

InfraGuide

InfraGuide as a Tool for Sustainable Infrastructure

Presenter:

Jack Caines P.Eng.

CBCL Limited, St. John's, NL

Date:

September 22, 2004

Clean and Safe Drinking Water Workshop

Gander, NL

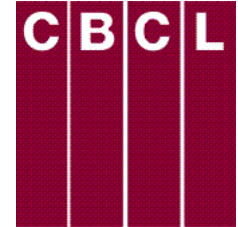


National Guide
to Sustainable Municipal Infrastructure **Rev 1**



InfraGuide

CBCL Limited's Involvement



CBCL LIMITED

Consulting Engineers

Responded to a Call for Proposals

Selected to promote InfraGuide in all four provinces of Atlantic Canada

CBCL personnel and/or InfraGuide members to be involved

Promotion and awareness achieved through

- Information booths
- Presentations
- Newsletters, publications
- Upcoming: Direct Consultation with Select Municipalities and Organizations with an intention to adopt best practices

Rev 1

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This Presentation's Objectives

Not technical

Promotional

Informative

1. Raise national awareness of the infrastructure investment issues and to keep municipal infrastructure on the national agenda
2. Provide information about the Guide
3. Promote the use of the best practices documents
4. Promote the collaborate network which has been assembled to respond to municipal infrastructure needs.





Intended Audience

Those whose work intersect with municipalities efforts to improve infrastructure

Public Sector

Elected Municipal Officials

Municipal Managers & Administrators

Municipal Operators

Managers of any Types of Infrastructure

Federal, Provincial Government Departments

Educators, Researchers, Students

Private Sector

Consultants

Developers





Canada's Infrastructure

Infrastructure:

- Importance to quality of life
- Importance to sustainability – competitiveness/economy

Canadian infrastructure: a \$1.6 trillion asset

Municipalities' role in creating that wealth and advancing the quality of life





State of Infrastructure

- 85% of Canada's Roads are in need of repair
- The average sewer in Canada dates back to 1959
- Municipalities spend \$12-15 billion (yr) on infrastructure
- 80% of this investment: system repair, renewal, operation
- Lack of long-term planning = cycle of build and replace
- Municipal infrastructure deficit growing
- Current investment is unsustainable over long term





Primary Partners

Federation of Canadian Municipalities (FCM):

... is dedicated to improving the quality of life in communities from coast to coast to coast by promoting strong, effective, and accountable municipal government.

National Research Council (NRC-CNRC):

... From Discovery to Innovation

Infrastructure Canada:

... \$2.05-billion Infrastructure Canada Program (ICP) to enhance municipal infrastructure in urban and rural communities across the country.





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Partners /Network of Excellence

Currently over 200 active volunteers

municipalities

trade organizations

consulting engineers

contractors

suppliers

politicians

academics

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InfraGuide

The Project

FCM/NRC proposal under Infrastructure Canada program in June 2000 to develop InfraGuide

Total project cost -- > \$ 20 Million

Infrastructure funding approval in December 2000

Phase 1 -- \$6.5 million (Oct 2000 – Oct 2003)

Phase 2 -- \$6.0 million (Oct 2003 – Mar 2005)

Remainder through in-kind and NRC





InfraGuide

InfraGuide Mission Statement

The National Guide to Sustainable Municipal Infrastructure identifies and disseminates best practices and encourages innovation to support sustainable municipal infrastructure decisions and actions that protect and enhance quality of life of Canadians.

*Project Steering Committee
October 2002*

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InfraGuide

What is InfraGuide?

InfraGuide is both:

- a new, national network of people and
- a growing collection of published reports that set out best practices and guidelines

InfraGuide:

- = new way of planning
- = innovation
- = sharing of knowledge
- = consolidation of knowledge
- = national cooperation and participation
- = avoids 'reinventing the wheel'





InfraGuide

What is InfraGuide?

Best Practices Definition:

- Proven state-of-the-art Methodologies for municipal infrastructure planning, design, construction, management, assessment, maintenance, and rehabilitation
- Consideration of local economic, environmental and social dimensions

Sustainable Municipal Infrastructure Definition:

- Meets the needs of the present without compromising the ability of future generations to meet their own needs;
- Maintains or enhance economic opportunity and community health;
- Balances and integrates environmental, economic and social dimensions of sustainability.





Sustainable Municipal Infrastructure Guidelines (Components of Municipal Decision Making)

1. Human health and safety a priority
2. Capture full intended and unintended costs
3. Engagement through consultation and participation
4. Incorporates “reduce, reuse and recycle” philosophies
5. Full cost disclosure





Sustainable Municipal Infrastructure Guidelines (Components of Municipal Decision Making)

6. Life cycle costs across social, environmental and economic dimension.
7. Minimize community disruption
8. Balances demand with consequences
9. Identify impacts and manage risks
10. Continuous improvement and learning





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InfraGuide is both:

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- a new, national network of people





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Best Practices Publications

First publication in September 2002;

Approximately **31** publications currently available;

Approximately 50 will be available by 2005.

100's of Additional Topics have Suggested.

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Infrastructure Areas

- Potable Water
- Storm and Wastewater
- Roads and Sidewalks
- Environmental Protocols
- Decision Making and Investment Planning
- Multi-Discipline





Best Practices Publications

INFRAGUIDE BEST PRACTICE DOCUMENTS

Currently over 30 best practices are published and available in print or on-line. Other topics are currently at various stages of development.

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	Published and Available (May 2004)	Under Development*
 Decision Making and Investment Planning	<ol style="list-style-type: none"> • Planning and Defining Municipal Infrastructure Needs • Developing Indicators and Benchmarks • Developing Levels of Service • Alternative Funding Mechanisms • Coordinating Infrastructure Works • Investment Parameters for Municipal Infrastructure • Managing Infrastructure Assets 	<ol style="list-style-type: none"> • Dedicated Funding (Summer 2004) • Managing Risk (Winter 2004) • Public Consultation (Spring 2005)
 Potable Water	<ol style="list-style-type: none"> • Deterioration and Inspection of Water Distribution Systems • Water Use and Loss in Water Distribution Systems • Selection of Technologies for the Rehabilitation or Replacement of Sections of a Water Distribution System • Water Quality in Distribution Systems • Establishing a Metering Plan to Account for Water Use and Loss • Developing a Water Distribution System Renewal Plan 	<ol style="list-style-type: none"> • Speed and Quality of Linear System Repairs (Summer 2004) • Monitoring Water Quality in Distribution Systems (Winter 2004) • Small System Operation and Maintenance Practices (Spring 2005) • Methodologies for Setting a Cross-Connection Control Program (Spring 2005)
 Storm and Wastewater	<ol style="list-style-type: none"> • Selection of Technologies for Sewer Rehabilitation and Replacement • Inflow/Infiltration Control/Reduction for Wastewater Collection Systems • Source and On-Site Controls for Municipal Drainage Systems • Wastewater Source Control • Wastewater Treatment Plant Optimization • Biosolids Management Programs • Solids Inventory Control for Wastewater Treatment Plant Optimization 	<ol style="list-style-type: none"> • Assessment and Evaluation of Storm and Wastewater Collection Systems (Summer 2004) • Optimization of Lagoon Operations (Summer 2004) • Communication and Public Consultation for Biosolids Management (Winter 2004) • Biosolids Quality Management Programs (Winter 2004) • Stormwater Management Planning (Winter 2004) • Conveyance and End-of-Pipe Measures for Stormwater Control (Spring 2005)
 Roads and Sidewalks	<ol style="list-style-type: none"> • Timely Preventative Maintenance for Municipal Roads – A Primer • Construction of Utility Boxes in Pavements • Restoration and Repair of Utility Boxes in Pavements • Guidelines for Sealing and Filling Cracks in Asphalt Concrete Pavement • Rut Mitigation Techniques at Intersections • Priority Planning and Budgeting Process for Pavement Maintenance and Rehabilitation • Road Drainage, Design, Alternatives and Maintenance 	<ol style="list-style-type: none"> • Sidewalk Design, Construction and Maintenance (Summer 2004) • Preservation of Bituminous Pavement Using Thin Surface Restoration Techniques (Winter 2004) • Dust Control for Unpaved Roads (Spring 2005)
 Environmental Protocols	<ol style="list-style-type: none"> • Strategic Commitment to the Environment by Municipal Corporations • Accounting for Environmental and Social Outcomes in Decision Making 	<ol style="list-style-type: none"> • Demand Management (Summer 2004) • Environmental Assessment (Winter 2004) • Environmental Management Systems (Winter 2004) • Land Use Planning (Spring 2005)
Multi-discipline	<ol style="list-style-type: none"> • Best Practices for Utility-Based Data • An Integrated Approach to Assessment and Evaluation of Municipal Road, Sewer and Water Networks 	

* Dates in brackets are anticipated dates of publication.

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Best Practices Publications



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Best Practices Publications

Potable Water

Published Best Practices

- Water Quality in Distribution Systems
- Deterioration and Inspection of Water Distribution systems
- Water Use and Loss in Water Distribution Systems
- Selection of Technologies for the Rehabilitation or Replacement of a Water Distribution System
- Establishing a Metering Plan to Account for Water Use and Loss
- Developing a Water Distribution System Renewal Plan

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Best Practices Publications

Potable Water

Best Practice Reports Under Development

- Speed and Quality of Linear Systems Repairs
- Monitoring Water Quality in Distribution Systems
- Small Systems Operation and Maintenance Practices
- Methodologies for Setting a Cross-Connection Control Program





Best Practices Publications

Storm and Wastewater

Published Best Practices

- Selection of Technologies for Sewer Rehabilitation and Replacement
- Inflow/Infiltration Control/Reduction for Wastewater Collection Systems
- Source and On-Site Controls for Municipal Drainage Systems
- Wastewater Source Control





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Best Practices Publications

Storm and Wastewater

Published Best Practices

- **Biosolids Management Program**
- **Wastewater Treatment Plant Optimization**
- **Solids Inventory Control for Wastewater Treatment Plant Optimization**

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Best Practices Publications

Storm and Wastewater

Draft Best Practices Reports Under Development

- **Assessment and Evaluation of Storm Water and Wastewater Collection Systems**
- **Optimization of Lagoon Operations**
- **Communication and Public Consultation for BioSolids Management**
- **BioSolids Quality Management Programs**
- **Stormwater Management Planning**
- **Conveyance and End-of Pipe Measures for Stormwater Control**

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Best Practices Publications

Municipal Roads and Sidewalks

Published Best Practices

- Guidelines for Sealing and Filling Cracks in Asphalt Concrete Pavement
- Rut Mitigation Techniques at Intersections
- Timely Preventive Maintenance for Municipal Roads
- The Construction of Utility Boxes in Pavement
- The Restoration and Repair of Utility Boxes in Pavement





Best Practices Publications

Municipal Roads and Sidewalks

Published Best Practices

- **Priority Planning and Budgeting Process for Pavement Maintenance and Rehabilitation**
- **Road Drainage, Design Alternatives and Maintenance**





Best Practices Publications

Municipal Roads and Sidewalks

Draft Best Practices Report Under Development

- Sidewalk Design, Construction and Maintenance
- Preservation of Bituminous Pavement Using Thin Surface Restoration Techniques
- Dust Control for Unpaved Roads





Best Practices Publications

Environmental Protocols

Published Best Practices

- Strategic Commitment to the Environment by Municipal Corporations
- Accounting for Environmental and Social Outcomes in Decision Making





Best Practices Publications

Environmental Protocols

Best Practice Reports Under Development

- Environmental Impact Assessment
- Demand Management
- Environmental Management Systems
- Land Use Planning





Best Practices Publications

Decision Making and Investment Planning

Published Best Practices

- Coordinating Infrastructure Works
- Alternative Funding Mechanisms
- Development Indicators and Benchmarks
- Developing Levels of Service
- Planning and Defining Municipal Infrastructure Needs
- Investment Parameters for Municipal Infrastructure
- Managing Infrastructure Assets

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Best Practices Publications

Decision Making and Investment Planning

Best Practice Reports Under Development

- Dedicated Funding
- Managing Risk
- Public Consultation

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What is InfraGuide?

InfraGuide is both:

- a growing collection of published reports that set out best practices and guidelines
- a new, national network of people





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Network of Excellence

Broad infrastructure community

- Municipal staff
- Elected officials
- Federal, Provincial and Territorial officials
- Academics
- Consulting and contracting industry
- National associations

Establishing relationship networks
through regional networks and
governance structures





InfraGuide

**Atlantic Canada InfraGuide
members total approximately
25, on:**

Project Steering Committees

Technical Steering Committees

Technical Committees

Working Groups

Peer Review Groups





Early Adopters



City of Regina Resolution

November 4, 2002

Be it resolved that the CITY OF REGINA adopt the National Guide to Sustainable Municipal Infrastructure for the planning, design, construction, operation and preservation of its civil infrastructure; and

Be it further resolved that the CITY OF REGINA requests that the Saskatchewan Urban Municipalities Association and the Federation of Canadian Municipalities to share this resolution with their members and the Federal and Provincial Governments to encourage ongoing commitment and support for the Guide.





Early Adopters



Legend

1. City of Regina, Saskatchewan
2. City of Whitehorse, Yukon Territory
3. City of Ottawa, Ontario
4. Town of Morinville, Alberta
5. City of Gatineau, Quebec
6. City of Moncton, New Brunswick
7. City of Kingston, Ontario
8. City of Burlington, Ontario
9. Municipality of Martinville, Quebec
10. Cape Breton Regional Municipality Nova Scotia
11. Town of Milk River, Alberta
12. City of Saskatoon, Saskatchewan
13. Corporation of the City of Thorold, Ontario
14. Town of Gander, Newfoundland
15. City of Cambridge, Ontario
16. City of Kamloops, British Columbia
17. Municipality of the District of Lunenburg, Nova Scotia
18. Village of Sayward, British Columbia
19. Town of Smithers, British Columbia
20. Town of Oakville, Ontario
21. City of Vancouver, British Columbia





Atlantic Canada Adopters

- City of Moncton, NB
- Cape Breton Regional Municipality, NS
- Town of Gander, NF
- Municipality of the District of Lunenburg, NS
- Town of Wolfville, NS
- Halifax Regional Municipality, NS
- Summerside, PEI





Organizations that Endorse InfraGuide

Organizations:

Halifax Regional Water Commission
<http://www.hnwc.ns.ca/>



CPWA: Canadian Public Works Assoc.
<http://www.cpwa.net>



CWWA: Canadian Water and Wastewater Assoc.
<http://www.cwwa.ca>



Canadian Home Builders' Association
<http://www.chba.ca>



Federation of Canadian Municipalities
<http://www.fcm.ca>



CSCE: Canadian Society of Civil Engineering
<http://www.csce.ca>



Ontario Water Works Association
<http://www.owwa.com/hm>



- Halifax Regional Water Commission
- Canadian Public Works Assoc
- Canadian Water and Wastewater Assoc
- Canadian Home Builders Assoc
- Federation of Canadian Municipalities
- Canadian Society of Civil Engineering
- Ontario Waterworks Assoc.

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Summary

About The Guides...

- Each report draws on the **best Canadian experience and knowledge** and summarizes it for decision makers and technical personnel
- Best Practices help make it easier to select the most effective and economical methods, **promote the use of state-of-the-art techniques** and ensure the sustainable development of municipal assets
- Communities have shown a definite interest and support in the work achieved thus far and understand the advantages of **assimilating these methods** and adapting them to their own needs.





Summary

About The Results...

- Improved consistency in infrastructure repairs and new construction
- Better integration of needs and expertise, which allows municipalities to adapt new methods to local conditions
- Greater transfer of technology and knowledge among municipalities and with the private sector
- Steady improvement to technologies and processes that preserve and enhance infrastructure
- Better value for money spent on infrastructure
- Public confidence





InfraGuide

Testimonial



“Overall, staff concludes that development of the Guide is a very important and worthwhile initiative that will ultimately support and encourage Canadian municipalities to use innovative approaches to deliver sustainable community infrastructure.”

City of Burlington, Ontario

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InfraGuide

Be Part of the Network

Stay in touch with the InfraGuide Progress

Comment on Draft Best Practice Documents

Encourage support for InfraGuide

www.infraguide.gc.ca





InfraGuide

Be Part of the Network

Participate in Working Groups

Offer to be a Peer Reviewer for topics

Become an “Early Adopter”





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Contact Information



Regional Contacts

Newfoundland and Labrador - Jack Caines, P. Eng.

New Brunswick - John Flewelling, P. Eng.

Nova Scotia - Willard D'Eon, P. Eng.

Prince Edward Island - Pat Hughes, P. Eng.

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Contact Information

Jack Caines P.Eng
CBCL Limited, St. John's, NL
Tel: 709-364-8623
Fax: 709-364-8623
Email: jackc@cbcl.ca



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Information Booth

Trade Show – Adjoining Room



www.infraguide.gc.ca





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InfraGuide available at:

National Guide Office – 1-866-330-3350

Email – infraguide@nrc-cnrc.gc.ca

Internet – www.infraguide.gc.ca



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