



# University of Toronto

---

Office of the Assistant Vice-President, Campus and Facilities Planning

**TO:** Planning and Budget Committee

**SPONSOR:** Elizabeth Sisam, Assistant Vice-President, Campus and Facilities Planning

**CONTACT INFORMATION:** 416-978-5515; [avp.space@utoronto.ca](mailto:avp.space@utoronto.ca)

**DATE:** November 20 for December 5, 2006

**AGENDA ITEM:** 12

**ITEM IDENTIFICATION:**

Project Planning Committee for the SciNet

**JURISDICTIONAL INFORMATION:**

Under the Policy on Capital Planning and Capital Projects, the Planning & Budget Committee reviews Project Planning Reports prepared for a capital project and recommends to the Academic Board approval in principle of the project.

**PROPOSED COMMITTEE MEMBERSHIP:**

E. Sisam, Assistant Vice President, Campus and Facilities Planning  
J. Binks Manager, Project Planning, Capital Projects.  
R. Swail, Assistant Vice President, Facilities and Services  
W. Yasui Senior Facilities Planner, Campus and Facilities Planning  
M. Contreras Assistant Dean & Director of Planning and Information Technology,  
Faculty of Arts & Science  
E. Siciunas Computer & Networking Services, University Computing  
J. Chadwick Director, Director Government Research Infrastructure Programs  
C. Yip, Professor, Institute of Biomaterials and Biomedical Engineering  
W.R. Peltier, Professor, Department of Physics  
U.L. Pen, Professor, Canadian Institute for Theoretical Astrophysics  
C. Loken Professor, Canadian Institute for Theoretical Astrophysics  
Graduate student, TBA  
Graduate student, TBA  
Graduate student, TBA

**TERMS OF REFERENCE:**

1. Determine a functional layout and space requirements for the computing and personnel infrastructure associated with the upgrade to the SciNet performance computing (HPC) network.
2. Make recommendations regarding the location of the Centre and any associated space.
3. Respond to the requirements set out in the application to the Canada Foundation for Innovation and any conditions of the award.
4. Determine a detailed space program taking into account Council of Ontario Universities' and the University of Toronto's space standards.

5. Identify the capital cost of construction, including renovations, utilities, data and communications requirements and the cost of all equipment and furnishings for the SciNet facility.
6. Identify all operating costs for the facility.
7. Identify deferred maintenance issues that could impact the project and possible additional sources of funding that could address these particular issues.
8. Identify all communication and computer networks and interfaces that are required.
9. Identify all proposed sources of funding.
10. Report by February 28, 2007.

## **BACKGROUND:**

The University of Toronto and central Ontario research communities include a large number of internationally prominent and nationally dominant groups that have a demonstrated need, and growing requirement, for access to the most capable computational infrastructure currently available. Although these groups have been successful in acquiring computationally useful infrastructure from past *Canada Foundation for Innovation (CFI)* funding programs, current needs cannot be addressed through available computer systems. To meet the computational requirements of these researchers, a diverse group of principle investigators from across the university, in collaboration with other organizations across Canada, have submitted a proposal to CFI's *National Platforms Fund* for an enhanced network in support of *High Performance Computing (HPC)*; commonly referred to at the University of Toronto as *SciNet*. This initiative will substantially increase SciNet's existing computational systems and associated peripheral equipment.

The most significant portion of the CFI application is to be directed towards the supply and installation of hardware and infrastructure that will allow the development of an integrated multi-architecture computational system that will be connected to the University of Toronto backbone network. The four distinct HPC systems will be developed in such a way that every system will be accessible from anywhere on the network. SciNet has proposed that this current installation will consist of a serial supercluster, a parallel supercluster, a shared memory multiprocessor, and a parallel vector system.

Planning for this multi-architecture HPC network as identified in the CFI application, will provide enhanced computational capabilities for research in:

- aerospace and biomedical engineering
- astronomy and astrophysics
- high energy particle physics
- integrative computational biology
- planetary physics
- theoretical chemical physics

These facilities once operational will provide the enhanced computation capacity for all researchers at the University.