including how to address the assessment criteria.

Face-to-face meetings

For proposals that we deem particularly large and complex, we may require a virtual face-to-face meeting between the Expert Committee, project proponents and senior representatives of participating institutions. These projects typically represent a significant investment from the CFI; however, the financial aspect is not the sole determining factor for requiring a face-to-face meeting.

Shortly after we receive the notices of intent, we will identify projects that are likely to require such a meeting and inform the institutions. After proposals are submitted, we will confirm whether a virtual face-to-face meeting is needed. For those proposals, we may include experts in large research facility management on the Expert Committees.

Strategic Review Committee

In the second stage of review, the Strategic Review Committee (SRC) will be convened to ensure that research infrastructure investments are well-aligned with and directly support the objectives and priorities of the Biomanufacturing and Life Sciences Strategy. The Chair(s) and members of the Strategic Review Committee will be named by the granting agencies and the CFI.

The SRC will review proposals that have been deemed through peer review to meet or exceed a threshold of scientific and technical excellence. Informed by the Expert Committee reports and a summary of each project, the SRC is responsible for:

- Recommending projects that are in strategic alignment with the Strategy objectives as well as with other related investments
- Assessing other benefits to Canada
- Recommending the amount that the CFI should award for each proposal.

The recommendations of the SRC will be provided to the CFI Board of Directors to inform its decision making. Authority for the final approval of all awards remains with the CFI Board.

Collaborating with provinces and territories

To coordinate the review processes and avoid duplication of review efforts, we will share the following with relevant provincial and territorial funding authorities:

- A list of the notices of intent submitted
- Expert Committee reports
- The names and affiliations of committee members.

We will disclose the list and committee reports only in accordance with agreements between the CFI and provincial or territorial authorities, as permitted by the Privacy Act.

We will also invite representatives of the relevant provincial or territorial authorities to participate as observers at the expert review of the proposals' research excellence. They may also submit their views on the alignment of the proposals with provincial and territorial priorities for consideration by the SRC. We encourage institutions to work with relevant provincial and territorial funding authorities as key partners early in their planning and development of proposals.

Funding decisions

The CFI Board of Directors will make funding decisions at its meeting in September 2022. After this meeting, we will notify institutions of the decisions and send them the review materials for their proposals.

Funding from the CFI does not authorize your facility to conduct activities that are licensed under the Human Pathogens and Toxins Act or the Health of Animals Act and their associated regulations.

Any changes to activities that involve human pathogens and which require a new or amended licence under either of those acts must be authorized by the Centre for Biosecurity at the Public Health Agency of Canada. Consult the Public Health Agency of Canada's website for more information.

Any changes to activities that involve animal pathogens and which require a new or amended import permit for animal pathogens must be authorized by the Office of Biohazard Containment & Safety at the Canadian Food Inspection Agency. Consult the Canadian Food Inspection Agency's website for more information.

Security considerations

National and international experts will participate in the merit-review of proposals. Given the potentially sensitive nature of the committees' deliberations, the CFI will make every effort to ensure that the members of its merit-review committees have undergone appropriate security screening. Institutions must also ensure that the information provided in the proposal does not pose a risk to the safety and security of the biocontainment facility. To this end, proposals must have undergone review and approval from the institution's Human Pathogens and Toxins Act licence holder or Biological Safety Officer. Under no circumstances should the institution divulge the following information in the proposal:

- Existing pathogen inventories and descriptions of where these are stored
- Floor plans of existing or proposed facilities
- Gaps in or descriptions of existing security or proposed security elements, including biosecurity plans, physical security, cybersecurity and personnel security
- Personal information that is not publicly available for personnel who have or will have access to risk group 3 security sensitive biological agents or risk group 4 pathogens.

The recipient institutions must conduct a consistent and appropriate due diligence review of potential security risks for funded projects and put in place timely measures to appropriately mitigate those risks. Tools and guidance are available through the Government of Canada's Safeguarding Your Research portal, National Security Guidelines for Research Partnerships and Safeguarding Science workshops.

Security considerations will be independent of the merit-review process. The CFI reserves the right to exclude a partner or refuse to issue an award agreement on the basis of security, should appropriate measures not be in place to mitigate potential risks.

Public announcement

The Government of Canada makes national funding announcements in collaboration with institutions. Public announcements provide opportunities to highlight the research and technology development enabled by CFI-funded infrastructure in their communities. We encourage institutions to work with local and national media after the announcement to promote the benefits and impacts of research and technology development to Canadians.

Part 2 – How to apply

You will use the CFI Awards Management System (CAMS) to prepare, share and submit your notices of intent and proposals. Technical instructions for using CAMS are in the "Getting started with CAMS" documents for researchers and institutional administrators.

The person who creates a project in CAMS is automatically assigned as the administrative leader for the project. Once a project is created, you will not be able to change the name of the administrative leader or administrative institution. If you do need to make such a change, contact your Senior Programs Officer. We will oversee the change in CAMS.

Complying with the guidelines when preparing your notices of intent and proposals

All submissions must comply with the guidelines in section 6 of the "Getting started with CAMS" documents as well as those in this document. These documents contain all the information you need to apply to this fund, including the guidelines to prepare notices of intent and proposals. We strongly recommend that you review the completed forms before you submit them to make sure they comply with these guidelines.

Notice of intent

The notice of intent consists of the following six sections:

- Project information
- Plain language summary
- Research teams
- Project description
- Collaborating institutions
- Suggested reviewers

The information you need to include in these sections is described in section 6 of the "Getting started with CAMS" documents for researchers and institutional administrators.

Plain language summary

(Maximum 1,500 characters)

Provide a short summary of the project and research activities in plain language, focusing on the expected outcomes and benefits for Canada beyond academic accomplishments. We will publish on our website the project title and this summary, the names and affiliations of the researchers in the research teams section, administrative and collaborating institutions, and project keywords.

Research teams

We expect that the requested infrastructure will support internationally competitive research activities for multiple research teams. These teams can be composed of researchers from different institutions, countries and sectors. When addressing the research teams criterion, please consider all groups of users, including the researchers and other users. However, for space and workload considerations, you can identify up to 10 members of these teams to demonstrate that they have the breadth of expertise needed to conduct the proposed research activities. Only the CVs of these 10 individuals will be appended to the proposal.

The individual who creates the project in CAMS will be the administrative leader for the project. This person will be responsible for tasks such as completing the forms in CAMS and submitting the proposal to the institution.

Team members whose CVs will be included in the proposal must have a CAMS account and accept to participate in this project before you can submit the notice of intent. They will each have read access to the notice of intent.

You may include individuals from organizations not eligible to receive CFI funding as research team members.

Project description

(Maximum four pages)

The project description should reflect the full scope of the planned activities. This will inform CFI staff of the breadth of expertise required on the Expert Committee to assess your proposal's merits. The project description should include:

- A high-level overview of the research or technology development program(s) that will be enabled by the infrastructure and the anticipated outcomes of these activities, including expected application(s)
- A table of the requested infrastructure, including a brief description and approximate cost of the major pieces
- A table of current and planned partners and other potential conflicts of interest, including the name of the partner organization(s) and the name of individuals involved in the research.

Collaborating institutions

Before you can submit the notice of intent, collaborating institutions must accept to participate in the project. Collaborating institutions will receive part of the infrastructure requested and must be eligible to receive CFI funding.

Suggested reviewers

We encourage you to suggest reviewers who are at different stages of their career, with diverse backgrounds and from underrepresented groups, as appropriate for the proposed program(s). The decision whether to contact the reviewers you suggest remains with the CFI.

Proposal

The proposal should clearly present the project's merits and excellence. You should provide enough information to enable reviewers to evaluate the proposal according to the assessment criteria. However, under no circumstances should the institution divulge the following information in the proposal:

- Existing pathogen inventories and descriptions of where pathogens are stored
- Floor plans of existing or proposed facilities
- Gaps in or descriptions of existing security or proposed security elements, including biosecurity plans, physical security, cybersecurity and personnel security
- Personal information that is not publicly available for personnel who have or will have access to risk group 3 security sensitive biological agents or risk group 4 pathogens.

CAMS automatically populates the proposal with information provided in the notice of intent, including:

- Project information
- Collaborating institutions
- Research teams
- Suggested reviewers

If you must make changes to the collaborating institutions, research teams or suggested reviewers after you submit your notice of intent, contact brif-firsb@innovation.ca as soon as possible. This will help to avoid conflicts of interest with potential reviewers.

The proposal consists of three separate CAMS modules:

- Project module — information about the proposed project, how it meets the competition's objectives and criteria
- Finance module — information about the budgetary details of the proposal
- Suggested reviewers module — list of potential reviewers of the proposal

The forms in CAMS will indicate the maximum number of characters that can be included in each section and/or the page limits for uploaded attachments.

Project module

The project module consists of the following sections:

- Project information
- Plain language summary and project summary
- Research teams
- Other users
- Collaborating institutions
- Financial resources for operation and maintenance
- Assessment criteria
- Project attachments.

The information to be included in these sections is described in section 6 of the "Getting started with CAMS" documents for researchers and institutional administrators. If there are discrepancies between the instructions provided in the "Getting started with CAMS" documents and this call for proposals, this call takes precedence.

Project summary

(Maximum three pages)

Provide a general description of the research or technology development activities to be conducted and an overview of the infrastructure you are requesting. This summary must address the extent to which the proposal meets the competition objectives.

For projects recommended for funding by the Expert Committees, the project summary is the only section of the proposal that we will provide to the SRC to help with its deliberations.

Other users

You can identify up to 20 other users of the facility –– either researchers or users from various sectors. These individuals will not be notified via CAMS of their inclusion in the proposal, so the administrative institution should make sure they have been informed and have agreed to participate in the proposal.

Assessment criteria

Document structure

Address the assessment criteria in a PDF document and upload it to CAMS. The document must contain key information on how the proposal meets the objectives and assessment criteria for this competition. Make sure the document follows the formatting guidelines for attachments outlined in the "Getting started with CAMS" documents for researchers and institutional administrators. You should also:

- Address each criterion in the order that they appear below
- Begin each criterion on a new page.

Reviewers will evaluate each assessment criterion against a standard. Each criterion includes instructions you must address in the proposal. Failure to do so will weaken the proposal. Expert Committees rate the degree to which the proposal meets each standard, whereas the SRC reviews proposals to ensure that research infrastructure investments are well-aligned with and directly support the objectives and priorities of the Biomanufacturing and Life Sciences Strategy.

Page limits

Page limits for your document depend on the amount requested from the CFI in the proposal.

Total CFI request	Maximum number of pages
≤ $10 million	30 pages
> $10 million	35 pages

You have maximum flexibility to address each criterion in the document you submit, including the use of figures or diagrams, where appropriate. The distribution of pages among criteria is at your discretion, up to the total page limits noted above.

Note: If you are submitting a proposal with a CFI request less than or equal to $10 million, CAMS will allow you to upload a PDF document up to 35 pages. A validation error restricting the PDF document to 30 pages will only occur when the administrative leader sets the proposal to "complete" and when your institution sets it to "verified" or tries to submit it to the CFI.

Criterion standards and instructions

RESEARCH EXCELLENCE

The research activities to be enabled by the biocontainment facility and/or associated animal facility are internationally competitive and aligned with Canada's priorities. The facility has a demonstrated track record of excellence in research.

Instructions:

Describe the breadth of research activities enabled by the biocontainment facility and/or associated animal facility over the past five years. Include both qualitative and quantitative data on the number and types of infectious diseases studied, vaccines and therapies developed, and animal models of disease developed and characterized. Highlight your most significant research accomplishments.

Describe the proposed research or technology development programs that will be enabled by the requested infrastructure. Explain the methodologies to be used and discuss the feasibility by identifying key challenges and how these will be overcome.

Demonstrate the innovative aspects of the proposed programs by positioning them within the present state of knowledge in the field, both in Canada and internationally. Where appropriate, include references.

RESEARCH TEAMS

The diverse teams of researchers using the facility have the breadth of expertise to conduct the proposed research activities.

Instructions:

Describe the breadth and diversity of the major users of the biocontainment facility and/or associated animal facility. When describing the diversity of major users, consider the disciplines of research, career stages, sectors, type and size of organizations, and geographic distribution that are represented.

Describe the teams' relevant experience and expertise to conduct the proposed research activities. Highlight their scientific and technical contributions to the area of the proposed activities.

Describe the contributions from relevant partners, as applicable, to the proposed activities.

ENHANCEMENT OF THE CAPACITY TO RESPOND TO EMERGING HUMAN HEALTH THREATS

The requested infrastructure is needed to enhance Canada's capacity to respond to pandemics and emerging human health threats. It is appropriate for the proposed research activities.

Instructions:

In the specific context of the current proposal, describe:

- The existing research capacity of the institution and its partners to respond to pandemics and other emerging human health threats
- The areas in which you specialize
- How that fits within the broader context of other academic, government or private sector laboratories.

List any certifications or biosafety standards, such as CL3, good manufacturing practices or ISO, that are currently maintained. Identify any potential impacts of upcoming changes to the Canadian Biosafety Standard.

Describe each requested item and justify why it is needed to conduct the proposed research activities and how it will enhance the capacity to respond to pandemics and emerging human health threats. Reference the item number, quantity, cost and location entered in the "Cost of individual items" table. Provide a cost breakdown and description of included items in any grouping of items. For construction or renovation, describe the space including its location, size and nature.

Considering the existing research infrastructure capacity at your institution and at your partner's institution(s), explain how the requested infrastructure is the best option to obtain the resources needed to conduct the proposed research activities.

Note: for construction or renovation, you must provide the detailed cost breakdown and timeline in a separate document as part of the finance module.

COLLABORATIONS AND PARTNERSHIPS

The requested infrastructure will support enhanced academic collaboration with industry, not-for-profit organizations and public sector partners.

Instructions:

Describe the existing collaborations and partnerships with other laboratories or facilities, research groups, government departments and agencies, businesses and users in all sectors.

Describe the facility's plans to enhance existing collaborations and partnerships, and support the development of new ones, including networking with other similar facilities.

Explain how these collaborations and partnerships are important to realizing the objectives and desired outcomes of this proposal.

SUSTAINABILITY

The facility will be optimally used, operated and sustained over its useful life.

Instructions:

Describe the current management structure and personnel. Present a management plan that describes how the infrastructure will be optimally used (e.g. user access and level of use), operated and maintained over its useful life. If the infrastructure will generate a significant amount of data, include a description of how this data will be managed. Demonstrate that the management team has the necessary training and core competencies to ensure the facility's safe operations. Do not name individuals.

Describe the expertise and specialized support (e.g. biosafety professionals, technical staff) available and planned.

Describe the process to grant access to the facility and describe any differences between academic, public and private users.

Identify any barriers to access the facility for underrepresented groups and what steps will be taken to ensure equitable access. Describe how the facility provides an inclusive environment for all users.

Outline the operating and maintenance costs and revenue sources over the useful life of the infrastructure. Refer to the "Financial resources for operation and maintenance" tables. Describe the plan for maintaining the current sources of funding, securing and diversifying sources of funding, and contingency plans for potential funding shortfalls. If applicable, describe the user fee structure and how anticipated revenues have been calculated.

For larger and more complex projects, describe the proposed governance of the requested infrastructure, including the composition of its decision-making bodies.

ANTICIPATED BENEFITS

The team and its partners have a well-defined plan to transfer the results of the research and technology development. Furthermore, the facility will attract and train highly qualified personnel linked to the needs of the biomanufacturing and life sciences sector.

Instructions:

Detail the plans to transfer the results of the research or technology development program(s), including how the institution will protect any intellectual property for the benefit of Canadians.

Describe the teams' experience in knowledge mobilization and/or technology transfer.

Describe the potential health, economic and social benefits to Canadians.

Describe how the requested infrastructure will create an environment that nurtures training and talent development in areas of high demand in the biomanufacturing and life sciences sector. Provide the number and type of highly qualified personnel (e.g. graduate students, postdoctoral fellows) who have been trained over the past four years and the number anticipated over the next four years. Describe the high-level skills acquired by the highly qualified personnel and their relevance to careers in research and other fields.

Project attachments

In addition to the allotted pages to describe how the proposal meets the assessment criteria, upload a letter signed by the Human Pathogens and Toxins Act licence holder or the Biological Safety Officer of your institution, certifying that the materials submitted have undergone review and do not contain any potentially sensitive information that would pose a risk to the safety and security of the biocontainment facility.

The attachment must be in PDF format and not exceed 20 MB and two pages. Documents other than those requested in this call for proposals will not be accepted.

Finance module

The finance module consists of the following sections:

- Cost of individual items
- Construction or renovation timeline and cost breakdown (if applicable)
- Contributions from eligible partners
- Infrastructure utilization
- Overview of infrastructure project funding (generated automatically)

The information to be included in these sections is described in section 6 of the "Getting started with CAMS" documents for project leaders and institutional administrators.

Suggested reviewers

We encourage you to suggest reviewers who are at different stages of their career, with diverse backgrounds and from underrepresented groups, as appropriate for the proposed program(s). The decision whether to contact the reviewers you suggest remains with the CFI.

Submission of notices of intent and proposals

You must submit notices of intent and proposals in CAMS by their respective deadlines. Before you submit the proposal, it must have undergone review and approval by the institution's Human Pathogens and Toxins Act licence holder or Biological Safety Officer to ensure that the material included in the proposal does not pose a risk to the safety and security of the biocontainment facility. Attach to the proposal in CAMS a letter signed by the licence holder or Biological Safety Officer.

Appendix 1 – Changes from the draft call for proposals

Based on feedback from the research community and other stakeholders following the release of the draft call for proposals, the following changes have been made to this call:

- Incorporated language to address national security guidelines, research security, cybersecurity, data management and intellectual property. These changes can be found under "Security considerations" and "Project attachments" and within the "Sustainability" and "Anticipated benefits" criteria
- Clarified that small-animal facilities are not eligible
- Clarified that multi-institutional proposals are accepted
- Clarified that there is no limit to the number of proposals an institution can participate in as a collaborator
- Clarified that all CFI-eligible costs as per the CFI Policy and programs guide are eligible in this competition
- Added that security-related costs are eligible
- Added a link to the definition of containment levels 3 and 4 from the Canadian Biosafety Standards and Guidelines. Instructed applicants to identify any potential impacts of upcoming changes to the Canadian Biosafety Standard
- Moved the instruction to describe the users of the facility from the "Enhancement of the capacity to respond to emerging human health threats" criterion to the "Research teams" criterion
- Made a few minor editorial changes to correct typos and clarify language.

Appendix 2 – Changes from the call for proposals released on September 21, 2021

We made changes to this call for proposals after reviewing security considerations for this fund. Specifically, we:

- Revised the competition timeline
- Revised the language related CL3/CL4 certification to make it clear that we are referring to Human Pathogens and Toxin Act licences
- Removed the requirement for research security, cybersecurity and data management plans and floor plans
- Revised the criterion standard for the "Sustainability" criterion to remove assessment of risks and security plans
- Updated the language in the security considerations section and clarified that the following information should not be included in proposals:
  - Existing pathogen inventories and descriptions of where these are stored
  - Floor plans of existing or proposed facilities
  - Gaps in or descriptions of existing security or proposed security elements, including biosecurity plans, physical security, cybersecurity and personnel security
  - Personal information that is not publicly available for personnel who have or will have access to risk group 3 security sensitive biological agents or risk group 4 pathogens
- Added the requirement for institutions to seek the advice of their Human Pathogens and Toxins Act licence holder or Biological Safety Officer before submitting a proposal and to ensure that sensitive materials are not included in the proposal. A letter confirming that all materials have undergone review needs to be signed by the licence holder or Biological Safety Officer and attached to the proposal.
- Added an indication that CFI staff will review proposals for security sensitive information, and that we will rely on expert reviewers who have undergone appropriate security screening
- Clarified that CFI funding does not authorize a facility to conduct licensed activities and provided links to find more information about licensing and import permit requirements.