

Part D: Renewal and evaluation

Building asset maintenance

This section expands on key areas of building asset maintenance and provides decision-making methodologies. Consistency in approaches to the management, planning and delivery of maintenance is essential to enable the government to monitor the condition of assets and future maintenance requirements.

Maintenance management

Scope and application

Building maintenance management is a fundamental part of strategic asset management. Buildings must be physically inspected and properly maintained to support service delivery needs.

Consistent approaches to the management, planning and delivery of maintenance is essential for the government's ability to monitor the condition of its assets and future project maintenance requirements.

Risks

Decisions about material selection and design layouts (which may require additional provisions to enable access for maintenance purpose) have a significant impact on a building's maintenance expenditure. Buildings should be designed for ease of maintenance to ensure more economical lifecycle costs, as well as suitability to the needs of end users.

Process

Consistent maintenance management leads to substantial long-term benefits where:

- assets perform better
- asset life is extended
- operating costs are reduced
- users/community members have favourable perceptions of government services.

Agencies have specific roles and responsibilities, including:

- establishing an agency SMP²⁶, maintenance policies, maintenance strategies, and maintenance plans and work programs
- incorporating service delivery objectives, which should be reflected in the building maintenance specified condition standards
- developing procurement strategies to assist in achieving value for money
- adopting a SMP that incorporates a balance of proactive and reactive maintenance
- undertaking site inspection condition assessments at least every three years
- assessing buildings impacted by natural disaster as soon as practical after the event
- using condition assessment information to identify the need for short and long-term maintenance planning
- monitoring and reporting maintenance performance, including establishing proper protocols, processes, and systems for information retention.

Understanding the implementation of the key concepts will support maintenance outcomes, building performance, risk management, and strategic decision-making. Key concepts include:

- the definitions of maintenance, specified condition standards and building asset assessment
- classification of maintenance work into categories and sub-categories, such as:
 - proactive maintenance including condition based, preventative (statutory, recommended), operational (cleaning, horticulture) and facilities management

²⁶ This feeds into departmental SBAMP and SAMP documentation.

- reactive maintenance including find and fix, wear and tear, make safe and responsive maintenance related to incidence
- risks associated with deferred maintenance
- maintenance work planning based on condition programs, existing programs, historical data and agency asset planning.

Scope of building maintenance

Scope and application

The scope of building maintenance is established in the context of the overall management of buildings. The maintenance of Queensland Government buildings should optimise service potential and minimise whole-of-life costs. It is important to obtain accurate and objective knowledge of buildings' physical and operating conditions, including risk and financial impact associated with maintenance.

The purpose of this section is to provide guidance on the identification of building assets, building-related assets and building maintenance activities. Correct identification of buildings, building-related assets and building maintenance activities will help determine resource levels that will ensure government buildings are adequately maintained.

This section will assist agencies to distinguish components which form part of a building from those that do not.

Process

Building assets

Building assets should be defined to assist agencies to distinguish components that form part of a building from those that do not. Definition should consider the types of activities related to building maintenance (as distinct from building operations).

Consider the following for maintenance of buildings

Building services, site improvements and temporary buildings that provide storage or shelter should be reported as building maintenance.

For planning and undertaking maintenance, buildings and building-related assets are broken down to component levels. Building components and building-related assets are collectively referred to as building assets.

Costs associated with the maintenance of non-building assets should be assigned to operational or other budgets, rather than reported as building maintenance expenditure.

Building asset components

Note that definitions below are consistent with the Australian Institute of Quantity Surveyors' Australian Cost Management Manual – Volume 2, which refers to the components of a building as element groups, elements, and sub-elements.

Use a standard method to break building structures into smaller components to facilitate consistency in:

- maintenance reporting
- establishing specified condition standards
- costing, planning and implementing maintenance works.

Building substructure, superstructure, finishes, and fittings components should be considered.

Substructure – includes basement and foundation excavations; piers, piles, pedestals, beams, and strip footings; foundation walls; drop aprons; hardcore filling; work slabs and damp-proofing or other membranes; floor structures; sub-soil drainage; ducts, pits, bases, and service tunnels; entrance steps, ramps, and their finishes; steps and ramps in the one floor level; structural screeds and toppings; internal swimming pools; and all other work up to, but excluding, the lowest floor finish.

Superstructures include:

- **columns** – internal and external columns, from tops of columns to bases, column casings, and all protective non-decorative coatings
- **upper floors** – all beams, concrete precast and in-situ floors, waffle slab and filler block floors, metal floors, computer floors, timber framed floors, structural screeds and toppings, concealed insulation, balconies, overhangs, and sunhoods integral to floor structures, steps, and ramps in the one floor level, and all protective non-decorative coatings
- **staircases** – the supporting framework of a staircase, its treads and risers, landings, ramps between floor level, fire escapes, access ladders, spiral staircases, string and soft finishes, and balustrades and handrails
- **roof** – portal frames, roof construction, gables and other walls in roof spaces, parapet walls and roof balustrade, thermal insulation, roof lights and dormers with their sun screening, eaves, verges and fascias, rainwater goods, internal stormwater drainage runs, awnings and open lean-to roofs, and all protective non-decorative coatings
- **external walls** – structural walls, basement walls and tanking above lowest floor finish, spandrel, curtain and window walls, external shop fronts, glazed screen walls, columns and isolated piers to non-framed (load-bearing) structures, gallery and balcony walls and balustrades, solar screen walls, plant room air flow screens, all insulation to external walls, all external finishes to columns, slab edges, beams, projecting overhangs and walls, lintels and flashings at openings, ring beams and stiffening beams not integral to floor, and ceiling or roof slabs
- **windows** – flyscreens, louvres, guard grilles, remote control opening/closing gear, sun protection to windows, curtains, blinds, track and pelmets, windowsills and linings, and hardware and decoration
- **external doors** – frames, linings, glazing, architraves, hardware, panels and highlights (above the door frame) and other decoration, fly doors, roller shutters, garage doors, fire doors, grille and chain-wire doors, gates, service cupboard doors and thresholds
- **internal walls** – walls and piers, internal columns and isolated piers to non-framed (load-bearing) structures, lintels, damp courses and bearing strips, stiffening beams not integral to floor, ceiling, or roof slabs, part-height solid walls glazed over to ceiling, un-ducted air flow grilles, and firewalls and smoke screens
- **internal screens and borrowed lights** – proprietary-type office partitioning, glazed screens, internal shop fronts, fold away and operable walls, overhead framework and supporting beams, chain-wire and grille screens, toilet partitions and screen walls, borrowed lights, balustrades and rails not associated with staircases, and all finishes and decorations
- **internal doors** – frames, linings, glazing, architraves, pelmets, hardware and door grilles, chain-wire and grille doors, toilet doors, cell and strong room doors, fire doors, roller shutters, service cupboard doors, duct access panels, fanlights and panels over fanlights, linings to blank openings, and all finishes decorations.

Finishes include:

- **wall finishes** – finishes to internal faces of external walls and columns, acoustic wall linings, face and coloured blocks and off-form concrete, splashbacks, dados, and regulation wall vents
- **floor finishes** – balcony floor finishes, skirtings, screeds, timber floor finishes, dividing strips, mats and matwells, duct and pit covers, carpeting used as a permanent floor finish, timber and other finishes to concrete floors, and finishes to steps within the floor level
- **ceiling finishes** – suspended false ceilings, proprietary suspended ceiling systems, acoustic ceiling linings, linings to roof lights, ceiling utility access holes, framing to bulkheads and cornices.

Fittings include:

- **fitments** – benches, cupboards, shelving, racks, seats, counters, notice boards, signs and name plates, coat rails and hooks, mirrors, wall hatches, and daises and stages
- **loose furniture** – furniture that is not built-in and is easily re-locatable (such as tables, chairs, desks, lounges, freestanding cupboards and shelving, and filing cabinets) is considered a non-building asset
- **special equipment** – includes window cleaning apparatus, boiling water units, sink heaters, refrigerated drinking-water coolers, sanitary macerators, and circulating fans.

Equipment provided for a purpose-built building should be considered part of the building. This rule applies when equipment is built-in, affixed or installed in a way that removal would necessitate

extensive restoration works or result in substantial cost (e.g. spray-painting booths, incinerators, autoclaves, sterilisers, bakery equipment, laundry equipment and cranes).

Equipment that can be easily removed from a building (or building site) after erection/installation is not considered part of the building. In this context, the primary function of the building is as a shelter.

Non-building plant and equipment can be disconnected, dismantled, and removed without significant impact on the building in terms of:

- damage to the building structure, including internal partitions
- function of the building as a shelter
- need to restore, change or upgrade the building after removal.

Consider using the following sub-categories to identify items as non-building plant and equipment:

- **portable and attractive equipment** – generally smaller items of a stand alone, hand-held or plug-in nature and includes hand-held tools, portable power tools, cameras, calculators, and battery-operated clocks
- **white goods and general office equipment** generally plug-in electrical items; usually included as office facilities and includes plug-in urns, fridges/freezers, clothes washers, computers, printers, photocopiers, shredders, and microwave ovens
- **production and business equipment** – generally used for carrying out the core business activities (e.g. production, training, testing, research) of the building occupant; can be easily removed without significant impact on the building and includes scientific equipment, woodworking, metalworking and welding equipment, sewing machines, and biological safety cabinets
- **ancillary equipment** – generally used for routine operational purposes and includes motor vehicles and tractors, trailers, boats, ride-on mowers, pool cleaning and servicing equipment, cleaning equipment, garden hoses and sprinklers
- services including:
 - **sanitary fixtures** – WC suites, urinals, basins, sinks and tubs, troughs and runnels, drinking fountains, slop hoppers, showers, hobs, shower curtains and trays, terminal outlets integral with fixtures, flusherette valves, soap and toilet paper holders, and towel rails and hand driers
 - **sanitary plumbing** – stacks and vents, all loose traps, floor wastes, internal sewer drainage runs, pumps and ejectors, acid-resisting pipes and drains, box ducting and paintwork
 - **water supply** – storage tanks, pumps, water treatment plants, water heaters and coolers, reticulation pipework, including pipeline components, terminal outlets not integral with fixtures and/or equipment, controls other than those associated with water consuming items of equipment, box ducting, insulation, sheathing, paintwork and identification, and building and electrical work forming part of the water supply
 - **gas service** – portable gas cylinders, booster compressors, manifolds and regulators, box ducting, painting, and identification, building and electrical work forming part of the gas services, reticulation pipework and pipeline components, terminal outlets not integral with fixtures and/or equipment, and gas detection systems
 - **space heating** – unitary heaters, reticulated steam, hot water, or hot oil systems, warm air systems, electric floor or ceiling heating systems, fireplaces, hearths, or associated work in chimney stacks, boiler plant, insulation and painting, controls and associated electrical work
 - **ventilation** – mechanical ventilators, non-mechanical roof ventilators, supply and/or exhaust fans, ducted systems, exhaust hoods, ducting, plant, controls and associated electrical work
 - **evaporative cooling** – evaporative coolers, rock-bed regenerative systems and ancillary heating devices, ducting, insulation, painting and associated electrical work
 - **air conditioning** – package air conditioners, systems for cooling only, plant (chillers, cooling towers, air handling units, pumps etc), ductwork and air conditioning grilles, controls and associated electrical work
 - **fire protection** – sprinklers and other automatic extinguishing systems, fire indicator boards, manual and automatic fire alarm installations, firefighting equipment, hydrant installations, hose reels and cupboards, and hand appliances

- **electric light and power** – main distribution board, sub-mains and distribution boards, emergency lighting systems, power sub-mains to mechanical equipment and sub-mains and/or sub-circuits to other equipment and/or final sub-circuits
- **communications** – all telephone cabling, internal telephones, public address, call, emergency warning and intercommunication systems, personal paging, clock and/or bell systems, TV antenna and closed-circuit TV
- **transportation** – lifts, hoists, and conveyor systems, escalators, all associated equipment and work other than structural building work
- **special services** – monitoring systems, cool rooms and process cooling, special conditioned rooms, staircase pressurisation systems, compressed air, medical and industrial gas systems, dust extraction systems, security systems, lightning protection, stage lighting and theatre equipment, reticulated soap dispenser systems, laundry, heat and water reclaim systems
- external services include:
 - **external stormwater drainage** – pipe runs from the external faces of buildings, inspection pits, sumps, road gullies, culverts, box drains, grated trenches, runs from pools and fountains, outfalls and head/walls, agricultural and sub-soil drains, and connections to existing runs and pits
 - **external sewer drainage** – pipe runs from the external faces of buildings, grease gullies, inspection pits and utility access holes, acid-resisting and special drains, dilution pits, petrol and plaster arrestors, septic tanks, collection and holding wells, absorption trenches, transpiration areas, pumps and ejectors, and connections to existing runs, pits, and mains
 - **external water supply** – storage tanks, water towers, pumps, water treatment plants, water heaters and coolers, reticulation pipework including pipeline components, terminal outlets not integral with fixtures and/or equipment, insulation, sheathing, painting and identification, meters and meter enclosures, water bores, irrigation and ground watering systems, and building and electrical work forming part of the water supply
 - **external gas** – storage cylinders and tanks, meters and regulators, meter enclosures, reticulation pipework and pipeline components, and building and electrical work forming part of the external gas supply
 - **external fire protection** – standby and booster pumps, pipe runs, storage and reticulation of gas and vaporising agents, hydrant points, and overhead and underground cables for fire detection systems
 - **external electric light and power** – connections to source of power supply, consumer mains, sub-station equipment, emergency generating plant, main switchboard, underground and overhead cables, pylons and all trenches for cabling, street and area lighting, and illuminated signs and building flood lighting
 - **external communications** – underground and overhead cables, pylons, connections to existing cables, external speakers, hooters, clocks, bells, closed-circuit TV, and community antenna systems
 - **external special services** – external connections to special services, service tunnels, ducts or conduits in connection with external reticulation of services elements, dust extraction plant, incineration plant, and bulk storage for medical and industrial gases.

Building asset site improvements

Site improvements provide infrastructure support for buildings that assist with the delivery of agency services. The cost of maintaining site improvements should be reported under building maintenance. Consider the following elements that constitute improvements to the site:

- roads, footpaths, and paved areas – trafficable areas between and around buildings for vehicles and pedestrians, including car parks, playgrounds, kerbs, crossovers, bollards, steps and associated balustrades
- walls, fencing and gates – structures that enclose or define the extent of the site and portions within that site, including all walls, fences and gates on the site, and fencing on vacant land
- outbuildings and covered ways – small buildings supplementary to main buildings, and covered areas or bridge links for pedestrian or vehicular site circulation, including detached covered ways

not alongside buildings, garages, bicycle sheds, incinerator buildings, residential and gatekeepers' cottages, garbage shelters, workshops, chapels, stores, sheds, stair blocks, electrical, mechanical, and other services for outbuildings or covered ways

- general improvements – structures/installations that enhance the site's appearance and provide incidental site facilities for the use of occupants, including seats, fountains, petrol bowsers (pumps) and tanks, sculptures, flagpoles, signs and notices, cricket nets, basketball posts and goal posts, sports pitches and open-air swimming pools.

Note that temporary site improvements are considered non-building assets.

Non-building assets include:

- structures erected on a site for a short period of time, generally for specific events/activities, including temporary signs, cloth banners, and displays and fête stalls
- landscaping – any vegetation and associated improvements provided to enhance the aesthetic appearance of the site, including lawns, gardens, vegetable plots, shrubs and plants, sports ovals, and ornamental pools.

Building maintenance activities

Report the following activities as building maintenance:

- payment of statutory fees, such as those required to comply with legislation, including:
 - registration of plant and equipment with Workplace Health and Safety Queensland
 - environmental licences (fuel-fired plant, fuel installations)
 - fire system connection to fire brigade
- maintenance cleaning – considered part of building maintenance if the purpose is to preserve or protect the building asset or improve its appearance, including:
 - high-pressure water blasting and washing of building exteriors
 - removal of algae from paths where it presents a slip hazard
 - note that day-to-day hygiene-type cleaning is not considered part of building maintenance. Hygiene-type cleaning includes general cleaning of walls and floors, washing down surfaces, vacuuming, polishing, and shampooing
- various external works – some external works are considered part of building maintenance if they are necessary to prevent damage to buildings, including:
 - lopping trees/branches to prevent leaves clogging gutters
 - removing of roots that threaten foundations and underground services
 - maintaining firebreaks (i.e. an area that forms a protective barrier against the spread of fire from adjacent sites)
 - mowing and clearing vacant sites to minimise vermin problems
 - activities associated with erosion control.

Day-to-day landscaping activities necessary to maintain aesthetics (e.g. mowing/slashing grass, pruning and trimming of trees, shrubs, and plants, tending to gardens and vegetable plots, removing horticultural waste) are considered building operational activities.

Building operational activities

Building operational activities are routine functions for hygienic, aesthetic and security purposes, and for the supply of utilities; and activities not considered as building maintenance activities but are necessary to keep buildings in a habitable and usable condition.

Routine functions can sometimes be undertaken at the same time as maintenance activities and/or by the same maintenance service provider. In such cases, costs for building operational activities should be charged to operational or other budgets.

Building operational activities include:

- pest control – activities associated with regular treatment for and eradication or removal of, for example, redback spiders, cockroaches, dust mites, lice, mosquitoes, dogs, cats, and possums (note that treatment for preventing termites or white ants from gaining access to buildings is considered a building maintenance activity)

- security services – services related to the monitoring and operation of a security system, including:
 - alarm monitoring and false alarm charges
 - mobile security patrols
 - alarm monitoring phone line rentals
 - security audits
 - provision of security personnel
- refuse/waste collection and disposal, including:
 - removal of general refuse
 - emptying grease traps/septics
 - cleaning acid traps
 - providing sanitary services
 - removal of trade waste
- the services of operational personnel, including, for example:
 - boiler operators/attendants
 - sewerage plant operators
 - janitors
 - gardeners
 - security staff
- operational consumables and utilities, including:
 - pool chemicals
 - water purification or treatment material
 - water
 - gas
 - fuel for engines and generator sets
 - office consumables such as guillotine blades, first-aid kits
 - material used to neutralise disposed acidic waste
 - electricity
 - telecommunication services.

Building maintenance policy, standards and strategy development

Scope and application

This section aims to contribute to consistency in planning and implementing building maintenance. The maintenance management process is part of the overall asset management process.

The maintenance management process stage involves building maintenance planning and development activities and consists of three closely related processes:

- developing an agency maintenance policy
- assigning specified condition standard ratings
- preparing a SMP.

Process

The maintenance management process is a generic process designed to assist agencies to establish appropriate practices for the maintenance of Queensland Government buildings.

Documenting a agency maintenance policy

Agencies should produce an internal maintenance policy that incorporates service delivery objectives that aim to:

- provide a clear statement of agency objectives for the maintenance of building assets
- explain how the objectives support the delivery of agency services
- identify, at strategic and operational levels, the officers and/or agency units responsible for maintenance management and outline the nature of these responsibilities.

Key elements of a maintenance policy

Agencies should:

- identify how and by whom agency building asset maintenance is to be managed
- structure the policy to include:
 - a statement of intent and objectives
 - scope
 - details (i.e. policy requirements)
 - allocation of responsibility for implementing the policy requirements
 - continuous improvement arrangements, including policy review procedures
- outline an approach to achieving the policy's objectives
- address the agency's approach to:
 - establishment and periodic review of specified condition standard ratings for all building assets
 - formulation of a SMP that reflects the agency's maintenance needs over the immediate, medium, and long-term development and implementation of a program of regular condition assessments
 - assessment of maintenance demand across the agency's building portfolio
 - formulation of a budget based on a realistic calculation of the level of funding needed to maintain the agency's portfolio to specified condition standard ratings
 - production of an annual maintenance works program based on condition assessments, existing programs, historical data, and the agency SBAMP and SAMP
 - procurement of maintenance services in accordance with government policy
 - ongoing monitoring and periodic review of maintenance performance, including the development of performance measures and their integration with other asset management performance measures
 - establishment of processes to collect and use maintenance information to facilitate maintenance management and meet minimum reporting requirements
 - establishment of processes for the retention of technical and asset information from handover and commissioning
 - establishment of feedback loops between maintenance service providers and building planners and designers (effective feedback loops can facilitate improvements in maintainability, thereby minimising the maintenance needs of future buildings)
- consider obligations including:
 - heritage and environmental legislation
 - health and safety regulations
 - building security
 - risk management
 - relevant quality assurance policies
 - related government policies and strategies such as the [SAMP framework](#) and the [QPP](#).

Specified condition standard ratings

Determining the specified condition standard ratings for building assets is fundamental to the maintenance management process.

Specified condition standards provide a clear statement of the level to which assets are to be maintained (i.e. the desired condition) to meet service delivery needs and are conducted by, for example:

- agency teams
- portfolio asset managers
- facility managers
- business managers
- asset user representatives
- maintenance service providers.

Conditions standards:

- are the starting point of agency maintenance strategies and plans
- are benchmarks against which building condition assessment results are evaluated (thus identifying the extent of any gap between desired and actual building condition)
- facilitate the analysis of the actual condition over time (i.e. detection, monitoring and forward-projection of trends in building condition)
- are important factors in the development of maintenance budgets and annual works programs
- ensure that during the condition assessment process, maintenance service providers focus only on work required to bring an asset up to the specified condition (rather than unnecessarily identifying work that may exceed agency requirements).

A specified condition standard rating for each building is to be documented, with 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.

Identifying what is required of building assets

Consider the requirement of the asset before assigning a specified condition standard rating. The process of assigning ratings should begin with a review of the agency's service delivery plan.

Determine each building asset's criticality to service delivery and the required function (e.g. laboratory, heritage building, office accommodation, no longer operational) of each building in the agency's portfolio. Note that the condition of a building asset (its physical state of repair) influences its physical and functional performance.

Assigning ratings

Agencies are to use [Table 8](#) to determine the appropriate specified condition standard rating required at facility level or individual building level.

Table 8: Specified condition standard rating

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, Central Business District (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 no longer operational, dormant pending disposal, demolition etc.	Building can be allowed to deteriorate but should be marginally maintained to meet minimum statutory requirements.	S1

Where standards are specified at overall building level, agencies should give detailed descriptions of what is meant by the S1 to S5 ratings in terms of specified condition standards of key building elements most critical to delivery of services. More complex and critical building elements will have specific performance requirements that require some elements to be maintained above the standards required of the overall building.

The building's criticality to service delivery and the complexity of its components will dictate how ratings are assigned. In the case of less complex and less critical assets (e.g. storage sheds, single rooms meeting halls) it may be sufficient to assign a rating to the overall building.

More complex, critical and strategically important assets will generally have particular performance requirements that should be specified in greater detail. In such cases, specified condition standards should be assigned to elements/sub-elements.

To establish a common understanding and agreement with condition assessors, agencies are to use the descriptions in [Table 8](#) to focus on building elements most likely to warrant immediate repair or further assessments.

Agencies are to:

- assign specified condition standard ratings to:
 - an overall building
 - element groups if required to manage the asset effectively (e.g. superstructure, finishes, services)
 - elements if required to manage the asset effectively (e.g. roof, external walls, floor finishes, lighting, air conditioning)
 - sub-elements if required to manage the asset effectively (e.g. brick walls, distribution boards, ductwork, controls)
- in more complex buildings, maintain some elements to a higher standard than the rest of the building and ensure the agency's expectations are communicated to maintenance service providers and to condition assessors
- apply accordingly the specified condition standard ratings to assets that are approaching the end of their useful/economic life.

Proposals for asset disposal, refurbishment or any future change to service delivery (which affect building function) will influence specified condition standard ratings.

Implementing ratings

Determine the specified condition standard ratings outlined in the agency maintenance policy and any related documents (e.g. asset management manuals). Once determined, the specified condition standard ratings form the basis of instructions to the maintenance service provider about the level to which the agency expects building assets to be maintained.

Clearly communicate the ratings to service providers and document this in procurement arrangements (e.g. a Service Level Agreement (SLA)).

Identify gaps between the desired and actual condition of buildings, using the ratings within the condition assessment process. Providers can then determine, and report maintenance works necessary to return buildings to the desired standard.

Specified condition standard ratings will be referenced by service providers during day-to-day maintenance delivery, including delivery of reactive works. This regular referencing will ensure works undertaken meet and do not exceed the standards established by the agency.

Proactive and reactive maintenance

SMPs should incorporate a balance of proactive and reactive maintenance.

Proactive maintenance (also referred to as planned maintenance) applies to building structures, building fabric, services and site improvements, and consists of preventative (statutory and recommended), operational and condition-based maintenance programs.

Work should be planned at predetermined intervals to meet health and safety, technical or operational reliability considerations and statutory requirements (mandated in legislation, regulations and other statutory instruments) to preserve the asset and prolong economic life.

Condition-based maintenance programs are identified through an asset assessment or inspection process, and work is conducted because the physical condition is below the acceptable standard.

Reactive maintenance (also referred to as unplanned maintenance) occurs when a building component failure requires immediate attention (corrective and breakdown maintenance). It is undertaken to rectify health, safety or security risks or the consequence of natural disaster.

Both proactive and reactive maintenance can be provisioned through a facilities management arrangement where there is integration of facilities managers facility supervisors and trade staff.

Observation is a minimum maintenance approach that can be applied to minor non-critical buildings and buildings scheduled for refurbishment, replacement or disposal. Under this approach, there is no maintenance action (apart from statutory requirements) until either breakdown, or the condition is expected to fall below legal requirements.

Key elements of a SMP

A SMP should be a succinct document and should, as a minimum:

- describe the systems and procedures to be used to plan and manage maintenance work
- specify the types of maintenance to be conducted and why
- establish the order of priority for maintenance activities
- nominate the means of resourcing and implementing maintenance.

A SMP should be adjusted when service delivery strategies change or agencies need different accommodation arrangements (e.g. leasing, co-location of all or some of its functions, or joint use with other agencies).

A comprehensive SMP encompasses a range of specific strategies that address various aspects of maintenance management, such as:

- technical strategy, outlining maintenance work to be undertaken and the purpose of this work, noting that the type of maintenance applied to a particular building, or its components will depend on the importance of the building and its components to service delivery, taking account of any service delivery strategy changes in direction
- risk management strategy, identifying how an agency intends to manage risks associated with building asset custodianship, considering factors such as health and safety, building security, loss of functionality, and community perception (note that a agency's risk management strategy will determine priorities in undertaking maintenance activities)
- financial management strategy, identifying the agency's approach to funding building maintenance, with a focus on value for money (which will influence the type, cost and planning of maintenance activities)
- procurement strategy, determining methods used to procure maintenance services
- management strategy, determining management arrangements for building maintenance across the agency, and outlining the organisational structure that will support management of maintenance at head office, regional, district and facility levels.

Developing an agency SMP

SMPs should be developed as part of an agency SBAMP and SAMP processes.

The SMP is a structured process undertaken by portfolio managers, assisted by facility managers, business managers, finance managers, planners, capital works managers, and maintenance service providers to ascertain the immediate, medium and long-term maintenance requirements of an agency's building portfolio. Modifications may be necessary if service delivery priorities change.

SMPs should be developed at portfolio, regional/district, facility and building levels, and should address how agencies will:

- manage deferred/backlog 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 objectives and targets
- improve the management of maintenance by using better systems and procurement models
- incorporate ecologically sustainable development and environmental impact considerations into maintenance strategies and practices
- mitigate the consequences and impacts of natural disaster
- maintain or improve the health and safety aspects of buildings.

The SMP process should:

- review and analyse:
 - the agency's building portfolio
 - agency corporate and service delivery objectives
 - the building maintenance environment
- ensure a thorough understanding of the agency's:
 - capital acquisition plans
 - service delivery strategy, and the contribution of building asset maintenance to service delivery outcomes
- consider the following factors:
 - service delivery plans
 - the age, condition, value, deferred maintenance, and functionality of the agency's buildings
 - building performance of in terms of water and energy consumption
 - health, safety and security requirements
 - new buildings
 - disposal or refurbishment plans
 - emerging issues that may affect buildings service potential.

A SMP should contain the following information and analyses of:

- the status of the agency's existing building portfolio issues and trends:
 - includes an analysis of the agency's building portfolio
 - identifies any instances where key attributes of the building portfolio are affecting service delivery
 - considers attributes such as building age, condition, remaining economic life and performance level
 - includes an overview of maintenance-related issues and trends to help identify strategies to address/rectify potential problems
- the maintenance environment, outlining the context in which maintenance activities will be undertaken, and considers aspects of the maintenance environment that can affect maintenance demand, including:
 - new building assets and/or assets scheduled for refurbishment/disposal
 - major repairs
 - special maintenance programs or initiatives (e.g. asbestos removal)
 - new policy/statutory responsibilities associated with workplace health and safety, environmental impact or cultural heritage significance of buildings
 - deferred maintenance trends and their correlation to the condition and performance of the existing building portfolio
- maintenance budgeting implications, strategies, and projections, considering:
 - current and future funding scenarios based on the agency's building portfolio, corporate direction, maintenance analysis, and the budgetary environment
 - articulate additional funding to meet increasing demands, including any strategies for meeting these funding requirements
 - substantiate with reliable data the risks associated with funding shortfalls
 - incorporate all funding projections into the agency's capital acquisition plans and operating statement financial summary
- strategic review of maintenance management arrangements, outlining the process for reviewing maintenance performance, including:
 - maintenance programs
 - maintenance service provider arrangements
 - maintenance outcomes to ensure maintenance activities continue to support achievement of the agency service delivery objectives and are in accordance with government policy
 - identifying and describing any changes required to meet projected strategic business and portfolio directions and to improve maintenance efficiency and effectiveness.

The SMP should be summarised in an action plan that draws on key elements, and concludes with a list of key actions, responsibilities, and implementation timeframes. This action plan provides the basis for any future reviews and adjustments of the SMP.

Key success factors for maintenance establishment

Consider the following key factors for successful implementation of agency maintenance policy, specified condition standard ratings, and SMP:

- stakeholder consultation
 - seek comments and, if relevant, agreement from stakeholders (before submitting final documents for senior management approval)
 - communicate the intent of the agency maintenance policy/specified condition standard rating/SMP to building users (at an appropriate level) to enable contribution to the implementation and review of these documents.
- secure senior management endorsement and record this in line with agency procedure/policy
- relationship with other corporate documents, including relevant aspects of agency management policies, plans and procurement agreements.

Regular review

Agency maintenance policy and strategy documents should be reviewed regularly to ensure alignment with government priorities and policies, and to confirm maintenance priorities are appropriate and relevant to operational requirements.

Specified condition standard ratings should also be reviewed regularly to ensure building assets are not over or underrated.

Maintenance policy reviews should consider:

- the policy's application period
- policy review intervals
- arrangements for receiving and recording feedback between reviews.

Specified condition standard ratings reviews should consider:

- review intervals – the review should take place before starting a condition assessment program, to allow for the incorporation of any altered ratings
- arrangements for receiving and recording feedback between reviews, noting that previously established ratings may require changes if:
 - agency service delivery requirements have changed
 - building assets have been scheduled for disposal or refurbishment
 - lower standards have become acceptable, thus presenting an opportunity to save on maintenance costs.

Reviews of strategy documents, including SMPs, should consider:

- review intervals, aligning reviews with the annual budget, agency SBAMP and SAMP, and corporate planning cycles
- arrangements for receiving and recording feedback between reviews.

Building asset assessment

Scope and application

This section aims to provide guidance on building asset assessment planning, scope definition, and implementation.

The development of an annual proactive condition-based maintenance works program based on asset assessment reports is outside the scope of this guideline.

Asset assessments are an important aspect of an effective SMP and maintenance planning process. Incorporating asset assessments in maintenance processes ensures there is a structured objective

process for identifying demand for proactive condition-based maintenance works to meet strategic and operational priorities.

Proactive condition-based maintenance works should form part of any comprehensive maintenance program, in conjunction with preventative (e.g. statutory and/or recommended), operational, and reactive maintenance work over the immediate, medium, and long-term.

In addition to asset assessment information, agencies require a range of other asset management information, which is also obtained through inspections or surveys of buildings.

Process

Technical inspections to evaluate the physical state of building elements and services to assess maintenance needs should be made by competent assessors.

Site inspections are to be made on all buildings at least every three years, depending on the nature of the buildings, building elements and services. Buildings affected by a natural disaster should be fully assessed as soon as practicable after the event. Agencies should decide on appropriate intervals for inspections depending on each building asset's complexity and criticality to service delivery. The more critical and complex the building, the more likely an asset assessment will be required more often.

The following should be considered 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
- cost, risks and benefits of the assessment intervals adopted
- likelihood or possibility of health and safety or other environmental issues
- other periodic inspections or monitoring of building assets that may be required, such as inspection of hazardous building materials (e.g. asbestos containing material, lead paint).

Reliable and objective knowledge of the physical state of building assets and impacts on service delivery should be collected to develop strategies and actions for:

- maintenance
- major replacements
- refurbishments
- investment.

A lack of knowledge about the physical state of a building asset could result in:

- unnecessary exposure to legal, social, and other risks associated with deteriorated facilities, statutory non-compliance, and hazardous materials
- premature asset failures, shorter useful asset lives, and higher repair and replacement costs, all of which affect service delivery capacity and quality.

Asset assessments involve:

- physical inspections to assess the actual condition of the building and its individual elements and services (e.g. air conditioning, fire protection), compared to the asset owner's specified condition standard
- identifying maintenance works required to bring the condition of the building and its services up to, or maintained at, the specified condition standard²⁷
- ranking maintenance works in order of priority

²⁷ Where specified condition standards are assigned at an overall building level, detailed descriptions of what is meant by the S1 to S5 ratings ([Appendix 6-2, Table 17](#)) should be articulated in terms of specified condition standards of key building elements most critical to delivery of services. This is because more complex and critical building elements will have specific performance requirements and these elements may therefore need to be maintained above the standards required of the overall building.

- determining (by the assessor) actions to mitigate any immediate risk, pending remedial works or other actions.

Other building inspections and audits

Effective building asset management requires a broad range of information in addition to that produced by building asset assessments (see [Appendix 6-1](#)).

Appropriate SLAs (or other suitable instruments) should be established, as applicable, between agencies and service providers conducting inspections and audits, noting that some agencies use in-house staff for these tasks.

It is important to differentiate asset assessments from other data-gathering audits and inspections.

Agencies should consider how to integrate or coordinate services/activities before finalising SLAs or other suitable instruments, to harness opportunities for efficiency and effectiveness.

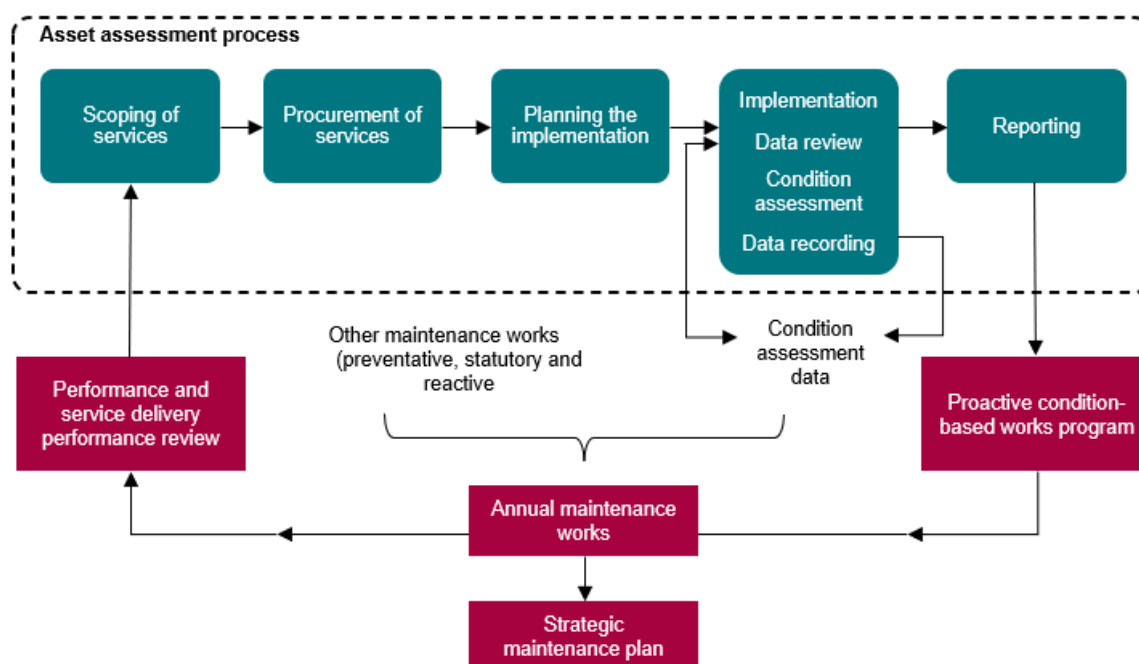
Asset assessment process

Use [Table 9](#) to establish and/or refine existing SMP and maintenance planning procedures. Apply the stages of the asset assessment process and the associated SMP activities in [Figure 4](#).

Table 9: Stages of the asset assessment process

Stage	Description	Responsibility
Scoping of services	<ul style="list-style-type: none"> • Determining the requirements for information and other data to meet asset management obligations • Developing service specifications 	Agencies
Procurement of services	<ul style="list-style-type: none"> • Procuring the asset assessment service from a service provider (e.g. QBuild), using appropriate arrangements (some agencies use in-house staff to undertake assessments) 	Agencies
Planning implementation	<ul style="list-style-type: none"> • Planning the implementation of asset assessments (including targets and milestones) based on requirements established through the scoping stage 	Agencies/ service providers
Implementation	<ul style="list-style-type: none"> • Reviewing data from previous assessments, removing references to completed or redundant works, and making any other necessary corrections to ensure that appropriate areas are targeted during condition assessments • Undertaking assessments in accordance with the agreed scope and timeframes • Recording data from the assessments and updating any existing data from previous assessments 	Agencies/ service providers
Reporting	<ul style="list-style-type: none"> • Providing reports on the results of assessments to enable the development of a proactive condition-based works program and to support other asset management objectives 	Service providers, including in-house staff, as applicable

Figure 4: Asset assessment process



[Text description for Figure 4](#)

Scoping of services by agencies

Agencies should:

- identify and articulate requirements and develop service specifications
- provide guidance to service providers on the agency's objectives, expectations, and constraints
- use appropriate inputs in the scoping process, including:
 - agency maintenance policies
 - SMPs
 - desired specified condition standards.²⁸
- consider and define the asset assessment and other data requirements (e.g. condition, asbestos inspection data) so service providers are able to offer and provide the full scope of services required.
- explore efficiencies to ensure coordination with other maintenance tasks, including tasks of other agencies in the same location or region, or assessment programs/data gathering services, particularly in remote locations.
- determine the objective and scope of service/s to identify outputs including:
 - data to meet maintenance requirements
 - data to meet requirements of other policies, such as the [Queensland Government Asbestos Management Policy for its Assets](#)
 - any other asset management data to be collected, such as the performance of buildings in terms of energy consumption
- reporting requirements for assessment results
- buildings to be assessed in the relevant period
- buildings to be assessed in any particular year by:
 - portfolio size
 - agency priorities
 - frequency of assessments (provided that the three-year requirement is satisfied)

²⁸ Guidance for departments on establishing specified condition standards is provided in [Building maintenance policy, standards and strategy development](#).

- considering that complex and service-critical buildings (which can include residences) with workplace health and safety and risk issues may require more frequent and thorough assessments, while other buildings may be inspected less frequently and in less detail.
- assess buildings that have been affected by a natural disaster as soon as practical after the event.
- determine the frequency of assessments by considering the various building elements. Dynamic elements may require more frequent assessments than more stable elements such as building fabric and structural elements. Dynamic elements include:
 - electrical services
 - mechanical building services
 - fire services.

Asset assessments should be made as part of preventative maintenance routines or other tasks, and results must be integrated into the overall program of condition assessments for other building elements.

Asset assessment frequency must be made on all buildings at least every three years, or more frequently by considering the following risk factors:

- likelihood of workplace health and safety risks to occupants and residents
- nature of the building and its associated engineering services
- criticality and volatility of the assessment information required
- age of the building and its essential components
- actual state and rate of deterioration of the building and the associated risks
- operating environment and its impact on the rate of deterioration
- cost and value to the agency of more frequent assessments.

The asset assessment processes allows for the identification of maintenance works using the condition assessment priority ranking scale (rankings 1–4), which enables identification of longer-term maintenance needs.

Suitably qualified or technical people should, where appropriate, determine the frequency of assessments.

Asset assessments relating to condition should be coordinated with other periodic inspections or building monitoring, such as inspection of hazardous materials e.g. asbestos containing material.

The outcome of the scoping stage contributes to service specifications for any procurement arrangements for provision of asset assessments, and any other inspections or data collection services that might be undertaken concurrently.

Service specifications may be part of an SLA or other suitable instrument that complies with government policy.

Ensure service specifications:

- are outcomes focused
- include performance requirements
- enable service providers to respond with effective, innovative, and value for money approaches.

Service providers should have appropriate access to building asset data and/or any associated information needed to enable them to respond to service specifications. Data can be provided in service specification documentation or through other means, such as direct access to electronic databases.

The standard of service should be measured against the service specification requirements. Service specification should, at a minimum, detail:

- scope of the asset assessment and any other data gathering tasks
- frequency and level of detail of the asset assessment and other assessments
- expected outputs and outcomes, including the level of detail and format of reports
- desired implementation strategy
- performance and quality requirements.

Procurement of services

Procurement of services should be based on SLAs or other instruments that comply with this guideline, noting some agencies use in-house staff to undertake assessments.

Agencies may make arrangements with EPW (QBuild) or other maintenance service providers, in accordance with government policy.

Agencies not using EPW can obtain asset assessment services from in-house maintenance staff who satisfy competency requirements, or other service providers (in line with QPP provisions) that meet the criteria for a competent assessor.

Planning implementation of asset assessments

Asset assessments may be undertaken by agencies using in-house staff, or by service providers.

When a service provider is engaged by more than one agency, it is expected that agencies:

- coordinate asset assessments with other planned/periodic assessments and across other agencies
- where possible, coordinate asset assessment programs with other agencies to help achieve efficiencies.

Consider the following when planning asset assessment programs:

- types of buildings and building elements to be assessed
- availability of competent resources
- accessibility of information such as asset data, drawings, technical manuals, and data from previous assessments, including new information from handover and commissioning
- accessibility and logistical issues in relation to geographical location, seasonal weather conditions and agency operational constraints
- data collection methods and the use of appropriate technology
- opportunities for whole-of-government efficiencies (i.e. coordination between agencies for the scheduling of activities, where possible)
- targets and milestones for implementation
- achievement of performance requirements.

Local onsite knowledge, and cooperation of building occupants and other facility management staff are valuable for people undertaking asset assessments, improving cost-effectiveness, particularly with aspects of data gathering.

Past maintenance records and relevant agency maintenance information should be analysed and used to determine patterns.

Ensure service providers have building and other relevant information (e.g. computerised maintenance management systems) to contribute to efficient and effective delivery of asset assessments.

Implementation

Agencies should consider key activities associated with implementation of asset assessments, including:

- reviewing data from previous asset assessments
- undertaking the asset assessment
- recording and updating asset assessment data.

Ensure agency participation, in a facilitating/monitoring capacity, in the implementation stage. Agencies are responsible for:

- monitoring and reviewing asset assessment program progress and performance
- monitoring and reviewing service provider performance (detailed in service specifications, SLAs and suitable instruments)
- liaising and coordinating at regional and local facility level to assist service providers to undertake assessments efficiently and effectively

- providing access to facilities, including the provision of security and appropriate escorts where necessary (e.g. for secure or sensitive facilities)
- establishing equivalent arrangements where in-house staff are used.

Agencies must manage risks and determine appropriate action to address critical maintenance items/issues identified by asset assessors and/or as a result of natural disasters.

Effective asset assessment implementation depends on work management procedures and resources, including appropriate access to maintenance information and systems.

Key factors

Key factors that contribute to successful asset assessments include procedures, competencies, supporting information and systems.

Asset assessments should be managed and delivered using appropriate procedures for:

- work planning
- resource allocation
- scheduling
- coordination and monitoring.

Assessors' competencies should be matched with the building elements being assessed, to ensure the integrity and quality of outcomes.

Supporting information and systems give service providers a wide range of information to ensure a quality service that meets agency needs. Asset assessment implementation requires:

- information on assets to be inspected, including site and building plans, photographs, and engineering drawings of building services
- asset condition and performance standards and benchmarks
- operations and maintenance manuals, maintenance logbooks and other technical documentation
- maintenance history and records from previous asset assessments
- capital investment, refurbishment, and asset disposal plans
- building management plans
- deferred maintenance data.

Assessments should be based on an appropriate computerised maintenance management system that facilitates planning, implementation, and reporting.

Drawing on local knowledge contributes to asset assessment efficiency and cost effectiveness.

Reviewing existing asset assessment data

Data from previous asset assessments should be reviewed, and any data made redundant by capital improvements and other programs should be identified and removed. Relevant information should be removed to ensure data on deferred maintenance works are not duplicated and can be updated during the next round of assessments, based on:

- relevance
- scope
- priorities.

Undertaking asset assessments

Agencies are to work with assessors to:

- evaluate the physical asset of the building and determine the maintenance works required to bring them up to, or maintain them at the asset standard (see [Appendix 6-2, Table 17](#)) specified by the building owner
- advise (promptly) the agency of any actions deemed necessary by the assessor to mitigate immediate risks until remedial works or other actions can take place
- ensure the key criterion for decision making on any corrective works identified is compared to the actual condition of the building against the desired specified condition standard rating specified by the building owner

- develop and use an itemised, recommended schedule of maintenance work necessary to bring each building up to the desired specified condition standard, using the condition assessment priority ranking scale (see [Appendix 6-2, Table 19](#))
- confirm that priority rankings to be used by the assessor are defined through the assessment of risks associated with defects and potential failures
- ensure the assessor identifies, where practical, opportunities for integrating and leveraging works with other agencies in the preparation of a recommended schedule of maintenance work in remote locations
- ensure the assessor provides an assessed overall condition index for each building (see [Appendix 6-2, Table 18](#)) to communicate the general state of buildings to the building owner.

Defects and risks

Defects include the effects of physical deterioration and other factors, and represent the gap between the desired condition standard and the actual condition. Defects can lead to the complete or partial failure of building elements and their performance.

Potential failures include anticipated failures arising from deterioration of elements/components reaching the end of their foreseeable useful life.

Competent assessors draw on their technical knowledge and experience to assess risks and prioritise remedial work. They collect data on defects, including information on the cause of defects, in a form that should enable analysis of trends and trigger remedial work or other action. It is important to understand the causes of defects and address how they will be rectified to avoid repetition.

Remedial work consists of:

- proactive maintenance to repair and restore physical condition and operational effectiveness
- preventative (statutory and/or recommended) maintenance to prevent further deterioration leading to failure
- replacements and upgrades to comply with standards and regulations, to avoid future failure (e.g. end of useful life)
- actions to avoid or mitigate the impact of natural disasters
- investigative work where the full extent of defects and their remedial actions cannot be readily assessed on site by the assessor, and further expert engineering investigations are required (potentially leading to any of the above remedial actions).

Remedial work cost estimates

Remedial work cost estimates should be reviewed and updated as part of the asset assessment process, to allow for cost escalation and changed circumstances. They should be prepared carefully and may need to be relied on at any time to inform the agency annual maintenance works programs and forecast future liabilities for anticipated replacements or upgrades.

Competent personnel with adequate estimating skills and knowledge about regional differences in building costs and other factors should be engaged to undertake cost estimates. Estimates should include all foreseeable work associated with remedial work, including scaffolding, presence of asbestos containing material, removal and reinstatement of furniture, and alternative accommodation for building occupants.

Interpreting cost estimates often requires access to contextual data to enable work program development to be viewed in a broader perspective. Cost estimates should be accompanied by:

- an indication of the degree of confidence in the estimate
- an allowance for contingency (where appropriate)
- a cash-flow forecast that addresses budgetary and maintenance program requirements, including consideration of work that extends over more than one financial year
- appropriate allowance for cost escalation, calculated using the escalation rates and data readily accessible.

Longer-term maintenance needs

Asset assessments must identify future remedial work and include sufficient detail to enable prioritisation and cost estimates to be developed.

Forecasting future major repairs, replacements, natural disaster mitigation, and upgrades is essential to enable agencies to plan future maintenance or capital commitments and make funding arrangements.

Forecasts contribute to effective SBAMP and SAMP processes, however forecast reliability decreases as timeframes are extended. Estimates for future work should be revised after each asset assessment. Longer-term maintenance needs should be reflected in an agency SMP.

Recording and updating asset assessment data

All asset assessment data is to be recorded and updated in a maintenance management system and should occur after asset assessments are completed, to ensure it can be used for reporting purposes and maintenance works program development. Indicative priorities of recommended maintenance work, aggregation of works and adjustments of cost estimates, including escalation, should be re-assessed as required.

Asset assessment reporting

Asset assessment reports are the primary outputs of the asset assessment process. They provide information necessary for the development of proactive condition-based maintenance work programs within a comprehensive SMP.

Asset assessment results should be presented in a report that includes:

- the desired specified condition standard rating for each building, as specified by the agency
- a condition index determined by the assessor for each building, which communicates the general state of buildings
- an itemised schedule of recommended maintenance work necessary to bring each building up to, or maintain it at the condition standards nominated by the asset owner ([Appendix 6-3](#) provides an example schedule of maintenance works that would form part of a building asset assessment report)
- cost estimates for identified remedial work (at a level of detail agreed with the relevant agency)
- advice about the longer-term maintenance needs to assist in planning and decision making (e.g. any anticipated major replacements or upgrades).

Agencies should analyse asset assessment reports in the context of other building data and information, such as:

- functionality
- utilisation rate
- remaining life
- operational cost efficiency
- agency and government priorities (e.g. environmental sustainability, workplace health and safety commitments, community service obligations)
- budget imperatives.

Asset assessment reports should enable the agency to:

- form objective views of the relative condition of their buildings compared to the desired condition necessary for service delivery, and to undertake any further analysis to refine that knowledge
- understand the scope, cost and priority of maintenance work required to rectify defects or to maintain the building to the required specified condition standard
- plan for future funding requirements for major replacements, natural disaster mitigation, repairs, and upgrades
- develop a maintenance program for the following financial year and beyond, and a longer-term strategic plan by facility and portfolio
- seek and allocate funding for maintenance program implementation
- initiate engineering and other investigations as required, to further define the scope and severity of defects.

The nature or intent of the work, or parts of work, identified may extend beyond restoring an asset to its original condition, capacity, or function, and the expenditure may be more appropriately classified as a capital outlay (i.e. increasing the value of the asset on which the expenditure is incurred). This

should either be separately identified in a report, together with a cost estimate, or recommended for further investigation.

Further guidance on determining whether it is more appropriate to classify work as maintenance expenditure or capital expenditure is provided in the [Capital or expense? A guide for asset and maintenance managers](#) section of this guideline.

Depending on specific services commissioned by agencies, asset assessment reports could also contain information and other data collected in addition to that required for maintenance purposes.

[Table 10](#) summarises key asset assessment process results and their application.

Table 10: Building asset assessment results

Result	Outcome of results analyses	Application
Condition index	Assessed portfolio condition profile	<ul style="list-style-type: none"> Strategic asset planning Business cases for maintenance funding and other purposes
Schedule of maintenance work	Proactive condition-based maintenance work program	<ul style="list-style-type: none"> Maintenance planning
Cost estimates	Proactive condition-based maintenance work program	<ul style="list-style-type: none"> Maintenance planning
Longer-term maintenance needs	Forecast budgets for future replacements, upgrades, and natural disaster mitigation	<ul style="list-style-type: none"> Strategic maintenance planning Strategic asset planning

Building maintenance budgets

Scope and application

This section provides agencies with advice on how to develop an annual building maintenance budget. A maintenance budget should identify the quantum of funding an agency requires to address the key maintenance needs of its buildings to ensure it continues to support delivery of government services.

Process

Agencies must allocate sufficient funding to enable buildings to be maintained to the specified condition standard ratings identified and documented in the agency maintenance policy. Annual maintenance budgets should be based on maintenance demand, providing a costed program of proposed works over the timeframe based on:

- planned levels of service
- agency maintenance policies
- building specified condition standards
- SMPs.

Maintenance budgets should support agency efforts to meet environmental performance requirements, such as allocating sufficient funding to replace components at the end of their useful life with modern equivalents that reduce energy and water consumption or have potential to reduce long-term maintenance needs.

It is important to differentiate between maintenance expenditure and capital expenditure, due to the difference in accounting approaches and tax liabilities associated with these expenditures (e.g. maintenance expenditure affects the cost of an agency's outputs, while capital expenditure affects the value of assets and, subsequently depreciation and equity return).

The nature or intent of the work, or parts of work should be identified, noting it could extend beyond restoring an asset to its original condition, capacity, or function. In such cases, the expenditure could be more appropriately classified as a capital outlay (i.e. it increases the value of the asset on which the expenditure is incurred).

Consider the agency SBAMP and SAMP when formulating maintenance budgets, including:

- existing assets to be maintained
- new assets requiring maintenance
- existing assets to be upgraded, refurbished, or have components replaced (a minimum maintenance approach may be appropriate in the lead up to such intended actions)
- existing assets identified for inclusion in special maintenance programs and initiatives
- existing surplus assets scheduled for disposal.

Consider key factors that affect the level of maintenance funding, including:

- quality of materials and components in buildings
- quality of designs and construction workmanship
- deterioration or wear associated with use/occupancy
- climatic conditions (e.g. coastal, inland)
- required level of proactive and preventative maintenance to meet desired specified condition standards
- outcomes of previous budget reviews and historical maintenance data.

Calculating funding requirements should be governed by the total maintenance needs of an agency's portfolio (i.e. maintenance demand), and not based on perceived limitations related to availability of funds.

The required level of funding to address identified maintenance needs should be sought. This may involve seeking additional funding through the government's annual appropriation funding process, or reallocating funds from internal funding sources.

Maintenance budgets should be developed as part of the agency's annual budgetary processes, in line with budget development requirements and timeframes administered by Queensland Treasury.

Establishing an adequate maintenance budget requires an understanding of many variables associated with maintaining building assets, particularly when dealing with a portfolio that consists of a complex building mix (i.e. buildings of different ages, varied geographical location/climate, intensity of use, and functional/service delivery requirements).

Maintenance budget composition

Agency maintenance funding is to be split into the following cost components (as endorsed by the Cabinet Budget Review Committee):

- asset assessment costs
- preventative maintenance costs, including statutory and recommended
- proactive condition-based maintenance costs
- reactive maintenance costs
- agency maintenance management costs.

The size of each cost component should be relative to the total maintenance expenditure for the building portfolio.

Appropriate agency mechanisms should be in place to achieve sustained reductions of management costs by:

- using sound administrative decision-making processes
- systems for planning
- monitoring maintenance delivery.

Ledgers or cost centres are to be structured around cost components listed above to gain a clear indication of where maintenance funds have been expended.

Maintenance budgets should reflect provisions for the works program, i.e. the annual program of total maintenance works and the type of maintenance to be applied to a particular building or its components.

Works programs should consist of a balance of proactive and reactive maintenance, noting agencies should strive to minimise reactive maintenance.

Maintenance budgets should be adjusted if SMPs require minimal maintenance for minor, non-critical buildings, and for buildings scheduled for refurbishment, replacement, or disposal.

Agencies should review the level of funding for asset assessment, proactive condition-based maintenance cost estimates to ensure alignment with agency priorities and recommended timing of works. This is relevant for remedial work²⁹ to be undertaken in the longer term and if the economic state of the building industry has changed.

Key considerations in maintenance budget decisions

Agency maintenance budget decisions should:

- identify and reduce deferred/backlog maintenance, and regularly evaluate risks associated with allowing maintenance works to be deferred
- use risk management techniques described in the AS ISO 31000:2018 Risk management – Guidelines
- explore options to reduce deferred/backlog maintenance, including:
 - seeking special funding as part of an agency annual maintenance budget processes
 - reallocating funds from internal funding sources
- coordinate maintenance decisions with projected future major repairs or replacements over a planning period
- identify significant future major plant/equipment replacements (e.g. lifts, air-conditioning chillers etc.) that may influence maintenance decisions, noting major plant/equipment replacements can be identified from handover and commissioning manuals (also referred to as manufacturers' maintenance manuals and warranties)
- obtain cost estimates for major plant/equipment replacements from manufacturers, other firms and/or professionals, and factor these into maintenance budgets
- consider whole-of-life costs in maintenance budgeting decisions associated with replacing building components (e.g. sanitary plumbing fittings, lighting systems) including:
 - initial costs of procuring the building component
 - long-term maintenance
 - operating and disposal costs
- use appropriate building performance information (e.g. location, functionality, utilisation rate, remaining life) to determine if high-maintenance buildings should be assessed for possible refurbishment or disposal
- identify efficiencies/savings when determining an agency maintenance programs by:
 - coordinating inspections
 - sequencing/bundling (where possible) for remote or regional maintenance works with other agencies, where the same service provider is engaged by more than one agency
 - considering building and other information required that may affect delivery of maintenance services, and assist the service provider to deliver the service as efficiently and effectively as possible
- consider cost-effective improvements in building performance (e.g. water-saving fittings and energy-efficient lighting).

Managing maintenance budgets

Managing a maintenance budget includes:

- establishing maintenance priorities
- regularly monitoring, reporting, and analysing budget components against actual expenditure (monitoring budgets for contracted maintenance services may include consultation with facility managers/maintenance service providers about scheduling, and material and equipment needs)
- establishing accountabilities and performance requirements
- monitoring against benchmarks and policy requirements

²⁹ The interpretation of cost estimates should be made with appropriate allowance for cost escalation. Escalation rates data may include the Consumer Price Index (CPI) and wage price index published by the Australian Bureau of Statistics (ABS) along with related indices published by other parties.

- managing variances and contingencies and monitoring the effects of deferred maintenance, where required.

Any additional maintenance funding allocated for emergent priorities (e.g. the reduction of deferred/backlog maintenance) should be integrated into the maintenance budget.

Reviewing maintenance budgets

Agency maintenance budgets should be subject to rigorous annual reviews. These reviews should include:

- assessment of the achievements of the previous year's maintenance budget against the agency's intended outputs
- consideration of the following factors:
 - adequacy
 - affordability
 - efficiency
 - effectiveness
 - competitiveness
 - compliance.

Reviews should identify if previous budgets have been adequate, and highlight any necessary actions or corrections, such as funding replacements rather than ongoing repairs, and/or adjustments to the budget development process.

Agencies should draw on appropriate maintenance information systems to assess the adequacy of the maintenance budget, for example, affordability. If a budget is not sufficient to meet applicable standards, agencies should consider if:

- standards established for functionally focused buildings are realistic and can be afforded
- buildings are so far below the desired standards that special funding above normal maintenance requirements may be required
- maintenance funding needs to be increased.

Maintenance demand assessment, planning and program management should be reviewed to evaluate efficiency and effectiveness.

Maintenance expenditure patterns in existing buildings should be reviewed to evaluate the effects of maintenance previously undertaken, including cost drivers, to improve efficiencies.

Maintenance program delivery efficiency should be considered, including:

- costs related to time
- resources used to deliver the program, including the level of transactions and rectification of work that should be part of the assessment of a maintenance budget.

Maintenance performance should be monitored and initiative-taking responses encouraged from maintenance service providers.

Relevant performance targets or benchmarks aligned with performance indicators contribute to assessment of the appropriateness of a maintenance budget. Maintenance cost is an important performance indicator, and can be measured as:

- cost per square metre of Gross Floor Area (GFA)
- expenditure as a percentage of gross book value of the building asset
- other agency-specific measures.

Maintenance budgets review may include:

- comparison with benchmarks based on technical advice
- research by other jurisdictions with similar building portfolios (buildings of a similar nature and service delivery role operating in similar climatic conditions).

Maintenance budgets should support relevant agency policies and guidelines, including:

- agency maintenance policies

- financial management strategies to fund building maintenance.

Maintenance funding benchmark

The amount budgeted for maintenance at portfolio level should meet or exceed the minimum funding benchmark of 1 per cent of the building ARV of the agency's building portfolio. An ARV:

- 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
- does not include the value of the furnishings or other items not permanently part of the facility, or design and project management costs
- is a 1 per cent funding recommendation as the minimum threshold for annual maintenance expenditure for the building portfolio (not as the optimal funding level).

It is likely that an agency's maintenance budget will exceed the recommended minimum threshold of 1 per cent of the ARV if the portfolio has:

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

Minimum maintenance funding benchmark for annual agency budget

Scope and application

This section provides asset and maintenance managers with general guidance on how to estimate the minimum maintenance funding benchmark for the annual agency budget.

Comprehensive advice about how to prepare a maintenance budget is provided in the [Building maintenance budgets](#) section of this guideline.

Process

It is important that the annual agency maintenance budget is rigorously reviewed each year, including an assessment of the achievements of the previous year against intended outputs and impacts.

The optimum time to undertake this review is at the beginning of the annual budgeting cycle, to identify any implications on budget submissions and/or risk management processes.

Agencies should:

- allocate sufficient funding in the maintenance budget to enable buildings to be maintained to the specified condition standard ratings documented in the agency maintenance policy
- understand that the difference between maintenance expenditure and capital expenditure is important due to accounting approaches and tax liabilities associated with these expenses (guidance on determining whether work is most appropriately classified as maintenance expenditure or capital expenditure is provided in the section [Capital or expense? A guide for asset and maintenance managers](#))
- assess the agency maintenance demand to calculate the annual maintenance budget, by considering:
 - proactive maintenance programs
 - preventative service maintenance
 - proactive condition-based maintenance identified in asset assessment reports
 - deferred/backlog maintenance
 - maintenance to meet mandatory statutory and health and safety requirements
 - reactive maintenance based on historical information.

Minimum funding benchmark

It is recommended that a minimum funding benchmark of 1 per cent of the building ARV of the agency's building portfolio, be allocated for maintenance expenditure. The amount budgeted for maintenance at portfolio level should meet or exceed this funding benchmark.

The funding benchmark may be exceeded if a portfolio has:

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

Accurate and consistent building performance information is required to support maintenance budget formulation and the identification of strategies to address risks associated with underfunding maintenance.

The building ARV

The ARV for budget and funding purposes should be determined using estimated current building costs provided by a valuer registered in Queensland. The agency should:

- issue clear instructions to valuers that the estimated cost of constructing a new facility should be consistent with the definition of the ARV, noting that if a valuation based on replacement value for building insurance purposes will not comply with the ARV definition because it includes design and project management fees
- use a quantity surveyor or competent person with adequate estimating skills and knowledge about regional differences in building costs and other factors – building cost is stated in terms of dollars per square metre of the GFA
- estimate the building's GFA using the measuring method in the Australian Cost Management Manual, published by the Australian Institute of Quantity Surveyors
- seek further building cost estimates advice from EPW, if required.

Capital or expense? A guide for asset and maintenance managers**Scope and application**

This section provides asset and maintenance managers with general guidance on how to account for major maintenance expenditure on building assets.

Maintenance expenditure can range from a few dollars to many thousands of dollars. In most cases, work undertaken is readily identified as maintenance and treated as an expense.

At times, the nature or intent of work, or parts of work, extend beyond restoring the asset to its original condition, capacity, or function. In these cases, managers should decide whether the expenditure is most appropriately classified as maintenance, or as a capital outlay that increases the value of the asset on which the expenditure is incurred.

Treating an expenditure as maintenance (i.e. as an expense) affects an agency's output costs, while capital expenditure affects the value of assets, depreciation, and equity return. Accounting for expenditure in an appropriate and consistent way provides a more accurate indication of an agency's output costs and the value of its assets.

Process**Maintenance-type work classified as an expense**

Maintenance-type work is classified as an expense when the intent is to:

- reinstate the physical condition to a specified standard
- prevent further deterioration or failure
- restore correct operation within specified parameters
- replace components at the end of their useful/economic life with modern engineering equivalents
- make temporary repairs for immediate health, safety, and security reasons (e.g. after a major building failure)

- assess 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).

Maintenance reflects consumption (through use) of a building asset. As consumption results in a reduction in the value of the asset, it meets the definition of an expense; however, works undertaken in the course of maintenance may include activities that result in expenditure being classified as capital.

Maintenance work classified as capital expenditure

Maintenance work is classified as capital expenditure (i.e. added to the carrying amount of the asset) when it improves the condition of the asset beyond its originally assessed standard of performance or capacity. This must be in accordance with Queensland Treasury's [Non-Current Asset Policies for the Queensland Public Sector – NCAP 1 Recognition of Non-Current Assets](#).

Capital expenditure work includes upgrades, enhancements, and additions to a building asset that:

- increase in the asset's useful function or service capacity
- extend its useful life
- improve the quality of the services delivered through use of the asset
- reduce future operating costs
- result in upgrades or enhancements that become an integral part of the asset.

Maintenance expenditure simply preserves an asset's original serviceability and does not result in improvements, but work initiated under maintenance can result in capital expenditure classification.

An example of work initiated under maintenance that could fall into the category of capital expenditure is the replacement of a deteriorated roof over an open patio, undertaken in conjunction with work to convert the patio into an enclosed space. When the requirement for maintenance of the patio roof is the catalyst for the work, the building owner may see advantages (e.g. cost savings, time savings, minimisation of impact on building users) in enclosing the patio at the same time.

The work to enclose the patio results in an enhancement to the building asset (i.e. the useful function of the asset has increased as the patio can now be used during poor weather conditions), therefore expenditure on the roof replacement and patio enclosure would be capitalised as it has increased the useful function of the asset.

Extension of useful life

Significant components³⁰ within buildings (e.g. major electronic security systems) should be identified, recognised, and depreciated separately.

The useful life of each component is different to that of the building asset and to each other. For example, an air-conditioning chiller has a useful life estimated on the basis of its expected running hours and also its expected workload.

The [Non-Current Asset Policies for the Queensland Public Sector – NCAP 5 Depreciation and Amortisation](#) notes that the useful life of an asset to one agency may well differ from its useful life to another entity, or even differ between business units within the same entity.

Factors that influence the useful life of building assets and their components include:

- physical wear and tear as a result of use
- environmental conditions
- technical obsolescence
- commercial obsolescence
- legal compliance issues
- other limitations on the continued safe and legal use of the asset.

An extension of the useful life of a building asset may result from work incorporating:

³⁰ See Queensland Treasury's [Non-Current Asset Policies for the Queensland Public Sector – NCAP 2 Complex Assets](#) for criteria to satisfy the definition of a significant component of a complex asset.

- a more robust material than that used in the original structure
- a component that benefits from an improved design (e.g. a new more efficient compressor of the same capacity as the original).

Expenditure in such instances should be carefully reviewed and categorised as capital expenditure, expense, or a combination of both.

Reduction in future operating costs

Reductions in the future operating costs of building assets may occur as a result of:

- repairs that incorporate new materials
- more efficient components
- integration of new technology (e.g. more durable or weather-resistant materials may reduce maintenance costs, while the installation of a modern air conditioning plant may reduce energy costs).

Even if such replacements are precipitated by maintenance requirements and fail to result in increased output, capacity, or improvement in service quality, the expenditure should still be reviewed in terms of its capital content.

Expenditure should be classified as capital if the primary intent is to reduce future operating costs. In contrast, replacement of an asset component purely for maintenance reasons (even if the replacement is made with a modern engineering equivalent that has potential to reduce future operating costs) should be categorised accordingly unless there is a material change or enhancement in the physical characteristics of the building asset.

Asset and maintenance managers

Asset and maintenance managers should consider issues of capital versus expense when assessing both short and long-term maintenance requirements of building assets.

Key considerations for asset and maintenance managers making decisions about maintenance works include:

- financial management and accounting policies and guidelines
- value for money principles (when ascertaining if it is more economical to upgrade, replace or refurbish buildings rather than continuing to make ongoing repairs)
- value of the asset
- intent of the work
- scope of the work
- outcome of the work
- impact of the work on asset value, depreciation, and equity return
- consistency in decision making.

Building management

Scope and application

Building management is the process required to achieve and sustain defined levels of building performance throughout the life of a building. The main objectives of building management are:

- effective risk management
- extended asset life
- reduced operating costs
- compliance with statutory obligations
- provision of a healthy work environment
- improved performance of building systems
- performance and investment predictability through a lifecycle approach
- alignment of building performance with user expectations, relevant to productivity and service delivery
- improved user/occupant satisfaction
- enhanced community perceptions

- environmental compatibility.

Risks

Poor building management risks that may affect service delivery capacity and quality include:

- degradation of the Queensland Government asset base
- premature asset failure
- shorter asset useful life
- higher repair and replacement costs
- missed opportunities to identify and implement improvements to reduce environmental impacts
- unnecessary exposure to legal, social, and other risks associated with:
 - deteriorated buildings
 - statutory non-compliance
 - workplace health and safety
 - hazards
- inappropriate maintenance practices that may cause damage that is expensive to repair.

Process

Elements of building management

The size, type, complexity and role individual government buildings or building complexes play in supporting the delivery of services varies significantly, meaning building management activities should be tailored to achieve effective building asset performance management and efficient and effective resource allocation.

Building assets should be classified in terms of their operational roles and criticality to service delivery.

Four aspects of building management are:

- building occupancy
- building operation
- building maintenance
- building upgrades.

Building occupancy

Building occupancy relates to activities required to enable spaces in a building to be occupied. It encompasses

- occupancy management that:
 - involves management of available space to optimise use and economic performance
 - includes consideration of the occupancy mix to:
 - support harmonious use by occupants
 - monitor occupancy levels to support occupancy prediction and the formalisation of occupancy agreements (agreements in an owner-occupier situation may take the form of Memoranda of Understanding or lease contracts).
- lease management that:
 - provides the legal and contractual framework for building occupancy and defines the requirements to be met by the lessor and the lessee
 - ensures successful occupancy and use of any building or complex.

More information on government office accommodation can be found in the [EPW Office Accommodation Management Framework](#).

Building operation

Building operation activities should support building occupants to deliver government services in line with government environmental and social commitments by:

- controlling and monitoring building services and plant operation that are critical to the provision of a habitable, comfortable, and functional environment, such as workplace health and safety requirements for building occupants
- commissioning building services and plant is important to ensure that buildings maintain optimum energy efficiency and all systems, e.g. water-based fire safety systems, fire hydrants and sprinkler systems, work as intended in the design
- facilitating building operational activities to include:
 - reducing the likelihood of conflict in the use of common areas, storage, materials handling facilities and access
 - ensuring that occupants and users are not disrupted in the delivery of services
 - ensuring effective planning and communication to achieve these outcomes
- coordinating and directing contractors and supply authority employees to ensure their access and activities are safe and security is maintained
- ensuring effective communication with building occupants and users by providing a means for complaint management, building promotion, crisis management and continuous improvement in building operations in support of occupants' requirements
- identifying and managing hazardous material for example liquid and gaseous fuels, asbestos, halon/inert gas, fertilisers, and cleaning agents to:
 - protect the safety of building users and occupants
 - ensure compliance with statutory obligations
- assessing and documenting the condition of asbestos containing material in building elements in accordance with the requirements in the Queensland Government Asbestos Management Policy for its Assets
- accessing control and security measures to protect the building, its physical contents, and its users (security management can range from the control of keys to sophisticated electronic systems and specialist patrols)
- confirming that emergency/disaster management for each building involves:
 - ensuring adequate protection of building occupants and users in the event of emergencies or natural disasters (involves training building management staff and users)
 - consulting with police and other emergency services authorities for rescues and disaster recovery
 - evaluating all procedures regularly
 - requiring building owners and users to ensure testing of fire systems and equipment and assessing the safety level of the building is undertaken by qualified service providers
 - building owners should have:
 - appropriate skills to manage risk areas affecting building protection systems and equipment, and to ensure occupant safety is adequate, in accordance with the Building Fire Safety Regulation 2008
 - information about specific design considerations of smoke control and fire protection systems and equipment, to facilitate accuracy of testing and assessments
 - access to historical data (where the above information is not available) as it may identify necessary rectifications to ensure integrity of such systems
- ensuring external and internal cleaning (day-to-day hygiene-type cleaning) takes place so the building is both habitable and well presented (noting that structured and systematic procedures by specialist contractors may be necessary to meet occupant expectations and maintain the image of the building)
- ensuring waste management and recycling services comply with hygiene and environmental requirements (specialist and/or licensed service providers may be required)
- conducting regular pest control activities to eradicate cockroaches, spiders, and other pests
- undertaking landscaping activities (such as mowing grass, pruning and trimming trees/shrubs, garden maintenance, and removing horticultural waste) as often as necessary to maintain the property to the required standard
- ensuring integrity of other building operation services, including energy and water supply and management, telecommunications (voice and data services), laundry and catering services, and artworks and special features management services.

Agencies are required to focus on the following building management practices:

- energy management – strategies to increase energy efficiency and lower operating costs in Queensland Government buildings should be assessed and integrated with relevant aspects of asset planning and management
- water management – strategies to increase water efficiency, such as preparing water efficiency management plans (for owners of non-residential buildings with substantial water consumption or premises with cooling towers for air conditioning).

Building maintenance

Staff responsible for building maintenance should:

- document maintenance procedures
- coordinate maintenance activities with building operations to ensure minimal disruption to occupants
- ensure statutory obligations are undertaken to maintain building water-based fire safety systems in accordance with fire hydrant and sprinkler system commissioning and periodic testing ([Queensland Development Code MP 6.1 – Commissioning and maintenance of fire safety installations](#)).

Maintenance is work undertaken on existing buildings with the intention of:

- reinstating 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).

Building upgrades

Building upgrades (e.g. renovations, refurbishments, alterations, extensions or improvements) are defined as government building projects. Upgrades aim to optimise the utility, amenity and functionality of a building and increase its useful life to meet future service delivery requirements.

Engage appropriate persons skilled in design, project and contract management to manage the works associated with building upgrades to prepare design briefs, reviews of design and documentation, invitations of tenders, and the awarding of contracts.

When the project is completed, all certificates, warranties, and operation and maintenance manuals are to be provided at handover to enable proper management of the facility.

Agencies must ensure systems and processes are in place for the acceptance and retention of building information.

Fire hydrant and sprinkler tests are to be commissioned. Information ascertained by the tester to be provided to the appropriate officer for recording on an agency register where it can be accessed by the officers responsible for operating and maintaining the assets.

Building management systems

Building management monitoring and control systems should be used to coordinate and control activities associated with continual monitoring and improvement of the asset and to identify improvement opportunities (e.g. energy efficiency and reliability).

Building management systems must be capable of providing comprehensive reports to facilitate:

- building occupancy management
- building performance management to meet service delivery needs
- project progress for building upgrades.

Operational technology

Operational Technology (OT) refers to the use of technology to manage and control physical devices and processes. This includes technologies such as programmable logic controllers (PLCs), CCTV, intercoms, control systems, fence detection, duress. The primary focus of OT is to monitor and control physical processes, such as power generation, transportation and the security management systems, cameras, monitors. OT systems leverage the power of network and server infrastructure to improve operational efficiency.

It is important to note that the main difference between IT and OT is that IT is focused on managing and processing digital data, while OT is focused on managing and controlling physical devices and processes.

Information management systems

Information management systems data should be collected, stored, retrieved and reported to support effective management of the building's operation. Information management systems include:

- maintenance management systems that record technical and asset information relevant to the maintenance of buildings and services to inform the SMP and for normal progress reporting
- financial management systems that store and monitor financial transactions and manage basic revenue and expenditure data to provide consolidated financial reports to support management decisions
- lease management systems that track space utilisation and vacancies and can initiate rental and services billing to tenants. Access to effective lease management systems that generate appropriate reports enables building managers to use this information for decision-making processes and to analyse financial performance and consolidate data for benchmarking purposes.

Performance management

Measuring, analysing, and reporting building performance is critical to effective building management. Accurate building performance data is vital to anticipate:

- issues related to the management and operation of a building
- issues that may affect service delivery (noting that maintenance issues should be addressed before they become a problem).

Decision making and planning for maintenance and capital delivery programs should inform future disposal and rationalisation decisions. Continuous improvement should be supported by benchmarking.

Heritage asset management

Scope and application

This section describes the best practice processes to enable agencies to recognise, manage and conserve government building assets with cultural heritage significance during all stages of the asset lifecycle (planning, investment, procurement, management in use, and disposal).

The objective of heritage asset management is to use heritage assets to deliver services to the community in an efficient, cost-effective way while conserving cultural heritage significance for present and future generations.

The responsibility for managing government-owned heritage assets lies with the agencies that control and administer these assets in accordance with the [Queensland Heritage Act 1992](#).

Risks

Consequences of ineffective heritage asset management may include:

- breaches of statutory obligations
- delays to project delivery
- lack of integration of heritage value in planning
- decrease of heritage value of government assets
- loss of civic esteem

- community dissatisfaction
- reduced asset life
- functional inefficiencies due to existing assets being used inappropriately or ineffectively
- unscheduled or unexpected major expenditure.

Process

Agencies must consider:

- principles and elements necessary for achieving effective management of buildings
- community expectations
- strategy for managing Queensland's heritage to allow for state growth and development while conserving valuable heritage.

Heritage asset management should:

- identify assets with cultural heritage significance
- record heritage assets in agency asset registers and consider nominating heritage assets of state significance to the Queensland Heritage Register, following advice from the Department of Environment and Science (DES)
- manage heritage assets to retain cultural heritage significance while achieving agency asset objectives
- identify and plan for disposal of surplus or under-utilised building assets
- monitor and review outcomes to inform future management processes.

Staff leading the heritage asset management process should:

- develop a heritage strategy and incorporate it in the planning processes
- recognise the heritage value of the building or place and implement a process to ensure this value is not compromised during alterations or maintenance
- consult with the DES, recognising that:
 - DES is responsible for the management and protection of heritage places that fit into the state level of cultural heritage significance
 - heritage places include buildings, structures, cemeteries, archaeological sites, gardens and parks, urban precincts and natural and landscape features
 - effective heritage conservation does not require that historic places remain frozen in time and are never altered. Rather, it recognises the best way to protect heritage places is to ensure they continue in active use and are valued by the community
- engage a person with appropriate skills and experience (such as a heritage consultant) when assessing heritage significance. The assessment will typically involve:
 - collecting information on the place and its context from documentary sources and a physical inspection
 - recording, analysing, and assessing this information to determine aesthetic, historic, scientific, and social values
 - preparing a concise written cultural heritage significance statement
- incorporate heritage survey results into the agency's asset register (this will provide a useful snapshot of all heritage assets an agency controls) noting if and/or how the site is recorded on the Queensland Heritage Register.

Conservation management plan

Agencies should consider preparing a conservation management plan for each asset assessed to be of state significance.

A conservation management plan will:

- provide clear direction and a consistent approach, and identify management objectives and responsibilities
- identify appropriate actions to manage a heritage place specific to the asset and to the level of detail needed
- establish policies and mechanisms for decision-making about the future use of an asset with cultural heritage significance

- define conservation objectives and management responsibilities, and identify appropriate management techniques.

A conservation management plan should be completed before any decisions are made that could have an adverse effect on an asset's significance. It should be:

- reviewed and updated regularly
- available for use by asset managers, building occupants and users
- lodged with DES for state-owned heritage places to facilitate the development assessment process.

Heritage asset maintenance

Agencies should:

- undertake specific and regular maintenance programs to avoid ad-hoc repairs that, over time, can result in a loss of cultural heritage significance
- prepare a five-year maintenance plan (linked to the SMP) for each heritage asset to identify proposed work
- manage, plan and deliver building maintenance for Queensland Government heritage buildings
- inspect buildings regularly to ensure potential problems are identified early and to help asset managers gain an understanding of present and future maintenance requirement cost implications
- use (where possible) the same materials and techniques as used in the original work.

Inappropriate maintenance practices can cause damage that is expensive to repair. Quality information is a prerequisite to sound decision making.

Management of use

Retain the significant use of a heritage building by using sympathetic adaptation to meet changing service delivery environments. Where this is not possible, a compatible new use should be considered, ideally within government ownership.

The impact of any proposed new use should be assessed, along with any associated adaptations on the cultural heritage significance of the place.

Evaluation of total accommodation requirements for an agency on a site may support strategies for government consideration, such as adding a new building to accommodate the most demanding new requirements.

Agencies should aim to occupy heritage buildings, as the cost of retaining them as a heritage asset in everyday use may be less than the ongoing cost of caring for vacant assets, noting that unoccupied properties can be vandalised or subject to arson, and maintenance problems may go unrecognised without occupants to report them.

If no alternative or temporary use is arranged before a heritage asset is vacated, it should be secured by mothballing until a new occupant, owner or custodian is found. Regular maintenance and security inspections should be made.

Considerations when installing new services

Agencies should:

- plan service upgrade improvements to heritage assets in a coordinated and integrated way that will:
 - encourage careful planning
 - seek input from designers with suitable experience and select the appropriate systems which make use of new technology
 - incorporate the requirements of the DES
- consider installations that provide ongoing flexibility for future adjustment or addition to ensure minimal disturbance to the fabric of the building.

Provision for services will continue to change in response to:

- new legislative requirements, such as fire safety or energy consumption

- changes in the way business is conducted, such as access to electronic data
- building user expectations for the building to be maintained at a comfortable temperature by using air conditioning.

Many older assets were constructed at a time when services were minimal, and updating services is an important ongoing activity agencies need to undertake to maintain an effective portfolio.

Equitable access

It is important to provide easy and dignified access for everyone, with minimum impact to the heritage building. An access strategy should be determined for each heritage building to provide accessible entrances, paths of travel, work environments and toilets.

Disposal of heritage assets

DSDILGP is the lead for the whole-of-government [QGLTP](#), which is the framework for asset disposals. If there is no alternative to disposal, agencies should consider transfer within government, rather than sale.

Heritage information should be provided to potential owners to identify any advantages and constraints before a sale is finalised. This information allows agencies to minimise the potential for loss of heritage value during disposal by sale. New owners should be provided with any additional information (held by the agency) on the building once a sale is completed, including copies of drawings and other records of construction, alteration and use of the asset.

Relevant information should be provided to the Queensland State Archives after completion of a transfer or sale.

Demolition of heritage assets is managed on a case-by-case basis. Agencies should [contact DES](#) for guidance.

Security management of government buildings

Scope and application

Agencies have a responsibility to ensure its services are resilient to foreseeable risks. In the context of security management, agencies need to implement processes and procedures to ensure the safety and security of people in government buildings and the continued delivery of government services.

For managing the security of government buildings, contact the [Protective Services Group](#), a Queensland Police Service unit under the Security and Counter-Terrorism Command. The group provides a range of security services to Queensland Government clients across the State, including static guarding, mobile patrols, alarm monitoring, Building Services Coordinators within government buildings, security consultancy, and up-to-date technical services. It also issues identification cards for Queensland Government departments.

The Prepare, Prevent, Protect Group, a Queensland Police Service unit under the Security and Counter-Terrorism Command provides specialist counter-terrorism and general Protective Security support to Queensland Government, including security risk management and protective security advice, performing protective security assessments of existing buildings, and informing the selection of security risk treatment options. This Group also informs design considerations for planned buildings, [including crime prevention through environmental design](#). Following initial advice from the Group, agencies should seek further advice from specialised consultants.

Ongoing risk management of security considerations for people, information management and assets should be incorporated into an agency's risk planning.

Security management of government buildings should be considered with [information security](#) responsibilities for agencies.

Risks

Consequences of ineffective security management of government buildings may include:

- reduced safety of people, publicly funded assets and sensitive information

- loss of public confidence and trust in the delivery of government services
- tenant dissatisfaction
- unnecessary exposure to legal, social, and other risks
- functional inefficiencies due to existing assets being used inappropriately or ineffectively.

Process

Security management is the process of identifying, implementing and monitoring systems and processes for the protection of people and building assets against loss, misuse, damage or deprivation of use caused by deliberate acts. Building assets should have adequate security systems and processes in place to protect people, property, operational capability and information.

Efficient security management requires:

- assessing security risks (including the risks associated with terrorism) and their impacts on service delivery
- developing and implementing cost effective and appropriate measures to manage the risks
- monitoring the effectiveness of security measures and adjusting them as risks and circumstances change.

A strategic approach to security management is essential for effective protection, prevention and emergency response. The following services related to the monitoring and operation of a security system (which are necessary to keep the building in a habitable and useable condition) should be considered:

- alarm monitoring
- mobile security patrols
- security audits
- provision of static security personnel
- other relevant protection measures in accordance with the Queensland Protective Security Framework and the *Queensland Counter-Terrorism Strategy*.

The key stages of the security management process are considered with Queensland Treasury's [A Guide to Risk Management](#) and AS ISO 31000:2018 Risk management – Guidelines.

It is necessary to determine the assets and service delivery processes and procedures of the agencies and the potential security incidents/threats which may impact upon them, for example:

- the key activities in the building with a particular focus on those which, if disrupted, could substantially affect the agency's ability to deliver its services
- the security threats to which the department may be exposed
- where the vulnerabilities lie in relation to each of the threats regarded as plausible.

Agencies should consider what controls are in place, the likelihood of the situation taking place, whether there are any triggers which could signal the potential for such an event to happen, the consequences of such an occurrence and the cost to the organisation. To complete the risk assessment, the level of the security risks should be evaluated and ranked according to their importance and the potential damage or harm that could result. Priorities should also be set to address each of these risks.

In order to determine the most risk/cost effective security risk treatment options, agencies should identify options, assess options, prepare and implement treatment plans and analyse and evaluate residual risks.

Security measures can be broadly categorised as prevention, deterrence, detection, delay and response, or a combination of these.

A security management plan should be based on the recommended risk treatment options which:

- assign responsibilities for reporting, recording and analysing security incidents
- establish communication processes and (where applicable) ensure that relevant information is provided to key management committees
- institute a training and awareness program for key personnel and stakeholders

- include a process and timetable for the implementation of agreed physical and technical security procedures
- document performance criteria and ongoing monitoring processes for plan implementation
- determine funding requirements taking into consideration any existing SLA with the security provider and agency plans for security/onsite emergency response and business continuity.

Building tenants should work cooperatively to develop collective arrangements for common areas of their building. Similarly, tenants of adjacent buildings need to implement mutually supportive security arrangements for their precinct.

A building security committee should be established in multi-tenanted buildings. The committee is responsible for periodically reviewing security risks and developing, implementing, reviewing and testing building security arrangements. The committee should comprise representatives from all tenants and from the building owner. A tenant representative with relevant authority should undertake the role of the chair of the committee.

In government buildings, for protective security services, the officer performing the function of the building service coordinator is responsible for implementing and testing security and emergency arrangements.

The security management plan should be monitored to ensure its effectiveness.

Improvements/changes in asset planning, maintenance procedures, risk management and security management plans could be triggered by:

- responses to, or the impact of, security incidents on service delivery
- the results of testing exercises
- occurrence of security incidents not previously anticipated
- views of stakeholders regarding the effectiveness and value of security management and onsite emergency responses
- legislative changes
- performance of security operations

Best practice for the performance assessment of Queensland Government buildings

Scope and application

This section provides agencies with a systematic approach to managing building asset performance to meet service delivery requirements. It includes the broad scope and application of building asset performance management, and key principles and elements necessary for achieving effective management of buildings.

This section adopts a contemporary approach to performance management by considering social and environmental aspects, as well as a functional and financial performance assessment approach. It should be applied when an agency requires information on how its building portfolio is performing, particularly to inform the following asset management processes and decisions:

- the agency SBAMP and SAMP to meet whole-of-government requirements and agency priorities
- planning decisions before procurement and investment, including development of business cases for funding bids
- disposal and rationalisation decisions
- replacement and maintenance decisions
- renewal/refurbishment decisions
- benchmarking and continuous improvement.

The principles and elements should be integrated with the agency's building asset management policies, processes and systems that support core business functions and service delivery.

This section can be applied at a floor, building or portfolio level, depending on the performance information required.

Process

Agencies are encouraged to:

- implement a performance-based approach in relation to planning, decision making and management of building assets
- demonstrate the use of performance indicators and measures in monitoring the performance of their building assets
- have the capacity to provide reports on the performance of their building assets to the government, when required, to guide strategic decisions and policy development.

EPW can assist agencies to implement performance building assets strategies by providing advice, where requested, and facilitate sharing information between agencies.

Performance management involves:

- evaluating the achievement of policy and program objectives and outcomes, and the effective use of resources
- ensuring the performance assessment and management of building assets is part of the overall performance management in an organisation, noting this will help ensure building assets (that incur significant capital and recurrent costs) effectively support service delivery requirements, and are used in a cost-effective and sustainable manner
- ensuring performance management is based on reliable and timely performance information that provides the foundation for informed decision-making, planning, implementation, and review.

Key principles

Consider the following key principles that underpin the effective use of building asset performance information as part of strategic asset management.

Clarity of purpose:

- agencies identify the following before starting to collect data:
 - the purpose of collecting performance information
 - the end-users of the information
 - how the information will be used
- agencies ensure performance information is relevant and targeted at appropriate areas so the benefits of performance measurement are optimised.

Context of performance information:

- asset performance information should be complemented with appropriate qualitative and statistical contextual information relevant to service-delivery objectives and operating environments
- ensure valid, verifiable and reliable conclusions are drawn from the analysis of the asset performance information
- avoid using building asset performance information in isolation from other contextual information, as it may lead to incorrect or misleading conclusions.

Quality of performance data:

- the quality of outcomes obtained through performance measurement and analysis is dependent on the quality of the data on that the performance information is based on
- ensure the performance data is:
 - valid (actually measures or is an acceptable assessment of the designated performance indicator)
 - reliable (does not vary significantly under set conditions)
 - accurate (provides a true representation of the unit of measure)
 - timely (available when required)
 - current (up-to-date for the purpose)
- establish appropriate quality assurance procedures to ensure the quality of data
- consider the volatility of data and its impact on reliability, and the ability to aggregate data to provide performance perspectives at various levels.

Cost and value of performance information:

- consider the (potentially significant) cost to collect, analyse and report on performance information
- carefully weigh up the value and benefits of collecting and pursuing optimal levels of reliable and accurate performance information against the cost of doing so
- consider if the costs outweigh the benefits, the application of alternative performance information within appropriate cost-benefit parameters to determine the performance of the building portfolio.

Continuity and consistency of performance measurement:

- monitor trends over time, particularly when assessing the overall performance of buildings, as opposed to individual components, which may have shorter life spans
- maintain the continuity of performance information by using trend monitoring to enable assessment of outcomes and asset decisions
- the consistency of data is critical to effective evaluation of performance information, and any inconsistencies could lead to misleading interpretations and loss of credibility in the results of any analysis.

Building asset performance elements

The elements listed below should be incorporated into agency asset performance management systems.

Classifying building assets

Building assets should be classified into specific asset types or categories as a minimum means of differentiation for performance assessment, noting that individual building assets play different roles in supporting agency objectives and have varying degrees of importance or criticality.

Classifying assets in terms of operational roles and service delivery provides a focus for asset performance measurement priorities. This differentiation assists in:

- providing a means of analysing performance information by type and criticality of building assets
- enabling agencies to target specific buildings for performance assessment and monitoring
- establishing priorities for resource allocation
- achieving a balance between the costs and benefits of performance measurement.

Building asset categories

Agencies should assign building assets to categories that reflect their role in supporting service delivery or other objectives, considering performance information in terms of the asset's operational role to assist in the prioritisation of performance improvement across the portfolio.

Use [Table 11](#) to classify agency building assets (shows the minimum categories to be used).

Table 11: Building asset categories

Category	Description of building asset role
Operational asset	Used for delivery of core agency services (e.g. teaching block, police station, health service facility)
Ancillary asset	Used for support functions (e.g. storage sheds, administration, training)
Non-operational asset	Surplus or de-commissioned (e.g. assets awaiting disposal).
Administered asset	Administered on behalf of the government (e.g. heritage and cultural assets).

Building asset criticality

Building assets in each category may be of varying levels of importance to achieving service delivery objectives.

Use [Table 12](#) to determine criticality ratings, considering:

- the importance of the building asset to delivery of core agency services
- the consequences of failure of the building in terms of risk to service delivery and ease of replacement.

Table 12: Building asset criticality rating scale

Rating	Criticality (importance to service delivery)
5	Vital to service delivery operations. high profile and extremely difficult to replace or find short-term service delivery alternatives if damaged or otherwise adversely affected.
4	Important to service delivery operations but can be quickly replaced with alternative.
3	Service delivery will be affected, with no major implications, and alternative asset is readily available.
2	Support function only with no direct impact on service delivery, and alternative is readily available.
1	No impact on service delivery. Asset may be surplus or administered only.

Performance areas, indicators, and measures

Agencies should establish specific performance areas, indicators and measures for assessing building asset performance, and integrate them with existing asset management practices and systems.

Building asset performance areas are:

- appropriateness in meeting service delivery requirements
- financial impact
- statutory compliance risk
- effective use as a resource
- environmental impact
- social significance.

Building asset performance indicators include:

- appropriateness:
 - capacity – physical capacity to support the level of current and future service activity
 - functionality – suitability and flexibility for current and future service delivery
 - location – physical location relative to current and future demand for services (an important consideration in light of population movement and growth, and infrastructure planning)
 - condition – physical condition appropriate for current and future service activity
 - remaining life – an estimate of the remaining useful or economic life in terms of either the asset's future potential to sustain delivery of services, or the costs of ownership and use not being viable
- financial:
 - operating cost – the annual operating cost of the building asset e.g. utilities:
 - electricity supply
 - water supply
 - waste management services
 - gas and fuel supplies
 - maintenance cost – the annual maintenance expenditure on a building asset, including:

- agency management/administration (including computerised maintenance management systems)
- asset assessment
- preventative maintenance (including statutory and manufacturer recommended)
- proactive condition-based maintenance
- reactive maintenance
- deferred maintenance cost – the estimated cost of all maintenance work that has not been conducted within a financial year and which is deemed necessary to bring the condition of the building to a required standard or acceptable level of risk
- statutory compliance risk:
 - consider the extent of non-compliance with Australian Standards, codes, laws, and regulations, which is identified as a result of an audit, discovery, or the introduction of new legislation
- effective use:
 - consider the extent of utilisation expressed as a percentage of available capacity based on agency-specific measures
- environmental impact:
 - consider the presence of hazardous materials, site contamination or consumption of non-renewable resources (e.g. water and energy)
- social significance:
 - meet government priorities or community obligations, including in terms of cultural heritage significance, community attachment, or other government priorities.

Agencies can choose to supplement the above key performance indicators with optional indicators listed below if they add value to the assessment:

- net return on asset value – net revenue as a percentage of gross book value of the building asset (relates to the financial performance area and is only applicable to agencies that have revenue-generating building assets)
- compatibility of use – compared with the design purpose of the asset (relates to the effective use performance area)
- environmental rating system assessment – reflecting achievement in meeting the objectives and specific criteria of a particular environmental rating system suitable to the type of building asset and agencies and government priorities (relates to the environmental impact performance area).

For building assets previously assessed and rated against an environmental rating system (either at the design stage or on completion), it is important to ensure the achieved rating is being maintained during operation. Occupant operation and maintenance service provider practices may be assessed to identify whether environmental initiatives incorporated into the building asset are being maintained.

Performance measures

Performance measures are qualitative or quantitative methods of assessment relevant to a particular performance indicator. Agencies should:

- use appropriate performance measures that are relevant to service delivery needs to ensure performance data is useful and meaningful for their specific requirements
- use [Appendix 7-1](#) to assist in undertaking performance assessments, which can be customised to suit particular agency requirements.

Linking performance to service delivery

Performance measures applied to each performance indicator must be relevant to service delivery objectives and provide information on the match or gaps between actual performance and the performance required for optimum service delivery outcomes.

Establishing performance targets or benchmarks

Performance targets or benchmarks should drive improvement efforts are appropriate for individual requirements. They should be established with consideration of the building asset's nature, service delivery role and relative importance.

Targets and benchmarks support comparisons at building, facility, district/regional, program and portfolio level to assist in decision-making and drive improvement.

Benchmarks or targets must be appropriate and relevant so building assets can be monitored and compared against the targets to produce meaningful information for asset management.

Managing performance

It is important to establish and maintain agency capacity to manage building asset performance. This requires appropriate agency resources, processes, management structures, systems, and competencies to assess, review and evaluate building asset performance.

Reviewing performance

Periodic reviews of building asset performance should be undertaken as part of asset management practices, and for specific planning purposes such as business cases for new projects and the agency SBAMP and SAMP.

Using performance information

Performance information should inform asset management decisions. Performance assessments provide status reports or profiles summarising the performance of a particular building asset. The information gained helps agencies to answer the following questions:

- how well is the building asset performing in supporting current service delivery?
- is the building asset relevant to future service delivery needs?
- what areas need improvement?
- what are possible options for improving performance?
- what is the best option?

Asset performance information also assists agencies to anticipate issues related to the management and operation of building assets and to address these issues before they become of concern or affect service delivery.

Asset review and analysis

Scope and application

Asset review and analysis involves evaluating the performance of building portfolios for asset planning as part of overall agency planning processes.

The objective is to ensure the best possible alignment between the building portfolio, service delivery requirements, and government objectives. This is done by developing the following strategies:

- capital delivery investment, including new assets or extensions to existing buildings, reconfiguration of existing buildings, leasing of building space, or other non-asset solutions
- maintenance, ensuring the physical condition of building assets are at an appropriate standard for their functional purpose and value to the community
- disposal of surplus assets, including decommissioning leased premises.

These strategies are the basis for exploring options for capital investment, maintenance, and disposal plans.

Asset review and analysis to monitor building portfolio performance in the context of its service delivery objective will facilitate:

- optimal use of buildings
- advancing sustainable changes in energy and water management
- improving reporting capability to senior management and to government.

Risks

The consequences of agencies failing to monitor the performance of their buildings include:

- inadequate building asset management systems and processes that may adversely affect service delivery performance
- lack of rigour in planning and resource allocation processes and decisions
- financial losses arising from failure to maximise return on the asset portfolio
- over-maintenance of a building scheduled for disposal or demolition
- inappropriate or inefficient use of existing assets
- degradation of the Queensland Government asset base
- sub-optimal outcomes in relation to capital delivery investment, maintenance, energy, and water management.

Process

Understanding building portfolio performance

Agencies should undertake a systematic asset review and analysis to establish connections between the strategic and operational aspects of asset management.

Accurate building asset performance and status data is essential for planning capital delivery and maintenance programs and managing emerging risks at the agency and whole-of-government level. The comprehensiveness of the information required will be determined by the complexity of the building assets and the overall size of the portfolio.

Building portfolio review

Building portfolio review outcomes and information should be incorporated into agency processes, systems and reports, and into asset planning processes to allow effective prioritisation of projects and funding.

Building portfolio reviews should:

- establish a systematic approach to managing the performance of building assets to meet service delivery requirements by using specific performance areas, indicators and measures related to economic/financial aspects, environmental impact, and social significance
- consider review objectives and the systems to provide information on actual and required performance for optimum service delivery outcomes
- consult with key building users, maintenance service providers and service delivery planners to determine appropriate performance indicators and measures
- consider building audits and inspections to provide input into the performance of the building asset:
 - condition assessments, noting it is a requirement for all Queensland Government buildings to be assessed by site inspection at least every three years, depending on the nature of the facility
 - asbestos audits
 - building asset register data collection
 - building reviews (building codes audits, fire safety audits, town planning code audits, health and amenity audits, functionality audits, utilisation audits, and POEs)
 - risk management audits
 - data collection for lifecycle planning
 - energy management audits
 - engineering investigations e.g. geotechnical, structural integrity, and electrical/mechanical investigations
 - environmental audits
 - water management audits.

Guidance on specific techniques (such as risk analysis, sensitivity analysis, economic evaluation, and cost-benefit analysis) that can be used to analyse project options resulting from building reviews is available in the [PAF Cost-Benefit Analysis](#) guidance material

Environmental sustainability management

Scope and application

Environmental sustainability is a key consideration in the management of all government buildings. The Queensland Government's sustainability agenda is outlined in [Queensland Climate Action](#) and the [Queensland Climate Adaptation Strategy](#).

Agencies have a key role to play in supporting this agenda during the planning, construction, operation, maintenance, and disposal of government buildings, by reducing environmental impacts and ensuring services to the community are resilient to climate change.

Risks

There may be significant consequences if environmentally sustainable practices are not integrated into the management and design of government buildings, including:

- higher operating costs for inefficient buildings
- lower asset values compared to similar environmentally accredited assets
- building tenant dissatisfaction
- buildings less resilient to impacts of climate change, such as severe weather events
- funding inefficient use of resources
- adverse community perception if the government is not seen to be proactively addressing the impact of climate change
- reducing the ability for agencies to deliver services in case of significantly changed climatic conditions.

Process

Asset management and procurement practices

Agencies should use environmentally sustainable government building management practices to:

- improve agency ability to meet sustainability targets, savings and outcomes in planning, construction, operation, and maintenance of government buildings
- accelerate and maintain the organisational improvement efforts related to environmental sustainability
- address effects of climate change in planning processes to ensure that government services are resistant to climate change impacts.

Key aspects of environmental sustainability

Environmental sustainability should be addressed when planning, constructing, operating, and maintaining government buildings, by:

- undertaking lifecycle planning analysis to support strategic management and decision-making processes
- documenting (in the project business case) lifecycle costings and consideration/investigation of the environmental impact of building solutions undertaken during the project feasibility study
- integrating sustainability into procurement processes in accordance with the QPP and the associated purchasing guideline *Optimising Opportunities for Local Suppliers*
- setting, achieving, measuring, and reporting on sustainable procurement targets annually, in alignment with agency strategic and operational procurement objectives and government strategies
- contributing to government energy efficiency and emission objectives by:
 - complying with actions in the QPP and the [Queensland Building Plan](#)
 - using information and lessons learnt from managing existing buildings, with a focus on:
 - assessing heating, ventilation, and air conditioning (HVAC) systems for improving energy efficiency by looking at the impacts and energy saving potential of improved fan technology, ductwork, and insulation
 - using new lighting and sensor technologies to reduce artificial lighting power densities
 - improving building sealing to prevent unintended air leakages

- glazing and shading to limit unwanted heat gain or loss
- high-efficiency heating technologies for hot water and space air-conditioning systems, such as solar thermal heating or electric heat pumps
- control systems to improve energy efficiency by setting optimum performance levels for zoning, equipment scheduling, peak demand use and hours of operations
- monitoring equipment for waste production and energy and water use
- developing and adopting environmentally sustainable approaches to design and construction
 - using light-coloured roof and building materials to reduce solar heat gain
 - considering allowances of flexible work arrangements when designing new buildings
- demonstrating leadership by reducing the environmental impact of greenhouse gas emissions, waste production, energy, and water use of existing buildings
- considering application of environmental ratings to construction projects
- seeking project submission/proposal approval from government and providing information to enable good decision making
- considering social, economic, and environmental impact assessments and risks for business case development
- using project designs, function, and performance (rather than technical specifications) by considering:
 - local industry participation when specifying building industry products and, where necessary, nominating proprietary products of local (i.e. Australian and New Zealand) origin before those from other countries
 - reducing greenhouse gas emissions attributable to construction and operation of buildings
- recognising that disaster management plans and guidelines may affect function, design and construction
- supporting the commitment to a 2050 zero net emissions target, in accordance with the Queensland Climate Action³¹
- jointly planning office accommodation needs i.e. agencies to consult with EPW, noting that all approaches to private sector office building owners should be made through EPW
- undertaking commissioning and handover processes that facilitate proper management of the building asset and ensure environmental performance is maintained over the life of the building by:
 - identifying and implementing adequate management strategies to ensure manuals, specifications, certificates, and as-built drawings are provided
 - providing thorough training and orientation of facility managers, maintenance personnel and plant operators, particularly regarding their roles in maintaining the environmental performance of the building
- operation and maintenance manuals should include procedures/maintenance activities, such as manufacturer recommendations for maintenance and cleaning regimes, and settings for plant and equipment that will allow sustainable buildings to perform to the specified level
- once an environmentally sustainable building is in use:
 - ensure environmental performance data is reviewed and analysed at appropriate intervals to maintain and improve performance levels
 - monitor the building's compliance with environmental performance requirements, including:
 - contractual requirements for maintenance service providers/contractor to provide regular and accurate environmental performance information
 - the contribution of building users/tenants to the building's overall environmental performance e.g. recycling, turning off lights and computers
- integrating the principles of ecologically sustainable development in government buildings, programs, environmental strategies, and initiatives.

³¹ Also see the Queensland Energy and Jobs Plan <https://www.epw.qld.gov.au/energyandjobsplan>

Mitigating the impact of natural disasters on government buildings

Scope and application

Natural disasters present a significant and rising cost to the community. Irrespective of geographic location. Queensland Government buildings may be at risk from a range of hazards, including cyclone, flood, landslide, earthquake, bushfires, severe thunderstorm, heatwave, storm surge and tsunami.

Natural disaster risks and consequences vary around the state, depending on location and physical characteristics of land. They cannot always be precisely predicted, but the impacts are well understood and can be managed through comprehensive hazard mitigation planning.

Climate change effects in Queensland can include annual rainfall reductions, increases in rainfall intensity, sea level and coastal erosion, bushfire risks, flood risks, and damage to transport infrastructure and low-lying human settlements. These factors should be considered when undertaking assessments or developing mitigation strategies.

Where buildings are leased, the risks associated with natural disasters is to be taken into account during the determination of needs, options analysis, lease negotiation and lease management.

Agencies should comply with relevant legislation, policies, and codes, and should seek to exceed such requirements in the case of:

- buildings critical to the delivery of services to the community
- buildings intended to have a specific resilience capacity – resilient government buildings will allow the continued delivery of government services irrespective of any natural disaster.

Resilient structures play a critical role in supporting communities to withstand, respond to and recover from disasters. For the purpose of this guideline resilient buildings are those that are built to relevant resilience standards and are able to continue to function and operate during and after disaster events.

Risks

Ineffective planning, scheduling and prediction of natural disaster risks can result in health, safety, financial, and environmental implications including:

- disruption of government services delivery
- loss of life
- contamination issues
- significant costs associated with reconstruction.

It is important to consider the potential adverse consequences of climate change on flooding and to remember that, in addition to impacts on rainfall and run-off, conditions such as sea level rise and an increase in the southern excursion of tropical cyclones may have significant implications for coastal floodplains.

The 2021/22 State Disaster Risk Report (SDRR) assesses statewide risk for 10 hazards, two compound or cascading hazards, and a range of risk drivers. The intent of the SDRR is to provide a foundational level of information for risk assessments by local and district disaster management groups and other state entities. It also provides authoritative guidance on climate change and its relation to disaster risk in Queensland.

Process

The [Queensland Reconstruction Authority \(QRA\)](#) is the lead agency responsible for disaster recovery and resilience policy and funding in Queensland.

QRA administers the [Disaster Recovery Funding Arrangements \(DRFA\)](#), which is joint Commonwealth and State government funding, providing financial assistance to help communities recover from eligible disasters. The [Queensland Disaster Funding Guidelines 2021](#) detail Queensland's administrative requirements for the DRFA that may be activated within Queensland and provide guidance on the financial assistance and funding that may be available in the event of a disaster for local governments and state government agencies, not-for-profit organisations, primary producers, small businesses and the general public.

QRA also coordinates several non-disaster specific resilience funding programs, details of which can be located on the QRA website.

Natural disasters and potential mitigation strategies

Agencies should consider a comprehensive approach to mitigating the effects of natural disasters and include strategies related to:

- land-use planning
- engineering (e.g. structural, and civil)
- building services
- building codes and standards
- increasing building resilience.

Where possible, avoid site selection, planning and design of government buildings in areas susceptible to natural disasters.

Agencies should:

- consider project planning, design, and development at the earliest possible stage, when the design and material decisions can achieve the greatest savings
- determine the degree of protection that can be provided against specific hazards when planning buildings (the costs of protection should be commensurate with the probable losses from an event occurring)
- address the following aspects when designing buildings, to increase resilience to natural disasters:
 - align development and associated site works to follow slope contours and minimise land excavation and filling, where appropriate
 - design retaining walls as an integral element of building form
 - design buildings for ease of maintenance
 - provide safe access to building elements and services to enable the delivery of maintenance work
 - design proposed developments to include expected longevity, and continued operation, of the building, before, during, and after a disaster
- consider the following aspects for building design:
 - factors such as increased sea levels, extreme climatic risk events, higher temperatures and greater wind loads in susceptible areas
 - acceptable and non-acceptable consequences for the building due to a risk event occurring
- ensure consequences are minimised or avoided through appropriate design
- recognise that the desired service delivery role of a building in and/or after a disaster may be different to its normal day-to-day role (buildings in threat-prone areas need to be multi-purpose, to support rapid responses to changing needs if required)
- consider additional QRA [guidance materials](#) for on resilient design and construction for homes.

Cyclones

Strategies to improve building resilience to cyclones include:

- designing structures to withstand expected lateral and uplift forces
- strengthening connections between roof and walls to the ground
- ensuring roof tiles and anchorage systems are strong enough to resist extreme wind pressure³²
- installing door and window hardware, fixings, hinges, and locks suitable for the location, noting that the failure of large access doors (such as roller doors or panel doors that can be vulnerable to severe wind) can result in internal pressurisation
- protecting and/or bracing doors and windows to reduce impact of airborne materials
- selecting appropriate weather treatments of eaves and building openings to protect them from wind-driven rain and mitigate impact of any damage to building interiors

³² Design wind pressures are derived from AS/NZS 1170.2 or AS 4055, as applicable. Design or construction details (including the timber size, bracing and fixing requirements) for residential timber-framed construction in cyclonic areas, are derived from the AS 1684.3:2021.

- minimising the extent of non-essential glazing, particularly in locations that are exposed or highly susceptible to extreme weather events
- protecting and securing equipment including air-conditioning plant, ventilators, antennas, and solar panels installed on roofs to avoid loss of the services or secondary damage to the building envelope
- storing free-standing furniture or other items, including bins and pot plants, in preparation for cyclone
- ensuring the selection of species and location of trees around buildings should consider that heavy seasonal rain can result in waterlogged ground providing little support for large trees during strong wind.

Opportunities to retrofit existing buildings should be considered. This can include upgrading roof structures and improving window protection to withstand high winds and prevent water entry.

Storms

Strategies to improve building resilience to storms include:

- designing appropriate roofs to minimise the possibility of water ponding, which can cause deflection of structural members
- protecting buildings against floods by preventing groundwater and rainwater from entering the building
- diverting surface water by grading the ground surface away from building walls
- maintaining roofs to prevent blockages and premature corrosion in roof gutters.

Floods

Strategies to improve building resilience to floods include:

- undertaking preventative measures to safeguard or minimise impacts on service delivery, including informed site and location selection, if possible, away from coastal, estuarine, and riverine floodplains
- where buildings are required to be constructed in flood hazard areas for operational purposes, consider elevated building pads, appropriate building design, and/or suitable construction materials including unlined core-filled block-work walls, free-standing furniture, elevated power and data connections, and carpet floor tiles
- designing buildings so habitable floor levels are at or above the flood level³³ to increase protection of essential services, and to limit potential flood damage
- undertaking dry flood-proofing by making the building watertight to prevent water entry, or wet flood-proofing by making uninhabited or non-critical parts of the building resistant to water damage
- considering relocation of the building and incorporation of levees and floodwalls into site design where safety and other considerations can be properly addressed
- locating mechanical, electrical, and electronic equipment above flood level (e.g. not in basements)
- providing auxiliary generators, appropriately located to supply emergency power if mains power is not available
- ensuring the main switchboard has the capacity to connect to an emergency generating plant if the power supply to a building's main distribution board is disrupted
- incorporating alternate means for onsite sewerage and water systems where protection may not be possible and disruptions may occur
- considering installing pumps to remove water from buildings
- providing protection against flowing/flooding/surface water, commonly caused by rivers overflowing
- ensuring site selection decisions are supported by economic, social, and environmental analysis and addressed during business case preparation
- considering protection for buildings adjacent to large bodies of water that could be undermined due to erosion storm-driven waves or tsunamis.

³³ Enquiries about historical flood levels for the site should be made of relevant authorities to ensure land is suitable for its intended purpose. The information should be available to relevant officers for inclusion in subsequent project management processes (for example, in design development and compliance assessment).

Refer to the [Queensland Development Code MP 3.5 – Construction of Buildings in Flood Hazard Areas](#).

Bushfires

Strategies to improve building resilience to bushfires include:

- appropriate siting of buildings, including adequate separation of buildings from bushfire-prone vegetation (firebreaks)
- clearing areas around a property to reduce the level of radiant heat from bushfires and provide working space for fire brigades, between the property and bushfire-prone vegetation
- designing buildings to improve resistance to burning embers, radiant heat, flame contact and/or a combination of these
- using suitable fire-resistant construction materials (including timber that has bushfire-resistant properties or has been treated with fire-retardants) in roofs, awnings and exterior surfaces to assist in avoiding spontaneous combustion due to radiant heat
- planting fire-retardant/resistant vegetation (noting most deciduous trees such as oaks and fruit trees are less flammable than pines and eucalypts)
- maintaining buildings and grounds to reduce bushfire risks.

For buildings in bushfire-prone areas:

- maintain grounds/landscape to ensure any erosion does not affect footings/foundations stability
- maintain fire protection systems in accordance with the [Queensland Development Code MP 6.1 – Maintenance of Fire Safety Installations](#) and the Building Fire Safety Regulation 2008.

Refer to the AS 3959:2018 Construction of Buildings in Bushfire-Prone Areas, the State Planning Policy, and local government for further information.

Earthquakes

Strategies to improve building resilience to earthquakes include:

- installing specific structural components such as shear walls, braced frames, movement-resisting frames, and diaphragms
- installing seismic dampers such as diagonal braces or other energy dissipating devices and techniques
- bracing non-structural components.

Ground subsidence, landslides, and mudslides

Strategies to improve building resilience to ground subsidence, landslides, and mudslides include:

- undertaking appropriate studies for location and site selection, and avoiding cut-and-fill building sites where practicable
- undertaking preventative measures to safeguard or minimise impacts on building foundations
- using shear walls, geo-fabrics and earth reinforcement techniques when retrofitting structures
- constructing channels, drainage systems, retention structures, and deflection walls
- planting groundcover.

Refurbishment and retrofitting of existing buildings

Consider measures to mitigate risks from natural disasters when making decisions related to refurbishment and retrofitting, including extension and alteration, and building maintenance. Apply all building acts, regulations and standards, in particular the *Building Act 1975* (Qld).

Building maintenance

Maintenance requirements should be assessed to identify measures to mitigate risks from natural disasters. All Queensland Government buildings must be assessed by site inspection at least every three years (at a minimum), depending on the nature of the facility.

Agencies should:

- assess all buildings affected by a natural disaster

- undertake condition assessments to evaluate the physical state of building elements and services and determine maintenance needs. Condition assessment should:
 - provide enough information on the condition of buildings to support informed asset management decisions
 - identify future remedial works in sufficient detail to enable associated priorities and cost estimates to be developed
 - include a review of disaster recovery plans etcetera to determine the likely effect of a natural disaster on the building and its services
 - assist agencies to proactively identify opportunities for natural disaster mitigation, including elements and services such as air conditioning and fire protection
 - manage risks and determine appropriate actions as soon as possible, to address critical maintenance items/issues.

Agencies should also consider:

- advice from maintenance service providers on workplace health and safety and risk issues that may require more frequent and thorough assessments
- replacing damaged components with modern engineering equivalents where applicable
- providing feedback to building designers on using materials or items more resilient to natural disasters
- timely re-establishment of any soil eroded from the building footings/foundations after flooding.

Asset disposal

Scope and application

This section will assist government agencies to implement processes and procedures to ensure appropriate asset disposal planning of government buildings.

Effective asset disposal planning is critical to the management of agency building asset bases. Disposing of surplus buildings in accordance with an asset disposal plan ensures they do not become a maintenance and/or financial burden.

It may also release funds for capital works, influence decision-making, and support forward estimates and budget processes by enabling reinvestment of disposal revenue.

A building may be identified for disposal due to:

- functionally inadequacy and unsuitability for refurbishment due to economic or technical constraints
- financial under-performance with little potential for improvement
- sub-standard physical condition (and it is uneconomical to reinstate to an acceptable standard)
- negligible demand for it.

The objective of asset disposal is to ensure that buildings identified as surplus are examined in detail and that there are no alternative economic or community uses for them. Building disposal should achieve the maximum possible financial return to government.

Risks

Disposal processes not supported by competent and professional advice and accurate and relevant information can result in:

- inadequate returns
- poor coordination of cash flow with capital investment requirements
- insufficient security or inappropriate maintenance of vacant property.

Process

Asset disposal plans

Agencies should develop an asset disposal plan to prioritise and optimise disposal of building assets identified as surplus (based on surplus and not investment/economic cost) to agency requirements.

The buildings should be examined in detail, and it should be determined they have no alternative economic or community use.

Asset disposal plans must have both a strategic and an operational focus.

Review holdings of surplus buildings

Agencies should:

- review building asset performance periodically as part of asset management practices
- assess how well buildings are performing to meet service delivery requirements
- identify any buildings that are surplus to existing or future service delivery needs, and which may be considered for disposal in the agency asset register and Government Land Register (GLR).

A review should be undertaken to ensure the disposal action is appropriate and there are no alternative economic or community uses for the assets.

Identify/prioritise asset disposal action

Agencies should:

- perform a financial and/or economic analysis to assist in identification of the best method and timing of disposal
- consider social impacts to assist in the planning for the disposal of buildings
- identify and prioritise disposal of surplus properties to best meet service delivery requirements and optimise the returns to government by identifying:
 - buildings that are readily available for disposal (inter-agency transfer should be given priority over a sale to the private sector)
 - for buildings with the potential for refurbishment or redevelopment to maximise returns from their disposal, consult with Queensland Treasury and seek budget and funding approval from Executive Government or other delegated bodies
 - for buildings with little or no value and where sale is not feasible, economic, or probable, consider demolition and using the land for future capital delivery projects.

Based on an objective evaluation, agencies should decide if there are savings to be made from:

- developing a resource (waste) recovery program for recyclable materials in any significant government building that is being demolished or redeveloped
- recycling and reusing materials in building projects where Resource Recovery Transfer Centres are established.

Consult with DSDILGP before disposal (refer to the [QGLTP](#) for more information), and update the GLR with sale information.

Constraints to transfer, sale or other disposal action include:

- existing accommodation/use arrangements
- stage of property market cycle – to determine the optimum time for disposal to achieve the highest sale price
- land title issues – location of title, ownership, subdivision, native title checks
- environmental issues – including contamination and workplace health and safety
- service delivery timings and imperatives
- social issues such as community involvement
- agency/government replacement policies
- government/agency budget cycles
- government priorities, programs, and initiatives.

Agency maintenance planners should inform the development of strategies to ensure vacant properties, including those identified for disposal, are maintained to meet minimum statutory requirements.

Disposal should include and allow for agency service delivery continuity and optimise the return to the government.

Finalise the asset disposal program

Develop an asset disposal program to achieve an ordered and economic disposal of buildings, by:

- listing the buildings for disposal in order of priority
- identifying the timeframe for disposal
- determining any associated costs which may be incurred in disposing of buildings
- quantifying (through valuations) expected returns on sale
- detailing funds available from disposal for reinvestment in capital delivery projects
- providing information to meet annual reporting and budget forecasting requirements.

Agencies should manage any surplus and/or under-utilised building assets, and improve asset portfolios by reducing potential wasteful holding of surplus assets and increasing the use of under-utilised assets.

Identification and notification of surplus property assets

Agencies should:

- identify surplus property assets as part of the SBAMP and SAMP processes
- develop and implement processes for disposing of these assets
- record surplus properties on the GLR as soon as practicable after the decision is made that the property is surplus
- maintain on the GLR for a minimum of 30 calendar days
- seek additional properties (if required) to meet service delivery requirements by regularly monitoring the GLR.

Interagency transfers should be prioritised over the sale of assets to the private sector. Transferring surplus property assets to satisfy the needs of other agencies is more efficient than buying additional properties from the private sector, and it maximises the use of assets.

The transfer of a surplus property to another government agency should usually occur on a market value basis.

The [QGLTP](#) outlines exceptions that allow a property to be transferred at less than market value where required to meet whole-of-government strategic priorities, public benefit, or other considerations under the Property Principles.

Agencies must ensure transfers are appropriately reflected in asset registers and financial systems.

Any due diligence and other requirements should be addressed at the disposal stage to ensure adequate information is available to inform a new owner of their responsibilities. The [Non-Current Asset Policies for the Queensland Public Sector](#) mandate specific requirements to account for and report on the disposal of government building assets.

In cases of open market disposal of buildings or land, agencies should:

- seek a valuation from a valuer registered in Queensland
- use the valuation as a benchmark for the sale
- use public competition, public auction, or public tender
- ensure maximum return to government is achieved.

Private treaty disposal is occasionally used as an alternative method of property disposal. It occurs only where it is necessary and/or commercially advantageous to the state and not contrary to the best interests of the community.