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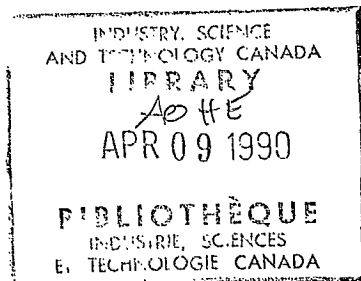


**ADVANCED TRAIN CONTROL SYSTEMS (ATCS) PROGRAM**

Canada

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15/11/89



**DESCRIPTION**  
**OF**  
**ADVANCED TRAIN CONTROL SYSTEMS (ATCS) PROGRAM**  
**(Second and Revised Edition)**

**Urban and Rail Systems Division**  
**Surface Transportation and Machinery Branch**  
**Industry, Science and Technology Canada**  
**Ottawa**  
**November 1989**

## **Advanced Train Control Systems (ATCS) Program**

### **What is the ATCS Program ?**

The ATCS Program was set up to help Canadian companies develop components and systems to meet the automatic train control systems requirements of the major railroads. It is being administered by the Urban and Rail Systems Division, Industry, Science and Technology Canada, Ottawa.

The Program has been designed to provide financial support to Canadian companies to develop and test new technology applicable to ATCS needs.

### **What Kind of Projects Will be Supported ?**

Projects for which companies seek support under the ATCS Program must be involved in the development of new components and systems, based essentially on the ATCS Operating Requirements as defined jointly by the Railway Association of Canada (RAC) and the Association of American Railroads (AAR).

The joint RAC/AAR Operating Requirements report of 1984 presents the ATCS systems architecture. The system architecture is modular in nature; it provides railroads with the flexibility to choose the ATC System configuration and level of sophistication best suited to their operational

needs, while maintaining inter-line compatibility. To achieve that flexibility the ATCS Operational Requirements have been sub-divided into six major sub-systems. Each sub-system consists of a number of semi-autonomous, discrete modules or building blocks, which, in turn, perform one or more related functions. The six ATCS sub-systems are:

1. Presence Detection, Train Identification and Location
2. Track and Route Integrity
3. Ancillary Systems Interface
4. Switch Control
5. Train Control
6. Management of Train Operations

Consistent with the modular approach, the RAC/AAR joint working committee distinguishes four levels of ATCS implementation reflecting a progression of functions being added:

- Level 10: Central Interlocking Logic;
- Level 20: Data Link and On-Board Display;
- Level 30: Full Train Tracking
- Level 40: Full Field Interlocking

A listing of the components required in ATCS is contained in an AAR/RAC report of September 1985 entitled Identification of Functional Components for ATCS.

Development of the majority of the detailed AAR/RAC approved ATCS specifications has been completed and adherence to them is strongly recommended.

**Who Can Apply for ATCS Program Funding ?**

Any person or group of persons in Canada who supports research, development and testing of ATCS components and/or systems may apply under this Program. This includes corporations, economic, business or technology institutes or centres, and universities.

**What Criteria Govern Project Selection for ATCS Program Assistance ?**

To be eligible, participants must be established and financially stable Canadian entities that agree to produce compatible components or systems meeting the ATCS Operating Requirements. There must also be a commitment on the part of a railway to test the hardware and/or software to their satisfaction.

The ATCS project assessment process will examine the benefits to Canada in terms of jobs created, capital investment, sales and export opportunities. Contribution to improving safety of railway operations, will also be an important criterion.

The components and systems proposed must be based on the operating requirements that have been defined by the RAC/AAR joint committee.

Applicants must describe and specify their abilities to carry out the proposed research, component development and testing of the products or systems, and the anticipated benefits to Canada.

Finally, project proposals must satisfy general departmental program criteria such as technical/scientific feasibility, commercial viability, incrementality (necessity for government assistance; no prior, legal commitments towards the costs of the project) and environmental compatibility.

**What Kind of Financial Assistance is Available ?**

The maximum contribution available shall be 33 percent of total eligible costs of project.

**What are Eligible Costs ?**

Eligible costs are the reasonable and direct costs which, in the opinion of the Minister, are necessary to carry out a project or activity under this program, and include both operating and capital costs.

Capital costs are the reasonable and direct costs incurred in the design, acquisition/construction, expansion, modification, conversion, transportation or installation of assets and paid for by the applicant, and include the cost of equipment, material and sub-contracts directly related to development.

**Capital costs do not include:**

- a) cost of land;
- b) costs related to assets that would normally be considered a charge against income in the year in which they were acquired;
- c) cost of any motor vehicle unless the vehicle is used for transportation on or between sites of a project receiving assistance under the program;
- d) goodwill;
- e) cost of any asset to the extent that it exceeds the fair market value of the asset.

**What is the Duration of the Program ?**

- a) The final date for approval of projects under this program shall be no later than December 31, 1991.
- b) No project completion date under this program shall extend beyond March 31, 1992.
- c) No claim submitted by an applicant for eligible cost incurred and paid under a project shall be paid if it is received after April 30, 1992.

**For Further Information Contact:**

Urban and Rail Systems Division  
Surface Transportation and Machinery Branch  
Department of Regional Industrial Expansion  
Ottawa, Ontario K1A 0H5  
Telephone: (613) 954-3443 Telex: 053-4123  
Fax (613) 954-1894