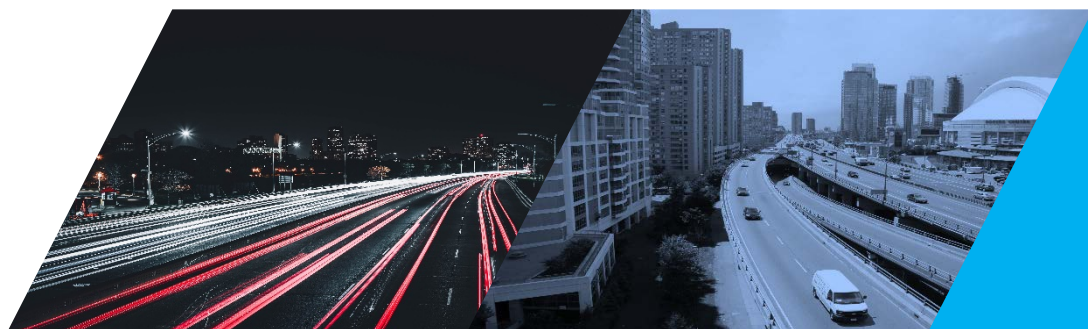


Ministry of Transportation of Ontario

Road Safety Research Partnership Program

Guidelines 2019 - 2020



Ministry of Transportation

Safety Policy and Education Branch

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Ministère des Transports

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Background

Ontario's roads are among the safest in North America; however, despite significant road safety improvements in recent years, motor vehicle collisions continue to be a leading cause of death, injury, and disability among persons of all ages. The Ministry of Transportation (MTO), through the Road Safety Research Office (RSRO), is committed to conducting and supporting research on road user behaviour and human factors surrounding road safety. In the past, our research has contributed to policy and program developments such as the inclusion of cognitive screening tools into the Senior Driver Licence Renewal Program and the expansion of Ontario's drinking and driving laws. A key component of the RSRO's mission is to work with external partners to conduct research into aspects of road safety that cannot be addressed from within the ministry. Accordingly, the Road Safety Research Partnership Program (RSRPP) has been established.

The RSRPP provides grant funding to researchers in the broader Ontario public sector, enabling them to contribute policy-relevant research to support Ontario's efforts to improve road safety and keep the province among the safest jurisdictions in the world.

Examples of RSRPP-funded research currently underway include:

- determining the relationship between Standardized Field Sobriety Test performance, oral fluid THC concentration, and THC-induced impairment as measured in a driving simulator
- measuring the effects of cannabis edibles alone or in combination with alcohol on simulated driving performance

The call of proposals for 2019-2020 is now open, and we invite you to apply.

Ontario's strong road safety record has been built upon relationships established over the years with the academic / medical community, other ministries, municipal and federal governments, police services, industries and associations, and grass roots road safety stakeholders. Together, we can achieve our shared goals and improve road safety for all Ontarians.

Correspondence and Timelines

The call for applications opens on **November 4, 2019**.

If you are planning to submit an application, please notify us of your intent by e-mail *as soon as possible* and indicate which of the five priority areas (listed in Appendix A) your submission will address. Please send this e-mail to: RoadSafetyResearch.PartnershipProgram@ontario.ca

The deadline for the full application is **December 4, 2019**.

An electronic copy of the application package must be received by the application deadline. Please submit electronic applications and any inquiries to RoadSafetyResearch.PartnershipProgram@ontario.ca

1.0 PURPOSE

The primary purpose of the program is to stimulate applied road safety research in Ontario, with a focus on road user behavior and human factors, and to deliver practical policy or program-ready solutions for the MTO. The secondary purposes of this program are to facilitate the transfer of knowledge, skills, and methodologies from other disciplines to road user safety research, and to foster collaborative working relationships between MTO and researchers in the academic and broader public sector community.

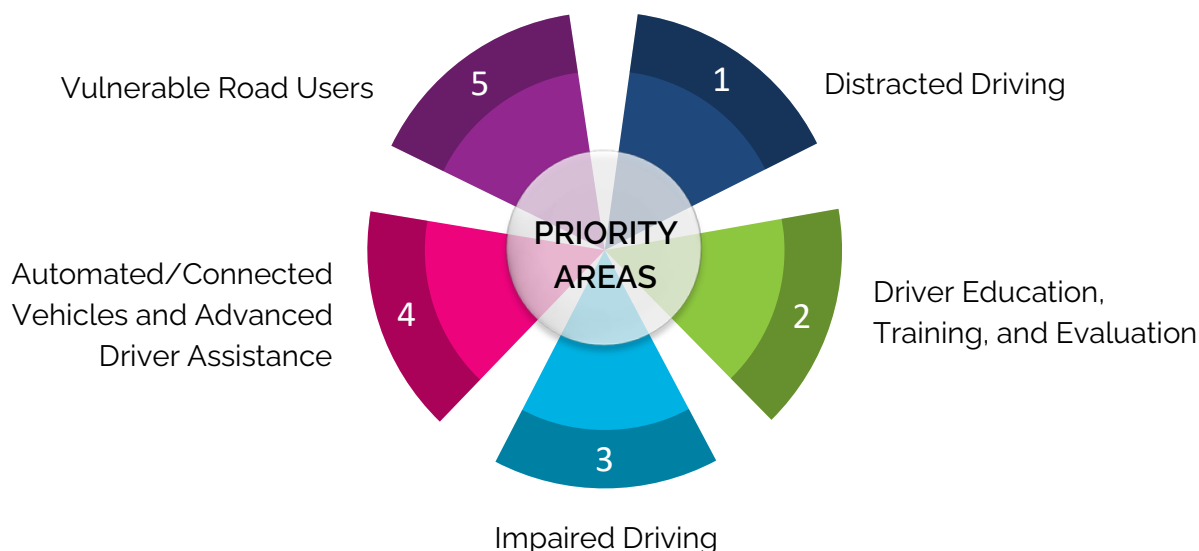
2.0 SCOPE

2.1 Eligible Institutions

Ontario hospitals, colleges, universities (including their affiliated colleges, research centres, institutes, and hospitals), and other public institutions are eligible for funding through the RSRPP (“sponsoring institution”). The principal investigator(s) must be a member of the faculty (full- or part- time) or an employee of the sponsoring Ontario-based institution. Faculty carrying out behavioural and social research in road user safety in departments such as Economics, Engineering, Geography, Medicine, Rehabilitation, Psychology, and Sociology are encouraged to apply for funding under this program. An institution that is listed on MTO’s Vendor of Record pool for procurement services may not be the sponsoring institution. The successful proponent may not subcontract to outside vendors.

2.2 Eligible Topics

The ministry is interested in funding research projects that address one of the specific problem statements outlined in Appendix A. The statements are grouped into five key priority areas:



2.3 Maximum Available Funds Per Project

Three funding streams are available:

- Stream A: Two to four projects addressing priority areas 1 to 3 will be jointly funded from a pool of \$150,000.
- Stream B: One project addressing priority area 4 will be funded up to \$100,000*.
- Stream C: One project addressing priority area 5 will be funded up to \$90,000*. Additional constraints apply (see Section 2.4 below).

* If multiple applications score highly under Streams B or C, the proposed budget may be used as a deciding

factor in determining the successful candidate(s).

The number of projects funded and the amount of funding that will be provided for each project is at the discretion of MTO. The ministry reserves the right not to grant any funds. Projects may be funded by other grant agencies simultaneously. Sources of additional funding, including in-kind contributions, must be disclosed to MTO.

2.4 Project Duration and Deliverables

Priority Area(s)	Project Duration	Project Deliverable(s)
Priority Areas 1, 2, 3, and 4	<p>Maximum 2 years</p> <ul style="list-style-type: none"> Projects may span a period of up to 2 years; however, researchers cannot apply for additional funding under the RSRPP in upcoming grant years for a continuation of the project 	<p>No restrictions</p> <ul style="list-style-type: none"> The ministry will consider projects with a wide range of study methodologies and associated deliverables
Priority Area 5	<p>Maximum 2 years with restrictions</p> <ul style="list-style-type: none"> The first two deliverables must be provided in at least full draft form by March 31, 2020 Project may span a period of up to 2 years; however, researchers cannot apply for additional funding under the RSRPP in upcoming grant years for a continuation of the project 	<p>Deliverables 1 and 2 specified</p> <ul style="list-style-type: none"> <u>Deliverable 1</u>: Systematic literature review and expert consultation as described in Appendix A. <u>Deliverable 2</u>: Meta-analysis of results obtained in deliverable 1 (if a pooled quantitative analysis is possible) Additional deliverables should be specified by the applicant to fully address the priority area 5 problem statement (Appendix A)

3.0 KNOWLEDGE TRANSLATION

3.1 Ministry Involvement

Research staff in the Road Safety Research Office have extensive experience in carrying out road user safety research in a variety of areas. Each funded project will be assigned a team of MTO staff that are subject matter experts in that area of study. At the beginning and end of each project, the Principal Investigator (PI) and his/her team will be invited to the MTO Office at the Downsview Complex for a kick-off and close-out meeting, respectively. MTO subject matter experts will be at both meetings, and may also provide collective feedback to the PI throughout the course of the project at key milestones and/or upon receipt of progress reports. MTO subject matter experts will work closely with the PI on a knowledge translation strategy, and, where relevant, may also assist in research design, in data extraction from MTO databases, and in soliciting involvement of other stakeholders.

3.2 External Opportunities

Opportunities for RSRPP-funded research to be profiled at working groups (e.g., with the Canadian Council of Motor Transport Administrators) and conferences will arise. In these instances, MTO expects to work collaboratively with the PI(s) to prepare the appropriate materials.

Should researchers choose to publish their findings, MTO requires a copy of the final manuscript accepted for publication at least 30 days prior to the publication date. Should MTO choose to post the final report online, MTO will coordinate with the principal investigator(s) to ensure no impact on the candidacy of the research for future publication.

4.0 APPLICATION PROCESS & SELECTION

4.1 Application Package

Interested applicants are invited to submit an application for evaluation. The full application package will include a completed **application form** appended with the following components:

a) **Research Proposal**

In addition to the research summary included in the application form, applicants must submit a detailed proposal, with sections corresponding to:

1. *Background*, including objectives, brief overview of the literature (topic areas, theoretical frameworks, common methodologies), and **which provided problem statement is being addressed** along with the specific research question(s) for the proposed project;
2. *Methods*, including population and sampling, instrumentation, data collection, study design, analytic strategy, and timeline; and
3. *Knowledge Translation*, including planned publications or conferences.

The specific research objective(s) must address one of the provided problem statements (Appendix A), otherwise the project will not be eligible for funding.

The timeline should be written in Month 1, Month 2 format, rather than specific dates; as the project timeline will eventually be revised to start at the date of the kick-off meeting (see Section 5.0).

The research proposal must be no more than 5 pages, excluding a title page, table of contents, and list of references. Figures will also not count towards page limit if they are provided at the end of the proposal (i.e., after the list of references). Appendices can be provided, but may not be reviewed comprehensively during evaluation. Therefore, all pertinent information for the judges to evaluate the merits of the submission should be included in the main body of the proposal.

b) **Budget Justification**

Budget items listed on the application form may require additional justification. Please refer to Appendix B for eligible expenditures and provide an explanation accordingly.

c) **Curriculum Vitae of Principal Investigator(s)**

There are no format or length restrictions for the CV of investigators, and we encourage the use of an existing, but current CV that has been prepared for other grant applications.

Information contained in the application package will be treated as confidential and are subject to MTO's obligations under the *Freedom of Information and Protection of Privacy Act*.

4.2 Evaluation

Applications will be reviewed by a selection committee comprising of MTO staff. One or more road safety research experts, external to the MTO, may be requested to review applications, at the discretion of the MTO. The selection committee may request clarification of points contained in proposals.

Applications will be evaluated on how well the project and investigator(s) satisfy the following criteria (with the weighting of criteria in parentheses):

- a) **Relevance to the provided problem statements and innovativeness of the approach (35%)**
The association between the research project and one of the provided problem statements (see Appendix A) should be clear and tangible. Higher scores will be awarded to projects that challenge or seek to shift current research paradigms by utilizing novel and innovative concepts and approaches.
- b) **Methodology and team (30%)**
The study design, methods, and proposed analyses must be appropriate and rigorous. The stated aims should also be feasible to accomplish within the estimated time and budget. The budget should be realistic and justifiable, including the optimal use of proposed personnel. CV(s) should demonstrate alignment between team expertise and project proposal.
- c) **Impact on road safety in Ontario and external assets leveraged (25%)**
The research should result in an important understanding of, or improvement in, road user safety in Ontario. It should also be apparent that the project cannot otherwise be completed within the MTO (e.g., by not relying solely on data to which the MTO has access, including driving records, collision records, etc.). Accordingly, proposals should clearly specify any non-MTO resources being utilized (e.g., new or existing external datasets that will be used, expertise being leveraged, etc.). The experience and qualifications of the researcher(s) in road user safety or related fields should be stated. Capacity in project management and quality control should be demonstrated.
- d) **Communication and knowledge translation (10%)**
The proposal should be well-written, comprehensible, and demonstrate understanding and expertise on the relevant topic areas. The proposal should outline how the researcher(s) plan to disseminate the results of the project to other road safety professionals and organizations (e.g., publications, conference presentations, etc.), and how results from the research may readily be translated into policy, program, or public education initiatives.

Applications will be reviewed carefully by the selection committee and assigned scores for each criterion based on how effectively the requirements are satisfied. Those that do not adequately satisfy each of the criteria will be disqualified. Aggregate scores of satisfactory submissions (weighted as specified above) will then be used to generate a rank ordered list of applications. MTO will make its funding decisions based on this list; applications will be considered for funding in rank order. MTO reserves the right to adjust rankings to reflect current ministry priorities. In these rare occurrences, adjustments will be made only after consensus at the Senior Management level.

5.0 NOTIFICATION OF AWARD & ONBOARDING

MTO will notify successful candidates directly. A Letter of Award will be sent to the PI(s) along with a Letter of Agreement. The Letter of Award provides authority to incur project expenses for items and amounts specified in the approved budget. Expenses incurred in excess of the approved budget are not the responsibility of MTO. The holders of research awards and their associates are not considered employees of MTO.

The PI(s) will be asked to sign and return the Letter of Agreement, along with any additional items requested in the Letter of Award. These additional items may include a signed certificate from the Research Ethics Board at the sponsoring institution indicating acceptability of the study on ethical grounds, missing signatures, or revisions to the budget or proposal. All documents must be received by MTO before any funding is disbursed.

Upon receipt of the above documents, MTO will invite the PI(s) to the MTO Office in the Downsview Complex for a kick-off meeting. The project will officially commence on the date of the kick-off meeting.

6.0 FINANCIAL ARRANGEMENTS

At the beginning of the project period, MTO will disburse funding for 100% of the approved budget, contingent upon a Letter of Agreement signed by both parties and receipt of ethics board approval and other items that may be requested in the Letter of Award.

6.1 Financial Reporting

Researchers will be required to provide periodic fiscal reports to MTO containing proof of funds spent to date, starting three (3) months after the kick-off meeting and continuing on a quarterly basis. Funds that remain unspent by the researchers at the project's stated end date must be returned to MTO within 30 days thereafter.

Reports will include an itemized list of purchases and activities financed by the RSRPP, including equipment that was purchased (in whole or part) with those funds. The following headings will be included in the reports: salaries and benefits, equipment, and other costs. MTO reserves the right to question discrepancies or disallow expenditures that are not adequately justified or previously approved. MTO also reserves the right to audit any project. The institution is required to keep any records that may be required for a financial audit for the duration of the current fiscal year plus an additional seven (7) years. These rights are in addition to any rights provided to the Auditor General pursuant to section 9(1) of the *Auditor General Act (Ontario)*.

6.2 Appropriation of Funds by the Legislature

MTO reserves the right to terminate an award if, in the opinion of MTO, the award recipient: a) fails to comply with any of the requirements set out in these Guidelines and in the letter of agreement; b) uses any of the RSRPP funds for a purpose not authorized by or without the prior written consent of MTO; or c) fails to provide the requested periodic fiscal and progress reports. MTO reserves to terminate an award at any time by providing written notice of termination for the reasons above or for failure by MTO in receiving the necessary appropriation of funds by the Legislative Assembly of Ontario.

If MTO terminates funding, it may: a) demand repayment of any RSRPP funds remaining in the possession or under the control of the award recipient; and/or b) determine the recipient's reasonable costs to end the RSRPP project and permit it to offset these costs against the RSRPP funds remaining in the possession or under the control of the recipient.

6.3 Conflict of Interest

An award recipient receiving RSRPP funds must ensure the RSRPP project is carried out and RSRPP funds are used without an actual, potential, or perceived conflict of interest. A conflict of interest includes any circumstances where the recipient, or any person who has the capacity to influence the recipient's decisions, has outside commitments, relationships, or financial interests that could, or could be seen to, interfere with the recipient's objective, unbiased and impartial judgment relating to the RSRPP project and the use of the RSRPP funds.

7.0 PROGRESS AND FINAL REPORTS

7.1 Progress Report

Researchers must submit periodic progress reports alongside the periodic fiscal reports outlined in Section 6.1. Progress reports must detail the project's completed activities to date and work that has yet to be completed. The summary should also discuss any unforeseen circumstances that have led to any deviations from the original project timelines. This section does not replace the requirement of the researchers to inform MTO of any alterations to the project schedule.

7.2 Final Report

Researchers must submit a final report no later than three (3) months after completion of the research project. The final report should include the following an executive summary, a table of contents (including figures, tables, and appendices), and comprehensive background, methods, results, and discussion sections. Discussion should focus on applications of the new findings to the reduction or monitoring of collision risk on Ontario roadways. In addition, the final report shall include detailed plans for publication and for dissemination of results to other road safety professionals and organizations. A copy of a student thesis or dissertation is not a substitute for the final report. Final reports will be kept in the Road Safety Research Office for future reference.

Appendix A Priority Areas and Specific Problem Statements

Priority 1: Distracted Driving

Background: In 2016, driver inattention/distraction contributed to 100 collision-related fatalities, or just under 1 in every 5 people killed on Ontario roads. Increasing levels of in-vehicle technology are having a largely unknown effect on driver distraction and there is debate around whether mobile phone use can be considered an addiction. These uncertainties substantially impact the policy making process.

Problem Statements:

The Ministry is interested in 1) quantifying the distracting effects produced by new and emerging in-vehicle technologies, 2) quantifying the effects of addiction/compulsion on mobile phone use while driving, and 3) identifying and quantifying the effectiveness of potentially mitigating strategies beyond typical sanctions (license suspensions and fines) and broad public education.

Also of interest:

- Understanding the impact of age, gender, and other driver characteristics on the interaction between distracting technologies, addiction/compulsion, and driving performance

Priority 2: Driver Education, Training, and Evaluation

Background: The Ministry has regulated all driving schools offering the Beginner Driver Education program, since 2007. As of July 1, 2019, the Ministry has allowed digital learning for the Beginner Driver Education Program. The Ministry also introduced Entry Level Training for Class A drivers in 2016. Research on new training or testing approaches and the new and emerging technologies that can be used for these purposes will assist the Ministry achieve further road safety improvements.

Problem Statement:

The Ministry is interested in quantifying the effectiveness of enhanced driver training programs (or components) or driver testing approaches in reducing future collision risk.

Of particular interest:

- Exposing drivers (private or commercial) to a wider variety of scenarios in a standardized manner, such as adverse weather conditions, higher risk situations, etc.
- Training drivers (private or commercial) on a wider range of skills, such as how to protect vulnerable road users, piloting vehicles with different levels of automation, etc.
- Otherwise condensing the known benefits of extensive real-world driving experience into a training program of reasonable duration
- Interactions between drivers of passenger vehicles and large trucks
- Continuous driver monitoring systems and the efficacy of eliciting safer driving outcomes or behaviours by providing drivers with different types of feedback from these systems

Priority 3: Impaired Driving

Background: Alcohol- and drug-impaired driving continues to be problematic in Ontario and around the world despite sustained efforts at elimination. In 2016, drinking and driving collisions claimed 125 lives in Ontario, and 74 of the 579 total road fatalities involved drugs. It is unclear how emerging technologies will affect the impact of drug or alcohol use in the context of driving.

Problem Statement:

The Ministry is interested in 1) better quantifying the true social costs of drug- and alcohol-impaired driving in Ontario and how this will be affected by partial automation, and 2) effectively combatting impaired driving through novel approaches appropriate to an environment of increasing vehicle automation.

Of particular interest:

- Quantifying the longer-term health outcomes for victims of impaired driving in comparison to other collision-involved drivers and estimating the impacts of partial automation (e.g. collision avoidance technologies) on those outcomes
- Quantifying the impact of partial vehicle automation on the incidence of alcohol- or drug-impaired driving and road safety outcomes
- New technologies, analytical approaches, and techniques for identifying key driver characteristics (e.g., impulse control, demographics, driver history, etc.) that predict the likelihood of impaired driving, especially in the context of partial automation
- Determining the extent of a substitution effect between cannabis and alcohol use and the associated impact on road safety

Priority 4: Automated/Connected Vehicles & Advanced Driver Assistance Systems

Background: In January 2019, Ontario amended its Automated Vehicle (AV) Pilot to allow for the use of conditionally automated vehicles (specifically, Society of Automotive Engineer's Level 3 AVs) by Ontario consumers. Many commercially available passenger vehicles already include advanced driver assistance systems (ADAS) that partially or conditionally automate the driving task.

Problem Statement:

The Ministry is interested in understanding and quantifying the impact of new and emerging ADAS systems on road safety.

Of particular interest:

- The beneficial or detrimental effects of ADAS in specific driver populations: young/novice drivers, senior drivers or drivers with medical conditions that may impair driving abilities
- Cognitive load and effects of ADAS on driver attention
- Effects of ADAS in safety critical events and/or adverse driving conditions
- Prediction of negative human interactions/behaviours with autonomous vehicles that may impede safe AV operation

Priority 5: Vulnerable Road Users

Background: Over the last decade, there has been a gradual increase in pedestrian fatalities as a proportion of all motor vehicle collision fatalities. In 2007, pedestrians represented 14% of all road users killed whereas in 2016, they represented 23%, or approximately 1 in 5 persons killed on Ontario's roads.

Problem Statement:

The Ministry is interested in identifying and quantifying the effectiveness of technological, policy, or educational interventions to improve pedestrian road safety in situations that may promote unsafe pedestrian/driver interactions.

Of particular interest:

- Identifying and quantifying the impact of environmental and/or infrastructure elements that promote unsafe pedestrian behavior (e.g., midblock jaywalking) and identifying approaches to risk mitigation
 - While research on infrastructure meant to reduce pedestrian collisions has yielded numerous insights and solutions, relatively less work has been done to understand what common conditions (infrastructure or otherwise) may currently exist that *promote unsafe behavior*
- Identifying and quantifying safety risks to pedestrians in non-HTA reportable settings (e.g., parking lots, private property)
- Efficacy of new and emerging pedestrian-centered technologies to reduce pedestrian-vehicles collisions

Specific Restrictions for Projects on Vulnerable Road Users:

- **Mandatory Deliverables:** The following two deliverables must be incorporated into the proposal:
 - 1) A systematic literature review and expert consultation to identify:
 - (a) factors/situations most commonly linked to pedestrian collisions;
 - (b) novel policy and/or public education directions that could mitigate newly identified pedestrian hazards; and
 - (c) currently existing, in-development, or future (possibly speculative) pedestrian collision avoidance technologies.
 - 2) A meta-analysis of results obtained in deliverable 1 (if a pooled quantitative analysis is possible, given the findings).
- **Additional Deliverables:** Further deliverables are to be proposed by the applicant to address the full problem statement, especially with respect to producing a better understanding of the environmental/infrastructure elements that promote unsafe pedestrian behavior.
- **Timeline:** In order to be funded, the project must demonstrate that deliverables 1 and 2 can be submitted to the ministry by March 31st, 2020, at least in draft form. The timeline for additional deliverables can be up to 2 years.

Appendix B **Budget**

The detailed budget must include a full account of purchases and activities to be financed by the award. The budget breakdown and supporting information must be in sufficient detail to justify the items relative to the project description. Other sources of funding for the project should be indicated on the application, including in-kind contributions. The selection committee reserves the right to disallow expenditures in the budget that are not adequately justified. Partial support of a project may be recommended by the committee.

Expenditures will only be eligible for funding under the RSRPP (an “Eligible Expenditure”) if it meets all of the following general criteria: (1) directly related to and necessary for the successful completion of the research; (2) specifically identified in, and made in accordance with, the budget provided to MTO as part of its application for funding under RSRPP; and (3) documented through paid invoices or original receipts, or both. No changes to the budget will be allowed without the prior written approval of MTO.

Salaries and Benefits. The number of persons in each line item should be specified along with the amount of time each individual will spend on the project (e.g., in person-days). Salaries will be in accordance with those considered appropriate by the sponsoring institution. Salaries of graduate and undergraduate students, post-doctoral fellows, research associates, overhead, technical, clerical, and secretarial staff working on the proposed project under the direction of the principal investigator(s) are eligible for inclusion. The salary of the principal investigator(s) will not be funded by this program.

Equipment. Hardware includes all equipment essential to the project that is to be purchased, including operating and maintenance costs. Hardware and software should be listed separately and broken down into two categories: purchase and rental. If equipment or supplies are to be purchased, consideration should be given first to Canadian manufacturers and suppliers. Purchases from non-Canadian manufacturers and suppliers will be acceptable if adequate justification is provided in the proposal. Equipment purchased under this program will be retained by the sponsoring institution for further research or teaching. Desktop and portable microcomputers will not usually be eligible for funding unless sufficient argument is made in the proposal for this otherwise standard equipment.

Other Costs. These expenses include costs for computing, administration, travel, and accommodation, consulting costs, overhead, supplies and services, and contingency costs. The method for calculating the value for overhead costs must be stated in the budget and must be congruent with that of the sponsoring institution. Overhead costs may not exceed 15% of the total requested budget. Funds may be requested for travel that is essential for the collection of data, for fieldwork, or for the presentation of papers resulting from the project. Travel to centres performing similar work to obtain first-hand information essential to the project will be considered. Travel and accommodation costs should be in accordance with the sponsoring institution's internal guidelines. Supplies and services include expendable materials, telephone, postage, printing, photocopying, and the like. Requests for common office items are not eligible for inclusion.