City of Richmond

Report to Committee

To:	Public Works and Transportation Committee	**Date:**	February 3, 2006
From:	Robert Gonzalez, P.Eng. Director, Engineering	**File:**	06-2000-01/2005-Vol 01
Re:	**Ageing Facility Infrastructure - Update**		

Staff Recommendation

That the Ageing Facility Infrastructure Update report, from the Director Engineering be received for Information.

Robert Gonzalez, P.Eng.
Director, Engineering
(4150)

Att.

FOR ORIGINATING DIVISION USE ONLY					
ROUTED TO:	CONCURRENCE		CONCURRENCE OF GENERAL MANAGER		
Budgets ..... Y ☑ N ☐ Parks, Recreation & Cultural Services ..... Y ☑ N ☐					
REVIEWED BY TAG	YES ☑ DW	NO ☐	REVIEWED BY CAO	YES ☑	NO ☐

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Staff Report

Origin

Public Works and Transportation Committee received an information report on September 18, 2002 that provided an early assessment of City building conditions. The results were founded on physical audits undertaken by Vanderweil Facility Advisors (VFA) involving approximately 23 buildings comprising 50% of the total building area. The report recommended periodic updates as the building condition assessment work progresses.

This report provides an update as to the overall Facility Condition Index (FCI) 3 years after the initial observations.

Current Status

Existing Building Inventory

The City of Richmond's buildings represent notable financial worth with a current value of $213,809,575. The current inventory of 140 buildings comprises a total area of 1,445,857 sq. ft. with approximately 50% of this building area constructed during the past 10 - 15 years. Our buildings are categorized in four distinct groups.

- Community Safety Buildings – Fire Halls, Public RCMP and Community Policing
- Community Use Buildings – Parks, Cultural and Recreation Centres
- Corporate Facilities. – City Hall, Public Works, Stores
- Heritage Buildings – Britannia, Steveston Post Office, Phoenix Net Loft etc.

In reviewing our previous data, a number of 2002 assumptions have since been modified including, how we group building lifecycle requirements, interpret the data, factoring fire hall replacements in progress and the impact attributed to the physical plant sustaining capital budgets during 2003, 2004 and 2005.

Planning assumptions have also been revised to include:

- That the building replacement cost is annually adjusted by the Construction Cost Index (CCI), estimated at 2.5%
- All values are adjusted for inflation for the 20-year duration of the analysis
- The discount rate for net present value calculation is equal to the CCI rate
- Repairs that are not corrected are adjusted for further deterioration by an estimated annual rate of 2.5%
- Repairs are presented only for priorities 1 to 4 (Appendix D)
- Heritage buildings are now excluded from the FCI calculation given there special needs

Analysis

Facility condition audits have now been completed for approximately 90% of the total inventory excluding heritage buildings. These physical audits have concluded that an $11.5 million backlog of building infrastructure repairs currently exists and requires correction. Further, this backlog would increase on average $4.4 million per year over the next 20 years based upon the proposed level of funding. However, overall the building Facility Condition Index (FCI) has

been revised downwards since 2002 through refined interpretation of the data from 0.13 to 0.07, due in part to the recent assessment of City Hall now 5 years old.

N.B - The FCI for buildings in good condition is ideally less than 0.05 indicating building repairs and deficiencies less than 5% of the building value.

Using the VFA capital-planning software we are able to identify the condition and effectiveness of major infrastructure components such as HVAC, life safety, roofs, flooring, etc. and plan for replacement rather than react to critical failure. This process is the foundation and application of sound management practices and good customer service for which the City was awarded the VFA Customer Advocate Award in 2004.

Implementing these plans remains a challenge as inadequate funding continues to be a major factor, which on a number of recent occasions have resulted in critical building failure and the need for emergency funding. Consequently planned lifecycle replacements are often deferred in order to address the more critical backlog of repairs and building failures.

Table A

Year	Physical Plant Sustaining	
	Submission	Approved
2002	$1,000,000	$ 589,000
2003	$1,000,000	$ 560,600
2004	$1,000,000	$1,169,529
2005	$1,892,000	$1,115,484
2006	$1,960,000	$1,400,000
2007	$2,363,383	TBA
2008	$3,643,133	TBA

Approved funding for the Physical Plant capital program has seen a nominal increase since 2004. (Table A). These increases have enabled the replacement of many high priority systems that have contributed towards the lower FCI of 0.07. However, annual funding, which is estimated to be $4.4 million short of that required remains well below the level necessary to maintain facilities in their current condition.

As a result of the funding deficiencies, there have been numerous emergency repairs. These repairs tend to be more costly than the replacement of equipment in a planned and proactive manner.

Options

In analysing the most appropriate levels of funding, the following three options have been considered.

1. Maintaining the current funding as proposed in the 2006 – 2010 Capital Plan

2. Maintaining the current condition of facilities at an FCI of 0.07

3. Improving the overall condition of our buildings to a good condition at an FCI of 0.05, by reducing the current $14.8 million backlog over a 10 year period

OPTION 1 – MAINTAIN CURRENT FUNDING (Appendix A)

This option assumes the funding levels as adopted by Council in the current 5 year capital plan over a 20 year period. This option assumes an annual allocation to the physical plant sustaining capital program of approximately $2.4 million and will focus only on essential priority 1 to 4 items. (Appendix D) In this option, building deterioration and the FCI increase dramatically with minimal ability to manage outcomes so that through 2025, the FCI increases from 0.07 to 0.36 with the following results:

2007 Funding Capital Proposal	**$ 2,400,000**
Total investment over 20 years	$ 47,400,000
Building Replacement Value	$ 218,037,098
Deficiency Backlog	$ 79,277,994
Net Building Value	$ 138,759,104

This option is not recommended by Staff as a sustainable solution

OPTION 2 – MAINTAIN CURRENT FCI AT 0.07 (Appendix B)

In order to maintain the standard of our buildings as seen today, with an FCI of 0.07 and continuing to recognize the current backlog level of repairs, it is necessary to increase the annual level of funding by $2.2 million over the next 10 years and thereafter $4.4 million. In this option the building (insured) values will be maintained while the repairs backlog, although increased, does so in a controllable manner.

Essentially, the buildings remain in the same condition of fair to good.

Total Investment over 20 years	$ 135,817,216
Building Replacement Value	$ 357,279,006
Deficiency Backlog	$ 25,009,530
Net Building Value	$ 332,269,476
First 10 years average funding requirement	$ 4,633,562
Second 10 years average funding requirement	$ 8,948,164

This option would be the minimum recommended sustainable solution

OPTION 3 – REDUCE AND MAINTAIN FCI AT 0.05 (Appendix C)

In this option the annual level of funding would be revised to meet the objective of improving the quality of our buildings at an FCI of 0.05 or below. Under this option the building (insured) values increase and the repair backlog would decrease, over a 10 year period in a controlled manner. In the short term additional annual funding of $2.6 million over 10 years is required and thereafter $3.8 million.

Total Investment over 20 years	$ 138,034,932
Building Replacement Value	$ 357,279,006
Deficiency Backlog	$ 17,863,950
Net Building value	$ 339,415,056

First 10 years average funding requirement	$ 5,010,532
Second 10 years average funding requirement	$ 8,792,959

This option would be the optimum recommended sustainable solution.

FUNDING:

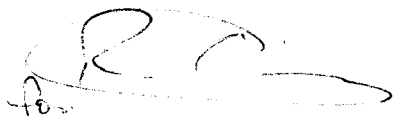
On September 22, 2003, Council adopted Policy 3707 – The long term Financial Management Strategy which included (1) A recommended annual contribution of 1% towards Infrastructure and (2) Ensuring a long term capital plan for infrastructure (Parks, Trails, Facilities and Roads etc) is in place. This strategy will prove to be an excellent vehicle towards long term sustainable funding. However, given the competing infrastructure needs of the City facilities as well as the other infrastructure, staff also recommend that further annual contributions to this reserve should be considered.

Financial Impact

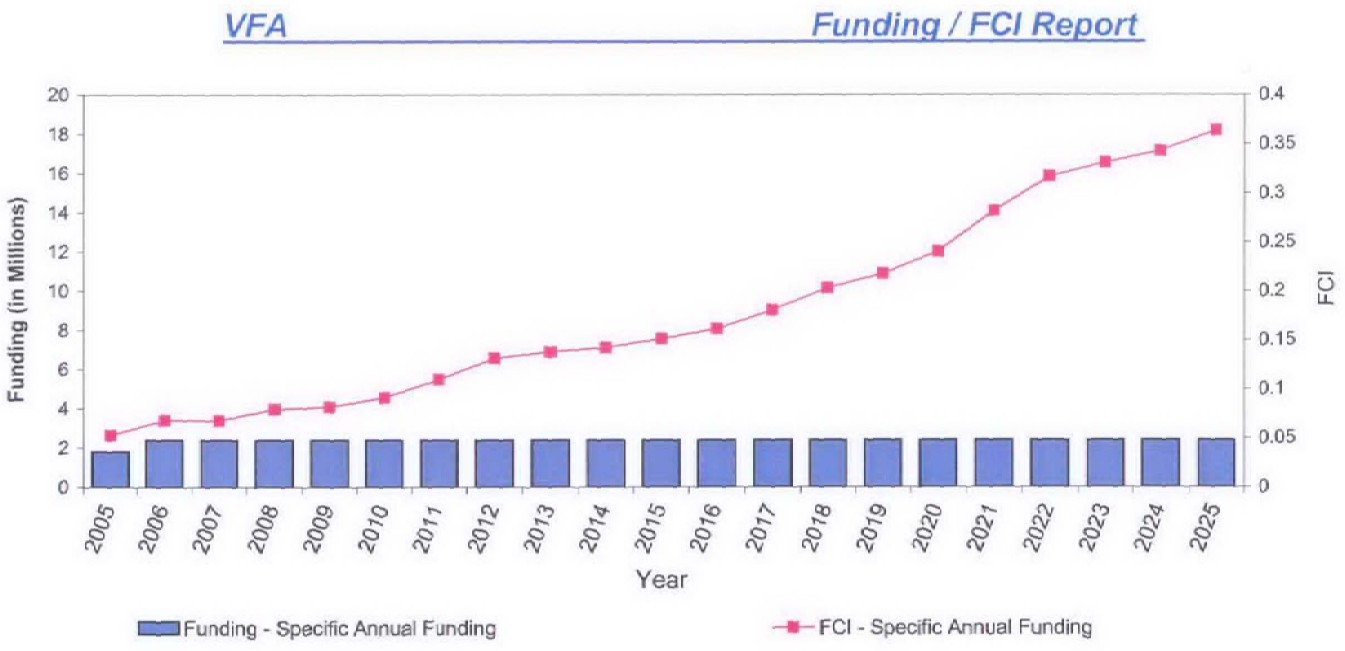
None at this time.

Conclusion

The current analysis establishes that the City's building infrastructure is in fair condition with an FCI of 0.07. Staff believe that by working towards Option 3, to reduce and maintain the FCI at 0.05 our facilities will gradually improve over a 10 year period and minimize the number of disruptive and relatively expensive emergency repairs. Through Option 3, there will be a resulting significant contribution towards our corporate mission "To protect and enhance liveability and economic well being for current and future generations".



David Naysmith, P. Eng.
Manager, Facilities Planning & Construction
(3312)


VFA
Funding / FCI Report
Funding (in Millions)
FCI
Year
20
18
16
14
12
10
8
6
4
2
0
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
2005
2006
2007
2008
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2012
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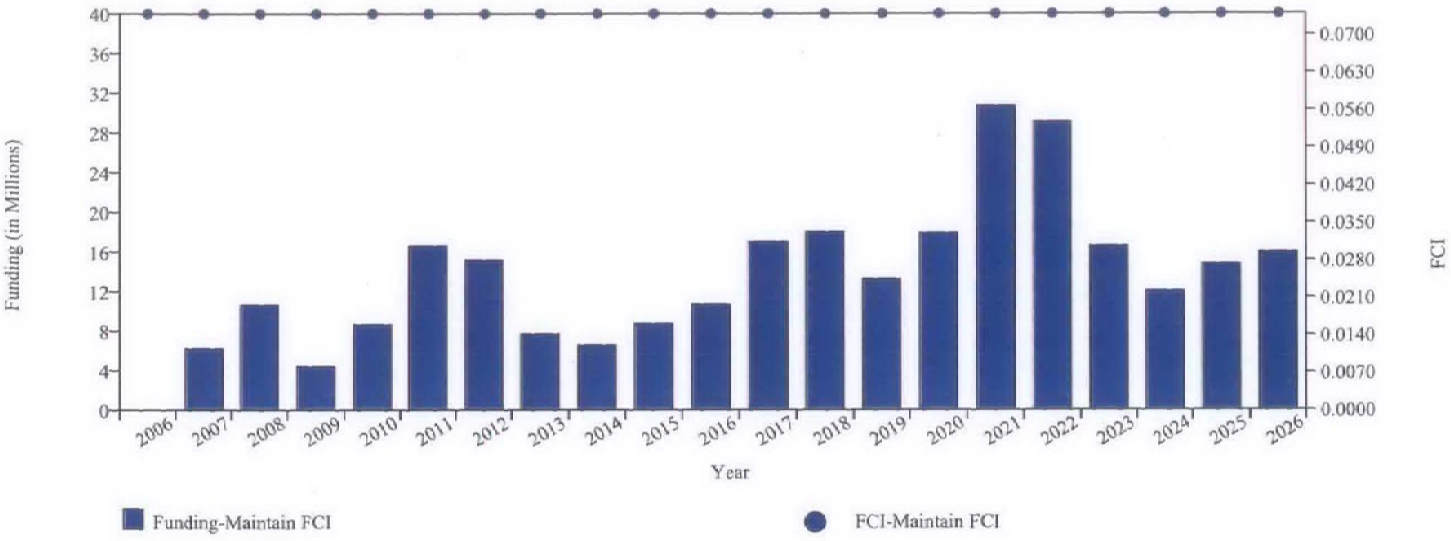
Funding - Specific Annual Funding
FCI - Specific Annual Funding

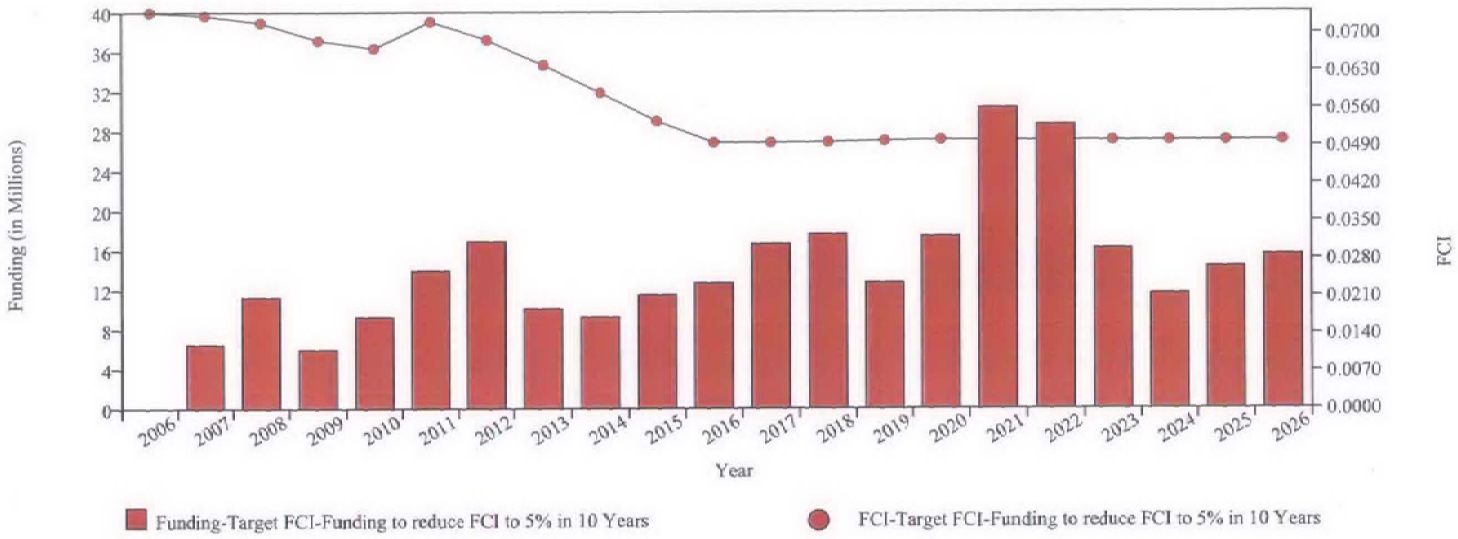
VFA

Funding/FCI Report



VFA

Funding/FCI Report



APPENDIX "D"

Priority 1: Immediate Concerns or Currently Critical

- Should be undertaken immediately including violations of life safety, building and electrical codes.
- The prime system is at or exceeding the service life.
- Examples include: - Minoru Pool Boilers ($32,000), Steveston Community Centre roofing, ($35,000) and Works Yard Exhaust Fans ($30,000)

Priority 2: Short Term Concerns (1-2 years) or Potentially Critical

- Should be corrected in the near future to maintain the integrity of the building, including systems that are functioning improperly or not at all.
- Problems that will cause additional deterioration, if not addressed.
- The prime system is at or exceeding the service life but is well maintained and an extended service life can be attained.
- Examples include: - Minoru Arenas CO2 detection ($23,000) Steveston Library carpet replacement ($28,500) Centennial Pool deck ($108,500)

Priority 3: Long Term Concerns (3-5 years) or Necessary – Not Yet Critical

- Should be corrected in the more distant future to maintain the integrity of the building, including systems that have exceeded their expected useful life, but are still functioning.
- The prime system is at or exceeding its service life, but is well maintained to and extend service life.
- Examples include: - Thompson Community Centre flooring ($13,000), Minoru Arenas boilers ($46,000) Centennial Pool electrical ($43,000)

Priority 4: Improvements or Functional Need

- Required or desirable to enhance the facility performance as it should, including systems upgrades and aesthetic issues.
- Items included in facilities capital plans for functional improvements – Optional
- Examples include: - Minoru Arenas doors and windows ($60,000) Works Yard Admin Lighting upgrade (70,000), Steveston Community Centre moveable partition wall ($44,000)