

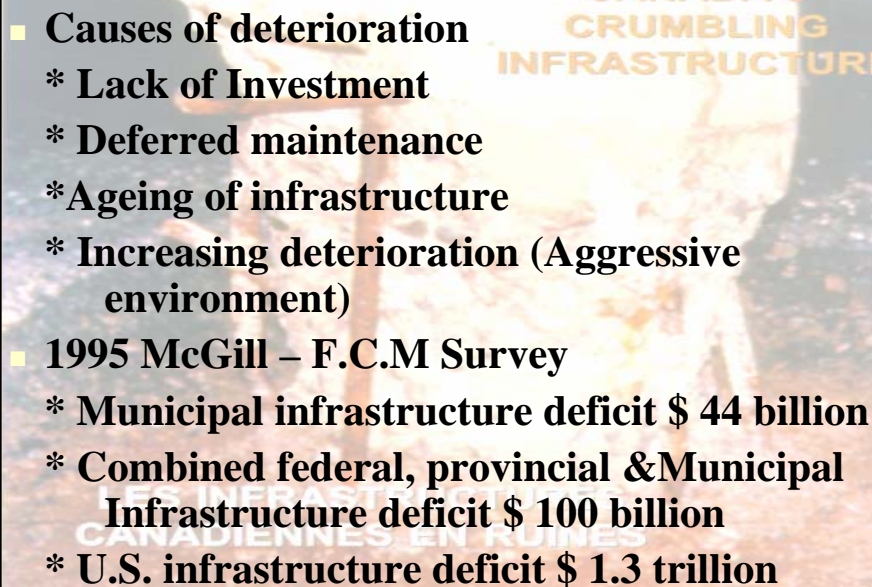
**CANADA'S
CRUMBLING
INFRASTRUCTURE**

URGENCY OF ADDRESSING CANADA'S INFRASTRUCTURE

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McGill University**

**LES INFRASTRUCTURES
CANADIENNES EN RUINES**

Canada's Infrastructure Crisis

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- CANADA'S
CRUMBLING
INFRASTRUCTURE**
- **Causes of deterioration**
 - * **Lack of Investment**
 - * **Deferred maintenance**
 - * **Ageing of infrastructure**
 - * **Increasing deterioration (Aggressive environment)**
 - **1995 McGill – F.C.M Survey**
 - * **Municipal infrastructure deficit \$ 44 billion**
 - * **Combined federal, provincial & Municipal Infrastructure deficit \$ 100 billion**
 - * **U.S. infrastructure deficit \$ 1.3 trillion**
- LES INFRASTRUCTURES
CANADIENNES EN RUINES**

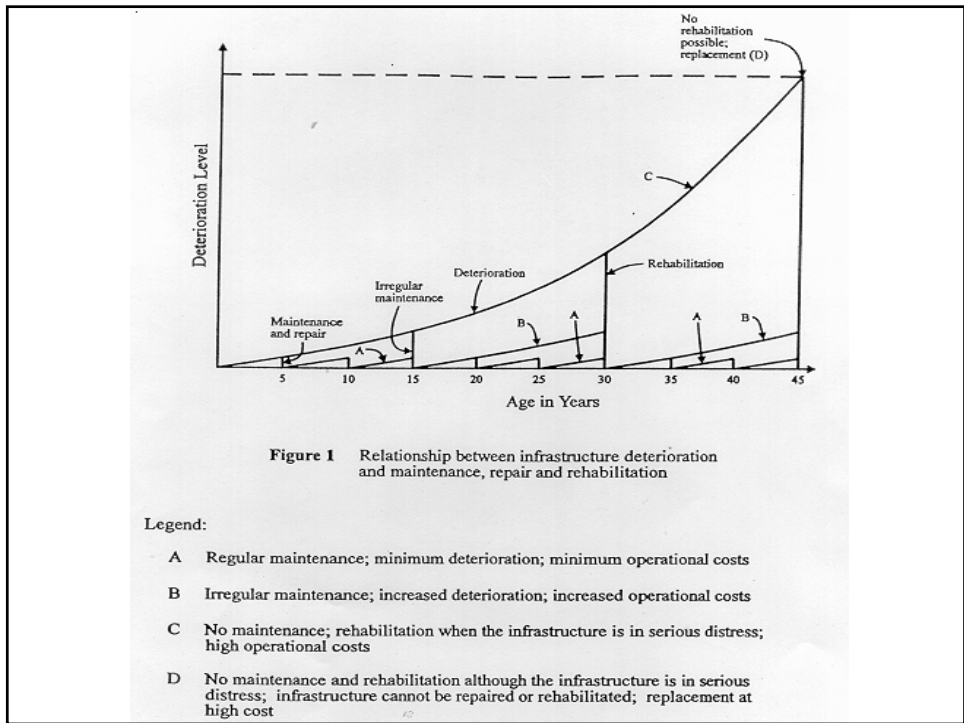
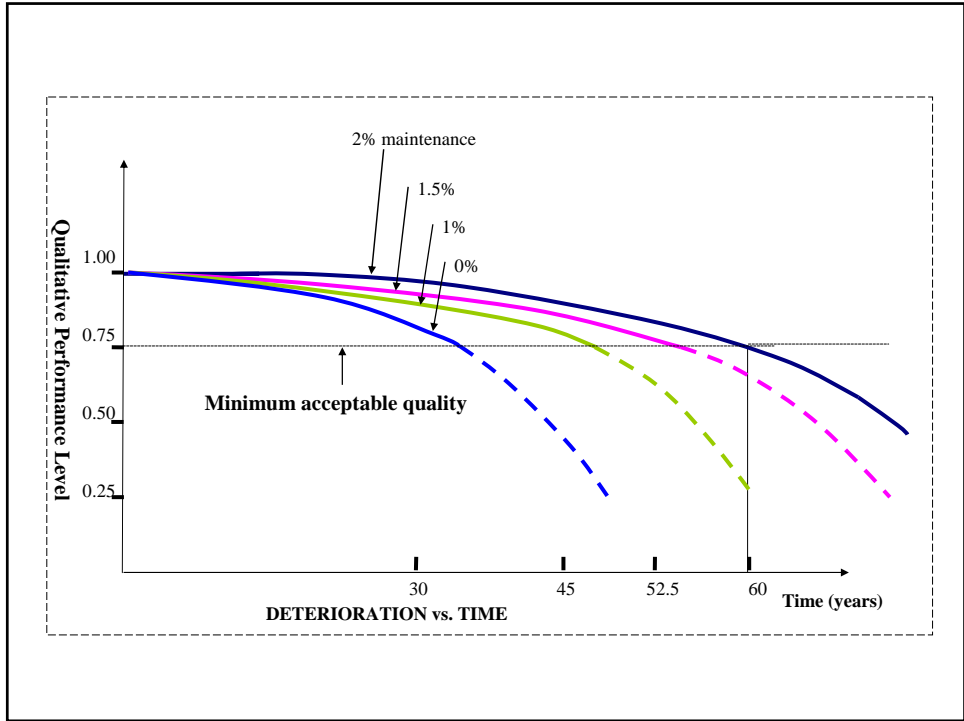
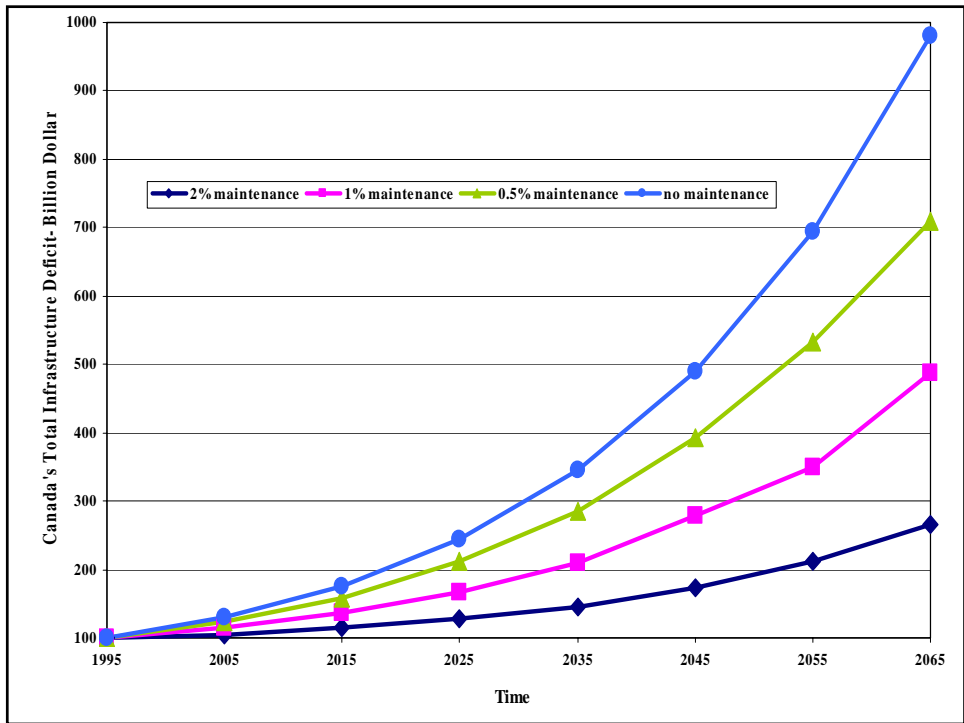
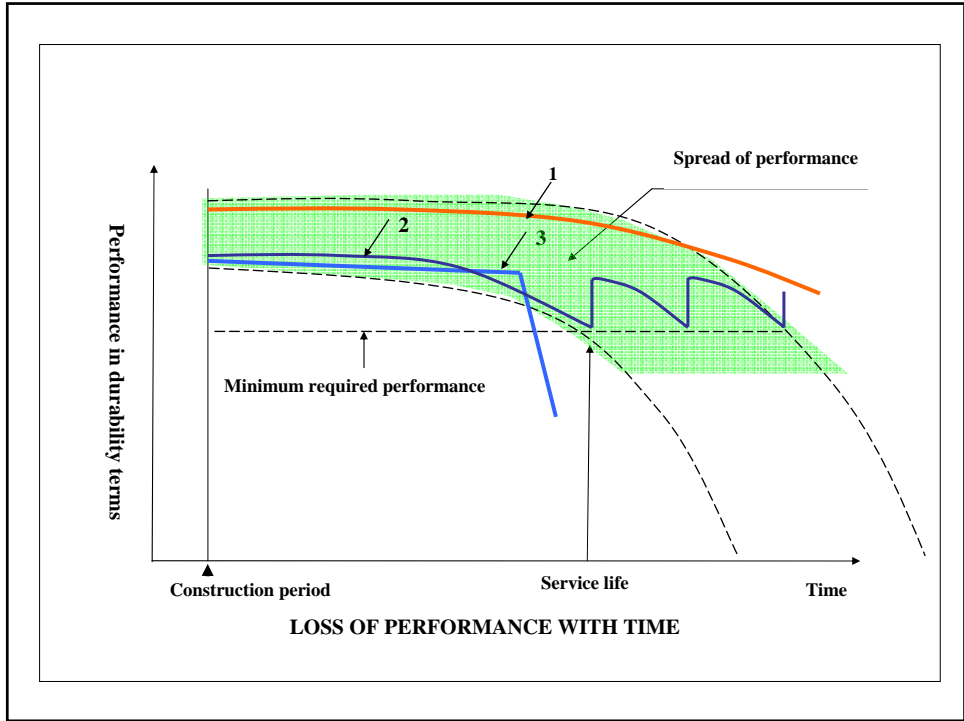


Figure 1 Relationship between infrastructure deterioration and maintenance, repair and rehabilitation

Legend:

- A Regular maintenance; minimum deterioration; minimum operational costs
- B Irregular maintenance; increased deterioration; increased operational costs
- C No maintenance; rehabilitation when the infrastructure is in serious distress; high operational costs
- D No maintenance and rehabilitation although the infrastructure is in serious distress; infrastructure cannot be repaired or rehabilitated; replacement at high cost



An Assessment & A Possible Solution

- **1993 Federal Infrastructure Program (multi-objective stimulus)**
- **2004 Infrastructure Program (aimed at better cities)**
- **Adequacy? Awareness?**
- **Where do we go from here?**
 - * **NATIONAL INFRASTRUCTURE POLICY**
 - * **INNOVATIVE SOURCES OF FINANCING & MANAGEMENT OF INFRASTRUCTURE**

National Infrastructure Policy

- Acknowledge the infrastructure crisis
- Consideration of life cycle performance and costs
- Implementation of principles of sustainable development (construction of new and rehabilitation of existing deteriorated facilities)
- No deferred maintenance
- User pays for benefits received
- Amortization of facility cost over its service life

Innovative Financing & Infrastructure

- Basic criteria for evaluating financing techniques:
 - * Equity
 - * Economic efficiency
 - * Accountability
 - * Transparency
 - * Administrative cost

LES INFRASTRUCTURES
CANADIENNES EN RUINES

Table 2: Sources of Revenue for Rehabilitation and Replacement of Municipal Infrastructure Facilities in Canada (Siddiqui and Mirza, 1996)

Facility	General Tax Revenue (%)	User Fees (%)	Reserves (%)	PPP* (%)	Debts Financing /Borrowing (%)	Provincial Subsidy (%)	Federal Subsidy (%)
Bridges	27.4	0.0	7.6	2.3	27.6	28.9	6.1
Community and social services	25.0	5.1	15.6	7.8	25.0	17.7	3.7
Curbs	33.7	1.4	6.5	6.1	24.3	22.9	5.1
Hazardous waste	31.3	28.1	5.4	1.1	23.5	7.4	3.3
Parks and recreational facilities	24.1	4.6	15.5	12.7	18.9	13.9	10.3
Public buildings	29.9	2.8	16.6	6.8	35.1	5.7	3.0
Roads	26.8	1.0	7.3	4.0	24.2	28.6	8.1
Sanitary and combined sewers	14.4	21.1	18.7	1.7	26.7	13.4	1.0
Sewage	9.1	18.8	18.8	0.0	29.3	14.5	9.5
Sidewalks	36.0	1.1	7.8	8.4	26.1	14.2	6.4
Solid waste	20.2	25.4	17.1	2.0	30.7	4.4	0.1
Storm	26.7	14.9	7.2	3.9	26.7	17.5	3.1
Transit	24.2	20.2	4.9	3.5	25.2	21.8	0.3
Water distribution	4.3	33.1	19.0	1.8	27.3	9.1	5.5
Water supply	3.2	31.2	21.7	1.7	31.9	7.4	2.9

*Public-Private Partnerships