

PUBLIC SECTOR BUILDINGS: VALUING FORGOTTEN INFRASTRUCTURE



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Ouija board or evidence-based appraisal judgment? Methodology to recognize extraordinary deferred maintenance in asset valuation¹

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INTRODUCTION

Problem and opportunity

Once proud symbols in local communities, many public sector buildings throughout the Western World are in a state of disrepair. Some of the reasons for this are summarized as follows by the Business Council of British Columbia (BCBC):

Many observers argue that governments in advanced countries often are not well placed to meet growing and increasingly complex infrastructure needs. A major impediment is constrained public budgets, which have been the traditional source of most infrastructure finance. Population growth, an aging population, increased urbanization and congestion, escalating demands for healthcare and other

services, slow economic growth, and environmental issues are all straining government resources. In the wake of the 2008-09 financial crisis and great recession, fiscal prudence has become a dominant focus for most governments across Canada.

Adding to the complexity of financing projects is the fact that voters seem increasingly reluctant to pay higher taxes or fees. If the value of an investment is evident, citizens may be willing to pay more, but the value proposition must be clearly articulated to secure public support. – From BCBC’s white paper on Infrastructure Policy & Financing – October 2014.

The problem with public sector buildings is widespread, as the inset comments below demonstrate:

Recent research shows that many real estate investment managers would be reluctant to even consider purchase of a property that had been allowed to deteriorate to an extraordinary degree. The reinvestment required and the greater uncertainty introduced by extraordinary depreciation increases portfolio risk such that qualified purchasers dismiss the property in favour of candidates in better condition. Developers also look at such deteriorated property for re-development potential and severely discount current improvements.

Dealing with extraordinary depreciation is not a new problem for appraisers. But it is one where information to aid analysis hides in plain sight, lacking consistently applied methodology for appraisers to enhance their client’s or employer’s decision making.

So, how might appraisers use information like condition reports and related metrics that are now commonly available to value extraordinarily deteriorated buildings? Is extraordinary deferred maintenance best recognized in Ouija board adjustments, or might appraisal judgment and bootstrapping be more evidence-based?

This article explores the opportunity for more supportable, evidence-based appraisal judgment versus the temptation of resorting to ‘Ouija board’ value conclusions. That is, helping to ensure

AN ANECDOTAL DESCRIPTION OF EXTRAORDINARY DEFERRED MAINTENANCE

A ceiling collapses in a fine arts studio, forcing its closure just two weeks before exam time. Water leaks in a chemistry lab, ruining both the experiment and the equipment. Classes are cancelled for hundreds of students because of excessive heat.

- Deferred maintenance: “a ticking time bomb” in the public sector –
- “A problem that is easy to ignore until something breaks...”

Time and again, maintenance and repairs are deferred to yet another budget cycle, and the backlog of deferred maintenance builds. <http://www.cou.on.ca/publications/reports/pdfs/campus-in-decline-november-2004>

“In Europe, universities have become near slums as administrators have skimmed on facilities.”
– The Global Race to Reinvent the State. J. Micklethwait & A. Wooldridge. 2014.

that appraisal judgment is rooted in sound market analysis, while building upon proven valuation methodologies.

The idea for the article arose from a consulting assignment to review the assessments of government owned buildings, where reactive maintenance strategies over many years had left high-profile buildings in a deteriorated state with diminished service life and thus reduced asset values. This situation, combined with the assessor's constant challenge to allocate thin resources to address increasing performance requirements, often means that reduced asset values are not necessarily recognized in periodic property assessments for public sector buildings. It also means that extraordinary deferred maintenance and reduced building stewardship can actually be more costly to taxpayers over the longer term.

RESEARCH APPROACH, METHODOLOGY AND CONCLUSION

Research for the consulting assignment first required clarifying the problem, i.e., first understanding the context described above. Then defining extraordinary deferred maintenance (EDM) to describe and develop a methodology based on appraisal principles that facilitated the appraiser's interpretation of market behaviour in consistently recognizing any loss in value.

Carefully considering guiding appraisal principles and concepts,² research needed to validate the methodology against market behaviour, and allow comparison to current practice.

Research included three concurrent phases:

1. Validating the proposed methodology with the experience and practices of real estate investors and senior decision makers.
2. Exploring the current practice of leading assessment agencies.
3. Completing an extensive literature review.

The research questions to answer included:

1. Does the proposed methodology to recognize EDM reflect the behaviour of real estate market decision makers?

2. Can the appraiser rely on facilities condition assessment (FCA) reports and facilities condition indices (FCI) to aid appraisal judgment and achieve more accurate, equitable and *evidence-based* valuation conclusions?

Based on the authors' research findings, both questions may be answered in the affirmative.

WHAT IS EXTRAORDINARY DEFERRED MAINTENANCE?

"It is unwise to pay too much, but it is worse to pay too little. When you pay too little, you sometimes lose everything because the thing you bought was incapable of doing the thing you bought it to do."
 – John Ruskin (1819-1900)

Based on the comprehensive research for this project, the authors developed the following definition for extraordinary deferred maintenance (EDM).

EDM exists where a building – in its highest and best use (HBU) – shows greater than normal maintenance deficiency, requiring corrective action to satisfy the generally expected level of building functionality, utility or performance. EDM is more likely found where owners elect 'reactive maintenance' or 'crisis response' maintenance strategies. That is, choosing failure replacement over preventive maintenance

strategies. EDM reduces the asset's (or component's) service life and, thus, its value (see Figure 1).

Diminished service life – or increased effective age – is evident in the condition, quality and utility of a structure. The impact on asset value is based on an appraiser's judgment and evidence-based interpretation of market perceptions. The varying maintenance strategy and standards of owners and occupants can influence the pace of building depreciation. The effective age estimate considers not only physical wear and tear, but also any loss in value for functional and external considerations.³

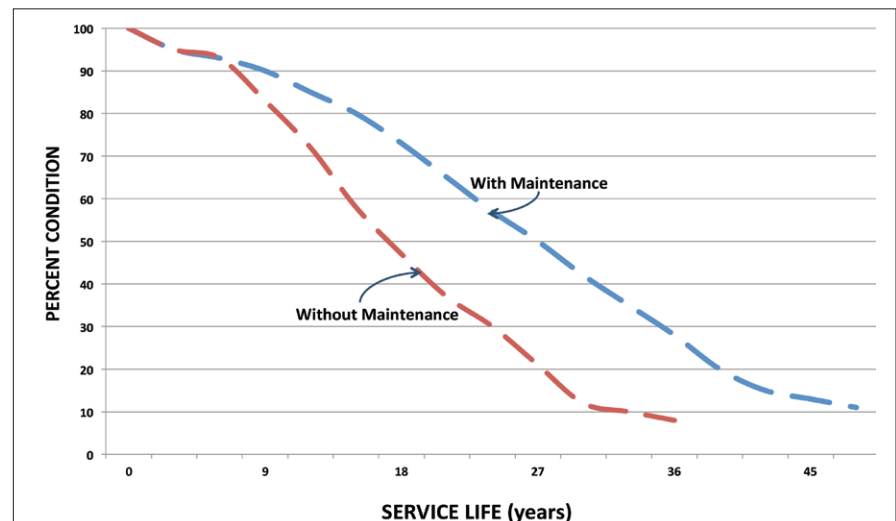
MEASURING THE IMPACT OF EDM ON ASSET VALUE

The premise for measuring EDM is straightforward. The asset, i.e., the entire building or some component, is deteriorated beyond its normally expected condition/utility – in comparison with typical market or expected asset performance level – to such an extent that a potential purchaser/investor would reduce their offer price, based on the principle of substitution.

The test for EDM involves comparing 'observed condition'⁴ of the subject property against the normally expected condition (level of depreciation) that represents the 'standard of care' for a similar asset in its comparable market set.

Before discussing 'standard of care', it is useful to review Facilities Condition Assessment (FCA) and introduce the Facilities Condition Index (FCI).

FIGURE 1: EDM Reduces Service Life



WHAT IS FCI⁵?

Facilities Condition Assessment

FCA provides important information and has become commonplace in CRE transactions and portfolio investment decisions. As part of disclosure during transactions or to expedite the sale of assets, vendors often provide qualified purchasers with comprehensive condition assessments.

Professionally prepared FCA reports provide a benchmark for the building's relative performance and prioritize projects for maintenance, repair or renewal. They provide defensible cost estimates that the decision-maker can rely upon to make real estate acquisition, reinvestment or disposition decisions.

The FCA report provides information about the current condition of building components (such as roofs or boilers) expressed as statements about deferred maintenance, or 'catch-up' costs. They may include information on 'keep up' costs, which are forecasts of future lifecycle renewal requirements, or optionally 'get ahead' costs – identifying opportunities for facility adaptation and improvement.

The methodology in this article focuses on 'catch-up' costs.

Facilities Condition Index

The FCI (an optional provision in an FCA report) is a key building performance indicator used to objectively quantify and evaluate the current condition of a facility to make benchmark comparisons of relative condition for that building with its comparable set (inclusive of private and public sector buildings).

The FCI is an industry standard method for comparison of relative asset conditions, expressed as a formula (*US Federal Real Property Council, 2008*):

$$\text{FCI} = \frac{\text{TOTAL COST OF EXISTING REQUIREMENTS}}{\text{CURRENT REPLACEMENT VALUE}}$$

FCI Condition Scale

The lower the FCI, the better condition the building is in. Current industry benchmarks indicate the following subjective ratings⁶:

| FCI | CONDITION |
|----------|-----------|
| 0 – 5% | Good |
| 5 – 10% | Fair |
| 10 – 30% | Poor |
| > 30% | Critical |

'Catch-up' costs⁷ reflect deficient conditions that are typically derived from an FCA⁸ report carried out by an experienced and qualified team of professionals (e.g., architects, engineers). The FCI provides a **relative** measure for comparing the condition assessments of many buildings, and for determining the most important priorities to address in capital expenditures.

The identified 'catch-up' costs provide the information base for determining any value adjustment for EDM.

The appraiser may also interpret the prioritized 'catch-up' costs in the FCA report, reflecting on how these may be typically considered by investors in market transactions.

Industry standard priority classification for deficient asset conditions

Catch-up costs in an FCA report are ranked in a five-tier priority classification scheme, as indicated in Figure 2.

A word of caution: In interpreting FCI information from an FCA report, the appraiser needs to ensure a clear understanding of the FCA report's terms of reference and underlying assumptions. For example, FCI benchmarks may be for different periods – the cost requirements may reflect one-year cost requirements, five-year cost requirements, or whole-life cost requirements.

OBSERVED VS. NORMALLY EXPECTED CONDITION

To identify the existence of EDM, an appraiser needs sufficient knowledge of the market to first determine the normally expected condition for the subject property's comparable market set. This determination is facilitated through review of a professionally prepared condition assessment report.

The subject building's 'observed condition' can then be determined – applying appraisal judgment that is supplemented by information from the FCA report and confirmed through the appraiser's physical inspection of the property.

FIGURE 2: Industry Standard Priority Classification for Deficient Asset Conditions

| 5-Tier Priority Classification Scheme for Deficient Conditions Associated with an Asset | |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Currently Critical – Immediate action to correct a safety hazard or stop accelerated deterioration of an asset |
| 2. | Potentially Critical – Conditions, if not corrected expeditiously, will become critical. Such as the rapid deterioration of assets |
| 3. | Necessary – This includes actions to preclude predictable deterioration or downtime of one or more assets. These concerns should be addressed within the next 1 – 3 years |
| 4. | Recommended – Sensible improvements to current conditions. These are not required for the most basic function of the facility but improve overall usability and can lower maintenance costs. Within the next 3 – 5 years |
| 5. | Grandfathered – Live with these deficient conditions, dependent on risk tolerance level (e.g., asbestos contamination deferred, to be addressed with normal tenant turnover) |

"FOR VARIOUS REASONS, BUILDING OWNERS MAY ELECT A MAINTENANCE STRATEGY TO REFLECT A 'STANDARD OF CARE' THAT RANGES FROM 'SHOWPIECE FACILITY' TO 'CRISIS RESPONSE.'"

FIGURE 3: Funding Levels and Maintenance Strategy

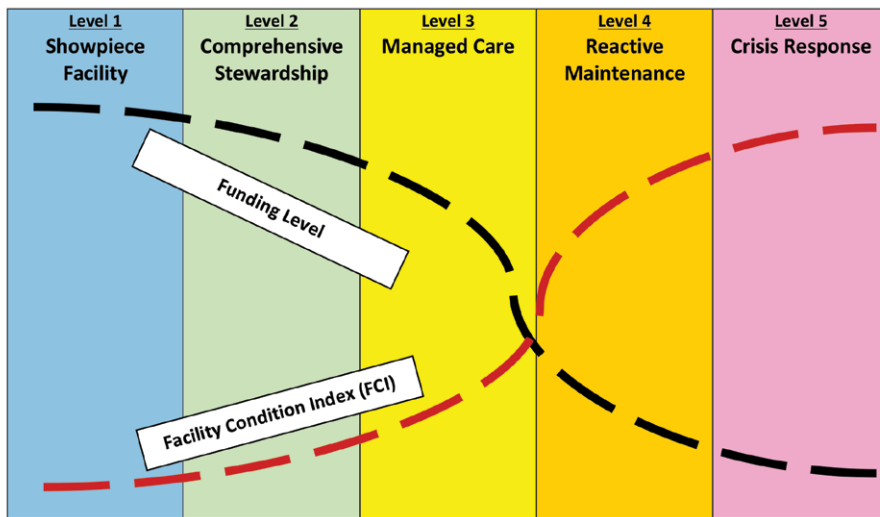


FIGURE 4: Descriptions of Five Operating Standards

| Level 1 Showpiece Facility | Level 2 Comprehensive Stewardship | Level 3 Managed Care | Level 4 Reactive Maintenance | Level 5 Crisis Response |
|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------------------------------------|
| Average FCI < 5% | Average FCI 5–10% | Average FCI 10–15% | Average FCI 15-30% | Average FCI 30%+ |
| Maintenance budgets > 4% of CRV | Maintenance budgets 3.5- 4% of CRV | Maintenance budgets 3-3.4% of CRV | Maintenance budgets 2.5-2.9% of CRV | Maintenance budgets <2.5% of CRV |
| Housekeeping is "Orderly Spotlessness" | Housing is "Ordinary Tidiness" | Housekeeping is "Casual Inattention" | Housekeeping is "Moderate Dinginess" | Housekeeping is "Unkempt Neglect" |
| Breakdown maintenance is rare & limited to vandalism & abuse repairs | Breakdown maintenance is limited to system components short of mean time between failures (MTBF) | Building or system components fail periodically or often | Many systems are unreliable. Constant need for repair | Many systems are non-functional. Repairs are only instituted for life safety issues |
| Maintenance is highly organized, focused & automated. | Maintenance is organized, with direction | Maintenance is somewhat organized but people dependent | Maintenance is chaotic and people dependent | Maintenance is chaotic and without direction |

Comparative FCIs assist in distinguishing the subject's observed condition from that normally expected condition in the comparative market set. To do so, it helps to identify the owner's maintenance strategy with the 'standard of care' that is typical to the property type and its market.

STANDARD OF CARE AND EVIDENCE OF OWNER'S MAINTENANCE STRATEGY

For various reasons, building owners may elect a maintenance strategy to reflect a 'standard of care' that ranges from 'showpiece facility' to 'crisis response.'

Where that maintenance strategy is reactive and where funding levels are reduced, the normally expected standard of care for the comparable property set (or market) is not met. In such circumstances, it is more likely to find that EDM affects the building's service life and thus its value.

Figure 3 illustrates the relationship between maintenance funding levels and FCI.

'Cost-to-cure' or catch-up costs are intended to shift 'standard-of-care' to the left in Figure 4. For example, the cost requirements in an FCA report might be targeted to shift an indicated Level 4 (*Reactive Management*) FCI of 15-30% to a Level 3 (*Managed Care*) FCI of 10-15%. Presuming the *Managed Care* target level is the normally expected condition in that asset category, the appraiser would adjust for EDM cost requirements and then apply the appropriate, validated age-life depreciation table in concluding a value estimate – taking care not to double count on depreciation allowances.

METHODOLOGY TO GAIN CONSISTENCY IN PROCESS; UNIFORMITY IN RESULTS

Depreciation is the loss in value due to any cause – the difference between an improvement's market value and its replacement cost new.

Review of current practice shows a number of issues that need to be addressed to achieve accurate, equitable value estimates.

Mass appraisal techniques in applying the cost approach may not recognize EDM for various reasons. For example, modeling based on typical age-life depreciation tables that may 'arrest' depreciation at some pre-determined level are unlikely to capture the severe loss in value evident in many special purpose public sector buildings today.

Also, whether for single property or mass appraisal, it is not uncommon to find that age-life depreciation tables have not been validated in local markets.

In applying the income approach, modeling that reflects the provision for typical structural reserves and capitalization in perpetuity is unlikely to sufficiently recognize the 'critical' (or even 'necessary') cost requirements for replacements and renewal of building components identified in an FCA report.

The following sections describe methodologies for both the cost and income approaches to provide evidence-based loss in value due to EDM using FCA and FCI information.

Quantifying the Impact on Value of EDM

Example processes for identifying and quantifying EDM adjustments (using either the cost approach or income approach) are presented as decision trees in Appendix A and B. (See NOTE TO READERS)

These decision trees are presented as scenarios, where the appraiser is asked to review a valuation (either during pre-roll consultation, upon appeal or as part of a consulting assignment) where EDM is believed to require recognition.

After considering highest and best use (HBU), an adjustment

for EDM reflects a loss in building value – measured as the present value (PV) of the difference between value under normally expected maintenance (or 'standard of care') for the asset, and value in its current 'observed condition.' It is a measurement of the loss in value due to reduced service life of the entire asset or of its components.

END NOTES

- ¹ ACKNOWLEDGEMENT: This report reflects contribution of many professionals (appendices). We wish to particularly acknowledge David Albrice of RDH Building Engineering and Asset Insights for their material: www.assetinsights.net
Asset Insights is an online laboratory for the development and testing of optimization strategies for maintenance and responsible stewardship of buildings.
- ² The methodology described later in this paper builds on the foundation principles and concepts articulated in *The Appraisal of Real Estate, 3rd Canadian Edition*.
- ³ Appraisal Institute of Canada. *Appraisal of Real Estate, 3rd Canadian Edition*. Sauder School, UBC, Real Estate Division. Page 19.3.
- ⁴ Observed condition: The observed condition of an asset reflects both its chronological age and the degree of replacement of its depreciable components.
- ⁵ Comments on FCA and FCI draw from material on Asset Insights: www.assetinsights.net
- ⁶ Asset Insights.net: http://www.assetinsights.net/Glossary/G_Facility_Condition_Index.html
- ⁷ Asset Insights: http://www.assetinsights.net/Glossary/G_Catch-up_Costs.html
- ⁸ Also referred to as Building Condition Assessment (BCA) reports.
- ⁹ *AssetInsights.net*. Managed Care: http://www.assetinsights.net/Glossary/G_Managed_Care.html

NOTE TO READERS:

The balance of Bruce Turner and Robert Metcalf's article on valuing forgotten infrastructure is available online and can be accessed at <http://www.aicanada.ca/industry-resources/canadian-property-valuation-magazine/>

