

# 2007 FCM-McGill Municipal Infrastructure Survey



## DANGER AHEAD:

The Looming Collapse of Canada's  
Municipal Infrastructure

2007 Municipal Infrastructure Survey

# Where Do We Stand?

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- Over the past 25 years, Canada's municipal infrastructure has fallen further and further into disrepair
  - Municipalities are responsible for more than 50% of Canada's total infrastructure – up from 30% just forty years ago
  - But municipalities have struggled to maintain this infrastructure due to a lack of funding
  - This has led to years of deferred maintenance and a growing deficit in infrastructure investments
  - Lack of a detailed inventory of all assets is also an issue
  - This problem has been examined in a few past studies

# Past Infrastructure Deficit Estimates

<b>Year</b>	<b>Deficit (\$Billion)</b>	<b>Comments</b>
1985	12	FCM survey
1992	20	FCM survey
1996	44	Detailed FCM- McGill survey
2003	57	Technology Road Map (TRM), Canadian Society for Civil Engineering (CSCE), Canadian Council of Professional Engineers (CCPE), Canadian Public Works Association (CPWA) and the National Research Council of Canada (NRC) - Upgrading of FCM- McGill survey results.

# Why This Project?

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- There has been failure to account for important influencing factors in past estimates
- Rapid aging and escalating deterioration in certain categories of infrastructure are causing growth in the deficit to accelerate
  - 41% of Canadian infrastructure is 40 years old or less
  - 31% between 40 and 80 years
  - 28% more than 80 years old (Technology Road Map – TRM, 2003)
  - 79% of life expectancy of Canada's infrastructure has been used up (2003)
- Other factors: Demographics, Geography, Local Needs, Climate Change, Economics

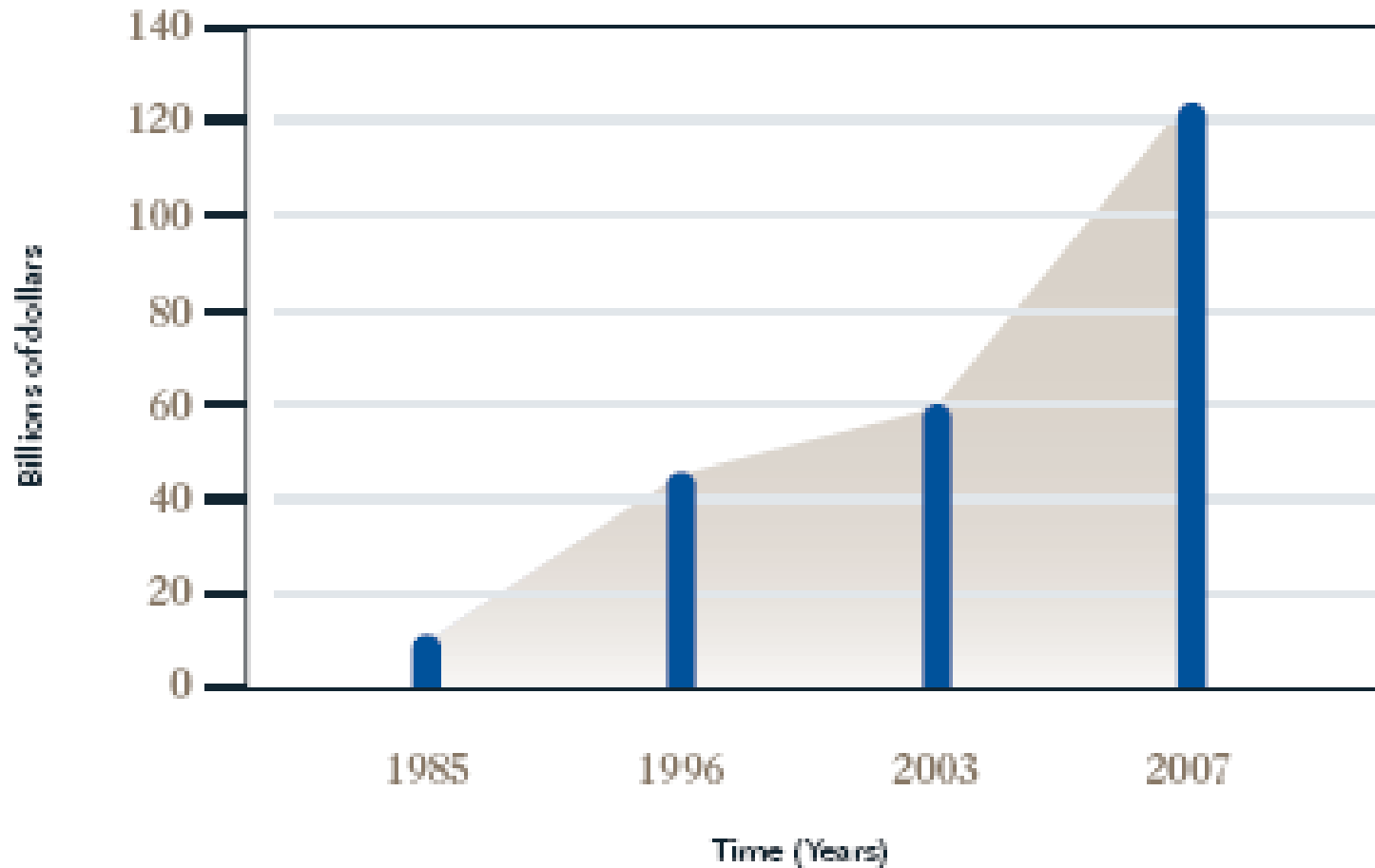
...A more scientific estimate of the current municipal infrastructure deficit is urgently needed

# What is the Municipal Infrastructure Deficit?

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- *The difference between the funding needed for maintenance, repair, rehabilitation, retrofitting and replacement of existing deteriorated infrastructure and the funding available from all sources, including taxes, government subsidies and grants, private sector contributions, etc.*
- It does not encompass infrastructure owned by other orders of government (e.g. hospitals, schools, military bases, highways)
- It does not include the cost of building new or expanded facilities to meet new needs or provide additional infrastructure capacity.
- However, this study has also produced a second estimate for “new” needs (new/expanded infrastructure required to meet needs of population growth, economic expansion.)

# Canada's Municipal Infrastructure Deficit (Billions of Dollars)



# Methodology

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## *August 2007*

- Distribution of draft survey questionnaire in English and French
  - Reviewed by a group of municipal finance, engineering, and infrastructure planning professionals across Canada

## *October 6<sup>th</sup>, 2007*

- 165 surveys were distributed

## *November 6<sup>th</sup>, 2007*

- Six broad questions answered by municipalities, dealing primarily with:
  - Current budgeting practices
  - Existing and projected upgrading needs
  - New infrastructure (capital) needs
  - Factors compounding local infrastructure deficits

# Survey Responses

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- Full or partial responses from 85 local governments
- 51% response rate (85/165)
- Nearly half of the national population represented (46%)
  - Local governments in every province and territory
  - Populations ranging from less than 10,000 to 1,000,000 and above, for the largest communities

# Findings - Water and Wastewater Systems

- *30 % of Canada's municipal infrastructure stock in 2000 (Tarek et al., 2003)*
- *Approaching end of service life*

Estimates of the average cost to upgrade existing infrastructure:

- CWWA - \$88.5 billion (1997-2012)
- Canadian Water Network - \$39 billion (2003)
- Canadian Water Network - \$90 billion (2003-2013)

Revised Estimates:

	1996	2007
Estimated deficit for upgrading existing infrastructure	\$21 billion	\$31 billion
Estimated new needs		\$56.6 billion

# Findings - Transportation

- *Transportation and public transit infrastructure made up approx. 55% of Canada's municipal infrastructure stock in 2000 (Tarek et al., 2003)*
- Mostly built in the 1950s and 1960s – need urgent attention and in some cases, replacement

	1996	2007
Estimated cost to upgrade existing infrastructure	\$384/capita \$11.4 billion	\$686/capita \$21.7 billion
Estimated new needs		\$28.5 billion

- 65% of existing deficit in larger cities (>1,000,000)
- 38% of new needs in smaller, rural and northern municipalities

# Findings - Transit

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	1996	2007
Estimated cost to upgrade existing infrastructure	\$3.05 billion	\$22.8 billion
Estimated new needs		\$7.7 billion

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- Transit infrastructure requires considerable investment
- Need more information on needs in smaller municipalities

# Findings - Other Public Infrastructure Assets

## *Cultural, Social, Community and Recreational Facilities*

- Canadian Parks and Recreation Association (2007) - **\$15 billion**

	1996	2007
Estimated cost to upgrade existing infrastructure	<b>\$255/capita</b> \$7.55 billion	\$40.2 billion
Estimated new needs		\$18.1 billion

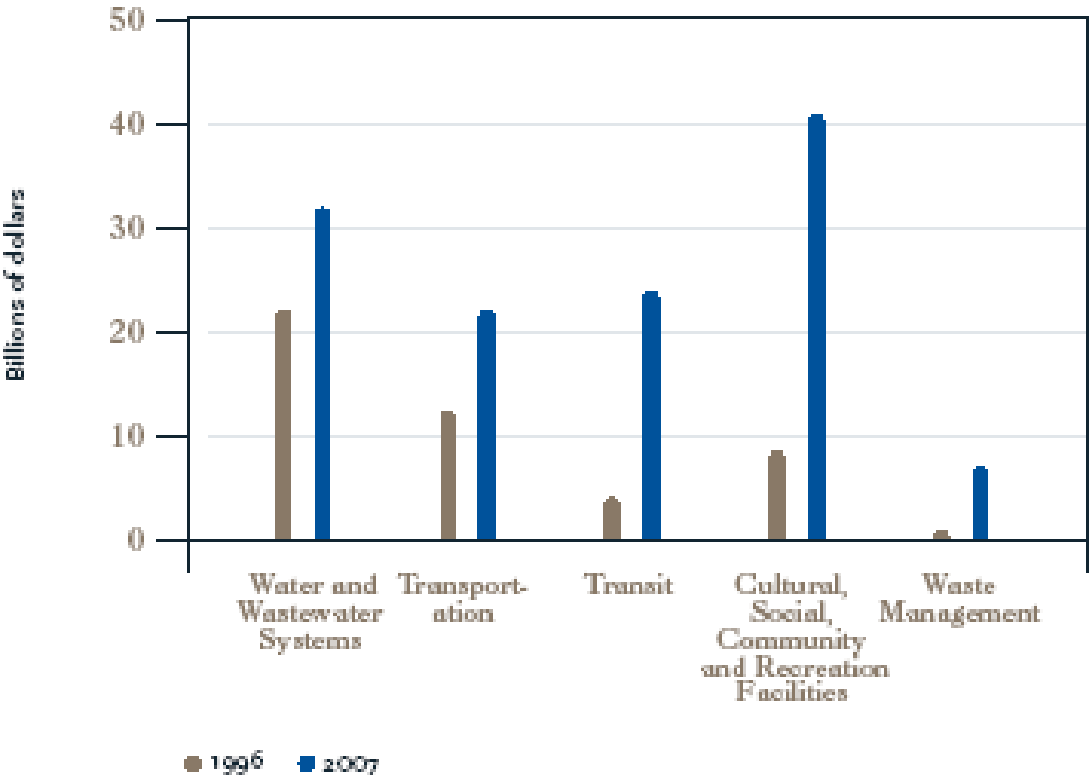
- Considerably increased funding needed to maintain and upgrade these facilities
- Need is prevalent in larger communities (rapid urban growth)
- Significant new needs in smaller communities (<100,000)

# Findings - Other Public Infrastructure Assets

## *Waste Management*

	1996	2007
Estimated deficit for upgrading infrastructure facilities	\$1 billion	\$7.7billion
Estimated new needs		\$4.3 billion

# Infrastructure Deficit by Category in 1996 and 2007

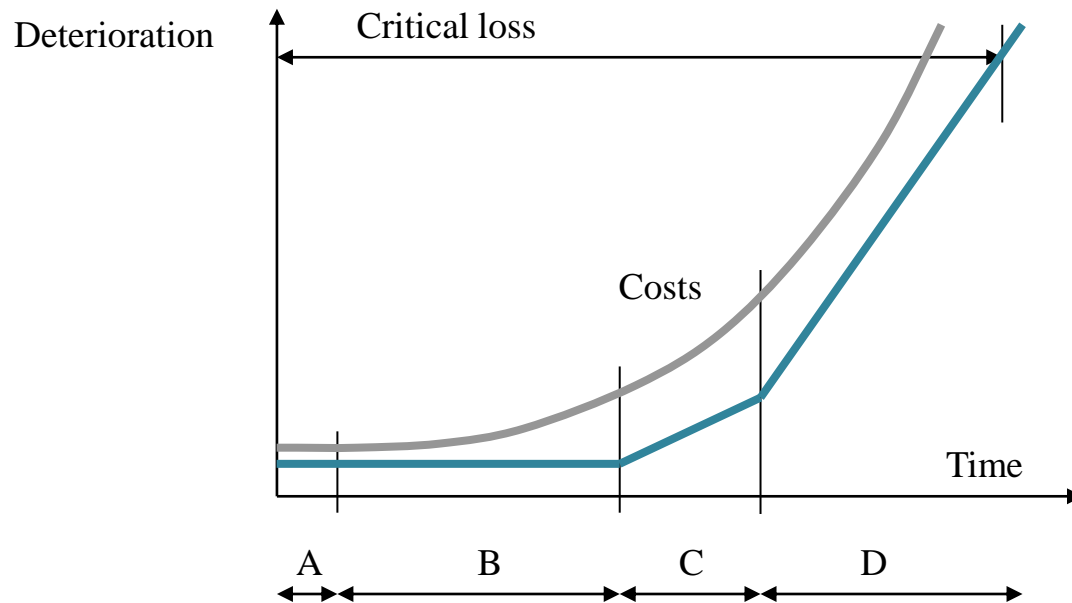


**Infrastructure Deficit (2007)**

**= \$123.6 billion**

**(New Needs = \$115 billion)**

# Our Deteriorating Infrastructure



Phase A – Design and Construction

Phase B – Initiation of deterioration

Phase C – Increasing deterioration

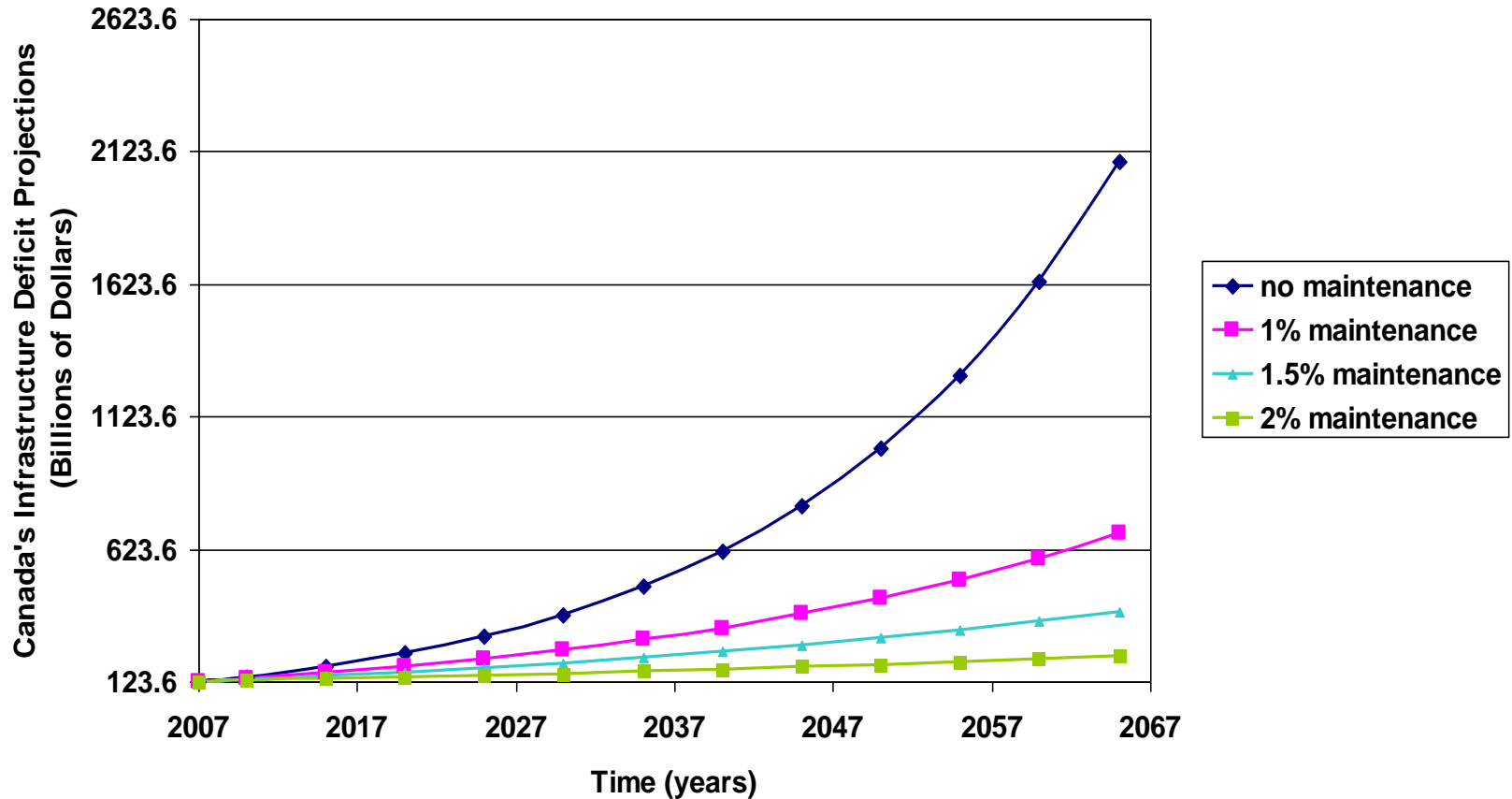
Phase D – Accelerated deterioration requiring replacement

# Where Do We Go From Here?

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- What's at stake? Future prosperity, economic development, international competitiveness and overall quality of life
- What do we need?
- Long-term financing based on established priorities
- New technologies, best practices and effective management
- Acknowledge the looming crisis and **ACT IMMEDIATELY**
- Or else...Serious consequences!

# Canada's Total Deficit for Existing Infrastructure (Billions of Dollars)



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THE GAZETTE | MONTREAL | SUNDAY, AUGUST 5, 2007

QUOTE OF THE WEEK

*“If we do not maintain our infrastructure, do not upgrade it, we’ll continue to have spectacular collapses.”*

Saeed Mirza, McGill professor of civil engineering and infrastructure expert.

# Recommendations

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- Acknowledge the crisis and take immediate action to slow its growth
- Establish a national plan to eliminate the municipal infrastructure deficit and prepare the groundwork for effective management in the future.
- Undertake a comprehensive, national study, involving all three orders of government, to determine the size, scope and geographic characteristics of the municipal infrastructure deficit.