CIRMA

The cost of "doing nothing" in building maintenance is often much higher than expected.

Deferred Maintenance:

The Cost of Doing Nothing

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Deferred maintenance can lead to sudden, catastrophic failure.

"By definition, deferred maintenance is maintenance, system upgrades, or repairs that are deferred to a future budget cycle or postponed until funding becomes available. In order to address a deferred maintenance backlog, you must:

- Identify why projects, maintenance, and repairs have been deferred.
- Recognize and understand the scale of the problem.
- Quantify and communicate the financial impact of deferred maintenance.
- Prioritize projects and develop a strategy to secure adequate funding.
- Conduct preventive maintenance and complete repairs promptly to avoid backlog redevelopment."

Leah B. Garris, editor
Buildings Magazine

When the "Check Engine" light on your car's dashboard lights up, you know to have your car serviced because if you don't, the consequences will be catastrophic to the engine, and your budget. Municipal buildings don't come with warning lights, instead tell-tail signs indicate when something is amiss: leaks, cracks, discoloration, odors, temperature fluctuations, and small failures of structures, components, and equipment. Far too often these signs are ignored, maintenance and repairs go unfunded and neglected, until a major failure occurs.

This white paper provides municipalities and public schools leaders some management tools to help them understand the full cost and potential impact of deferred property and facility maintenance, and to help them adequately budget for maintenance before it's too late. They are:

1. Measuring the Total Cost of Risk of deferred maintenance.
2. Evaluating the condition of equipment and buildings.
3. Budgeting for a long-range maintenance strategy.

Definition

"Deferred Maintenance" is the practice of postponing maintenance activities such as repairs to or replacement of both real property (i.e. infrastructure) and personal property (i.e. machinery) in order to save costs, meet budgetary funding levels, or realign available budget monies.

The failure to perform needed repairs or replacement leads to asset deterioration and ultimately asset impairment. Generally, a policy of continued deferred maintenance results in higher costs, asset failure, and in some cases, risk to health and safety.

Measuring the true cost of deferred maintenance

Cost Escalations

Maintenance competes for funding with other programs and is often deferred because appropriations are not available or were redirected to other priorities or projects. Deferred maintenance needs are usually escalated to decision makers who often either dismiss or view them as insignificant compared to other budgetary items. Maintenance repairs and replacement requests are then deferred, contributing to a compounding maintenance backlog that may result in increased safety hazards, poor service to the public, higher costs in the future, and inefficient operations.

In nationally recognized studies, the evidence indicates that the time and cost to recover from property and equipment failure is enormous compared to time and cost needed to avoid it. Studies suggest that any part that is known to be failing and left in service until the larger unit fails, that will create an expense equal to the square of the cost of the primary failure part.

For example: If a failing $100 component is run to outright failure, then at breakdown the repairs could cost upwards of $10,000. Moreover, the consequential damage from the breakdown of the unit could increase that amount exponentially, as seen in many CIRMA Property claims.

The Total Cost of Risk (TCOR)

When taking an enterprise risk management approach to property management, understanding the Total Cost of Risk is paramount in decision-making.

The **Total Cost of Risk (TCOR)** for a loss = (Direct Cost + Indirect Costs)

Direct Costs are the portion of a loss covered and paid by insurance, while the Indirect Costs are a non-insurable costs that the municipality incurs.

"Savings from early interventions can be plowed back into more early interventions."

David Tod Geaslin

Examples of Indirect Costs from a property loss may include:

- Business interruption.
- Lost productivity.
- Employee overtime.
- Administrative fees.
- Reputational risk (individual, municipality).
- Increased insurance premiums.
- Deductible costs.
- Lower employee morale.
- Impact on student learning and school climate.
- Potential adverse health concerns.

CIRMA Claim Example

Maintenance Issue:

A high school had a leaking 2"copper water pipe. Instead of hiring a plumber to cut out the failing section and replace it, the pipe was patched by in-house maintenance staff. The cost of a plumber to do a proper repair in the school would be about $500-$600, including materials for 1" replacement section of copper pipe at around $25.

What Happened:

The inadequate patch failed and the pipe burst a short time later. While it was the patch that ultimately gave out, the fact that the copper pipe was leaking could have meant that the pipe was at its end of life and the entire system needed replacing. It was well known that the building was old and that the plumbing issues were a constant, the maintenance budget had been cut or reduced for years.

The failure resulted in over 2,000,000 gallons of water gushing out, severely damaging the interior of the building and its contents. The insured portion of the loss, or Direct Cost, was $350,000. If the Indirect Costs are calculated conservatively at a 1 to 2 ratio, the Indirect Costs are about $750,000. The total true cost of the loss is over $1 million.

Best Practices for Deciding to Repair or Defer

In deciding to repair or defer maintenance, municipalities should**:**

1. Know the cost of the primary part that is failing today.

2. Square the cost of the part to see the potential cost to recover from the breakdown.

3. Understand that if a particular piece of equipment does break down, the consequential damage can significantly increase the entity's Total Cost of Risk.

Benchmarking to facilitate a long-term strategy

The Facility Condition Index (FCI) is a standard tool used by architects, engineers, and by facility managers nationally to increase understanding of the condition of assets, which can in turn facilitate long-term strategic decision making and potentially give more credibility to requests for increased maintenance funding. This nationally recognized standard has also been adopted by the National Association of College and University Business Officers (NACUBO) and the Association of Higher Education Facilities Officers (APPA) as a benchmarking method of comparing relative building condition over a period of time. Basically, the FCI is the ratio of deferred maintenance dollars to replacement dollars.

The FCI is calculated by dividing the existing cost of Deferred Maintenance by

The Inverse-Square Rule is a handy tool to estimate cost of repairs to recover from escalating failures.

the Asset Replacement Value (ARV). It provides a quantitative measure of an asset's condition, stated as a percentage.

Total Deferred Maintenance: The total dollar amount of existing major maintenance repairs and replacements, identified by a comprehensive facilities audit of buildings, grounds, fixed equipment, and infrastructure. This does not included projected maintenance and replacements or other types of work, such as program improvements or new construction.

Asset Replacement Value: The estimated cost of constructing a new facility containing an equal amount of space that is designed and equipped for the same use as the original building, meets the current commonly accepted standards of construction, and also complies with environmental and regulatory requirements.

$$\text{FCI} = \frac{\text{Total Deferred Maintenance (\$)}}{\text{Asset Replacement Value (\$)} \times 100}$$

The higher the FCI percentage, the poorer the condition of the asset (see chart).

In short, once the condition of municipal buildings have been inventoried using the FCI, and the potential total cost of risk for deferred maintenance items calculated, a long-term strategy for capital renewal and deferred maintenance reduction programs should be established and funds allocated appropriately.

Interpretation of the Facility Condition Index (FCI)

FCI	Condition of building
0–2%	Excellent
2–5%	Good
5–10%	Fair
10–15%	Poor
>15%	Very Poor

For more information about this topic, please contact your CIRMA Risk Management Consultant.

The Bottom Line:

The sooner a municipality or school can conduct an appropriate repair or replace a failing component, the better. The likelihood of incurring greater costs escalates with each deferred maintenance repair or replacement. By appropriate budgeting and funding for maintenance, municipalities are less likely to develop a deferred maintenance backlog that seems too overwhelming to overcome.

The Connecticut Interlocal Risk Management Agency, CIRMA, is Connecticut's leading provider of municipal risk financing and risk management services. A member-owned and governed agency, CIRMA provides high quality insurance for municipalities, school districts, and local public agencies. CIRMA operates two risk pools, the Workers' Compensation and the Liability-Auto-Property pool. It also provides Heart & Hypertension claims services and claims administration and risk management services to self-insured municipalities. CIRMA's financial strength enables it to provide assured rate stability, open availability, and expert risk control and claims services. CIRMA is a service program of The Connecticut Conference of Municipalities.

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