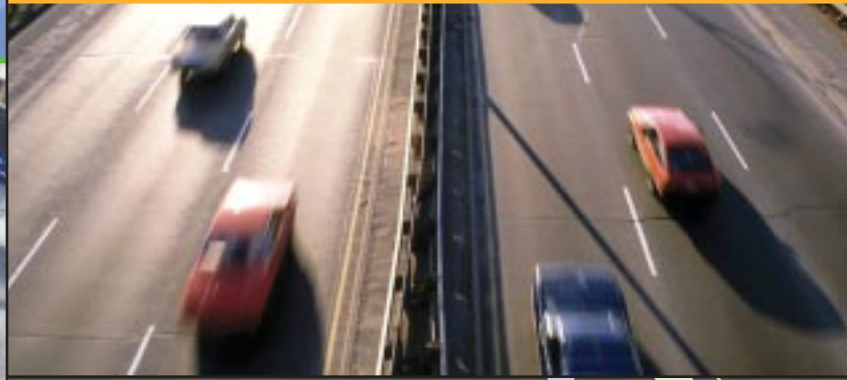




Infrastructure
Canada



Enhancing Knowledge about Public Infrastructure

Perspectives in the Federal Family

1-Page Summaries

May 2004

RESEARCH AND ANALYSIS
INFRASTRUCTURE **CANADA**



Canada 

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Atlantic Canada Opportunities Agency

What is “public infrastructure” for your organization?

- Infrastructure that promotes economic development—infrastructure that links the region to major markets in Canada and globally
- Transportation (air, highway, and marine)
- High-speed Internet services including e-learning and e-health

What types of “public infrastructure” are of interest to Atlantic Canada?

- Traditional infrastructure investments through national programming have included:
 - Water and wastewater
 - Solid waste management
 - Transportation
 - Energy
 - Culture and tourism
 - Innovation and telecommunications (high speed and e-health)

What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Support infrastructure investments necessary for facilitating economic growth, specifically infrastructure that will enhance the growth of earned incomes and employment opportunities in the region
- Determine which infrastructure investments are necessary and optimal for facilitating economic growth

Canada Economic Development for Quebec Regions

What is “public infrastructure” for your organization?

- Infrastructure that promotes economic development

What types of “public infrastructure” are of principal interest to your organization?

- Infrastructure with an economic, urban or regional impact in Quebec
 - Municipal facilities and buildings
 - Regional economic assets
 - Knowledge-based competitive advantages infrastructure
- Green infrastructure
 - Water and waste management-related infrastructures
 - Experimental environmental technologies infrastructures
- Local transportation infrastructure
 - Transportation infrastructures
 - Transportation infrastructures management systems



What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Improve the environment for economic development
 - Enhancement of regional development assets
 - Development of knowledge-based competitive advantages
- Facilitate the development and renewal of rural and urban infrastructures

Canada Mortgage and Housing Corporation

What is public infrastructure for your organization?

- Do not have a formal definition
- All the elements that make up our cities and municipalities including physical, social, and economic infrastructure
- Physical includes water supply and waste-water collection, transportation networks, and energy systems, etc.
- Social includes community centres, parks, schools, hospitals, museums, etc.
- Economic includes employment and other infrastructure that creates places for economic activity

What types of “public infrastructure” are of principal interest to your organization?

- Housing is CMHC’s largest infrastructure interest
- Green infrastructure
 - Sustainable housing, Healthy Housing™
 - Infrastructure to reduce residential energy use and GHG emissions
 - Sustainable community planning and development
- Housing for remote areas
- Housing for households with distinct needs (low-income, seniors, persons with disabilities, Aboriginals)

What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Improve housing choice and affordability
- Improve housing and living conditions (e.g., residential rehabilitation)
- Support housing market competitiveness, job creation and sector well-being
- Application of innovation in housing and community design and technology
- Provide a holistic, coordinated view of housing and infrastructure

Canadian Heritage (Cultural Spaces Canada)

What is “public infrastructure” for your organization?

- Cultural infrastructure, which consists of gathering places for artists and the community
 - Examples include theatres, museums, cultural centres, art galleries, and other places where artists and the community can gather, where Canadian voices can be heard and their stories told

What types of “public infrastructure” are of principal interest to your organization?

- Cultural meeting spaces
 - These are spaces that provide for cultural participation and expression and that connect Canadians through active citizenship and participation in cultural activities



What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Increase cultural participation and engagement by providing facilities for cultural expression
- Connect Canadians and build a more cohesive Canada
- Promote active citizenship and participation
- Provide support for sharing of cultures and creativity from different communities
- Improve access to performing arts, visual arts, media arts and to museum collections and heritage displays
- Contribute to improved physical conditions for artistic creativity and innovation

Environment Canada

What is “public infrastructure” for your organization?

- Traditional, tangible, hard infrastructure
- Wastewater treatment and collection systems, stormwater treatment and collection systems, combined sewer overflow control and treatment systems, water treatment and distribution systems, solid waste management and disposal systems, biosolids management systems, transportation systems, green spaces, local combined heat and power electricity production, district energy systems for heating and cooling, and renewable energy systems
- Other areas or “grey areas” of infrastructure that could involve shared responsibility include weather stations and other meteorological and hydrometric facilities; regional water and pasture pipelines; dugouts, dikes and reservoirs; surface storage units; efficient irrigation systems; pump-out facilities for ships into wastewater treatment systems; meters; advanced stormwater management systems; inclusion of “green, soft” measures in drainage systems; green measures such as roof top gardens, rainwater gardens, infiltration basins, ponds, and wetlands; and any physical installation to retain or contain contaminants migration

What types of “public infrastructure” are of principal interest to your organization?

- Environmentally sustainable infrastructure
 - Infrastructure that helps address climate change by reducing greenhouse gas emissions (e.g., sustainable, renewable energy) and infrastructure that reduces emissions of air pollution (NO_x, SO₂, PM and CFCs)

- Green municipal infrastructure (water, wastewater, transit, solid waste, district energy, renewable energy)
- Source to source water management
- Environmentally sustainable transportation systems
- Waste management systems

What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Manage the demand and use of scarce resources, including water and electricity; enhance energy security, reliability and efficiency; reduce energy intensity
- Manage use and disposal of toxic and other harmful substances
- Include sustainable development criteria in infrastructure projects, incorporate systemic pollution prevention approaches, and ensure investments maximize multiple (long-term) objectives and provide for sustainable infrastructure
- Reduce congestion and improve efficiency of transportation systems
- Develop, obtain and manage innovative, new environmental technologies
- Protect biodiversity, priority ecosystems and air quality
- Promote environmentally sustainable communities including sustainable community planning
- Implement full-cost pricing, lifecycle asset management, and integrated watershed management plans

Health Canada

What is “public infrastructure” for your organization?

Core (health) infrastructure

- Basic framework for a community or state and consists of fixed capital assets used by the public for a common and central need and designed to promote health

Core support infrastructure

- Environmental conditions necessary for sustaining health and encompasses the health and environment management systems needed to protect health

Technological infrastructure

- Health infostructure (e-Health), which is the use of information and communications technologies within the health system across a whole range of functions—diagnostic, treatment, follow-up, public awareness, medical education, administration, etc.

What types of “public infrastructure” are of principal interest to your organization?

- Core (health) infrastructure such as health facilities, medical equipment, emergency operations centres, national emergency transportation systems, public health laboratories and National Emergency Stockpile System depots
- Support Infrastructure (e.g., emergency communications support infrastructure, power generators, human resources, uncontaminated lands)



- Technological infrastructure such as telehealth applications (teleconsultation, telelearning) and health information systems (e.g., First Nations and Inuit Health Information System, laboratory information systems, national electronic health records)

What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Coordinated deployment of a health infostructure
- Maintenance and improvement access to health services for the First Nations and Inuit community
- Safer and more secure work conditions and accommodations
- Health and environment management systems to protect health, and the appropriate workforce to operate the systems

Indian and Northern Affairs Canada

What is “public infrastructure” for your organization?

- “Economic” infrastructure for non-residential, commercial purposes that supports economic opportunities and generates economic benefits
- Infrastructure that enables communities to adapt to climate change impacts

What types of “public infrastructure” are of principal interest to your organization?

- Infrastructure necessary to First Nations, Inuit and Northern communities such as:
 - Water and wastewater
 - Schools and teacherages
 - Roads, bridges and transportation
 - Electrification systems
 - Community buildings
 - Fire protection
 - Housing

What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Assist First Nations, Inuit and northerners in building healthy and sustainable communities through financial and technical assistance for the construction, operation and maintenance of basic community infrastructure
- Increase the capacity of First Nations, Inuit and northerners for infrastructure operation and management
- Provide infrastructure that moves First Nations and Inuit communities in the direction of self-reliance
- Foster sustainable communities
- Link First Nation, Inuit and Northern communities to the Canadian economy

Industry Canada

What is “public infrastructure” for your organization?

- Public infrastructure consists of core physical assets and technological infrastructure

What types of “public infrastructure” are of principal interest to your organization?

- Core infrastructure and technological infrastructure
 - “Core infrastructure” consists of large physical assets, including both public and private economic and social overhead capital. This includes machinery and equipment, engineering construction, buildings, facilities and the services sector (important for planning, building, etc.)
 - “Technological infrastructure” includes both tangible and intangible infrastructure such as telecommunications, research programs in enabling technologies, R&D networks, broadband access, etc.
- Infrastructure that moves toward the economy of the future, e.g., a hydrogen fuel economy
- Infrastructure that supports technological change and new processes, and that drives productivity and innovation



What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Improve Canada's innovation performance
 - Move Canada's industrial structure up the value chain
 - Create the right environment for innovation and investment
 - Strengthen the capacity to innovate in all regions
 - Improve ability to commercialize results of innovation activities
- Make Canada the most connected country in the world
 - Foster an environment in which Canadians can take advantage of the information age
 - Make high-quality reliable and affordable telecommunications services suggest accessible to all regions
 - Ensure high-speed broadband access to Canadian communities, public institutions, and businesses
 - Foster widespread use of information networks for various applications

Infrastructure Canada

What is “public infrastructure” for your organization?

- Infrastructure Canada understands “public infrastructure” for policy and program purposes as “core physical assets instrumental to supporting the delivery of public services”
- For research purposes, “public infrastructure” is also understood as “the basic or underlying structure on which an organization or system is built and which makes it able to work”

What types of “public infrastructure” are of principal interest to your organization?

- Policy and program
 - Green municipal infrastructure
 - Rural infrastructure
 - Highways and railways, urban transit
 - Water and wastewater treatment systems
 - Tourism, cultural, recreational and urban development facilities
 - Border crossings
 - Broadband telecommunications
 - Affordable housing
- Research
 - Transformative infrastructure (a system of deep structural adjustments that have both a scope and depth of effect sufficient to alter virtually every aspect of economic, environmental and social performance and structure)
 - Knowledge-based infrastructure (information and research networks, business and university links)

What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Working with partners such as provincial, territorial and municipal governments, businesses and other organizations, to meet the evolving infrastructure needs of Canadian communities
- Ensuring that the federal response to infrastructure needs in Canada addresses the three categories of catch-up, maintenance and transformative infrastructure
- Managing the federal investments in Canadian infrastructure under four departmental programs:
 - Infrastructure Canada Program (ICP)
 - Canada Strategic Infrastructure Fund (CSIF)
 - Border Infrastructure Fund (BIF)
 - Municipal Rural Infrastructure Fund (MRIF)
- Working collaboratively with key public and private sectors partners to develop, influence and invest in Canada’s public infrastructure to advance the Government of Canada’s economic, health and environmental agendas
- Enhancing research and knowledge on public infrastructure to support policy- and decision-making

National Defence

What is “public infrastructure” for your organization?

- The framework of capability support systems including both military and civilian infrastructure(s) that help fulfill the responsibilities of the Canadian Forces and the Department of National Defence (DND)
- DND civilian infrastructure support systems typically include realty assets, human resources, community services and support to Canadian Forces (CF) operations
- DND has a somewhat different perspective than other departments—its infrastructure role does not usually translate to a wider public; instead, “core” infrastructure is infrastructure that supports the operational capacity of the CF
- DND operates many kinds of infrastructure such as water and wastewater infrastructure, waste disposal, transportation infrastructure, energy systems, communication systems, training facilities, airfields, naval jetties, bulk fuel storage sites and ammunition depots

What types of “public infrastructure” are of principal interest to your organization?

- (Fixed) realty asset systems based on functional support capabilities
- Long-term realty assets managed by the department including land (property), buildings, municipal works (water, sewers, roads, health plants, etc.), and operational works (airfields, fuel depots, training areas, etc.)



What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Reduce inventory (goal is to reduce excess inventory by 10 percent by April 2005) and adjust investment and related resources to sustainable levels for the realty that the department retains
- Address construction backlog, maintenance and repair backlog, and age-related backlog of assets
- Look into reinvestment innovations such as early transfers and multi-use and sharing
- Managing our sustainable assets, rehabilitation measures, research initiatives and optimization activities to better address emerging threats to existing resources and to minimize future liabilities
- Ensure “*functionality, affordability and sustainability*” in realty asset management strategies

Natural Resources Canada

What is public infrastructure for your organization?

- Knowledge (intangible) infrastructure and physical (tangible) infrastructure
 - Knowledge infrastructure includes data, protocols, maps, science and technology, impact assessments, monitoring and reporting systems, etc., necessary to make balanced decisions regarding the natural resources sector
 - Physical infrastructure includes engineering construction (transportation systems, buildings, etc.), machinery and equipment, and the physical environment (land, water, forests, etc)

What types of “public infrastructure” are of principal interest to your organization?

- Knowledge and physical infrastructure to support:
 - research in forests, energy, minerals and metals and the earth sciences (geomatics and geosciences)
 - science and technology activities, mitigation efforts, impact analyses and sound infrastructure decisions

What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Conduct scientific research to support:
 - balanced decision-making regarding the natural resources sector
 - input to regulations, standards, guidelines and programs to reduce infrastructure impact and failure
 - sound decision-making to ensure that infrastructure decisions maximize benefits and minimize negative impacts on the physical environment and the safety and security of Canadians
 - impact analyses (examine costs and benefits from a sustainable development and climate change perspective)

Public Safety and Emergency Preparedness Canada¹

What is “public infrastructure” for your organization?

- National critical infrastructure (NCI)—the physical and information technology facilities, networks, services and assets, which if disrupted or destroyed, would have a serious impact on the health, safety, security or economic well-being of Canadians and the effective functioning of governments in Canada

What types of “public infrastructure” are of principal interest to your organization?

- Canada currently proposes that NCI comprises the following 10 sectors:
 - Energy and utilities (electrical power, natural gas, oil production and transmission systems)
 - Communications and information technology (telecommunications, broadcasting, hardware, software and networks (Internet))
 - Finance (banking, securities, investment)
 - Health care (hospitals, health-care facilities, blood-supply facilities, laboratories, pharmaceuticals)
 - Food (food safety, agriculture and food industry, food distribution)
 - Water (drinking water and wastewater management)
 - Transportation (air, rail, marine, surface)
 - Safety (chemical, biological, radiological, and nuclear safety, hazardous materials, search and rescue, emergency services, and dams)



- Government (government facilities, services such as meteorological services, information networks, assets, key national symbols)
- Manufacturing (chemical industry, defence industrial base)

What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Provide leadership and work with domestic (private sector and government) and international partners to assure the continued viability and resilience of Canada’s NCI
- Provide a framework for cooperation, information exchange, accountability and action
- Raise awareness among partners (private sector and government) and infrastructure owners and operators
- Identify critical assets, conduct threat/vulnerability assessments and interdependency analyses, establish research and development programs, manage response and recovery, and enable partners to do better risk and incident management

¹ Formerly Office of Critical Infrastructure Protection and Emergency Preparedness (OCIPEP)

Public Works and Government Services Canada

What is “public infrastructure” for your organization?

- Real property assets (facilities and installations required to fulfill departmental and public requirements) that Government of Canada departments and agencies use in carrying out their mandates to serve Canadians
- Includes:
 - Highways (used to include the TransCanada Highway and others but over past 10 years the department has passed several to the territorial and provincial governments; therefore, the department has few highways left except some in northern British Columbia)
 - Small craft ports (approximately 20 across the nation)
 - Dry dock (Esquimalt)
 - Bridges (34 in total)
 - Dams (10)
 - Buildings (owned asset base includes approx. 400 buildings including various levels of office accommodation, laboratories, storage facilities and sheds)

What types of “public infrastructure” are of principal interest to your organization?

- Buildings

What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Sustainability (including climate change concerns)
- Security and safety
- Changing workplace habits and location (e.g., increasing demands for telecommuting)
- Urban renewal and ‘good neighbour policy’ (rejuvenate downtown cores and multi-use facilities)
- Aging inventory (high operations and maintenance costs)
- Budgetary constraints

Transport Canada

What is “public infrastructure” for your organization?

- Transportation infrastructure that the department owns, regulates, finances, operates, or that makes a compelling public or national interest case
- Surface transportation, air transportation, maritime transportation
- The department has responsibility (or shares with respect to trucking) for safety of all modes

What types of “public infrastructure” are of principal interest to your organization?

- Traditional, tangible, hard infrastructure
- Transportation infrastructure refers to long-life, capital-intensive civilian works that support the transportation system and that serve the public interest
- Includes:

Surface transportation

- Highways, roads, bridges, tunnels, border crossings, urban transportation facilities such as terminals and stations
- Rail passenger and freight tracks and facilities (yards, stations)
- Intelligent Transportation Systems (ITS)

Air transportation

- Airports, NAV CANADA

Maritime transportation

- Ports
- St. Lawrence Seaway
- Ferry services



What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Integrated transportation system (intermodal, ITS, planning studies)
- Efficient trade and passenger corridors (National Highway System, federal roads and bridges, borders, mainline railways, shortline freight, road-rail grade crossings, etc.)
- Urban transportation needs (public transit, urban by-pass, road-rail grade separation, etc.)

Western Economic Diversification Canada

What is “public infrastructure” for your organization?

- WD is concerned with tangible and intangible infrastructure including highways, high-tech infrastructure, amenities such as cultural infrastructure, knowledge-based infrastructure such as educational research facilities and health infrastructure
- WD does not have a set definition of public infrastructure but defers to the definition provided by the Canada West Foundation (which includes basic inter-urban, basic urban, high-tech infrastructure, amenities, knowledge-based infrastructure and health infrastructure) and the City of Edmonton’s broad definition (the physical assets developed and used by a municipality to support the community’s social and economic needs)

What types of “public infrastructure” are of principal interest to your organization?

- Interests are regionally driven
- Principally interested in infrastructure related to:
 - Water, water supply, wastewater
 - Solid waste
 - Climate change and energy efficiency
 - Knowledge-based infrastructure
 - High-tech infrastructure
 - Cultural/recreational infrastructure

What are the strategic objectives of your organization vis-à-vis “public infrastructure”?

- Promote sustainable communities (by supporting infrastructure that increases economic activity and improves the competitiveness and quality of life in western Canadian communities)
- Foster innovation by investing in western Canadian knowledge infrastructure and capacity