

**University of Waterloo**  
**Plan for the Operation and Maintenance of Infrastructure funded**  
**through the Canada Foundation for Innovation (CFI)**

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## **University of Waterloo**

# **Plan for the Operation and Maintenance of Infrastructure funded through the Canada Foundation for Innovation (CFI)**

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## Introduction

In just half a century, the University of Waterloo (uWaterloo), located at the heart of Canada's Technology Triangle, has become one of Canada's leading comprehensive universities, with more than 39,000 full and part-time students in undergraduate and graduate programs and more than 1,200 faculty members. In the next decade, the university is committed to building a better future for Canada and the world by championing innovation and research collaboration to create solutions relevant to the needs of today and tomorrow. The Canada Foundation for Innovation (CFI) provides research infrastructure essential to this commitment, enabling uWaterloo to establish state-of-the-art research laboratories in key priority areas, as outlined in our Strategic Research Plan: <https://uwaterloo.ca/strategic-plan/> and will be reflected in our new Strategic Plan Bridge to 2020. To achieve the full potential of CFI-funded research infrastructure, uWaterloo is committed to ensuring that appropriate resources are provided for the operation and maintenance of infrastructure over its useful life.

## Definitions

### *CFI-Funded Infrastructure*

Equipment, scientific collections, computer hardware and/or software, information databases and communications linkages used or to be used primarily for carrying out research. This includes housing and installations essential for their use and servicing.

### *CFI Infrastructure Operating Fund*

The Infrastructure Operating Fund (IOF) helps cover a **portion** of the operating and maintenance costs to ensure optimal use of CFI-funded infrastructure. An institution's IOF allocation is based on the CFI contributions for eligible projects. All projects approved by the CFI Board of Directors after July 1, 2001, are eligible to receive IOF, with the exception of projects funded under the Canada Research Chairs Infrastructure Fund and the international funds program. All eligible projects generate an IOF allocation of 30 percent of the maximum CFI amount approved at award finalization.

### *Operation and Maintenance Support (O&M)*

Operation and Maintenance support may include the personnel (e.g. technical support), training for the main operator, extended warranties and/or service contracts not included in the infrastructure award, extensions to warranty coverage and software licences, maintenance and repairs, replacement parts, and materials/supplies and services necessary to ensure the effective operation of infrastructure over its useful life.

### *Useful Life*

Useful life is not equivalent to physical life. The "useful life" of CFI-funded infrastructure is defined as the period of time that the infrastructure remains useful for the purposes described in the CFI funding application. The useful life of research infrastructure is considered to be the period of time

over which the infrastructure is expected to provide benefits and be usable for its intended purpose, factoring in normal repairs and maintenance.

## **Guiding Principles**

The University of Waterloo is committed to ensuring O&M support for the useful life of CFI-funded infrastructure through the allocation of institutional support and through institutional efforts to obtain such funds from internal and external sources, as required. To this end, uWaterloo will submit CFI applications for innovative projects which include detailed consideration of realistic O&M costs for the infrastructure, determined (and evaluated as part of our internal review process prior to submission) through the development of detailed, realistic O&M cost estimates.

The Vice-President, University Research oversees uWaterloo's commitment to provide O&M support, which comes from all levels of the institution, including the Project Leader(s), the relevant Department(s) and/or School(s), and relevant Faculty or Faculties. The Project Leader(s), the relevant Department Chair(s), School Director(s) and Faculty Dean(s), and the Vice-President, University Research recognize that the CFI IOF may be insufficient to operate the infrastructure for its useful lifetime and are committed to allocating other funds under their control and to assisting researchers in obtaining other means of support both internal and external to the institution to sustain the infrastructure.

uWaterloo's Office of Research has dedicated staff who assist researchers in obtaining external funding to support both new research initiatives and the operation and maintenance of existing research infrastructure.

## **Sources of Support for Operation and Maintenance**

### **Funding**

The first source of funds for Operation and Maintenance of CFI-funded infrastructure comes from institutional commitments for support at the time of application; generally in the form of commitments toward renovation costs and other standard 'services' (see below). Additional commitments of staff who manage the facility are also considered on a case by case basis.

The second source of support is the institution's CFI Infrastructure Operating Fund (IOF). Distribution of the IOF will be based on operating and maintenance needs, as opposed to allocating the exact amount to the project that generated it. This provides maximum flexibility to support projects with different needs and scope, while ensuring accountability. Researchers apply to their respective Faculties, providing adequate justification for all O&M costs (details on the application procedure are provided below). Project Leaders recognize that the institution's IOF funding is one source of support for these costs. Other sources include investigators' research operating and equipment funds obtained through other sources, including start-up funds, and, for some facilities, user fees and external funding sources (i.e. grants and contracts), as well as departmental, Faculty and central contributions of operating funds. Funding requests will be reviewed annually and awarded depending on the demonstrated need. Projects are monitored through annual reporting,

and funding levels reviewed with possible adjustments as needs change. Project Leaders are not restricted to a single request; they are able to submit requests during an annual intake each ~February, and can apply for funds off-cycle on a case by case basis.

## Services

uWaterloo's commitment to supporting its faculty and their research initiatives is demonstrated by the establishment of a comprehensive support structure. uWaterloo provides standard pre- and post-award research services (entire grant life cycle, including financial reporting, etc.), HR (hiring, personnel), plant operations (architectural support for construction and renovation activities), procurement (acquisitions), insurance coverage, utility costs / janitorial services and specialized safety training. IT support is provided campus-wide (i.e. Faculty-level resources as well as university-level services from the Information Systems & Technology [IST], which provides IT services, expertise and leadership to the entire uWaterloo community). In addition, at the departmental level, research engineers and technicians are made available in many areas requiring specialized support. For example, in the Mechanical and Mechatronics Engineering Department, design technicians, technologists, lab managers and engineers (16 in total) provide ongoing technical support for researchers. At the Faculty level, specialized 'machine shops' provide researchers a variety of services, including custom fabrication and machining services.

## Allocation of CFI Infrastructure Operating Funds (IOF)

### Overview

For CFI-funded projects, the Project Leader(s), in consultation with their Department and/or Faculty, are expected to identify accurate and realistic O&M costs for their project at the time of application and to plan for infrastructure sustainability for the useful life of that infrastructure.

Expenses may be claimed under the IOF for the useful life of the CFI-funded infrastructure. For a description of eligible costs under the CFI-IOF, please see Appendix A.

### Procedure

Note: The University of Waterloo revised its procedures for managing IOF funds as of January 2012.

#### Projects Funded by CFI prior to January 2012

Per a Deans Council (uWaterloo's senior administrative body) resolution adopted when CFI IOF program was established, IOF-eligible projects were allocated the full value of the IOF generated by that project (i.e. 30% of CFI project contribution) to operate and maintain CFI-funded infrastructure. Project Leaders submitted an annual budget (each April) to the Office of Research with their O&M cost estimates for the next year, until their full IOF allocation was spent. These budgets were reviewed for eligibility of expenses and processed accordingly.

At the end of the useful life of the infrastructure, any unallocated/unspent IOF funding was put into a central reserve for redistribution to other eligible projects. Project Leaders who required O&M funding in excess of their IOF allocation could approach their departments / faculty for additional funds, although this process was not formally monitored centrally.

### **Projects Funded by CFI after January 2012**

In 2011, after a review of O&M needs associated with CFI-Funded projects, uWaterloo's Deans Council determined that, effective January 2012 for all new CFI submissions, the CFI-IOF funding would be allocated to a central pool in the Project Leader's home Faculty, rather than to each specific project. Because CFI provides the institution with an IOF contribution equal to 30% of the CFI portion of eligible projects, the IOF contribution represents approximately 12% of the total eligible costs of each project. Typical O&M costs run between 15% - 40%; therefore, some projects required additional O&M funding over and above the IOF generated by that project. Conversely, it was determined that some projects were not fully utilizing the IOF funding. Thus, while Project Leaders are no longer guaranteed the full IOF generated by their project, with an appropriate rationale, they may be eligible to receive O&M funding in excess of the IOF generated by their project. The process for applying for O&M funds is outlined below.

Beginning with projects submitted to CFI after January 2012, each Faculty will have an annual internal competition for O&M funding, which will be distributed based on demonstrated need rather than by entitlement. Project Leaders are required to apply to the Associate Dean, Research (ADR) of their respective Faculty each February, detailing their O&M needs. They must provide adequate justification for O&M funding as well as projected O&M expenses for up to five-years. Project Leaders are also expected to identify additional sources of revenue that may be used to recover a portion of those O&M costs, the balance of which will be considered by each Faculty committee. The Infrastructure Operating Fund allocation process allows researchers to plan for the needs of their projects while allowing the faculties and university flexibility to address areas of greater need.

Should approved requests exceed available IOF funds, other internal sources of support are committed – as described below in the Section 'Additional Institutional Funds for O&M'.

For CFI-Funded projects that are located in a centrally-managed facility (i.e. University Research Centre or Institute), the IOF application will be submitted to the appropriate designate, as determined by the administrative reporting structure for the facility.

### **Approval Process**

The ADR of each Faculty (or central university committee for institutes) will review the annual applications based on eligibility of expenses and demonstrated need for the O&M funding. The ADR will then recommend those projects that are deemed meritorious to the Vice-President, University Research. The Vice-President, University Research reviews the recommendations to ensure eligibility of expenses and approves/declines funding. Once approved, the Office of Research establishes appropriate accounts for Project Leaders to facilitate monitoring of O&M spending.

## **Additional Institutional Funds for O&M**

The University of Waterloo has several sources of central funding that may be used to supplement the IOF, as necessary. These funds include:

- Researcher Start-Up award;
- Departmental/Faculty operating funds;
- Overhead Return;
- User Fees; and
- Central Operating Funds.

## **Monitoring Processes for O&M Costs**

University research finance managers prepare and submit an annual financial report summarizing IOF expense categories. In addition, compliance personnel will review proposed expenditures to ensure they meet eligibility guidelines. This allows the University to track O&M costs associated with CFI infrastructure and ensures expenditures align with the Project Leaders overall budget forecast.

## Appendix A

### Eligible Costs for Operation and Maintenance under the CFI-IOF

An eligible operating and maintenance cost for the IOF must meet the following conditions:

- the infrastructure item to which it relates must have been funded by the CFI (i.e. it appears on the proposal or updated budget and/or the final financial report);
- the CFI-funded infrastructure project to which it relates must have been approved after July 1, 2001. However, projects funded under the Canada Research Chairs Infrastructure Fund and the international funds are not eligible for IOF;
- the CFI-funded infrastructure project to which it relates must have passed the stage of award finalization. An *Award agreement* is thus in place for the project;
- the operating and maintenance activities are needed to ensure the infrastructure can be used to carry out the proposed research;
- the infrastructure must still be used for research purposes. There is no maximum number of years for which IOF can be claimed, as long as the infrastructure is still being used for research purposes during the period claimed.

Only the proportion of operating and maintenance costs associated with research is eligible.

#### Eligible costs

- Salaries (including benefits) of highly qualified personnel (technicians or professionals) directly involved in the operation and maintenance of the CFI-funded infrastructure. The full salary of the highly qualified personnel may be eligible if the infrastructure cannot be operated without their assistance.
- Training for the main operator(s) of the research infrastructure, not included in the infrastructure award. It is expected that the main operator(s) will train other users. Alternatively, a group training session may be provided by the vendor at the institution.
- Extended warranties and/or service contracts not included in the infrastructure award
- Extensions to warranty coverage and software licences
- Maintenance and repairs
- Replacement parts
- Replacement of a CFI-funded infrastructure item needing repair, only if the replacement is more cost effective than the repair (the replacement item must have similar functionality)
- Services (e.g. electricity, security, cleaning) that directly support the CFI-funded infrastructure or the space essential to house and use CFI-funded infrastructure
- Supplies and consumables needed to operate the research infrastructure (not to exceed 10 percent of the cumulative total IOF claimed by the institution)

#### Non-eligible costs

- Purchase or lease of real property
- Cost of equipment, installation and construction or renovation deemed eligible under an infrastructure award



- Upgrades related to the infrastructure
- Extended warranties and/or service contracts included in the infrastructure award
- Telephone, Internet and cable or satellite television services that are not necessary to ensure the infrastructure can be used for research
- Insurance
- Costs not directly related to the CFI-funded infrastructure (e.g. maintenance contract for equipment not acquired through a CFI-funded infrastructure project that is eligible to receive the IOF funding)
- Trainee stipends (undergraduates, graduates and post-doctoral fellows) and researcher salaries
- Administrative, secretarial or clerical personnel not directly related to the operation and maintenance of the infrastructure (e.g. research services office, library and finance services)
- Any cost to conduct research activities
- Costs attributed to the dissemination of information such as promotion, publications or conferences
- Expenditures reimbursed by another source

*Source: CFI Policy and Program Guide 2017 <https://www.innovation.ca/awards/infrastructure-operating-fund>*