

Maintenance Management Framework

Policy for the maintenance of
Queensland Government buildings



The suite of *Maintenance Management Framework* documents is available online (www.hpw.qld.gov.au):

1. the *Maintenance Management Framework policy document* contains the policy requirements and general information for Queensland Government departments about relevant asset management principles and practices;
2. *Guidelines* complement the policy by giving a more detailed explanation of a subject; and
3. *Policy advice notes* discuss emerging policy issues or topical maintenance matters.

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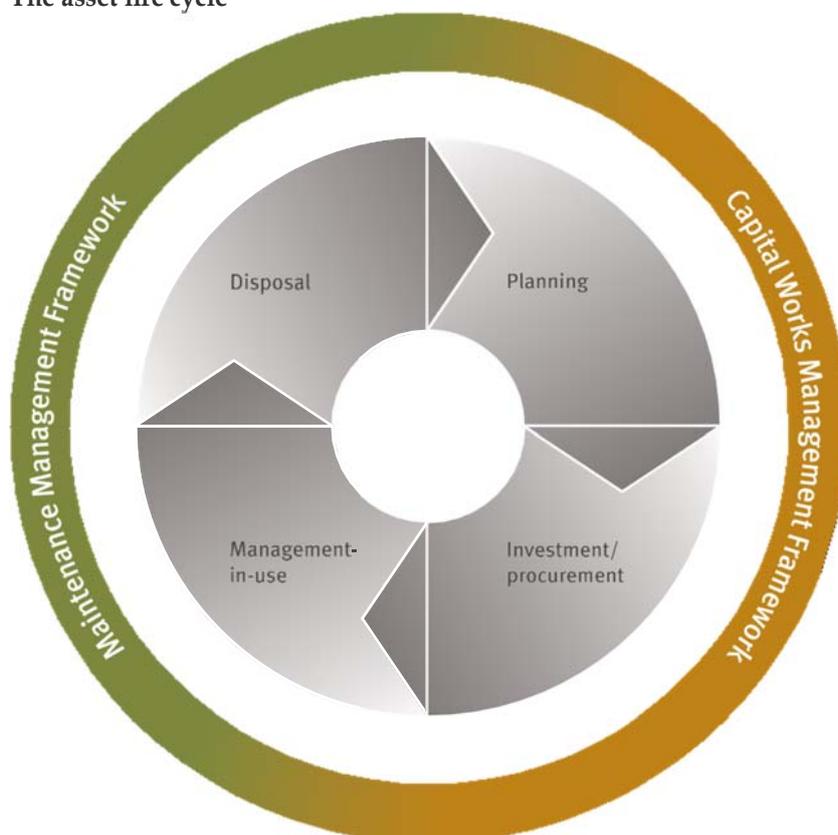
Maintenance Management Framework Policy for the maintenance of Queensland Government buildings

Revised Second Edition
Queensland Department of
Housing and Public Works
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The concept of the "asset life cycle" (illustrated below), covers the planning, investment/procurement, management-in-use and disposal of assets such that their service delivery potential is maximised and that risks and costs are managed over their entire life. A thorough understanding of this concept and its implications will facilitate good custodianship of a building portfolio, particularly in terms of the management-in-use and disposal phases.

The asset life cycle



There is a close relationship between the *Maintenance Management Framework* and the *Capital Works Management Framework*. The *Maintenance Management Framework* is primarily concerned with the management-in-use phase in which the maintenance of the building asset takes place, whilst the *Capital Works Management Framework* mainly relates to the planning and investment/ procurement phases. However both Frameworks interrelate at critical phases.

Complementary to these Frameworks, is a best practice guideline for performance assessment of Queensland Government buildings, the *Building Asset Performance Framework*. The *Building Asset Performance Framework* provides departments with a systematic approach to managing the performance of building assets to meet service delivery requirements. It aims to ensure that there is a rational, performance orientated basis for making decisions about government buildings.

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Introduction

The State of Queensland owns and uses billions of dollars worth of building assets. These assets must be properly maintained so that they continue to support the delivery of a wide range of government services which fulfil the social, economic and environmental needs of the community.

The *Maintenance Management Framework* (MMF) is the whole-of-Government policy for managing building maintenance. By adhering to the policy requirements in the MMF, departments will have a consistent approach to the management, planning and delivery of building maintenance.

Terminology

For the purposes of this policy document, the terms 'asset', 'building', 'building asset' and 'facility' have the same meaning and are used interchangeably. Similarly, the term "building element" is equivalent to "building component". A detailed definition of these terms is provided in the MMF policy advice note: *Scope of Building Maintenance*.

1.0 Authority

The MMF was approved by Executive Government on 28 June 1999 and came into effect on 1 July 1999. This second edition is the result of a whole-of-Government review which occurred during 2006. The MMF is aligned with, and underpinned by, the maintenance requirements in the *Financial Accountability Act 2009* and the *Financial and Performance Management Standard 2009*. It accompanies the *Capital Works Management Framework* in promoting best practice building asset management in the public sector.

2.0 Scope of application

The MMF applies to all departments (as defined in section 8 of the *Financial Accountability Act 2009*) that control or administer buildings and have responsibility for maintenance as part of the overall asset management of their portfolio.

3.0 What is maintenance?

Within the context of this policy, maintenance is defined as work on existing buildings undertaken with the intention of:

- re-instating physical condition to a specified standard
- preventing further deterioration or failure
- restoring correct operation within specified parameters
- replacing components at the end of their useful/economic life with modern engineering equivalents
- making temporary repairs for immediate health, safety and security reasons (e.g. after a major building failure)
- mitigation of the consequences of a natural disaster
- assessing buildings for maintenance requirements (e.g. to obtain accurate and objective knowledge of physical and operating condition, including risk and financial impact for the purpose of maintenance).

The following are not classified as maintenance:

- improvements and upgrading to provide additional or new service capability or function
- upgrading to meet new statutory requirements
- major refurbishment and replacements to extend the useful life of the building
- restoration of the entire building to operational condition after total or near total failure (e.g. resulting from natural disasters)
- work performed under warranty or defects liability period
- operational tasks to enable occupancy and use (e.g. cleaning, security, waste management)
- supply of utilities (e.g. energy, water and telecommunications).

4.0 Maintenance objectives

The maintenance of Queensland Government building assets should:

- meet departmental service delivery expectations reflected in the standards to which building assets are to be maintained
- focus on the impact of the condition of an asset on service delivery and risk
- minimise whole-of-life costs of building assets
- make the best use of maintenance resources
- facilitate maintaining relevant and up to date building information at departmental and whole-of-Government levels.

The key outcomes to be achieved from undertaking maintenance are:

- the functional and operational needs are realised
- the physical condition of assets is kept up to a standard appropriate for their service function and value to the community
- all statutory and technical requirements to ensure health, safety, security and reliability are met.

Performance of building assets

Maintenance must be viewed in the overall context of the ability of the building asset to support service delivery in terms of physical condition, functionality, capacity, environmental performance and alignment with service demand.

A quality portfolio of building assets should efficiently, effectively and economically sustain delivery of services. Portfolio quality is sustained by the addition or retention of high-performing assets and, in general terms, the disposal or renewal of under-performing assets.

At various points throughout the life of a building, decisions must be made regarding its future in a department's portfolio. Decisions about disposal or retention of building assets must be based on sound evaluations using performance indicators that fully reflect departmental service delivery goals.

Maximum value for maintenance expenditure involves strategic application of funds taking into account the required performance of the assets. Maintenance of ineffective assets should be questioned and options for their future role should be critically evaluated.

The broad scope and application of building asset performance management, and the key principles and elements necessary for achieving effective management of buildings, are outlined in the Queensland Government best practice guideline, the *Building Asset Performance Framework*.

Practical approaches to improve maintenance outcomes

Better maintenance outcomes will result when asset owners and service providers work collaboratively to introduce innovative, cost effective practices.

Operational maintenance decisions should consider how reliability can be improved and future maintenance demand can be reduced. Decision makers should also factor in whole-of-life costs, sustainability and other efficiencies.

Understanding and analysing the reasons for defects is as important as rectifying them. By identifying the causes, action can be taken to avoid a repetition of the problem.

Service providers' first hand knowledge and experience of maintenance issues should be applied to analyse what has happened in the past and how it relates to the current setting. Ongoing maintenance "problems" should be viewed as opportunities to generate creative solutions that reduce costs, improve reliability and increase longevity.

Service providers should be willing to challenge conventional maintenance practices, look outside the usual parameters and proactively pursue alternatives when:

- new or improved components have been developed which are of better quality, more economical or better suited to the purpose or function
- a maintenance issue recurs on a regular basis, further investigation into the cause should be undertaken rather than continually repairing/replacing the faulty component
- the same building elements or parts repeatedly fail
- the pattern of expenditure reveals excessive consumption of funds on a particular maintenance item
- access to building services is difficult or interferes with service delivery.

5.0 Objectives of the Maintenance Management Framework

The main objectives of the MMF are to ensure:

- continuous improvement in asset planning, maintenance procedures and risk management (including the mitigation of the impacts of a natural disaster)
- government buildings are adequately maintained
- the risks to Government are well managed
- departments take a more strategic role in the maintenance of government buildings
- Government has pertinent information for monitoring the maintenance, condition and performance of buildings at a whole-of-Government level
- there is sufficient operational information to perform maintenance, including the ability to review policies and strategies, analyse life-cycle costs, assess environmental impact, plan for replacements and upgrades, mitigate the impact of natural disasters and improve the efficiency and effectiveness of maintenance.

6.0 Roles and responsibilities

All departments (as defined in section 8 of the *Financial Accountability Act 2009*) must comply with the requirements of this policy. Any departure from this policy should only occur after consultation and agreement with the Department of Housing and Public Works.

The Department of Housing and Public Works has a pivotal role from both a policy and operational perspective. This role includes:

- services to departments such as maintenance, condition assessments and planning and program administration on a fee-for-service basis
- monitoring of maintenance outcomes and asset performance on a whole-of-Government basis
- implementation and review of the MMF
- provision of assistance and advice to departments on maintenance and asset management related issues
- coordination of whole-of-Government special maintenance programs and other initiatives.

7.0 Elements of the Maintenance Management Framework

The elements of the MMF are shown in the diagram below. These elements must form part of departmental processes. Departments' management of their building assets (including maintenance) should suit their needs at both a strategic and operational level.

Maintenance planning and development	Maintenance implementation	Maintenance information and systems
Policy requirement 1 Document an internal departmental maintenance policy	Policy requirement 5 Arrange/conduct condition assessments	Policy requirement 11 Collect and retain relevant asset information
Policy requirement 2 Determine condition standard ratings	Policy requirement 6 Assess maintenance demand	Policy requirement 12 Ensure proper capturing of information from commissioning and handover
Policy requirement 3 Prepare a departmental maintenance strategy	Policy requirement 7 Allocate an adequate maintenance budget	Policy requirement 13 Utilise a computerised maintenance management system
Policy requirement 4 Develop a Strategic Maintenance Plan	Policy requirement 8 Develop an annual maintenance works program	Policy requirement 14 Establish maintenance reporting capability
	Policy requirement 9 Arrange provision of maintenance services	
	Policy requirement 10 Monitor and review maintenance performance	

Role of maintenance in implementing sustainable measures

Maintenance activities provide an avenue for departments to assess the environmental impact of their buildings and develop maintenance strategies to minimise this impact wherever possible. Such strategies should aim to:

- increase energy, water and waste efficiency
- provide input to strategic planning to make change
- implement sustainable procurement of services which take into account value for money and the supplier's socially responsible practices
- minimise environmental impacts over the life cycle of products when buying goods and services.

7.1 Maintenance planning and development

7.1.1 Departmental maintenance policy

Policy requirement 1—Document an internal departmental maintenance policy

Departments must produce an internal departmental maintenance policy that complies with the MMF.

The MMF provides high level direction to departments. However, in order for full implementation of the MMF to occur, it is essential that individual departments document an internal maintenance policy that incorporates their delivery objectives.

The departmental maintenance policy should explain department-specific processes and practices to enable departmental personnel responsible for building maintenance to successfully manage their maintenance program.

The policy should also address the handover and retention of technical and asset information, and arrangements for an effective feedback loop to building planners and designers to improve maintainability and minimise maintenance needs associated with future buildings.

For further information on preparing a maintenance policy refer to the MMF guideline: *Building Maintenance Policy, Standards and Strategy Development*.

7.1.2 Condition standard ratings

Policy requirement 2—Determine condition standard ratings

Departments must determine a condition standard rating for each building asset, and periodically review and update the rating.

Departments must specify the level at which their buildings are to be maintained. A condition standard rating for each building must be documented, having regard to the:

- building's physical condition
- functional purpose
- operating environment
- future plans and associated costs in relation to proposed refurbishments, upgrades, replacement or disposal.

Table 1: Condition standards

Departments should use this table to determine the appropriate standard required at facility level or individual building level.

Functional purpose	Specified standard	Rating
Highly sensitive purpose with critical results (e.g. hospital operating theatre) or high profile public building (e.g. Parliament House).	Building to be in the best possible condition. Only minimal deterioration will be allowed.	S5
Good public presentation and a high quality working environment are necessary (e.g. modern multi-storey CBD building).	Building to be in good condition operationally and aesthetically, benchmarked against industry standards for that class of asset.	S4
Functionally-focused building (e.g. laboratory).	Building to be in reasonable condition, fully meeting operational requirements.	S3
Ancillary functions only with no critical operational role (e.g. storage) or building has a limited life.	Building to meet minimum operational requirements only.	S2
Building is no longer operational—it is dormant, pending disposal, demolition, etc.	Building can be allowed to deteriorate, however, must be marginally maintained to meet minimum statutory requirements.	S1

Where standards are specified at overall building level, detailed descriptions of what is meant by the S1 to S5 ratings should be articulated in terms of condition standards of key building elements most critical to delivery of services. This is because more complex and critical building elements will generally have specific performance requirements and these elements therefore may need to be maintained above the standards required for the overall building.

Such descriptions should be used to establish a common understanding and agreement with condition assessors by focusing on building elements most likely to warrant immediate repair or further assessments. These descriptions can also be used to monitor change in general condition over time.

7.1.3 Maintenance strategy

Policy requirement 3 – Prepare a departmental maintenance strategy
Departments must adopt a maintenance strategy which incorporates a balance of planned maintenance and unplanned maintenance.

All departments are required to document a strategy for maintenance of their building assets and site improvements which is a combination of the following:

Planned maintenance

Planned work at predetermined intervals to meet statutory, health and safety, technical or operational reliability considerations, and to preserve the asset and prolong its economic life.

Planned maintenance consists of preventative, statutory, and condition-based maintenance.

Preventative maintenance may be applied to building structures, building fabric, services and site improvements but is predominantly used for maintenance of building services. When preparing their maintenance strategy, departments should be aware of the benefits of preventative maintenance practices which minimise the likelihood of building asset failures, health and safety issues and disruptions to service delivery.

Statutory maintenance is maintenance to meet requirements mandated in Acts, Regulations and other statutory instruments.

Condition-based maintenance is identified as a result of a condition assessment or inspection process. The maintenance work is carried out because the physical condition of a building structure, building fabric, service or site improvement is below the acceptable standard.

Unplanned maintenance

Unplanned maintenance (may also be referred to as reactive) occurs when failure of a building component requires immediate attention. It is usually limited to rectification for health, safety or security reasons and may be a consequence of a natural disaster.

Observation

For minor, non-critical buildings and those buildings scheduled for refurbishment, replacement or disposal, the maintenance strategy can incorporate a “minimum maintenance” approach. Under this approach, apart from statutory maintenance requirements, there is no maintenance action until breakdown or the condition is expected to fall below legal requirements.

7.1.4 Strategic maintenance planning

Policy requirement 4—Develop a Strategic Maintenance Plan

Each department must develop a Strategic Maintenance Plan as part of its strategic asset planning process.

When formulating a Strategic Maintenance Plan (SMP) each department should take into account:

- service delivery plans
- the age, condition, value, deferred maintenance and functionality of its buildings
- the performance of its buildings in terms of water and energy consumption
- health, safety and security requirements
- new buildings
- disposal or refurbishment plans
- emerging issues which may impact on service potential.

The SMP should reflect the maintenance needs of the department's portfolio of buildings over the immediate, medium and long term. Modifications may be necessary if/when service delivery priorities change.

The SMP should link to the department's Asset Plan and the whole-of-government reporting requirements under the Total Asset Management Plan (TAMP) Framework (refer to the *Strategic Asset Management Framework* guideline: *Asset Planning for Buildings*) and consider, amongst other matters, the maintenance of existing and new assets and how this will be dealt with in the longer term.

The SMP should address how departments will:

- manage backlog/deferred maintenance
- fund and sustain future maintenance
- reduce maintenance demand through improved design of new buildings and incorporation of feedback from facility managers and occupants on maintainability and other issues
- gain better value for money in expenditure of maintenance funds and achieve government's objectives and targets
- improve the management of maintenance by utilising better systems and procurement models
- incorporate ecologically sustainable development and environmental impact considerations into maintenance strategies and practices
- mitigate the consequences and impacts of a natural disaster
- maintain or improve the health and safety aspects of their buildings.

Development of the SMP should include consultation with all relevant stakeholders about asset utilisation and consider the need for whole-of-government and building construction and maintenance (BCM) procurement planning in relation to the significant maintenance of the building asset portfolio to enhance outcomes for Queensland suppliers consistent with the Queensland Procurement Strategy.

Strategic asset management

Strategic asset management is the concept of aligning an organisation's physical assets with its service delivery. It focuses on the outcome or purpose of a building asset and manages all decision making over the entire life of the asset. Informed decisions about the location, number and type of assets that are needed will enable current and future service delivery demands to be met.

The effects of decisions made during any phase of an asset's life cycle will affect performance and costs in a subsequent phase.

Buildings should be designed for ease of maintenance. The level of maintenance is influenced by the incorporation of adequate materials and designs and not over-prescribing performance requirements and specifications.

Best practice asset management is achieved by:

- balancing desired service expectations with investigation of the non-asset and asset alternatives to deliver them (in consultation with the community)
- adopting a life cycle approach which encompasses transparent, informed decision making processes
- managing the risks of asset ownership and operation to ensure service continuity
- providing for present needs while sustaining resources for future generations.

Importance of maintenance to strategic asset management

Maintenance is a fundamental part of strategic asset management. Building assets must be well maintained in order to support service delivery. There are substantial long-term benefits of good maintenance including:

- assets will perform better
- their life will be extended
- operating costs will be reduced
- users/community members will have a favourable perception of government services.

Over an asset's life, maintenance costs represent a significant proportion of the total cost of owning a facility. In addition to the initial construction outlay, economical whole-of-life costs must also be recognised as a key driver during the design process. Evidence suggests that good design/construction may reduce long-term maintenance issues.

Maintenance planning and expenditure should be guided by value-for-money principles. Departments should ascertain whether it is more economical to upgrade, replace or refurbish buildings rather than continuing to make ongoing repairs.

7.2 Maintenance implementation

7.2.1 Condition assessment

Policy requirement 5 – Arrange/conduct condition assessments

As a minimum, all Queensland Government buildings are to be assessed by site inspection at least every three years, depending on the nature of the facility.

A structured condition assessment process must be part of any condition-based maintenance strategy which should be incorporated into the maintenance planning process. The MMF guideline: *Building Condition Assessment*, describes the methodology that should be used in the assessment of building assets.

A condition assessment is a technical inspection by a competent assessor to evaluate the physical state of building elements and services and to assess the maintenance needs of the facility. The assessment should provide sufficient information on the condition of the building to support informed asset management decisions.

Condition assessment generally comprises:

- a physical inspection of buildings
- assessment of the actual condition of individual elements, services and buildings
- comparison of the actual condition with the asset owners' specified condition standard as outlined in Table 1
- identification of maintenance works required to bring the condition of the building up to the specified condition standard
- ranking of maintenance works in order of priority
- determining actions deemed necessary by the assessor to mitigate any immediate risk until remedial works (or other actions) can be taken to address problems.

Frequency of condition assessments

Site inspections must be conducted on all Queensland Government buildings at least every three years, depending on the nature of the building and its building elements and services. All buildings that have been adversely impacted by a natural disaster should be fully assessed as soon as practical after the event.

Departments should decide on the appropriate interval in terms of criticality to service delivery and complexity of the building asset. The more critical and complex an asset is, the more likely it is that condition assessment will be required more often. For example, undertaking annual condition assessments focused on workplace health and safety risk may be more advantageous for building types that may incur a high potential incident.

The following factors should also be taken into account when determining assessment intervals:

- intensity of use (number of occupants and nature of business activities)
- robustness of construction and susceptibility to wear and tear
- number of days and hours of operation
- extent of public use (visitors or users)
- exposure to harsh environmental conditions or malicious damage

- age of the building and its components
- costs, risks and benefits of assessment interval adopted
- likelihood or possibility of health and safety or other environmental issues occurring
- other periodic inspections or monitoring of building assets that may be required such as the inspection of hazardous building materials (e.g. asbestos, lead paint).

Results from condition assessment

The results from the condition assessment should be presented in a report that should include:

- the desired condition standard rating identified for each building (refer to Table 1)
- an assessed condition index for each building (refer to Table 2) which communicates to the asset owner the general state of their buildings
- an itemised, recommended schedule of maintenance work necessary to bring each building up to the condition standard (Table 1) as nominated by the asset owner. A condition assessment priority ranking scale (refer to Table 3) must be used by the assessor in developing the recommended schedule of maintenance work
- cost estimates of the remedial work identified (at a level of detail agreed with individual departments)
- advice about the longer term maintenance needs of the building to assist in planning and decision making (e.g. any anticipated major replacements or upgrades).

The results from condition assessments should be analysed by departments in the context of other building data such as: functionality, utilisation and operational cost efficiency; departmental and government priorities; environmental and social commitments; and budget imperatives.

Competencies and quality of outcomes

Integrity and quality of outcomes from the assessments depends upon, amongst other things, the ability to match, where possible, the appropriate competency of assessors with the building elements being assessed. A competent assessor is a person that has relevant training, qualifications, ability, aptitude, experience and (where required by law), the appropriate licence or registration, to undertake a building condition assessment as defined by the MMF.

Asbestos management

The condition of asbestos containing material in building elements must be assessed and documented in accordance with the requirements in the *Queensland Government Asbestos Management Policy for its Assets*.

Table 2: Condition index

This table sets out the ratings to be used by the assessor to represent the general condition of building assets.

Rating	Status	Definition of rating/condition of building asset
5	Excellent	<ul style="list-style-type: none"> no defects as new condition and appearance
4	Good	<ul style="list-style-type: none"> minor defects superficial wear and tear some deterioration to finishes major maintenance not required
3	Fair	<ul style="list-style-type: none"> average condition significant defects are evident worn finishes require maintenance services are functional but need attention deferred maintenance work exists
2	Poor	<ul style="list-style-type: none"> badly deteriorated potential structural problems inferior appearance major defects components fail frequently
1	Very poor	<ul style="list-style-type: none"> building has failed not operational not viable unfit for occupancy or normal use environmental/contamination/pollution issues exist

Table 3: Condition assessment priority ranking scale

This table sets out the rankings to be used by the assessor undertaking condition assessments to provide an indication of recommended maintenance work.

! **Do not program** critical maintenance items which require **immediate** rectification. These items warrant urgent actioning as unplanned maintenance.

Priority ranking	Definition
1	<p>Works needed to:</p> <ul style="list-style-type: none"> meet maintenance related statutory obligation and due diligence requirements ensure the health and safety of building occupants and users prevent serious disruption of building activities and/or may incur higher costs if not addressed within 1 year.
2	<p>Works that:</p> <ul style="list-style-type: none"> affect the operational capacity of the building are likely to lead to serious deterioration and therefore higher future repair costs if not addressed between 1 to 2 years.
3	<p>Works that:</p> <ul style="list-style-type: none"> have minimal effect on the operational capacity of the building but are desirable to maintain the quality of the workplace are likely to require rectification within 3 years.
4	<p>Works that:</p> <ul style="list-style-type: none"> can be safely and economically deferred beyond 3 years and reassessed at a future date.

7.2.2 Maintenance demand

Policy requirement 6—Assess maintenance demand

Departments must assess and financially quantify the demand for maintenance as the initial step in the planning and delivery of annual maintenance work programs.

Conducting a maintenance demand assessment will ascertain the total maintenance requirements of the building portfolio. The scope of maintenance work in the demand assessment process will be a combination of:

- preventative maintenance which takes into account expert advice and manufacturers' recommendations
- condition-based maintenance works identified in maintenance assessment reports
- deferred (backlog) maintenance
- maintenance to meet mandatory statutory and health and safety requirements
- reactive maintenance estimates based on historical information.

7.2.3 Departmental maintenance budgets

Policy requirement 7—Allocate an adequate maintenance budget

Departments must allocate sufficient funding in their maintenance budget to enable the buildings in their portfolio to be maintained to the condition standard ratings identified and documented in the departmental maintenance policy.

Setting the annual departmental maintenance budget

Departments must formulate an annual maintenance budget which is a realistic calculation of the quantum of funding required to address the department's maintenance needs. This relies upon reliable data extracted from:

- the departmental maintenance strategy
- the Strategic Maintenance Plan
- the maintenance assessment reports
- current state and age of the department's building portfolio
- analysis of maintenance demand
- deferred maintenance levels.

When developing the annual maintenance budget, consideration should also be given to opportunities for cost-effective improvements in building performance through the adoption of innovative technologies such as energy-efficient lighting, products that reduce water use, products that improve air quality, etc.

Where the funding allocated is less than the amount required to undertake the identified maintenance tasks, departments may wish to explore the following options:

- seek more funding from within their funding source
- ensure that maintenance is not considered a discretionary item when funding is being determined
- reviewing the performance of building assets to identify any opportunities for disposal
- with the exception of statutory and health and safety requirements, defer some maintenance works after considering value for money factors and all the risks of doing so.

The MMF recommends a minimum funding benchmark of **1% of the building Asset Replacement Value (ARV) of the department's building portfolio.**

The ARV for buildings is the best estimate of the current cost of constructing (for its original use) a new facility providing equivalent service potential as the original asset. It does not include the value of the furnishings or other items not permanently part of the facility, nor does it include design and project management costs.

Departments should view this 1% funding recommendation as the **minimum** threshold for annual maintenance expenditure for their building portfolio, **not** as the optimal funding level.

Example: If a department has a building portfolio with a current ARV of \$800 million then (subject to many variables) it is reasonable to expect a minimum of \$8 million for that year's maintenance budget.

It is likely that a department's maintenance budget will exceed the recommended minimum threshold of 1% of the ARV if the portfolio has:

- unfunded or deferred maintenance projects
- ageing or deteriorating buildings
- heritage or iconic buildings or
- highly critical or complex facilities.

For more comprehensive advice about how to prepare a maintenance budget refer to the MMF guideline: *Building Maintenance Budget*.

Allocating maintenance funds to individual buildings

Maintenance funding for individual buildings within the portfolio should reflect actual maintenance demand.

Risks associated with underfunding maintenance

In some instances, departments may not have sufficient funds available to allow all identified maintenance tasks to be completed. It is, therefore, important that departments carefully evaluate priorities and risks and focus on condition standards and the most cost-effective solutions to maintain the desired building standards.

Deferred maintenance is defined as maintenance work that is postponed to a future budget cycle, or until funds become available. It does not include work earmarked in anticipation of a level of deterioration which did not occur (e.g. forecast repainting).

Departments need to have a strategy in place to keep deferred maintenance to a manageable level. Some maintenance activities can be postponed without immediately having a noticeable effect on the functionality of the building. However, departments that allow their building portfolios to decline through inadequate maintenance are not only failing to meet their legislative responsibilities, they are potentially exposing themselves and the Queensland Government to risk.

An ongoing policy of deferring maintenance will result in higher costs than if normal maintenance had occurred. Insufficient funding to perform needed repairs will lead to a backlog of maintenance projects which will adversely impact on future maintenance budgets.

7.2.4 Maintenance planning

Policy requirement 8—Develop an annual maintenance works program

Departments must produce an annual maintenance works program based on condition assessments, existing programs, historical data and their strategic Asset Plan.

All departments are required to develop an annual maintenance works program covering all building assets as part of their maintenance planning process. The maintenance works program should support the departmental maintenance strategy and consist of a balance of planned and unplanned maintenance (refer to Table 4: Maintenance work classification and sub-categories). It should focus on service delivery obligations, maintenance priorities, availability of resources and performance management. The scheduling, delivery and control of maintenance work projects should be in accordance with the maintenance works program.

Planning horizons should be at least three years. However, as the aim of the program is to identify maintenance activities for each year in the planning period, the minimum duration of a maintenance works program is one financial year. Formulation of a maintenance works program allows departments to plan, prioritise and allocate sufficient resources and funds for maintenance. Systems and processes should be set up to manage the maintenance works program and monitor its outcomes.

In planning and approving work programs, departments should mitigate, as far as possible, the impact on industry of fluctuating demand on maintenance resources, especially in regional and remote areas. Departments should work closely with their maintenance service provider so that their programs are prepared with due attention to market conditions and reasonable timeframes.

Risk management

Risk management is an important aspect of maintenance. Maintenance planning should manage the risks associated with the custodianship of building assets.

When assessing the risks associated with failure of an asset, departments should take into consideration:

- health, safety and security of the facility
- loss of functionality
- protection of the market value of the asset
- perception of the community.

The process of risk analysis and management is clearly defined in the *Australian/New Zealand Standard AS/NZS ISO 31000:2009 Risk management - Principles and guidelines*.

The engagement between departments and their maintenance provider will contribute to ensuring:

- an adequate standard of environmental measures is implemented (e.g. to assist in increasing water and energy efficiency)
- timely maintenance of buildings, especially for buildings designed to achieve a particular environmental performance (e.g. once a building has achieved an environmental rating—either at the design stage or at completion—it is important to ensure this rating is maintained during operation)
- better coordination of maintenance and inspection activities (including periodic inspections of asbestos containing material) in remote locations, focusing on:
 - optimum use of resources
 - review of opportunities for integrating and leveraging of works with other departments
 - better coordination of purchasing materials.

Table 4: Maintenance work classification and sub-categories

This table illustrates the elements that should be incorporated in a balanced maintenance works program.

Category	Sub-category	Definition
Planned maintenance	Preventative service maintenance	Prevents asset failure by systematic inspection and monitoring to detect and avoid deterioration or failure. It also entails testing to confirm correct operation.
	Condition-based maintenance	Programmed maintenance work, based on condition assessment or other priorities, that returns an asset to an acceptable standard.
	Statutory maintenance	Compulsory maintenance to meet requirements mandated in Acts, Regulations and other statutory instruments. This includes standards and codes referred to in an Act, Regulation or statutory instrument.
Unplanned maintenance	Corrective and breakdown maintenance	Restores an asset to operational condition following an unforeseen failure.
	Incident maintenance	Brings an asset back to an operational or safe condition following damage caused by natural disasters, storms, fire, forced entry or vandals.

7.2.5 Maintenance procurement

Policy requirement 9—Arrange provision of maintenance services

1. Departments are required to enter into appropriate arrangements with the Department of Housing and Public Works or other maintenance service providers for the provision of maintenance services in accordance with government policy.
2. Engagement of appropriately registered maintenance service providers under the Prequalification (PQC) System for building industry contractors (administered by the Department of Housing and Public Works) is required where:
 - the value of individual maintenance work projects exceed the threshold requirements of the *Capital Works Management Framework*, or
 - a total package of maintenance services from demand assessment through to delivery is outsourced to a private sector maintenance or facilities management organisation.

Outsourced maintenance services should be delivered through a Service Level Agreement (SLA) or other suitable instrument which complies with the MMF. The use of an SLA (or other compliant instrument) allows the department to formally instruct its maintenance provider about specifications and expectations.

Procurement of maintenance services must be in accordance with the *Queensland Procurement Policy* and give due regard to:

- opportunities for economy of scale in purchasing
- employment opportunities and impact on regional areas of Queensland
- efficiency and effectiveness
- best practice and innovative use of technology
- retaining adequate departmental capacity to manage maintenance
- achieving maintenance outcomes at the most economical cost to Government
- minimising administrative transactions to enhance transparency and accountability
- requirements for publishing details of the award of tenders and consultant commissions on the QTender website (administered by the Queensland Government Procurement).

7.2.6 Maintenance performance

Policy requirement 10—Monitor and review maintenance performance

Departments must monitor and review maintenance performance in accordance with the provisions of this Framework.

Monitoring and reviewing maintenance performance is crucial to accomplishing maintenance outcomes which are in accordance with government policy and underpin departmental service delivery. The following aspects should also be periodically reviewed by each department:

Maintenance program management

- expenditure against budget
- achievement of planned maintenance program (time, cost and quality)
- unplanned and planned maintenance as percentages of total expenditure
- level of deferred maintenance.

Maintenance service provider

- efficiency and effectiveness of:
 - people
 - processes
 - systems
 - management
- compliance with the MMF
- achievement of key performance indicators in the SLA.

Maintenance outcomes

- total maintenance expenditure as a percentage of building portfolio replacement value
- building occupant satisfaction with overall condition and reliability of building services
- Facility Condition Index.

The Facility Condition Index (FCI) is a complementary measure of performance which is a generally accepted method of comparing relative building condition over a period of time. It can be used at portfolio level 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.

The FCI is calculated by dividing the existing cost of deferred maintenance by the Asset Replacement Value (ARV). It provides a quantitative measure of an asset's condition, stated as a percentage.

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

The higher the percentage, the poorer the condition of the asset.

Interpretation of the FCI

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

7.3 Maintenance information and systems

7.3.1 Retention of maintenance information

Policy requirement 11 – Collect and retain relevant asset information

Departments, or their service providers, must have protocols and processes in place for the proper collection, custodianship, updating and use of technical and asset information.

The MMF requires that departments gather data pertaining to maintenance of their buildings, services and site improvements. Technical and asset information related to maintenance should be retained in a useful format/medium and protected as government intellectual property.

If applicable, relevant information related to changes to a building (such as refurbishment, alteration, extension or improvement) where asbestos containing material has been found to be present it must be recorded in the register of asbestos containing material in accordance with the requirements in the *Queensland Government Asbestos Management Policy for its Assets*.

Critical to making informed and strategic decisions is departments' ability to view and analyse information about:

- their building portfolio
- the condition of buildings
- maintenance expenditure
- functionality
- compatibility with service delivery objectives
- buildings' environmental performance (e.g. water and energy consumption, and, where relevant, levels of pollutant emissions including CO₂).

7.3.2 Commissioning and handover

Policy requirement 12 – Ensure proper capturing of information from commissioning and handover

New buildings being phased into operation or use must be commissioned and handed over in an appropriate manner.

Departments will be better informed about their building assets and generally improve maintenance practices if comprehensive commissioning and handover processes are instituted. This is fundamental to responsible building maintenance and operation. The *Capital Works Management Framework* provides guidance and a specific policy requirement (15) on the commissioning and handover processes.

Handover of technical and asset information (e.g. manuals, warranty information, specifications) is necessary for maintenance and safe operation of buildings. There should also be an emphasis on thorough training and orientation of facility managers, maintenance personnel and plant operators.

Departments must have adequate systems and processes in place for the acceptance and retention of technical and asset information from the building contractors. Such systems must enable ready access to the information for officers responsible for operating and maintaining the facility.

Details on the responsibilities and procedures related to commissioning and handover are presented in the *Capital Works Management Framework* guideline: *Handover: Guidance for Commissioning and Handover Associated with Government Building Projects*.

7.3.3 Maintenance management systems

Policy requirement 13 – Utilise a computerised maintenance management system

Departments must use an effective computerised maintenance management system that adequately facilitates maintenance planning, implementation and reporting.

Departments using the Department of Housing and Public Works as their maintenance service provider may use, or interface with, the computerised maintenance management system it operates. Departments not part of this arrangement may use another system which adequately accommodates the requirements of the MMF.

Such a system should reinforce maintenance and departmental service delivery objectives and facilitate:

- planning
- condition assessments
- operational maintenance work scheduling and control
- resource allocation
- program management
- reporting.

7.3.4 Maintenance reporting

Policy requirement 14 – Establish maintenance reporting capability

Departments must be capable of reporting on maintenance and the condition of their building portfolio to promote transparency and accountability.

In addition to promoting transparency and accountability, reporting on maintenance and the condition of a building portfolio facilitates effective management of maintenance and drives improvements.

SLAs (or other suitable instruments for procurement of maintenance services) should clearly specify that service providers must furnish maintenance reports which comply with the minimum reporting requirements of the MMF.

Minimum reporting requirements

For consistency and to facilitate benchmarking, departments should be capable of reporting on:

- the condition of the building portfolio relative to the condition applicable for service delivery
- financial year maintenance expenditure in the following categories:
 - planned maintenance
 - unplanned maintenance
 - maintenance management
- deferred maintenance
- annual maintenance expenditure as a percentage of ARV
- projected future repairs or replacements over the medium to long term to assist departments in undertaking strategic and operational planning processes
- significant maintenance issues that impact on the capability of the building portfolio in relation to service delivery.

8.0 Policy implementation and review

As part of its whole-of-Government policy role in the monitoring of maintenance outcomes and asset performance, the Department of Housing and Public Works will evaluate implementation progress and conduct periodic reviews of the MMF. Departments may be requested to supply the Department of Housing and Public Works with information (described in the minimum reporting requirements) as part of this process.

Departments are responsible for implementing the MMF. The Department of Housing and Public Works will, however, assist departments with advice and additional resource materials (e.g. guidelines and policy advice notes).

By reviewing the MMF and its implementation, the Department of Housing and Public Works will gain a better understanding of departmental maintenance issues, which will lead to a more practical and comprehensive policy and improve whole-of-Government maintenance outcomes.

List of key policies and guidelines

Key policies and guidelines impacting upon the planning and implementation of the maintenance of government buildings are listed below.

Building Asset Performance Framework (Department of Housing and Public Works) is a Queensland Government best practice guideline which provides departments with a systematic approach to managing the performance of building assets to meet service delivery requirements. It establishes the broad scope and application of building asset performance management, and the key principles and elements necessary for achieving effective management of buildings.

Capital Works Management Framework (Department of Housing and Public Works)

is the whole-of-Government policy for managing risks in the planning and delivery of government building projects. It also gives effect to the whole-of-Government Prequalification (PQC) System for building industry contractors and consultants seeking to undertake identified contracts and commissions associated with government building projects.

Total Asset Management Plan Framework (Department of State Development, Manufacturing, Infrastructure and Planning)

is the whole-of-government policy for managing Queensland Government non-current assets. The policy facilitates a coordinated approach to asset management. The TAMP Framework will ensure that asset planning is transparent and consistent across the Queensland Government

Strategic Asset Management Framework— Best Practice Guidelines for the Management of Queensland Government Buildings (Department of Housing and Public Works) promotes strategic asset management within the Queensland Government by providing agencies with advice about the best practice management of their building portfolio.

Queensland Government Asbestos Management Policy for its Assets (Department of Housing and Public Works) Provides a framework for identifying, documenting, managing and controlling (including the safe removal of) asbestos containing material in a building, when undertaking a government building project such as refurbishment, alteration, extension or improvement.

Enquiries should be directed to:

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